1893phae.proj..805E

KG
11365
804

PF

ord.s

KG11 365.804

								h	RA 1900 m	Dec	
✓	+11° 305	2	7.2	+11°	34′	8.9	(1855)	2	9.6	+11	47
✓		21	34.5	-65.6			(approx 1875)	21	~~5~~ 36.6	-65°	~~29~~ 30
✓	-3 1873	7	15.9	-3° ~~9~~	56.8	9.2	(1855)	7	18.1	-4	2
✓	-17 2442	8	13.2	-17	49	9.1	(1855)	8	15.2	-17	57
✓	Z. 11^h 129	11	1.8	-54	27	9	(1875)	11	~~55.3~~ 2.9	-54	~~33~~ 35
	~~-11 1941~~	~~7~~	~~20.3~~	~~-11~~	~~26~~	~~8.9~~	~~(1855)~~	~~7~~	~~22.4~~	~~-11~~	~~31~~
✓	Z.C. 18^h 1935	18	33.2	-51	52	9	(1875)	18	35.2	-51	51
✓	Bk.4.176	11	54.1	-54	25		(1875) approx	11	55.4	-54	33
✓	Bk.4. p.89-	10	42.5	-65°.5′			computed (1900)	10	42.5	-65°	
✓		9	13.0	-65	43		(approx 1875)	9^h	13.5	-65	4

× Numbered by Espin as -3° 1886. Astron Nach 118, 257.

KG 11365.804

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For continuation see page 217

a
b
c
d.

August 16, 1893

Meas. of Paul S. Yendell's suspected variable R.A. $5^h\,27.4^m$ +68° 34' (approx) 1855. See letter of Aug. 15 1893 and accompanying chart.

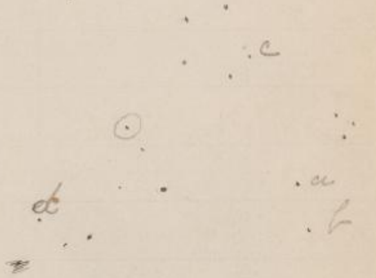
Plate I ~~3357~~ 3531 taken

				x	y	x×10.9 ca. 868.4 .3681	y×2.721							
									$5^h\ 36.7^m$ +68° 27.7'					
a	7.9	8.0	10.0	13.2	5.35	391	14.55	RA+68° 406	5 31 55 +68 25.7	9.3	9.9	$6^m\ 31^s$	14.6	25 2~~2~~4 11.1
									5 37.1 +68 19.8					
b	7.4	8.4	10.4	14.1	2.50	418	6.80	+68° 407	5 32 20 +68 17.8	9.5	10.5 / 10.2	$6^m\ 58^s$	6.8	25 2~~2~~2 11.0 ~~25 23~~ 11.0
									5 35.1 +68 51.4					
c		8.9	10.9	9.85	14.10	292	38.35		5 30 15 +68 49.4			4 52	38.4	25 23 11.0
									5 32.4 +68 36.9					
var		8.5	10.5	4.35	8.80	129	23.94		5 27 32 +68 34.9			2 9	23.9	25 23 11.0
									5 30.8 +68 22.5					
(d				1.20	3.50	36	9.52		5 25 59 +68° 20.5			36	9.5	25 23 11.0

10.0 a 5 v 10.5 10.4 10.~~3~~4 = 10.4~~0~~ 43

10.4 v 0 b 10.4

10.~~3~~4 v ~~1~~ 5 c 10.~~8~~9



10.2
8.2
2.0

Plate I 3686 taken

a 8.3 10.1
b 8.6 10.4
c 9.0 10.8
v 8.8 10.6

10.2
8.4
1.8

10.4 b 2 v 10.6 10.~~5~~6 = 10.~~55~~ 60

10.~~5~~6 v 3 c 10.~~8~~9

Plate I 5009 taken

a 8.5 10.0
b 8.9 10.4
c 9.3 10.8
v 9.2 10.7

10.2
8.7
1.5

10.4 b 5 v 10.9 10.~~7~~8 = 10.8~~9~~5

10.~~7~~8 v 1 c 10.~~8~~9

1893phae.prOJ..80S

August 16, 1893

Meas. of P.S. Yendell's sus. var. (Cont.)

Plate I 5393 taken

10.2
8.6
1.6

a	8.4	10.0
b	8.8	10.4
c	9.2	10.8
d	9.4	11.0
v	9.1	10.7

10.4 b 5 v 10.9 10.~~8~~9 10.~~7~~9 = 10.~~80~~90
10.~~8~~9 v 0 c 10.~~8~~9
10.~~7~~9 v 3 d 11.~~0~~2

Plate I 5411 taken

10.2
8.8
1.4

a	8.5	9.9
b	9.0	10.4
c	9.2	10.6
d	9.4	10.8
v	8.3	9.7

Reject?

10.0 a 5 v 10.5 10.4 10.~~4~~5 = 10.~~43~~47
10.4 v 0 b 10.4
10.~~4~~5 b 4 c 10.~~8~~9

Plate I 5575 taken

10.4 b 3 v 10.7 10.~~6~~7 = 10.~~65~~70
10.~~6~~7 v 2 c 10.~~8~~9

Images too poor to compare with scale

August 16, 1893.

Meas. of P. S. Yendell's ins. var. (Cont.)

Plate I 5582 taken

10.4 b 4 v 10.8 10.~~7~~8 = 10.~~75~~80

10.~~7~~8 v 1 c 10.~~8~~9

Images too poor to compare with scale

Plate I 5801 taken

10.4 b 3 v 10.7 10.~~6~~7 = 10.~~65~~70

10.~~6~~7 v 2 c 10.~~8~~9

Images poor

Plate I 6157 taken

10.4 b 3 v 10.7 10.~~6~~7 = 10.~~65~~70

10.~~6~~7 v 2 c 10.~~8~~9

Plate I 6491 taken

10.4 b 4 v 10.8 10.~~6~~7 = 10.7~~0~~5

10.~~6~~7 v 2 c 10.~~8~~9

Plate I 7836

10.4 b 4 v 10.8 10.~~6~~7 = 10.7~~0~~5

10.~~6~~7 v 2 c 10.~~8~~9

Plate I 8081

10.4 b 5 v 10.9 10.~~7~~8 ~~=10.8~~ =10.8~~0~~5

10.~~7~~8 v 1 C 10.~~8~~9

Plate I 8124

10.4 b 7 v 11.1 10.~~8~~9 ~~10.8~~ 11.0 = ~~10.90~~ 11.00

10.~~8~~9 v 0 c 10.~~8~~9

~~10.8~~ 11.0 v 2 d 11.~~0~~2

1893phae.proj..80dF

August 16 1893.

Meas. of P.S. Yendell's sus. var. (Cont).

Plate I 8181 taken

10.4 | b 3 v 10.7 10.~~5~~6 = 10.6~~0~~5
10.~~5~~6 | v 3 c 10.~~8~~9

a	8.4	7.4	10.0
b	8.8	7.8	10.4
c	9.7	8.3	10.9
d		8.5	11.1
v		8.0	10.6

10.2
7.6
2.6

Plate I 8364 taken

10.~~8~~9 | c 2 v ~~11.0~~ 11.1 10.9 = ~~10.95~~ 11.05
$\overset{11.0}{10.9}$ | v 1 d 11.02

Plate I 8550 taken

10.~~8~~9 | c 2 v 11.~~0~~1 $\overset{11.0}{10.9}$ = ~~10.95~~ 11.05
~~10.9~~ 11.0 | v 1 d 11.~~1~~2

Plate I 8616 taken

10.4 | b 5 v 10.9 10.~~7~~8 = 10.8~~0~~5
10.~~7~~8 | v 1 c 10.~~8~~9

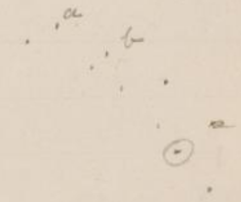
Meas. pos. of comp. stars
on pl I 3531 and identify.
Make print for P.S.Y.

August 16, 1893

Meas. of P. S. Yendell's suspected variable in R.A. 7h 5m.2 + 30° 42' (approx. 1855) See letter of Aug. 15, 1893 and accompanying chart.

= B.D. + 30° 1457

Plates I 3141 taken February 22, 1894
" 5052 taken December 10, 1891
" 5053 " December 10, 1891
" 5539 " February 5, 1892
" 5630 " February 13, 1892
" 5647 " February 15, 1892
" 5678 " February 16, 1892
Make print and mark for P.S.Y. × " 5738 " February 18, 1892
" 5862 " March 13, 1892
" 7915 " January 19, 1893
" 8010 " February 4, 1893
" 8056 " February 15, 1893
" 8145 " February 28, 1893



examined, show no evidence of variability in this star. ~~It is~~ On all these plates it is about 1/2 gr. ~~brighter~~ than star "a", and 1/3 gr. brighter than star "b". Star a = B.D. +30° 1451 Magn. 9.1

P. S. Yendell's sus. var. RA 5 +68° see p 9

Second measure Plate I 5411

a	7.8	10.0
b	83	10.5
c	8.8	11.0
d	92	11.4
v	85	10.7

10.4 b 2 v 10.6 10.5 = 10.55
10.5 v 3 c 10.8

10.2
8.0
2.2

August 17, 1893.

Summary of Paul S. Yendell's sus. var. see p. 4
R.A. 5h Dec. +68.

Pl. No.	Date	G.M. Time	a	b	c	d	v	est. v
I ~~3351~~ 3531	May 1	1891	10.0^{0}	10.4^{0}	10.9^{d0}	—	10.5	10.4~~0~~3
I 3638	May 27	"	10.1^{1}	10.4^{0}	10.8^{d1}	—	10.6	10.~~55~~ 60
I 5009	December 8	"	10.0^{0}	10.4^{0}	10.8^{d1}	—	10.7	10.8~~0~~5
I 5393	January 9	1892	10.0^{0}	10.4^{0}	10.8^{d1}	11.0^{d2}	10.7	10.~~80~~ 90
I 5411	January 16	"	~~9.9^{1}~~ 10.0	~~10.4^{d1}~~ 10.5	~~10.6^{2}~~ 11.0	~~10.8^{f2}~~ 11.4	~~9.7~~ 10.7	~~10.43~~ 10.55
I 5575	February 9	"						10.~~65~~ 70
I 5582	February 9	"						10.~~75~~ 80
I 5801	March 6	"						10.~~65~~ 70
I 6157	April 11	"						10.~~65~~ 70
I 6491	June 21	"						10.7~~0~~5
I 7838	January 3	1893						10.7~~0~~5
I 8081	February 24	"						10.8~~0~~5
I 8124	February 27	"						~~10.90~~ 11.00
I 8181	March 6	"	10.0^{0}	10.4^{0}	10.9^{0}	11.1^{1}	10.6	10.6~~0~~5
			10.0	10.4	10.~~8~~9	11.02		
I 8364	April 8	"						~~10.95~~ 11.05
I 8550	May 19	"						~~10.95~~ 11.05
I 8618	June 19	"						10.8~~0~~5

21) 99 (.047
84
150
147

The variation though small appears to be real since the M.F. star is certainly brighter than star "c" on some dates, and fainter on others.

October 27, 1893.

Nova Normae approx 1900, $15^{h}\,22^{m}.4$ $-50^{\circ}\,10'$

Design Mayn bl.
A 20910 6.9 G-K

See Mrs. F's Book
4. p. 18.

IV Type. Diff. x 1.55 −1.55 −2.30

Log. " " 0.19033 0.19033 0.36173
1.29687 1.29687 1.29687
1.48720 1.48720 1.65860

No. Log. $30^s.70$ $30^s.70$ $45^s.56$

Entered on page 18.

(a) $14^h\ 50^m\ 13^s.11$
30.70
$14^h\ 50^m\ 43^s.81$

(b) $14^h\ 51^m\ 15^s.13$
30.70
$14^h\ 50^m\ 44^s.43$

(c) $14^h\ 51^m\ 29^s.76$
45.56
$14^h\ 50^m\ 44^s.20$

= J.C. 14° 3225 Mean Pos. of IV Type. $14^h\ 50^m\ 44^s.15$ (1875).
14 50 45.76

(d) Diff. x. 1.50 −1.60 − 2.35

Log. " " 0.17609 0.20412 0.37107
1.29687 1.29687 1.29687
1.47296 1.50099 1.66794

No. Log. $29^s.71$ $31^s.70$ $46^s.55$

(a) $14^h\ 50^m\ 13^s.11$
29.71
$14^h\ 50^m\ 42^s.82$

(b) $14^h\ 51^m\ 15^s.13$
31.70
$14^h\ 50^m\ 43^s.43$

(c) $14^h\ 51^m\ 29^s.76$
46.55
$14^h\ 50^m\ 43^s.21$

Mean. Pos. of (d) $14^h\ 50^m\ 43^s.15$. (1875)

after x measures of IV Type & d were corrected from 3.80 and 3.85 to 2.80 and 2.85

October 28, 1893

Meas. to determine position of Nova Normae. The only plate available for this purpose is B9767 which is a spectrum plate. Measures will therefore be made of the hydrogen lines "G" and "h" on the preceding edge of the spectrum.

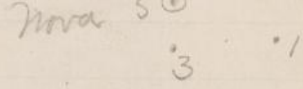


Plate B9767

			x	y	$\frac{x \times 12^s}{\cos\delta\, 50^\circ 16'} =$ .6393	$y \times 2.985$				
"G"	(b)	1	17,35	8.105	325.67 $= 5^m\ 25^s.67$	24′.33	A.G.C. 21006	$15^h\ 23^m\ 19^s.82\ -50^\circ\ 13'\ 42''.4$	$17^m\ 54^s.15$	38′.0
omit ("	(c)	2	13,50	11,35	253.40 $= 4^m\ 13^s.40$	33.88		15^h 22 8.90 −50 4′.5	17 55.50	38.4)
"	(a)	3	8.05	7.00	151.10 $= 2^m\ 30^s.10$	20.90	A.G.C. 20940	15 20 26.94 −50 17 53.9	17 56.84	38.8
"		4	–	–					17 55.50	38.4
Nova		5	7.95	10.05	149.23 $= 2^m\ 29^s.23$	30.00		(15 20 24.73 −50° 8′.4	17 55.50	38.4
								{15 20 23.38 −50° 8.0		
								{15 20 26.07 −50 8.8		

		x	y	$\frac{x \times 12^s}{\cos\delta\, 50^\circ 16'}$, .6393	$y \times 2.985$				
"h"	1	17.40	7.55	$= 5^m\ 26^s.61$ 326.61	22.54	A.G.C. 21006	15 23 19.82 −50° 13′ 42.4	17^m 53.21	36.2 ~~51.2~~
Omit (	2	13,55	10.70	254.34 $= 4^m\ 14.34$	31.94		15 22 8.40 −50 4.7 ~~21.0~~)		
"	3	8.10	6.40 ~~10,35~~	152.04 $= 2^m\ 32^s.04$	19.10 ~~30.89~~	A.G.C. 20940	15 20 26.94 −50 17 53.9	17 54.90	37.0 ~~47.0~~
"	4	—	—					17 54.06	~~49.1~~ 36.6
Nova	5	7.95	9.40	$2^m\ 29^s.23$ 149.23	28.06		15 20 23.29 −50 8.5 ~~17.2~~		
							{15 20 22.44 −50 8.1 ~~19.3~~		
							{15 20 24.13 −50 8.9 ~~15.1~~		

vertical line dark in spectrum
3 ~~17~~ 8.20
4 7.70
5 8.00

$+\ 4^s.308 \times 25 = +1^m\ 47^s.7$

$-\ 12''.860 \times 25 = -5'\ 21''.5$

15 20 24.00 −50° 8′.45 [27″] (1875)
+1 47.7 −5 22
15 22 11.7 −50° 13 47 (1900).

November 13, 1893.

Meas. to determine position of V Type stars Nos. 3002, 3008 and 3013 contained on plate B9398.

Plate B 3559

		x	y				
	3013	7.55	16.10				
	a	3.65	17.35				
	b	4.30	8.70	+.65	-8.65	-12.75	-5.35
	c	22.10	14.60	+18.45	-2.75	+5.05	+.65
determine position.	d	17.05	14.05	+13.40	-3.30		

$0 + \cancel{m}\ .65m + 18.45n = 3 \times 13.40 = 40.20$

$-13.40 \quad \underset{+3.30}{0} \mp 8.65\,m - 2.75\,n = 3 \times 3.30 = 9.90$

$$\frac{40.2 - 18.45n}{.65} = \frac{-9.9 + 2.75n}{8.65}$$

Plate slightly twisted	3013	5.45	16.45		
	a	1.20	17.30		
	b	3.00	8.75	+1.80	-8.65
	c	20.00	16.85	+18.80	-.45
	d	15.05	15.75	+13.85	-1.55

Plate twisted about	3013	5.25	11.60		
	a	1.20	10.60		
	b	6.45	3.55	+5.25	-7.05
	c	18.25	18.20	17.05	+7.60
	d	14.25	15.00	13.05	+4.40

3013

(~~3013~~)	a	Z.C. 10^h 272	10	3	49.11	-62	0	51.7	9	60.9			
	b	A.G.C. 13845	10	4	2.28	-61	36	35.0	6.9	36.6	~~27~~	13^s	24'.3
	c	" 14033	10	11	29.76	-61	54	52.5	7½	54.9		461^s	6'.0
	d	Z.C. 10^h 695	10	9	22.30	-61	53	9.7	9	53.2		333^s	7'.7
				~~5~~	34					7.2			
				9	23					53.0			

November 13, 1893

Meas. to determine position of V Type stars on plate B 9398

Plate B 3559

	x	y
3002	3.10	12.60
a	3.30	16.20
b	6.10	3.00
c	9.60	2.15

	x	y
3008	4.20	3.50
a	0.10	2.45
b	1.20	8.35
c	8.00	5.30

3002	~~J.C.10^h 929~~											
a	J.C 10	~~1014~~ 929	10	12	35.88	−57	28	16.8	9½	$\overset{8}{2}$8.3		
b	"	1014	10	13	47.39	−56	49	4.8	9	49.1	$+71^s.51$	$-39'.2$
c	"	1101	10	15	3.55	−56	46	41.3	9	46.7	$+147^s.67$	$-41'.6$

3008		10^h	21^m	$56^s.14$	$-58°$	~~1~~0'	13".2				
a	A.G.C. 14244	10	20	27.78	−57	56	31.8	6.8	56.5		
b	" 14248	10	20	44.60	−58	14	15.4	7¼	74.3	$+16^s.82$	$+17'.8$
c	" 14304	10	23	17.65	−58	6	5.5	4.6	66.1	+~~9.6~~ $169^s.87$	$+9'.6$

November 21, 1893

Meas. to determine position of V Type stars No 3002, 3008 and 3013 on plate B 9398

Plate B 3559

	x	y	Design.							Mag.
3013	~~1~~17.45	12.30		10	5	28.2	-61	57	41.5	
a	21.50	13.60	Z.C. 10h 272	10h	3m	49.11s	-62°	0	51.7	9
b	20.80	4.90	A 13845	10	4	2.28	-61	36	35.0	6.9
c	3.05	10.90	A 14033	10	11	29.76	-61	54	52.5	7½

	x	y	Design.							Mag.
3008	~~8~~ 5.90	8.95		10	21	55.23	-58	0	8.8	
b	8.75	1380	A 14248	10	20	44.60	-58	14	15.4	7¼
c	2.15	10.70	A 14304	10	23	17.65	-58	6	5.5	4.6
d	11.25	2.25	Z.C. 10h 1479	10	20	4.17	-57	39	5.6	8½

	x	y	Design.							Mag.
3002	5.65	11.30	~~Z.C. 10h 929~~	~~10~~	~~12~~	~~35.88~~	~~-57~~	~~28~~	~~16.8~~	~~9½~~
a	5.30	14.90	Z.C. 10h 929	10	12	35.88	-57	28	16.8	9½
b	3.05	1.60	Z.C. 10h 1014	10	13	47.39	-56	49	4.8	9
d	10.95	1.~~20~~ 11	Z.C. 10h 81~~1~~2	10	10	56.61	-56	46	4.5	9

Mean Dec = 57° 1′ 8″.7 = log. 26409

New Set of measures. Jan. 23, 1894.

	x	y
3002	7.75	12.45
a	7.65	16.10
b	4.65	2.90
d	12.45	2.10

Dif x.	-0.10	-3.10	4.70
Dif y.	3.65	-9.55	-10.35
× 179	653.35	1709.45	1852.65
	10′ 53″.4	28′ 29″.4	30′ 52.6

Dif. x	-0.10	-3.10	4.70
Log. Dif x	9.00000	0.49136	0.67210
	1.34109	1.34109	1.34109
	10.34109	1.83245	2.01319
	2.2	68.0	103.1
	2.2s	1m 8.0s	1m 43.1s

(a) 10h 12m 35.9s -57° 28′ 16.8
2.2 10 53.4
10h 12m 33.7s -57° 17′ 23″.4

(b) 10h 13m 47.4s -56° 49′ 4.8
1 8.0 28 29.4
10h 12m 39.4s -57° 17′ 34″.2

(d) 10h 10m 56.6s -56° 46′ 4.5
1 43.1 30 52.6
10h 12m 39.7s -57° 16′ 57″.1

Mean Position. 10h 12m 37.6 - 57° 17′ 18.2

Identified later on B 38749 as C.D. -57° 2913

10 12.6 - 57 17.2 (1875) 10.0

Reduction of Plate B 3559. (No. 3013)

Mean Dec. 61° 50.8 = Log. .32626

Dif of x 4.05 3.35 -14.40 Dif of y. 1.30 - 7.40 -1.40
Log. of Dif. x 0.60746 0.52504 1.15836 × 179 232.70 1324.60 250.60
1.40326 1.40326 1.40326 3′ 52.7″ 22′ 4.6″ 4′ 10.6″
2.01072 1.92830 2.56162
No. of Log. 102.5 84.8 364.4
$1^m\ 42^s.5$ $1^m\ 24^s.8$ $6^m\ 4^s.4$

(a) $10^h\ 3^m\ 49^s.1$ -62° 0′ 51.7″ (b) $10^h\ 4^m\ 2^s.3$ -61° 36′ 35.0 (c) $10^h\ 11^m\ 29^s.8$ -61° 54′ 52.5″
1 42.5 3 52.7 1 24.8 22 4.6 6 4.4 4 10.6
$10^h\ 5^m\ 31^s.6$ -61° 56′ 59.0 $10^h\ 5^m\ 27.1$ -61° 58′ 39.6 $10^h\ 5^m\ 25^s.4$ -61° 59′ 3.1

Mean Position V Type Star $10^h\ 5^m\ 28^s.0$ -61° 58′ 13.9″

Mean Dec. = 57° 59.8 = Log. .27579 No (3008)

Dif. of x. 2.85 -3.75 5.35 Dif. of y 4.85 1.75 -6.70
Log. Dif. of x 0.45484 0.57403 0.72835 × 179 868.15 313.25 1199.30
1.35279 1.35279 1.35279 14′ 28.2″ 5′ 13.2″ 19′ 59.3″.
1.80763 1.92682 2.08114
No. of Log. 64.2 84.5 120.5
$1^m\ 4^s.2$ $1^m\ 24^s.5$ $2^m\ 0^s.5$

(a) $10^h\ 20^m\ 44^s.6$ -58° 14′ 15.4″ (b) $10^h\ 23^m\ 17^s.6$ -58° 6′ 5.5″ (c) $10^h\ 20^m\ 4^s.2$ -57° 39′ 5.6″
1 4.2 14 28.2 1 24.5 5 13.2 2 0.5 19 59.3
$10^h\ 21^m\ 48^s.8$ -57° 59′ 47.2″ $10^h\ 21^m\ 53^s.1$ -58° 0′ 52.3″ $10^h\ 22^m\ 4.6$ -57° 59′ 4.9

Mean Position. $10^h\ 21^m\ 55^s.5$ -57° 59′ 54.8″.

Mean Dec. 57° 1.2′ = Log. .26409 (No. 3002)

Dif. of x -0.35 -2.60 5.30 Dif. y. 3.60 -9.70 -10.10
Log. Dif. x 9.54407 0.41497 0.72428 × 179 644.40 1736.30 1807.90
1.34109 1.34109 1.34109 10′ 44.4″ 28′ 56.3″ 30′ 7.9″
10.88516 1.75606 2.06537
No. of Log. 7.7 57.0 116.2
$7^s.7$ $57^s.0$ $1^m\ 56^s.2$

(a) $10^h\ 12^m\ 35^s.9$ -57° 28′ 16.8″ (b) $10^h\ 13^m\ 47^s.4$ -56° 49′ 4.8″ (d) $10^h\ 10^m\ 56^s.6$ -56° 46′ 4.5″
7.7 10 44.4 57.0 28 56.3 1 56.2 30 7.9
$10^h\ 12^m\ 28^s.2$ -57° 17′ 32.4″ $10^h\ 12^m\ 50^s.4$ -57° 17′ 1.1 $10^h\ 12^m\ 52.8$ -57° 16′ 12.4

Mean Position. $10^h\ 12^m\ 43^s.8$ -57° 16′ 55.3″ = CPD -57° 2913 10 12 34.2 -57 17.2 (1875)
Identified later on B 33749

1893phae.proj..805E

December 2, 1893.

Meas. to determine position of IV Type star on plate B942a

B3434

	X	Y	X×12^s / cos δ 53° 23.9 / .5962	Y×2985 / δ = 2^m 13.85^s	J.C.						
IV Type	6.65	10.55	133.85	31.49	(1490 ?)	13 24 26.90	-53° 10.1			26 40.75	
										- m. s.	-52°
a	0.65	8.65	13.08^s	25.82	1592	13 26 32.71	-53°	2′	35.9″	26 45.79	36.8
b	12.10	12.60	=4^m 3.54 243.54^s	37.61	1359	13 22 44.28	-53	17	6.7	26 47.82	39.5
c	8.40	24.25	=2^m 32.30 152.30^s	72.39	1442	13 23 56.34	-53	51	58.4	26 28.64	39.6
										26 40.75	38.6
d	4.80	10.45	=1^m 36.61^s 96.61	31.19	–	13 25 4.14	-53	9.8		26 40.75	

Meas to determine position of V Type star of B9423 (No. 3064).

	X	Y	X×12^s / cos δ 66° 47.9 / .3940	Y×2985		h m s	°	′				
V Type	3.70	13.10	=1^m 52.69 112.69^s	39.10		13 34 16.48	-66°	44.8 (superseded. see below)				
a	7.25	22.70	=3^m 40.81 220.81^s	67.76	~~1812~~ 1942	13 ~~30~~ 32 15.79	-67	~~4~~ 14	~~34.9~~ 48.2	7½	35 56.60	-66° 7.0
b	11.35	18.35	=5^m 45.69^s 345.69	54.77	~~1942~~ 1813	~~13 32 15.79~~ 13 30 9.23	-67	~~14~~ 1	~~48.2~~ 34.9	8½	35 54.92	6.8
c	0.80	1.35	24.37^s	4.03	2177	13 36 11.63	-66	7	2~~3~~8.3	7½	36 36.00	3.4
										36	9.17	5.7

X×12 / cos δ. 66° 48.0 / .3939

This position	112.72 = 1^m 52.72^s	13^h 34 16.53 -66° 44.9	35 56.~~7~~66	-66° 7.0
correct.	220.87 = 3 40.87		35 55.00	6.8
The Dec of J.C. 2177 was	345.77 = 5 45.77		36 36.00	3.5
entered	24.37^s = 24.37^s		36 9.22	5.76

wrongly at first & 23.3″ used instead of 28.3″.

December 6, 1893

Meas. to determine position of V Type star on B 9423 (No. 3064), R.A., Dec.

For reduction. See bottom of p.17

Plate 3419

3.C.13

	x	y	$\frac{x \times 12^s}{\cos\delta}$ 66° 48.0 .3939	y×2.985			
No. 3064 V Type	3.75	12.65	=1m 54.24s 114.24	37.76′	~~1942~~	13h 35m 49.2s −66° 53′ 43.3″ (1900)	
a	7.35	22.25	=3m 43.91s 223.91	66.42′	1942	13h 32m 15.79s −67° 14′ 48.2″	8½
b	11.40	17.85	=5m 47.30s 347.30	53.28	1813	13 30 9.23 −67 1 34.9	7½
c	0.75	0.90	22.85s	2.69	2144 ~~2177~~	13 35 31.42 − 66 10 53.3 ~~13 36 11.63 −66 7 28.3~~	8½ ~~7½~~

(a) 13h 32m 15.79s −67° 14.8′ (b) 13h 30m 9.23s −67° 1.6 (c) 13h 36m 11.63s −66° 7.5′

	(a)	(b)	(c)
	13h 32m 15.79s −67° 14.8′	13h 30m 9.23s −67° 1.6	13h 36m 11.63s −66° 7.5′
	1 54.24 37.76	1 54.24 37.76	1 54.24 37.76
V Type	13h 34m 0.03s −66° 37.0′	13h 32m 3.47s −66° 23.8′	13h ~~38m 5.87s − 65° 29.7′~~ 34 17.39 −66 45.3

x	y	$\frac{x \times 12^s}{66° 48.0′}$ .3939	y×2.985	x	y	$\frac{x \times 12^s}{\cos\delta . 66° 49.1}$ .3936	y×2.985
3.75	12.65			3.75	12.65		
7.35	22.25	=1m 49.67s 109.67	28.66′	7.35	22.25	=1m 49.76s 109.76	28.66′
11.40	17.85	=3m 53.05s 233.05	15.52	11.40	17.85	=3m 53.23 233.23	15.52
0.75	0.90	=1m 31.39s −91.39	−35.07	0.75	0.90	=1m 31.46 91.46	−35.07

log. x (diff) +
log 1.07700 +
a.c. log. cos. dec.

	(a)	(b)	(c)
	13h 32m 15.79s − 67° 14.8	13h 30m 9.23s −67° 1.6′	13h 36m 11.63s −66° 7.5′
	1 49.67 28.7	3 53.05 15.5	− 1 31.39 −35.1
V Type.	13h 34m 5.46s − 66 46.1	13h 34m 2.28s −66° 46.1	13h 34m 40.24s −66° 42.6

	(a)	(b)	(c)
	13h 32m 15.79s −67° 14.8	13h 30m 9.23s −67° 1.6′	13 35 31.42 −66° 10.9
	1 49.76 28.7	3 53.23 15.5	1 31.46 35.1
V Type.	13h 34m 5.55s −66° 46.1′	13h 34m 2.46s −66° 46.1′	13h 33m 59.96s −66 46.0

Mean Position V Type (1875) 13h 34m 2.66s −66° 46.1′

Identified later as CPD −66° 2299 13 ~~13~~ 34.1 66° 46 (1875)

Dec. 6, 1893.

Meas. to determine position of IV Type star on B 9422 (No. 3061). R.C. Dec.

Plate 3434

x×12″ y×2.985 Co. δ. −53° 23′.9

J.C. 13h (1900) 13h 26m 25.0s −53° 18′ 57.0″

	x	y		h m s			Comp. Pos. s	″
No. 3061 IV Type	5.15	5.50	J.C. 1490	13 24 52.24	−53° 11′ 9.6″	9	−0.1	−2.6
a	0.10	2.65	1592	13 26 32.71	−53 2 35.9	9		
b	11.55 ~~12.55~~	7.50	1359	13 22 44.28	−53 17 6.7	7½		
c	7.95	19.20	1442	13 23 56.34	−53 51 58.4	8½		
d	4.30	5.40						

This error assumed after reducing star.

		IV Type	
Dif. X	−5.05	6 ~~7~~.40	2.80
Log. Dif. X.	0.70329	.80618 ~~0.86923~~	0.44716
	1.30159	1.30159	1.30159
	2.00488	2.10777 ~~2.17082~~	1.74875
No. of Log.	101.1s	~~148.2~~ 128.2	56.0s
	1m 41.1s	2m ~~2~~8.2s	56.0s

		IV Type	
Dif. y.	−2.85	2.00	13.70
×179	510.15″	358.00″	2452.30″
	8′ 30.15″	5′ 58.0″	40′ 52.3″

		d	
Dif. X.	−4.20	7.25 ~~8.25~~	3.65
Log. "	0.62325	.86034 ~~0.91645~~	0.56229
	1.30159	1.30159	1.30159
	1.92484	2.16193 ~~2.21804~~	1.86388
No. Log.	84.0s	145.2 ~~165.2~~	73.0s
	1m 24.0s	2m ~~4~~2 5.2s	1m 13.0s
Dif. y.	−2.75	2.10	13.80
	×179	×179	×179
	492.25	375.90	2470.20
	8′ 12.2″	6′ 15.9″	41′ 10.2″

	(a)		(b)		(c)	
	13h 26m 32.7s	−53° 2′ 35.9″	13h 22m 44.3s	−53° 17′ 6.7″	13h 23m 56.3s	−53° 51′ 58.4″
	1 41.1	8 30.2	2 ~~2~~8.2	5 58.0	56.0	40 52.3
(IV Type)	13h 24m 51.6s	−53° 11′ 6.1″	13h 2~~5~~4 ~~1~~52.5	−53° 11′ 8.7″	13h 24 52.3	−53° 11′ 6.1″

	(a)		(b)		(c)	
	13h 26m 32.7s	−53° 2′ 35.9″	13h 22m 44.3s	−53° 17′ 6.7″	13h 23m 56.3s	−53° 51′ 58.4″
	1 24.0	8 12.2	2 2~~4~~5.2	6 15.9	1 13.0	41 10.2
(d)	13h 25m 8.7s	−53° 10′ 48.1″	13h 25m ~~2~~9.5s	−53° 10′ 50.8″	13h 25m 9.3s	−53° 10′ 48.2″

Mean Pos. IV Type. 13h 24m 52.1s −53° 11′ 7.0″ ‖ Mean Pos. (d). 13h 25m 9.2s −53° 10′ 49.0″

Plate B 9423

Dif. X.	3.60	7.65	−3.00
Log. Dif. X +	0.55630	0.88366	0.47712
	1.48186	1.48186	1.48186
Sum	2.03816	2.36552	1.95898
No. of Log.	109.2s	232.0s	91.0s
	1m 49.2s	3m 52.0s	1m 31.0s

Dif. y.	9.60	5.20	−11.75
×179 =	1718.40″	930.80″	2103.25″
	28′ 38.4″	15′ 30.8″	35′ 3.2″

Identified later as CPD −66° 2299 (1875) 13 34 8.5 −66 46.1 mag. 9.0
(1900) 13 35 55.5 −66 53.8

(Mean Pos. V Type (1875) 13h 34m 22s −66° 46′ 3.5″)
" (1900) " 13 35 49.2 −66 53 43.3

	(a)		(b)		(c)	
	13h 32m 15.8s	−67° 14′ 48.2″	13h 30m 9.2s	−67° 1′ 34.9″	13h 35m 31.4s	−66° 10′ 53.3″
	1 49.2	28 38.4	3 52.0	15 30.8	1 31.0	35 3.2
V Type	13h 34m 5.0s	−66° 46′ 9.8″	13h 34m 1.2s	−66° 46′ 4.1″	13h 34m 0.4s	−66° 45′ 56.5″

Dec. 31, 1900 The x readings of IV Type and d were changed by Mrs. F.; and then the computation was revised. M.C.S.

Diff. x for IV Type.	1.55	−1.55	−2.30
Log. Diff. x.	0.19033	0.19033	0.36173
	1.29687	1.29687	1.29687
	1.48720	1.48720	1.65860
No. Log.	30.70 s	30.70 s	45.56 s

Dec. 6, 1893

Meas. ~~to~~ determine position of IV type star on B 9436 (No. 3099) R.A. Dec.

Plate B 6241

52° 55′ 55.1″

mean dec. −52° 55.9′

~~No. 309~~

	x	y	J.C. 14h		
No. 3099 IV Type	~~3~~ 2 assumed .80	5.45	3225?		
a	4.35	7.10	~~3225~~ 3180	14h 50m 13.11s −52° 59′ 9.5″	8
b	1.25	3.75	~~3180~~ 3259	14 51 15.13 −52 49 20.6	9½
c	0.50	7.15	3279	14 51 29.76 −52 59 15.3	9
d	~~3~~ 2 assumed .85	~~4~~ 5.20	3225?		

Mean Pos. of (d) 14h 50m 43.15s (1875)
Dec. in Cord. 2 a for 1875 14 50.8 −52 54.3 magn 10.0 = Z.C. 14h 3225
C.P.D. −52° 7681 1900 14 52.6 −53 0

IV Type. Dif. x. 0.55 −2.55 −3.30 Dif. y. 1.65 −1.70 1.70
Log. Dif. x. 9.74036 0.40654 0.51851 × 179 295.35″ 304.30″ 304.30″
1.29687 1.29687 1.29687 4′ 55.4″ 5′ 4.3″ 5′ 4.3″
11.03723 1.70341 1.81538
10.9 ~~2.0~~ s. ~~51.0~~ s 50.5 s ~~65.2~~ 4 = 1m 5.4s

(a) 14h 50m 13.1s −52° 59′ 9.5″
~~79.9~~
~~2.0~~ 30.7 4 55.4
14h 50m ~~15.1~~ ~~24.0~~ 43.81 s. −52° 54′ 14.1″

(b) 14h 51m 15.13s −52° 49′ 20.6″
30.7
~~51.0~~ 5 4.3
~~50.5~~
14h 50m ~~24.1~~ 6 44.43 −52° 54′ 24.9

(c) 14h 51m 29.8 −52° 59′ 15.3
1 ~~5.4~~ 45.6 5 4.3
14h 50m ~~24.8~~ 4 44.20 −52° 54 11.3

(d) Dif. x 0.50 −2.60 −3.35 Dif. y. 1.90 −1.45 1.95
Log. Dif. x. 9.69897 0.41497 0.52504 × 179 340.10 259.55 349.05
1.29687 1.29687 1.29687 5′ 40.1″ 4′ 19.6″ 5′ 49.0″
10.~~11~~ 99584 1.71184 1.82191
9.9° ~~52.0~~ 51.5 66.~~2~~ 4 = 1m ~~6.0~~ 6.4 s.

Mean Pos. (d) 14h 50m 23.3s − 52° 53′ 32.0 (1875)

(a) 14h 50m 13.1s −52° 59′ 9.5″
29.71
~~9.9~~ 5 40.1
14 50 ~~23.0~~ 42.82 −52° 53′ 29.4″

(b) 14h 51m 15.1s −52° 49′ 20.6″
~~51.5~~
~~52.0~~ 4 19.6
31.7
14h 50m ~~23.1~~ 6 43.43.6 −52° 53 40.2

(c) 14h 51m 29.8s −52° 59′ 15.3″
1 6.~~0~~ 4 5 49.0
14h 50m ~~23.8~~ 4 43.24 −52° 53 26.3

Mean Position IV Type. 14h 50m ~~24.3~~ 44.15s − 52° 54′ 16.8″ (1875)
R 14h 52m 11.1s − 53° 0′, 25.8″ (1900)

	x	y
c	2.35	10.20
b	5.60	18.70
a	12.30	2.35
V Type	10.20	5.55

Dec. 6, 1893.

Meas. to determine position of V Type star on B 9459 (No. 3183). R.A. Dec.

Plate 3778

	x	y	mean dec. -62° 34.9 Z, C, 15h	
No. 3183 V Type	11.25	6.25	(1900 Pr.)	15h 54m 55.~~4~~5s -62° 24′ 57″.0
a	13.35	3.20	3645	15h 51m 54.44 -62° 11′ 7″.2 7
b	5.35	19.30	3872	15 55 17.23 -62 59 37.7 7½
c	3.25	10.70	3946	15 56 12.82 -62 33 59.8 8

Dif. x	2.10	~~6.10~~ -5.90	-8.00
Log. " "	0.32222	0.78533	0.90309
	1.41381	1.41381	1.41381
	1.73603	2.19914	2.31690
No. of Log.	54.24s	158.2	207.4
	~~54.4~~ 54.4s	2m 38.2s	3m 27.4s

Dif. y.	-3.05	13.05	4.45
× 179	545″.95	2335″.95	796″.55
	9′ 6″.0	38′ 56″.0	13′ 16″.6

(a) 15h 51m 54.4s -62° 11′ 7″.2
54.~~8~~4 9 6.0
15h 52m 48.~~4~~8s -62° 20′ 13″.2

(b) 15h 55m 17.2s -62° 59′ 37″.7
2 38.2 38 56.0
15h 52m 39.0 -62° 20′ 41″.7

(c) 15h 56m 12.8s -62° 33′ 59″.8
3 27.4 13 16.6
15h 52 45.4 -62° 20 43.2

Mean Position V Type. 15h 52m 44.~~3~~4s -62° 20′ 32″.7 (1875)
15 54 55.~~4~~5 -62 24 57.0 (1900)

(see B19750)
Identified Oct. 1908 as CPD-62° 5141 15 52 48.2 -62 20.3 (1875)
15 54 59.2 -62 24.7 (1900)
Magn. 8.8

See also Book 3 page 99

Dec. 6, 1893.

Meas. to determine position of V Type star on B 9435 (No. 3090) R.A. Dec.

Plate 3863

Mean dec.: −45° 20.1

		x	y	A.G.C. 15h							
No. 3090	V Type	7.50	~~4.00~~ 3.95								
	a	9.95	0.50	20666	15h	7m	38.5s	−45°	0′	50.5″	8 3/4
	b	7.15	15.05	20691	15	8	23.8	−45	44	13.7	7.0
	c	4.10	5.30	20702	15	9	16.9	−45	15	10.0	7 1/2

Dif. x	2.45	−0.35	−3.40
Log. Dif. x.	0.38917	9.54407	0.53148
	1.23006	1.23006	1.23006
Log.	1.61923	10.77413	1.76154
No. of Log.	41.6s	5.9s	57.8s

Dif. y.	−3.45	11.10	1.35
×179.	617.55″	1986.90″	241.65″
	10′ 17.6″	33′ 6.9″	4′ 1.6″

(a) 15h 7m 38.5s −45° 0′ 50.5″
41.6 10 17.6
15h 8m 20.1 −45° 11′ 8.1″

(b) 15h 8m 23.8s −45° 44′ 13.7″
5.9 33 6.9
15h 8m 17.9s −45° 11′ 6.8″

(c) 15h 9m 16.9s −45° 15′ 10.0″
57.8 4 1.6
15h 8m 19.1s −45° 11′ 8.4″

Mean Position V Type. (1875) 15h 8m 19.0s −45° 11′ 7.8″
" " " (1900) 15 10 0.6 −45 16 49.2

Identified later as CDM. −45° 9789 (1875) 15 8 19.8 −45 10.9 Magn. 10
(1900) 15 10 1.2 −45 16.6

Proved to be Gas. neb. see Mrs. F's Book 2 page 166

Dec. 6, 1893

Meas. to determine position of V Type star on B 9456 (No. 3162

(Book 3, page 99
Book ~~4~~ page 62
Same star)

Plate 3416

		x	y	J.C. 13^h
No. 3162	V Type	~~9.60~~	~~9.30~~	
	a	~~14.05~~	~~14.10~~	1217
	b	~~5.00~~	~~14.70~~	1456
W.S.	c	~~6.00~~	~~1.80~~	1458

Reject meas.

Mean dec. $-61° 18'.2$

		x	y					
	V Type	8.75	23.25					
	a	14.05	28.20	1217	13^h 20 21.46	$-61°$ 40 41.1	9½
	b	5.00	28.65	1456	13 24 10.04	-61 41 55.2	7½
	c	4.60	5.10	1458	13 24 11.62	-60 31 55.5	8
which?	d¹	1.30	18.30	~~1514~~	13 25 32.4	-61 11 10.0	
	d²	1.75	18.30	15~~4~~23	13 25 26.18	-61 11 14.9	

Dif x. 5.30 −3.75 −4.15
0.72428 0.57403 0.61805
1.39556 1.39556 1.39556
2.11984 1.96959 2.01361
131.8 93.2 103.2
$2^m 11^s.8$ $1^m 33^s.2$ $1^m 43^s.2$

Dif y. 4.95 5.40 −18.15
×179 886.05 966.60 3248.85
14 46.0 16 6.6 54 8.8

d¹
Dif x 12.75 3.70 3.30
1.10551 0.56820 0.51851
1.39556 1.39556 1.39556
2.50107 1.96376 1.~~8~~9 1407
317.0 92.0 ~~65.2~~ 82.00.
$5^m 17^s.0$ $1^m 32^s.0$ 1^m ~~5.2~~ $22^s.0$

d¹ Dif y. 9.90 10.35 −13.20.
1772.10 1852.65 2362.80
$29' 32''.1$ $30' 52''.6$ $39' 22''.8$

d²
Dif x.
12.30 3.25 2.85
1.08991 0.51188 0.45484
1.39556 1.39556 1.39556
2.48547 1.90744 1.85040
305.8 80.8 70.9
$5^m 5^s.8$ $1^m 20^s.8$ $1^m 10^s.9$

(a) $13^h 20^m 21^s.5$ $-61° 40' 41''.1$ (b) $13^h 24^m 10^s.0$ $-61° 41' 55''.2$ (c) $13^h 24^m 11^s.6$ $-60° 31' 55''.5$
2 11.8 14 46.0 | 1 33.2 16 6.6 | 1 43.2 54 8.8
V type $13^h 22^m 33^s.3$ $-61° 25' 55''.1$ | $13^h 22^m 36^s.8$ $-61° 25' 48''.6$ | $13^h 22^m 28^s.4$ $-61° 26' 4''.3$

Mean Position V type $13^h 22^m 32^s.8$ $-61° 25' 56''.0$ (1875)
Identified later as C.P.D. −61° 3753 13 22 34.5 −61 25.9 (1875) 9.6

(a) $13^h 20^m 21^s.5$ $-61° 40' 41''.1$ (b) $13^h 24^m 10^s.0$ $-61° 41' 55''.2$ (c) $13^h 24^m 11^s.6$ $-60° 31' 55''.5$
5 17.0 29 32.1 | 1 32.0 30 52.6 | 1 ~~5.2~~ 22.0 39 22.8
d¹ $13^h 25^m 38^s.5$ $-61° 11' 9''.0$ | $13^h 25^m 42^s.0$ $-61° 11' 2''.6$ | $13^h 25^m$ ~~16.8~~ 33.6 $-61° 11' 18''.3$

Mean Position d¹: $13^h 25^m$ ~~32.4~~ 38.0 $-61° 11' 10''.0$ (1875)

d²
Dif y.
9.90 10.35 −13.20
1772.10 1852.65 2362.80
$29' 32''.1$ $30' 52''.6$ $39' 22''.8$

d² $13^h 25^m 27^s.3$ $-61° 11' 9.0$ | $13^h 25^m 30^s.8$ $-61° 11' 2''.6$ | $13^h 25^m 22^s.5$ $-61° 11' 18.3$
Mean Position $13^h 25^m 26^s.9$ $-61° 11' 10''.0$

December 7, 1893

Meas. to determine position of V Type star on plate B 945-6 (No. 3166) R.A. * Dec.

Trans. later to Gas. neb. list – Prob. Copelands Gas neb.
13 h 47.0 -66.0
Copelands pos. being wrong.

See also Book 3 page 216 same star meas.

Plate 3418

Mean dec. -65° 55'.2

		x	y		Z.C. 13h							
No. 3166	V Type	16.50	5.40	(1900)	13h	46m	31.6s	-65°	59'	59.2	
	a	17.90	5.30	2691	13h	44m	1.06s	-65°	53'	34.8	7½
	b	2.25	1.30	3164	13	51	28.81	-65	39	33.0	6½
	c	2.00	12.30	3192	13	51	55.83	-66	12	23.0	8½

Dif. x	1.40	-14.25	-14.50
Log. Dif. x	0.14613	1.15381	1.16137
	1.46627	1.46627	1.46627
	1.61240	2.62008	2.62764
No. of Log.	41.0	$\overset{70}{416.9}$	424.3
	41.0s	6m $\overset{7.0}{56.9}$	7m 4.3s

Dif. y	-.10	-4.10	6.90
×179	17.90	733.90	1235.10
	17".9	12' 13".9	20' 35".1

(a) 13h 44m 1.1s -65° 53' 34".8
41.0 17.9
13h 44m 42.1s -65° 53' 52".7

(b) 13h 51m 28.8s -65° 39' 33".0
6 $\overset{7.0}{56.9}$ 12 13.9
13h 44m $\overset{8}{31.9}$s -65° 51' 46".9

(c) 13h 51m 55.8 -66° 12' 23".0
7 4.3 20 35.1
13h 44m 51.5s -65° 51' 47".9

Mean Position V Type star 13h 44m 41.8s -65° 52' 29".2 (1875)
13 46 31.6 -65 59 59.2 (1900)

*Identified later as CPD -65° 2813
13 44 39.5 -65 53.8 (1875) mag. 10.0
13 46 28.9 -66 1.3 (1900)

Jan 23, 1894. New Set of Measures

	x	y
V type	19.65	7.25
a	21.05	7.10
b	5.40	2.85
c	5.10	13.85

Dif. x 1.40 -14.25 -14.55

Dif. y. -0.15 -4.40 6.60

See page 23 for new reduction

Plate B 9423.

X	y.	Dif.	Log. Dif.
3.75	12.65		
7.35	22.25	3.60	0.55630
11.40	17.85	7.65	
0.75	0.90	-3.00	

Dif. of X

	3.60.	7.65	-3.00.
Log. D.X	0.55630	0.88~~081~~ 366	0.47712
Log.	1.07700	1.07700	1.07700.
A.C.	~~9.40486~~ .3936 ~~163330~~	~~40486~~ ~~9.60640~~	~~40486~~ ~~9.60640~~
	11.2,3970	11.56 706	11.1,6052
	1ᵐ 52.40ˢ	1ᵐ 55.67ˢ	1ᵐ 51.61ˢ

9.60 5.20 - 11.75

60) 102.9 (1ᵐ 42.9ˢ
60
42.9

60) 129.5 (2ᵐ 9.5ˢ
120
9.5

60) 130.5 (2ᵐ 10.5
120
10.5

0.55630
1.07700
0.40486
2.03816

.88366
1.48786
2.36552

.47712
1.48186
1.95898

60) 109.2 (1 49.2
60
49.2

232.0 (3ᵐ 52ˢ.0

191.
60) 91.0 (~~[illegible]~~ 1 31.0

2nd Computation

April, 5, 1895.

Plate B. 3781. Mean Dec. = −67° 32′.2 =

Log. 0.41777
1.07700
1.49477

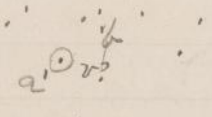
Diff. x.	5.83	4.48	−2.80	−4.27
Log. Diff x.	0.76567	0.65128	0.44716	0.63043
	1.49477	1.49477	1.49477	1.49477
	2.26044	2.14605	1.94193	2.12520
No. of Log.	182.2	140.0	87.48	133.4
	3m 2.2	2m 20.0	1m 27.48	2m 13.4
Diff. y	6.58	−1.22	−4.42	−2.14
× 179	1177.82	218.38	791.18	383″.06
	19′ 37″.82	3′ 38″.38	13′ 11″.18	6′ 23″.06

	(1) 16h 34m 2s.82 −67° 51′ 56″.0	(2) 16h 35m 0s.50 −67° 29′ 9″.7	(3) 16h 38m 48s.02 −67° 20′ 9″.0	(4) 16h 39m 31s.06 −67° 27′ 29″.1
	3 2.2 19 37.8	2 20.0 3 38.4	1 27.48 13 11.2	2 13.4 6 23.1
	16h 37m 5s.0 −67° 32′ 18.2	16h 37m 20s.5 −67° 32′ 48″.1	16h 37m 20s.5 −67° 33′ 20.2	16h 37m 17s.7 −67° 33′ 52.2

January 10, 1894

Exam of photographs to determine variation, if any in Z.C. 19^h 1476 Astr. Nach. 3203 p 181

Plate B 3878



a = Cordoba DM -26° 14434 19 34 49.7 -26 16.6 9.5
b = " " -26° 14425 19 34 26.3 -26 22.9 9.8
v? = Z.C. 19^h 1476 = " " -26° 14432 19 34 44.4 -26 18.6 9.8

Plate B 3878 taken
a 2 v?
v? 3 b

Plate B 4049 taken
a 3 v
v 2 b

~~Plate B 4070 taken~~

Plate B 4070 taken
a 3 v
v 2 b

Plate B 3147 taken
a 2 v
v 2 b

Plate 3418. Mean dec. 65° 55.2 = log. .38927

Dif. x	1.40	-14.25	-14.55
Log. "	0.14613	1.15381	1.16286
	1.46627	1.46627	1.46627
	1.61240	2.62008	2.62913
No. of Log.	41.0	416.9	425.7
	41.0s	6m 56.9s	7m 05.7s
Dif. y.	-0.15	-4.40	6.60
×179	26.85	787.60	1181.40
	26.8"	13' 7.6"	19' 41.4"

(a) 13^h 44^m 1.1^s -65° 53' 34.8"
41.0 26.8
13^h 44^m 42.1^s -65° 54' 1.6"

(b) 13^h 51^m 28.8^s -65° 39' 33.0"
6 56.9 13 7.6
13^h 44^m 31.9 -65° 52 40.6

(c) 13^h 51^m 55.8^s -66° 12' 23.0
7 05.7 19 41.4
13^h 44^m $~~3~~5\,0.1^s$ -65° 52' 41.6

Mean Position
13^h 44^m 34.7^s -65° 53' 7.9"

C.P.D. -65° 2513 13 44 39.5 -65 53.8 (1875) Magn. 10.0

January 10, 1894

Spm of 19^h 1476 Z.C. (Continued).

near edge of plate

Plate B 4164 taken
~~b~~a 1 r
r 1 b

Meas. no good

Plate B 4350 taken
a 1 r
r 3 b

Plate B 9862 taken
a 2 r
r 3 b

Plate B 9887 taken
a 2 r
r 3 b

Plate B 3869 taken
a 2 r
r 3 b

Plate B 5312
a 2 r
r 3 b

Plate B 6175
a 2 r
r 3 b

Jan 10, 1894

Ep. of Z.C. 19^h 1476 (Cont).

Plate B9888 taken

a 2 v
v 3 b

January 16, 1894

Meas. of stars on D.M. Charts by means of glass square ruled in mms.

Region R.A. 0h 0m to 0h 4m Dec. 0.0° to +1.0°

d*	x	y	m	s.	'	BDN.	h	m	s.	Dec. °	'	Magn.	s.	'
0h 0m 0°	0.00	0.00												
0h 0m +1°	0.00	19.80												
0h 4m 0°	19.80	0.00												
0 4m +1°	19.80	19.70												
1	0.40	1.25		4.80	3.75	1	0	0	4.8	+0°	4.2	9.5	0.0	-0.4
2	0.90	10.65		10.92	31.95	2		0	12.5	+0°	32.5	9.1	-1.6	-0.5
3	1.10	5.70		13.32	17.10	3		0	14.7	+0	18.0	8.1	-1.4	-0.9
4	3.45	2.80		41.96	8.40	4		0	41.0	+0	8.6	9.4	+0.8	-0.2
5	3.55	18.45		43.08	55.35	5		0	41.2	+0	56.1	9.3	+1.9	-0.7
6	6.05	1.40	1	13.32	4.20	6		1	15.0	+0	4.9	9.5	-1.7	-0.7
7	6.90	8.70		23.64	26.10	7		1	23.1	+0	26.7	9.3	+0.5	-0.6
8	10.10	8.90	2	2.40	26.70	8		2	2.4	+0	26.1	7.9	0.0	+0.6
9	18.60	8.95	3	45.48	26.85	9		3	46.9	+0	27.6	9.2	-1.4	-0.8

$\frac{+3.2-6.1}{9}$ $\frac{+0.6-4.8}{9}$ =

±1.03 ±.60

	x	y	m	s.	'	BDN.	h	m	s.	Dec. °	'	Magn.	s.	'
6h 0m 0°	0.00	0.00												
6h 0m +1°	0.00	19.75												
6h 4m 0°	19.75	0.00												
6h 4m +1°	19.70	19.70												
1	1.25	8.20		15.12	24.60	1292	6	0	15.2	+0°	24.8	9.5	-0.1	-0.2
2	1.45	0.50		17.52	1.50	1293		0	18.0	+0	0.7	9.5	-0.5	+0.8
3	2.05	6.95		24.84	20.85	1294		0	23.6	+0	21.0	9.4	+1.2	-0.2
4	3.05	17.95		36.96	53.85	1295		0	38.4	+0	54.8	9.3	-1.4	-1.0
5	5.45	16.15	1	6.00	48.45	1296		1	6.0	+0	49.5	9.5	0.0	-1.1
−° or +°? 6	6.15	0.00		14.52	0.00	1187	6	1	17.5	-0	0.5	9.5	-3.0	+0.5

Measure of stars on DM. Charts. (cont.)

		x	y.				B.D. No.		R.A.		Dec.		Magn.		
				m	s	'		h	m	s.		'		s.	'
	7	6.85	1.50	1	23.04	4.50	1298	6	1	27.7	+0°	4.5	9.5	-4.7	0.0
	8	7.00	15.85		24.84	47.55	1297		1	26.7	+0	48.0	9.5	-1.9	-0.4
	9	7.05	3.15		25.44	9.45	1299		1	29.2	+0	9.6	8.9	-3.8	-0.2
	10	8.35	13.80		41.16	41.40	1300		1	40.7	+0	42.0	9.5	+0.5	-1.6
	11	12.05	3.85	2	26.04	~~7.70~~ 11.55	1301		2	30.0	+0	12.7	9.5	-4.0	~~[-5.0]~~ -1.1 √
	12	13.25	14.25		40.56	42.75	1302		2	41.3	+0	43.3	9.0	-0.7	-0.5
	13	13.85	14.05		47.88	42.15	1303		2	48.6	+0	42.8	9.5	-0.7	-0.6
	14	14.10	6.10		50.88	18.30	1304		2	50.9	+0	18.3	9.5	0.0	0.0
	15	15.70	2.75	3	10.32	8.25	1305		3	13.0	+0	8.2	9.5	-2.7	0.0
	16	15.95	3.50		13.32	10.50	1307		3	17.7	+0	11.6	8.7	-4.4	-1.1
	17	15.95	8.70		13.32	26.10	1306		3	14.3	+0	26.7	9.4	-1.0	-0.6
+1° or +0°?	18	16.25	19.70		16.92	59.10	1308		3	20.6	+0	59.9	9.5	-3.7	-0.8
	19	16.40	11.95		18.72	35.85	1309		3	21.0	+0	35.9	9.5	-2.3	-0.1
	20	16.60	14.10		21.24	42.30	1400		3	24.1	+0	42.8	9.4	-2.9	-0.5
	21	18.15	19.10		39.96	57.30	1401		3	45.2	+0	58.0	9.5	-5.2	-0.7
	22	19.05	19.55		50.88	58.65	1402		3	55.2	+0	59.6	9.5	-4.3	-1.0
	23	19.50	2.65		56.40	7.95	1403		3	57.5	+0	8.2	9.5	-1.1	-0.2
														+1.7 − 48.4	+1.3 − 11.9
														23	23
12h 0m 0°		0.00	0.00											± 2.18	± 0.57
12h 0m +1°		0.00	19.80												
12h 4m 0°		19.75	0.00												
12 4m +1°		19.75	19.75												
					s.			h	m	s					
	1	2.10	17.00		25.44	51.00	2895	12	0	26.8	+0°	51.2	9.5	-1.4	-0.2
	2	2.25	2.90		27.24	8.70	2896		0	29.2	+0	8.5	9.5	-2.0	+0.2
	3	3.60	8.10		43.68	24.30	2897		0	42.4	+0	25.7	8.8	+1.3	-1.4
	4	3.95	3.60		47.88	10.80	2898		0	48.4	+0	10.6	9.3	-0.5	+0.2
	5	5.25	16.25	m. 1	3.60	48.75	2899		1	1.1	+0	48.8	9.2	+2.5	0.0
	6	5.65	6.50		8.52	19.50	2900		1	8.3	+0	19.7	9.3	+0.2	-0.2
	7	6.90	0.45		23.64	1.35	2901		1	26.0	+0	2.0	9.3	-2.4	-0.6
	8	10.00	1.20	2	1.20	3.60	2902		2	0.7	+0	2.4	7.7	+0.5	+1.2

Measure of stars on DM. Charts.

		x	y	m.	s.	'	B.D. No.	R.A. h	m.	s.	Dec. °	'	Magn.		
	9	11.00	0.35	2	13.32	1.05	2903	12	2	14.0	+0	1.7	9.1	-0.7	-0.7
	10	14.10	1.10		50.88	3.30	2904		2	53.4	+0	3.5	9.3	-2.5	-0.2
	11	16.60	15.25	3	21.24	45.75	2905		3	24.3	+0	46.8	9.5	-3.1	-1.0
	12	16.95	7.10		25.44	21.30	2906		3	27.3	+0	21.4	9.0	-1.9	-0.1
?	13	19.80	19.80	4	0.00	59.40	2907		4	0.5	+0	58.6	8.0	-0.5	+0.8
														$\frac{+4.5 -1.50}{13}$	$\frac{+2.4 -4.4}{13}$
														±1.50	±.52

	x	y
18h 0m 0°	0.00	0.00
18h 0m +1°	0.00	19.80
18h 4m 0°	19.75	0.00
18h 4m +1	19.75	0.70

		x	y	m.	s.	'	B.D. No.	h	m.	s.	°	'	Magn.		
0° or -0° ?	1	0.20	0.00		2.40	0.00	3419	18	0	3.0	-0	0.1	9.5	-0.6	+0.1
	2	0.65	10.00		7.92	30.00	3855		0	8.1	+0	30.1	9.5	-0.2	-0.1
	3	0.85	8.85		10.32	26.55	3856		0	11.4	+0	26.7	9.5	-1.1	-0.1
	4	$\overset{5.}{2.30}$	2.15	1	4.20	6.45	3857		1	1.5	+0	5.8	9.1	+2.7	+0.6
	5	5.65	0.10		8.52	0.30	3858		1	8.8	+0	0.4	9.5	-0.3	-0.1
	6	5.95	13.75		12.12	41.25	3859		1	14.1	+0	42.0	8.5	-2.0	-0.8
	7	7.90	19.40		35.76	58.20	3861		1	34.9	+0	58.6	9.4	+0.9	-0.4
	9	9.10	7.40		50.28	22.20	3863		1	50.9	+0	22.3	9.3	-0.6	-0.1
	8	8.95	1.10		48.48	3.30	3862		1	49.2	+0	2.8	9.5	-0.8	+0.5
	10	10.15	17.05	2	3.00	51.15	3864		2	4.2	+0	51.5	9.3	-1.2	-0.3
	11	10.50	7.25		7.20	21.75	3865		2	7.1	+0	22.3	8.0	+0.1	-0.5
	12	11.30	16.10		16.92	48.30	3866		2	19.0	+0	48.4	9.0	-2.1	-0.1
	13	11.85	7.95		23.64	23.85	3867		2	23.5	+0	23.7	9.1	+0.1	+0.1
	14	12.05	10.80		26.04	32.40	3868		2	28.1	+0	32.9	9.5	-2.1	-0.5
	15	13.75	11.15		46.68	33.45	3869		2	47.4	+0	33.9	9.5	-0.7	-0.5
	16	14.90	10.35	3	0.60	31.05	3870		3	0.5	+0	31.1	7.9	+0.1	-0.1
	17	15.15	15.15		3.60	45.45	3871		3	2.4	+0	47.0	9.0	+1.2	-1.6
	18	16.00	10.75		13.92	32.25	3872		3	16.3	+0	32.7	9.1	-2.4	-0.5
	19	$\overset{7}{16.55}$	9.40		32.76	28.20	3873		3	32.7	+0	28.3	9.1	+0.1	-0.1
	20.	17.65	16.70		33.96	50.10	3874		3	35.4	+0	50.3	9.4	-1.4	-0.2
										3.8	±1.04	±3.63		+5.2 -15.5	+1.3 -6.0

It appears from the above measurements that the scale is $\frac{1}{100}$ short. Accordingly .01 has been added to each measure. R.A.s are then multiplied by 12 to reduce to seconds and declination by 3 to reduce to minutes.

20	25	20	20
20	25	25	25
20	30	25	25
30	30	25	30
90	110	95	100

395 | 16
32 | 24.7
75
64
110
11[illegible]

24.7

See page 135 of this book

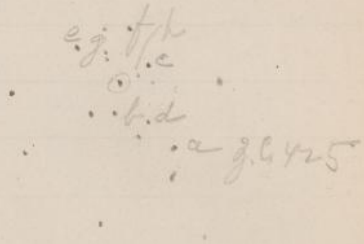
February 28 1894.

Meas. of new var. star or Nova in Sagittarius
est R.A. 19h 8m.7 Dec. -39° 50′ (1875). Found
Identified later as Cordm -39° 13207 / 19h 10.5m -39° 47′ (1900)
on exam. of plate B 9560 (No 3319). The spectrum
contains the line at wavelength 500, which is
the characteristic feature in the photographic
spectra of ~~planetary~~ gaseous nebulae.

Plate B 3730

var. 7.4 11.4 11.1 11.2 11.2 = $\overset{v}{11.17}$ V 13.8 H 11.8

a 5.5 9.5 = Z.C. 425 19 9 50 -39 58 9½



9.5
5.8
4.0

b 6.5 10.5
c 7.0 11.0
d 7.4 11.4
e 7.7 11.7
f 8.1 12.1
g 8.7 12.7
h 9.1 13.1

Adopted Mags
a 9.50
b 10.32
c 10.72
d 11.17
e 11.47
f 11.85
g 12.57
h 12.97

10.7 c 4 v 11.1 11.2 11.2 = $\overset{v}{11.17}$
11.2 v 0 d 11.2
11.2 v 3 e 11.5

Plate B 3745

On edge of plate

11.8 f 1 v 11.9 11.9 = 11.90 V 3.9 H 11.3
11.9 v 7 g 12.6

v x = .011 in. y = .005
f x = .014 in. y = .003
e/g x = .015 in. y = .0035
} meas. of diff in size of images.

v Image double?

Feb. 28, 1894

Meas. of new var. in (Cont.)

near edge of pl. Plate B3814

12.6 g ' v 12.7 12.7 = 12.70 V 4.1 H 11.3

12.7

Book 17. p 31

	x × 30	y × 60
b	165.60	408.00
a	157.50	36.00
c	54.60	831.00
d	512.40	1278.00
f	694.50	198.00
g	1728.00	342.00
e	24.60	1908.00
k	217.50	570.00 ~~285.00~~
h	795.00	897.00
l	979.50	303.00
n	241.50	363.00
m	187.50	57.00
o	159.00	39.00
p	387.60	214.80
q	406.50	240.00
r	337.50	339.00
s	480.60	102.00
t	331.50	24.00
u	360.00	115.20
w	307.50	189.00
x	271.50	72.00
y	268.50	16.80
z	297.60	36.00
α	266.40	22.80

Superseded Sheet

ble

11.5 near edge of

V 24.3 H 11.3

11.8

12.0

of being double.

of the image due

so great as that of

ee meas. on pl. 3745

11.8 Images

V 14.1 H 10.0

11.9 var

9.5
7.6
1.9

tly hazy

11.2

V 13.9 H 10.0

f = 6

g n.s. Image slightly hazy

Feb. 28, 1894

Meas. of new var. in (Cont.)

near edge of pl.

Plate B3814

12.6 g 1 v 12.7 12.7 = 12.70 v 4.1 H 11.3

12.7 v 3 h 13.0

Image of v appears double

Plate B 3843

near edge of pl.

11.5 e 4 ~~5~~ v 11.9 11.8 12.0 = 11.90 v 24.3 H 11.3

11.8 v 0 f 11.8

12.0 v 6 g 12.6

v has here the appearance of being double while the elongation of the image due to bad focus is not so great as that of the stars around it. See meas. on pl. 3745

Plate. B3963

Images very poor

11.8 f 1 v 11.9 11.9 = 11.90 v 14.1 H 10.0

11.9 v 7 g 12.6

var 9.7 11.6 11.8 11.7 11.9 = 11.80

a 7.6 9.5

b. 8.3 10.2

c 8.7 10.7

d 9.0 10.9

e 9.4 11.3

f 9.7 11.7

g 10.4 12.3

h n.s.

9.5
7.6
1.9

Image of v slightly hazy

Plate B 3978

11.8 f 1 v 11.9 = 11.9 v 13.9 H 10.0

f=6

g n.s.

Image slightly hazy

Feb. 28, 1894, (Cont.)

Meas. of var. in

Near edge of pl. 11.8 Plate B4348
f = .1
v n.S. < 11.9

Plate B4991
On edge of pl. 11.7 d g v 12.1 v 4.0 H 19.4
e not on pl.
Image of v hazy and smaller than other images near it

Plate B5238
On edge of pl. 11.8 f 1 v 11.9 v 24.3 H 19.2
v 8 g

Elongatn of image of v., due to bad focus, not quite so great as that of other stars near. The image is however broader than the others.

Plate B5421.
On edge of pl. 11.8 f 1 v 11.9 v. 24.3 H 19.0
g n.S.
f = .2
No elong. discernable, while surrounding stars are considerably elongated

March 2, 1894. (Cont).

Meas. of var in
on edge of pl. Plate B 5422
11.8 f 2 v 12.0 v 4.2 H 18.7
image of v wider and less elongated than other stars near.
Elong. about one half ~~that~~ of other stars near

Plate B 5482
11.8 f 2 v 12.0 v 24.5 H 18.6
g n.s.
Elong. of image same as surrounding stars

Plate B ~~9874~~ 5924
11.8 f 2 v 12.0 12.0 = 12.00 v 13.9 H 16.2
12.0 v 6 g 12.6
v 9.3 12.1 12.1 12.1 = 12.10
9.5
6.7
2.8
a 6.7 9.5
b 7.5 10.3
c 7.9 10.7
d 8.5 11.3
e 8.7 11.5
f 9.1 11.9
g 10.0 12.8
h n.s. Circular image showing nebulous disc?

~~11.8~~ Plate B 5993
11.8 near edge of pl. 10 f 1 v 11.9 = 11.9 v 24.1 H 23.4
g n.s.

Plate B 6154
11.5 e 3 v 11.8 11.7 = 11.75 v 9.0 H 9.8
very poor pl. 11.7 v 1 f 11.8
Elong. very slight; elong great in other stars.

March 2, 1894.

Meas. of new var. in (Cont).

Plate B6155

11.8 f 2 v 12.0 = 12.0 v 19.5 H 9.8
g n.s.
Image shows no elongation, while surrounding stars are very much elongated

Plate B 7841

11.5 e 4 v 11.9 11.6 = 11.75 v 19.3 H 17.2
11.6 v 2 f 11.8
Image elongated like others near it?

Plate 7842

Very poor plate 11.5 e 3 v 11.8 = 11.8 v 8.7 H 7.4
f n.s.

Plate B9212

11.5 e 5 v 12.0 11.8 11.9 = 11.90 v 19.3 H 21.0
11.8 v 0 f 11.8
11.9 v 7 g 12.6
Image nearly circular while others near are elongated

Plate B 9213

11.8 f 4 v 12.2 12.3 = 12.25 v 9.2 H 22.2
12.3 v 3 g 12.6
Image shows nebulosity

Plate B 9216

11.5 c 4 v 11.9 11.7 = 11.80 v 19.6 H 6.5
11.7 v 1 f 11.8 Elong. not so great as in surrounding stars

March 2, 1894

Meas. of new var. in (Cont.)

Plate B9217

11.5 e 4 v 11.9 11.7 = 11.80 V 9.4 H 6.5

11.7 v 1 f 11.8

Image appears double. No trace of nebulosity

Plate B9410

11.5 e 5 v 12.0 11.8 = 11.90 V 20.1 H 22.6

11.8 v 0 f 11.8

g n.s.

Image slightly elongated, while surrounding images are very much elongated.

Plate B9411

11.8 f 1 v 11.9 = 11.9 V 20.9 H 22.6

g n.s.

Image slightly elongated, while surrounding images are very much elongated.

Plate B9412

11.8 f 1 v 11.9 = 11.9 V 20.6 H 22.6

g n.s.

Image slightly elongated while surrounding images are very much elongated.

Plate B9654

Pos. on pl.

11.5 e 5 v 12.0 11.8 11.9 = 11.90 V 8.6 H 15.0

11.8 v 0 f 11.8

11.9 v 7 g 12.6 Image shows nebulosity

March 2, 1894.

Meas. of new var. in (Cont).

Plate B9560 Sp. v 19.7 H 16.2

Pl. neb. showing line at 500.0

Plate B 9673.

11.8 f 1 v 11.9 = 11.9 v 18.9 H 23.3

g n.s.

Image resembles that of comp. st. f.

Plate B9674

11.5 e 4 v 11.9 11.7 = 11.80 v 19.2 H 23.4

11.7 v 1 f 11.8

Image slightly elong. while others are very much elong.

Plate B9675

11.5 e 5 v 12.0 11.8 = 11.90 v 19.1 H 23.3

11.8 v 0 f 11.8

Image slightly elong. while others are very much elong.

Plate B 10035

11.5 e 3 v 11.8 = 11.70 v 20.0 H 23.5

11.6 v 2 f 11.8

Image shows elong. almost equal to that of other stars near

Plate B 10036

11.5 e 3 v 11.8 11.5 = 11.65 v 19.4 H 23.7

11.5 v 3 f 11.8

Image shows elong. equal? to that of other stars near.

March 2, 1894.

Meas. of new var. in (Cont).

Plate B10037

11.5 e 3 v 11.8 11.6 = 11.70 v 20.1 H 23.5
11.6 v 2 f 11.8
Image shows elong. almost equal to other stars near

Plate B 10044

11.5 e 4 v 11.8 11.7 = 11.75 V 19.6 H 160.
11.7 v 1 f 11.8
Image shows circular nebulous disc, while other stars near are slightly elongated

9.5
6.8
2.7

var.	~~9.0~~ 8.9	11.~~7~~6	11.7 11.7 = 11.70
a	6.8	9.5	
b	7.6	10.3	
c	7.8	10.5	
d	8.4	11.1	
e	8.7	11.4	
f	9.0	11.~~8~~7	
g	9.8	12.5	
h	~~8.9~~	n.s.	

Plate B10459

11.5 e 4 v 11.9 11.7 = 11.80 V 19.4 H 22.4
11.7 v 1 f 11.8
Image elongated, but slightly less than other stars near

~~Plate~~

Over

March 2, 1894.

Meas. of new Var. in (Cont).

Plate B 10471

11.5 e 4 v 11.9 11.7 = 11.80 V 19.8 H 22.3
11.7 v 1 f 11.8

Image elongated like other stars near.

Plate B 10472.

11.5 e 4 v 11.9 11.8 = 11.85 V 19.7 H 22.3
11.8 v 0 f 11.8

Image elongated like other stars near.

This page left blank for Summary of preceding observations and used by mistake on June 6. This record should have been made on p. 48. M.F. June 6, 1894.

June 6, 1894.

List of Stars whose spectra are to be examined at request of Geo. C. Comstock. See letter of May 2, 1894.

Binary Stars ~~of~~ of Unknown Spectra

~~Star~~	Magn.	R.A. (1880)	Dec. (1880)	Cl. Spectrum	Ecl. Cl.	Plate No.	
β883	7	4 44.5	+10 52	A	A	B 1081	
γ Centauri	3	12 34.9	−48 18	~~Z 4~~ A, K=.3	A	X 4123	
α Centauri	1	14 31.1	−60 20	F? G.	G	X 3983	
OΣ 285	7	14 41.0	+42 57	F BH=.2 darker	F	B 2738	F ~~about equally bright.~~ ~~Two stars. Cl. F superposed~~
OΣ. 298	7	15 31.7	+40 13	G?	G	B 2696	F ~~Two stars on~~ DM chart. Both G?
β 416	6	17 10.8	−34 51	L or Q	Q	B 8398	BAC. 5825
ξ Sagittarii	3	18 55.0	−30 3	A K=.4	A	X 5001	+ faint other line strong
γ Cor. Aust	5	18 58.3	−37 14	F G oh=.1	F	B 4966	Limit hydrog. lines &
Σ 2525	7	19 21.7	+27 5	F	F?	B 748	Faint.
OΣ 400	7	20 6.2	+43 36	F?	F?	B 1661	

The spectrum of DM.+40° 2903 which precedes $7^s.5$ north 2'.5 appears also to be of Cl. G.

March 17, 1894

Measurements of spectra in region of η Argûs made to determine constant for reduction of values of V & H to Dec. & R.A.

Plate B 9431

Mag. est.		a.s.c.					1 V	2 H	3 3V	4 53°+3V C	O-C	1 15-H D	D²
5	1	14569	10	35.3	-55	5	4.6	13.6	138	55°18'	-13	-1.4	2.0
5	2	14145	10	17.2	-55	33	5.8	8.5	174	55 54	-21	-6.5	42.2
5.8	3	14767	10	42.9	-56	14	6.8	15.7	204	56 24	-10	+0.7	.5
7.0	4	15423	11	11.3	-56	48	8.3	23.5	249	57 9	-21	+8.5	72.2
6.4	5	13925	10	8.3	-57	34	10.0	6.5	300	58 0	-26	-8.5	72.2
5.2	6	15356	11	8.3	-59	46	14.0	22.1	420	60 0	-14	+7.1	50.4
3.3	7	14054	10	13.7	-60	50	16.2	8.7	486	61 6	-16	-6.3	39.7
3.6	8	14392	10	28.5	-61	11	16.5	12.3	49.5	61 15	-4	-2.7	7.3
6.0	9	15269	11	4.4	-61	24	17.2	20.8	51.6	61 36	-12	+5.8	33.6
5.6	10	14702	10	40.5	-63	26	21.0	15.1	63.0	63 30	-4	+0.1	.0
7½	11	13788	10	1.7	-64	9	23.2	6.8	69.6	64 36	-27	-8.2	67.2
6	12	15588	11	19.1	-64	24	23.6	23.5	70.8	64 48	-24	+8.5	72.2
6.6	13	14310	10	24.3	-65	12	24.6	11.8	73.8	65 18	-6	-3.2	10.2

V 4.1 25.4 = 14.7 Centre Dec. -60°.5

H 5.0 25.2 = 15.1 Centre R.A. $10^h 42^m$

V

3V

53° + 3V

Corr A

53° + 3V ~~±~~ A = Dec.

subtract A arithmetically.

H 13.6

~~4H 54.4~~

2 sec. δ 3.49

(15-H) -1.4

(15-H) × 2 sec δ = B -5.9

~~4H + B 48.5~~

10.40 - B

H 13.6

15 - H -1.4

2 sec δ 3.49

(15-H) 2 sec δ -5.9 C

$10^h 40^m$ - C $10^h 34^m.1$

3
(15-H)×2secδ

D^2			4(15-H) ε	420+ε	6-c	secδ	2 2secδ	~~10420~~ H×2secδ	10420 -H×2secδ	6-c	[+(2]	~~A×B~~		1040-B
0	+13	+5	-5.6	36.4	-1.1	1.745	3.49	-5.9 -6.3	34.1 ~~35.7~~	-0.4	[+1.6]	7.49	~~101.9~~	10 34.1
8	13	+5	-26.0	16.0	+1.2	1.77	3.54	-23.0	19.0	-1.8	+0.2	7.54	~~64.1~~	17.0
0	5	-3	+2.8	44.8	+1.9	1.80	3.60	+2.5	44.5	-1.6	+0.4	7.60	~~119.3~~	42.5
14	7	-1	+34.0	16.0	-5.7	1.825	3.65	+31.0	11 13.0	-1.7	+0.3	7.65		11 11.0
14	12	+4	-34.0	8.9	-0.3	1.865	3.67	-31.2	10.8	-1.5	+0.5	7.72		
10	4	-4	+28.4	13.6	-5.3	1.985	3.97	+28.2	11 10.2	-1.9	+0.1	7.97		
8	8	0	-25.2	16.8	-3.1	2.05	4.10	-25.8	16.2	-2.5	-0.5	8.11		
1	3	-5	-10.8	31.2	-2.7	2.075	4.15	-11.2	30.8	-2.3	-0.3	8.16		
7	5	-3	+23.2	5.2	-0.8	2.09	4.18	+24.2	11 6.2	-1.8	+0.2	8.18		
0	4	-4	+0.4	42.4	-1.9	2.235	4.47	+0.4	42.4	-1.9	+0.1	8.47		
13	14	+6	-32.8	9.2	-7.5	2.295	4.59	-37.6	4.4	-2.7	-0.7	8.59		
14	10	+2	+34.0	16.0	-3.1	2.315	4.63	+39.4	11 21.4	-2.3	-0.3	8.61		
2	4	-4	-12.8	29.2	-4.9	2.385	4.77	-15.3	26.7	-2.4	-0.4	8.76		
	102/13	22-24/13									40/12 0.33			
	8	±4'												

4H

54.4

2secδ	δ					B
3.486	55°	1.743	7.486	.096		7.49
3.576	56	1.788	7.576	.096	6	7.58
3.672	57	1.836	7.672	.102	6	7.67
3.774	58	1.887	7.774	.110	8	7.77
3.884	59	1.942	7.884	.116	6	7.88
4.000	60	2.000	8.000	.126	10	8.00
4.126	61	2.063	8.126	.134	8	8.13
4.260	62	2.130	8.260	.146	12	8.26
4.403	63	2.203	8.406	.166	10	8.41
4.562	64	2.281	8.562	170	14	8.56
4.732	65	2.366	8.732			8.73

Positions charted
See Chart No 3 b

April 28, 1894.

Meas. to determine position of new variable star in Carina. Spectrum Md on pl B. 9374 No. 2966
R.A. 10^h Dec. -58°

×179	×1.79
x	y
1082.95	62.65
895.00	393.80
1261.95	8.95

Plate B 9289

Mean Dec. $-58^\circ\ 15'.5$ = Log. .27904

x ~~×179~~	y ~~×179~~		x	y	Z.C.			
−6.05	+0.35	a	0.25	7.00	10^h 542	$10^h\ 7^m\ 18^s.68$	$-58^\circ\ 12'\ 41''.8$	
−5.00	−2.20	b	1.30	4.45	" 571	10 7 41.34	−58 20 15.0	
+7.05	+0.05	b'	13.35	6.70	" 907	10 12 15.82	−58 13 35.8	
		var.	6.30	6.65	— —			

Dif. x.	−6.05	−5.00	7.05
Log. Dif. x.	0.78176	0.69897	0.84819
	1.35604	1.35604	1.35604
	2.13780	2.05501	2.20423
No. of Log.	137.3	113.5	160.0
	$2^m\ 17^s.3$	$1^m\ 53^s.5$	$2^m\ 40^s.0$

Dif. y	0.35	−2.20	0.05
×179	62.65	393.80	8.95
	$1'\ 2''.65$	$6'\ 33''.8$	$8''.95$

(a) $10^h\ 7^m\ 18^s.7\ -58^\circ\ 12'\ 41''.8$
2 17.3 1 2.6
$10^h\ 9^m\ 36.0\ -58^\circ\ 13'\ 44''.4$

(b) $10^h\ 7^m\ 41^s.3\ -58^\circ\ 20'\ 15''.0$
1 53.5 6 33.8
$10^h\ 9^m\ 34^s.8\ -58^\circ\ 13'\ 41''.2$

(b') $10^h\ 12^m\ 15^s.8\ -58^\circ\ 13'\ 35''.8$
2 40.0 9.0
$10^h\ 9^m\ 35^s.8\ -58^\circ\ 13'\ 44''.8$

Mean Position of var. $10^h\ 9^m\ 35^s.5\ -58^\circ\ 13'\ 43''.5$ (1875)

Z Carinae $10^h\ 10^m.4\ -58^\circ\ 21'$ (1900)

Identified Feb. 1917 as CDM −58° 3108 $10^h\ 9^m\ 35^s.4$ −58 14 $10\frac{1}{2}$ magn.
This CDM. not published until twenty years after var. was announced.

1893phae.proj...80S

Positions charted.
See Chart No 3 b –

April 28, 1894

Meas. to determine position of new gaseous nebula B 10105 No ~~1484~~ 3783 on B 6774, No 1484.

Plate B 9200 / Mean dec. = 40° 1.~~7~~6 = Log. .11596

	x	y	Z.C.							
a	7.75	2.60	16h 1489	16	21	42.41	−39	45	34.1	9
b	3.20	14.75	" 1555	16	22	48.93	−40	22	18.1	9
c	2.20	6.35	" 1584	16	23	7.05	−39	57	3.3	8¼
Gas. neb.	7.80	6.90	– –							

Dif. x.	4.90	0.40	−0.60
Log. Dif. x.	0.69020	9.60206	9.77815
	1.19296	1.19296	1.19296
	1.88316	10.79502	10.97111
No. of Log.	76.4	6.24	9.36
	1m 16.4s	6.2s	9.4s

Dif. y.	−4.30	7.85	−0.55
x 179	769.70"	1405.15"	98.45"
	12' 49.7"	23' 25.15"	1' 38.45"

(a) 16h 21m 42.4s −39° 45' 34.1"
1 16.4 12 49.7
16h 22m 58.8s −39° 58' 23.8"

(b) 16h 22m 48.9s −40° 22' 18.1"
6.2 23 25.2
16h 22m 55.1s −39° 58' 52.9"

(c) 16h 23m 7.0s −39° 57' 3.3"
9.4 1 38.4
16h 22m 57.6s −39° 58' 41.7"

Mean Position of Gas. neb. 16h 22m 57.2s −39° 58' 39.5" (1875)
16h 24.7 −40° 2' (1900)

Identified later as CDM −39° 10464 16 23.0 −39 59 9.6 (1875) magn
16 24.7 −40 2.3 (1900)

x Diff	y Diff
5.00	-13.95
-0.10	+10.25
-0.30	-16.20

x ×1.79	y ×1.79
895.00	2497.05
17.90	1834.75
5370	2899.80

Positions charted.
See Chart No. 3 b

April 28, 1894

Meas. to determine position of new variable star in Centaurus. Spectrum Md on pl B No.

R.A. Dec.

Plate B 9576

Mean Dec. = -53° ~~34.4~~ 38.2 = Log. .226~~30~~98

		x	y		h m s	° ' "	
12h	J.L 1528	7.80	3.95	12h 1528	12 24 59.00	-53° 16' 15.3	9
"	" 162~~7~~9	2.70	27.95	162~~7~~9	12 26 ~~25.69~~ 36.66	-54 ~~17~~ 28 ~~24.2~~ 43.8	~~7.5~~ 9.5
"	" 1632	2.50	1.50	1632	12 26 44.43	-53 9 34.6	9
"	var	2.80	17.70				

Dif. X	5.00	-0.10	-0.30	Dif. y	-13.95	10.25	-16.20
Log. dif. X	0.69897	9.00000	9.47712	×1.79	2497.05	1834.75	2899.80
	1.303~~30~~98	1.303~~30~~98	1.303~~30~~98		41' 37.05"	30' 34.75	48' 19.8"
	2.002~~27~~95	10.303~~30~~98	10.78~~042~~110				
No. of Log.	100.~~5~~7s	2.01s	6.0~~3~~4s				
	1m 40.~~5~~7s						

h m s	° ' "	h m s	° ' "	h m s	° ' "
12 24 59.0	-53° 16' 15.3	12 26 ~~25.7~~ 36.~~66~~ 7	-54° ~~17~~ 28 ~~24.2~~ 43.8	12 26 44.4	-53° 9' 34.6
+ 1 40.~~5~~7	41 37.0	-2.0	30 ~~34.8~~	-6.0	48 19.8
12h 26m 39.~~5~~7s	-53° 57' 52.3"	12h 26m ~~23.7~~ 34.7s	-53° ~~46~~ 58' ~~49.4~~ 9.0"	12h 26m 38.4s	-53° 57' 54.4

Mean Position of var. 12h 26m ~~33.9~~ 37.~~2~~6s - 53° 57' 58.6" (1875)
12h 28.0m - 54° 6' (1900)

U Centauri

Positions charted
See Chart - No. 36

April 28, 1894.

Meas. to determine position of new IV Type star. B 9445 No. 3120

Plate B 5255 Mean Dec. 42° 45.'3 = .13411

		x	y			h	m					
	a	4.25	6.10	Z.C. 14h	1736	14	27	4.87	-42°	36'	6.3	9½
	b	4.25	14.15 ~~10~~	"	1737	14	27	5.21	-43	0	9.8	8½
	c	1.90	6.00	"	1784	14	27	42.09	-42	35	50.0	9
IV Type	d	1.35	10.40	Arg.	19745	14	27	51.59	-42	49	6.1	8½
~~IV Type~~		1.25	10.95									

Dif. x	3.00	3.00	0.65	0.10	
Log. Dif. x.	0.47712	0.47712	9.81291	9.00000	
	1.21111	1.21111	1.21111	1.21111	
	1.68823	1.68823	11.02402	10.21111	
No. of Log.	48.s78	48.s78	10.s57	1.s63	

Dif. y.	-4.85	3.20	-4.95	-0.55
179 x	868.15	572.80	886.05	98.45
	14' 28."15	9' 32."8	14' 46."0	1' 38."4

(a) 14h 27m 4.87 -42° 36' 6.3
48.78 14 28.2
14h 27m 53.s6 -42° 50' 34."5

(b) 14h 27m 5.s21 -43° 0' 9."8
48.78 9 32.8
14h 27m 54.s0 -42° 50' 37."0

(c) 14h 27m 42.s09 -42° 35' 50."0
10.57 14 46.0
14h 27m 52.s7 -42° 50' 36."0

(d) 14h 27m 51.s59 -42° 49' 6.1
1.63 1 38.4
14h 27m 53.s2 -42° 50' 44."5

Mean Position ~~IV Type~~. 14h 27m 53.s4 -42° 50' 38."0. (1875.)

Corrections made from identification of B ~~9445~~ 9118 with B5252. Oct. 15, 1894

May 3, 1894.

Count of stars in vicinity of 47 Tucanae.

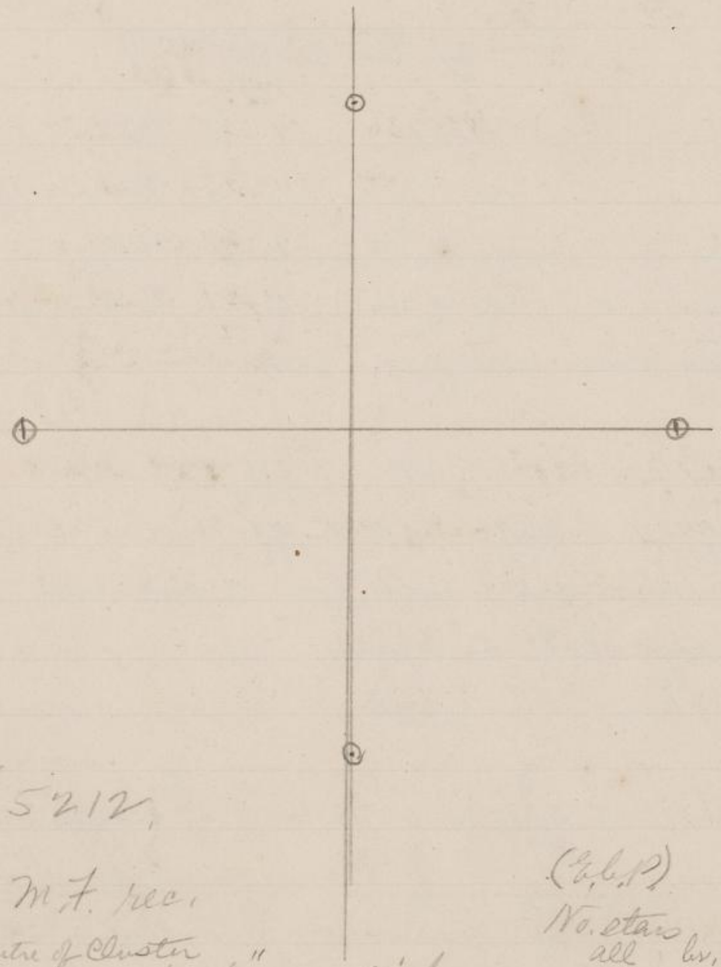


Plate X 5212.

E.C.P. obs. M.F. rec.

Sq. 30' S. of centre of Cluster 1 cm. = 424" on a side
" 30' pr.
" 30' N.
" 30 f.

(E.C.P.)

No. stars all	br.
12	8
4	2
4	2
9	5
29	17

12 +17

0.06 0.08

May 3, 1894

Count of Stars in vicinity of ω Centauri

Plate X 4695   Pobs. 7. sec.

	No. stars all		
Sq. 30' n centre of Clustre	21.	30	
" " f	33	33	
" " s	30	41	
" " p	39	35	
	123	139	131 mean

$42.4''^2 = 1797.76 \,/\, 36 = 49.99$

50' sq. min.

```
1797.76 | 36
144       49.99
 357
 324
  337
  324
   336
```

0.66 per sq. minute

June 15, 1894.

Measurements of Standard Light Squares made to test Argand Burner as Standard.

C 2686 Wedge of Shade glass used.

No. Sq.	1st meas.	2nd meas.		1-2 2-3		1st-2nd.
1.	7.2	7.2		0	2	0
2	7.2	7.0		1	1	+2
3	7.3	7.1				+2
~~4~~	~~6.7~~	~~6.7~~	2	0	1	~~++~~
5	7.3	7.2		1	0	+1
6	7.2	7.2		1	1	0
7	7.1	7.3		0	1	−2
8	7.1	7.4		0	2	−3
9	7.1	7.2		2	0	−1
10	7.3	7.2				+1
	7.20	7.20		$\frac{5}{8}$	$\frac{8}{8}$	$\frac{6-6}{9}$
				.06	.10	.13

C 2686

No. Sq.	1st meas.	2nd meas.				
1	7.2	7.1		1	0	+1
2	7.1	7.1		0	0	0
3	7.1	7.1		1	1	0
4	7.2	7.2				0
~~5~~	~~6.5~~	~~6.6~~	2			
~~6~~	~~6.6~~	~~6.3~~ 6	2			
~~7~~	~~6.6~~	~~6.7~~	2	0	0	
8	7.2	7.2		1	0	0
9	7.1	7.2		1	0	−1
10	7.0	7.2		0	1	−2
11	7.0	7.1		3	0	−1
12	7.3	7.1				+2

E 2688 Cont.

No. Sq	1st meas	2nd meas			
			1	0	
13	7.2	7.1	0	0	+1
14	7.2	7.1			+1
			$\frac{8}{10}$	$\frac{2}{10}$	$\frac{5-4}{14}$

E 2687 $7.0 + \frac{14}{11}$

7.13 7.14

No. Sq	1st meas	2nd meas			
1	6.8	6.8	0	0	0
2	6.8	6.8	1	1	0
3	6.9	6.9	0	0	0
4	6.9	6.9	0	0	0
5	6.9	6.9	0	0	0
6	6.9	6.9	0	0	0
7	6.9	6.9	2	1	0
8	6.7	6.8	0	0	-1
9	-6.7	6.8	0	0	-1
10	6.7	6.8	0	0	-1
11	6.7	6.8	0	0	-1
12	6.7	6.8			-1
~~13~~	~~5.6~~	~~6.0~~	$\frac{2}{\text{Cal'd}}$	$\frac{2}{11}$	$\frac{0-5}{12}$
~~14~~	~~7.5~~	~~7.5~~	0		
	6.80	6.884			

E 2690

	1st meas	2nd meas			
1	7.0	7.0	0	0	0
2	7.0	7.0	0	0	0
3	7.0	7.0	0	0	0
4	7.0	7.0	0	0	0
5	7.0	7.0	0	[illegible]	0
6	7.0	7.0			0

E 2690 Cont.

Sq. No.	1st meas	2nd meas			
			0	0	
7	7.0	7.0	2	1	0
8	6.8	6.9	1	0	-1
9	6.9	6.9			0
~~10~~	~~6.4~~	~~6.5 Spoiled~~			
~~11~~	~~6.6~~	~~6.7~~	1	1	0
12	6.8	6.6	1	1	0
13	6.9	6.9	0	0	0
14	6.9	6.9			0
	6.94	6.95			

E 2691

No. Sq.	1st meas	2nd meas			
1	7.0	7.0	0	0	0
2	7.0	7.0	0	0	0
3	7.0	7.0	0	0	0
4	7.0	7.0	0	0	0
5	7.0	7.0	0	0	0
6	7.0	7.0	0	0	0
7	7.0	7.0	0	0	0
8	7.0	7.0	1	0	0
9	7.1	7.0			+1
~~10~~	~~6.1~~	~~6.1 Spoiled~~	1	0	
11	7.0	7.0	0	0	0
12	7.0	7.0	0	0	0
13	7.0	7.0	0	0	0
14	7.0	7.0			0

Conclusions

Plate	$\frac{\Sigma}{\Delta}$	$\frac{\Sigma}{\Delta}$	No	1st–2d	$\frac{\Sigma'}{n}$	$\frac{\Sigma''}{n}$	$\frac{\Delta}{n}$	$\frac{\Sigma}{n}$					
2686	5	8	8	6 – 6	.06	.10	.00	.13	7.20	0	7.20		
												.07	06
2688	8	2	10.	5 – 4	.08	.02	+.01	.08	7.13	-1	7.14		
												.33	30
2689	3	2	11	0 – 5	.03	.02	–.04	.04	6.80	-4	6.84		
												14	11
2690	5	3	11	0 – 1	.05	.03	–.01	.01	6.94	-1	6.95		
												7	5
2691	1	0	12	1 – 0	.01	.00	+.01	.01	7.01		7.00		
										-.015		61	52
					.23	.17		27					
					.046	.034	±.014	.054				±.15	±13

Hence the average diff of measures of successive exposures is ±.046 and ±.034 in successive measures. Diff. of 1st and 2d measures is ±.054. Accordingly exposures on same day do not show measurable difference in intensity. But on successive days this diff amounts to ±.15 and ±.13

Thursday Oct 4, 1894

Plates B 4162 and B11322 superposed matching the chart image to the hydrogen line Hγ (G). in order to measure distance between CDM. −27° 13151 and and strong bright line in spectrum south of it and supposed to be
CDM. −27°13150 .029 in

0.2 from F towards G Pobs Z
0.3 " F " G. adopt

0.35 from F towards G. F obs.

Distance from F to G 1.1 mm. F. obs
" " F to G 1,0 mm. P. obs
, , F to G .041 inches P obs = 1.041 mm
" " " " .042 in F obs 1.066 mm.

Other 105 mm = ~~3'.1~~ 3'.2 2'.4 P.
765 2'.2 F
2.35 170
206
22

N
— F
1.05m
3'.2
— G

45
2
254
41
254
1016
1.041
256
1.066
29
254
116
145
58
.7366
3
2.2098

Hence according to measures of M.F. object ~~CD. −27°~~ 13150 is ~~2'.2 south~~ 1'.7 south of CDM −27°13151 and according to ...
E.C.P. ~~2'.4 south~~ 2'.2 south
1st measure by M.F. gives 2'.2
∴ Mean = 2'.3

3.2 .7 2.24
3.4 .65 170 204 22
3.2 .65 160 192 2.1

		RA 1875			Dec 1875		Mag
		h	m				
CDM −27°	13150	18	36	53.3	−27	53.8	9.9
−27	13151	18	36	55.6	−27	57.5	9.6
−28	14937	18	36	50.4	−28	0.4	9.7

3'.7
2'.9

Friday, Oct 19, 1894.

Examination of the region with the East Equatorial shows that the object is a ~~planetary and~~ gaseous nebula about 2'.4 north of CDM −27° 13151. If neb. line is G line (H_γ) object must be ~~2'.3 north~~ 1'.22 minute of 9.6. If it is F line (H_β) linear interval H_β & H_γ is 3'.4

Measures of interval from G ~~H~~ line ~~of~~ of nebula to lines

2.4 4.9. F = 2.0, 4.2 G = 6.2, 2.4 h = 9.0, 1.7 H = 10.7

4.5 4.4 8.9 25 14.4 27 14.2

3.6 4.4 8.0 25 10.5 17 12.2

4.4 2.6 1.7

−4.9 4.94

F −4.4

−2.4 4.62

G 0

h +2.6

H +4.3

As Gildes Table | Robert [illegible]

F	10		22		11		
		4.1		41		41	
G	51		6.3		5.2		
		27		2.8		27	
h	78		9.1		7.9		
		19		17		15	
H	8.7		10.8		9.4		

λ

	−4.9	496	500	−4
F =	4.21	486		
	−2.4	461	463	−2
G	0	434		
h	2.67	410		
H	4.37	387		

FG.

4.1		
4.2		
4.2	28	17
4.5	25	17
4.4	25	17
41	27	19
41	28	17
41	27	15
4.21	2.67	1.70

Hence the wavelengths as derived from curve are 496 and 461. They doubtless should be 500 and 463

This nebula is probably CDM −27° 13150, 9.9 but it is now much fainter. It precedes CDM −27° 13151, 2.5 and is 2' north instead of nne. 2'.3 or 3'.7

Positions charted.
See Chart—no. 4b—

October 20, 1894

Meas. to determine position of new variable in . Plate B9814 Md.
approx. R.A. 20h 33.9m Dec. −29° 9′

Diff x	y.	×1.79	×1.79
a −12.33	−1.94	2207.07	347.26
e′ +0.70	+10.60	125.30	107 ~~1897~~.40
f +3.67	−4.72	656.93	844.88
d +0.37	+1.53	66.23	273.87
Comp. d. −0.33	−1.17	59.07	209.43

Mean Dec. −29° 18.1′ = Log. 05945

.05945
1.07700
1.13645.

Plate B9869 (Meas. film side down by mistake).

	x	y	x	y	J.C., 20h	h	m.	s.	°	′	″	
Comp. star a	2.25	4.38 4.35	2.25	4.40	980	20	29	38.92	−29	8	39.4	7.7
e′	15.28 15.30	16.92 16.85	15.25	17.00	1074		32	38.84	−29	45	42.3	8.8
F f	18.25	1.60 1.55	18.25	1.65	1102		33	17.00	−28	59	21.8	6.8
var.	14.58 14.~~6~~	6.32 6.30	14.55	6.35								
Comp. star d = d	14.95	7.85 7.80	14.95	7.90	1072		32	32.31	−29	18	36.9	8
Comp. "d"	14.25	5.15 5.20	14.25	5.10								

var.

Diff. x.	−12.33	0.70	3.67	0.37	Diff y.	−1.94	10.60	−4.72	1.53
Log Diff. x	1.09096	9.84510	0.56467	9.56820	×179	347.26	1897.40	844.88	273.87
	1.13645	1.13645	1.13645	1.13645		5′ 47.26″	31′ 37.40″	14′ 4.88″	4′ 33.87″
	2.22741	10.98155	1.70112	10.70465					
No. of Log.	168.8s 2m 48.8s	9.58s	50.25s	5.07s					

(a)	(e′)	(f)	(d)
20h 29m 38.9s −29° 8′ 39.4″	20h 32m 38.8s −29° 45′ 42.3″	20h 33m 17.0s −28° 59′ 21.8″	20h 32m 32.3s −29° 18′ 36.9″
2 48.8 5 47.3	9.6 31 37.4	50.2 14 4.9	5.1 4 33.9
20h 32m 27.7s −29° 14′ 26.7″	20h 32m 29.2s −29° 14′ 4.9″	20h 32m 26.8s −29° 13′ 26.7″	20h 32m 27.2s −29° 14′ 3.0″

Mean Position of Var. (1875) 20h 32m 27.7s −29° 14′ 0.3″ 1.5 20h 34.0m −29° 9′ (1900)

Comp. "d"

Diff. x.	−12.00	1.03	4.00	0.70	Diff. y.	−0.77	11.77	−3.55	2.70
Log. Diff x	1.07918	0.01284	0.60206	9.84510	×179	137.83	2106.83	635.45	483.30
	1.13645	1.13645	1.13645	1.13645		2′ 17.83″	35′ 6.83″	10′ 35.45″	8′ 3.30″
	2.21563	1.14929	1.73851	10.98155					
No. Log.	164.3 2m 44.3s	14.10s	54.77	9.58s					

(a)	(e′)	(f)	(d)
20h 29m 38.9s −29° 8′ 39.4″	20h 32m 38.8s −29° 45′ 42.3″	20h 33m 17.0s −28° 59′ 21.8″	20h 32m 32.3s −29° 18′ 36.9″
2 44.3 2 17.8	14.1 35 6.8	54.8 10 35.4	9.6 8 3.3
20h 32m 23.2s −29° 10′ 57.2″	20h 32m 24.7s −29° 10′ 35.5″	20h 32m 22.2s −29° 9′ 57.2″	20h 32m 22.7s −29° 10′ 33.6″

Mean Position of Comp. "d" (1875) 20h 32m 23.2s −29° 10′ 30.9″ 20h 33.9m 29° 5′
20 32.4 −29 11′ (1875) ad opt.

Positions charted
See Chart No. 4b.

October 20, 1894.

Meas. to determine position of new variable star in. Plate B11298 Md:
approx. R.A. $14^{h}\,45^{m}.2$ Dec. $-46°\,6'$ (1875.

.15862
1.07700
1.23562

Plate B11272

Mean Dec. $-46°\,3'.3$ = Log. .15862

comp star	x	y	x	y
c = A ~~a~~	5.10	11.90	5.10	11.90
b = C ~~c (H)~~	13.85	16.25	13.85	16.25
d = B ~~b H~~	11.40	1.95	11.40	1.95
var.	11.95	9.10	11.95	9.10
comp "E"	12.10	8.45	12.10	8.45

Z.C. 14

2733	14^{h}	43^{m}	$6^{s}.10$	$-45°$	$57'$	$52''.2$	9.2
2906		45	36.12	$-45°$	44	38.8	9.2
2861		44	57.16	$-46°$	27	26.9	$8\frac{1}{2}$

	Diff x	Diff y	x × 179	y × 1.79
c = a	−6.85	+ 2.80	1226.15	501.20
b = C	+1.90	+ 7.15	340.10	1279.85
d = B	−0.55	− 7.15	98.45	1279.85
Comp. "E"	+ 0.15	− 0.65	26.85	116.35

var. Diff x	−6.85	1.90	−0.55
Log. Diff. x	0.83569	0.27875	9.74036
	1.23562	1.23562	1.23562
	2.07131	1.51437	10.97598
No. of Log.	$117^{s}.8$ $1^{m}\,57^{s}.8$	$32^{s}.69$	$9^{s}.46$

Diff. y	2.80	7.15	−7.15
× 179	501.20	1279.85	1279.85
	$8'\,21''.20$	$21'\,19''.85$	$21'\,19''.85$

(a) $14^{h}\,43^{m}\,6^{s}.1$ $-45°\,57'\,52''.2$
$1\;57.8$ $8\;21.2$
$14^{h}\,45^{m}\,3^{s}.9$ $-46°\,6'\,13''.4$

(c). $14^{h}\,45^{m}\,36^{s}.1$ $-45°\,44'\,38''.8$
32.7 $21\;19.8$
$14^{h}\,45^{m}\,3^{s}.4$ $-46°\,5'\,58''.6$

(b) $14^{h}\,44^{m}\,57^{s}.2$ $-46°\,27'\,26''.9$
9.5 $21\;19.8$
$14^{h}\,45^{m}\,6^{s}.7$ $-46°\,6'\,7''.1$

Mean Position of Var (1875) $14^{h}\,45^{m}\,4^{s}.7$ $-46°\,6'\,6''.4$. (See B12 p 127.)
46.7 −46 12′

comp. "E" Diff x.	− 7.00	1.75	−0.70
Log. Diff. x	0.84510	0.24304	9.84510
	1.23562	1.23562	1.23562
	2.08072	1.47866	11.08072
No. of Log.	$120^{s}.4$ $2^{m}\,0^{s}.4$	$30^{s}.11$	$12^{s}.04$

Diff. y.	3.45	7.80	−6.50
× 179	617.55	1396.20	1163.50
	$10'\,17''.55$	$23'\,16''.20$	$19'\,23''.50$

(a) $14^{h}\,43^{m}\,6^{s}.1$ $-45°\,57'\,52''.2$
$2\;0.4$ $10\;17.6$
$14^{h}\,45^{m}\,6^{s}.5$ $-46°\,8'\,9''.8$

(c) $14^{h}\,45^{m}\,36^{s}.1$ $-45°\,44'\,38''.8$
30.1 $23\;16.2$
$14^{h}\,45^{m}\,6^{s}.0$ $-46°\,7'\,55''.0$

(b) $14^{h}\,44^{m}\,57^{s}.2$ $-46°\,27'\,26''.9$
12.0 $19\;23.5$
$14^{h}\,45^{m}\,9^{s}.2$ $-46°\,8'\,3''.4$

See also B12 p 127 Mean Position of Comp "E" $14^{h}\,45^{m}\,7^{s}.2$ $-46°\,8'\,2''.7$ (1875)

Positions charted: See Chart - No. 4 b -

October 20, 1894.

Meas. to determine position of new V Type star on I ~~B~~ 11241 No. 3491. approx R.A. $19^h 40^m.5$ Dec. $+27^\circ.9$ (1855)

Log. .05373
1.03623
1.08996

Plate I 9112   Mean Dec. = $+27^\circ 55'.0$ = Log .05373

	x	y	x	y	Design.	R.A. 1855 h m s	Dec.	Magn.
a	~~1.60~~ 5.00	4.95	4.92 5.00	4.90	B.D. + 27° 3512	19 40 45.9	+ 27° 53'.5	8.8
b	1.65	6.80	1.70 6.82 1.75	6.85	" + 27 3507	40 5.4	+ 27 58.8	8.7
c	1.~~75~~ 80	4.70	4.72 1.80	4.75	" + 27 3508	40 5.7	+ 27 52.6	8.8
V Type	3.10	5.55	3.10	5.55				

Diff x 1.90 -1.40 -1.30   Diff. y. -0.63 1.27 -0.83

Log. Diff. x. 0.27875 0.14613 0.11394 $\times$ 163   102".69 207".01 135".29
1.08996 1.08996 1.08996   1' 42".69 3' 27".01 2' 15".29
1.36871 1.23609 1.20390

No. of Log. $23^s.37$ $17^s.22$ $15^s.99$

(a) $19^h 40^m 45^s.9$ $+27^\circ 53'.5$
23.4 1.7
$19^h 40^m 22^s.5$ $+27^\circ 55'.2$

(b) $19^h 40^m 5^s.4$ $+27^\circ 58'.8$
17.2 3.4
$19^h 40^m 22^s.6$ $+27^\circ 55'.4$

(c) $19^h 40^m 5^s.7$ $+27^\circ 52'.6$
16.0 2.3
$19^h 40^m 21^s.7$ $+27^\circ 54'.9$

Mean Position of V Type $19^h 40^m 22^s.3$ $+27^\circ 55'.2$ (1855)

Diff x. 5.92 -2.58 -3.72   Diff. y. -6.60 3.30 -11.55
Log. " 0.77232 0.41162 0.57054 $\times$ 179 1181.40 590.70 2067.45
1.26269 1.26269 1.26269   19' 41".40 9' 50".70 34' 27".45
2.03501 1.67431 1.83323
No. of Log 108.4 $47^s.24$ 68.11
$1^m 48^s.4$ $1^m 8^s.11$

→

Same star measured on page 61

Positions charted. See Chart - No. 4b -

October 20, 1894.

Meas. to determine position of new V Type star on B 10749 No 4397. { ~~Approx. R.A. $9^h\,9.2^m$ Dec. $-49°\,35'$ 1875~~
{ C.D.M. $-49°$ 4218 $9\,9.0$ $-49\,36$ (1875) Identified later –

Mean Dec. $-49°\,17.7$ = Log. .18569

.18569
1.07700
1.26269

Plate B 7847	x	y	x	y	Design.	R.A. 1875	Dec.	Magn.
a	$\overset{11.92}{11.95}$	6.65	11.90	6.65	Z.C. 9^h 548	$9^h\,6^m\,56^s.37$	$-49°\,12'\,50''.8$	8
c	$\overset{3.42}{3.45}$	16.55	3.40	16.55	752	9 9 33.97	-49 42 25.2	$8\frac{1}{2}$
d	$\overset{2.28}{2.30}$	1.70	2.25	1.70	782	9 9 50.74	-48 57 49.6	7.8
V. Type	5.20	14.25	5.20	14.25				
adj. st. 1	5.35	13.70	5.35	13.70				
adj. st. 2	6.00	13.25	6.00	13.25				

- V Type.							
Diff. x	6.72	-1.78	-2.92	Diff. y.	-7.60	2.30	-12.55
Log. Diff. x	0.82737	0.25042	0.46538	×179	1360.40	411.70	2246.45
	1.26269	1.26269	1.26269		$22'\,40''.40$	$6'\,51''.70$	$37'\,26''.45$
	2.09006	1.51311	1.72807				
No. of Log.	123.0 $2^m\,3^s.0$	$32^s.59$	$53^s.46$				

(a) $9^h\,6^m\,56^s.37$ $-49°\,12'\,50''.8$
2 3.0 22 40.4
$9^h\,8^m\,59^s.4$ $-49°\,35'\,31''.2$

(c) $9^h\,9^m\,33^s.97$ $-49°\,42'\,25''.2$
32.59 6 51.7
$9^h\,9^m\,1^s.4$ $-49°\,35'\,33''.5$

(d) $9^h\,9^m\,50^s.74$ $-48°\,57'\,49''.6$
53.46 37 26.4
$9^h\,8^m\,57^s.3$ $-49°\,35'\,16''.0$

Mean Position of V Type. $9^h\,8^m\,59^s.4$ $-49°\,35'\,26''.9$ (1875)

Identified later as C.D.M. $-49°$ 4218
$9\,8\,59.5$ $-49\,35.5$ (1875)
Magn. 9.9

Diff. x.	6.57	-1.93	-3.07	Diff. y.	-7.05	2.85	-12.00
Log. Diff. x	0.81757	0.28556	0.48714	×179	1261.95	510.15	2148.00
	1.26269	1.26269	1.26269		$21'\,1''.95$	$8'\,30''.15$	$35'\,48''.0$
	2.08026	1.54825	1.74983				
No. of Log.	120.3^s $2^m\,0.3$	$35^s.34$	$56^s.21$				

(a) $9^h\,6^m\,56^s.37$ $-49°\,12'\,50''.8$
2 0.31 21 2.0
$9^h\,8^m\,56.7$ $-49°\,33'\,52''.8$

(c) $9^h\,9^m\,33^s.97$ $-49°\,42'\,25''.2$
35.34 8 30.2
$9^h\,8^m\,58^s.6$ $-49°\,33'\,55''.0$

(d) $9^h\,9^m\,50^s.74$ $-48°\,57'\,49''.6$
56.21 35 48.0
$9^h\,8^m\,54^s.5$ $-49°\,33'\,37''.6$

Mean Position of "adj. st. 1." – $9^h\,8^m\,56^s.6$ $-49°\,33'\,48''.5$ (1875.

(a) $9^h\,6^m\,56^s.37$ $-49°\,12'\,50''.8$
1 48.4 19 41.4
$9^h\,8^m\,44^s.8$ $-49°\,32'\,32.2''$

(c) $9^h\,9^m\,33^s.97$ $-49°\,42'\,25''.2$
47.24 9 50.7
$9^h\,8^m\,46^s.7$ $-49°\,32'\,34''.5$

(d) $9^h\,9^m\,50^s.74$ $-48°\,57'\,49''.6$
1 8.11 34 27.4
$9^h\,8^m\,42^s.6$ $-49°\,32'\,17''.0$

✓

Mean Position of "adj. st. 2" $9^h\,8^m\,44^s.7$ $-49°\,32'\,27''.9$ (1875)

Positions charted.
See Chart. No. 6b.

December 17, 1894

* From a set of second measurements this first measure of (b) was ~~proved~~ shown to be incorrect. Should be 2.55

Meas. to determine position of new variable star in Aquarius. R.A. 22h 10.7m Dec. −21.6° (1855) — Spectrum Md on pl. B 11794 No. 540~~4~~5

Mean Dec. −21° 34.0′ = Log. .03152

.03152
1.07700
1.10852
1855 1855

2nd Meas. — Plate B 11821

x	y		x	y	x	y				
2.10	8.30	a	1.95	6.75	1.95	6.75	= DM −21° 6193	22h 10m 27.7s	−21° 43.3′	8.6
2.65	3.05	b	*~~3~~2.55	1.45	3.55	1.45	" −21 6197	22 10 36.2	−21 27.3	7.7
6.60	4.20	c	6.50	~~3~~2.60	6.50	2.60	" −21° 6200	22 11 2~~6~~5.9	−21 31.3	9.5
3.05	6.30	var.	2.95	5.70 5.72	2.95	5.75	——	22 10.7	−21.6 (1855)	

Diff. x	−1.00	−0.40 ~~0.60~~	3.55
Log. Diff. x	0.00000	9.60206 ~~9.77815~~	0.55023
	1.10852	1.10852	1.10852
	1.10852	10.71958 ~~10.88667~~	1.65875
No. of Log.	12.84s	5.14s ~~7.70~~	45.58s

Diff. y	1.03	−4.27	−3.12
× 179	184.37	764.33	558.48
	3′ 4.37″	12′ 44.3″	9′ 18.48″

(a)	(b)	(c)
22h 10m 27.7s −21° 43.3′	22h 10m 36.2s −21° 27.3′	22h 11m 25.9s −21° 31.3′
12.8 3.1	5.1 ~~7.7~~ 12.7	45.6 9.3
22h 10m 40.5s −21° 40.2′	22h 10m 41.3s −21° 40.0′	22h 10m 40.3s −21° 40.6′

Mean Position of Var. 22h 10m 40.7s −21° 40.3′ (1855) adopt mean.
22h 13.2m − 21° 27′ (1900) See also p. 66

Positions charted. See Chart—No. 6 b—

December 17, 1894.

×1.63	×1.63
366.75	562.35
57.05	606.36
65.20	264.06
502.04	215.16

Meas. to determine position of Espins new variable star. Seems to be identical with BD +57° 165 R.A. $0^h.46^m 20^s.7$ Dec. +57° 46'.5 9.5

Mean Dec. +57° 44.5 = Log. 0.27257
1.03623
1.30880

Plate I 2289

Diff x	Diff y		x	y	x	y	1855	h m s	1855	
+2.25	+3.45	1	5.55	8.35	5.55	8.35	= BD+57° 164	$0^h 45^m 28^s.8$	+57° 56'.1	9.5
−0.35	−3.72	2	2.95	1.18 1.20	2.95	1.15	+57° 166	0.46 26.4	+57 36.5	9.5
−0.40	−1.62	3	2.88 2.90	3.28 3.25	2.85	3.30	+57 167	0 46 31.0	+57 42.5	9.3
−3.08	−1.32	4	0.22 0.25	3.58 3.55	0.20	3.60	+57 171	0 47 21.8	+57 43.0	9.5
Espins var.			3.30	4.90	3.30	4.90	(+57 165	0 46 20.7	+ 57 46.5)?	9.5

Diff. x.	2.25	−0.35	−0.42	−3.08	Diff. y.	3.45	−3.72	−1.62	−1.32
Log. " ".	0.35218	9.54407	9.62325	0.48855	× 163	562.35	606.36	264.06	215.16
	1.30880	1.30880	1.30880	1.30880		9' 22".35	10' 6".36	4' 24".06	3' 35".16
	1.66098	10.85287	10.93205	1.79735					
No. of Log.	$45^s.81$	$7^s.13$	$8^s.55$	$62^s.71$ $1^m 2^s.71$					

(1) $0^h 45^m 28^s.8$ +57° 56'.1
45.8 9.4
$0^h 46^m 14^s.6$ +57° 46'.7

(2) $0^h 46^m 26^s.4$ +57° 36'.5
7.1 10.1
$0^h 46^m 19^s.3$ +57° 46'.6

(3) $0^h 46^m 31^s.0$ +57° 42'.5
8.6 4.4
$0^h 46^m 22^s.4$ +57° 46'.9

(4) $0^h 47^m 21^s.8$ +57° 43'.0
1 2.7 3.6
$0^h 46^m 19^s.1$ +57° 46'.6

Mean Position of Espin's Var. $0^h 46^m 18^s.8$ +57° 46'.7 (1855)
$0^h 48^m.9$ + 58° 2' (1900)

Adopt. mean and assumed as BD +57° 165 as no other object appears on photos. for this BD Star

Positions charted.
See Chart - No. 6 b -

*No. 3 S Tucanae

December 17, 1894.

×1.79	×1.79
1 1113.38	1065.05
2 801.92	1897.40
3 1253.00	501.20

Meas. to determine position of new variable star in Sp. Md on pl. B 11532 No. 4911
R.A. 0h Dec. -

Mean Dec. = -62° 23.7 = Log. 0.33414
1.07700
1.41114 ✓

Plate B 57~~7~~8

Diff x y		x	y	x	y	Ic 0h 1875		1875
+6.22 +5.95	1	14.52 14.55	18.50	14.50	18.50	= 382	0 14 37.42 ~~38~~	− 62 3.~~4~~ 23.9 9
−4.48 −10.60	2	3.82 3.80	1.95	3.85	1.95	504	0 19 2.51 ~~3~~	− 62 53.~~x~~ 55.4 8¼
−7.00 +2.80	3	1.30	15.35	1.30	15.35	537	0 20 12.78 ~~13~~	− 62 13.8 50.2 8½
	var	8.30	12.55	8.30	12.55			

Diff x.	6.22	−4.48	−7.00
Log. Diff. x.	0.79379	0.65128	0.84510
	1.41114	1.41114	1.41114
	2.20493	2.06242	2.25624
No. of Log.	160.3	115.5	180.4
	2m 40.3s	1m 55.5s	3m 0.4s

Diff. y.	5.95	−10.60	2.80
× 179	1065.05"	1897.40"	501.20"
	17' 45.05"	31' 37.40"	8' 21.20"

(1) 0h 14m 37.4s −62° 3' 23.9"
2 40.3 17 45.0
0h 17m 17.7s −62° 21' 8.9"

(2) 0h 19m 2.5s −62° 53' 55.4"
1 55.5 31 37.4
0h 17m 7.0s −62° 22' 18.0"

(3) 0h 20m 12.8s −62° 13' 50.2"
3 0.4 8 21.2
0h 17m 12.4s − 62° 22' 11.4"

Mean Position of Var. 0h 17m 12.4s − 62° 21' 52.8". (1875) Adopt. mean.
0h 18.4m − 62° 14' (1900). = S Tucanae

checked Apr. 28, 1903
M. A. Gill.

*S Tucanae = C.P.D. − 62° 28

	2nd Meas.		Diff.
a.	1.20	1.25	-0.25
b.	7.35	4.95	-0.23
c	8.45	22.25	0.00
d	9.55	11.40	-0.15
v	7.80	9.10	-0.15

Positions charted.
See Chart No. 6b—

Astron Nach. 137,71.

December 17, 1894.

Meas. to determine position of new V Type star. on plate B9349 No. 2945—

Plate B5057

Mean Dec. -49° 38.4 = Log. 0.18864
1.07700
1.26564

	x	y	x	y	Z.C. 9h	1875	1875	
a	0.95	1.35 1.38	0.95	1.40	548	9h 6m ~~57~~ 56.37	-49° 12' ~~8~~ 50.8	8
b	7.15 7.12	5.00	7.10	5.00	693	9 8 ~~51~~ 50.42	-49 23 ~~3~~ 15.8	8 3/4
c	8.45	22.25	8.45	22.25	731	9 9 ~~20~~ 19.55	-50 14 ~~9~~ 52.4	9
d	~~10~~ 9.40	11.40	9.40	11.40	752	9 9 ~~34~~ 33.97	-49 42 ~~4~~ 25.2	8½
V Type	7.65	9.10	7.65	9.10				

Diff. x	-6.70	-0.53	0.80	1.75
Log. Diff. x.	0.82607	9.72428	9.90309	0.24304
	~~0.18864~~	~~0.18864~~	~~0.18864~~	~~0.18864~~
	1.26564	1.26564	1.26564	1.26564
	2.09171	10.98992	11.16873	1.50868
	~~1.01471~~	~~9.91292~~	~~10.09173~~	~~0.43168~~
No. of Log.	123.5 s. ~~10.34~~ s. 2m 3.5	s. ~~0.82~~ 9.77	s. ~~1.24~~ 14.75	s. ~~2.70~~ 32.26

Diff. y.	-7.72	-4.10	13.15	2.30
× 179	1381".88	733".90	2353".85	411".70
	23' 1".88	12' 13".9	39' 13".85	6' 51".7

(a) 9h 6m 56s.37 -49° 12' 50".8
2 ~~10.34~~ 3.51 23 1.9
9h 8m 59s.9 -49° 35' 52".7

(b) 9h 8m 50s.42 -49° 23' 15".8
~~0.82~~ 9.77 12 13.9
9h 9m 0s.2 -49° 35' 29".7

(c) 9h 9m 19s.55 -50° 14' 52".4
~~1.24~~ 14.75 39 13.8
9h 9m 4s.8 -49° 35' 38".6

(d) 9h 9m 33s.97 -49° 42' 25".2
~~2.70~~ 32.26 6 51.7
9h 9m 1.7 -49° 35' 33".5

Mean Position of V Type. 9h. 9m. 1s.6 - 49° 35' 38".6 (1875) adopt. mean
9 9.8 - 49° 42' (1900)

Astron Nach. 137,71. 1894. Nov. 21).

Identified later as C.P.M. -49° 4218 9 8 59.5 - 49 35.5 (1875) magn. 9.9
9 9 50.3 - 49 41.6 (1900)

See page 57.

Positions charted
See Chart No. 6b

December 17, 1894

Meas. to determine position of new V Type star on pl B 8313 No. ~~2142~~ 2UNI

* RA 13 24.~~1~~2 -61 3~~8~~4

Mean Dec. -61° 22.4′ = Log. 0.31948
1.07700
1.39648

Plate B 3359

	x	y	x	y	B.C. 13h	h	m	s	°	′	″	
1	7.80	19.50	7.80	19.50	1543	13	25	47.22	-61	46	~~.4~~ 25.1	8 1/2
2	$1.00^{0.98}$	$5.85^{5.82}$	0.95	5.80	1380	13	22	~~58~~ 57.74	-61	5	9.3	9
3	1.75	2.80	1.75	2.80	1403	13	~~22~~ 23	16.07	60	56	9.2	7
V Type	0.10	12.80	0.10	12.80	—							
4	$3.95^{3.92}$	18.10	3.90	18.10	1456	13	24	10.04	-61	~~42~~ 41	55.2	7 1/2

Diff. x	7.70	0.88	1.65	3.82
Log. " "	0.88649	9.94448	0.21748	0.58206
	1.39648	1.39648	1.39648	1.39648
	2.28297	11.34096	1.61396	1.97854
No. of Log.	191.9s	21.93s	41.11s	95.18s
	3m 11.9s			1m 35.18s

Diff. y	6.70	-6.98	-10.~~8~~00	5.30
× 179	1199.30″	1249.42″	~~1933.20~~ 1790.00	948.70
	19′ 59.3″	20′ 49.42″	~~32′ 13.20″~~ 29′ 50.00″	15′ 48.70″

	h	m	s	°	′	″
(1)	13	25	47.2	-61	46	25.1
		3	11.9		19	59.3
	13	22	35.3	-61	26	25.8
(2)	13	22	57.7	-61	5	9.3
			21.9		20	49.4
	13	22	35.8	-61	25	58.7
(3)	13	23	16.1	-60	56	9.2
			41.1		~~32~~ 29	~~13.2~~ 50.0
	13	22	35.0	-61	~~28~~ 25	~~22.4~~ 59.2
(4)	13	24	10.0	-61	41	55.2
		1	35.2		15	48.7
	13	22	34.8	-61	26	6.5

Mean Position of V Type. 13h 22m 35.2s − 61° 26′ ~~43.4~~ 7.6″ (1875) Adopt. Mean.

Astron. & Astro Phys. 12, 170. (1893).

* Identified later as C.P.D. -61° 3753 13 22 34.5 -61 25.9 magn. 9.6

See also page 99 Book 3, Page 21 Book 4

Positions charted.
See Chart - No. 5b -

January 26, 189~~4~~5

Meas. to determine position of new variable star in Octans (No. 3). Class Md on Pl. B11729 (No. 5306).
(Est. pos. for 1900) R.A. 20h 57.0m Dec. -82° 30.

Mean Dec. -82° 22.3′ = Log. .87669
1.07700
1.95369

x	y
×1.79	×1.79
a 1038.20	2586.55
b 590.70	309.67
c 683.78	384.85

Plate B5599

Diff x	Diff y		x	y	x	y	No. ABC.	R.A. 1875	Dec. 1875	
a +5.80	-14.45	a	12.00	0.50	12.00	0.50	28622	20h 45m 19.51s	-81° 52′ 45.8″	8
b +3.30	-1.73	b	9.50	13.20 13.22	9.50	13.25	28684	20 48 4.45	-82 30 53.4	8
c -3.82	+2.15	c	2.35 2.38	17.10	2.40	17.10	28922	20 59 3.47	-82 43 4.6	8 1/4
		var	6.20	14.95	6.20	14.95				

Diff x	5.80	3.30	-3.82
Log. Diff x	0.76343	0.51851	0.58206
	1.95369	1.95369	1.95369
	2.71712	2.47220	2.53575
No. of Log.	521.3s	296.6s	343.4s
	8m 41.3s	4m 56.6s	5m 43.4s

Diff y	-14.45	-1.73	2.15
×1.79	2586.55	309.67″	384.85″
	43′ 6.55″	5′ 9.67″	6′ 24.85″

Diff x	Diff y	x ×1.79	y ×1.79
a +5.80	-14.45	1038.20	2586.55
b +3.30	-1.73	590.70	309.67
c -3.82	+2.15	683.78	384.85

(a)	(b)	(c)
20h 45m 19.5s -81° 52′ 45.8″	20h 48m 4.4s -82° 30′ 53.4″	20h 59m 3.5s -82° 43′ 4.6″
8 41.3 43 6.6	4 56.6 5 9.7	5 43.4 6 24.8
20h 54m 0.8s -82° 35′ 52.4″	20h 53m 1.0s -82° 36′ 3.1″	20h 53m 20.1s -82° 36′ 39.8″

Mean Position of Var. 20h 53m 27.3s -82° 36′ 11.8″ (1875)
20 53 10 36 15 (1875) Adopt.

*These measures were made supposedly for A.G.C. 20926. but really they are the measures of another star. omit in mean

February 9, 1895.

Meas. to determine position of Nova Normae according to the method ordinarilly used for new variables or other objects of interest which are not contained in existing catalogues.

Plate B 10769

Mean Dec. = -49° 59.5′ = Log. 0.19186
1.07700
1.26886

			x	y	x	y	A.G.C.	1895	1875	
								h m s	° ′ ″	
14.15	1.10	1	14.25	0.75	14.25	0.75	20906	15 19 6.78	-49 40 46.7	7¾
10.20	6.30	2*	10.30	6.20	10.30	6.20	20926	15 20 9.52	-50 0 50.4	8¾ {wrong star measured}
9.40	13.25	3	9.80 9.78	13.10	9.75	13.10	20940	15 20 26.94	-50 17 53.9	8
		4	1.90	1.80 1.78	1.90	1.75	20999	15 22 55.09	-49 44 13.4	8¾
		5	0.50	11.60	0.50	11.60	21006	15 23 19.82	-50 13 42.4	7¾
		Nova Normae	10.10	10.10	10.10	1010 ~~10.05~~				

Diff x.	4.15	0.20	-0.32	- 8.20	-9.60
Log.	0.61805	9.30103	9.50515	0.91381	0.98227
	1.26886	1.26886	1.26886	1.26886	1.26886
	1.88691	10.56989	10.77401	2.18267	2.25113
No.	77.07 s	3.71 s	5.94 s	152.3 s	178.3 s
	1m 17.07s			2m 32.3s	2m 58.3s

Diff y.	-9.35	-3.90	3.00	-8.32	1.50
x179	1673.65	698.10	537.00	1489.28	268.50
	27′ 53.65″	11′ 38.10″	8′ 57.00″	24′ 49.28″	4′ 28.50″

(1) 15h 19m 6.8s -49° 40′ 46.7″
1 17.1 27 53.6
15h 20m 23.9s -50° 8′ 40.3″

(2) 15h 20m 9.5s -50° 0′ 50.4″
3.7 11 38.1
15h 20m 13.2s -50° 12′ 28.5″
These measures belong to another star.

(3) 15h 20m 26.9s -50° 17′ 53.9″
5.9 8 57.0
15h 20m 21.0s -50° 8′ 56.9″

(4) 15h 22m 55.1s -49° 44′ 13.4″
2 32.3 24 49.3
15h 20m 22.8s -~~49~~ 50° ~~39~~ 9′ 2.7″

(5) 15h 23m 19.8s -50° 13′ 42.4″
2 58.3 4 28.5
15h 20m 21.5s -50° 9′ 13.9″

Mean Position of Nova Normae 15h 20m 22.3s -50° 8′ 58.4″. (1875.)

Positions charted.
See chart: No. 7 b

February 9, 1895

x1.79 x1.79 Meas. to determine position of new variable star in Indus Z.C. 20^{h} 1539 ? 20 47 7 −54 47.9 (1875)

Sp. Md on plate B ~~11812~~ 11684 No. 5196.

a	689.15	4063.30
b	519.10	2658.15
c	143.20	3222.00
d	116.35	1593.10

Plate B 11812

Mean Dec. −55° 0.′6 = Log. 0.24159
1.07700
1.31859

Diff. x	Diff. y		x	y	x	y		h	m	s	°	′	″	
+3.85	+22.70	a	5.40	37.80	5.40	37.80	Z.C. 20^{h} 1497	20	45	43.14	−55	55	56.2	9.5
+2.90	−14.85	b	4.45	0.25	4.45	0.25	20 1509	20	46	8.51	−54	3	38.4	7.5
+0.80	+18.00	c	2.35	33.10	2.35	33.10	20 1529	20	46	48.05	−55	41	39.3	8
+0.65	−8.90	d	2.20	6.20	2.20	6.20	20 1532	20	46	54.87 55.11	−54	21	25.2 22.1	8
		var.	1.55	15.10	1.55	15.10								

Diff x.	3.85	2.90	0.80	0.65
Log.	0.58546	0.46240	9.90309	9.81291
	1.31859	1.31859	1.31859	1.31859
	1.90405	1.78099	11.22168	11.13150
No. of Log.	$80.^{s}18$	$60.^{s}39$	$16.^{s}66$	$13.^{s}54$
	$1^{m}\ 20.^{s}18$	$1^{m}\ 0.^{s}39$		

Diff. y.	22.70	−14.85	18.00	−8.90
× 1.79	4063.″30	2658.″15	3222.″00	1593.″10
	1° 7′ 43.″30	44′ 18.″15	53′ 42.″0	26′ 33.″10

(a)	(b)	(c)	(d)
$20^{h}\ 45^{m}\ 43.^{s}1$ −55° 55′ 56.″2	$20^{h}\ 46^{m}\ 8.^{s}5$ −54° 3′ 38.″4	$20^{h}\ 46^{m}\ 48.^{s}0$ −55° 41′ 39.″3	$20^{h}\ 46^{m}\ 55.^{s}0$ −54° 21′ 23.″6
1 20.2 1 7 43.3	1 0.4 44 18.2	16.7 53 42.0	13.5 26 33.1
$20^{h}\ 47^{m}\ 3.^{s}3$ −54° 48′ 12.″9	$20^{h}\ 47^{m}\ 8.^{s}9$ −54° 47′ 56.″6	$20^{h}\ 47^{m}\ 4.^{s}7$ −54° 47′ 57.″3	$20^{h}\ 47^{m}\ 8.^{s}5$ −54° 47′ 56.″7

Mean Position of var. $20^{h}\ 47^{m}\ 6.^{s}4$ −54° 48′ 0.″9 (1875) Adopt mean

Positions charted.
See Chart No 7b.

February 9, 1895.

Meas. to determine position of new variable star in R.A. 22h 10.7m Dec -21°.6 (1855).
Sp. Md on plate B 11794 No. 5405.

Mean Dec. = -21° 30' = Log. 0.03132
1.07700
1.10832

Plate B 6327

	x	y
	×1.79	×1.79
a	68.02	585.33
b	179.00	363.37
c	89.50	1199.30
d	635.45	361.58

Diff x	Diff y		x	y	x	y	B.D.	1855 h m s	° '	
+0.38	-3.27	a	$\overset{5.18}{5.15}$	4.35	5.20	4.35	-21° 6197	22 10 36.2	-21 27.3	7.7
+1.00	+2.03	b	5.80	9.65	5.80	9.65	-21° 6193	22 10 27.7	-21 43.3	8.6
+0.50	-6.70	c	5.30	$\overset{0.92}{0.90}$	5.30	~~4~~0.95	-21° 6194	22 10 31.9	-21 17.9	9.3
-3.55	-2.02	d	1.25	5.60	1.25	5.60	-21° 6200	22 11 25.9	-21 31.3	9.5
		var.	4.80	$\overset{7.62}{7.65}$	4.80	7.60				

Diff x	0.38	1.00	0.50	-3.55
Log. x	9.57978	0.00000	9.69897	0.55023
	1.10832	1.10832	1.10832	1.10832
	10.68810	1.10832	10.80729	1.65855
No. Log.	4.88s	12.83s	6.42s	45.56s

Diff y.	-3.27	2.03	-6.70	-2.02
×1.79	585.33"	363.37"	1199.30"	361.58"
	9' 45.33"	6' 3.37"	19' 59.3"	6' 1.58"

(a)	(b)	(c)	(d)
22h 10m 36.2s -21° 27.3'	22h 10m 27.7s -21° 43.3'	22h 10m 31.9s -21° 17.9'	22h 11m 25.9s -21° 31.3'
4.9 9.8	12.8 6.1	6.4 20.0	45.6 6.0
22h 10m 41.1s -21° 37.~~7~~1'	22h 10m 40.5s -21° 37.2'	22h 10m 38.3s -21° 37.9'	22h 10m 40.3s -21° 37.3'

Mean Position of Var. 22h 10m 40.0s -21° 37.~~5~~4' (1855) adopt. mean.
22 13.2 - 21 ~~25~~ (1900) See also p. 58

checked by W. A. G.
Oct. 1903

Positions charted. See Chart No. 7 b.

February 9, 1895.

Meas. to determine position of new gaseous nebula R.A. $7^h 16.^m8$ Dec. $+9°9'$ (1855).
Obs. Br. line on Plate I 10,734

Plate I ~~12159~~ 12023

Mean Dec. $= +9° 8.'3$ = Log. 0.0554
1.03623
1.04177

	x	y	x	y		h	m	s		'	
1	2.80	8.75	2.80	8.75	B.D. +9° 1635	7	16	39.9	+9	22.8	8.0
2	0.70	$\overset{1.32}{1.35}$	0.70	1.30	B.D. +9 1632	7	16	13.6	+9	1.7	9.4
3	6.60	1.15	6.60	1.15	B.D. +9 1639	7	17	21.1	+9	0.4	8.8
Gas. neb.	4.55	4.25	4.55	4.25							
comp.	4.40	4.25	4.40	4.25							

Diff. x. −1.75 −3.85 2.05
Log. " x 0.24304 0.58546 0.31175
1.04177 1.04177 1.04177
1.28481 1.62723 1.35352
no. of Log. $19.^s27$ $42.^s39$ $22.^s57$

Diff. y. 4.50 −2.93 −3.10
× 163 733."50 477."59 505."30
12' 13."5 7' 57."6 8' 25."3

(1) $7^h 16^m 39.^s9 + 9° 22.'8$ (2) $7^h 16^m 13.^s6 + 9° 1.'7$ (3) $7^h 17^m 21.^s1 + 9° 0.'4$
19.3 12.2 42.4 8.0 22.6 8.4

$7^h 16^m 59.^s2 + 9° 10.'6$ $7^h 16^m 56.^s0 + 9° 9.'7$ $7^h 16^m 58.^s5 + 9° 8.'8$

Mean Position of Gas. Neb. $7^h 16^m 57.^s9 + 9° 9.'7$ (1855) Adopt mean.

Faint star p about 2^s in same dec.

Diff. x. −1.60 −3.70 2.20
Log. " " 0.20412 0.56820 0.34242
1.04177 1.04177 1.04177
1.24589 1.60997 1.38419
Log. $17.^s62$ 40.74 24.22

Same Computation as above for Diff. of y.

(1) $7^h 16^m 39.^s9 + 9° 22.'8$ (2) $7^h 16^m 13.^s6 + 9° 1.'7$ (3) $7^h 17^m 21.^s1 + 9° 0.'4$
17.6 12.2 40.7 8.0 24.2 8.4

$7^h 16^m 57.^s5 + 9° 10.'6$ $7^h 16^m 54.^s3 + 9° 9.'7$ $7^h 16^m 56.^s9 + 9° 8.'8$

Mean Position of Comp. $7^h 16^m 56.^s2 + 9° 9.'7$ (1855)

Positions charted
See chart No. 86.

February 12, 1895.

Meas. to determine position of Nova Normae
see also p. 64.

Mean Dec. = $-49°\ 59'.5$ = Log. 0.19186
1.07700
1.26886

Plate ~~B3485~~ B10769

	x	y	x	y	A.G.C.	R.A. 1875 h	m	s	Dec. °	'	"	Magn.
1	14.35 14.38	0.80	14.40	0.80	20906	15	19	6.78	−49	40	46.7	$7\frac{3}{4}$
2	10.85	7.40 7.42	10.85	7.45	20926	15	20	9.52	−50	0	50.4	$8\frac{3}{4}$
3	9.80	13.20 13.18	9.80	13.15	20940	15	20	26.94	−50	17	53.9	8
4	~~0.80~~ 2.05 2.08	~~1.75~~ 1.70 1.72	2.10	1.75	20999	15	22	55.09	−49	44	13.4	$8\frac{3}{4}$
5	0.60	11.60 11.58	0.60	11.55	21006	15	23	19.82	−50	13	42.4	$7\frac{3}{4}$
Nova Normae	10.20	10.15	10.20	10.15								

Diff x.	4.18	0.65	−0.40	−8.12	−9.60	Diff y	−9.35	−2.73	3.03	−8.43	1.43
Log. "	0.62118	9.81291	9.60206	0.90956	0.98227	×179	1673".65	488".67	542".37	1508".97	255".97
	1.26886	1.26886	1.26886	1.26886	1.26886		27' 53".65	8' 8".67	9' 2".37	25' 8".97	4' 15".97
	1.89004	11.08177	10.87092	2.17842	2.25113						
No. of Log.	77s.63	12s.07	7s.43	150s.8	178s.3						
	1m 17s.63			2m 30s.8	2m 58s.3						

(1)	(2)	(3)	(4)	(5)
15h 19m 6s.8 −49° 40' 46".7	15h 20m 9s.5 −50° 0' 50".4	15h 20m 26s.9 −50° 17' 53".9	15h 22m 55s.1 −49° 44' 13".4	15h 23m 19s.8 −50° 13' 42".4
1 17.6 · 27 53.6 ·	12.1 · 8 8.7 ·	7.4 · 9 2.4 −	2 30.8 − 25 9.0 −	2 58.3 − 4 76.0
15h 20m 24s.4 −50° 8' 40".3	15h 20m 21s.6 −50° 8' 59".1	15h 20m 19s.5 −50° 8' 51".5	15h 20m 24s.3 −50° 9' 22".4	15h 20m 21s.5 −50° 9' 26".4

Mean Position of Nova Normae. 15h 20m 22s.3 −50° 9' 3".9 (1875)

42″.4 log 1.62737
15 1.17609
2.8266 0.45128

Mean Dec. = 50° 11′.9 = Log. 0.19373
0.45128
0.64501

Nova Normae. (B1, p. 39 W. A. Rogers Micrometer)

		x	y	x	y			h	m	s	°	′	″	
	a	+24.22 +24.25	−38.22 −38.25	+24.20	−38.20	A.G.C. 20906 ~~Z.C. 15h 1279~~	Mean	15	~~18~~ 19	~~49.72~~ 16.78	~~−49~~ −49	~~42~~ 40	~~33.3~~ 46.7	7.8 8.6
	b	+7.80	−11.08 −11.05	+7.80	−11.10	A.G.C. 20926		15	20	9.52	−50	0	50.4	8 3/4
	c	+2.02 +2.00	+12.72 +12.75	+2.05	+12.70	20940		15	20	26.94	−50	17	53.9	8
8.2	d	−31.78 −31.80	28.48 +28.50	−31.75	+28.45	20995		15	22	51.62	−50	30	45.8	8
7.5 0.7 4.6	e	−28.28 −28.30	37.28 −37.30	−28.25	−37.25	20999		15	22	55.09	−49	44	13.4	8 3/4
3.6	f	−36.00	+22.20	−36.00	+22.20	21005		15	23	12.10	−50	26	28.0	7 1/2
	g	−36.65	4.08 +4.05	−36.65	+4.10	21006		15	23	19.82	−50	13	42.4	7 3/4
	h	−39.80	+39.40	−39.80	+39.40	21009		15	23	23.98	−50	38	51.0	9
	i	Outside region covered by mm square.				Z.C. 15h 1158		(15	17	5.53	−50	21	13.2	9)
	Nova Normae	+4.15	+0.05	+4.15	+0.05									

1 mm. = $\frac{42.4}{15}$ sec δ   1mm = 42″.4 ±

Diff. x.	+20.07	+3.65	−2.13	−35.93	−32.43	−40.15	−40.80	−43.95
Log. " "	1.30255	0.56229	0.32838	1.55546	1.51095	1.60369	1.61066	1.64296
	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501
	1.94756	1.20730	0.97339	2.20047	2.15596	2.24870	2.25567	2.28797
No. of Log.	88s.63	16s.12	9s.41	158s.7	143s.2	177s.3	180s.2	194s.1
	1m 28s.63			2m 38s.7	2m 23s.2	2m 57s.3	3m 0s.2	3m 14s.1

Diff. y.	38.27	11.13	12.67	28.43	37.33	22.15	4.03	39.35
×42″.4	1622″.648	471.912	537.208	1205.432	1582.792	939.160	170.872	1668.440
	27′ 2″.648	7′ 51″.912	8′ 57″.208	20′ 5″.432	26′ 22″.792	15′ 39″.160	2′ 50″.872	27′ 48″.440

(a) 15h 18m 49s.72 −49° 42′ 33″.3
1 28.63 27 2.6
15h 20m 18s.35 −50° 9′ 35″.9

(b) 15h 20m 9s.52 −50° 0′ 50″.4
16.12 7 51.9
15h 20m 25s.64 −50° 8′ 42″.3

(c) 15h 20m 26s.94 −50° 17′ 53″.9
9.41 8 57.2
15h 20m 17s.53 −50° 8′ 56″.7

(d) 15h 22m 51s.62 −50° 30′ 45″.8
2 38.7 20 5.4
15h 20m 12s.9 −50° 10′ 40″.4

(e) 15h 22m 55s.09 −49° 44′ 13″.4
2 23.2 26 22.8
15h 20m 31s.9 −50° 10′ 36″.2

(f) 15h 23m 12s.10 −50° 26′ 28″.0
2 57.3 15 39.2
15h 20m 14s.8 −50° 10′ 48″.8

(g) 15h 23m 19s.82 −50° 13′ 42″.4
3 0.2 2 50.9
15h 20m 19s.6 −50° 10′ 51″.5

(h) 15h 23m 23s.98 −50° 38′ 51″.0
3 14.1 27 48.4
15h 20m 9s.9 −50° 11′ 2″.6

Positions charted.
See Chart. No 8 b.

Mean Dec = -50° 11'.9 =
Log. 0.19373
0.45128
0.64501

Nova Normae.

Plate X5802 (See Book 1. p 40. W. A. Roger's Micrometer.)

	x	y	x	y		R.A. 1875 h m s	Dec. ° ' "	Magn
a	17.78 +17.80	-31.90	+17.75	-31.90	A.G.C. 20906	15 19 6.78	-49 40 46.7	7.8
b	+3.20	3.72 - 3.70	+3.20	- 3.75	20926	20 9.52	-50 0 50.4	8 3/4
c	1.08 -1.10	+20.30	-1.05	+20.30	20940	20 26.94	-50 17 53.9	8
d	33.72 -33.75	+38.30	-33.70	+38.30	20995	22 51.62	-50 30 45.8	8
e	34.58 -34.55	-27.60	-34.60	-27.60	20999	22 55.09	-49 44 13.4	8 3/4
f	-38.40	32.28 +32.25	-38.40	+32.30	21005	23 12.10	-50 26 28.0	7 1/2
g	-40.20	+14.25	-40.20	+14.25	21006	23 19.82	-50 13 42.4	7 3/4
h	-41.10	+49.75	-41.10	+49.75	21009	23 23.98	-50 38 51.0	9
i								
Nova Normae:	0.22 +0.20	7.52 +7.55	+0.25	+7.50				

Diff. x	17.56	2.98	1.30	33.94	34.80	38.62	40.42	41.32
Log. " "	1.24452	0.47422	0.11394	1.53071	1.54158	1.58681	1.60660	1.61616
	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501	0.64501
	1.88953	1.11923	0.75895	2.17572	2.18659	2.23182	2.25161	2.26117
No. of Log.	77.54 s.	13.16 s.	5.74 s.	149.9 s.	153.7 s.	170.5 s.	178.5 s.	182.5 s.
	1m 17.54s.			2m 29.9s	2m 33.7s.	2m 50.5s.	2m 58.5s.	3m 2.5s.
Diff. y.	39.42	11.24	12.80	30.78	35.12	24.76	6.73	42.23
× 42.4	1671.408"	476.576"	542.720"	1305.072	1489.088	1049.824	285.352	1790.552
	27' 51.408"	7' 56.576	9' 2.720"	21' 45.072	24' 49.088"	17' 29.824"	4' 45.352"	29' 50.552"

(a) 15h 19m 6.78s. -49° 40' 46.7"
1 17.54 27 51.4
15h 20 24.3s -50° 8' 38.1"

(b) 15h 20m 9.52s. -50° 0' 50.4"
13.16 7 56.6
15h 20m 22.7s. -50° 8' 47.0"

(c) 15h 20m 26.94s. -50° 17' 53.9"
5.74 9 2.7
15h 20m 21.2s. -50° 8' 51.2"

(d) 15h 22m 51.62s. -50° 30' 45.8"
2 29.9 21 45.1
15h 20m 21.7s. -50° 9' 0.7"

(e) 15h 22m 55.09s. -49° 44' 13.4"
2 33.7 24 49.1
15h 20m 21.4s. -50° 9' 2.5"

(f) 15h 23m 12.10s. -50° 26' 28.0"
2 50.5 17 29.8
15h 20m 21.6s. -50° 8' 58.2"

(g) 15h 23m 19.82s -50° 13' 42.4"
2 58.5 4 45.4
15h 20m 21.3s. -50° 8' 57.0"

(h) 15h 23m 23.98s. -50° 38' 51.0"
3 2.5 29 50.6
15h 20m 21.5s. -50° 9' 0.4"

Position of Nova Normae 15h 20m 22.0s - 50° 8' 54.4" (1875)

Positions charted.
See Chart No. 7 b.

March 8, 1895.

Meas. to determine position of IV Type star on Plate B 11672, 11736, 11726 & 11673 Nos 5160 5348, 5420 and 5117. (Approx. pos. 1875) R.A. 16h 37m.8, −67° 30′

Mean Dec. = −67° 32′.2 = Log. 0.41777
1.07700
1.49477

Plate B3781

	x	y	x	y	16h Z.C.	R.A. h	m	s.	1875 Dec. °	′	″	Magn.
1	10.45	12.10	10.45	12.10	2368	16	34	2.82	−67	51	56.0	7
2	9.10	4.30	9.10	4.30	2439	16	35	0.50	−67	29	9.7	9
3	1.80 (1.82)	1.10	1.85	1.10	2705	16	38	48.02	−67	20	9.0	8.8
4	0.35	3.35 (3.38)	0.35	3.40	2761	16	39	31.06	−67	27	29.1	7
IV Type	4.60 (4.62)	5.55 (5.52)	4.65	5.50								

Diff. x	5.83	4.48	−2.80	−4.27
Log. " "	0.76567	0.65128	0.44716	0.63043
	1.49477	1.49477	1.49477	1.49477
	2.26044	2.14605	1.94193	2.12520
No. of Log.	182.2s.	140.0s	87.48s.	133.4s.
	3m 2.2s	2m 20.0s	1m 27.48s.	2m 13.4s.

Diff. y.	6.58	−1.22	−4.42	−2.14
× 179	1177.82	218.38	791.18	383.06
	19′ 37″.82	3′ 38.38	13′ 11″.18	6′ 23″.06

(1) 16h 34m 2.8s −67° 51′ 56.0″
3 2.2 19 37.8
16h 37m 5.0s −67° 32′ 18″.2

(2) 16h 35m 0.5s −67° 29′ 9″.7
2 20.0 3 38.4
16h 37m 20.5s −67° 32′ 48″.1

(3) 16h 38m 48.0s −67° 20′ 9.0″
1 27.5 13 11.2
16h 37m 20.5 −67° 33′ 20.2″

(4) 16h 39m 31.1s −67° 27′ 29″.1
2 13.4 6 23.1
16h 37m 17.7s −67° 33′ 52″.2

16 37 15.9 −67° 33′ 4″ (1875) Adopt.

This is C.P.D. −67° 3220 16 37 18.0 − 67 33.2 (1875) Magn. 9.7
16 39.8 − 67 36 (1900)
Found to be var. by Mrs. F.

See Book 16 p. 8

Positions charted
See chart. No. 9 b.

March 8, 1894/5

Meas. to determine position of new V Type star on Plate B 10123 No. 3854. 19h 24m.3 + 9° 46′ (approx) 1855.

Mean Dec. = +9° 50.4 = Log. 0.00643
1.07700
1.08343

Plate - B 9234.

	x	y	x	y	DM	R.A. 1855 h m s	Dec.	Magn.
a	6.92 6.95	2.20	6.90	2.20	+9° 4132	19 24 48.8	+9° 45.4	9.5
b	4.70	5.08 5.05	4.70	5.10	+9 4129	19 24 20.9	+9 53.1	9.0
c	1.18 1.20	4.58 4.60	1.15	4.55	+9 4123	19 23 36.1	+9 52.7	9.0
V Type	4.80	2.78 2.75	4.80	2.80				

Diff. x 2.12	−0.10	−3.62
0.32634	9.00000	0.55871
1.08343	1.08343	1.08343
1.40977	10.08343	1.64214
s. 25.69	s. 1.21	s. 43.87

Diff. y.	−0.58	2.30	1.80
×179	103.82	411.70	322″.20
	1′ 43″.82	6′ 51.70	5′ 22″.20

(a) 19h 24m 48s.8 + 9° 45′.4
25.7 1.7
19h 24m 23s.1 + 9° 47′.1

(b) 19h 24m 20s.9 + 9 53′.1
1.2 6.9
19h 24 22s.1 + 9° 46′.2

(c) 19h 23m 36s.1 + 9° 52′.7
43.9 5.4
19h 24m 20s.0 + 9° 47′.3

Mean Position V Type 19h 24m 21s.7 + 9° 46′.9 (1855) Adopt. Mean.
19h 26m.5 + 9° 52′ (1900)

The object here meas. is not identical with the spectrum consisting of bright lines on B10123 No 3854. This object No 3854 is identical with the gaseous nebula N.G.C. 6803

b 791.18 1922.46
c 1449.90 1215.30
d 236.28 422.44
e 110.98 869.94
f 819.82 529.84
g 701.68 164.68
h 354.42 42.96
k 295.35 726.74
l 313.25 601.44
m 170.05 694.52
n 205.85 690.94

March 8, 1895

Meas. to determine position of new variable star in Sector (No. 2). ~~ag^c 5478 11 43.5 -49 25~~ companion star

J.C. 5283 5 7 38 -48 39.6

Sp. Md on Plate 12421 No. 6150 (B5 p 92)

Plate B 10677

For ident see B 12166

		x	y	x	y
	a				
-4.42 +10.74	b	11.18 11.20	17.92 17.95	11.15	17.90
-8.10 -0.70	c	7.50	6.48 6.50	7.50	6.45
-1.32 -2.36	d	14.28 14.25	4.82 4.85	14.30	4.80
+0.62 -4.86	e	16.22 16.20	2.32 2.35	16.25	2.30
+4.58 -2.96	f	20.18 20.20	4.22 4.25	20.15	4.20
-3.92 +0.92	g	11.68 11.70	8.10	11.65	8.10
+1.98 +0.24	h	17.58 17.60	7.42 7.40	17.55	7.45
+1.65 -4.06	k	17.25	3.12 3.15	17.25	3.10
+1.75 -3.36	l	17.35	3.82 3.85	17.35	3.80
+0.95 -388	m	16.55	3.30	16.55	3.30
+1.15 -386	n	16.75	3.32 3.30	16.75	3.35
var.		15.60	7.18 7.20	15.60	7.15

J C 320
327 ~~J.C. 5140 14 45 30.2 -50 6~~
363 ~~[illegible]~~

~~J.C. [illegible] 14 45 18.9 -49 47~~

~~J.C. 283 5 7 -48 [illegible]~~

Positions charted.
See Chart No. 9b.

-Var. No. 194-

March 8, ~~1894~~ 5

P Gruis.

Meas. to determine position of new variable star in Grus, and of comparison stars.
Sp Md in Plate B 12050 No. ~~6532~~ 5632 21h 42m -47° 23 (approx./1900)

Mean Dec. = 47° 20'.5 = Log. 0.16894
1.07700
1.24594

Plate B 8720

checked by H.Q.G. Oct. 1903

Comp.		x	y	x	y	A.G.C.	R.A. 1875 Dec.	Magn.
a	1	13.00	5.72 5.70	13.00	5.75	29831	21h 41m 42s.31 -47° 11' 22".1	7.0
b	2	3.25	0.90	3.25	0.90	29757	21 38 48.08 -46 57 51.5	7.5
—	3	7.20	19.30	7.20	19.30	29785	21 40 7.52 -47 52 13.4	5.8
e ~~c~~		13.60	5.70	13.60	5.70	Zl. 1317		
d		10.25	11.20	10.25	11.20	—		
c ~~d~~		4.25	2.22 2.20	4.25	2.25	Zc. 1212		
f		10.72 10.75	7.75	10.70 ~~11.75~~	7.75 ~~7.47~~			
g		11.68 11.70	8.30	11.65	8.30			
h		10.68 10.70	13.92 13.95	10.65	13.90			
k		8.25	11.58 11.60	8.25	11.55			
l		8.98 9.00	11.18 11.20	8.95	11.15			
var.		8.58 8.55	11.68 11.70	8.60	11.65			
m		9.68 9.70	11.00	9.65	11.00			

March 11, 1895

	Diff x	Diff y	×1.79	×1.79
a	+4.42	-5.96	791.18	1066.84
b	-5.33	-10.78	954.07	1929.62
—	-1.38	+7.62	247.02	1363.98
e ~~c~~	+5.02	-5.98	898.58	1070.42
d	+1.67	-0.48	298.93	85.92
c ~~d~~	-4.33	-9.46	775.07	1693.34
f	+2.14	-3.93	383.06	703.47
g	+3.10	-3.38	554.90	605.02
h	+2.10	+2.24	375.90	400.96
k	-0.33	-0.10	59.07	17.90
l	+0.40	-0.50	71.60	89.50
m	+1.10	-0.68	196.90	121.72

Diff. x	4.42	-5.33	-1.38
Log. Diff. x	0.64542	0.72673	0.13988
	1.24594	1.24594	1.24594
	1.89136	1.97267	1.38582
No. of Log.	77s.87	93s.90	24s.31
	1m 17s.87	1m 33s.90	

Diff. y.	-5.96	-10.78	7.62
×1.79	1066.84	1929.62	1363.98
	17' 46".84	32' 9".62	22' 43".98

(1)	(2)	(3)
21h 41m 42s.31 -47° 11' 22".1	21h 38m 48s.08 -46° 57' 51".5	21h 40m 7s.52 -47° 52' 13".4
1 17.87 17 46.8	1 33.90 32 9.6	24.31 22 44.0
21h 40m 24s.44 -47° 29' 8".9	21h 40m 21s.98 -47° 30' 1".1	21h 40m 31s.83 -47° 29' 29".4

Mean Position of Var. 21h 40m 26s.08 -47° 29' 33".1 (1875)
21 40 28.42 -47 29 27 (1875) adopt position

See Book 4. page 75

Mean Dec. −47° 34′
Log. = 0.17087
1.07700
1.24787

Plate B 12142

	a.	b.	c.
Diff. x	−16.02	−6.45	−5.65
	1.20466	0.80956	0.75205
	1.24787	1.24787	1.24787
	2.45253	2.05743	1.99992
	283.48s	114.14s	99.98s
	4m 43.48s	1m 54.14s	1m 39.98s
Diff. y	+11.27	+11.03	+3.07
× 179	2017.33	1974.37″	549.53
	33′ 37.3″	32′ 54.4″	9′ 9.5″

checked by M.C.S. Dec. 12, 19

a = 20h 0m 4.54s −47° 25′ 33.4″ b = 20h 2m 55.03s −47° 26′ 19.0″ c = 20h 3m 7.41s −47° 50′ 9.0″
4 43.48 33 37.3 1 54.14 32 54.4 1 39.98 9

20 4 48.02 −47° 59′ 10.7″ 20h 4 49.17 −47° 59′ 13.4″ 20h 4 47.39 −47° 59′ 1.5

Mean Pos. of Comp d = 20h 4m 48.20s −47° 59′ 14.2″ (1875)

	a.	b.	c.
Diff. x	−16.07	−6.50	−5.70
	1.20602	0.81291	0.75587
	1.24787	1.24787	1.24787
	2.45389	2.06078	2.00374
	284.37s	115.02s	100.86s
	4m 44.37s	1m 55.02s	1m 40.86s
Diff. y	+11.47	+11.23	+3.27
× 179	2053.13″	2010.17	585.33″
	34′ 13.13″	33′ 30.17″	9′ 45.33″

a = 20h 0m 4.54s −47° 25′ 33.4″ b = 20h 2m 55.03s −47° 26′ 19.0″ c = 20h 3m 7.41s −47° 50′ 9.0″
4 44.37 34 13.1 1 55.02 33 30.2 1 40.86 9 45.3

20h 4 48.91 −47° 59 46.5 20h 4 50.05 −47 59 49.2 20h 4 48.27 −47° 59 54.3

Mean Pos. of Comp d′ 20h 4m 49.1s −47° 59′ 50.0″ (1875)

2nd Computation
April 5, 1895.

Plate B 12142.

Mean Dec. = −47° 40′.8 =
Log 0.17184
1.07700
1.24884

Diff. x	−19.52	−9.95	−9.15	−3.50	(3.45)
Log. "	1.29048	0.99782	0.96142	0.54407	0.53782
	1.24884	1.24884	1.24884	1.24884	1.24884
	2.53932	2.24666	2.21026	1.79291	1.78666
No. of Log.	$346^s.2$	$176^s.5$	$162^s.3$	$62^s.07$	$61^s.19$
	$5^m 46^s.2$	$2^m 56^s.5$	$2^m 42.3$	$1^m 2^s.07$	$1^m 1^s.19$
Diff. y	−1.28	−1.52	−9.48	−12.55	−12.75
× 179	229″.12	272″.08	1696″.92	2246″.45	2282″.25
	3′ 49″.12	4′ 32″.08	28′ 16″.92	37′ 26″.45	38′ 2″.25

(a) $20^h 0^m 4^s.54$ −47° 25′ 33″.4
5 46.2 — 3 49.1
$20^h 5^m 50^s.7$ −47° 21′ 44″.3

(b) $20^h 2^m 55^s.03$ −47° 26′ 19″.0
2 56.5 — 4 32.1
$20^h 5^m 51^s.5$ −47° 21′ 46″.9

(c) $20^h 3^m 7^s.41$ −47° 50′ 9″.0
2 42.3 — 28 16.9
$20^h 5^m 49^s.7$ −47° 21′ 52″.1

(d) $20^h 4^m 38^s.03$ −48° 1′ 3″.5
1 2.07 — 37 26.4
$20^h 5^m 40^s.1$ −47° 23′ 37″.1

$20^h 4^m 38^s.03$ −48° 1′ 3″.5
1 1.19 — 38 2.2
$20^h 5^m 39^s.22$ −47° 3′ 1.3

See Book 4. page 75

Mean Position of Var. 20 5 48.0 −47° 22 15.1 (1875) Adopt Mean

Positions charted. See chart No. 9b

This var. I have identified as C.P.D. −47° 13303 (1875) 20h 5m 48.0 −47 16 (1900) 20 7.6 −47 20.0 magn. 8.2 Checked this identification June 1906 L.R.W.

March 11, 1895.

Variable No. 167.

R Telescopii.

Meas. to determine position of new variable star in Telescopium and of comparison stars.

Of. Md on Plate B12270 No. 5910 20h 5m.7 −47 23 (1875) 85/27

Mean Dec. = −47° 40′.8 = Log. 0.17184
1.07700
1.24884

Plate B12142

The comp. stars p. q. r, s, t were added to the sequence on Pl. B25534, Nov. 28. 1906 — See Bk. 16, p. 90

Insuff. on chart may be used.

	x	y	x	y	AG						
a	~~13.6~~ 0.80 0.78	13.50 13.52	0.75	13.55	27536	20	0 4.54	−47	25	33.4	6.6
b	10.35	13.30 13.28	10.35	13.25	Z.C. 107	20	2 55.03	−47	26	19.0	8½
c	11.15	5.35 5.32	11.15	5.30	27604	20	3 7.41	−47	50	9.0	8½
d	16.80	2.25	16.80	2.25	27643	20	4 38.03	−48	1	3.5	9½
est. Magn. d′ 27643	16 85	2 05	16 85	2.05							
e	24.65	14.60 14.62	24.65	14.65							
f	24.45 24.42	17.45	24.40	17.45							
g	21.15 21.12	17.80	21.10	17.80							
h	17.95	17.25	17.95	17.25							
k	17.20 17.18	13.80	17.15	13.80							
l	20.85 20.82	13.30	20.80	13.30							
m	17.35	14.75	17.35	14.75							
n	20.75	15.10	20.75	15.10							
o	17.65	14.80	17.65	14.80							
var.	20.30	14.80	20.30	14.80							

	Diff x	Diff y	×1.79 x	×1.79 y
a	−19.52	−1.28	3494.08	229.12
b	−9.95	−1.52	1781.05	272.08
c	−9.15	−9.48	1637.85	1696.92
d	−3.50	−12.55	626.50	2246.45
d′	−3.45	−12.75	617.55	2282.25
e	+4.35	− ~~0.20~~ 0.18	778.65	~~35.80~~ 32.22
f	+4.12	+2.65	737.48	474.35
g	+0.82	+3.00	146.78	537.00
h	−2.35	+2.45	420.65	438.55
k	−3.12	−1.00	558.48	179.00
l	+0.52	−1.50	93.08	268.50
m	−2.95	−0.05	528.05	8.95
n	+0.45	+0.30	80.55	53.70
o	−2.65	0.00	474.35	0.00

Diff. x	−19.52	−9.95	−9.15	−3.50	Diff. y	−1.28	−1.52	−9.48	−12.55
Log. " "	1.29048	0.99782	0.96142	0.54407	×179	229.12	272.08	1696.92	2246.45
	1.24884	1.24884	1.24884	1.24884		3′ 49.12″	4′ 32.08″	28′ 16.92″	37′ 26.4″
	2.53932	2.24666	2.21026	1.79291					
	346.2s	176.5s	162.3s	62.07s					
	5m 46.2s	2m 56.5s	2m 42.3s	1m 2.07s					

(a) 20h 0m 4s.54 −47° 25′ 33″.4
5 46.2 3 49.1
20h 5m 50s.7 −47° 21′ 44″.3

(b) 20h 2m 55s.03 −47° 26′ 19″.0
2 56.5 4 32.1
20h 5m 51s.5 −47° 21′ 46″.9

(c) 20h 3m 7s.41 −47° 50′ 9″.0
2 42.3 28 16.9
20h 5m 49s.7 −47° 21′ 52″.1

(d) 20h 4m 38s.03 −48° 1′ 3″.5
1 2.1 37 26.4
20h 5m 40s.1 −47° 23′ 37″.1

See red ink not at top of page

Mean Position of Var. 20h 5m 48s.0 −47° 22′ 15″.1 (1875) Adopt Mean

See Positions charted Chart No. 9b

Nov. 10, 1906
See Plate B5394

Var. No. 113: RU Scorpii

March 11, 1895.

Meas. to determine position of new variable in Scorpius & Comparison Stars. Of Mdorf pl. B12222 No. 5778 R.A. 17h 35.2m − 43° 41′ (1900) B5, p. 66.

Mean Dec. = −43° 48.8′ = Log. 0.14173
1.07700
1.21873

Plate B5394

	x	y	x	y	17h			Mag.
1	8.50	21.10	8.50	21.10	Ge 22203 23927 ~~3[illegible]~~	17h 32m 21.66s 17 32 21.65	−44° 23′ 9.9″ −44 23 10.8	8½ use this one 8½
a	5.82 5.85	5.52 5.50	5.80	5.55	2257	17 33 8.33	−43 36 31.8	9
b	5.12 5.10	3.38 3.35	5.15	3.40	2276	17 33 21.28	−43 30 17.1	8
c	1.05	8.38 8.40	1.05	8.35	2356	17 34 28.27	−43 45 17.1	9½
d	11.72 11.75	5.02 5.05	11.70	5.04	Ge 2144	17 31 31.52	−43 34 51.8	9
e	9.60	4.32 4.35	9.60	4.30	Ge 2179	17 32 5.97	−43 32 59.5	8½
f	4.15	5.38 5.40	4.15	5.35				
g	5.72 5.75	3.52 3.50	5.70	3.55				
h	3.75	7.22 7.25	3.75	7.20				
k	5.85	7.58 7.55	5.25	7.60				
l	4.68 4.65	6.82 6.85	4.70	6.80				
m	4.10	5.60	4.10	5.60				
n	5.42 5.40	6.50	5.45	6.50				
o	5.40	6.88 6.90	5.40	6.85				
var.	5.05	7.00	5.05	7.00				

	Diff x	Diff y	x × 179	y × 179
1 =	+3.45	+14.10	617.55	2523.90
	+0.77	−1.48	137.83	264.92
	+0.07	−3.62	12.53	647.98
	−4.00	+1.38	716.00	247.02
	+6.67	−1.98	1193.93	354.42
	+4.55	−2.68	814.45	479.72
	−0.90	−1.62	161.10	289.98
	+0.67	−3.48	119.93	622.92
	−1.30	+0.22	232.70	39.38
	+0.20	+0.58	35.80	103.82
	−0.37	−0.18	66.23	32.22
	−0.95	−1.40	170.05	250.60
	+0.37	−0.50	66.23	89.50
	+0.35	−0.12	62.65	21.48

	x	y	x	y
var.	+5.05	+7.00	+5.05	+7.05
a	+6.50	+5.50	+5.80	+5.55
b	+3.75	+7.25	+3.75	+7.25
c	+5.35	+6.90	+5.35	+6.90
p	+5.05	+6.45 (6.48)	+5.05	+6.50
a	+5.05	+7.05	+5.05	+7.05
	5.05	7.04		

a +0.75 −1.49
b −1.35 +0.21 2
o +0.30 −0.14 3
p 0.00 −0.56 4
Diff × 179
a = 134.25 266.71
232.70
b = ~~241.65~~ 37.59
σ = 53.70 25.06
k = 0.00 100.24

{checked by M. A. G. Oct. 9. 1903 – Log. ~~Tangent~~ Secant = 0.14171 Doesn't change R.A.}

Diff. x.	3.45	0.77	0.07	−4.00
Log. "	0.53782	9.88649	8.84510	0.60206
	1.21873	1.21873	1.21873	1.21873
	1.75655	11.10522	10.06383	1.82079
No. of Log.	57.09s	12.74s	1.16s	66.19s 1m 6.19s

Diff. y	14.10	−1.48	−3.62	1.38
× 179	2523.90″	264.92″	647.98″	247.02″
	42′ 3.90″	4′ 24.92″	10′ 47.98″	4′ 7.02″

(1)	(2)	(3)	(4)
17h 32m 21.66s −44° 23′ 9.9″	17h 33m 8.33s −43° 36′ 31.8″	17h 33m 21.28s −43° 30′ 17.1″	17h 34m 28.27s −43° 45′ 17.1″
57.09 42′ 3.9	12.74 4′ 24.9	1.16 10′ 48.0	1′ 6.19 4′ 7.0
17h 33m 18.75s −43° 41′ 6.0″	17h 33m 21.07s −43° 40′ 56.7″	17h 33m 22.44s −43° 41′ 5.1″	17h 33m 22.08s −43° 41′ 10.1″

RU Scorpii Mean Position of Var. 17h 33m 21.08s −43° 41′ 4.5″ (1875) Adopt. July 14 1903

March 12, 1895

Meas. to determine position of V Type star No. 5105 on B 11636 No. 3053 on B 9416, ~~and No. 5105 on B~~ also to determine pos. of suspected var. (not confirmed) No. 5107 on B 11636.

Mean Dec. = 51° 38.2 = Log. 0.20712
1.07700
1.28412

Plate. B3552

	x	y	x	y	g.c. 16h	R.A. h	m	s	Dec. °	'	"	
1	9.62 9.60	21.10	9.65	21.10	898	16	12	40.80	-52	7	27.1	9½
2	0.80	1.32 1.35	0.80	1.30	1076	16	15	25.67	-51	8	10.2	9
3	5.90	2.65	5.90	2.65	976	16	13	48.72	-51	12	12.8	9
4	11.48 11.50	7.40	11.45	7.40	860	16	12	3.49	-51	26	43.0	7.2
5	4.82 4.85	15.55	4.80	15.55	1000	16	14	12.45	-51	50	43.6	9
6	14.32 14.35	19.88 19.85	14.30	19.90	798	16	11	8.34	-52	4	2.9	9
V Type	2.50	3.35	2.50	3.35								
For III Type Cat. { Sus. var.	6.48 6.50	13.30	6.45	13.30								
Comp. Sus. var.	6.58 6.60	13.45	6.55	13.45								

Diff. x	7.12	-1.70	3.40	8.98	2.32	11.82
Log.	0.85248	0.23045	0.53148	0.95328	0.36549	1.07262
	1.28412	1.28412	1.28412	1.28412	1.28412	1.28412
	2.13660	1.51457	1.81560	2.23740	1.64961	2.35674
No. of Log.	137.0s	32.70s	65.40s	172.7s	44.63s	227.4s
	2m 17.0s		1m 5.40s	2m 52.7s		3m 47.4s

Diff. y	17.75	-2.03	-0.70	4.05	12.20 16.53
× 179	3177.25"	363.37"	125.30"	724.95"	2183.80" 2958.87
	52' 57.25"	6' 3.37"	2' 5.30"	12' 4.95"	36' 23.80" (49' 18.87")

(1) 16h 12m 40.80s -52° 7' 27.1"
2 17.0 52 57.2
16h 14m 57.8s -51° 14' 29.9"

(2) 16h 15m 25.67s -51° 8' 10.2"
32.70 6 3.4
16h 14m 53.0s -51° 14' 13.6"

(3) 16h 13m 48.72s -51° 12' 12.8"
1 5.40 2 5.3
16h 14m 54.9s - 51° 14' 18.1"

(4) 16h 12m 3.5s -51° 26' 43.0"
2 52.7 12 5.0
16h 14m 56.2s -51° 14' 38.0"

(5) 16h 14m 12.4s -51° 50' 43.6"
44.6 36 23.8
16h 14m 57.0s -51° 14' 19.8"

(6) 16h 11m 8.3s -52° 4' 2.9"
3 47.4 49 18.9
16h 14m 55.7s -51° 14' 44.0"

Identified later as CPD -51°10119 16h 14m 53.0s -51° 14.1' (1875) magn 10.0

Mean Position of V Type. 16 14 55.6 -51° 14 27.2" (1875.) Adopt mean

Mean Position of Sus. Var. 16 13 39.1 -51 44 9.2 (1875)

Mean Position of Comp. Sus. Var. 16 13 37.2 -51 44 35.1

March 12, 1895.

×1.79	×1.79
125.30	98.45
17.90	179.00
993.45	325.78

Meas. to determine position of suspected variable No. 5578 on B12038 $18^h\,41^m\,17^s$ +7° 6′ (1855) Variability not confirmed.

Mean Dec. +7° 8.′2 = Log. 0.00337
1.07700
1.08037

Plate B9913

Diff. x	Diff. y		x	y	x	y	DM	R.A.	Dec.	Magn.
								h m s		
−0.70	+0.55	1	1,50	3.35	1,50	3,35	+7° 3843	18 41 12,7	+7° 7.′9	9.5
−0.10	−1.00	2	2,10	1,80	2,10	1,80	+7° 3844	18 41 17.0	+7 4.2	9.4
+5.55	+1.82	3	7.75	4.62 4.60	7.75	4.65	+7° 3855	18 42 27.1	+7 12.5	9.5
For III Type Cat.	Sus. var.		2, 20	2,80	2,70	2,80				

Diff. x	−0.70	−0.10	5.55	Diff. y.	0.55	−1.00	1.82
Log. Diff. x	9.84510	9.00000	0.74429	×179	98.″45	179.00	325.78
	1.08037	1.08037	1.08037		1′ 38.″45	2′ 59.″00	5′ 25.″78
	10.92547	10.08037	1.82466				
No. of Log.	8.s42	1.s20	66.s78				
			$1^m\,6.^s78$				

(1) $18^h\,41^m\,12.^s7$ +7° 7.′9
8.4 1.6
$18^h\,41^m\,21.^s1$ +7° 6.′3

(2) $18^h\,41^m\,17.^s0$ +7° 4.′2
1.2 3.0
$18^h\,41^m\,18.^s2$ +7° 7.′2

(3) $18^h\,42^m\,27.^s1$ +7° 12.′5
1 6.8 5.4
$18^h\,41^m\,20.^s3$ +7° 7.′1

Mean Position of Sus. Var. $18^h\,41^m\,19.^s9$ +7° 6.′9 (1855) adopted

Sus. Var. Plate B 3552. see Book 4. p. 77.

Diff. x.	3.14	-5.68	-0.58	5.00	-1.66	7.84
Log. "	0.49693	0.75435	9.76343	0.69897	0.22011	0.89432
	1.28412	1.28412	1.28412	1.28412	1.28412	1.28412
	1.78105	2.03847	11.04755	1.98309	1.50423	2.17844
No.	60.40s	109.3s	11.16s	96.18s	31.93s	150.8s
	1m 0.40s	1m 49.3s		1m 36.18s		2m 30.8s

Diff. y.	7.80	-11.98	-10.65	-5.90	2.25	6.55
× 179	1396.20	2144.42″	1906.35″	1056.10″	402.75″	1172.45″
	23′ 16.20″	35′ 44.42″	31′ 46.35″	17′ 36.10″	6′ 42.75″	19′ 32.45″

(1) 16h 12m 40.8s -52° 7′ 27.1″	(2) 16h 15m 25.7s -51° 8′ 10.2″	(3) 16h 13m 48.7s -51° 12′ 12.8″
1 0.4 23 16.2	1 49.3 35 44.4	11.2 31 46.4
16h 13m 41.2s -51° 44′ 10.9″	16h 13m 36.4s -51° 43′ 54.6″	16h 13m 37.5s -51° 43′ 59.2″
(4) 16h 12m 3.5s -51° 26′ 43.0″	(5) 16h 14m 12.4s -51° 50′ 43.6″	(6) 16h 11m 8.3s -52° 4′ 2.9″
1 36.2 17 36.1	31.9 6 42.8	2 30.8 19 32.4
16h 13m 39.7s -51° 44′ 19.1″	16h 13m 40.5s -51° 44′ 0.8″	16h 13m 39.1s -51° 44′ 30.5″

Mean Position of Sus. Var. 16h 13m 39.1s -51° 44′ 9.2″

Comp. Sus. Var

Diff. x	3.04	-5.78	-0.68	4.90	-1.76	7.74
Log. "	0.48287	0.76193	9.83251	0.69020	0.24551	0.88874
	1.28412	1.28412	1.28412	1.28412	1.28412	1.28412
	1.76699	2.04605	11.11663	1.97432	1.52963	2.17286
No.	58.48s	111.2s	13.08s	94.26s	33.86s	148.9s
		1m 51.2s		1m 34.26s		2m 28.9s

Diff. y.	7.65	-12.13	-10.80	-6.05	2.10	6.43
× 179	1369.35″	2171.27	1933.20	1082.95	375.90	1150.97
	22′ 49.35″	36′ 11.27″	32′ 13.20″	18′ 2.95″	6′ 15.90″	19′ 10.97″

(1) 16h 12m 40.8s -52° 7′ 27.1″	(2) 16h 15m 25.7s -51° 8′ 10.2″	(3) 16h 13m 48.7s -51° 12′ 12.8″
58.5 22 49.4	1 51.2 36 11.3	13.1 32 13.2
16h 13m 39.3s -51° 44′ 37.7″	16h 13m 34.5s -51° 44′ 21.5″	16h 13m 35.6s -51° 44′ 26.0″
(4) 16h 12m 3.5s -51° 26′ 43.0″	(5) 16h 14m 12.4s -51° 50′ 43.6″	(6) 16h 11m 8.3s -52° 4′ 2.9″
1 34.3 18 3.0	33.9 6 15.9	2 28.9 19 11.0
16h 13m 37.8s -51° 44′ 46.0″	16h 13m 38.5s -51° 44′ 27.7″	16h 13m 37.2s -51° 44′ 51.9″

Mean Position of Comp. Sus. Var. 16h 13m 37.2 -51° 44′ 35.1″

Note to be written to
Mr. T. E. Espin that
the variability of his
star was independ. Confirmed
by Mrs. M. Fleming.
Book 4. page 84

March 12, 1895.

Meas. to determine position of suspected variable No. 5448 on pl. B 11989 $22^h 5^m$ $-85^\circ.2$ (1900) variability not confirmed *

Mean Dec. = 85° 13′.3 = Log. 1.07890
1.07700
2.15590

Plate B 5597

×1.79 x	×1.79 y
2214.23	1295.96
2085.35	1265.53
2434.40	1041.78
635.45	4099.10

Diff. x	Diff. y		x	y	x	y	Ab. C.	R. a. h	m	s	Dec. °	′	″	Magn.
-12.37	-7.24	1	2.38 2.40	7.58 7.60	2.35	7.55	29568	21	28	40.76	-85	36	27.4	7.0
+11.65	-7.07	2	26.40	7.75	~~7.~~ 26.40	7.75	30848	22	31	28.35	-85	36	15.1	10
+13.60	-5.82	3	28.35	9.00	28.35	9.00	30925	22	36	4.53	-85	31	48.9	10½
+3.55	+22.90	4	18.30	37.72 37.75	18.30	37.70	30400	22	8	26.71	-84	8	37.5	7¾
For III Type of sus. var. Cat.			14.75	14.82 14.80	14.75	14.85								

Diff. x.	-12.37	11.65	13.60	3.55	Diff. y. -7.24	-7.07	-5.82	22.90
Log. " "	1.09237	1.06633	1.13354	0.55023	×1.79 1295″.96	1265″.53	1041″.78	4099.10
	2.15590	2.15590	2.15590	2.15590	21′ 35″.96	21′ 5″.53	17′ 21″.78	1° 8′ 19″.10
	3.24827	3.22223	3.28944	2.70613				
No. of Log.	1771.21 s.	1668.12	1947.32	508.3				
	$29^m\ 31^s.21$	$27^m\ 48^s.12$	$32^m\ 27^s.32$	$8^m\ 28^s.3$				

(1) $21^h\ 28^m\ 40^s.76$ $-85^\circ\ 36'\ 27''.4$
$29\ \ 31.21$ $21\ \ 36.0$
$21^h\ 58^m\ 11^s.97$ $-85^\circ\ 14'\ 51''.4$

(2) $22^h\ 31^m\ 28^s.35$ $-85^\circ\ 36'\ 15''.1$
$27\ \ 48.12$ $21\ \ 5.5$
$22^h\ 3^m\ 40^s.23$ $-85^\circ\ 15'\ 9''.6$

(3) $22^h\ 36^m\ 4^s.53$ $-85^\circ\ 31'\ 48''.9$
$32\ \ 27.32$ $17\ \ 21.8$
$22^h\ 3^m\ 37^s.21$ $-85^\circ\ 14'\ 27''.1$

(4) $22^h\ 8^m\ 26^s.71$ $-84^\circ\ 8'\ 37''.5$
$8\ \ 28.3$ $1\ 8\ 19.1$
$21^h\ 59^m\ 58^s.41$ $-85^\circ\ 16'\ 56''.6$

Mean Position of sus. var. $22^h\ 1^m\ 21^s.95$ $-85^\circ\ 15'\ 21''.2$ (1875)

* Found again on B 21843 in Sept. 1899. More chart plates examined which show evidence of variation

Identified as Gillis 15580 $21^h\ 56^m.5$ $-85^\circ\ 24'.4$ 9 magn. (1850) Sept. 5 1899
(There was no Gillis catalogue at time star was first found)

Later identified as CPD -85° 535 $22^h\ 1^m\ 13^s$ -85 ~~10~~ 17.0 on B 11989 magn. 9.1 (pub. 1875) See B 24383

×1.79	×1.79
1530.45	1704.08
1485.70	658.72
1784.63	1321.02
8.95	241.65

March 12, 1895

Meas. to determine position of Suspected variable No. 5351 on pl. B1175 – 2h 25m – 85° 5′ (1900) variability not Confirmed.

Mean Dec. = −85° 30.′8 = Log. 1.10696
1.07700
2.18396

Plate B9799

Diff. x	Diff. y		x	y	x	y	A.G.C.	R.A. h	m	s	Dec.			Magn.
+8.55	+9.52													
+8.30	+3.68													
−9.97	+7.381		19,10	7,50 (11.52)	19,10	7,55	2151	2	3	22.80	−85°	38′	29″.5	8
−0.05	+1.352		18,85	5,65 (5.68)	18,85	5,70	2202	2	5	25.92	−85	21	13.9	7.3
	3		0,55 (0.58)	9,35 (9.38)	0.60	9,40	3172	2	51	23.87	−85	32	38.6	7 1/4
For III Type Cat.		Sus. var.	10,55	2,00	10,55	2,00								
		Comp.	10,50	3.35	10,50	3.35								

Diff. x	8.55′	8.30′	−9.97′	Diff. y	9.52′	3.68′	7.38′
Log. " "	0.93197	0.91908	0.99870	×179	1704.″08	658.″72	1321.″02
	2.18396	2.18396	2.18396		28′ 24.″08	10′ 58.72	22′ 1.″02
	3.11593	3.10304	3.18266				
No. of Log.	1305.s97	1267.s76	1522.s86				
	21m 45.s97	21m 7.s76	25m 22.s86				

(1) 2h 3m 22.s80 −85° 38′ 29″.5
21 45.97 28 24.1
2h 25m 8.s77 −85° 10′ 5″.4

(2) 2h 5m 25.s92 −85° 21′ 13″.9
21 7.76 10 58.7
2h 26m 33.s68 −85° 10′ 5.2

(3) 2h 51m 23.s87 −85° 32′ 38.6
25 22.86 22 1.0
2h 26m 1.s01 −85° 10′ 37″.6 (Sus. var.)

Diff. x	8.60	8.35	−9.92.	Diff. y.	8.17	2.33	6.03
Log. " "	0.93450	0.92169	0.99651	×179	1462.″43	417.″07	1079.″37
	2.18396	2.18396	2.18396		24′ 22.″43	6′ 57.″07	17′ 59.″37
	3.11846	3.10565	3.18047				
No. of Log.	1313.s59	1275.s41	1515.s21				
	21m 53.s59	21m 15.s41	25m 15.s21				

(1) 2h 3m 22.s80 −85° 38′ 29″.5
21 53.59 24 22.4
2h 25m 16.s39 −85° 14′ 7″.1

(2) 2h 5m 25.s92 −85° 21′ 13″.9
21 15.41 6 57.1
2h 26m 41.s33 −85° 14′ 16″.8

(3) 2h 51m 23.s87 −85° 32′ 38″.6
25 15.21 17 59.4
2h 26m 8.s66 −85° 14′ 39″.2 (Comp.)

Mean Position of Sus. Var. 2h 25m 54.s49 −85° 10′ 16″.1 (1875)
Mean Position of Comp. 2 26 2.13 −85 14 21.0 (1875)

~~Signs for x and y columns entered in Record Book Feb. 9. 1903 by Mrs. Fleming~~

Positions chart Feb. 26. 1903. M.C.S. See chart. no. 23.

No. 47. W Cancri

~~Ma~~ June 15, 1895

Meas. to determine position of new variable star in Cancer. R.A. 9 1.5 ~~Dec~~ +25° ~~45~~ 50 (1875) sp. Md or BD I 12245 (No. 3828). Meas. in B5, p. 153.

Mean Dec. = +25° 54′.2 = Log. 0.04597
1.03623
1.08220

×163

Plate I 2525

x	y		x	y	x	y	BD	h	m	s	°	′	
+2.87	+12.82	1= a	−14.95	+27.40	14.95	27.40	+26° 1902	9	0	51.6	+26	24.6	8.5
+3.17	−11.70 ~~−8.83~~	2= e	−~~1~~15.25	+2.85 2.88	15.25	2.90	+25° 2053	9	0	43.6	+25	18.3	9.4
−7.28	+3.97 ~~−11.70~~	3= b	−4.80	+18.55	4.80	18.55	+25 2056 ~~2506~~	9	2	52.8	+25	59.6	8.5
−6.88	+6.32 ~~+3.97~~	c	−5.20	+20.90	5.20	20.90	+26° 1908	9	2	48.1	+26	6.7	9.1
+6.02	−8.83 ~~+6.32~~	d	−18.10	+5.75	18.10	5.75	+25° 2057	9	0	9.6	+25	27.0	9.3
−2.13	+2.02	f	−9.95 ~~[illegible]~~	+16.60	9.95	16.60	~~+25° 2053~~	~~9~~	~~0~~	~~43.6~~	~~+25~~	~~18.3~~	~~9.4~~
+0.72	+3.34	g	−12.80	17.90 17.92	12.80	17.95							
−0.30	+1.07	h	−11.75 11.78	+15.65	11.80	15.65							
−1.66	−2.58	k	−10.40 10.42	+12.00	10.45	12.00							
−3.08	−1.38	l	−9.00	+13.20	9.00	13.20							
+0.40	−0.43	m	−12.45 12.48	+14.15	12.50	14.15							
..	..	var.	−12.10 12.08	+14.55 14.58	12.05	14.60							

×1.63 x	×1.63 y
a 467.81	a= 2089.66
e 516.71	d=1439.29
b 1186.64	ε=1907.10
c 1121.44	b=647.11
d 981.26	c=1030.16
f 347.19	329.26
g 117.36	544.42
h 48.90	174.41
k 270.58	420.54
l 502.04	224.94
m 65.20	70.09

Diff. x.	−2.87	−3.17	±7.28
Log. Diff x	0.45788	0.50106	0.86213
	1.08220	1.08220	1.08220
	1.54008	1.58326	1.94433
No. of Log.	34.68 s.	38.31 s.	87.967
			1m 27.967 s.

Diff. y.	12.82	−11.70	3.97
×163	2089″.66	1907″.10	647″.11
	34′ 49″.66	31′ 47″.10	10′ 47″.11

(1) 9h 0m 51s.6 +26° 24′.6
34.7 34.8
9h 1m 26s.3 +25° 49′.8

(2) 9h 0m 43s.6 +25° 18′.3
38.3 31.8
9h 1m 21s.9 +25° 50′.1

(3) 9h 2m 52s.8 +25° 59′.6
1 28.0 10.8
9h 1m 24s.8 +25° 48′.8

Mean Position Var. 9h 1m 24s.3 +25° 49′.6 (1855)
" curves " 9h 1 4.1 24.0 + 25 49.6
9 ~~4.0~~ +25° 39 (1900)

checked by M.A.G. Apr. 29. 1903

x ×1.63	y ×1.63
88.02	4079.89
775.88	2001.64
228.20	1136.11
427.06	658.52
e	68.46
f 257.54	208.64
g 55.42	70.09
h 412.39	696.01
k 265.69	163.00
1 61.94	140.18
2 1092.10	707.42
3 598.21	1584.36

Use only three

Positions Charted Aug. 26. 1903. M.C.S. See chart no. 32

Var. No. 97

June 26, 1895.

Meas. of pos. of new var. star S Ursae Minoris.
R.A. 15h 34.5m Dec. +79° 7′ (approx: 1855). Op. McSdon I 12193
No. 3688; also 3683, & 3686. Meas. in B 5, p. 160.

Plate I 12767

Mean Dec. = +78° 55.1 = Log. 0.71616
1.63623
1.75239

	x	y	x	y
1	4.20 ~~11.65~~	11.68 11.65	4.20	11.70
2	10.52 10.55	6.48 6.45	10.50	6.50
3	0.15	1.10	0.15	1.10
a	3.28 3.30	35.85	3.25	35.85
b	8.58 8.55	23.10	8.60	23.10
c	5.22 5.25	3 ~~4~~.85	5.20	3.85
d	~~4~~1.20	6.78 6.75	1.20	6.80
e	3.82 3.85	10.40	3.80	10.40
f	5.40	12.10	5.40	12.10
g	3.48 3.45	11.25	3.50	11.25
h	6.35	6.55	6.35	6.55
k	5.45	11.82 11.85	5.45	11.80
var.	3.82 3.80	10.82 10.80	3.85	10.85

B.D. +79° 469	15	35	34	+79	9.8	9.5
+78° 523	15	41	34	+78	54.9	9.5
+78 516	15	31	49	+78	40.6	9.1
+80° 478	15	34	29	+80	16.0	7.8
+79° 470	15	40	4	+79	40.2	8.0
+78° 519	15	36	33	+78	47.8	9.0
—	—	—	—	—	—	—
(+79° 467)?	15	35	18	+79	6.0	9.4

Diff. x	Diff. y	
−0.54	+25.03	(a)
+4.76	+12.28	
+1.40	−6.97	
−2.62	−4.04	
0.00	−0.42	
+1.58	+1.28	
−0.34	+0.43	
+2.53	−4.27	
+1.63	+1.00	
+0.38	+0.86	(1)
+6.70	−4.34	(2)
−3.67	−9.72	(3)

(+79° 467)? doubtful.

Diff x.	0.38	6.70	−3.67
Log. Diff x	9.57978	0.82607	0.56467
	1.75239	1.75239	1.75239
	11.33217	2.57846	2.31706
No. of Log.	21.49s.	378.8s.	207.5s.
		6m 18.8s.	3m 27.5s.

Diff. y.	0.86	−4.34	−9.72
× 163	140.18″	707.42″	1584.36″
	2′ 20.18	11′ 47.42	26′ 24.36″

(1) 15h 35m 34s. +79° 9.8′
21 2.3
15h 35m 13s +79° 7.5′

(2) 15h 41m 34s. +78° 54.9′
6 19 11.8
15h 35m 15s. +79° 6.7′

(3) 15h 31m 49s. +78° 40.6′
3 28 26.4
15h 35m 17s. +79° 7.0′

Mean Position of Var. 15h 35m 15s. +79° 7.1′ (1855).
[Resid. 0, 0, 0.] Adopt. Curve in R.A. 15 35 13.4 + 79° 7′ 4 Adopt Mean in Dec.
15 33.3 + 78 58 (1900)

Variable No. 163.
RS Aquilae

October 24, 1894.

Meas. to determine pos. of new. var. star in Aquila
RA $19^h 51.3^m$ Dec. -8° 16′ (1855) Ap Md on B13416 No. 7106.

Plate B13730

Mean Dec. = -8° 19.~~3~~6′ = Log. 0.004~~59~~61
1.07700
1.081~~59~~61

		x	y			1855 Position	h	m	s		
1 =	a	3.55	3.80	3.55	3.80	BD -8° 5178	19	50	22.4	-8° 24.6	8.5
2 =	d	8.35	10.00	8.35	10.00	BD -8° 518~~6~~5	19	51	~~34.4~~ 22.3	-8° ~~28.7~~ 5.6	~~7.8~~ 9.1
3 =	b	9.50	2.35	9.50	2.35	BD -8° 518~~3~~6	19	51	~~10.0~~ 34.4	-8° ~~4.6~~ 28.7	~~9.4~~ 7.8
	c	-0.05	2.30	-0.05	2.30	S.D. -8° 5175					
	e	4.60	12.92 12.95	4.60	12.90	S.D. -7° 5123					
	f	10.40	7.12 7.10	10.40	7.15	S.D. -8° 5188					
	g	7.35 ~~7.05~~	10.25	7.35	10.25	S.D. -8° 5183					
	h	10.35	6.72 6.75	10.35	6.70						
	k	7.00	9.42 9.45	7.00	9.40						
	l	8.80	6.50	8.80	6.50						
	m	6.55 ~~8.05~~	6.08 6.10	6.55	6.05						
	n	9.95	6.72 6.75	9.95	6.70						
	var.	8.08 8.05	6 ~~7~~.45	8.10	6.45						

	Diff x	Diff y	x 1.79	x 1.79
a	-4.53	-2.65	810.87	474.35
d	+0.27	+3.55	48.33	635.45
b	+1.42	-4.10	254.18	733.90
c	-8.03	-4.15	1437.37	742.85
e	-3.48	+6.47	622.92	1158.13
f	+2.32	+0.67	415.28	119.93
g	-0.73	+3.80	130.67	680.20
h	+2.27	+0.27	406.33	48.33
k	-1.08	+2.97	193.32	531.63
l	-0.72	+0.05	128.88	8.95
m	-1.53	-0.37	273.87	66.23
n	+1.87	+0.27	334.73	48.33

Diff. x.	-4.53	0.27	1.42
Log. Diff. x.	0.65610	9.43136	0.15229
	1.081~~59~~61	1.081~~59~~61	1.081~~59~~61
	1.737~~69~~71	10.5129~~5~~7	1.233~~88~~90
No. of Log	54.6~~6~~7 s.	3.26 s.	17.1~~3~~4 s.

Diff. y.	-2.65	3.55	-4.10
x 179	474.35″	635.45″	733.90
	7′ 54.35″	10′ 35.45″	~~11~~ 12′ 13.90″

(1) $19^h\ 50^m\ 22.4^s$ -8° 24.6′
54.7 7.9

$19^h\ 51^m\ 17.1^s$ -8° ~~32.5~~ 16.7

(2) $19^h\ 51^m$ ~~34.4~~ 22.32 -8° ~~28.7~~ 5.61
3.3 10.6

$19^h\ 51^m$ ~~31.1~~ 19.0 -8° ~~18.1~~ 16.2

(3) $19^h\ 51^m$ ~~10.0~~ 34.4 -8° ~~4.6~~ 28.7
17.1 ~~11~~ 12′.2

19^h ~~50~~ 51 ~~52.9~~ 17.3 -8° ~~15.8~~ ~~17.5~~ 16.5

Mean Position of Var. $19^h\ 51^m\ 17.8^s$ -8° 16.~~8~~5 (1855)
19 53.7 - 8 ~~10.9~~ (1900)

October 25, 1895.

Meas. to determine position of new var. star in Sp. Md on pl B No. Announced by T. E. Espin. discovered independently here on R.A. 19^h Dec. $-2°$

Mr. Espin's 1900 Position of this var. $19^h 52.4^m -2° 11'$

Mean dec $= -2° 15.9' =$ Log. .00034
1.07700
1.07734

Plate B 13897

	x	y	x	y	SD.	1855 Position h	m.	s.	°	′	
2a ~~1b~~	7.30	7.25	7.30	7.25	-2° 5151 ~~5147~~	19	49	44.7	-2°	22.5	8.7
1b ~~2a~~	0.68 0.65	9.28 9.25	0.70	9.30	-2° 5147	19	48	23.0	-2	16.6	8.7
3 -	9.35	15.02 15.05	9.35	15.00	-1° 3865	19	50	8.7	-1	60.8	9.5
4 f	9.80	6.65	9.~~75~~ 80	6.65	-2° 5153	19	50 D 40	13.4 D 40	-2	23.8 × 1.79	9.2 × 1.79
c	13.75	5.88 18.90	13.75	15.85	S.D. -1° 3872	-1.80		-2.15		322.20	384.85
						-8.42		-0.12		1507.18	21.48
d	5.20	1.20	5.20	1.20	SD -2° 5149	+0.25		+5.62		44.75	1005.98
						+0.70		-2.75		125.30	492.25
e	12.10	17.35	12.10	17.35	SD -1° 3866	+4.65		-3.52		832.35	630.08
~~f~~ g	6.90	14.42 14.45	6.90	14.40		-3.90		-8.20		698.10	1467.80
× h	~~9.68~~ 9.72 9.70	7.65	9.75	7.65		× +3.00		+7.95		537.00	1423.05
k	6.50	9.50	6.50	9.50		-2.20		+5.02		393.80	898.58
l	10.08 10.10	11.25	10.05	11.25		~~+0.58~~ +0.62		-1.75		~~103.62~~ 110.98	313.25
m	8.05	9.25	8.05	9.25		-2.60		+0.10		465.40	17.90
n	8.38 8.35	9.40	8.40	9.40		+0.98		+1.85		175.42	331.15
						-1.05		-0.15		187.95	26.85
var.	9.10	9.40	9.10	9.40		-0.72		0.00		128.88	000

Diff x.	-1.80	-8.42	0.25	0.70
Log. Diff x	0.25527	0.92531	9.39794	9.84510
	1.07734	1.07734	1.07734	1.07734
	1.33261	2.00265	10.47528	10.92244
No. of Log.	21.51s	100.6s 1m 40.6s	2.99s	8.36s

Diff y	-2.15	-0.12	5.62	-2.75
× 179	384.85″	21.48″	1005.98″	492.25″
	6′ 24.85″		16′ 45.98″	8′ 12.25″

(2) (a)	(1) (b)	(3)	(4) (f)
$19^h 49^m 44.7^s -2° 22.5'$	$19^h 48^m 23.0^s -2° 16.6'$	$19^h 50^m 8.7^s -1° 60.8'$	$19^h 50^m 13.4^s -2° 23.8'$
21.5 6.4	$1^m 40.6$ 0.4	3.0 16.8	8.4 8.2
$19^h 50^m 6.2^s -2° 16.1'$	$19^h 50^m 3.6^s -2° 16.2'$	$19^h 50^m 5.7^s -2° 17.6'$	$19^h 50^m 5.0^s -2° 15.6'$

Mean Position of Var. $19^h 50^m 5.1^s -2° 16.4'$ (1855)
19 52.4 - 2 9 (1900)

Positions charted June 22, 1898. M.C.S.
See Chart: No. 10c.

October 25, 1895.

Meas. to determine pos. of new V Type star,
Belongs in B 1339 No. 7143 R.A. Dec.

Mean Dec. -61° 33.′8 = Log. 0.32227
1.07700
1.39927

Plate B3420

	x	y	x	y	1875 Position	h	m	s	°	′	″	
2	6.05	12.30 12.28	6.05	12.25	3ᵉ,13ʰ 1480	13	24	40.92	-61	44	26.0	8.5
7	3.30 3.32	12.70	3.35	12.70	3ᵉ 13ʰ 1545	13	25	47.94	-61	45	35.6	9
(5	3.55 3.52	1.25	3.50	1.25)	3ᵉ,13ʰ 1523	13	25	26.23	-61	11	16.2	8.3
(5?) ~~7~~	4.10	1.25	4.10	1.25								
V Type	5.00	11.00	5.00	11.00								

Diff. x	1.05	-1.68	(-1.48	-0.90
Log. Diff. x.	0.02119	0.22531	0.17026	9.95424
	1.39927	1.39927	1.39927	1.39927
	1.42046	1.62458	1.56953	11.35351
No. of Log.	26.33 s.	42.13 s.	37.11 s.)	22.57 s.

Diff. y.	1.28	1.70	-9.75
×179	229.″12	304.″30	1745.″25
	3′ 49.″12	5′ 4.30	29′ 5.25

(2) 13ʰ 24ᵐ 40.92ˢ -61° 44′ 26.0″
26.33 3 49.1
13ʰ 25ᵐ 7.25ˢ -61° 40′ 36.9″

(7) 13ʰ 25ᵐ 47.94ˢ -61° 45′ 35.6″
42.13 5 4.3
13ʰ 25ᵐ 5.81ˢ -61° 40′ 31.3″

(5) 13ʰ 25ᵐ 26.23ˢ -61° 11′ 16.2″
~~37.11~~
22.57 29 5.2
13ʰ 25ᵐ 3.66ˢ -61° 40′ 21.4″

Mean Position of V Type Star. 13ʰ 25ᵐ 5.57ˢ -61° 40′ 29.″9 (1875)
13 26.8 -61 48 (1900)

Adopt. Curve 13 25 6.2 61° 40′ 30″ (1875
13 26.8 - 61 48 (1900)

Identified later as C.P.D. -61° 3791 13ʰ 25 6.5 -61 40.3 (1875) 9.6 magn.
13 26.8 -61 48 (1900)

x	y
x1.79	x1.79
613.97	259.55
345.47	429.60
309.67	179.00
96.66	1127.70
6 196.90	23.27
(1) 12.53	98.45
(2) 59.07	59.07
x Diff.	Diff y.
2+3.43	−1.45
3+1.93	+2.40
4+1.73	+1.00
5−0.54	−6.30
6−1.10	+0.13
(1)+0.07	+0.55
(2) ∓0.33	∓0.33

Positions charted.
See Chart No. 10b.

October 26, 1895.

Meas. & to determine position of object No. 6510 on pl B13027. Hydrogen lines bright and supposed to be a variable. Is probably a Nova in Carina since it does not appear on any of taken before.

Mean Dec. = 61° 12′ 55.9 = Log. 0.31740
1.07700
1.39440

Plate B12988

1875 position

	x	y	x	y	Z.C.	h m s	° ′ ″	
2	4.75	6.20	4.75	6.20	b 112	11 1 31.85	−61 10 45.7	8
3	3.25	10.05	3.25	10.05	f 153	11 2 4.21	−61 22 23.0	10
4	3.05	8.65	3.05	8.65	e 160	11 2 13.18	−61 18 19.4	8.3
5	0.78 0.80	1.35	0.75	1.35	c 24~~5~~ 3	11 3 15.44	−60 56 59.3	8½
6	0.22 0.25	7.78 7.75	0.20	7.80	256	11 3 22.31	−61 16 12.0	6
Nova Carinae ?	1.32 1.35	7.65	1.30	7.65				
Comp (1)	1.25	7.10	1.25	7.10				
comp. (2)	1.65	7.98 8.00	1.65	7.95				

Diff. x. 3.43	1.93	1.73	−0.54	−1.10
Log. Diff. x. 0.53529	0.28556	0.23805	9.73239	0.04139
1.39440	1.39440	1.39440	1.39440	1.39440
1.92969	1.67996	1.63245	11.12679	1.43579
85.05 s	47.86 s	42.90 s	13.39 s	27.28 s
1 m 25.05 s				

Diff. y. −1.45	2.40	1.00	−6.30	0.13
x1.79 259.55″	429.60″	179.00″	1127.70″	23.27″
4′ 19.55″	7′ 9.60″	2′ 59.00″	18′ 47.70″	

(2)	(3)	(4)	(5)	(6)
11h 1m 31.85s −61° 10′ 45.7″	11h 2m 4.21s −61° 22′ 23.0″	11h 2m 13.18s −61° 18′ 19.4″	11h 3m 15.44s −60° 56′ 59.3″	11h 3m 22.31s −61°
1 25.05 4 19.6	47.86 7 9.6	42.90 2 59.0	13.39 18 47.7	27.28
11h 2m 56.90s −61° 15′ 5.3″	11h 2m 52.07s −61° 15′ 13.4″	11h 2m 56.08s −61° 15′ 20.4″	11h 3m 2.05s −61° 15′ 47.0″	11h 2m 55.03s −61° 15′

(1900) 11 3.9 − 61 23

Mean Position of Nova Carinae? R.A. 11h 2m 56.43s Dec. −61° 15′ 27.0″ (1875)

(1900) 11 3.9 − 61 24

11 2 55.5 −61 15 43 (1875) adopted from chart.

R S Carinae

Plate B 12988.

Comp (1)

Diff x	3.50	2.00	1.80	-0.47	-1.03
Log. Diff x.	0.54407	0.30103	0.25527	9.67210	0.01284
	1.39440	1.39440	1.39440	1.39440	1.39440
	1.93847	1.69543	1.64967	11.06650	1.40724
No. of Log.	86.79s 1m 26.79s	49.59s	44.63s	11.65s	25.54s

Diff y.	-0.90 ~~1.78~~	2.95 ~~2.07~~	1.55 ~~0.67~~	-5.75 ~~-6.63~~	0.68 ~~-0.20~~
× 179	~~318.62″~~ ~~5′ 18.62″~~ 161.10 2′ 41.10″	~~370.53~~ ~~6′ 10.53~~ 528.05 8′ 48.05″	~~119.93″~~ ~~1′ 59.93~~ 277.45 4′ 37.45″	~~1186.77″~~ ~~19′ 46.77~~ 1029.25 17′ 9.25″	~~35.80″~~ 121.72″ 2′ 1.72″

(2)	(3)	(4)	(5)	(6)
11h 1m 31.85s -61° 10′ 45.7″	11h 2m 4.21s -61° 22′ 23.0″	11h 2m 13.18s -61° 18′ 19.4″	11h 3m 15.44s -60° 56′ 59.3″	11h 3m 22.31s -61° 16′ 12.0″
1 26.79 2 41.1	49.59 8 48.0	44.63 4 37.4	11.65 17 9.2	25.54 2 1.7
11h 2m 58.64s -61° 13′ 26.8″	11h 2m 53.80s -61° 13′ 35.0″	11h 2m 57.81s -61° 13′ 42.0″	11h 3m 3.79s -61° 14′ 8.5″	11h 2m 56.77s -61° 14′ 10.3″

Mean Position of Comp. (1.) 11h 2m 58.16s -61° 13′ 48.5″ (1875)

11 4.0 -61° 22′ (1900)

Comp. (2)

Diff x.	3.10	1.60	1.40	-0.87	-1.43
Log. Diff x.	0.49136	0.20412	0.14613	9.93952	0.15534
	1.39440	1.39440	1.39440	1.39440	1.39440
	1.88576	1.59852	1.54053	11.33392	1.54974
No. of Log.	76.87s 1m 16.87s	39.68s	34.72s	21.57s	35.46s

Diff y.	-1.78	2.07	0.67	-6.63	-0.20
× 179	318.62″ 5′ 18.62″	370.53″ 6′ 10.53″	119.93″ 1′ 59.93″	1186.77″ 19′ 46.77″	35.80″

(2)	(3)	(4)	(5)	(6)
11h 1m 31.85s -61° 10′ 45.7″	11h 2m 4.21s -61° 22′ 23.0″	11h 2m 13.18s -61° 18′ 19.4″	11h 3m 15.44s -60° 56′ 59.3″	11h 3m 22.31s -61° 16′ 12.0″
1 16.87 5 18.6	39.68 6 10.5	34.72 1 59.9	21.57 19 46.8	35.46 35.8
11h 2m 48.72s -61° 16′ 4.3″	11h 2m 43.89s -61° 16′ 12.5″	11h 2m 47.90s -61° 16′ 19.5″	11h 2m 53.87s -61° 16′ 46.1″	11h 2m 46.85s -61° 16′ 47.8″

16′ 12.0″
23.3
15′ 48.7″

Mean Position of Comp. (2). 11h 2m 48.25s -61° 16′ 26.0″ (1875)

11 3.8 - 61 24 (1900)

May 8, 1896. A further examination of Chart plates 5596, 11090, 12839, 13485-3774, 6341, 10965 and 9270 shows no evidence of greater variation in light. On plates 14141 and 14353 the spectrum is clearly shown to be continuous, and the bright hydrogen lines are well marked. M. Fleming.

Positions charted June 22, '98. M. C. S.

See Chart. No. 10 C.

October 29, 1895.

Identified later as CPD –71°1889 15 26.7 –71 3~~4~~5 (1900)
See sp. pl. B 36153
rd. pl. B 27625

Meas. to determine position of bright line spectrum No. 2305 on B 8191. This object was at first supposed to be Sp. Md and so published in Astron. and Astro Physics Vol. 12 p. 546. Exam. of a large number of chart plates shows very slight (about 0.3) change in the light of this star and a further examination of later photos. of its spectrum show that it has a faint continuous spectrum in which the hydrogen lines are bright and well defined, Hγ being markedly stronger than the other lines which are of about equal intensity. Hβ = .3, Hγ = 1.0, Hδ = .3 & Hε = .3. The spectrum is similar to that of η Carinae.

Mean Dec. 71° 16' 46.3 = Log. 0.49365
1.07700
1.57065

Plate B 5598

	x	y	x	y	1875 3e.15	h m s	° ' "	
1	12.20	9.92 9.90	12.20	9.95	1228	15 17 58.04	–71° 12' 56.3	6.5
2	3.30	1.65	3.30	1.65	1597	15 23 17.57	–70 47 27.8	8
3	2.10	21.48 21.50	2.10	21.45	1663	15 24 30.89	–71 46 49.1	8
6	–3.65	12.68 12.70	–3.65	12.65	1918	15 27 52.81	–71 19 52.0	7.5
Br. line	2.48 2.45	15.68 15.70	2.50	15.65				

Diff. x	9.72	0.82	–0.38	–6.13
Log. Diff. x	0.98767	9.91381	9.57978	0.78746
	1.57065	1.57065	1.57065	1.57065
	2.55832	11.48446	11.15043	2.35811
No. Log.	361.7 s	30.51 s	14.14 s	228.1 s
	6m 1.7 s			3m 48.1

Diff. y.	–5.76	–14.03	5.80	–3.00
×179	1031.04	2511.37	1038.20	537.00
	17' 11.04"	41' 51.37"	17' 18.20"	8' 57.00"

(1)	(2)	(3)	(6)
15h 17m 58.0s –71° 12' ~~56.3~~"	15h 23m 17.6s –70° 47' 27.8"	15h 24m 30.9s –71° 46' 49.1"	15h 27m 52.8s –71° 19' 52.0"
6 1.7 17 11.0	30.5 41 51.4	14.1 17 18.2	3 48.1 8 57.0
15h 23m 59.7s –71° 30' 7.3"	15h 23m 48.1s –71° 29' 19.2"	15h 24m 16.8s –71° 29' 30.9"	15h 24m 47s –71° 28' 47.0"

15h 24m 8.2s – 71° 29' 26" Curve Adopt 15 26.7 – 71 34 (1900)

Mean Pos. of Br. line 15h 24m 2.32s – 71° 29' 26.6" (1875) 15 26.6 – 71 34 (1900) positions charted June 22, 1898 M. C. S.

See chart No. 10d.

October 30, 1895

Meas. to determine position of IV Type star No. 6465 on B12901 Var.

Identified as C.P.D. -64° 1475 10 41 38.3 -64 57.3 (1875) March 21 1906 - (C.P.D. catalogue not made at time star also found to be variable. Type IV) [illegible] plate B25357 used for identification

	h	m		
Computed	17	43.6	-51°	39.2
		2.0		-1 (1900)
	17h	45.6	-51°	40' (1900)
Curve	17	43.7	-51	39.3 (1875)
		2.0		-1
Cup	17	45.7	-51°	40' (1900)
E.C.P.	17	45.8		
M.F.		45.7		

~~1900 R.A.~~ (1900 pos. from pre. charts)

		h	
a	44.4.	17	44.4
b	44.8	17	44.7
c	48.1	17	47.9
f	47.2	17	4~~7~~6.9

Dec. = 64° 35' 3.8" = Log. 0.36734

1.07700

1.44434

	s.	°	'	"	
1	51.84	-64	26	55.0	6.5
2	4.73	-64	2	46.8	8.5
3	55.20	-65	15	29.5	8

IV Type

Comp. to IV Type

Diff. α. 12.32

Log. " " . 1.090

1.444

2.5349

No. of Log. 342.7 s

5m 42.7 s

① 10h 35m 51.8 s

5 . 42.7

10h 41m 34.5 s

-18.23 | 6.04

3263.17" | 1081.16

54' 23.17" | 18' 1.16

42m 55.2 s -65° 15' 29.5"

1 . 10.1 | 18 . 1.2

41m 45.1 s -64° 57' 28.3"

° 57, 20 " Adopt curve.

Mean Po[...] 57' 21.5 (1875)

5 5 (1900)

Diff. α. 12.30.

Log. " 1.08991

1.44434

2.53425

No. of Log. 342.2 s.

5m 42.2 s.

-17.77 | 6.50

3180.83 | 1163.50

53' 0.83" | 19' 23.50"

① 10h 35m 51.84 s -64 26 55.0 (2) 10 41 4.73 -64 2 46.8 (3) 10 42m 55.2 s -65° 15' 29.5"

5 . 42.2 | 29 . 8.8 | 24.5 | 53 . 0.8 | 1 . 10.7 | 19 . 23.5

10h 41m 34.0 s -64° 56' 3.8" | 10h 41m 29.2 s -64° 55' 47.6" | 10h 41m 44.5 s -64° 56' 6.0"

Mean Position of Comp. to IV Type. 10h 41m 35.9 s - 64° 55' 59.1" (1875)

10 42.5 - 65 4 (1900)

positions charted June 22, 1898 M. C. S.

See Chart No. 10d.

October 30, 1895

Meas. to determine position of IV Type star Var.

No. 6465 on B12901

Identified as C.P.D. -64° 1475 10 41 38.3 -64 57.3 (1875) March 21 1906 - (C.P.D. catalogue not made at time star was found to be Type IV) Also found to be variable. See plate B 36119. Chart plate B25357 used for identification & Book 17 page 84

Plate B 5071

Mean Dec. = 64° 35' 3.8" = Log. 0.36734
1.07700
1.44434

	x 15.72	y	x	y	(1875) Z. 10	h m s.	° ′ ″	
1	15.70	8,55	15,75	8,55	2611	10 35 51.84	-64 26 55.0	6.5
2	4,30	0,55	4.30	0,55	3000	10 41 4.73	-64 2 46.8	8.5
3	0.88 0,90	24.82 24,85	0.85	24,80	3116	10 42 55,20	-65 15 29,5	8
IV Type	3,40	18.78 18,75	3,40	18,80				
Comp to IV Type	3.42 3,45	18.32 18,35	3,40	18,30				

Diff. x.	12.32	0.90	-2.52
Log. " "	1.09061	9.95424	0.40140
	1.44434	1.44434	1.44434
	2.53495	11.39858	1.84574
No. of Log.	342.7 s	25.04 s	70.10 s
	5m 42.7		1m 10.10

Diff. y	-10.23	-18.23	6.04
×179	1831.17″	3263.17″	1081.16
	30′ 31.17	54′ 23.17	18′ 1.16

(1) 10h 35m 51.8s -64° 26′ 55.0″
5 42.7 30 31.2
10h 41m 34.5s -64° 57′ 26.2″

(2) 10h 41m 4.7s -64° 2′ 46.8″
25.0 54 23.2
10h 41m 29.7s -64° 57′ 10.0″

(3) 10h 42m 55.2s -65° 15′ 29.5″
1 10.1 18 1.2
10h 41m 45.1s -64° 57′ 28.3″

10h 42m.6 - 65° 5′ (1900)

10h 41m 40.8s - 64° 57′ 20″ Adopt curve.

Mean Position of IV Type. 10. 41. 36.4 - 64. 57. 21.5 (1875)
10 42.5 - - 65 5 (1900)

Diff. x.	12.30.	0.88	-2.54
Log. "	1.08991	9.94448	0.40483
	1.44434	1.44434	1.44434
	2.53425	11.38882	1.84917
No. of Log.	342.2 s	24.48 s	70.66 s
	5m 42.2s		1m 10.66s

Diff. y	-9.77	-17.77	6.50
×179	1748.83	3180.83	1163.50
	29′ 8.83″	53′ 0.83″	19′ 23.50″

(1) 10h 35m 51.84s -64° 26′ 55.0″
5 42.2 29 8.8
10h 41m 34.0s -64° 56′ 3.8″

(2) 10h 41m 4.73s -64° 2′ 46.8″
24.5 53 0.8
10h 41m 29.2s -64° 55′ 47.6″

(3) 10h 42m 55.2s -65° 15′ 29.5″
1 10.7 19 23.5
10h 41m 44.5s -64° 56′ 6.0″

Mean Position of Comp. to IV Type. 10h 41m 35.9s - 64° 55′ 59.1″ (1875)
10 42.5 - 65 4 (1900)

R W Scorpii

Var. No. 108

November 1, 1895.

Meas. to determine pos. of new variable Star in Scorpius. Sp. Mol on pl. B 13766, No. 7342. Approx pos for 1875 {R.A. 17h 6m.6 Dec. -33° 16'.0

Comp stars marked on pl B 3728

Plate B 13532

[Mean Dec. = -33° 17'.2 = Log. 0.07781
1.07700
1.15481 ✓

(1875 Position)

	x	y	x	y	CDM -33	h	m	s	° '	
-.# 6	7.32 7.30	✓5.05	7.35	5.05	11875	17	7	7.4	-33° 23'.8	5.8
c 3	5.00	7.90	5.00	7.90	11865	17	6	32.9	-33 15.7	8.9
g 4	6.10	10.25	6.10	10.25	11869	17	6	51.4	-33 8.2	10
e 1	2.82 2.80	5.72 5.70	2.85	5.75	11854	17	6	0.2	-33 21.3	9.7
a	7.20	12.20	7.20	12.20						
b	2.52 2.55	11.62 11.60	2.50	11.65						
d	1.62 1.60	8.10	1.65	8.10						
f	3.52 3.50	4.60	3.55	4.60						
h	4.40	9.65	4.40	9.65						
k	5.20	7.18 7.15	5.20	7.20						
l	6.90	9.30	6.90	9.30						
m	6.25	9.65	6.25	9.05						
n	5.20	6.85	5.20	6.85						
o	5.45	7.42 7.45	5.45	7.40						
p	4.90	7.32 7.30	4.91	7.35						
var.	5.42 5.45	7.35	5.40	7.35						

Diff. x	Diff. y	x × 179	y × 179	
+1.78	+4.85	318.62	868.15	= a
-2.90	+4.27	519.10	764.33	= b
-0.42	+0.55	75.18	98.45	= c
-3.80	+0.75	680.20	134.25	= d
-2.60	-1.63	465.40	291.77	= e
-1.90	-2.75	340.10	492.25	= f
+0.68	+2.90	121.72	519.10	= g
-1.02	+2.30	182.58	411.70	= h
-0.22	-0.17	39.38	30.43	
+1.48	+1.95	264.92	349.05	
+0.83	+1.70	148.57	304.30	
-0.22	-0.50	39.38	89.50	
+0.03	+0.07	5.37	12.53	
-0.52 ~~-1.42~~	-0.03	93.08 ~~254.18~~?	5.37	
+1.90	-2.30	340.10	411.70	= 6

✓

Diff. x.	1.90	-0.42	0.68	-2.60
Log. Diff.	0.27875	9.62325	9.83251	0.41497
	1.15481	1.15481	1.15481	1.15481
	1.43356	10.77806	10.98732	1.56978
No. of Log.	27.14s	6.00s	9.77s	37.14

Diff. y.	-2.30	0.55	2.90	-1.63
× 179	411".70	98".45	519".10	291".77
	6' 51".70	1' 38".45	8' 39".10	4' 51".77

(6) 17h 7m 7s.4 -33° 23'.8	(c) (3) 17h 6m 32s.9 -33° 15'.7	(g) (4) 17h 6m 51s.4 -33° 8'.2	(e) (1) 17h 6m 0s.2 -33° 21'.3
27.1 6.9	6.0 1.6	9.7 8.7	37.1 4.9
17h 6m 40s.3 -33° 16'.9	17h 6m 38s.9 -33° 17'.3	17h 6m 41s.7 -33° 16'.9	17h 6m 37s.3 -33° 16'.4

Mean Position of New Var. 17h 6m 39s.6 - 33° 16'.9 (1875) Adopt. Mean
17 8.3 -33° 19' (1900)

See p. 92

November 2, 1895

	x1.79	x1.79
1	989.87	273.87
2	0.00	1951.10
3	232.70	2201.70
+	236.28	2022.70

Meas. to determine position of No. 2409 on pl B 8162, Sp Md? (Susp. var.) Shows no evidence of variation.

Plate B 4217 Mean Dec. = −85° 11′ 39″.3 = Log. 1.07739
1.07700
2.15439

Diff. x	Diff. y		x	y 14.28	x	y	AGC, 1875.	Position h	m	s.	°	′	″	
+5.53	+1.53	1	8.15	14.25	8.15	14.30	4304	3	46	39.82	−85	7	31.2	8 1/4
0.00	+10.90	2	2.62 265	2365	2.60	23.65	4610	4	2	19.46	−85	33	60.0	8 3/4
−1.30	+12.30	3	1.32 1.35	25.05	1.30	25.05	4677	4	5	56.21	−85	37	36.4	6.5
−1.32	−11.30	4	1.30	1.45	1.30	1.45	4546	3	59	7.55	−84	27	29.5	7 1/2
Susp. var, Md?			2.62 2.65	12.75	2.60	12.75								

Diff. x.	5.53	0.00	−1.30	−1.32
Log. Diff. x	0.74273	0.00000	0.11394	0.12057
	2.15439	2.15439	2.15439	2.15439
	2.89712	2.15439	2.26833	2.27496
No. of Log.	789.1 s.	142.7 s.	185.5 s.	188.~~3~~4 s.
	13m 9.1s	2m 22.7s	3m 5.5s	3m 8.~~3~~4s

Diff. y.	1.53	10.90	12.30	−11.30
x179	273″.87	1951″.10	2201.70	2022.70
	4′ 33″.87	32′ 31″.10	36′ 41″.70	33′ 42″.70

(1) 3h 46m 39s.8 −85° 7′ 31″.2
13 9.1 4 33.9
3h 59m 48.9 −85° 2′ 57″.3

(2) 4h 2m 19s.5 −85° 33′ 60″.0
2 22.7 32 31.1
3h 59m 56s.8 −85° 1′ 28″.9

(3) 4h 5m 56s.2 −85° 37′ 36″.4
3 5.5 36 41.7
4h 2m 50s.7 −85° 0′ 54″.7

(4) 3h 59m 7s.6 −84° 27′ 29″.5
3 8.~~8~~4 33 42.7
3h 55m 59s.~~3~~2 −85° 1′ 12″.2

Mean Position of (Sus. Var.)

See p. 92.

x 1.79	1.79 y
988.70	393.80
~~75.78~~ 254.18	1915.30
501.20	2139.05
32.22	2040.60

November 4, 1895.

Meas. to determine pos. of No ~~2~~ 4 09 on pl B 8162, Op Md? Susp var. Not confirmed
See p. 91.

Plate B 4217

Mean Dec. = −85° 11′ 39.3″ = log 1.07739
1.07700
2.15439

Diff. x	Diff. y		x	y	x	y	A.G.C.	1875 Positions h	m	s	°	′	″	
+5.30	+2.20	1	9.00 2.28	15,25	9.00	15,25	4304	3	46	39.82	−85	7	31.2	8¼
−1.42	+10.70	2	2,25	23,75	2,30	23,75	461x	4	2	19.46	−85	33	60.0	8¾
−2.80	+11.95	3	0,90 3.88	25.00	0,90	25.00	4672	4	5	56.21	−85	37	36.4	6.5
+0.18	−11.40	4	3,85	1,65	3,90	1,65	4546	3	59	7.55	−84	27	29.5	7½
Susp. var. Md?			3,70	~~2~~ 13,05	3,70	13,05								

Diff. x.	5.30	−1.42	−2.80	0.18
Log. Diff x.	0.72428	0.15229	0.44716	9.25527
	2.15439	2.15439	2.15439	2.15439
	2.87867	2.30668	2.60155	11.40966
No. of Log.	756.3 s.	202.6 s.	399.5 s.	25.68 s.
	12m 36.3s	3m 22.6s	6m 39.5s	

Diff. y.	2.20	10.70	11.95	−11.40
×179	393.80″	1915.30	2139.05	2040.60
	6′ 33.80″	31′ 55.30″	35′ 39.05″	34′ 0.60″

(1) 3h 46m 39.8s −85° 7′ 31.2″
12 36.3 6 33.8
3h 59m 16.1 −85° 0′ 57.4″

(2) 4h 2m 19.5s −85° 33′ 60.0″
3 22.6 31 55.3
3h 58m 56.9 −85° 2′ 4.7″

(3) 4h 5m 56.2s −85° 37′ 36.4″
6 39.5 35 39.0
3h 59m 16.7s −85° 1′ 57.4″

(4) 3h 59m 7.6s −84° 27′ 29.5″
25.7 34 0.6
3h 59m 33.3s −85° 1′ 30.1″

(1) 3h 59m 16.1s −85° 0′ 57.4″
(2) 3 58 56.9 −85 2′ 4.7
(3) 3 59 16.7 −85 1 57.4
(4) 3 59 33.3 −85 1 30.1

Mean 3h 59m 15.8s −85° 1′ 37.4″ (1875.)

Ident. later as CPD −85° 42 3h 59 8 −85 1.5 (1875) Magn 8.7

November 17, 1895.

Meas. to determine position of new ~~V Type~~ star No. 6818 on B 13135.

Plate B 4027

	x 1.78	y 5.68	x	y	SD	R.A. 1855	Dec.	Magn.
1	1,80	5,70	1,75	5,65	-19° 4909	18h 5m 19.5s	-19° 1.5'	9.1
2	2.12 2,10	3.12 3,10	2,15	3,15	-19° 4910	18 5 23.7	-19 8.9	9.3
3	2,55	5,10	2,55	5,10	-19° 4911	18 5 29.2	-19 2.5	9.9
~~V Type~~	1,20	4.52 4,50	1,20	4,55				

Mean Dec. = 19° 4'.3 = Log 0.02450
1.07700
1.10150

Diff. x.	0.58	0.92	1.35
Log. Diff	9.76343	9.96379	0.13033
	1.10150	1.10150	1.10150
	10.86493	11.06529	1.23183
	7.33s.	11.62s.	17.05s.

Diff. y.	1.16	-1.40	0.58
×179	207.64"	250.60	103.82
	3' 27.64"	4' 10.60"	1' 43.82"

(1) 18h 5m 19.5s -19° 1.5'
7.3 3.5
18h 5m 12.2s -19° 5.0'

(2) 18h 5m 23.7s -19° 8.9'
11.6 4.2
18h 5m 12.1s -19° 4.7'

(3) 18h 5m 29.2s -19° 2.5'
17.0 1.7
18h 5m 12.2s -19° 4.2'

18h 5m 12.2s -19° 5.0'.
18 5 12.1 -19 4.7
18 5 12.2 -19 4.2
Mean Position 18h 5m 12.2s -19° 4.6' (1855)
18h 7.8m -19° 4'.6 (1900)

The object on the spectrum plate B13135 is not identical with that here measured but is the spectrum of N.G.C. 6567. ~~A.G.~~ See note in B. 785. M. Fleming. Oct. 10, 1897.

December, 3, 1895.

Measures of Stars on S.D. Charts. by means of glass square ruled in m.m.s.

Region. 0h 0m to 0h 4m Dec. -10°-11°

		x	y		
0h 4m	-11	0.00	0.00	.65 -.05 .60 .55 2.15 .54	19.46
0 4	-10	0.00	19.55 .05		
0 0m	-11	19.40	~~0.40~~ 19.45		
0 0	-10	19.40	~~0.05~~		

add & take diff

add & take diff

Differences. s.		′			x ×12.3	y ×3.08		s.	′	m.	s.	′			h	m	s		′	
5.1	+7	0.0	-4	1	1.05	10.70		~~12.72~~	~~32.10~~		12.92	32.96	SD -10°	13	0	3	42.0	-10°	27.0	9.4
6.6	+22	0.9	+5	2 S.D.-10°11	4.00	17.15		~~48.48~~	~~51.45~~		49.20	52.825	S.D -10	12	0	3	4.8	-10	30.1	9.8
~~5.4~~ 4.8	+4	0.5	+1	3 S.D.-10°12	4.10	9.55		~~49.68~~	~~28.65~~		50.43	29.41	S.D -10	11		3	4.2	-10	6.3	8.5
5.9	+15	0.7	+3	4	5.60	10.95	~~1~~	~~7.80~~	~~32.85~~	1	8.88	33.73	S.D -10	10		2	45.2	-10	25.6	9.5
5.0	+6	0.2	-2	5	8.90	0.05	~~1~~	~~47.76~~	~~0.15~~		49.47	0.15	S.D. -10	9		2	5.5	-10	59.6	8.0
3.0	-14	1.2	+8	6	10.10	2.15	~~2~~	~~1.20~~	~~6.45~~	2	4.23	6.62	S.D -10	8		1	52.8	-10	52.2	9.8
4.1	-3	0.7	+3	7	10.25	0.60	~~2~~	~~3.00~~	~~1.80~~		6.08	1.85	S.D. -10	7		1	49.8	-10	57.5	9.6
4.6	+2	0.0	-4	8	11.60	~~1~~ 4.50			~~4.50~~		22.68	4.62	S.D. -10	6		1	32.7	-10	55.4	9.2
0.2	-42	0.3	[illegible]	9	12.~~15~~ .20	3.25			~~9.75~~		30.06	10.01	S.D -10	5		1	29.7	-10	50.3	9.3
4.8	+4	0.1	-3	10	13.55	6.90			~~20.70~~		46.66.	21.25	S.D -10	4		1	8.5	-10	38.7	9.3
2.0	-24	0.7	+3	11	15.20	16.00			~~48.00~~	3	.6.96	49.28	S.D -10	3		0	51.0	-10	10.0	9.5
3.0	-14	1.0	-3	12	15.90	12.30			~~36.90~~		15.57	37.88	S.D. -10	2		0	41.4	-10	21.1	10
7.5	+31	0.2	-2	13	18.85	14.40			~~43.20~~		51.86	44.35	S.D -10	1		0	0.6	-10	15.4	10

13 +56.6 / 13 = ±4.35   91.97 / 13   ±1.44

+6.2 -0.3 / 13 = ±0.50

+23 -25   ±0.37

Region. 12h 0m to 12h 4m Dec. -10°-11°

			x	y	
12	4	-11	0.00	0.00 0.45	19.25
12	4	-10	~~19.23~~ 0.00	19.25	
12	0	-11	19.25	0.00	
12	0	-10	19.25	19.25	

158/13 1.44

Differences. s.	′		x ×12.5	y 3.12	′	s.	′		h	m	s.		′	
1.0	0.9	1	0.50	14.00	~~42.00~~	6.25	43.68	S.D.-10° 3416	12	3	52.8	-10°	15.4	9.6
0.6	0.1	2	1.70	3.90	~~41.70~~	21.25	12.17	S.D-10° 3415		3	38.2	-10°	47.7	9.5

S.D. -10° 3413 was omitted by Mrs. Fleming in her measures of this square

Differences. s.	′		× 12.5 x	× 3.12 y		′	m	s.	′
1.8	0.5	3	5.40	5.65		~~16.95~~	1	7.50	17.63
-2.2	0.2								
-1.9	0.1								
1.1	-0.5								
-0.7	-0.7								
0.4	0.5								
0.6	-0.3								
-1.4	3.0								
-1.0	-0.3								
1.3	0.2								

+6.8-7.2 / 12 = +2.3

±1.17 ±

me 0.03

1 4

1 0

1 4

1 4

S.D.	h	m	s.	°	′	
S.D. -10° 3414	12	2	50.7	-10°	41.9	9.0
~~3413~~	~~12~~	~~2~~	~~36.6~~	~~-10~~	~~56.5~~	~~9.6~~
3412		2	34.7	-10	16.6	9.7
3411		1	54.4	-10	6.2	9.5
3408		0	44.5	-10	10.0	9.6
3410		0	50.1	-10	19.5	9.8
3409		0	47.7	-10	25.5	9.8
~~3408~~		~~0~~	~~44.5~~	~~-10~~	~~10.0~~	~~9.6~~
3407		0	24.4	-10	12.7	9.4
3406		0	20.8	-10	15.9	9.4
3405		0	9.1	-10	17.1	9.0
3404		0	4.3	-10	20.2	9.7

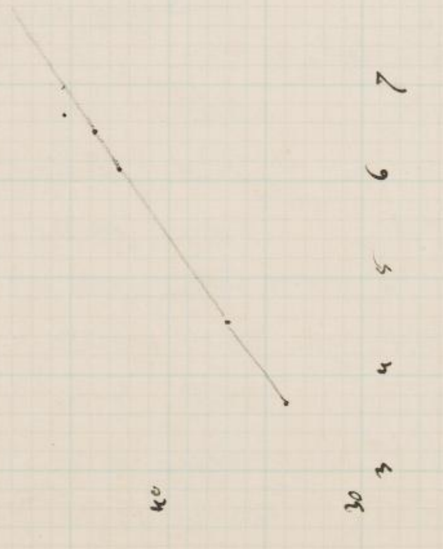
harts.

° - 31°.

and 360 were

rs. F. in her measures

.



			Differences. s.	′
° 14.2	10		+1.0	-1.4
0 5.0	10	-7	+2.3	-0.6
0 48.0	9.9	-30	+0.2	-1.6
0 27.9	10	+18	+1.4	-0.4
0 1.1	9.3	+24	+5.6	+0.6
0 49.7	9.1	+22	+6.4	-1.1
30 17.0	8.5	-56	-2.4	-1.1
30 32.9	9.7	-30	+0.2	-2.1
30 38.6	9.8	+24	+5.6	-1.7

349 omitted

30 35.3	10	+16	+4.8	-1.5
30 59.7	10	-14	+1.8	+0.4
30 20.1	10	+13	+4.5	+0.3

13	6.85	18.15	1	37.96	54.81	-30 353	1 34.1	-30 54.7	9.9	+3.9	+0.1
14	7.35	17.25	1	45.10	52.10	-30 354	1 41.2	-30 52.7	10	+3.9	-0.6

S.D. -10° 3413 was omitted by Mrs. Fleming in her measures of this square

Differences s.	'		×12.5 x	×3.12 y	'	m	s.	'		h m s.	° '	
1.8	0.5	3	5.40	5.65	16.95	1	7.50	17.63	S.D. -10° 3414	12 2 50.7	-10 41.9	9.0
-2.2	0.2	4	7.00	13.85	41.55		27.50	43.21	~~S.D. -10° 3413~~	~~12 2 36.6~~	~~-10 56.5~~	~~9.6~~
-1.9	0.1	5	10.20	17.20	51.60	2	7.50	53.66	S.D. -10° 3412	2 34.7	-10 16.6	9.7
1.1	-0.5	6	15.55	16.20	48.60	3	14.38	50.54	S.D. -10° 3411 S.D. -10° 3408	1 54.4 0 44.5	-10 6.2 -10 10.0	9.5 9.6
-0.7	-0.7	7	15.25	13.20	39.60		10.62	41.18	S.D -10° 3410	0 50.1	-10 19.5	9.8
0.4	0.5	8	15.35	10.90	32.70		11.88	34.01	S.D. -10° 3409	0 47.7	-10 25.5	9.8
0.6	-0.3	9	17.20	15.25	45.75		35.00	47.58	~~S.D. -10° 3408~~	~~0 44.5~~	~~-10 10.0~~	~~9.6~~
-1.4	3.0	10	17.65	14.20	42.60		40.62	44.30	S.D. -10° 3407	0 24.4	-10 12.7	9.4
-1.0	-0.3	11	18.55	13.85	41.55		51.88	43.21	S.D. -10° 3406 S.D -10° 3405	0 20.8 0 9.1	-10 15.9 -10 17.1	9.4 9.0
1.3	0.2	12	18.75	12.70	38.10		54.38	39.62	S.D -10° 3404	0 4.3	-10 20.2	9.7

$\frac{+6.8-7.2}{12} = \pm 1.17$ m.e. 0.03

$\frac{+\cancel{5.5}\,2.5 - \cancel{18}\,2.0}{12} = \cancel{\pm 0.64}\ 0.38$ m.e. 0.04

Measures of Stars on C. D. M. Charts.

Region 1h 0m to 1h 4m Dec. -30°-31°.

h m	°	x	y
1 0	-30	0.00	0.00
1 0	-31	0.00 ~~19~~	19.80
1 4	-30	16.80	-0.20
1 4	-31	16.80	19.70

240|1680 19.85
30 [illegible] 3
10|7 1 59.55
143 59.6

C.D.M. -30° 349 and 360 were omitted by Mrs. F. in her measures of this square.

~~x×14.3 y×59.6~~

	×14.3 x	×3.02 y	m	s.	'		h m s.	° '		Differences s.	'
1	0.20	4.25	0	2.86	12.84	C.D.M. -30° 340	1 0 3.9	-30 14.2	10	-1.0	-1.4
2	0.65	1.45		9.30	4.38	-30° 341	0 7.0	-30 5.0	10	+2.3	-0.6
3	1.40	15.35		20.02	46.36	-30 342	0 19.8	-30 48.0	9.9	+0.2	-1.6
4	1.75	9.10		25.02	27.48	-30 343	0 23.6	-30 27.9	10	+1.4	-0.4
5	2.45	0.55		35.03	1.66	-30 344	0 29.4	-30 1.1	9.3	+5.6	+0.6
6	3.85	16.10		55.06	48.62	-30 345	0 48.7	-30 49.7	9.1	+6.4	-1.1
7	4.25	5.25	1	0.78	15.86	-30 348	1 1 3.2	-30 17.0	8.5	-2.4	-1.1
8	4.20	10.20	1	0.06	30.80	-30 347	0 59.9	-30 32.9	9.7	+0.2	-2.1
9	4.25	12.40	1	0.78	37.45	-30 346	0 55.2	-30 38.6	9.8	+5.6	-1.2
										349 omitted	
10	5.65	11.20	1	20.80	33.82	-30 350	1 16.0	-30 35.3	10	+4.8	-1.5
11	5.60	19.90	1	20.08	1' 0.10	-30 351	1 18.3	-30 59.7	10	+1.8	+0.4
12	6.80	6.75	1	37.24	20.38	-30 352	1 32.7	-30 20.1	10	+4.5	+0.3
13	6.85	18.15	1	37.96	54.81	-30 353	1 34.1	-30 54.7	9.9	+3.9	+0.1
14	7.35	17.25	1	45.10	52.10	-30 354	1 41.2	-30 52.7	10	+3.9	-0.6

December, 3, 1895.

	x ×14.3	y 3.02	m	s.				h	m s.	°	'			Differences s.	'	
15	9.20	18.10	2	11.56	54.66	C.D.M.	-30° 355	1	2 10.9	-30°	54.7	10	-25	+0.7	0.0	+12
16	10.50	12.00		30.15	36.24		-30 356		2 26.4	-30	36.9	10	+6	+3.8	-0.7	+5
17	10.65	11.10		32.30	33.52		-30 357		2 33.3	-30	40.9	9.3	42	-1.0	-7.4	-62
18	12.05	16.05		52.32	48.47		-30 359		2 48.3	-30	51.4	10	+8	+4.0	-2.9	-7
19	11.95	5.00		50.88	15.10		-30 358		2 43.7	-30	14.7	10	+40	+7.2	+0.4	+16
20	13.05	14.50	3	6.62	43.79		-30 362		3 3.6	-30	44.7	10	2	+3.0	-0.9	+3
21	13.15	9.65		8.04	29.14		-30 361		3 2.3	-30	30.9	9.9	+25	+5.7	-1.8	-6
22	14.00	13.80		20.20	41.68		-30 363		3 17.3	-30	43.4	10	3	+2.9	-1.7	-5
23	15.20	1.20		37.36	3.62		-30 364		3 32.5	-30	4.7	10	17	+4.9	-1.1	+1
24	15.40	14.35		40.22	43.34		-30 366		3 34.4	-30	44.7	10	26	+5.8	-1.4	-2
25	15.35	16.55		39.50	49.98		-30 365		3 28	-30	51.2	10	35	+6.7	-1.2	0
26																

← 360 omitted

$\frac{+280 - 271}{25}$

$\frac{+85.3 - 4.4}{25}$ ±3.59

$\frac{+1.8 - 30.7}{25} =$ ±1.30

a.D. ±2.20 Mean 3.24

Mean 1.16 $\frac{+22.5 - 11.0}{25}$

a.D. ±0.92

Measures of Stars on C.D.M. Charts.

Region: R.A. 13h 0m – 13h 4m Dec. -30° – 31°

h m °		
13 0 -30	0.00	0.00
13 0 -31	0.00	19.45
13 4 -30	17.15	-0.15
13 4 -31	17.00	19.50

2400 1708 6920 6832 880

17.08 14

19.65 6000 586.5 13500 13685

1955 307

x×141

y×307

~~y×50~~

	x ×14.1	y ×3.07	m	s.				h	m s.	°	'			Differences s.	'	
1	0.35	8.80	0	4.94	27.02	C.D.M.	-30° 10339	13	0 3.5	-30°	27.3	10	+10	+1.4	-0.3	+1
2	1.00	3.90		14.10	11.97		-30 10340		0 11.1	-30	12.3	10	12	+3.0	-0.3	+1
3	1.15	7.85		16.22	24.10		-30 10341		0 16.0	-30	24.4	10	-2	+0.2	-0.3	+1
4	1.85	10.30		26.08	31.62		-30 10342		0 23.5	-30	31.7	9.8	+22	+2.6	-0.1	+3
5	1.75	16.25		24.68	49.89		-30 10343		0 24.3	-30	52.0	8.6	0	+0.4	-2.1	-17
6	2.40	2.25		33.84	6.91		-30 10344		0 34.6	-30	6.9	10	-12	-0.8	0.0	+4
7	2.95	12.45		41.60	38.22		-30 10345		0 42.5	-30	38.8	10	13	-0.9	-0.6	-2
8	3.80	14.60		53.58	44.82		-30 10347		0 53.3	-30	45.2	10	1	+0.3	-0.4	0
9	4.05	16.40		57.10	50.35		-30 10346		0 51.8	-30	52.3	9.3	+41	+5.3	-1.9	-15
10	4.35	7.75	1	1.34	23.79		-30 10348		1 1.2	-30	23.7	9.8	3	+0.1	+0.1	+5
11	4.65	4.00	1	5.56	12.28		-30 10349		1 2.9	-30	12.3	10	23	+2.7	0.0	+4

C.D.M. -30° 10364 in Cat. not on Chart
C.D.M. -30° 10378 omitted by Mrs. F. in her measures.

December 3, 1895

	x ×14.1	y ×3.07	m	s.	′				h	m s.		′		Differences s.	′
12	5 ~~6~~.10	6.75	1	11.91	20.72	C.D.M.	-30°	10350	13	1 6.5	-30°	21.3	9.2	+5.4	-0.6
13	5.60	3.75		18.96	11.51		-30	10351		1 15.1	-30	11.3	10	+3.9	+0.2
14	5.75	4.15		21.08	12.74		-30	10352		1 17.2	-30	12.3	9.3	+3.9	+0.4
15	5.65	9.90		19.66	30.39		-30	10353		1 17.6	-30	31.3	9.6	+2.1	-0.9
16	6.85	11.75		36.58	36.07		-30	10354		1 33.9	-30	37.3	9.5	+2.7	-1.2
17	7.65	11.50		47.86	35.30		-30	10355		1 46.0	-30	35.7	8.6	+1.9	-0.4
18	7.75	11.05		49.28	33.92		-30	10356		1 47.3	-30	34.5	9.6	+2.0	-0.6
19	8.05	15.95		53.50	48.97		-30	10357		1 55.4	-30	50.1	10	-1.9	-1.1
20	8.25	4.60		56.32	14.12		-30	10358		1 58.0	-30	14.4	10	-1.7	-0.3
21	8.30	18.20		57.03	55.87		-30	10359		2, 0.1	-30	57.0	9.3	-3.1	-1.1
22	8.80	18.05	2	4.08	55.41		-30	10362		2, 6.1	-30	55.7	10	-2.0	-0.3
23	8.75	4.65		2.38	14.28		-30	10360		2, 5.0	-30	14.3	10	-2.6	0.0
24	8.65	7.80		1.96	23.95		-30	10361		2, 5.8	-30	24.0	9.8	-3.8	0.0
25	9.10	7.10		8.31	21.80		-30	10363		2, 7.4	-30	21.6	9.8	+0.9	+0.2
26	9.90	10.65		19.59	32.70		-30	10366		2 21.2	-30	32.6	10	-1.6	+0.1
27	9.95	14.65		20.30	44.98		-30°	10367		2 23.0	-30	46.2	10	-2.7	-1.2
28	10.15	13.30		23.12	40.83		-30	10368		2 25.6	-30	42.3	10	-2.5	-1.5
29	10.25	12.15		24.52	37.30		-30°	10369		2 25.9	-30	37.9	9.9	-1.4	-0.6
30	10.25	16.75		24.52	51.41		-30	10365		2 20.4	-30	53.6	9.0	+4.1	-2.2
31	10.75	19.75		31.58	1° 0.63		-31	10112		2 ~~27.2~~ 40.6	-31	~~2.0~~ 0.6	~~9.7~~ 9.5	-9.0	0.0
32	10.50	3.70		28.05	11.36		-30°	10370		2 26.4	-30	12.0	8.5	+1.6	-0.6
33	10.95	0.45		34.40	1.38		-30	10371		34.3	-30	1.3	9.9	+0.1	+0.1
34	11.15	17.55		37.22	53.88		-30	10372		37.5	-30	54.0	10	-0.3	-0.1
35	11.75	1.80		45.68	5.53		-30	10374		45.6	-30	6.0	9.6	+0.1	-0.5
36	11.75	13.20		45.68	40.52		-30	10373		44.1	-30	42.1	9.7	+1.6	-1.6
37	13.05	6.90	3	4.00	21.18		-30	10375		3 3.6	-30	22.3	10	+0.4	-1.1
38	13.85	0 ~~7~~.80		15.28	~~23.95~~ 2.46		-30	10377		3 15.5	-30	1.3	9.8	-0.2	+1.2
39	13.55	17.55		11.06	53.88		-30	10376		3 10.8	-30	55.4	9.5	+0.3	-1.5
40	14.10	16.20		18.81	49.73		-30	10379		3 23.3	-30	50.4	9.8	-4.5	-0.7

← 10378 omitted in measuring

December, 3, 1895.

	X ×14.1	y ×3.07	m	s	′				h	m	s	°	′		Resid		Differences s	′
41	14.55	6.15	3	25.16	18.88	C.D.M.	−30°	10380	13	3	25.0	−30°	19.0	10	−2	[illegible]	+0.2	−0.1
42	15.50	11.55		38.55	35.46		−30	10382		3	40.2	−30	35.3	10	−20	+6	−1.6	+0.2
43	15.70	18.95		41.37	58.18		−30	10383			40.6	−30	57.7	9.3	+4	+9	+0.8	+0.5
44	15.90	0.15		44.19	0.46		−30	10381			39.2	−30	0.3	9.1	+46	+6	+5.0	+0.2
45	16.05	15.05		46.30	46.20		−30	10384			44.1	−30	48.2	8.4	+18	−16	+2.2	−2.0
46	16.15	16.10		47.71	49.43		−30	10385			44.4	−30	45.6	9.7	+29	+42	+3.3	+3.8
47	17.10	17.75	4	1.11	54.49		−30	10386		4	0.1	−30	55.2	9.7	+6	−3	+1.0	−0.7

See p. 135 of this book.

$\frac{+59.5-40.6}{47} =$ ±2.13

$\frac{+7.0-26.9}{47} =$ ±0.72

Mean 0.40

A.D. $\frac{+49.0-48.9}{47} =$ ±2.08

Mean −0.42

$\frac{+14.8-15.9}{47} =$ a.D. ± 0.65

Catalogue Stars of Nova Normae

copied from page 19. of Miss Winlock's work

1 turn = 215.4″

Micrometer Measures.

x	y	A.G.C. No.	R.A. 1900 h	m	s	Dec. °	′	″
28.8821	28.2057	20906	15	20	53.87	-49	46	8.7
25.6293	22.8506	20926	15	21	56.99	-50	6	10.9
24.4813	18.1730	20940	15	22	14.74	-50	23	13.7
17.8139	15.0671	20995	15	24	40.00	-50	36	1.9
18.5435	28.0037	20999	15	24	42.63	-49	49	29.4
16.9870	16.3181	21005	15	25	0.51	-50	31	43.1
16.8832	19.8881	21006	15	25	7.96	-50	18	57.6
16.2303	12.9179	21009	15	25	12.61	-50	44	5.5
24.9092	20.6744							

x	y
6221.″20434	6075.″50778
5520.55122	4922.01924
5273.27202	3914.46420
3837.11406	3245.45334
3994.26990	6031.99698
3658.89980	3514.91874
3636.64128	4283.89674
3496.00662	2782.51566
5365.44168	4453.26576

Mean Dec. = 50° 16′ 58.″8 = 0.19450 Log. secant

$\frac{215.4}{15}$ sec. δ 2.33325
1.17609
1.15716

Diff. x. 855.″76
3.618
89.ˢ26
1ᵐ 29.ˢ26

155.″11
0.67
~~22.17~~
16.18
~~22.17~~

-92.″17
0.40
~~13.18~~
9.62
~~13.18~~

-1528.″33
6.570
~~218.ˢ53~~
~~3ᵐ 38.ˢ53~~
159.40
2ᵐ 39.40

-1371.″17
5.895
143.01
2ᵐ 23.ˢ01

-1706.54
7.34
177.99
2ᵐ 57.ˢ99

-1728.80
7.43
180.31
3ᵐ 0.ˢ31

-1869.43
8.04
194.98
3ᵐ 14.98

(over)

Positions charted. See Chart-No. 86 -

Diff. y.	1622.″2	468.″7	−538.″8	−1207.″8
	27′ 2.″2	7′ 48.″7	8′ 58.″8	20′ 7.″8
	1578.″7	−938.″4	−169.″4	−1670.″8
	26′ 18.″7	15′ 38.″4	2′ 49.″4	27′ 50.″8

15h 20m 53s.87 −49° 46′ 8.″7
1 29.26 27 2.2

15h 22m 23s.13 −50° 13′ 10.″9

15h 21m 56s.99 −50° 6′ 10.″9
16.18 7 48.7

15h 22m 13s.17 −50° 13′ 59.″6

15h 22m 14s.74 −50° 23′ 13.″7
9.62 8 58.8

15h 22m 5s.12 −50° 14′ 14.″9

15h 24m 40s.00 −50° 36′ 1.″9
2 39.40 20 7.8

15h 22m 0s.60 −50° 15′ 54.1

15h 24m 42s.63 −49° 49′ 29.″4
2 23.01 1 26 18.7

15 22m 19s.62 −50° 15′ 48.″1

15h 25m 0s.51 −50° 31′ 43.″1
2 57.99 15 38.4

15h 22m 2.52 −50° 16′ 4.″7

15h 25m 7s.96 −50° 18′ 57.6
3 0.31 2 49.4

15h 22m 7s.65 −50° 16′ 8.″2

15h 25m 12s.61 −50° 44′ 5.″5
3 14.98 27 50.8

15h 21m 57.63 −50° 16′ 14.″7

							×42	
15h	22m	23s.13	−50°	13′	10.″9	0.3	12.6	−1.″7
15	22	13.17	−50°	13	59.6	1.3	54.6	+5.0
15	22	5.12	−50°	14	14.9	1.6	7.2	+7.7
15	22	0.60	−50°	15	54.1	4.1	52.2	+1.9
15	22	19.62	−50	15	48.1	4.1	52.2	−4.1
15	22	2.52	−50	16	4.7	4.4	4.8	−0.1
15	22	7.65	−50	16	8.2	4.5	9.0	−0.8
15	21	57.63	−50	16	14.7	4.6	13.2	+1.5

Mean Pos. 15h 22m 8s.68 −50° 15′ 11.″9 (1900)
of Nova Normae.

+3.″7 α − 1.1 42

−1.6
−0.3 ab 4.3

180.6

~~50° 13′ +42 (α − 20.6)~~
~~21.7 50° 13′ 46.4 + 3.7~~ 48.″1
~~24.9 50° 16′ 0.″3~~
~~50 13 +41 (α − 20~~[illegible])

50° 13′ +41 (α − 20.5)

2′ 12.″2 3.2
132.″2 | 3.2
128 41.″
42

41
16
22.6
41
65.6

22.1
20.5
16

205

0.9	0.4	16.4	−5.5"	6	.240	[25.53]	[+2.48]	[+2.56]	[2.52]
1.9	1.4	57.4	+2.2	26	1.040	23.47	+.42	+.50	+.46
2.2	1.7	9.7	+5.2	43	17.2	22.32	−.73	−.65	−.69
4.7	4.2	52.2	+1.9	56	22.4	23.00	−.05	+.03	−.01
4.7	4.2	52.2	−4.1	9	1.6 3.6	23.22 ~~20.98~~	+.17 ~~2.07~~	+.25	+.21
5.0	4.5	4.5	+0.2	52	20.8	22.60	−.45	−.37	−.41
5.1	4.6	8.6	−0.4	39	15.6	23.25	+.20	+.28	+.24
5.2	4.7	12.7	+2.0	64	25.6	23.23	+.18	+.26	+.22

11.5 − 10.0

~~24.38~~ 3.28 − 3.30 / 8 .97 − 1.23 +1.13 −1.11 2.24/7 ±.32

~~23.05~~ 2.10/8 / 26

6.89 7.09 6.58/8 ±.82

22.97 + 3 / 2 ; 25 − 2 ; 78 1.32 − 1.02

$\frac{21.5/8}{2.7"}$ +0.2"

50° 13' + 41 (16) 65.6 $\frac{10}{25}$ 50 14

50 14' 5.6"

23.01

34
4
13.6
22 23.01
9.41

$15^h\ 22^m\ 23.5^s$ − .4(δ − 49° 40')
01

Measures of new star, or ~~var~~? copied from Mrs. F's Ob. Book 7
μ10

Nova Centauri.

December 13, 1895. Plate B14072.

Micrometer Measures.

	V	H.
1.	52.692	56.487
2.	41.894	52.895
3.	32.472	49.564
4	62.893	50.816
5	33.683	41.665
6	45.636	38.172
var?	46.821	48.491

Design.		R.A. 1875			Dec.			Magn
Z.C. 13^h 1874.		13^h	31^m	$5^s.28$	$-31°$	$36'$	$1''.1$	8.2
13	1908.	13	31	41.86	−30	45	23.5	9
13	1947	13	32	20.59	−30	14	55.3	$8\frac{1}{2}$
13	1963	13	32	35.12	−31	51	11.0	9.5
13	2059	13	34	17.24	−30	16	54.2	8.8
13	2134	13	35	22.24	−30	53	42.6	9

Mean Dec. = $-30° 56' 21''.3$ = Log. 0.06663
1.10164
1.16827

Diff. V.	5.871	−4.927	−14.349	16.072
Log. of " "	0.76871	0.69258	1.15682	1.20607
	1.16827	1.16827	1.16827	1.16827
	1.93698	1.86085	2.32509	2.37434
No. of Log.	$86^s.49$	$72^s.59$	$211^s.40$	$236^s.78$
	$1^m 26^s.49$	$1^m 12^s.59$	$3^m 31^s.40$	$3^m 56^s.78$

−13.138	−1.185
1.11853	0.07372
1.16827	1.16827
2.28680	1.24199
$193^s.55$	$17^s.46$
$3^m 13^s.55$	

Values of V have
been used here
as R.A. Should
have been Dec.
See next page but one.
p.104.

Bache 8 inch 1′ = .335 m.m. = Log. 9.52504 m.m.
(335 ÷ 25.4) × 24
1 inch = 25.4 m.m. = Log. 1.40483 m.m.
8.12021 inch.
1 inch = 24 turns → = Log 1.38021
9.50042
0.49958
1.77815
2.27773

2.27773
15″ = 1.17609
1.10164

Diff. H.	7.996	4.404	1.073	2.325
Log. " "	0.90287	0.64385	0.03060	0.36642
	2.27773	2.27773	2.27773	2.27773
	3.18060	2.92158	2.30833	2.64415

No. of Log

Diff. H.	-6.826	- 10.319
Log.	0.83417	1.01364
	2.27773	2.27773
	3.11190	3.29137

Values of H have been used here as Dec. Should have been R.A.

see next page. p. 104

---

(1) 13h 31m 5.28s -31° 36′ 1.1″
1 57.80 18 32.9
13h 33m 3.08s -31° 17′ 28.2″

(2) 13h 31m 41.86s -30° 45′ 23.5″
1 4.88 15 33.9
13h 32m 46.74s -31° 0′ 57.4″

(3) 13h 32m 20.59s -30° 14′ 55.3″
15.81 45 19.9
13h 32m 36.40s -31° 0′ 15.2″

(4) 13h 32m 35.12s -31° 51′ 11.0″
34.25 50 46.5
13h 33m 9.37s -31° 0′ 24.5″

(5) 13h 34m 17.24s -30° 16′ 54.2″
1 40.56 41 30.3
13h 32m 36.68s -30° 58′ 24.5″

(6) 13h 35m 22.24s -30° 53′ 42.6″
2 32.02 3 44.6
13h 32m 50.22s -30° 57′ 27.2″

Mean Position of Var? or Nova } 13h 32m 50.42s -31° 2′ 29.5″ (1875)

cont.

Diff. H.	7.996	4.404	1.073	2.325
Log. " "	0.90287	0.64385	0.03060	0.36642
	1.16827	1.16827	1.16827	1.16827
	2.07114	1.81212	1.19887	1.53469
No. of Log.	$117^{s}.80$	$64^{s}.88$	$15^{s}.81$	$34^{s}.25$
	$1^{m}\ 57^{s}.80$	$1^{m}\ 4^{s}.88$.		

Diff. H.	−6.826	−10.319
Log. " "	0.83417	1.01364
	1.16827	1.16827
	2.00244	2.18191
	$100^{s}.56$	152.02
	$1^{m}\ 40^{s}.56$	$2^{m}\ 32^{s}.02$

Diff. V.	5.871	10.871	−4.927	−14.349	16.072
Log. " "	0.76871	1.03627	0.69258	1.15682	1.20607
	2.27773	2.27773	2.27773	2.27773	2.27773
	3.04644	3.31400	2.97031	3.43455	3.48380
No. of Log.	1112″.9	2060.6	933″.92	2719″.9	3046″.5
	18′ 32.9	34′ 20″.6	15′ 33″.92	45′ 19″.9	50′ 46″.5

−13.138	−1.185
1.11853	0.07372
2.27773	2.27773
3.39626	2.35145
2490″.3	224″.62
41′ 30″.3	3′ 44″.62

	h	m	s	°	'	"	107 y			102 x	122 x				s	"
(1)	13	33	3.08	−31	1 ~~17~~	40.5 ~~20.2~~	61.7 ~~56.9~~	+1.4 ~~+6.7~~		~~576.4~~ ~~537.4~~	689+11	0	59 [16'27"]			
(2)	13	32	46.74	−31	0	57.4	44.8	+1.9	+4.5	~~9.5~~	645+12	0	15	+42	+0.4	−1
(3)	13	32	36.40	−31	0	15.2	34.7	+1.7	+5.5	~~0.5.5~~	604+11	59	34	+41	+0.5	+5
(4)	13	33	9.37	−31	0	24.5	67.3	+2.1	0		~~508~~ ~~620~~ +4	59	50	+34	00	−5
(5)	13	32	36.68	−30	58	24.5	36.0	+0.7	−0.5		508 ~~466~~ −4	57	58	+26	−0.5	+4
(6)	13	32	50.22	−30	57	27.2	46.8	+1.4			466 −19	57	16	+11	−0.2	−5
							50.1	[+1.6]			592	59	22	[+35]		

±0.32 ±4.0

Mean Position of var? or Nova — 13h 32m 50.42s −31° 2' 29.5" (1875)

32 51.2 −31° 0' 2"

~~50.10 −30 59' 21.6~~

13 32 51.7 −30 59" 57 Corr.

30 33.1 60 6.3 30 55' ~~56~~ 35" 60 61' 40"

365/30 12.2

α = 13h 32m 0.0s + 1.07 ~~x~~ y

~~δ = −30 ~~49~~ 50' 30" − 10.2 x~~

δ = −30° ~~4~~9' 30" − 12.2 x

Concluded position 13h 32m 51.7s −30° 59' 57" (1875)

Precession + 1 24.7 − 7 41

Concluded position 13 34 16.4 −31 7 38 (1900)

31 36 1.1
34 20.6
31° 1' 40.5
57.692

N.G.C 52523

(1860) 13h 32m 0s −30° 55.6'
2 16 12.3
(1900) 13 34 16 −31 7.9

3.39 × 4 = 13.56

18.4" × 4 = 73.6

CDM −31°10536, 9.5

(1875) 13h 32m 49.6 −31° 0.3'

46.821
107
327747
~~46821~~
50.098
50.1

48.491
9698
9698
59.1588

16' 27"
987"/5
~~197~~

Nova 1895 13h 32m 51.7s −30° 59' 57"

~~1.2~~ ~~23~~

~~13 32 50.4~~ ~~−30 57~~

~~−31 0 20~~

2.9943
1.1683
1.8260

6.70

0.30

January 1, 1896. Plate B 13965

	V.		H.	
α	47281	1	49228	4
	47280	0	49223	1
	47279	1	49222	2
	47280		49224	
β	47325	2	493~~42~~35	0
	47322	1	49334	1
	47323	0	49335	0
	47323		49335	
γ.	48761	1	50700	0
	48761	1	50701	1
	48759	1	50699	1
	48760		50700	
l.	47284	0	50219	2
	47283	1	50217	0
	47286	2	50214	3
	47284		50217	
σ	46869	7	49395	2
	468~~7~~81	5	49398	1
	46879	3	49399	2
	46876		49397	

January 1, 1896. Plate B. 13965

	V.		H.	
3	34452	1	50316	1
	34453	0	50314	1
	34454	1	50314	1
	34453		50315	
4	63454	3	50346	1
	63448	3	50350	3
	63450	1	50346	1
	63451		50347	
5	33636	2	43486	1
	33632	2	43481	4
	33634	0	43488	3
	33634		43485	

1,20

21.15

January ~~2~~1, 1896. Plate B13965

α	V		H	
	472~~33~~94	1	49310	1
	47293	0	49310	1
	47292	1	49314	3
	47293		49311	
β	47376	2	49420	1
	47376	2	49419	0
	47371	3	49418	1
	47374		49419	
γ	48746	1	50738	1
	48747	0	50737	2
	48749	2	50742	3
	48747		50739	
ι.	472~~70~~66	1	50259	1
	47257	3	50261	3
	47262	2	50253	5
	47260		50258	
σ.	46865	3	49426	5
	46868	0	49432	1
	46870	2	49434	3
	46868		49431	

January 1. 1896 Plate B 13965

	V.		H.	
3	330~~2~~11	1	51506	2
	33009	1	51509	1
	33010	0	51508	0
	33010		51508	
4	63433	3	50372	1
	63439	3	50374	1
	63437	1	50374	1
	63436		50373	
5	33613	0	43532	1
	33613	0	43534	1
	33613	0	43532	1
	33613		43533	
p.	4~~2~~6889	0	48761	2
	46892	3	48766	3
	46887	2	48761	2
	46889		48763	
n.	45846	1	48758	0
	45846	1	48760	2
	45848	1	48757	1
	45847		48758	

21.50

21.50

January 1, 1896. Plate B 13965

	y		x	
ḣ	V		H	
	45949	3	49787	$\underline{2}$
	45944	$\underline{2}$	49788	$\underline{1}$
	45944	$\underline{2}$	49793	4
	45946		49789	
ṁ	44398	1	51264	0
	44395	$\underline{2}$	51265	1
	44397	0	51263	$\underline{1}$
	44397		51264	
2̇ = ġ	42605	1	54147	1
	42607	3	54145	$\underline{1}$
	42601	$\underline{3}$	54147	1
	42604		54146	
6̇ = ė	45157	0	39176	1
	45157	0	39175	0
	45158	1	39173	$\underline{2}$
	45157		39175	
ḟ	48811	2	42472	$\underline{1}$
	48807	$\underline{2}$	42472	$\underline{1}$
	48809	0	42474	1
	48809		42473	

January 1, 1896 Plate B 13965

k.	T		H.	
	50009	5	47505	2
	.50001	1	$\overset{4}{5}7507$	0
	50002	2	47508	1
	50004		47507	
E.C.P				
inc. neb. var?	52195	1	50158	4
	52193	1	50159	3
	52193	1	50169	7
	52194		50162	
a.	$\overset{6}{5}1783$	2	62102	0
	61786	1	62103	1
	61787	2	62102	0
	61785		62102	
b.	60984	1	58617	0
	60982	1	58619	2
	60982	1	58616	1
	60983		58617	
1 = d	58636	0	56480	0
	58636	0	56479	1
	58636	0	56480	0
	58636		56480	

22.55

22.55

January 1, 1896 Plate B 13965

i	δ.		H	
	5$\overset{6}{\cancel{7}}$765	1	58985	2
	56764	0	58981	$\underline{2}$
	56764	0	58984	1
	56764		58983	
α	47177	$\underline{1}$	49361	0
	47176	$\underline{2}$	49367	6
	47180	2	49355	$\underline{6}$
	47178		49361	
β →	47302	$\underline{8}$	49474	$\underline{1}$
	47315	5	49475	0
	47312	2	49475	0
	47310		49475	
γ	48685	1	50794	1
	48684	0	50790	$\underline{3}$
	48683	$\underline{1}$	50794	1
	48684		50793	

23.15

		V.		H.	
α	p. 106	47280	30	49224	75
	p. 108	47293	43	49311	12
	p. 112	47178	72	49361	62
		47250		49299	
	p. 115	47123		49398	
β	p. 106	47323	13	49335	75
	p. 108	47374	38	49419	09
	p. 112	47310	26	49475	65
		47336		49410	
	p. 115	47254		49504	
g	p. 106	48760	30	50700	44
	p. 108	48747	17	50739	05
	p. 112	48684	46	50793	49
		48730		50744	
b	p. 106	47284	12	50217	21
	p. 108	47260	12	50258	20
		47272		50238	
o	p. 106	46876	04	49397	17
	p. 108	46868	04	49431	17
		46872		49414	
3	p 107	34453		50315 (wrong star measured)	
	p. 109	33010		51508	
	p. 115	32895		51624	

		V.		H.	
4	p. 107.	63451	07	50347	13
	p. 109	63436	08	50373	13
		63444		50360	
	p. 116	63315		50428	
5	p. 107	33634	10	43485	24
	p. 109	33613	11	43533	24
		33624		43509	
	p. 116	33485		43643	
1	p. 111	58636		56480	
	p. 115	58584		56504	
2	p. 110	42604		54146	
	p. 115	42553		54181	
6	p. 110	45157		39175	
	" 116	45104		39207	

0.40

January 2, 1896. Plate B 13965

α	V.		H	
	47120	$\underline{3}$	49398	0
	47125	2	49399	1
	47124	1	49396	$\underline{2}$
	47123		49398	
β	47247	7	49501	$\underline{3}$
	47257	3	49508	4
	47259	.5	49504	0
	47254		49504	
1	58587	3	56506	2
	58582	$\underline{2}$	56502	$\underline{2}$
	58584	0	56505	1
	58584		56504	
2	$4\overset{2}{3}553$	0	54181	0
	42552	$\underline{1}$	54183	2
	42553	0	54180	$\underline{1}$
	42553		54181	
3	$3\overset{2}{7}899$	4	51623	$\underline{1}$
	32894	$\underline{1}$	51622	$\underline{2}$
	32893	$\underline{2}$	51626	2
	32895		51624	

0.50

0.50

January 2, 1896 Plate B 13965

4 V. H.

	63312	3	50430	2
	63315	0	50428	0
	63317	2	50426	2
	63315		50428	
5	33482	3	43642	1
	33488	3	43643	0
	33485	0	43645	2
	33485		43643	
6.	45106	2	39207	0
	45105	1	39209	2
	45100	4	39206	1
	45104		39207	

1.00

$2\overset{2}{\text{X}}$.30

January 2 1896 Plate B 13965

		V.		H.	
	α	47150	1	49394	$\underline{2}$
		47151	2	49396	0
		47146	$\underline{3}$	49397	1
		47149		49396	
	β	47274	$\underline{2}$	49511	5
		47275	$\underline{1}$	49502	$\underline{4}$
		47279	3	49505	$\underline{1}$
22.35		47276		49506	
24.0					
	α	47135'	1	49403	3
		47134	0	49400	0
		47132	$\underline{2}$	49396	$\underline{4}$
		47134		49400	
	β	47266	3	49511	1
		47262	$\underline{1}$	49508	$\underline{2}$
		47262	$\underline{1}$	49512	2
24.4		47263		49510	
25.30	α	47130	1	49404	0
		47129	0	49407	3
		47128	$\underline{1}$	49402	$\underline{2}$
		47129		49404	
		47260	0	49507	$\underline{1}$
	β	$4726\overset{2}{\text{X}}$	2	49509	1
$\frac{25}{22}$.40		47258	$\underline{2}$	49507	$\underline{1}$
		47260		49508	

Jan. 3. 1896

Plate B 10769.

Measures of Nova Normae made with millimetre scale set at an angle of about 30°

x.	y	x	y	A.G.C.
3.15	2.44	3.15	2.45	20940
12.45	1.85	12.45	1.90	21006.
3.35	8.30	3.35	8.25	20926
3.50	5.55	3.50	5.55	Nova

B5313. Recomputation using declination of each star instead of mean declination.

(a) Dec. = $-71° 43'.1$ = Log. 0.50346
1.07700
1.58046

(b). Dec. = $-72° 26.1$ = Log. 0.52026
1.07700
1.59726

(f). Dec. = $-72° 6.1$ = Log 0.51236
1.07700
1.58936

Diff. X	-4.67	-10.07	1.90
Log. "	0.66932	1.00303	0.27875.
	1.58046	1.59726	1.58936
	2.24978	2.60029	1.86811
No. of Log.	$177^s.74$	$398^s.37$	$73^s.81$
	$2^m\ 57^s.74$	$6^m\ 38^s.37$	$1^m\ 13^s.81$

(a) $19^h\ 39^m\ 56^s.55$ $-71°\ 43'\ 5''.5$
$2\ 57.74$
$19^h\ 36^m\ 58^s.81$

(b) $19^h\ 43^m\ 0^s.51$ $-72°\ 26'\ 5''.2$
$6\ 38.37$
$19^h\ 36^m\ 22^s.14$

$19^h\ 36^m\ 21^s$

(f) $19^h\ 35^m\ 24^s.86$ $-72°\ 6'\ 7''.2$
$1\ 13.81$
$19^h\ 36\ 38^s.67$

Jan. 3, 1896

Plate B 10769.

Measures of Nova Normae made with m.m. scale set at an angle of about 30° in opposite direction.

x	y	x	y	
3.75	1.60	3.70	1.65	20940
12.25	5.25	12.25	5.25	21006
1.35	6.90	1.30	6.90	20926
2.70	4.50	2.70	4.50	Nova

checked by W.A.G.
Oct. 1903

R X Sagittarii

January 23 1896

√ positions charted Feb. 11, 1896.
See Chart no. 11 b.

Measures to determine position of new variable in Sagittarius and comparison stars
These comp stars have also been used for S.D. −19° 5347
The first variable Sp. Md. on Pl. B 14380 No 8039 is in R.A $19^h\ 6^m.1$ Dec −19° 4 (Approx 1855)

Plate B 4028

		x	y	x	y	Design. S.D.	R.A. 1855 h m s	Dec.	Magn.
S.D −19 5344	a	11.88 11.85	16.42' 16.45	11.90	16.40	−19° 5344	19 4 14.0	−19° 28.1	8.3
−19 5346	b	8.80	8.80	8.80	8.80	−19 5346	4 55.6	−19 5.8	9.0
−19 5353	c	2.40	11.28 11.30	2.40	11.25	−19 5353	6 15.7	−19 13.1	8.7
−19 5349	d	6.22 6.25	10.42 10.45	6.20	10.40	−19 5349	5 28.3	−19 10.4	9.5
−18 5251	e	9.10	3.20	9.10	3.20	−18 5251	4 53.6	−18 48.8	9.2
	f	5.75	5.20	5.75	5.20				
	g	6.38 6.35	6.20	6.40	6.20				
	h	5.80	7.95	5.80	7.95				
	k	2.85	9.62 9.60	2.85	9.65				
	l	5.00	9.60	5.00	9.60				
	m	3.45	8.52 8.55	3.45	8.50				
	n	4.20	8.58 8.60	4.20	8.55				
This star found to be Var. S.E.B.	o = v³	3.85	8.25	3.85	8.25				
	p	3.55	8.20	3.55	8.20				
	v'	3.38 3.35	8.00	3.40	8.00				
S.D. −19° 5347	v²	6.38 6.40	8.98 9.00	6.35	8.95				

Mean Dec = −19° 9.2 =
Log. 0.02472
1.07700
1.10172

v1 Diff x	v1 Diff y	v2 Diff x	v2 Diff y	v_x 1 ×1.79	v_y 1 ×1.79
+8.50	+8.42	+5.50	+7.44	1521.50	1507.18
+5.42	+0.80	+2.42	−0.18	970.18	143.20
−0.98	+3.28	−3.98	+2.30	175.42	587.12
+2.84	+2.42	−0.16	+1.44	508.36	433.18
+5.72	−4.80	+2.72	−5.78	1023.88	859.20
+2.37	−2.80	−0.63	−3.78	424.23	501.20
+3.00	−1.80	0.00	−2.78	537.00	322.20
+2.42	−0.05	−0.58	−1.03	433.18	8.95
−0.53	+1.62	−3.53	+0.64	94.87	289.98
+1.62	+1.60	−1.38	+0.62	289.98	286.40
+0.07	+0.52	−2.93	−0.46	12.53	93.08
+0.82	+0.58	−2.18	−0.40	146.78	103.82
+0.47	+0.25	−2.53	−0.73	84.13	44.75
+0.17	+0.20	−2.83	−0.78	30.43	35.80

Diff. x	8.50	5.42	−0.98	2.84	5.72
Log. " "	0.92942	0.73400	9.99123	0.45332	0.75740
	1.10172	1.10172	1.10172	1.10172	1.10172
	2.03114	1.83572	11.09295	1.55504	1.85912
No. of Log.	107.4 s	68.50 s	12.39	35.90 s	72.30 s
	1^m 47.4 s	1^m 8.50 s			1^m 12.30 s

Diff. y.	8.42	0.80	3.28	2.42	−4.80
×179	1507.18"	143.20"	587.12"	433.18"	859.20"
	25' 7.18"	2' 23.20"	9' 47.12"	7' 13.18"	14' 19.20"

(a)	(b)	(c)	(d)	(e)
$19^h\ 4^m\ 14.0^s$ −19° 28.1'	$19^h\ 4^m\ 55.6^s$ −19° 5.8'	$19^h\ 6^m\ 15.7^s$ −19° 13.1'	$19^h\ 5^m\ 28.3^s$ −19° 10.4'	$19^h\ 4^m\ 53.6^s$ −18° 48.8'
1' 47.4 25.1	1' 8.5 2.4	12.4 9.8	35.9 7.2	1' 12.3 14.3
$19^h\ 6^m\ 1.4^s$ −19° 3.0'	$19^h\ 6^m\ 4.1^s$ −19° 3.4'	$19^h\ 6^m\ 3.3^s$ −19° 3.3'	$19^h\ 6^m\ 4.2^s$ −19° 3.2'	$19^h\ 6^m\ 5.9^s$ −19° 3.1'

Mean Position of v'. $19^h\ 6^m\ 3.8^s$ −19° 3.2' (1855)

19 6^m $4.\overset{46}{8}$ −19 3.2 (1855) Adopted from Curve

19 8.7 − 18 59 (1900)

Sagittarius

V2 ×1.79 x	V2 ×1.79 y.	V3 = "0" Diff x	V3 = "0" Diff y.	x×179	y×179
984.50	1331.76	+8.03	+8.17	1437.37	1462.43
433.18	32.22	+4.95	+0.55	886.05	98.45
712.42	411.70	-1.45	+3.03	259.55	542.37
28.64	257.76	+2.37	+2.17	424.23	388.43
486.88	1034.62	+5.25	-5.05	939.75	903.95
112.77	676.62	+1.90	-3.05	340.10	545.95
0.00	497.62	+2.53	-2.05	452.87	366.95
103.82	184.37	+1.95	-0.30	349.05	53.70
631.87	114.56	-1.00	+1.37	179.00	245.23
247.02	110.98	+1.15	+1.35	205.85	241.65
524.47	82.34	-0.40	+0.27	71.60	48.33
390.22	71.60	+0.35	+0.33	62.65	59.07
452.87	130.67	+ ..	..	..	..
506.57	139.62	-0.30	-0.05	53.70	8.95

Position from Curve 19 36 40.4 -72° 4.2 ~~19 36 40.4 -72~~ 19 29 33.1 - 72° 0.4 (1900)

T Pavonis. January 23 1896

Error found in identification of a, on March, 7, 1896. should be J.C. 1695 or a.G.C. 27094.

positions charted Feb. 11, 1896.
See Chart No. 11 b.

Measures to determine position of new variable star in Pavo and comparison stars. Sp. Md on B 13777 No 7401 RA 19h 36.6m – 72° 5 (Approx 1875)

B 5313

a.G.C. 27094 19 39 56.55 -71° 43' 5.5" 7.5

=a.G.C. 27094 R.a. 1875. Dec. Magn.

	x	y	x	y			
a.G.C 27094 ℬ19h 169~~7~~5 = a	5.98 5.95	19.95	6.00	19.95	(J.C. 19h 169~~7~~5)	19h 39m ~~58.18~~ 56.69	-71° ~~39~~ 43' ~~8.4~~ 7.3 ~~9~~ 8
1805 b	0.58 0.60	5.85	0.55	5.85	1805	43 0.51	-72 26 5.2 8
c	26.00	17.65	26.00	17.65			
d	1.75	1.00	1.75	1.00			
e	11.90	10.28 10.30	11.90	10.25			
a.G.C. 26991 f	12.55	11.72 11.70	12.55	11.75	a.G.C. 26991	19 35 24.86	-72 6 7.2 8¾
g	7.52 7.55	7.42 7.40	7.50	7.45			
h	13.58 13.60	8.82 8.80	13.55	8.85			
k	13.40	9.75	13.40	9.75			
l	8.88 8.90	11.95	8.85	11.95			
m	10.60	10.25	10.60	10.25			
n	11.30	12.05	11.30	12.05			
o	10.45	9.55	10.45	9.55			
p	10.40	11.55	10.40	11.55			
q	10.30	11.50	10.30	11.50			
r	9.58 9.55	9.90	9.60	9.90			
var	10.65	12.50	10.65	12.50			

-4.67 +7.45
-10.07 -6.65
+15.35 +5.15
-8.90 -11.50
+1.25 -12.22
+1.90 -0.78
-3.13 -5.08
+2.93 -3.68
+2.75 -2.75
-1.77 -0.55
-0.05 -2.25
+0.65 -0.45
-0.20 -2.95
-0.25 -0.95
-0.35 -1.00
-1.07 -2.60

	x.	y
	×1.79	×1.79
a	835.93	1333.55
b	1802.53	1190.35
c	2747.65	921.85
d	1593.10	2058.50
e	223.75	397.38
f	340.10	139.62
g	560.27	909.32
h	524.47	658.72
k	492.25	492.25
l	316.83	98.45
m	8.95	402.75
n	116.35	80.55
o	35.80	528.05
	44.75	170.05
pq	62.65	179.00
r	191.531	46540

This Var. found to be C.P.D. -72° 2452, hence computation does not need to be revised on account of change of Comp. Star. – M.C.S. Oct. 15, 1903

Mean Dec. = 72° 3' 46.9" = Log. 9.51158
1.07700
1.58858

Diff. x.	-4.67	-10.07	1.90	Diff. y.	7.45	-6.65	-0.78
Log. " "	0.66932	1.00303	0.27875	×179	1333.55"	1190.35"	139.62"
	1.58858	1.58858	1.58858		22' 13.55"	19' 50.35"	2' 19.62"
	2.25790	2.59161	1.86733				
No. of Log.	181.09s	390.49	73.68				
	3m 1.09	6 30.49s	1m 13.68s				

(a) 19h 39 ~~58.18~~ 56.55 -71° ~~39~~ 43 ~~8.4~~ 5.5
3 1.09 22 13.6
19h 36m ~~57.09~~ 55.46s -72° ~~X'~~ 5' ~~22"~~ 19.1

(b) 19h 43m 0.51s -72° 26' 5.2"
6 30.49 19 50.4
19h 36m 30.02 -72° 6' 14.8"

(f) 19h 35m 24.86s -72° 6' 7.2"
1 13.68 2 19.6
19h 36m 38.54s -72° 3' 47.6

Mean Postion of Var. 19h 36m ~~41.88~~ 41.34 -72° ~~3~~ 5' ~~48.1~~ 7.2" (1875) approx. adopt.

Position from Curve 19h 36m 40.4s -72° 4.2'
~~19 36 40.4 -72~~
19 39 ~~33.1~~ -72° ~~0.4~~ (1900)

Positions Charted.
See Chart No. 12 b.

January 6, 1896

Nova Centauri { measures copied from Book 4 pages 108-111

Plate B 13965. measures made with micrometer.

	H=R.A.	δ=Dec.	Design.	R.A. 1875	Dec.	Magn.
1	56.480	58.636	Z.C. 13^{h} 1874	13^{h} 31^{m} $5^{s}.28$	-31° 36′ 1″.1	8.2
2.	54.146	42.604	13 1908	13 31 41.86	-30 45 23.5	9
3	51.508	33.010	13 1947	13 32 20.59	-30 14 55.3	8½
4	50.373	63.436	13 1963	13 32 35.12	-31 51 11.0	9.5
5	43.533	33.613	13 2059	13 34 17.24	-30 16 54.2	8.8
6	39.175	45.157	13 2134	13 35 22.24	-30 53 42.6	9
Nova α	49.336	47.236				
Neb. β	49.447	47.342				

Mean Dec. = -30° 56′ 21″.3 = Log. 0.06663
1.10164
1.16827.

Diff. H.	7.144	4.810	2.172	1.037
Log. " "	0.85394	0.68215	0.33686	0.01578
	1.16827	1.16827	1.16827	1.16827
	2.02221.	1.85042.	1.50513.	1.18405.
No. Log.	$105^{s}.25$	$70^{s}.86$	$32^{s}.00$	$15^{s}.28$
	1^{m} $45^{s}.25$	1 $10^{s}.86$		

Diff. H.	-5.803	-10.161
Log. " "	0.76365	1.00694
	1.16827	1.16827
	1.93192.	2.17521
	$85^{s}.49$	$149^{s}.70$
	1^{m} $25^{s}.49$	2^{m} $29^{s}.70$

Diff.	V. 11.400	-4.632	-14.226	16.200
Log. "	" 1.05690	0.66577	1.15308	1.20952
	2.27773	2.27773	2.27773	2.27773
	3.33463	2.94350	3.43081	3.48725
No. of Log.	2160".9	878".01	2696".6	3070".8
	36' 0".9	14' 38".0	44' 56".6	51' 10".8

Diff.	-13.623	-2.079
Log. "	1.13427	0.31785
	2.27773	2.27773
	3.41200	2.59558
	2582.3	394.08
	43' 2".3	6' 34".08

---

(1) 13h 31m 5.28s -31° 36' 1".1
1 45.25 36 0.9
13h 32m 50.53s -31° 0' 0".2

(2) 13h 31m 41.86s -30 45 23.5
1 10.86 14 38.0
13h 32m 52.72s -31° 0' 1".5

(3) 13h 32m 20.59s -30° 14' 55".3
32.00 44 56.6
13h 32m 52.59s -30° 59' 51.9

(4) 13h 32m 35.12s -31° 51' 11".0
15.28 51 10.8
13h 32m 50.40 -31° 0' 0".2

(5) 13h 34m 17.24s -30° 16' 54".2
1 25.49 43 2.3
13h 32m 51.75s -30° 59' 56".5

(6) 13h 35m 22.24s -30° 53' 42".6
2 29.70 6 34.1
13h 32m 52.54 -31° 0' 16".7

h	m	s	°	'	"
13	32	50.53	-31	0	0.2
13	32	52.72	-31	0	1.5
13	32	52.59	-30	59	51.9
13	32	50.40	-31	0	0.2
13	32	51.75	-30	59	56.5
13	32	52.54	-31	0	16.7

Mean Position of Nova Cent. } 13h 32m 51.76s -31° 0' 1".17 (1875)

13 32 52.1 -31° 0' 0"

Rejected owing to motion of plate

Diff. H.	7.033	4.699	2.061	0.926
Log. " "	0.84714	0.67201	0.31408	9.96661
	1.16827	1.16827	1.16827	1.16827
	2.01541	1.84028	1.48235	11.13488
No. Log.	$103^{s}.61$	$69^{s}.23$	$30^{s}.36$	$13^{s}.64$
	$1^{m}\,43^{s}.61$	$1^{m}\,9^{s}.23$		

	−5.914	−10.272
Log. Diff. H.	0.77188	1.01166
	1.16827	1.16827
	1.94015	2.17993
	$87^{s}.13$	$151^{s}.33$
	$1^{m}\,27^{s}.13$	$2^{m}\,31^{s}.33$

Diff. V.	11.294	−4.738	−14.332	16.094
Log. " "	1.05285	0.67560	1.15631	1.20666
	2.27773	2.27773	2.27773	2.27773
	3.33058	2.95333	3.43404	3.48439
No. of Log.	$2140''.8$	$898''.1$	$2716''.7$	$3050''.6$
	$35'\,40''.8$	$14'\,58''.1$	$45'\,16''.7$	$50'\,50''.6$

	−13.729	−2.185
Log. Diff. V.	1.13764	0.33945
	2.27773	2.27773
	3.41537	2.61718
	$2602''.4$	414.17
	$43'\,22''.4$	$6'\,54''.2$

1893phae.proj..805P

(1) $13^h\ 31^m\ 5^s.28$ $-31^\circ\ 36'\ 1''.1$
$1\ 43.61$ $35\ 40.8$

$13^h\ 32^m\ 48^s.89$ $-31^\circ\ 0'\ 20''.3$

(2) $13^h\ 31^m\ 41^s.86$ $-30^\circ\ 45'\ 23''.5$
$1\ 9.23$ $14\ 58.1$

$13^h\ 32^m\ 51^s.09$ $-31^\circ\ 0'\ 21''.6$

(3) $13^h\ 32^m\ 20^s.59$ $-30^\circ\ 14'\ 55''.3$
30.36 $45\ 16.7$

$13^h\ 32^m\ 50^s.95$ $-31^\circ\ 0'\ 12''.0$

(4) $13^h\ 32^m\ 35^s.12$ $-31^\circ\ 51'\ 11''.0$
$13.64.$ $50\ 50.6$

$13^h\ 32^m\ 48^s.76$ $-31^\circ\ 0'\ 20''.4$

(5) $13^h\ 34^m\ 17^s.24$ $-30^\circ\ 16'\ 54''.2$
$1\ 27.13$ $43\ 22.4$

$13^h\ 32^m\ 50^s.11$ $-31^\circ\ 0'\ 16''.6$

(6) $13^h\ 35^m\ 22^s.24$ $-30^\circ\ 53'\ 42''.6$
$2\ 31.33$ $6\ 54.2$

$13^h\ 32^m\ 50^s.91$ $-31^\circ\ 0'\ 36''.8$

$13^h\ 32^m\ 48^s.89$ $-31^\circ\ 0'\ 20''.3$
$13\ 32\ 51.09$ $-31\ 0\ 21.6$
$13\ 32\ 50.95$ $-31\ 0\ 12.0$
$13\ 32\ 48.76$ $-31\ 0\ 20.4$
$13\ 32\ 50.11$ $-31\ 0\ 16.6$
$13\ 32\ 50.91$ $-31\ 0\ 36.8$

Mean Position of Neb. } $13^h\ 32^m\ 50^s.12$ $-31^\circ\ 0'\ 21''.3$ (1875)

23.30

January 7, 1896. Plate B 13965

		δ.		H	
	α	47110	02	49452	1
		47116	04	49451	0
		47110	02	49450	1
		47112		49451	
	β	47 ~~47~~237	1	49558	2
		47236	2	49560	0
23.35		47240	2	49563	3
		47238		49560.	

1893phae.proj..805R

1.0

January 9 1896. Plate B 13965

		V.		H	
	α	47085	0	49572	3
		47081	4	49577	2
		47088	3	49576	1
		47085		49575	
	β	47220	3	49672	2
		47226	3	49675	1
1.5		47224	1	49676	2
		47223		49674	

Measures of Nova Perseus

3h 30m

January, 10, 1896

B1977

	x	y	x	y		
1	00.00	00.00	0.00	0.00	-1.10	-13.45
2	00.00	27.30	0.00	27.30	-1.10	+13.85
3	0.60	15.15	0.60	15.15	-0.50	+ 1.70
Nova	1.10	13.45	1.10	13.45		

B1954

1	0.00	0.00	0.00	0.00	-1.10	-13.40
2	0.00	27.30	0.00	27.30	-1.10	+13.90
3	0.60	15.15	0.60	15.15	-0.50	+1.70
Nova	1.10	13.40	1.10	13.40		

B 1979

1	0.00	0.00	0.00	0.00		
2	0.00	27.25	0.00	27.25	-1.15	-13.35
3	0.60	15.10	0.60	15.10	-1.15	+13.90
Nova	1.15	13.35	1.15	13.35	-0.55	+1.75

B1953

Stars 1 & 2 are too faint to give an image to set on.

B 2068 too badly fogged. Cannot see lines through.

Design.	R.A. 1855 h m s	Dec. 1855 ° '	Magn
1 = BD +55° 473	1 51 46.8	+55 17.8	9.5
2 = BD +56° 406	1 51 49.4	+56 43.0	9.2
3 = BD +56° 404	1 51 21.0	+56 4.8	9.5

1		2			3				nova			
x	y	x	y		x		y		x		y	
0.00	0.00	0.00	27.30	.02	0.66	.00	15.15	.02	1.10	.02	13.45	.05
0.00	0.00	0.00	27.30	.02	0.60	.00	15.15	.02	1.16	.02	13.45	.05
0.00	0.00	0.00	27.30	.02	0.60	.00	15.15	.02	1.10	.02	13.40	.00
0.00	0.00	0.00	27.30	.02	0.60	.00	15.15	.02	1.10	.02	13.40	.00
0.00	0.00	0.00	27.25	.03	0.60	.00	15.10	.03	1.15	.03	13.35	.05
0.00	0.00	0.00	27.25	.03	0.60	.00	15.10	.03	1.15	.03	13.35	.05
0.00	0.00	0.00	27.28		0.60		15.13		1.12		13.40	
~~0.00~~ ±.00	±.00	±.00	±.023		±.00		±.023		±.023		±.033	

These meas. are to be used in determining ~~sat~~ positions of comparison stars for Nova Centauri

2X. 15

January 10, 1896. Plate B 13965

	V.		H.	
α	47050	0	49599	1
	47052	2	49596	2
	47047	3	49599	1
	47050		49598	
β	47180	0	49705	1
	47180	0	49704	0
	47179	1	49704	0
	47180		49704	
γ.	48563	3	51020	3
	48557	3	51016	1
	48560	0	51014	3
	48560		51017	
b.	47091	2	50542	0
	47089	0	50540	2
	47086	3	50543	1
	47089		50542	
σ	46675	1	49718	2
	46673	1	49722	2
	46674	0	49721	1
	46674		49720	

January 10, 1896. Plate B 13965

V. H.

3. 32831 0 51875 $\underline{2}$
32830 $\underline{1}$ 51878 1
32831 0 51877 0
32831 51877

4. 63252 $\underline{1}$ 50569 $\underline{2}$
63254 1 50572 1
63252 $\underline{1}$ 50571 0
63253 50571

5. 33385 2 4$\overset{3}{\cancel{8}}$899 0
33383 0 43898 $\underline{1}$
33380 $\underline{3}$ 43899 0
33383 43899

p. 46750 1 49015 1
46749 0 49014 0
46747 $\underline{2}$ 49012 $\underline{2}$
4 ~~4~~6749 49014

n. 45702 0 49013 0
45704 2 49012 $\underline{1}$
45701 $\underline{1}$ 49015 2
45702 49013

$2\overset{7}{\cancel{x}}.45$

2X.45

January 10, 1896 Plate B 13965

h.	V.		H.	
	45803	1	50045	1
	45806	2	50043	1
	45802	2	50045	1
	45804		50044	
α	47052	4	49593	1
	47045	3	49594	0
	47047	1	49596	2
	47048		49594	
β	47174	5	49705	2
	47181	2	49700	3
	47182	3	49705	2
	47179		49703	
m.	44266	1	51529	0
	44270	3	51532	3
	44266	1	51526	3
	44267		51529	
2 = g	42497	0	54401	1
	42495	2	54399	1
	42498	1	54399	1
	42497		54400	

January 10 1896. Plate B 13965

6 = e	V.		H.	
	44993	$\underline{1}$	39413	0
	44995	1	39412	$\underline{1}$
	44995	1	39415	2
	44994		39413	
f.	48658	0	42699	$\underline{2}$
	48657	$\underline{1}$	42703	2
	48659	1	42701	0
	48658		42701	
k.	49868	$\underline{2}$	47729	$\underline{1}$
	49871	1	47730	0
	49871	1	47731	1
	49870		47730	
E. b. P.	52068	3	50365	$\underline{1}$
sus. neb. var.?	52063	$\underline{2}$	50369	3
	52065	0	50365	$\underline{1}$
	52065		50366	
a.	61706	$\underline{4}$	62273	1
	61711	1	62269	$\underline{3}$
	61712	2	62274	2
	61710		62272	

23.20

23.20

January 10, 1896 Plate B 13965

	V.		H.	
f	60843	1	58793	1
	60846	2	58793	1
	60844	0	58791	1
	60844		58792	
1 = d	58541	1	56666	2
	58536	4	56663	1
	58543	3	56663	1
	58540		56664	
c.	56681	0	59171	0
	56679	2	59169	2
	56682	1	59174	3
	56681		59171	
α	47050	2	49597	2
	47047	1	49598	3
	47047	1	49589	6
	47048		49595	
β	47181	6	49703	0
	47188	1	49706	3
	47192	5	49701	2
	47187		49703	

23.35

Jan 14. 1896.

Results of measures contained of the 26 and 94 to determine errors in charting the Atlas of D.M. See Annals XXVI a.

R.A.	Dec.	No. Stars.	Δα	Corr. Δα	Δδ	Corr. Δδ
0h	0°	9	1.03s		0.69′	
6		23	2.18		57	
12		13	1.50		52	
18		20	1.04		36	

0	−10°	13	4.35	1.44	.50	.37
12	"	12		1.17		.38

1	−30°	25	3.57	2.20	1.30	.92
13		47	2.13	2.08	.72	.65

							Mean R.A. Dec.	Error
M	65	~~5.75~~ 1.44s	21.6"	~~20.5~~ 0.51′	30.6"	26.1"	24.5
S	25	1.30	19.5"		0.38′	22.8	21.2	19.2
C	72	2.14	37.1"		0.78	46.8	42.0	41.0

681.21 449.44 1764.00 Assuming error of 9" in measuring
81 81
324 324 324
357.21 125.44 1440.00

600.21 368.44 1683.00
24.5" 19.2" 41.0"

Positions charted
See Chart no. 12b

R.a

Nova Centauri

Values derived from meas. on pp 130 to 134. See E.C.P. obs B. p34

	neb.	1	2	3
	+0.107	+ 7.068	+ 4.804	+2.281
Log.	9.02938	0.84930	0.68160	0.35813
	1.16827	1.16827	1.16827	1.16827
	10.19765	2.01757	1.84987	1.52640
No. of Log.	15.76 s	104.13 s	70.77 s	33.60 s
		1m 44.13 s	1m 10.77 s	

4	5	6
+0.975	-5.697	-10.183
9.98900	0.75565	1.00788
1.16827	1.16827	1.16827
11.15727	1.92392	2.17615
14.36 s	83.93 s	150.02
	1m 23.93 s	2m 30.02

(1) 13h 31m 5s.28 -31° 36′ 1″.1
1 44.13 36 18.2
13h 32m 49s.41 -30° 59′ 42″.9

(2) 13 31m 41s.86 -30° 45′ 23.5
1 10.77 14 22.8
13h 32m 52s.63 -30° 59′ 46″.3

(3) 13h 32m 20s.59 -30° 14′ 55″.3
33.60 44 55.1
13h 32m 54s.19 -30° 59′ 50″.4

(4) 13h 32m 35s.12 -31° 51′ 11″.0
14.36 51 11.5
13h 32m 49s.48 - 30 59′ 59″.5

(5) 13h 34m 17s.24 -30° 16′ 54″.2
1 23.93 43 10.4
13h 32m 53s.31 -31° 0′ 4″.6

(6) 13h 35m 22s.24 -30° 53′ 42″.6
2 30.02 6 29.5
13h 32m 52s.22 -31° 0 12″.1

Dec.

	rel.	1	2	3
	+0.133	+11.491	−4.552	−14.218
Log.	9.12385	1.06036	0.65820	1.15284
	2.27773	2.27773	2.27773	2.27773
	11.40158	3.33809	2.93593	3.43057
No. of Log.	25″.21	2178″.2	862″.84	2695″.1
		36′ 18″.2	14′ 22″.84	44′ 55″.1

4	5	6
+16.204	−13.666	−2.055
1.20962	1.13564	0.31281
2.27773	2.27773	2.27773
3.48735	3.41337	2.59054
3071″.5	2590″.4	389″.53
51′ 11″.5	43′ 10″.4	6′ 29″.53

1.8956

19 | 44 | 10000

176 43 $\frac{1}{430}$

140

132

147 | 32

128 46 $\frac{1}{460}$

190

147

	h	m	s	°	′	″	
	13	32	49.41	−30	59	42.9	
	13	32	52.63	−30	59	46.3	
	13	32	54.19	−30	59	50.4	
	13	32	49.48	−30	59	59.5	
	13	32	53.31	−31	0	4.6	
	13	32	52.22	−31	0	12.1	
Mean Position	13	32	51.87	−30	59	56.0	
Corr. by curve	13	32	51.8	−30	59	59	from B 13965
			1.6			.25	
Nebula N.G.C. 5253	~~13~~	~~32~~	~~50.5~~	~~−30~~	~~59~~	~~34~~	
	13	32	50.2	−31	0	24	

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Nova Carinae
Measures of positions of comparison stars
and adjacent faint stars

		x	y	x	y						
	a	+2.45	+7.40	+2.40	+7.35						
2 = b	b	-2.80	+1.75	-2.85	+1.75						
5 = c	c	+1.55	+6.20	+1.55	+6.15						
	d	-5.70	+2.10	-5.75	+2.15						
4 = ε	ε	-1.35	-0.80	-1.35	-0.80						
3 = f	f	-1.80	-2.20	-1.80	-2.20						
	b	+1.40	-0.30	+1.35	-0.25						
	g	+4.55	+0.10	+4.65	+0.10						
	h	+1.70	-2.80	+1.65	-2.80						
	i	+4.35	-2.55	+4.30	-2.50						
	k	+0.10	-0.30	+0.10	-0.25						
	l	+0.45	+0.50	+0.45	+0.55						
	m	-0.90	-0.90	-0.90	-0.90						
	n	+1.25	-0.75	+1.20	-0.75						
	o	+0.60	+0.55	+0.55	+0.55						
	p	-0.05	-0.70	-0.05	-0.75						
	q	+0.30	-0.65	+0.25	-0.70						
	r	+0.20	-0.05	+0.20	-0.05						
	s	-0.05	-0.60	-0.05	-0.60						
	t	+0.25	-0.20	+0.25	-0.20						
	Nova	00.00	00.00	00.00	00.00						
	1	+1.85	+1.45			13.68	13.68	13.68	.00	.00	s 3 1 t
	2	+1.60	+1.35			13.58	13.58	13.58	00	00	s 2 2 t
		+1.55	+1.30			13.78	13.68	13.73	+05	-05	s 4 1 t
		+1.60	+1.30			13.48	13.48	13.48	00	00	s 1 3 t
		+0.85	+1.70			11.46	11.28	11.37	+09	-09	m 3 1 w
1 or 0		+0.65	+1.45			13.78	13.68	13.73	+05	-05	s 4 1 t
		+0.60	+1.65			12.42	12.48	12.45	-03	+03	f 1 3 g

1893phae.proj..805P

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	x	y						
	+0.45	+1.65	12.88	12.78	12.83	+.05	−.05,	g 13 r
	+0.35	+1.40	13.48	13.48	13.48	00	00	s 13 t
	+0.20	+1.20	13.28	13.28	13.28	00	00	r 21 s
	+0.15	+1.55	12.88	12.78	12.83	+.05	−.05	g 13 r
	−0.25	+1.45	13.58	13.58	13.58	00	00	s 22 t
	−0.55	+1.50	11.48	11.28	11.38	+.10	−.10	m 15 ⊙
	−0.45	+1.05	13.48	13.48	13.48	00	00	s 13 t
	−0.65	+1.40	13.78		13.78			o t
	−0.65	+1.55	12.62	12.68	12.65	−.03	+.03	p 31 q
	−0.70	+1.65	12.52	12.58	12.55	−.03	+.03	p 22 q
	−0.80	+1.70	13.68	13.68	13.68	00	00	s 31 t
	−0.75	+1.25	11.46	11.48	11.47	−.01	+.01	m 31 n
	−0.75	+1.05	12.88	12.78	12.83	+.05	−.05	g 13 r
	− 085	+1.50	13.68	13.68	13.68	00	00	s 31 t
	−090	+155	13.58	13.58	13.58	00	00	s 22 t
	−0.90	+1.35	13.78	13.78	13.78	00	00	s 40 t
	−1.10	+1.70	11.68	11.68	11.68	00	00	~~m~~ n 31 O
	−1.10	+1.65	11.88	12.02	11.95	−.07	+.07	O 13 p
	−1.25	+1.60	12.98	12.88	12.93	+.05	−.05	g 22 r
	−1.20	+1.30	13.48	13.48	13.48	00	00	s 13 t
	−135	+1.25	13.78	13.78	13.78	00	00	s 40 t
	−1.60	+1.40	13.78		13.78			O t
	−1.65	+1.30	13.68	13.68	13.68	00	00	s 31 t
	−170	+1.40	13.58	13.58	13.58	00	00	s 22 t
~~=t~~	−170	+1.50	13.78		13.78			=t
~~=t~~	−1.70	+1.60	13.78		13.78			=t
	−175	+11.0	1~~3~~1.58	11.58	11.58	00	00	n 22 O
	+1.95	+0.30	13.58	13.58	13.58	00	00	s 22 t

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	x	y				
=tt	\+1.70	+0.65	13.78		13.78	=t
	\+1.60	+0.55	13.48	13.48	13.48	00 00s 13t
	\+1.65	+0.20	13.38	13.28	13.33	+05 -05 r 31s
	\+1.60	+0.10	13.48	13.48	13.48	00 00s 13t
	\+1.50	+0.20	13.18	13.08	13.13	+05 -05 r 13s
	\+1.40	+0.45	13.08	12.98	13.03	+05 -05 g 31r
	\+1.20	+0.60	13.48	13.48	13.48	00 00s 13t
	\+1.20	+0.50	13.58	13.58	13.58	00 00s 22t
	\+0.90	+0.10	12.98	12.88	12.93	+05 -05 g 22r
	\+0.80	+0.20	12.98	12.88	12.93	+05 -05 g 22r
	\+0.80	+0.60	13.48	13.48	13.48	.00 .00s 13t
=o	\+0.65	+0.60			11.78	
	\+0.60	+0.30	13.48	13.48	13.48	.00 .00s 13t
?	\+0.55	+0.70	12.98	12.88	12.93	+05 -05 g 22r
=l	\+0.50	+0.55			10.90	
=t	\+0.30	+0.50	13.78		13.78	=t
=t	\+0.30	+0.60	13.78		13.78	=t
	\+0.20	+0.38^{5}	13.18	13.08	13.13	+05 -05 r 13s
	\-0.10	+0.90	13.98		13.98	t2
	\-0.15	+0.70	12.88	12.78	12.83	+05 -05 g 13r
	\-0.25	+0.75	13.98		13.98	t2
interpolate	\+1.80	+0.75	13.08	12.98	13.03	+05 -05 g 31r
	\+1.25	+0.75	13.48	13.48	13.48	00 00s 13t
=tt	\+0.65	+0.75	13.78		13.78	=t

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	-0.25	+0.90	13.98		13.98			t2
	-0.35	+0.20	13.38	13.48	13.43	-05	+05	r31s
	-0.40	+0.75	13.68	13.68	13.68	00	00	s31t
	-0.50	+0.35	13.68	13.68	13.68	00	00	s31t
	-0.65	+0.55	13.38	13.48	13.43	-05	+05	r31s
	-0.65	+0.10	12.88	12.78	12.83	+05	-05	q13r
	-0.75	+0.75	13.18	13.08	13.13	+05	-05	r13s
	-0.80	+0.20	13.28	13.18	13.23	+05	-05	r22s
	-0.90	+0.65	13.38	13.28	13.33	+05	-05	r31s
	-0.95	+0.75	13.48	13.48	13.48	00	00	s13t
	∓1.10	+0.65	13.98		13.98			t2
	-1.25	+0.05	13.68	13.68	13.68	00	00	s31t
	-1.45	+0.65	11.68	11.58	11.63	+05	-05	m32 0
	-1.50	+0.25	13.58	13.58	13.58	00	00	s22t
	-1.65	+0.25	12.42	12.58	12.50	-08	+08	p12q
	-1.75	+0.65	13.38	13.28	13.33	+05	-05	r31s
	+0.75	-0.15	13.38	13.28	13.33	+05	-05	r31s
	+0.75	-0.75	13.28	13.18	13.23	+05	-05	r22s
=b	+0.40	-0.30						
=m	+1.25	-0.75	11.38		11.38			
	+1.15	∓0.25	13.08	12.98	13.03	+05	-05	q31r
	+1.15	-0.30	13.28	13.18	13.23	+05	-05	r22s
	+1.05	-0.60	13.28	13.18	13.23	+05	-05	r22s
	+0.95	-0.25	13.58	13.58	13.58	00	00	s22t
	+0.90	-0.65	13.48	13.48	13.48	00	00	s13t
	+0.70	-0.20	13.38	13.28	13.33	+05	-05	r31s
	+0.65	-0.80	13.18	13.08	13.13	+05	-05	r13s
	+1.40	-0.30	13.08	12.98	13.03	+05	-05	q31r
	+0.40	-0.60	13.48	13.48	13.48	00	00	s13t

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	✓	+0.35	-0.60	13.48	13.48	13.48 00 00	s13t
=q ✓	✓	+0.30	-0.70			12.78	
=t	✓	+0.30	-0.25			13.78	
=r	✓	+0.25	-0.15			13.08	
=m	✓	+0.15	-0.30			11.16	
=s	✓	-0.05	-0.65			13.38	
=p	✓	-0.10	-0.70			12.32	
	✓	-0.35	-0.25	13.48	13.48	13.48 00 00	s13t
	✓	-0.40	-0.65	13.48	13.48	13.48 00 00	s13t
	✓	-0.45	-0.05	13.28	13.18		r22s
	✓	-0.50	-0.20	13.58	13.58		s22t
	✓	-0.60	-0.15	13.58	13.58		s22t
=m	✓	-0.85	-0.80				
	✓	-0.90	-0.30	11.98	12.12		O22p
	✓	-0.95	-0.55	13.48	13.48		s13t
	✓	-1.15	-0.60	13.98			t2
	✓	-1.20	-0.25	13.98			t2
	✓	-1.30	-0.45	14.08			t3
=e	✓	-1.40	-0.75			9.44	
	✓	-1.65	-0.25	13.48	13.48	13.48	s13t
	✓	-1.75	-0.30	13.38	13.28		r31s
	✓	-1.75	-0.50	12.08	12.22		O31p
	✓	-1.75	-0.70				q31r
	✓	+1.85	-1.55				p21q
	✓	+1.65	-1.70				s31t
	✓	+1.60	-1.35				q31r
	✓	+1.55	-1.55				m32m
	✓	+1.35	-1.20				O23t

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+1.25	-1.20	l13m
+1.05	-1.20	p13q
+1.05	-1.25	t1
+1.30	-1.60	t2
+0.95	-1.60	O32pc
+0.65	-1.60	O23p
+0.55	-1.20	t1
+0.50	-1.35	s13t
+0 40	-1.60	s31t
+0 15	-1.30	s31t
-0.10	-1.15	t1
-0.50	-1.65	s13t
- 0 50	-1.60	s22t
- 0 50	-1 25	s31t
- 0 75	-1.65	O31p
-0.70	-1.25	q22r
-0.80	-1.10	q31r
-1.15	-1.10	p21q
-1.15	-1.25	s13t
-1.05	-1.50	t2
-1.05	-1.75	t2
-1.~~40~~35	-1.25	s31t
-1.40	-1.45	p31q
-1.50	-1.60	s13t
-1.60	-1.65	O31p
-1.70	-1.30	s13t

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This position charted Feb. 11, 1896.
See Chart No. 13b

Feb. 8, 1896

Measures to determine position of New Var. in Pavo
S. Md. Plate B 13776, No. 7400 See Book 8, page 7.

Plate B.

Diff x	y:		x	y	x	y				R.A. 1875	Dec.	
+7.35	+2.70	a	+11.00	18.32 +18.30	11.00	18.35	Z.C.	20h	1571	20h 48m 19.85s	−63° 2′ 34.4″	8½
−2.75	−2.52	b	0.90	13.10	0.90	13.10	"	20h	1438	20 43 52.48	−63 18 12.0	7.2
+12.90	−15.30	c	6 12.55	0.32 0.30	16.55	0.35	"	"	1646	20 50 55.76	−63 56 16.0	9
+7.60	−4.87	d	11.25	10.75	11.25	10.75	"	"	1573	20 48 26.09	−63 25 6.0	9½
+7.35	−2.27	e	11.00	13.35	11.00	13.35	"	"	1572	20 48 20.45	−63 17 26.2	9½
+8.85	−0.37	f	12.50	15.25	12.50	15.25						
+1.40	−1.80	g	5.05	13.82 13.80	5.05	13.85						
−1.45	+0.28	h	2.20	15.90	2.20	15.90						
+1.30	+0.96	l ~~h~~	4.95	16.58 16.55	4.95	16.60						
−1.40	+1.10	k ~~l~~ ~~k~~	2.25	16.72 16.75	2.25	16.70						
−1.05	+0.96	m ~~l~~	2.60	6 16.58 13.55	2.60	16.60						
−1.05	−0.04	n ~~m~~ ~~n~~	2.60	15.58 15.60	2.60	15.55						
		Var.	3.65	15.62 15.60	3.65	15.65						

✓

Mean Dec. = −63° 23′ 54.9″ = Log. 0.34896
1.07700
1.42596

Diff x	7.35	−2.75	13.90 12.90	7.60	7.35
Log.	0.86629	0.43933	1.11059	0.88081	0.86629
	1.42596	1.42596	1.42596	1.42596	1.42596
	2.29225	1.86529	2.53655	2.30677	2.29225
No. of Log.	196.00s	73.33s	343.99s	202.66s	196.00s
	3m 16.00s	1m 13.33s	5m 43.99s	3m 22.66s	3m 16.00s

Diff y	2.70	−2.52	~~14.30~~ −15.30	−4.87	−2.27
×179	483.30″	451.08″	2738.70″	871.73″	406.33″
	8′ 3.30″	7′ 31.08″	45′ 38.70″	14′ 31.73″	6′ 46.33″

(a) 20h 48m 19.85s −63° 2′ 34.4″
3 16.00 8′ 3.3
20h 45m 3.85s −63° 10′ 37.7″

(b) 20h 43m 52.48s −63° 18′ 12.0″
1 13.33 7 31.1
20h 45m 5.81s −63° 10′ 40.9″

(c) 20h 50m 55.76s −63° 56′ 16.0″
~~5 43.99~~ 45 38.7
~~6 10.65~~
20h 45m 11.77s −63° 10′ 37.3″
~~33.64~~
~~44 45.11~~

(d) 20h 48m 26.09s −63° 25′ 6.0″
3 22.66 14′ 31.7″
20h 45m 3.43s −63° 10′ 34.3″

(e) 20h 48m 20.45s −63° 17′ 26.2″
3 16.00 6′ 46.3
20h 45m 4.45s −63° 10′ 39.9″

13.90
1.14301
1.42596
2.56897
370.75

Checked by W. A. G.
Oct. 1903-

Mean Position of Var. 20h 45m 5.86s − 63° 10′ 38.0″ (1875) Sept. 14.5
20 45 4.2 − 63 10.7 (1875) Curve adopted.
20 47 11.1 − 63 5.2 (1900)

Feb. 8, 1896. New Var. in Virgo.
Measures to determine positions of comparison stars

I 10491 BD+5° 2708.8 of Mc 5d, B 14015 No 2784 See Book 8, p. 39
12 55.3 +5 58 (1855)

~~Diff 0.144~~ x×1.79	Diff y×1.79
a 1315.65	483.30
b 492.25	451.08
c 2309.10	2738.70
d 1360.40	871.73
e 1315.65	406.33
f 1584.15	66.23
g 250.60	322.20
h 259.55	50.12
l 232.70	171.84
k 250.60	196.90
w 187.95	171.84
m 187.95	7.16

	x	y	x	y		Diff. x ×163	Diff. y ×163 =		
a	0.62 0.60	6.75	0.65	6.75	B.D. +5° 2702	8.38 − ~~8.40~~	−18.15	1366 ~~1369~~	2958
b	25.92 25.95	0.75	25.90	0.75	B.D. +4° 2790	+16.92	−24.15	2758.	3936.
c	17.00	24.98 25.00	17.00	24.95	B.D. +5° 2710	+ 8.00	+ 0.08	1304.	13.
d	13.45	18.80	13.45	18.80	B.D. +5° 2709	+ 4.45	− 6.10	725.	994.
e	22.08 22.10	19.25	22.05	19.25	B.D. +5° 2712	+13.08	− 5.65	2132	921
f	8.50	22.70	8.50	22.70		− 0.50	− 2.20	82.	359.
g	8.28 8.25	21.70	8.30	21.70		− 0.72	− 3.20	117.	522
h	8.00	2~~3~~4.80	8.00	24.80		− 1.00	− 0.10	163.	16
k	9.50	2~~4~~5.35	9.50	25.35		+0.50	+0.45	82.	73.
var.	9.00	24.90	9.00	24.90	B.D. +5° 2708				

Enter in Proof.

	s		s		"
a	~~0.9~~ 0.2	3.8	−0.6	38	00
b	0.4	5.8	+1.4	41	−3
c			..		..
d	0.9	3.4	−1.0	34	+4
e	4	4.4	00	40	−2
		17.4		153	

20h 45m 4.4 −63° 10′ 38″ Adopt mean.

Feb. 8, 1896.

New Var. Star in Aquarius.

Measures to determine position of comparison stars

BD -16° 6379 $23^h 44^m.8$ -16 40 9.1

Sf. Md? B 14623 No. 8500 See Book 8, p. 51.

B10308.

	x	y	x	y		x	y	×179 x	×1.79 y
a	5.78 5.75	7.72 7.70	5.80	7.75	S.D. -17° 6836	+ 2.06	-10.53	368.74	1884.87
b	6.38 6.35	0.88 0.85	6.40	0.90	S.D. -17 6837	+ 2.66	-17.37	476.14	3109.23
c	11.00	17.92 17.90	11.00	17.95	S.D. -16 6383	+ 7.28	- 0.33	1303.12	59.07
d	8.75	15.25	8.75	15.25	S.D. -16 6381	+ 5.03	- 3.00	900.37	537.00
e	4.00	17.85	4.00	17.85	S.D. -16 6380	+ 0.28	- 0.40	50.12	71.60
f	2.72 2.75	10.10	2.70	10.10		- 1.00	- 8.15	179.00	1458.85
g	7.22 7.20	17.45	7.25	17.45		+ 3.50	- 0.80	626.50	143.20
h	2.20	18.30	2.20	18.30		- 1.52	+ 0.05	272.08	8.95
Var.	3.72 3.75	18.25	3.70	18.25	S.D. -16° 6379				

✓ Positions Charted Feb. 11, 1896.
See Chart No. 13 b

Position of Nova Persei

X	Y		R.A. 1855	Dec.	Magn.
0.00	0.00	B.D. +55° 473	$1^h 51^m 46.8^s$	+55° 17'.8	9.5
0.00	27.28	B.D. +56 406	1 51 49.4	+56 43.0	9.2
0.60	15.13	B.D. +56 404	1 51 21.0	+56 4.8	9.5
1.12	13.40	Nova.			

Mean Dec. = 56° 1'.9 ✓ = Log. 0.25281 ✓
~~1.03623~~
~~1.28904~~

~~Diff. x −1.12 −1.12 −0.52~~
~~Log. " 0.04922 0.04922 9.71600~~
~~1.28904 1.28904 1.28904~~
~~1.33826 1.33826 11.00504~~
~~No. of Log. 21.79s 21.79s 10.12s~~

~~Diff. y −13.40 13.88 1.73~~
~~×163 2184".20 ~~2262".44~~ 281".99~~
~~36' 24".20 37' 42".44 4' 41".99~~

Mean Dec. = +56° 1'.9 ✓ =
Log. 0.25281 ✓
1.07700
1.32981

~~$1^h 51^m 46.8^s$ +55° 17'.8~~
~~21.8 36.4~~

~~$1^h 51^m 49.4^s$ +56° 43'.0~~
~~21.8 37.7~~

~~$1^h 51^m 21.0^s$ +56° 4'.8~~
~~10.1 4.7~~

Diff. x −1.12 −1.12 −0.52
Log. " 0.04922 0.04922 9.71600
1.32981 1.32981 1.32981
1.37903 1.37903 11.04581
No. of Log. 23.94s 23.94s 11.11s

Diff. y −13.40 13.88 1.73
×179 2398".60 2484".52 309".67
39' 58".60 41' 24".52 5' 9".67

$1^h 51^m 46.8^s$ +55° 17'.8
23.9 40'.0
$1^h 51^m 22.9^s$ +55° 57'.8

$1^h 51^m 49.4^s$ +56° 43'.0
23.9 41.4
$1^h 51^m 25.5^s$ +56° 1'.6

$1^h 51^m 21.0^s$ +56° 4'.8
11.1 5'.2
$1^h 51^m 9.9^s$ +55° 59'.6

Mean Position of Nova Persei $1^h 51^m 19.4^s$ + 55° 59'.7 (1855)

~~Data copied from Mrs F's Book 8. page 35.~~

~~Plate A 117.~~

Measures of Nova Persei.

	Gesell. No.	R.A. 1875 h	m	s	Dec.	′	″	Magn.		Diff in Dec. 1855–1875	
2	1734	1	49	49.64	+56°	18	14.2	9.0	BD +56° 396.	6.1 −	* error in Dec.?
1	1711	1	48	18.39	+56	10	37.7	9.0	+56 390	5.9 +	
3	1758	1	51	13.59	+55	46	15.8	9.0	+55 465	6.0 −	
4	1827	1	56	4.22	+55	56	51.6	9.3	+55 486	5.9 −	
5	1828	1	56	9.46	+56	29	9.9	8.7	+56 416	5.8 −	
6	1831	1	56	17.95	+56	24	35.6	9.0	+56 417	5.9 −	
7	1834	1	56	21.09	+56	9	46.2	9.3	+56 418	5.9 −	

Mean Dec. = +56° 10′ 47.″3 = Log. 0.25451
1.07700
1.33151

(1) 1h 48m 18.s39 +56° 10′ 37.″7
5 8.94 2 59.6
1h 53m 27.s33 +56° 7′ 38.″7

(2) 1h 49m 49.s64 +56° 18′ 14.″2
3 36.26 10 12.2
1h 53m 25.s90 +56° 8′ 2.0 *

(3) 1h 51m 13.s59 +55° 46′ 15.″8
2 13.01 21 32.4
1h 53m 26.60 +56° 7′ 48.″2

(4) 1h 56m 4.s22 +55° 56′ 51.″6
2 39.83 10 30.1
1h 53m 24.s39 +56° 7′ 21.7

(5) 1h 56m 9.s46 +56° 29′ 9.″9
2 40.08 21 28.8
1h 53m 29.s38 +56° 7′ 41.″1

(6) 1h 56m 17.s95 +56° 24′ 35.″6
2 50.56 17 0.3
1h 53m 27.s39 +56° 7′ 35.″3

(7) 1h 56m 21.s09 +56° 9′ 46.″2
2 54.85 2 14.2
1h 53m 26.s24 +56° 7′ 32.″0

Nova 1h 53m 26.s2 +56° 7′ 41″ (1875)

Positions of this star
Charted, Feb. 1896.
See Chart No. 74b.

1893phae.prOJ..80SF

	Diff x.	Diff y.	×1.79 x	×1.79 y.
1	−14.40	+1.00	2577.60	179.00
2	−10.08	+3.42	1804.32	612.18
3	−6.20	−7.22	1109.80	1292.38
4	+7.45	−3.52	1333.55	630.08
b=6	+7.95	+5.70	1423.05	1020.30
a=5	+7.48	+7.20	1338.92	1288.80
7	+8.15	+0.75	1458.85	134.25
8	−0.80	+13.80	143.20	2470.20
9	−0.75	−14.85	134.25	2658.15
c	0.48	+1.60	85.92	286.40
d	−3.00	+4.60	537.00	823.40
e	−2.12	+0.85	379.48	152.15
f	−1.20	+0.20	214.80	35.80
g	−0.92	+0.40	164.68	71.60
h	−1.95	+0.35	349.05	62.65
k	−1.62	+0.20	289.98	35.80
l	Too faint			
m	Too faint			
10	−1.42	−13.42	254.18	2402.18

erroneously in orientation in previous measures. Star should have been No. 9.

Feb. 21, 1896.

B. 1979. Measures to determine position of Nova Persei and comparison stars.

B 1979.

	x	y	x	y	x	y		
					″	s	s	″
1	-13.60	+2.20	-13.60	+2.20	57	26.4	+0.9	-19
2	9.28 -9.30	4.62 +4.65	-9.25	+4.60	52	27.0	-1.1	+16
3	-5.40	6.02 -6.05	-5.40	-6.00	48	25.9	-0.7	0
4	+8.25	2.32 -2.30	+8.25	-2.35	32	25.8	-1.4	-10
b = 6 ~~5~~	+8.75	+6.90	+8.75	+6.90	31	27.7	-0.3	+4
a = 5	8.28 +8.30	+8.40	+8.25	+8.40	32	28.4	+1.0	+9
7	+8.95	+1.95	+8.95	+1.95	30	26.2	0.0	+2
8	*0.00	+15.00	0.00	+15.00	42	31.7		
9	+0.05	-13.65	+0.05	-13.65	42	27.5		
c	+0.32 +0.35	+2.80	+0.30	+2.80	42	26.5		
d	-2.20	+5.80	-2.20	+5.80	45	27.4		
e	1.32 -1.35	+2.05	-1.30	+2.05	44	26.3		
f	∓0.40	+1.40	-0.40	+1.40	43	26.2		
g	0.12 -0.10	+1.60	-0.15	+1.60	42	26.2		
h	-1.15	+1.55	-1.15	+1.55	43	26.2		
k	-0.82 -0.85	+1.40	-0.80	+1.40	42	26.2		
l	too faint							
m	too faint							
Nova	+0.80	+1.20	+0.80	+1.20	41	26.2		
10	0.62 -0.60	12.22 -12.25	-0.65	-12.20	43	27.2		

For computation, see page 150

Star No. 10 is the star used erroneously in orientation in previous measures. Star should have been No. 9.

Feb. 21, 1896.

B. 1979. Measures to determine position of Nova Persei and comparison stars.

B 1979.

	x	y	x	y	x	y	s	
1	-13.60	+2.20	-13.60	+2.20	57"	26.4	+0.9	-19"
2	$\overset{9.28}{-9.30}$	$\overset{4.62}{+4.65}$	-9.25	+4.60	52	27.0	-1.1	+16
3	-5.40	$\overset{6.02}{-6.05}$	-5.40	-6.00	48	25.9	-0.7	0
4	+8.25	$\overset{2.32}{-2.30}$	+8.25	-2.35	32	25.8	-1.4	-10
f = 6	+8.75	+6.90	+8.75	+6.90	31	27.7	-0.3	+4
a = 5	$\overset{8.28}{+8.30}$	+8.40	+8.25	+8.40	32	28.4	+1.0	+9
7	+8.95	+1.95	+8.95	+1.95	30	26.2	0.0	+2
8	*0.00	+15.00	0.00	+15.00	42	31.7		
Star used in orientation 9	+0.05	-13.65	+0.05	-13.65	42	27.5		
c	$\overset{+0.32}{+0.35}$	+2.80	+0.30	+2.80	42	26.5		
d	-2.20	+5.80	-2.20	+5.80	45	27.4		
e	$\overset{1.32}{-1.35}$	+2.05	-1.30	+2.05	44	26.3		
f	*0.40	+1.40	-0.40	+1.40	43	26.2		
g	$\overset{0.12}{-0.10}$	+1.60	-0.15	+1.60	42	26.2		
h	-1.15	+1.55	-1.15	+1.55	43	26.2		
k	$\overset{-0.82}{-0.85}$	+1.40	-0.80	+1.40	42	26.2		
l	too faint							
m	too faint							
Nova	+0.80	+1.20	+0.80	+1.20	41	26.2		
Star used in orientation 10	$\overset{0.62}{-0.60}$	$\overset{12.22}{-12.25}$	-0.65	-12.20	43	27.2		

For computation, see page 150

Star No. 10 is the star used erroneously in orientation in previous measures. Star should have been No. 9.

Diff. x.	−14.40	−10.08	−6.20	+7.45
Log. " "	1.15836	1.00346	0.79239	0.87216
	1.33151	1.33151	1.33151	1.33151
	2.48987	2.33497	2.12390	2.20367
No. of Log.	$308^{s}.94$	$216^{s}.26$	$133^{s}.01$	~~$203^{s}.66$~~ $159^{s}.83$
	$5^{m}\ 8^{s}.94$	$3^{m}\ 36^{s}.26$	$2^{m}\ 13^{s}.01$	~~$3^{m}\ 23^{s}.66$~~ $2^{m}\ 39^{s}.83$

+7.48	+7.95	+8.15
0.87390	0.90037	0.91116
1.33151	1.33151	1.33151
2.20541	2.23188	2.24267
$160^{s}.08$	$170^{s}.56$	$174^{s}.85$
$2^{m}\ 40^{s}.08$	$2^{m}\ 50^{s}.56$	$2^{m}\ 54^{s}.85$

Diff. y.	+1.00	+3.42	−7.22	−3.52
× 179	$179''.00$	$612''.18$	$1292''.38$	$630''.08$
	$2'\ 59''.00$	$10'\ 12''.18$	$21'\ 32''.38$	$10'\ 30''.08$

+7.20	+5.70	+0.75
$1288''.80$	$1020''.30$	$134''.25$
$21'\ 28''.80$	$17'\ 0''.30$	$2'\ 14''.25$

Positions of this Star charted. Feb. 1896-

See Chart: No. 14 b

Var. No. ~~204~~ 205 -

Feb. 24, 1896.

Measurements of position of new Star in Grus.
Sp. Md- B 14364, No. 7987.

Plate B 3847.

		x	y / 10.82	x	y
=4	a	$\overset{4.22}{+4.20}$	$\overset{10.82}{-10.85}$.	+4.25	-10.80
=2	b	$\overset{5.58}{-5.55}$	$\overset{0.88}{-0.90}$	-5.60	-0.85
=3	c	-5.25	0.00	-5.25	0.00
=6	d	+11.20	+6.10	+11.20	+6.10
=5	e	$\overset{9.28}{+9.25}$	+14.55.	+9.30	+14.55
	f	$\overset{2.32}{+2.30}$	$\overset{9.18}{+9.15}$	+2.35	+9.20
	g	+3.10.	+9.75	+3.10	+9.75
	h	+3.75	+0.05	+3.75	+0.05
	k	+4.80	+4.80	+4.80	+4.80
	l	-3.20	+9.60	-3.20	+9.60
	m	$\overset{0.38}{-0.40}$	+6.40	-0.35	+6.40
	n	+1.10	+5.95	+1.10	+5.95
	o	+1.90	$\overset{6.982}{+6.95}$	+1.90	+6.90
	p	-0.15	$\overset{6.02}{+6.00}$	-0.15	+6.05
	Var.	+0.20	+7.55	+0.20	+7.55

+4.02	$\overset{.37}{-18.40}$
-5.78	-8.43
-5.45	-7.55
+11.00	-1.45
+9.08	+7.00
+2.12	+1.63
+2.90	+2.20
+3.55	-7.50
+4.60	-2.75
-3.40	+2.05
-0.58	-1.15
+0.90	-1.60
+1.70	-0.57
-0.35	-1.53

See next page

Z.C. No.	R.A. 1875			Dec.			Magn.
Z.C. 22ʰ 594	22ʰ	19ᵐ	35.52	-49°	59′	20.9	7½
Z.C. 22ʰ 507	22	16	36.38	-49	29	26.4	7
Z.C. 22ʰ 511	22	16	42.04	-49	26	49.1	7½
Z.C. 22ʰ 647	22	21	42.98	-49	8	41.0	8½
Z.C. 22ʰ 633	22	21	7.67	-48	43	19.0	8.8

Mean Dec. = 49° 21′ 31.3 =
Log. 0.18628
1.07700
1.26328

Diff. x	+4.02	-5.78	-5.45	+11.00	+9.08
Log. " "	0.60423	0.76193	0.73640	1.04139	0.95809
	1.26328	1.26328	1.26328	1.26328	1.26328
	1.86751	2.02521	1.99968	2.30467	2.22137
No. of Log.	73.71ˢ	105.98ˢ	99.93ˢ	201.68ˢ	166.48ˢ
	1ᵐ 13.71ˢ	1ᵐ 45.98ˢ	1ᵐ 39.93ˢ	3ᵐ 21.68ˢ	2ᵐ 46.48ˢ

Diff. y	-18.37	-8.43	-7.55	-1.45	+7.00
×179	3288.23	1508.97	1351.45	259.55	1253.00
	54′ 48.23″	25′ 8.97″	22′ 31.45″	4′ 19.55″	20′ 53.00″

(see next page)

(a) $22^{h}\ 19^{m}\ 35^{s}.52\quad -49^{\circ}\ 59'\ 20''.9$
$1\ \ 13.71\quad 54\ \ 48.2$
$22^{h}\ 18^{m}\ 21^{s}.81\quad -49^{\circ}\ 4'\ 32''.7$

(b) $22^{h}\ 16^{m}\ 36^{s}.38\quad -49^{\circ}\ 29'\ 26''.4$
$1\ \ 45.98\quad 25\ \ 9.0$
$22^{h}\ 18^{m}\ 22.36\quad -49^{\circ}\ 4'\ 17''.4$

(c) $22^{h}\ 16^{m}\ 42^{s}.04\quad -49^{\circ}\ 26'\ 49''.1$
$1\ \ 39.93\quad 22\ \ 31.4$
$22^{h}\ 18^{m}\ 21^{s}.97\quad -49^{\circ}\ 4'\ 17''.7$

(d) $22^{h}\ 21^{m}\ 42^{s}.98\quad -49^{\circ}\ 8'\ 41.0$
$3\ \ 21.68\quad 4\ \ 19.6$
$22^{h}\ 18^{m}\ 21^{s}.30\quad -49^{\circ}\ 4'\ 21.4$

(e) $22^{h}\ 21^{m}\ 7^{s}.67\quad -48^{\circ}\ 43'\ 19''.0$
$2\ \ 46.48\quad 20\ \ 53.0$
$22^{h}\ 18^{m}\ 21^{s}.19\quad -49^{\circ}\ 4'\ 12''.0$

	Diff_x	Diff_y	× 1.79	× 1.79
a	+4.02	−18.37	719.58	3288.23
b	−5.78	−8.43	1034.62	1508.97
c	−5.45	−7.55 ~~0.00~~	975.55	1351.45
d	+11.00	−1.45	1969.00	259.55
e	+9.08 ~~+9.05~~	+7.00	1625.32	1253.00
f	+2.12	+1.63	379.48	291.77
g	+2.90	+2.20	519.10	393.80
h	+3.55	−7.50	635.45	1342.50
k	+4.60	−2.75	823.40	492.25
l	−3.40	+2.05	608.60	366.95
m	−0.58	−1.15	103.82	205.85
n	+0.90	−1.60	161.10	286.40
o	+1.70	−0.63 ~~−0.57~~	304.30	112.77
p	−0.35	−1.53	62.65	273.87

Mean Position of Var. in Grus.

$22^{h}\ 18^{m}\ 21^{s}.73\quad -49^{\circ}\ 4'\ 20''.2$ (1875) Adopt Mean (July 15, 1903)
$22\ \ 18\ \ 21.5\quad -49\ \ 4\ \ 25''$ (1875) Curve adopted. Rejected,
$22^{h}\ 20^{m}.0\quad -48^{\circ}\ 56'$ (1900) from precession chart.

	Diff x ×1.63	Diff. y×1.63
a	1181.75	1116.$\overset{5}{\cancel{3}}$5
b	1328.45	366.75
c	366.75	1189.90
d	268.95	671.56
e	472.70	611.25
f	738.39	73.35
g	709.05	383.05
h	92.91	485.74
k	880.20	643.85
l	151.59	29.34
m	40.75	40.75
n	326.00	16.30
o	~~252~~ 89.65	154.85
p	138.55	110.84
q	179.30	48.90
r	179.30	13.04

Mean Position (1900)

Positions charted March 6, 1896 M.C.S.

See Chart No. 156

No. 33 V Canis Minoris

March 5, 1896.

Meas. to determine position of new var. in and comparison stars, Sp Md on pl B 15739 No. 8882.

Plate I 127

x	y.		x	y	x	y
-7.25	+6.85	a	-6.90	+12.35	-6.90	+12.35
-8.15	-2.25 (	b	-7.80	+3.25	-7.80	+3.25
+2.25	+7.30 (	c	+2.60	+12.80 9.62	+2.60	+12.80
-1.65	+4.12	d	-1.30	+9.65	-1.30	+9.60
+2.90	+3.75	e	+3.25 4.88	+9.25	+3.25	+9.25
+4.53	-0.45	f	+4.85	+5.05	+4.90	+5.05
+4.35	+2.35	g	+4.70 0.92	+7.85 8.48	+4.70	+7.85
+0.57	+2.98	h	+0.90	+8.45	+0.95	+8.50
+5.40	-3.95	k	+5.75 ~~+1.25~~	+1.55 ~~+5.35~~	+5.75	+1.55
+0.93 ~~+1.90~~	-0.18 ~~-0.15~~	l	1.28 +1.25	5.32 +5.35	+1.30	+5.30
-0.25	-0.25	m	+0.10	+5.25	+0.10	+5.25
-2.00	+0.10	n	-1.65	+5.60	-1.65	+5.60
0 +1.55	-0.95	o	0 +1.90 0.90	+4.55 +4.35	0 +1.90	+4.55
-0.85	+0.68 ~~+0.65~~	p	-0.50	6.18 +6.15	-0.50	+6.20
+1.10	+0.30	q	+1.45	+5.80 5.58	+1.45	+5.80
+1.10	+0.08 +0.10	r	+1.45	+5.60	+1.45	+5.55
		var.	+0.35	+5.50	+0.35	+5.50

BD. No.	R. A. 1855 h m s	Dec.	Magn
BD. +9° 1510	6 57 42.6	+9° 24.1	6.6
(+8° 1640	6 57 33.8	+8 59.2	8.8)
(+9° 1519	6 59 27.9	+9 26.1	9.0)
+9° 1517	6 58 45.1	+9 16.6	9.2
+9° 1520	6 59 34.6	+9 15.3	9.4
+9° 1522	6 59 55.0	+9 4.4	9.3
+9° 1521	6 59 51.4	+9 12.3	9

Mean Dec = +9° 14.5 = Log 0.00567
1.03623
1.04190

Checked by independent reading on Sept. 20, 1902.

Diff. x	-7.25	-1.65	+2.90	+4.53	+4.35
Log.	0.86034	0.21748	0.46240	0.65610	0.63849
	1.04190	1.04190	1.04190	1.04190	1.04190
	1.90224	1.25938	1.50430	1.69800	1.68039
No. of L.	79.84 s 1m 19.84	18.17 s	31.94 s	49.89 s	47.91 s

Diff. y	+6.85	+4.12	+3.75	-0.45	+2.35
X 163	1116.55	671.56	611.25	73.35	383.05
	18′ 36.55″	11′ 11.56″	10′ 11.25″	1′ 13.35″	6′ 23.05″

checked April 28. 1903 - M.A.G.

(a) 6h 57m 42.6s +9° 24.1′
1 19.8 18.6
6h 59m 2.4s +9° 5.5′ ✓

(d) 6h 58m 45.1s +9° 16.6′
0 18.2 11.2
6h 59m 3.3s +9° 5.4′

(e) 6h 59m 34.6s +9° 15.3′
31.9 10.2
✓ 6h 59m 2.7s +9° 5.1′ ✓

(f) 6h 59m 55.0s +9° 4.4′
49.9 1.2
6h 59m 5.1s +9° 5.6′ ✓

(g) 6h 59m 51.4s +9° 12.3′
47.9 6.4
6h 59m 3.5s +9° 5.9′ ✓

Mean Position (1855) 6h 59m 3.4s +9° 5.5′ Adopted from curve 6h 59m 4.8s +9° 5.5′ (1855)

Mean Position (1900)

Var. No. 90. S Apodis

Positions charted March 6, 1896 .. M.C.S.

See Chart No. 15b

March 5, 1896.

Measurements to determine position of new var. in and comparison stars. Sp IV on Pl. B 14146 No 8677

Plate - B 6341

			x	y	x	y
-6.55	+3.33 2.42	a	-2.90	+13.30	-2.90	+3.30
-3.45	+4.63	b	+0.20	+9.05	+0.20	+9.05
+15.85	+3.98	c	+19.50	+10.35	+19.50	+10.35
-10.46	-0.17	d	-6.75	+9.70	-6.75	+9.70
-11.15	+3.48	e	-7.50	+5.55	-7.50	+5.55
8.15	+4.58	f	-4.50	+9.20	-4.50	+9.20
5 .15	+2.36	g	∓0.50	+10.30	-0.50	+10.30
60	+0.53	h	+2.05	$\overset{8.08}{+8.05}$	+2.05	+8.10
0.60	-0.47	k	+4.25	+6.25	+4.25	+6.25
+2.10	+1.33	l	+5.75	+5.25	+5.75	+5.25
+0.55	+0.96	m	+4.20	+7.05	+4.20	+7.05
-0.05	+0.86	n	+3.60	$\overset{6.68}{+6.65}$	+3.60	+6.70
+0.55	~~0.00~~	~~var~~ o	+4.20	$\overset{6.58}{+6.\overset{5}{\cancel{8}}5}$	+4.20	+6.60
..	..	var	+3.65	$\overset{5.72}{+5.75}$	+3.65	+5.70

Design.	R.A. 1875 h m s	Dec. ° ' "	
A.G.C. 20331	14 52 46.62	-71 41 39.4	7.6
A.G.C. 20379	14 54 45.98	-71 24 51.4	6.7
A.G.C. 20648	15 6 51.20	-71 19 42.0	6.8

a=
b=
c=
d
e=
f=
g=
h=
k=
l=
m=
n=
o=

Mean Dec. = 71° 28' 44.3 = Log 0.49804
1.07700
1.57504 5

Diff. x. -6.55 | -3.45 | +15.85
Log " 0.81624 | 0.53782 | 1.20003
1.575045 | 1.575045 | 1.575045
2.391289 | 2.112867 | 2.775078
246.1120 | 129.68 | 595.767
4m 6.1120 | 2m 9.68 | 9m 55.767

Diff. y. -2.42 | 3.33 | 4.63
×179 433.18" | 596.07 | 828.77
7' 13.18" | 9' 56.07" | 13' 48.77"

(a) 14h 52m 46.62s -71° 41' 39.4"
4 6.1120 7 13.2
14h 56m 52.73s -71° 34' 26.2"
82

(b) 14h 54m 45.98s -71° 24' 51.4
2 9.68 9 56.1
14h 56m 55.66s -71° 34' 47.5"

(c) 15h 6m 51.20s -71° 19' 42.0"
9 55.767 13 48.8
14h 56m 55.44 -71° 33' 30.8"
3

Mean Position of Var. 14h 56m 54.61 -71° 34' 14.8" (1875)
24

14 56 56.0 -71° 34.5 (1875)
C.P.D.-71° 1743 14 59.4 -71 40 (1900)

Adop. " " Cor 14 56 53.7 -71° 34' 24.3

In July 1903 This Var. found to be a Cat. Star C.P.D. -71° 1743.

T Variable No. 177
Microscopii

March 5, 1896.

Measurements to determine position of comparison stars for new var in . A.G.C 28038 20^h 21.8^m - 28° 35′
Sp. Ind. on Pl. B 13839 No 7707

Page 154	×1.79 x	×1.79 y
a=	1172.45	433.18
b=	617.55	596.07
c=	2837.15	828.77
d	1861.60	712.42
e=	1995.85	30.43
f=	1458.85	622.92
g=	742.85	819.82
h=	286.40	422.44
k=	107.40	94.87
l=	375.90	84.13
m=	98.45	238.07
n=	8.95	171.84
o=	98.45	153.94

Plate B 13508

Diff

	x	y	x	y
a	-9.45	+9.20	-9.45	+9.20
b	-0.65	+6.00	-0.65	+6.00
c	-4.80	0.88 +0.85	-4.80	+0.90
d	-6.95	1.58 +1.55	-6.95	+1.60
e	-0.65	12.28 +12.30	-0.65	+12.25
f	-1.65	+13.20	-1.65	+13.20
g	1.08 +1.05	+17.20	+1.10	+17.20
h	+1.15	+15.60	+1.15	+15.60
k	+2.65	+15.85	+2.65	+15.85
var.	+1.65	+17.05	+1.65	+17.05

	Diff. x	Diff. y	×1.79	×1.79
a	-11.10	-7.85	1986.90	1405.15
b	-2.30	-11.05	411.70	1977.95
c	-6.45	-16.17	1154.55	2894.43
d	-8.60	-15.47	1539.40	2769.13
e	-2.30	-4.77	411.70	853.83
f	-3.30	-3.85	590.70	689.15
g	-0.57	+0.15	102.03	26.85
h	-0.50	-1.45	89.50	259.55
k	+1.00	-1.20	179.00	214.80

Position charted March. 6, 1896. M. C. S.

See chart No. 16 b

March 5, 1896

Measurements to determine position of comparison stars for new var in . C.D.M. −39° 16. 0h 2.3m −39° 56 (1875)
Sp. Md. on Pl. B 14371. No 7926.

Mean Dec. of stars not in parentheses.
−40° 0.9' =
Log. 0.11584
1.07700
1.19284

Mean Dec. omitting (g).
−40° 1.3' =
Log. 0.11585
1.07700
1.19285

Plate B 11913

	x	y	x	y	C.D.M. No.	R.A. 1875 h m s	Dec.	Magn.
(a	−7.15	+10.65	−7.15	+10.65	−39° 4	0 0 31.0	−39° 34.3'	6.7)
b	+1.00	−6.60	+1.00	−6.60	−40° 15	0 2 37.8	−40 26.0	7.6
(c	7.98 +8.00	+12.80	+7.95	+12.80	−39° 27	0 4 24.7	−39 28.3	8.5)
d	−4.30	14.48 +14.45	−4.30	+14.50	−39° 10	0 1 16.2	−39 23.0	9.0
e	2.78 −2.75	4.08 −4.05	−2.80	−4.10	−40° 11	0 1 39.3	−40 18.7	9.2
(f	+11.15	+3.65	+11.15	+3.65	−39 31	0 5 15.6	−39 55.5	9.0)
g	+0.20	2.58 +2.55	+0.20	+2.60	−39 17	0 2 22.5	−39 59.1	9.8
(h	6.68 −6.70	+3.65	−6.65	+3.65	−39 6	0 0 37.1	−39 55.8	9.8)
k	−5.20	+2.95	−5.20	+2.95	−39 8	0 1 0.2	−39 57.5	9.9
l	+1.30	+2.80	+1.30	+2.80				
m	−0.40	+3.30	−0.40	+3.30				✓
var	−0.35 −0.35	+3.80 +3.80	−0.35	+3.80				

Determine position of var.

	(b)	d	e	g	k
Diff x.	+1.35	−3.95	−2.43	+0.55	−4.85
Log.	0.13033	0.59660	0.38561	9.74036	0.68574
	1.1928~~4~~5	1.192845	1.1928~~4~~5	1.19284	1.1928~~4~~5
	1.3231~~7~~8	1.789445	1.5784~~5~~6	10.93320	1.8785~~8~~9
	21.05s	61.58s 1m 1.58s	37.88s	8.57s	75.61 1m 15.61s

Diff. y.	−10.40	+10.68	−7.88	(−1.22)	−0.85
×179	1861.60"	1911.72"	1410.52"	218.38"	152.15"
	31' 1.60"	31' 51.72"	23' 30.52"	3' 38.38"	2' 32.15"

(b)	(d)	(e)	(g)	(k)
0h 2m 37.8s −40° 26.0'	0h 1m 16.2s −39° 23.0'	0h 1m 39.3s −40° 18.7'	0h 2m 22.5s −39° 59.1'	0h 1m 0.2s −39° 57.5'
21.0 31.0	1 1.6 31.9	37.9 23.5	8.6 3.6	1 15.6 2.5
0h 2m 16.8s −39° 55.0'	0h 2m 17.8s −39° 54.9'	0h 2m 17.2s −39° 55.2'	0h 2m 13.9s −39° 55.5'	0h 2m 15.8s −39° 55.0'

Mean Position of Var. 0h 2m 16.~~3~~9s −39° 55.~~1~~0' (1875)

(156a)

Measurements to determine position of (g), comparison Star for C.DM. −39° 16. B. 11913

Mean Dec. = −40° 1'.3

Log = 0.11588
1.07700
1.19288

Diff. x	+0.80	−4.50	−2.98	−5.40
	9.90309	0.65321	0.47422	0.73239
	1.19288	1.19288	1.19288	1.19288
	11.09597	1.84609	1.66710	1.92527
No. of Log	$12.^s47$	$70.^s16$	$46.^s46$	$84.^s19$
		$1^m\,10.^s16$		$1^m\,24.^s19$

Diff. y.	−9.18	+11.90	−6.66	+0.37
×179	1643".22	2130".10	1192".14	66".23
	27' 23".22	35' 30".10	19' 52".14	1' 6".23

(c) $0^h\,2^m\,37.^s8$ −40° 26'.0
12.5 27.4
$0^h\,2^m\,25.^s3$ −39° 58'.6

(d) $0^h\,1^m\,16.^s2$ −39° 23'.0
1 10.2 35.5
$0^h\,2^m\,26.^s4$ −39° 58'.5

(e) $0^h\,1^m\,39.^s3$ −40° 18'.7
46.5 19.9
$0^h\,2^m\,25.^s8$ −39° 58'.8

(k) $0^h\,1^m\,0.^s2$ −39° 57'.5
1 24.2 1.1
$0^h\,2^m\,24.^s4$ −39° 58'.6

$0^h\,2^m\,25.^s3$ − 39° 58'.6
0 2 26.4 − 39 58.5
0 2 25.8 − 39 58.8
0 2 24.4 − 39 58.6

(g) $0^h\,2^m\,25.^s5$ − 39° 58'.6 (1875)

See Book 4, p. 156.

See Book 4. page 156

Computation to determine position of comparison star (g)

p. 156

Plate B11913

	x	y	CDM No.	R.A. 1875	Dec.	Magn.
b	+1.00	−6.60	−40° 15	0h 2m 37.8s	−40° 26.0'	7.6
d	−4.30	+14.48	−39 10	0 1 16.2	−39 23.0	9.0
e	−2.78	−4.08	−40 11	0 1 39.3	−40 18.7	9.2
k	−5.20	+2.95	−39 8	0 1 0.2	−39 57.5	9.9
g	+0.20	+2.58	−39 17	0 2 22.5	−39 59.1	9.8

Mean Dec. = −40° 1'.3 =

Log. 0.11589
1.07700
1.19289

Sept. 10.190

Diff. x.	+0.80	−4.50	−2.98	−5.40
Log. "	9.90309	0.65321	0.47422	0.73239
	1.19289	1.19289	1.19289	1.19289
	11.09598	1.84610	1.66711	1.92528
	12.47s	70.16s	46.46s	84.19s
		1m 10.16s		1m 24.19s

Diff. y.	−9.18	+11.90	−6.66	+0.37
×179	1643.22"	2130.10"	1192.14"	66.23"
	27' 23.22"	35' 30.10"	19' 52.14"	1' 6.23"

(b) 0h 2m 37.8s −40° 26.0'
12.5 27.4
0h 2m 25.3s −39° 58.6'

(d) 0h 1m 16.2s −39° 23.0'
1 10.2 35.5
0h 2m 26.4s −39° 58.5'

(e) 0h 1m 39.3s −40° 18.7'
46.5 19.9
0h 2m 25.8s −39° 58.8'

(k) 0h 1m 0.2s −39° 57.5'
1 24.2 1.1
0h 2m 24.4s −39° 58.6'

Mean Position of (g) 0h 2m 25.5s − 39° 58'.6 (1875)

C.P.D. −39° 4 0h 2m 26.3s − 39 58.7

This position agrees, almost, with that given in C.P.D. in the C.D.M. the R.A. is evidently wrong (C.D.M. −39° 17 0h 2m 22.5s −39 59.1 1875)

See Plate B 11913

No. 20~~3~~4 –

March 5, 1896.

Measurements to determine position ~~for~~ of comparison stars for new var in Grus. Sp. Md. on Pl. B 13855. No 8684 CDM - 38° 15044. 22^h 18.4 - 38 12

Plate B 10318

	x	y	x	y	Diff x	Diff y	×1.79	×1.79
a	13.22 - 13.25	+9.60	-13.20	- 9.60	- 13.77	-11.90	2464.83	2130.10
b	2.88 + 2.85	+ 7.50	+ 2.90	+ 7.50	+ 2.33	+ 5.20	417.07	930.80
c	- 1.55	- 3.75	- 1.55	- 3.75	- 2.10	- 6.05	375.90	1082.95
d	- 6.65	+ 4.60	- 6.65	+ 4.60	- 7.20	+ 2.30	1288.80	411.70
e	+ 2.35	6.08 + 6.10	+ 2.35	+ 6.05	+ 1.80	+ 3.78	322.20	676.62
f	- 4.50	+ 6.75	- 4.50	+ 6.75	- 5.05	+ 4.45	903.95	796.55
g	- 8.20	+ 7.10	- 8.20	+ 7.10	- 8.75	+ 4.80	1566.25	859.20
h	+ 3.20	+ 2.50	+ 3.20	+ 2.50	+ 2.65	+ 0.20	474.35	35.80
k	+ 7.25	+ 2.80	+ 7.25	+ 2.80	+ 6.70	+ 0.50	1199.30	89.50
l	- 1.95	+ 1.40	- 1.95	+ 1.40	- 2.50	- 0.90	447.50	161.10
m	+ 0.25	1.78 + 1.80	+ 0.25	+ 1.75	- 0.30	- 0.52	53.70	93.08
var	+ 0.55	+ 2.30	+ 0.55	+ 2.30				

x×179	y×179
- 6.80	+ 6.85
+ 1.35	- 10.40
+ 8.33	+ 9.00
- 3.95	+ 10.68
- 2.43	- 7.88
+ 11.50	- 0.15
+ 0.55	- 1.22
- 6.33	- 0.15
- 4.85	- 0.85
+ 1.65	- 1.00
- 0.05	- 0.50
..	..
1217.20	1226.15
2416.5	1861.60
1491.07	1611.00
707.05	1911.72
434.97	1410.52
2058.50	26.85
98.45	218.38
1133.07	26.85
868.15	152.15
295.35	179.00
8.95	89.50

✓

March 5, 1896.

Measurements to determine position of comparison stars for new var. in C.DM. -33° 2251. (A.G.C. 6135)
$5^h\ 15^m.6$ - 33° 48. Sp. Ind.? on Pl. B 14690 No 8603

Mean Dec. -33° 52'.7 = Log. 0.08080
1.07700
1.15780

Plate B.14771

x ×1.79	y		x	y	x	y	x 1.79	y ×1.79	C.DM.
+12.05	-3.18	a	+11.15	-1.70	+11.15	-1.70	2156.95	569.22	-33° 2217
+4.85	-5.28	b	+3.95	-3.80	+3.95	-3.80	868.15	945.12	-33° 2238
+5.05	+6.62	c	+4.15	+8.10	+4.15	+8.10	903.95	1184.98	-34° 2177
-0.75	-5.78	d	-1.65	-4.30	-1.65	-4.30	134.25	1034.62	-33° 2256
-7.10	-1.86	e	-8.00	0.38 -0.35	-8.00	-0.40	1270.90	332.94	-33° 2269
-12.50	+0.84	f	-13.40	2.32 +2.30	-13.40	+2.35	2237.50	150.36	-33° 2285
-8.60	+0.10	g	-9.50	1.58 +1.55	-9.50	+1.60	1539.40	17.90	-33° 2276 5 16 44.4 -33 50.3
+7.70	-1.73	h	+6.80	-0.25	+6.80	-0.25	1378.30	309.67	-33° 2230 ✓
+4.75	-0.23	k	+3.85	+1.25	+3.85	+1.25	850.25	41.17	-33° 2237 5 13 29.7 -33 48.8
+3.30	+2.62	l	+2.40	+4.10	+2.40	+4.10	590.70	468.98	-33° 2240 5 13 51.6 -33 58.7
-1.30	+1.72	m	-X 2.20	+3.20	-2.20	+3.20	232.70	307.88	-33° 2257 5 14 59.3 -33 55.3
+1.10	+0.77	(n)	+0.20	+2.25	+0.20	+2.25	196.90	137.83	-33° 2247 5 14 25.0 -33 54.1 *
+0.35	+0.80	o	-0.55	2.28 +2.30	-0.55	+2.25	62.65	143.20	
		var.	-0.90	1.48 +1.45	-0.90	+1.50			-33° 2251 5 14 42.6 -33 50.3

Diff. x	-9.70	+3.65	+2.20	-2.40	-1.10
Log. "	0.98677	0.56229	0.34242	0.38021	0.04139
	1.15780	1.15780	1.15780	1.15780	1.15780
	2.14457	1.72009	1.50022	1.53801	1.19919
No. Log.	139.50 2 - 19.50	52.49	31.64	34.52	15.82

Diff. y	-0.67	-1.00	+1.85	+0.95	-0.77
×1.79	119".93	179".00	331".15	170".05	137".83
	1' 59".93	2' 59".00	5' 31".15	2' 50".05	2' 17".83

(g) $5^h\ 16^m\ 44^s.4$ -33° 50'.3
2 19.5 2.0
$5^h\ 14^m\ 24^s.9$ -33° 52'.3

(k) $5^h\ 13^m\ 29^s.7$ -33° 48'.8
52.5 3.0
$5^h\ 14^m\ 22^s.2$ -33° 51'.8

(l) $5^h\ 13^m\ 51^s.6$ -33° 58'.7
31.6 5.5
$5^h\ 14^m\ 23^s.2$ -33° 53'.2

(m) $5^h\ 14^m\ 59^s.3$ -33° 55'.3
34.5 2.8
$5^h\ 14^m\ 24^s.8$ -33° 52'.5

(var) $5^h\ 14^m\ 42^s.6$ -33° 50'.3
15.8 2.3
$5^h\ 14^m\ 26^s.8$ -33° 52'.6

* Mean Position of (n) $5^h\ 14^m\ 24^s.4$ -33° 52'.5 (1875)

I have assumed n to be C.D.M. -33° 2247 with an error of 1'.6 in dec in C.DM. - According to the above computation its dec. is -33° 52.5 (1875 pos.) instead of -33° 54.1 as given in C.D.M. [illegible] Sept. 25 1901. See note on page 8 [illegible]

Positions charted
See Chart No. 17b

Mean Dec. = −61° 5′ 33.0″ = Log. 0.31571
1.07700
1.39271

Var. No. 63

June 1, 1896.

Meas. to determine position of new var. in ~~Carina~~ Centaurus
Sp. Md on pl B 15188 No. 8961! 11h 15m −61° 10′ (1875).

ZC

Plate B9294

		x	y	x	y	11h	R.A. 1875	Dec.	Magn.
−3.90 +4.45	a = 1 a	−4.45	+10.90	−4.45	+10.90	·961	11h 13m 27.14s	−60° 57′ 46.2″	9
−0.~~97~~27 ~~+4.63~~ −1.37	e = 2 e	0.82 −0.85	5.08 +5.10	−0.80	+5.05	·1052	11 14 52.3~~5~~8	−61 15 41.4	9.2
+0.40 −2.20	3	−0.15	+4.25	−0.15	+4.25	·1072	11 15 10.28	−61 18 10.8	9.5
+2.33 +13.00	4	1.78 +1.80	+19.45	+1.75	+19.45	·1128	11 16 4.85	−60 32 32.8	7.8
+5.60 −3.97	5	+5.05	2.48 +2.50	+5.05	+2.45	·1213	11 17 17.43	−61 23 33.7	8
−6.93 +4.63	b	7.48 −7.45	11.08 +11.10	−7.50	+11.05				
+2.75 +2.33	c	+2.20	8.78 +8.75	+~~1~~2.20	+8.80				
+1.07 +2.53	d	0.52 +0.55	8.98 +8.95	+0.50	+9.00				
+1.93 −3.25	f	1.38 +1.40	+3.20	+1.35	+3.20				
+3.07 −1.10	g	2.52 +2.55	+5.35	+2.50	+5.35				
+1.75 +2.03	h	+1.20	8.48 +8.45	+1.20	+8.50				
+0.25 +0.60	k	−0.30	+7.05	−0.30	+7.05				
+0.37 −0.60	l	0.18 ∓0.20	+5.85	−0.15	+5.85				
−1.07 −0.20	m	1.62 −1.65	+6.25	−1.60	+6.25				
−0.70 −0.65	n	−1.25	+5.80	−1.25	+5.80				
.. ..	var	−0.55	+6.45	−0.55	+6.45				

×1.79 x	1.79 y
1 698.10	796.55
2 48.33	245.23
3 71.60	393.80
4 417.07	2327.00
5 1002.40	710.63
b 1240.47	828.77
c 492.25	417.07
d 191.53	452.87
f ~~80.21~~ 345.47	581.75
g 549.53	196.90
h 313.25	363.07
k 44.75	1074.0
l 66.23	107.40
m 191.53	35.80
n 125.30	116.35

x y
a +0.3 7
b
c
d
e −1.2 14
1 ~~3~~5 +0.5 14
2 4 −0.1 10
3 5 +0.1 0

Diff. y	+4.45	−1.37	−2.20	+13.00	−3.97
×1.79	796.55″	245.23″	393.80″	2327.00″	710.63″
	13′ 16.55″	4′ 5.23″	6′ 33.80″	38′ 47.00″	11′ 50.63″

Diff. x.	−3.90	−0.27	+0.40	+2.33	+5.60
Log. " x	0.59106	9.43136	9.60206	0.36736	0.74819
	1.39271	1.39271	1.39271	1.39271	1.39271
	1.98377	10.82407	10.99477	1.76007	2.14090
No. Log.	96.33s 1m 36.33s	6.67s	9.88s	57.55s	138.32s 2m 18.32s

(1) 11h 13m 27.14s −60° 57′ 46.2″
1 36.33 13 16.6
11h 15m 3.47s −61° 11′ 2.8″

(2) 11h 14m 52.38s 61° 15′ 41.4″
6.67 4 5.2
11h 14m 59.05s −61° 11′ 36.2″

(3) 11h 15m 10.28s −61° 18′ 10.8″
9.88 6 33.8
11h 15m 0.40s −61° 11′ 37.0″

(4) 11h 16m 4.85s −60° 32′ 32.8″
57.55 38 47.0
11h 15m 7.30s −61° 11′ 19.8″

(5) 11h 17m 17.43s −61° 23′ 33.7″
2 18.32 11 50.6
11h 14m 59.11s −61° 11′ 43.1″

checked by M.A.G.
May 5-1903

Mean Position of new var. in ~~Carina~~. 11h 15m 1.87s −61° 11′ 27.8″ (1875)

from Curve. Adopt. 11h 15m 1.0s −61 11 ~~33~~ ~~25~~ 22 (1875)

Positions charted.
See chart No. 17b

No. 9 S Horologii

June 1, 1896.

Meas. to determine position of new var. in Horologium
Sp. Md on Plate B 15153 No. 8941. $2^{h}\,21^{m}.4$ $-60^{\circ}\,6'$

Plate B 14993

	x	y	x	y	zc	R.A. 1875 h	m	s	Dec. °	'	"	Magn.
1	8.08 -8.10	4.70 +4.65	-8.05	+4.75	·498	2	18	34.75	-60	19	42.9	7.7
2	-1.60	+17.30	-1.60	+17.30	·567	2	21	19.48	-59	42	53.9	9.5
5	1.78 +1.75	0.32 +0.30	+1.80	+0.35	·599	2	22	28.33	-60	33	39.6	9
d = 6	+2.35	18.72 +18.70	+2.35	+18.75	·611	2	22	54.77	-59	39	1.2	9 =
not used in computation (a	+13.75	+2.80	+13.75	+2.80	a·2666	2	27	18.53	-60	27	6.2	8.5)
b	24.98 +25.00	+7.30	+24.95	+7.30	z·856	2	31	50.40	-60	13	49.3	9
c	6.32 +6.35	+16.25	+6.30	+16.25	—							
e	+1.80	5.78 +5.80	+1.80	+5.75								
f	+9.90	+6.55	+9.90	+6.55								
g	8.78 +8.75	+10.60	+8.80	+10.60								
h	2.70 -2.75	+10.50	-2.65	+10.50								
k	+0.30	+8.40	+0.30	+8.40								
l	3.02 -3.00	8.78 +8.75	-3.05	+8.80								
m	1.38 +1.45	+9.05	+1.30	+9.05								
n	~~+~~ 0.10	9.15 +9.20	-0.10	+9.10								
var.	-0.50	+8.90	-0.50	+8.90								

Diff × 1.79 x		× 1.79 y
1	1356.82	751.80
2	196.90	1503.60
5	408.12	1535.82
6	510.15	1757.78
a	2550.75	1091.90
b	4560.92	286.40
c	1220.78	1315.65
e	41.70	558.48
f	1861.60	420.65
g	1661.12	304.30
h	393.80	286.40
k	143.20	89.50
l	451.08	21.48
m	336.52	26.85
n	71.60	44.75

checked by M. A. Gill
Apr. 29-1903

Mean Dec =
$60^{\circ}\,3'\,49''.4$ =
Log. 0.30187
1.07700
1.37887

Diff. x.	-7.58	-1.10	+2.28	+2.85	Diff. y.	-4.20	+8.40	-8.58	+9.82
Log. Diff x	0.87967	0.04139	0.35793	0.45484	×179	751.80	1503.60	1535.82	1757.78
	1.37887	1.37887	1.37887	1.37887		12' 31.80"	25' 3.60"	25' 35.82"	29' 17.78"
	2.25854	1.42026	1.73680	1.83371					
	181.36 s	26.32 s	54.55 s	68.19 s					
	3m 1.36 s			1m 8.19 s					

(1) $2^{h}\,18^{m}\,34^{s}.75$ $-60^{\circ}\,19'\,42''.9$ (2) $2^{h}\,21^{m}\,19^{s}.48$ $-59^{\circ}\,42'\,53''.9$ (5) $2^{h}\,22^{m}\,28^{s}.33$ $-60^{\circ}\,33'\,39''.6$ (6) $2^{h}\,22^{m}\,54^{s}.77$ $-59^{\circ}\,39'\,1''.2$
3 1.36 12 31.8 26.32 25 3.6 54.55 25 35.8 1 8.19 29 17.8

$2^{h}\,21^{m}\,36^{s}.11$ $-60^{\circ}\,7'\,11''.1$ $2^{h}\,21^{m}\,45^{s}.80$ $-60^{\circ}\,7'\,57''.5$ $2^{h}\,21^{m}\,33^{s}.78$ $-60^{\circ}\,8'\,3''.8$ $2^{h}\,21^{m}\,46^{s}.58$ $-60^{\circ}\,8'\,19''.0$

Mean Position of new var. in Horologium $2^{h}\,21^{m}\,40^{s}.57$ $-60^{\circ}\,7'\,52''.8$ (1875)

from Curve, Adopt. $2^{h}\,21^{m}\,39^{s}.2$ $-60\;7\;57$ (1875)

June 10, 1896.

Meas. to determine positions of comparison stars for new var. in ~~A.G.C.~~ 31427 23h 37m Dec -30°41′ 7¾
Sp. Mc 5 d on B 14155 No. 8255.

-7.58-4.20 Plate B 14523

		x	y	x	y			
-1.10+8.40								
+2.28-8.58	a	+11.95	+14.30	+11.95	+14.30	-30° 19482	31508	8¾
+2.85+9.82	b	1.32 +1.30	7.18 +7.20	+1.35	+7.15	-30° 19462	31466	8½
+14.25-6.10	c	-13.75	+2.65	-13.75	+2.65	-30° 19438	31407	8¾
+25.48-1.60	d	-0.50	+8.90	-0.50	+8.90	-30° 19459		
+6.82+7.35	e	+2.80	+4.15	+2.80	+4.15	-30° 19464		
+2.30-3.12	f	-8.15	+7.80	-8.15	+7.80	-30° 194~~3~~7		
+10.40-2.35	g	-4.10	+1.80	-4.10	+1.80	-30° 19453		
+9.28+1.70	h	8.42 -8.45	+6.25	-8.40	+6.25	-30° 19446		
-2.20+1.60	k	-6.00	+6.20	-6.00	+6.20	-30° 19450		
+0.80-0.50	l	-9.15	+2.75	-9.15	+2.75	— —		
-2.52-0.12	m	-8.40	+4.20	-8.40	+4.20	— —		
+1.88+0.15	var	-7.75	+4.60	-7.75	+4.60	-30° 194~~5~~8	31427	7¾

		Diff. x	Diff. y	x ×1.79	y ×1.79
+0.40+0.25	a	+19.70	+9.70	3526.30	1736.30
	b	+9.07	+2.58	1623.53	461.82
	c	-6.00	-1.95	1074.00	349.05
	d	+7.25	+4.30	1297.75	769.70
	e	+10.55	-0.45	1888.45	80.55
	f	-0.40	+3.20	71.60	572.80
	g	-3.65	-2.80	653.35	501.20
	h	-0.67	+1.65	119.93	295.35
	k	+1.75	+1.60	313.25	286.40
	l	-1.40	-1.85	250.60	331.15
	m	-0.65	-0.40	116.35	71.60

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a was added to sequence later and ~~thus~~ changes the comp. stars by one letter. M.C.S. March 7. 1903.

June 10, 1896.

Meas. to determine positions of Comparison stars for new variable star in A.G.C. 13420 $9^h 46^m.5$ −22° 33′ 7.3 Sp. IV Type on B13145 No. 7031.

Plate B13557

x×179	y×179		x	y	x	y			
		a →							
+11.68	+1.78	b	$\overset{14.08}{+14.05}$	+10.60	14.10	+10.60	−22° 2753	−22° ~~2753~~ 7695	8.4
+0.88	+1.16	c	$\overset{3.28}{+3.30}$	$\overset{9.98}{+9.95}$	+3.25	+10.00	−22° 2741	−22° 7654	8.7
−8.65	−7.52	d	−6.25	+1.30	−6.25	+1.30	−22° 2728	−22° 7624	9.1
−7.65	−7.52	e	−5.25	+1.30	−5.25	+1.30	−22° 2730	−22° 7630	8.9
+2.20	−2.54	f	+4.60	$\overset{6.28}{+6.30}$	+4.60	+6.25	−22° 2743	−22° 7657	9.4
−6.02	−1.32	g	$\overset{3.62}{-3.60}$	+7.50	−3.65	+7.50		−22° 7635	9.7
−2.80	−2.82	h	−0.40	+6.00	−0.40	+6.00		−22° 7644	9.8
+1.68	−1.27	k	$\overset{4.08}{+4.10}$	+7.55	+4.05	+7.55		−22° 7655	9.8
−3.75	−2.77	l	−1.35	+6.05	−1.35	+6.05		−22° 7642	10
+0.95	−0.30	m	+3.35	$\overset{8.52}{+8.50}$	+3.35	+8.55		—	—
. .	. .	var.	+2.40	$\overset{8.82}{+8.80}$	+2.40	+8.85	−22° 2739	−22° 7652	7.1

×1.79 x	×1.79 y.
2090.72	318.62
157.52	207.64
1548.35	1346.08
1369.35	1346.08
393.80	454.66
1077.58	206.28
501.20	504.78
300.72	227.33
671.25	495.83
170.05	53.70

June 10, 1896.

Meas. to determine positions of comparison stars for new variable star in BD+5°1797 7h 43m.5 + 5° 41′ 9.0 sp IV Type on B15244 No. 8999

Plate I 14647

	x	y	x	y	Design.	R.A. 1855 h m s	Dec. ° ′	Magn
a	8.52 +8,55	+4.40	+8.50	+4.40	+5° 1802	7 41 47.3	+5° 39.7	8.5
note on pos. → b	+2,75	+2.25	+2.75	+2.25	+5° 1794	7 40 42.2	+5 33.7	9.0
c	+6,50	+4.40	+6,50	+4.40	+5° 1798	7 41 21.7	+5 40.1	9.3
note on pos. × d	+3,45	+7,55	+3,45	+7,55	+5° 1795	7 40 46.9	+5 51.7	9.3
e	+5,80	8 8 ~~7~~.18 +~~7~~.20	+5.80	8 +~~7~~.15				
f	+9.20	3.52 +3,55	+9,20	+3,50				
g	+4.40	+2,75	+4.40	+2.75				
h	+6,20	+6,20	+6,20	+6,20				
? k	+4.80 ~~+4,35~~	+ ~~4~~5,55 ~~+4,50~~	+4,80	+5.55				
l	4.32 +4.35	+4,50	+4,30	+4,50				
m	+3,50	+4,50	+3,50	+4,50				
var.	+4,60	+6.35	+4,60	+6,35	+5° 1797	7 41 3.3	+5 46.9	9.0

Diff(b) x. +5.77 +3.75

Diff y +2.15 +2.15

× 1.63 x	y	× 1.63 x	× 1.63 y			
+3.92	−1.95	638.96	317.85	a		
−1.85	−4.10	301.55	668.30	b		
+1.90	−1.95	309.70	317.85	c		
−1.15	+1.20	187.45	195.60	d		
+1.20	+~~4~~.83	195.60	~~135.29~~ 298.29	e	~~+.83~~	~~298.29~~
+4.60	+2.83	749.80	461.29			
−0.20	−3.60	32.60	586.80			
+1.60	−0.15	260.80	24.45			
+0.20	−0.80	32.60	130.40			
−0.28	−1.85	45.64	301.55			
−1.10	−1.85	179.30	301.55			

March. 23, 1903. The y reading of comp: star (e) was assumed to be 8.20 and 8.15.

Var. No 131. U Coronae Austr.

June 10, 1896.

Meas. to determine positions of comparison stars for new variable star in CPDM -37° 12782 18h 32.6m -37° 57′.7

Ps Md on B 14374 No. 7943

Diff x 179	Diff x 1.79
589.52	647.98
716.00	1188.56
331.52	1972.58
256.58	508.36
208.25	640.82
984.50	823.40
35.80	656.93
841.30	264.92
658.72	57.28
71.60	164.68
3.58	336.52
528.05	32.22
1074.0	307.88
205.85	179.00

Mean Dec. = -37° 47.4 = Log. 0.10223
1.07700
1.17923

Plate B 14498

		x	y	x	y	CPDM	R.A. 1875 h m s	Dec. ° ′	Magn.
✓	a	-7.05 (7.08)	+9.50 (12.52)	-7.10	+9.50	-37° 12754	18 30 20.5	-37 45.4	8.5
✓	b	-2.20 (5.08)	+12.50	-2.20	+12.55	-37° 12770	18 31 34.3	-37 36.6	8.5
	c	-5.10	+16.90	-5.05	+16.90	-37° 12765 -12 0 [illegible] -5.20	18 30 54.3	-37 24.2	7.5
✓	d	-5.20 (5.22) ~~+1.60~~	+8.75 (8.72) ~~+9.50~~	-5.75	+8.70	-37° 12762	18 30 48.8	-37 48.4	8.3
	e	-4.95	+2.30	-4.95	+2.30	-38° 12970	18 30 51.8	-38 7.7	8.2
	f	-3.70	+1.30 (1.28)	-3.70	+1.25	-38° 12973	18 31 10.5	-38 11.1	9.3
✓	g	+1.60	+9.55	+1.60	+9.55	-37° 12780	18 32 31.8	-37 45.6	8.7
	h	-2.90	+4.40	-2.90	+4.40	-38° 12976	18 31 22.7	-38 1.1	9.5
	k	-1.90 (1.88)	+6.20	-1.85	+6.20	-37° 12771	18 31 38.8	-37 55.1	10
	l	+1.40	+6.80	+1.40	+6.80	+2.75 [illegible] +1.75			
	m	+1.75 (1.78)	+4.00	+1.80	+4.00				
	n	-1.15	+5.70	-1.15	+5.70				
	o	+1.20	+7.60	+1.20	+7.60				
	p	+0.65	+6.90 (6.88)	+0.65	+6.85				
	var	+1.80	+5.90 (5.88)	+1.80	+5.85	-37° 12782	18 32 34.0	-37 56.7	9.7

Diff x	Diff y
-8.88	+3.62
-4.00	+6.64
-6.88	+11.02
-7.02	+2.84
-6.75	-3.58
-5.50	-4.60
-0.20	+3.67
-4.70	-1.48
-3.68	+0.32
-0.40	+0.92
-0.02	-1.88
-2.95	-0.18
-0.60	+1.72
-1.15	+6.50

	a	b	d	g	h
Diff. x.	-8.85	-4.00	-7.02	-0.20	-4.70
Log.	0.94694	0.60206	0.84634	9.30103	0.67210
	1.17923	1.17923	1.17923	1.17923	1.17923
	2.12617	1.78129	2.02557	10.48026	1.85133
No.	133.7s	60.44	106.1s	3.02s	71.01s
	2m 13.7s	1m 0.44s	1m 46.1s		1m 11.01

	a	b	d	g	h
Diff. y.	+3.62	+6.64	+2.84	+3.67	-1.48
x 179	647.98″	1188.56″	508.36″	656.93″	264.92″
	10′ 47.98	19′ 48.56	8′ 28.36	10′ 56.93	4′ 24.92″

(a) 18h 30m 20.5s -37° 45′.4
2 13.7 10.8
18h 32m 34.2s -37° 56′.2

(b) 18h 31m 34.3s -37° 36′.6
1 0.4 19.8
18h 32m 34.7s -37° 56′.4

(d) 18h 30m 48.8s -37° 48′.4
1 46.1 8.5
18h 32m 34.9s -37° 56′.9

(g) 18h 32m 31.8s -37° 45′.6
3.0 10.9
18h 32m 34.8s -37° 56′.5

(h) 18h 31m 22.7s -38° 1′.1
1 11.0 4.4
18h 32m 33.7s -37° 56′.7

Mean Position of var. 18h 32m 34.5s - 37° 56′.5 (1875)
18 34.3 - 37° 55′ (1900)

Var. No. 128. R V Sagittarii -

June 11, 1896.

Meas. to determine positions of comparison stars for new variable in CDM -33° 13234 18h 19m.7 -33° 24′ 9.2 (1875).
Sp Md on B14374 No. 7938.

Plate B 14498

		x	y +4.25	x	y	CDM			-4.35	×1.79	×1.79 y.
?	a	-8.20	~~+4.85~~	-8.20	+4.25	-33°13272	-9.70	-8.70	~~-3.75~~ (?)	1736.30 1557.30	~~671.25~~ 778.65
	b	+3.20	+10.30	+3.20	+10.30	-33°13225	+1.70	+2.70	+1.70	304.30 483.30	304.30
x	c	+0.30	9.02 +9.05	+0.30	+9.00	-33°13239	-1.20	-0.20	+0.42	214.80 35.80	75.18
	d	+6.70	+0.30	+6.70	+0.30	-32°14147	+5.20	+6.20	-8.30	930.80 1109.80	1485.70
	e	5.28 -5.30	+8.30	-5.25	+8.30	-33°13258	-6.78	-5.78	-0.30	1213.62 1034.62	53.70
	f	2.98 -2.95	12.82 +12.85	-3.00	+12.80	-33°132~~49~~ 52	-4.48	-3.48	+4.22	801.92 622.92	755.38
	g	-2.30	+11.75	-2.30	+11.75	-33°13249	-3.80	-2.80	+3.15	680.20 501.20	563.85
	h	0.82 +0.85	7.58 +7.55	+0.80	+7.60	-33°13236	-0.68	+0.32	-1.02	121.72 57.28	182.58
	k	-1.70	+6.80	-1.70	+6.80	-33°13247	-3.20	-2.20	-1.80	572.80 393.80	322.20
	l	+3.20	8.38 +8.40	+3.20	+8.35	-33°13224	+1.70	+2.70	-0.22	304.30 483.30	39.38
x	m	1.58 +1.55	9.18 +9.20	+1.60	+9.15	-33°13231	+0.08	+1.08	+0.58	14.32 193.32	103.82
	n	-0.90 0.92 ~~+1.50~~	05 +6.~~25~~	-0.95	+6.05	-33°13244	-2.42	-1.42	-2.55	433.18 254.18	456.45
	o	+2.75	+9.25	+2.75	+9.25	—	+1.25	+2.25	+0.65	223.75 402.75	116.35
	p	+1.70	+7.55 7.58 ~~+6.80~~	+1.70	+7.60	—	+0.20	+1.20	-1.02	35.80 214.80	182.58
	q	2.32 +2.35	8.48 +8.45	+2.30	+8.50	—	+0.82	+1.82	-0.12	146.78 325.78	21.48
	r	2.48 +2.50	8.52 +8.50	+2.48 5	+8.55	~~-33°1323~~	+0.98	+1.98	-0.08	175.42 354.42	14.32
	var.	(+1.50	+8.60	+1.50	+8.60	-33 13234					

Should be +1.50 (Assume).

Var. No. 114. – Scorpii –

June 11, 1896.

Meas. to determine positions of comparison stars for new variable star in CDM-35° 11829 17h 34.0m -35° 11′ (1875)
Sp IV Type on B 13795 No. 7494.

Mean Dec. = -35° 11′.8 = Log. 0.08768
1.07700
1.16468

Plate B 13501

assumed the measure of x to be 2.90. (M.C.S. Sept. 1898)

	x	y	x	y	CDM	R.A. 1875 Dec.	Magn.
						h m s ° ′	
a	+3.90	6.02 +6.05	+2.90	+6.00	-35° 11849	17 34 57.6 -35 7.8	9.0
b	+1.50	+3.90	+1.50	+3.90	-35° 11839	17 34 36.7 -35 14.1	9.5
c	+0.10	3.42 +3.45	+0.10	+3.40	-35° 11834	17 34 15.4 -35 15.6	9.3
d	+2.10	4.62 +4.65	+2.10	+4.60	-35° 11843	17 34 43.4 -35 12.5	9.7
e	+0.90	+5.65	+0.90	+5.65	-35° 11837	17 34 27.1 -35 8.8	10
f	-3.25	+4.55	-3.25	+4.55	—		
g	2.02 -2.00	+4.20	-2.05	+4.20	—		
h	-1.50	+4.70	-1.50	+4.70	—		
k	0.95 -~~0.85~~	5.20 +~~4.85~~	-0.95	+5.20	—		
l	-1.20 1.18 ~~-0.90~~	6.25 +~~5.20~~	15 -1.~~20~~	+6.25	—		
m	-1.35	+4.20	-1.35	+4.20	—		
n	1.28 -1.25	+4.00	-1.30	+4.00	—		
o	1.12 -1.10	4.52 +4.50	-1.15	+4.55	—		
var.	-0.85	+4.85	-0.85	+4.85	-35° 11829	17 34 1.0 -35 10.8	9.9

x 1.79 x	× 1.79 y
850.25	209.43
420.65	170.05
170.05	255.97
528.05	41.17
313.25	143.20
429.60	53.70
209.43	116.35
116.35	26.85
17.90	62.65
59.07	250.60
89.50	116.35
76.97	152.15
48.33	59.07

Diff x.	Diff y
+4.75	
~~+3.75~~	+1.17
+2.35	-0.95
+0.95	-1.43
+2.95	-0.23
+1.75	+0.80
-2.40	-0.30
-1.17	-0.65
-0.65	-0.15
-0.10	+0.35
-0.33	+1.40
-0.50	-0.65
-0.43	-0.85
-0.27	-0.33

Diff x	+3.75 ~~+2.35~~	+2.35	+0.95	+2.95	+1.75
Log. Diff. x	0.57403	0.37107	9.97772	0.46982	0.24304
	1.16468	1.16468	1.16468	1.16468	1.16468
	1.73871	1.53575	11.14240	1.63450	1.40772
no. Log.	54.79	34.34 s	13.88 s	43.10 s	25.57 s

Diff y	+1.17	-0.95	-1.43	-0.23	+0.80
× 1.79	209.43″	170.05″	255.97″	41.17″	143.20″
	3′ 29.43″	2′ 50.05″	4′ 15.97	41.17″	2′ 23.20″

(a) 17h 34m 57.6s -35° 7′.8
54.8 3.5
17h 34m 2.8s -35° 11′.3

(b) 17h 34m 36.7s -35° 14′.1
34.3 2.8
17h 34m 2.4s -35° 11′.3

(c) 17h 34m 15.4s -35° 15′.6
13.9 4.3
17h 34m 1.5s -35° 11′.3

(d) 17h 34m 43.4s -35° 12′.5
43.1 0.7
17h 34m 0.3s -35° 11′.8

(e) 17h 34m 27.1s -35° 8′.8
25.6 2.4
17h 34 1.5s -35° 11′.2

Mean Position of Var. 17h 34m 1.7s -35° 11′.4 (1875)

June
~~July~~ 11, 1896.

Meas. to determine positions of comparison stars for new variable star in R.A. 6h 59.1m Dec. +9° 6′ (1875?)
Sp. Md on B 15139 No. 8882.

Mean Dec. for stars (omitting d & e) = +9° 13.2′ =
Log. 0.00564
1.03623
1.04187

Plate I 127

	x	y	x	y	BD	R.A. 1855 h m s	Dec.	Magn.
a	-4.80	+11.20	-4.80	+11.20	+9° 1510	6 57 42.6	+9° 24.1	6.6
b	5.68 -5.65	+2.10	-5.70	+2.10	+8° 1640	6 57 33.8	+8 59.2	8.8
c	+4.70	80 +11.~~18~~	+4.70	+11.80	+9° 1519	6 59 27.9	+9 26.1	9.0
d	+0.80	8.58 +8.60	+0.80	+8.55	+9° 1517	6 58 45.1	+9 16.6	9.2
e	+5.30	+8.25	+5.30	+8.25	+9° 1520	6 59 34.6	+9 15.3	9.4
f	7.12 +7.10	+4.00	+7.15	+4.00	+9° 1522	6 59 55.0	+9 4.4	9.3
g	+6.85	+6.90	+6.85	+6.90	+9° 1521	6 59 51.4	+9 12.3	9.5
var	+2.50	4.44 ~~4.42~~ +4.40	+2.50	+4.45				
h	+3.15	7.42 +7.40	+3.15	+7.45				
k	+8.00	+0.55	+8.00	+0.55				
l	3.42 +3.45	+4.30	+3.40	+4.30				
m	+2.25	4.18 +4.20	+2.25	+4.15				
n	+0.45	+4.55	+0.45	+4.55				
o	3.12 +3.15	+3.50	+3.10	+3.50				
p	+1.75	5 +5.~~00~~	+1.75	+5.05				
q	3 3.62 +~~3~~.65	4.78 +4.75	+3.60	4 +4.80				
r	+3.60	+4.55	+3.60	+4.55				
var	+~~2~~2.50	4.44 +4.45	+2.50	+4.45				

	Diff x	Diff y	× 1.63	× 1.63
a	-7.30	+6.76	1189.90	1101.88
b	-8.18	-2.34	1333.34	381.42
c	+2.20	+7.36	358.60	1199.68
d	-1.70	+4.14	277.10	674.82
e	+2.80	+3.81	456.40	621.03
f	+4.62	-0.44	753.06	71.72
g	+4.35	+2.46	709.05	400.98
h	+0.65	+2.98	105.95	485.74
k	+5.50	-3.89	896.50	634.07
l	+0.92	-0.14	149.96	22.82
m	-0.25	-0.26	40.75	42.38
n	-2.05	+0.11	334.15	17.93
o	+0.62	-0.94	101.06	153.22
p	-0.75	+0.61	122.25	99.43
q	+1.12	+0.34	182.56	55.42
r	+1.10	+0.11	179.30	17.93

(d)

Diff x.	-5.60	-6.48	+3.90	+6.32	+6.05
Log. " "	0.74819	0.81158	0.59106	0.80072	0.78176
	1.04187	1.04187	1.04187	1.04187	1.04187
	1.79006	1.85345	1.63293	1.84259	1.82363
No. Log.	61.67s	71.36s	42.95s	69.60s	66.62s
	1m 1.67s	1m 11.36s		1m 9.60s	1m 6.62s

Diff y.	+2.62	-6.48	+3.22	-4.58	-1.68
× 163	427.06″	1056.24″	524.86″	746.54″	273.84″
	7′ 7.06	17′ 36.24	8′ 44.86	12′ 26.54	4′ 33.84″

(a) 6h 57m 42.6s +9° 24.1′
1 1.7 7.1
6h 58m 44.3s +9° 17.0′

(b) 6h 57m 33.8s +8° 59.2′
1 11.4 17.6
6h 58m 45.2s +9° 16.8′

(c) 6h 59m 27.9s +9° 26.1′
43.0 8.7
6h 58m 44.9s +9° 17.4′

(f) 6h 59m 55.0s +9° 4.4′
1 9.6 12.4
6h 58m 45.4s +9° 16.8′

(g) 6h 59m 51.4s +9° 12.3′
1 6.6 4.6
6h 58m 44.8s +9° 16.9′

Mean Position of Comp Star. (d)

Reduce

June 12, 1896

Meas. to determine position of V Type star on B13757 No. 7277. 18h 15.0m − 13° 45' (1855).

Mean Dec. = −13° 48'.6 =
Log. 0.01275
1.07700
1.08975

Plate B9879

	x	y	x	y	BD	(1855) R.A. h	m.	s.	Dec. °	'	Mag.
1	0.98 1.00	9.02 9.00	0.95	9.05	−13° 4955	18	14	33.7	−13	44.8	9.3
2	3.50	10.68 10.70	3.50	10.65	−13° 4958	18	15	4.8	−13	39.9	8.2
3	4.05	3.55	4.05	3.55	−14° 5024	18	15	11.0	−14	1.1	9.3
V Type.	3.35	8.15	3.35	8.15	—	—					

Diff. x	−2.37	0.15	0.70	Diff. y.	0.87	2.53	−4.60
Log. " "	0.37475	9.17609	9.84510	× 179	155".73	452".87	823".40
	1.08975	1.08975	1.08975		2' 35".73	7' 32".87	13' 43".40
	1.46450	10.26584	10.93485				
	29s.14	1s.84	8s.61				

	h	m.	s.	°	'
(1)	18	14	33.7	−13°	44.8
			29.1		2.6
	18	15	2.8	−13°	47.4
(2)	18	15	4.8	−13°	39.9
			1.8		7.5
	18	15	3.0	−13°	47.4
(3)	18	15	11.0	−14°	1.1
			8.6		13.7
	18	15	2.4	−13°	47.4

Mean Position of V Type Star 18h 15m 2s.7 − 13° 47'.4 (1855) adopt Mean.

Reduced

June 13, 1896.

Meas. to determine position of V Type star on B 14620 No. 8491 * R.A. 18h 19.6m Dec. −16° 55′ (1855).

Mean Dec. = −16° 59.1′ = Log. 0.01937
1.07700
1.09637

Plate B14044

	$x_{0.88}$	$y_{4.28}$	x	y	BD	R.A. 1855 h	m	s	Dec.		Magn.
1	+0.90	+4.25	+0.85	+4.30	−16° 4879	18	18	45.7	−16°	56.8	9.4
2	+1.25	+2.90	+1.25	+2.90	−17° 5199	18	19 ~~20~~	3.2 ~~2.7~~	−17 ~~−16~~	15.3 ~~47.2~~	~~8.9~~
3	+7.00 7.62	+7.55	+7.00	+7.55	−16° 4888	18	20	2.1	−16	47.2	8.3
4	+7.60 4.72	+4.40 5.18	+7.65	+4.40	−16° 4890	18	20	10.7	−16	57.2	9.8
V Type	+4.75	+5.20	+4.70	+5.15							

Diff x.	−3.84	−3.47	+2.28	+2.90	Diff y.	−0.90	−2.28	2.37	−.78
Log. Diff. x	0.58433	0.54033	0.35793	0.46240	×179	161.″10	408.″12	424.″23	139.″62
	1.09637	1.09637	1.09637	1.09637		2′ 41.″10	6′ 48.″12	7′ 4.″23	2′ 19.″62
	1.68070	1.63670	1.45430	1.55877					
	47.94s	43.32s	28.46s	36.20s					

(1) 18h 18m 45.7s −16° 56.8′
47.9 2.7
18h 19m 33.6s −16° 54.1′

(2) 18h 19m 3.2s −17° 15.3′
~~43.3~~ ~~6.8~~
18h 19m ~~46.5~~ ~~−17° 8.5~~
11.8 14.2
34.7 −16 54.3

(3) 18h 20m 2.1s −16° 47.2′
28.5 7.1
18h 19m 33.6 −16° 54.3′

(4) 18h 20m 10.7s −16° 57.2′
36.2 2.3
18h 19m 34.5s −16° 54.9′

Mean Position of V Type 18h 19m 34.1 −16° 54.4′ (1855)
curve, 18 19 34.1 − 16. 54.4 (1855) adopt curve

* Wrong star was meas. ~~A~~ Announced wrongly as Type V
The star identifying with bright-line object No. 8491 on
B 14620 is at approx 1855 pos. 18 19.7 − 16 51 & it
is variable − It is the following & southern of
two close stars − see A 25522 on which plate star is bright
L.D.W. Nov. 23 1910

Reduce

June 13, 1896.

Meas. to determine position of V Type star on B14582 No. 8441.

Mean Dec. = 44° 37′ 21″.22 =
Log. 0.14768
1.07700
1.22468

Plate B14040

	x	y	x	y	Z.C. 17h	R.A. 1875 h m s	Dec. ° ′ ″	
1	4.78 +4.75	+7.25	+4.80	+7.25	3766	17 55 44.22	−44 39 45.8	8½
2	+4.10	+23.75	+4.10	+23.75	3768	17 55 45.32	−43 50 25.6	9
3	+4.35	2.28 +2.30	4.35	+2.25	3781	17 55 55.38	−44 54 45.0	8.8
4	4.72 +4.70	1.68 +1.65	+4.75	+1.70	3785	17 56 1.26	−44 56 23.9	9.2
5	+5.10	+5.35	+5.10	+5.35	3791	17 56 5.78	−44 45 25.8	8½
V Type	4.18 +4.20	10.32 +10.35	+4.15	+10.30				

Diff. x. 0.60 −0.40 −0.08 0.17 0.54 0.92 . Diff. y. −3.07 13.43 −8.04 −8.64 −4.97

Log. "	9.77815	8.90309	9.23045	9.73239	9.96379
	1.22468	1.22468	1.22468	1.22468	1.22468
	11.00283	10.12777	10.45513	10.95707	11.18847
	10.07 s	1.34 s	2.85 s	9.06 s	15.43 s

9.477121
1.22468
0.70180
5.03

×179	549.53	2403.97	1439.16	1546.56	889.63
	9′ 9″.53	40′ 3″.97	23′ 59″.16	25′ 46″.56	14′ 49″.63

(1) 17h 55m 44s.22 −44° 39′ 45″.8
~~10.07~~ −5.03 9 9.5
17h 55m ~~34s.15~~ 49.25 −44° 30′ 36″.3

(2) 17h 55m 45s.32 −43° 50′ 25″.6
−1.34 40 4.0
17h 55m 46s.66 −44° 30′ 29″.6

(3) 17h 55m 55s.38 −44° 54′ 45″.0
2.85 23 59.2
17h 55m 52s.53 −44° 30′ 45″.8

(4) 17h 56m 1s.26 −44° 56′ 23″.9
9.06 25 46.6
17h 55m 52s.20 −44° 30′ 37″.3

(5) 17h 56m 5s.78 −44° 45′
15.43 14
17h 55m 50s.35 −44°

Mean Position of V. Type Star. 17h 55m 50s.2 −44° 30′ 36″.8 (1875)
48s.8

Adopt 17h 55m 48s.8 −4[illegible] 30′ 36″.8 (1875)

June 15, 1896.

Meas. to determine position of susp. var. on Plate B14145 No. 8216 Sp. Mc5d.

Mean Dec. = 45° 44′ 18″.7 = Log. 0.15619
1.07700
1.23319

Plate B3949

	x	y	x	y	Z.C. 23h Z.C.		R.A. 1875 h	m	s	Dec. °	′	″	Mag.
3 F	+5.35	+1.00	+5.35	+1.00	780	31914 ~~31853~~	23	28	50.75	−45	13	14.5	9
2	+11.25	+23.50	+11.25	+23.50	730	31879	23	27	3.16	−46	20	20.0	8 3/4
1 B	+15.55	+13.10	+15.55	+13.10	702	31853	23	25	53.51	−45	48	41.0	6.8
4	+1.80	+8.20	+1.80	+8.20	—	31934	23	29	49.20	−45	34	59.2	6.9
Mc5d	+11.30	+11.55 11.52	+11.30	+11.50	—	—							

Diff. x	−5.95	−0.05	+4.25	−9.50
Log. Diff. x	0.77452	8.69897	0.62839	0.97772
	1.23319	1.23319	1.23319	1.23319
	2.00771	9.93216	1.86158	2.21091
No. of Log.	101.80 s	0.86 s	72.71 s	162.52 s
	1m 41.80		1m 12.71 s	2m 42.52

Diff. y	−10.52	+11.98	+1.58	−3.32
×179	1883″.08	2144″.42	282″.82	594″.28
	31′ 23″.08	35′ 44″.42	4′ 42″.82	9′ 54″.28

25″.8
49.6
30′ 36″.2

(3)	(2)	(1)	(4)
23h 28m 50s.75 −45° 13′ 14″.5	23h 27m 3s.16 −46° 20′ 20″.0	23h 25m 53s.51 −45° 48′ 41″.0	23h 29m 49.20 −45° 34′ 59″.2
1m 41.80 31 23.1	0.86 35 44.4	1m 12.71 4 42.8	2 42.52 9 54.3
23h 27m 8s.95 −45° 44′ 37″.6	23h 27m 2s.30 −45° 44′ 35″.6	23h 27m 6s.22 −45° 43′ 58″.2	23h 27m 6s.68 −45° 44′ 53.5

Mean Position of Susp. var. (Mc5d) 23h 27m −45° (1875)

Diff x	Diff y	× 1.79	× 1.79
−5.95	−10.52	1065.05	1883″.08
−0.05	+ 11.98	8.95	2144.42
+ 4.25	+ 1.58	760.75	282.82
−9.50	− 3.32	1700.50	594.28

Identified later as C.D.M. −45° 15067 23 27.1 −45 44.5 (1875)
mag. 9.3

Reduce

June 15, 1896.

Meas. to determine position of star having peculiar spectrum on B 15274 No 9028 *R.A. 7h 38m.4 −70° 4′ (1875.

Mean Dec. = −69° 59′ 43.″2 =
Log. = 0.46584
1.07700
1.54284

Plate B 12337

	x	y	x	y	Z.C. 7h	h m s	° ′ ″	
1	+10.25	+8.40	+10.25	+8.40	2514	7 35 16.04	−70 6 8.4	8.
2	+9.50	+5.60	+9.50	+5.60	2548	7 35 40.26	−69 57 45.8	8.2
3	+8.25	+11.20	+8.25	+11.20	2612	7 36 24.27	−70 14 22.4	7.5
4	4.58 +4.60	+2.00	+4.55	+2.00	2777	7 38 29.92	−69 46 46.5	8.5
* 5	+4.75	+1.20	+4.75	+1.20	2807	(7 ~~28~~ 38 ~~21.96~~ 59.32	−69 44 9.8	9½)
6	1.82 +1.80	9.48 +9.45	+1.85	+9.60	2905	7 40 10.59	−70 9 6.4	9
Pec.	+4.90	+7.60	+4.90	+7.60	—			

Diff. y.	0.80	−2.00	3.60	−5.60	−6.40
×179	143.″20	358.″00	644.″40	1002.″40	1145.″60
	2′ 23.″20	5′ 58.″00	10′ 44.″40	16′ 42.″40	19′ 5.″60

Diff. x.	5.35	4.60	3.35	−0.32	−0.15	−3.08
Log.	0.72835	0.66276	0.52504	9.50515	9.17609	0.48855
	1.54284	1.54284	1.54284	1.54284	1.54284	1.54284
	2.27119	2.20560	2.06788	11.04799	10.71893	2.03139
No.	186.s7	160.s5	116.s9	11.s17	5.s24	107.s5
	3m 6.7	2m 40.5	1m 56.9			1m 47.5

(1) 7h 35m 16.s04 −70° 6′ 8.″4
3 6.7 2 23.2
7h 38m 22.s7 −70° 3′ 45.″2

(2) 7h 35m 40.s26 −69° 57′ 45.″8
2 40.5 5 58.0
7h 38 20.s8 −70° 3′ 43.″8

(3) 7h 36m 24.s27 −70° 14′ 22.″4
1 56.9 10 44.4
7h 38m 21.s2 −70° 3′ 38.″0

(4) 7h 38m 29.s92 −69° 46′ 46.″5
11.17 16 42.4
7h 38 18.s75 −70° 3′ 28.″9

*(5) 7h 38m 59.s32 −69° 44′ 9.″8
5.24 19 5.6
7h 38m 54.s08 −70° 3′ 15.4

(6) 7h 40m 10.s59 −70° 9′ 6.″4
1 47.5 5 36.5
7h 38m 23.s1 −70° 3′ 29.″9

Rejected since it is marked with a dagger in A.C. Vol VII p 182 and it is uncertain which star was there observed.

Mean Position of Pec. Star. 7h 38m 21.3 −70° 3′ 37.″6 (1875)

* Identified later as C PD −70° 670 7h 38m 24.s9 −70 3.′6 (1875)

Curve 7 38 22 −70 3° 30 Adopt. (1875

Reduce.

June 16, 1896

Meas. to determine position of ~~star~~ new gaseous nebula in I 13095 and I 13117 Nos. 4020 & 4032, R.A. 20h 13m.4 Dec. +16° 16′ (1855)

Plate I 7504

Mean Dec. = +16° 24′.8 =
Log. 9.01807
1.03623
1.05430

	x	y	x	y	B.D.	R.A. 1855 h	m	s	Dec.	′	
1	+16.55	+16.35	+16.55	+16.35	+16° 4218	20	11	49.2	+16°	15.6	9.1
2	+11.10	2.78 +2.75	+11.10	+2.80	+16 4224	20	12	50.2	+16	51.9	9.3
3	5.68 +5.65	19.58 +19.55	5.70	+19.60	+16 4227	20	13	52.8	+16	6.2	8.8
4	+2.30	+12.50	+2.30	+12.50	+16 4232	20	14	31.3	+16	25.4	9.5
gas. neb. Nos. 4020, 4032	7.62 +7.60	+15.75	+7.65	+15.75	?						
Com. +16° 4226	4.12 +4.10	11.88 +11.85	+4.15	+11.90	?						
Com. +16° 4230	+6.30	12.22 +12.20	+6.30	+12.25	?						
Comp. to neb.	7.92 +7.90	+16.10	+7.95	+16.10	—						

1.88
336.52
5′ 36.52

Diff x.	8.93	3.48	−1.94	−5.32	Diff y.	0.60	−12.97	3.83	−3.25
Log.	0.95085	0.54158	0.28780	0.72591	×163	97″.80	2114″.11	624″.29	529″.75
	1.05430	1.05430	1.05430	1.05430		1′ 37″.80	35′ 14″.11	10′ 24″.29	8′ 49″.75
	2.00515	1.59588	1.34210	1.78021					
No. of Log.	101s.2	39s.434	21s.98	60s.28					
	1m 41s.2			1m 0s.28					

(1)	(2)	(3)	(4)
20h 11m 49s.2 +16° 15′.6	20h 12m 50s.2 +16° 51′.9	20h 13m 52s.8 +16° 6′.2	20h 14m 31s.3 +16° 25′.4
1 41.2 1.6	39.4 35.2	22.0 10.4	1 0.3 8.8
20h 13m 30s.4 +16° 17′.2	20h 13m 29s.6 +16° 16′.7	20h 13m 30s.8 +16° 16′.6	20h 13m 31s.0 +16° 16′.6

Mean Position of Gas Neb. 20h 13m 30s.4 +16° 16′.8 (1855) Adopted mean.

Diff x.	8.63	3.18	−2.24	−5.62	Diff y.	0.25	−13.32	3.48	−3.60
Log.	0.93601	0.50243	0.35025	0.74974	×163	40″.75	2171″.16	567″.24	586″.80
	1.05430	1.05430	1.05430	1.05430			36′ 11″.16	9′ 27″.24	9′ 46″.80
	1.99031	1.55673	1.40455	1.80404					
	97s.79	36s.04	25s.38	63s.698					
	1m 37s.79			1m 3s.698					

(1)	(2)	(3)	(4)
20h 11m 49s.2 +16° 15′.6	20h 12m 50s.2 +16° 51′.9	20h 13m 52s.8 +16° 6′.2	20h 14m 31s.3 +16° 25′.4
1 37.8 0.7	36.0 36.2	25.4 9.5	1 3.7 9.8
20h 13m 27s.0 +16° 16′.3	20h 13m 26s.2 +16° 15′.7	20h 13m 27s.4 +16° 15′.7	20h 13m 27s.6 +16° 15′.6

Mean Position of Comp. to Gas Neb. 20h 13m 27s.0 +16° 15′.8 (1855)

Reduce

Positions charted March 24, 1897.
See Chart No. 18b.

July 2, 1896.

Meas. to determine position of IV Type star No. 7701 on B 13836 R.A. 17h 9m,8 Dec. +45° 50′ (approx. 1875)

Mean Dec. = −45° 45′ 45″.6 = Log. 0.15637
1.07700
1.23337

Plate B 3867

	x	y	x	y	Z.C. 17h	R.A. 1875 h m s	Dec. ° ′ ″	Mag.
1	+1,00	3.78 +3,75	+1.00	+3,80	585	17 8 53.28	−45 57 1.3	9
2	+2,95	+2,30	+2,95	+2,30	625	9 27.33	−46 1 22.8	9½
3	3.32 +3,35	+3,55	+3,30	+3,55	643	9 33.74	−45 57 46.2	9
4	4.48 +4,50	15.32 +15,35	+4,45	+15.30	670	9 52.40	−45 22 26.5	9
5	6.12 +6,10	+12,80	+6,15	+12,80	705	10 18.71	−45 30 11.4	7½
IV Type?	+4,10	6.22 +6,20	+4,10	+6,25	—			

Not to be announced until a good spectrum confirming it as Type IV has been received from Peru

See B 17353 Announced as Type IV

Diff. x	−3.10	−1.15	−0.78	+0.38	+2.02
Log. " "	0.49136	0.06070	9.89209	9.57978	0.30535
	1.23337	1.23337	1.23337	1.23337	1.23337
	1.72473	1.29407	11.12546	10.81315	1.53872
	53s.06	19s.68	13s.35	6s.50	34s.57

Diff. y	−2.44	−3.92	−2.67	+9.10	+6.58
× 179	436″.76	701″.68	477″.93	1628″.90	1177″.82
	7′ 16″.76	11′ 41″.68	7′ 57″.93	27′ 8″.90	19′ 37″.82

	(1)	(2)	(3)	(4)	(5)
	17h 8m 53s.28 −45° 57′ 1″.3	17h 9m 27s.33 −46° 1′ 22″.8	17h 9m 33s.74 −45° 57′ 46″.2	17h 9m 52s.40 −45° 22′ 26″.5	17h 10m 18s.71 −45° 30′ 11″.4
	53.06 7 16.8	19.68 11 41.7	13.35 7 57.9	6.50 27 8.9	34.57 19 37.8
	17h 9m 46s.34 −45° 49′ 44″.5	17h 9m 47s.01 −45° 49′ 41″.1	17h 9m 47s.09 −45° 49′ 48″.3	17h 9m 45s.90 −45° 49′ 35″.4	17h 9m 44s.14 −45° 49′ 49″.2

17h 11m.6 −45° 51′.7 (1900)

* Mean Position of IV Type Star. 17h 9m 46s.10 −45° 49′ 43″.7 adopt mean. (1875)

Curve 17 9 46.15 −45 49 44″

* This star is C.P.D.M. −45° 11283 17h 9m 47s.5 −45° 49′.6 magn. 10 (1875)
17 11.6 −45 52 (1900)
(C.P.D.M. cat not here when star was announced)

Positions charted
March 24. 1897.
See Chart No. 18b

August 3. 1896. Var. No. 78 175

Meas. to determine position of Peculiar Spectra (may be IV Type) No 9122 on B 15613, R.A. 13h 29.5m Dec. -55° 48' (1875),

Mean Dec = 55° 45' 39.4" = Log 0.24977
1.07700
1.32677

Plate B 3750

	x	y	x	y	ƒc, 13h	h	R.A. 1875 m	s	Dec. °	'	"	Magn.
a	9.90	4,20	9.90	4,20	1653	13	27	29.42	-55	38	33.7	9
c	5,90	1.52 1,50	5.90	1,55	1744		28	55.06	-55	30	54.6	8
d	3,35	12,70	3.35	12,70	1779		29	42.63	-56	4	22.5	8½
e	2.92 2,90	11.08 11.10	2,95	11,05	1795		29	53.18	-55	59	26.5	8
f	2.48 2,45	2,80	2,50	2,80	1808		30	6.27	-55	34	59.8	8
Pec: IV Type?	3.98 ~~4~~,00	7.95	3.95	7.95	—							

Diff x. +5,92 +1.92 -0.63 -1.06 -1.50 Diff y. -3.75 -6.43 4.75 3.13 -5.15

						×179				
Log " "	0.77232	0.28330	9.79934	0.02531	0.17609	671.25"	1150.97"	850.25"	560.27"	921.85"
	1.32677	1.32677	1.32677	1.32677	1.32677	11' 11.25"	19' 10.97"	14' 10.25"	9' 20.27"	15' 21.85"
	2.09909	1.61007	11.12611	1.35208	1.50286					
No. of Log.	125.63s 2m 5.63s	40.74s	13.3~~8~~7s	22.~~49~~50s	31.83s					

(a) 13h 27m 29.42s -55° 38' 33.7"
2 5.63 11 11.2
13h 29m 35.05s -55° 49' 44.9"

(c) 13h 28m 55.06s -55° 30' 54.6"
40.74 19 11.0
13h 29m 35.80s -55° 50' 5.6"

(d) 13h 29m 42.63s -56° 4' 22.5"
13.37 14 10.2
13h 29m 29.26s -55° 50' 12.3"

(e) 13h 29m 53.18s -55° 59' 26.5"
22.50 9 20.3
13h 29m 30.68s -55° 50' 6.2"

(f) 13h 30m 6.27s -55° 34' 59.8"
31.83 15 21.8
13h 29m 34.44s -55° 50' 21.6"

h 13h 31.2m -55° 58.1' (1900)
Mean Position of Pec. IV Type? 13 29 33.0 -55 50 6.1 (1875)
Curve 13 29 32.3 -55 50 10 adopt Curve
13h 31.1 -55 58 (1900)
13 29 34.2 -55 50 16 curve
13 29 33.2 -55 50 13 mean of curves.

after Reduction was made, This star was found to equal C. P. D. -55° 5650 magn. 9.9
13h 29m 33.4s -55° 50.3 (1875)

Positions charted September 3, 1897.
See Chart No. 19b

August 3, 1896.

Meas. to determine position of IV Type star,
No. 3266 on B 9520, R.A. 11h 54.1m Dec. −54° 25′ (1875)
No. 9114 on B 15612
Plate B 11153

Mean Dec. = −54° 25′ 16.8″ = Log. = 0.23521
1.07700
1.31221.

	x	y 0.82	x	y	Zo. 11h	R.A. ~~1900~~ 1875 h m s	Dec. ° ′ ″	Magn.
b ~~a~~	13.20	0.80	13.20	0.85	3574	11 52 14.07	−54° 5 23.1	9
a ~~b~~	13.35	4.60	13.35	4.60	3571	11 52 9.97	−54 16 35.1	9
c	8.65	10.30 10.32	8.65	10.35	3676	11 53 46.74	−54 33 33.5	9
d	6.10	10.10	6.10	10.10	3735	11 54 40.60	−54 32 39.8	8.8
e	5.15	10.40 10.38	5.15	10.35	3734	11 55 0.83	−54 33 33.0	9
f	0.30	9.25 9.22	0.30	9.20	3872	11 56 39.02	−54 29 56.4	7.8
IV Type	7.90	7.60	7.90	7.60	—			

Diff. x.	+5.30	+5.45	+0.75.	−1.80.	−2.75	−7.60
~~Log. Diff. x~~ "	0.72428	0.73640	9.87506	0.25527	0.43933	0.88081
	1.31221	1.31221	1.31221	1.31221	1.31221	1.31221
	2.03649.	2.04861.	11.18727.	1.56748.	1.75154	2.19302
	108.77s	111.84s	15.39s	36.94	56.43s	155.96s
	1m 48.77	1m 51.84				2m 35.96

Diff. y.	−6.78	−3.00	+2.72	+2.50	+2.78	+1.62
×179	1213.62″	537.00″	486.88″	447.50″	497.62″	289.98″
	20′ 13.62″	8′ 57.00	8′ 6.88	7′ 27.50	8′ 17.62	4′ 49.98

Mean Position of IV Type.
11h 54m 2.98s −54° 25′ 21.6″ (1875)

~~Adopt 11 54 3.1 −54 25 24 (1875)~~

For rest of reduction of IV type Star on Plate B11153, See page 176a

	h m s	° ′ ″
(b)	11 54 2.84	−54° 25′ 36.7″
(a)	11 54 1.81	−54 25 32.1
(c)	11 54 2.13	−54 25 26.6
(d)	11 54 3.66	−54 25 12.3
(e)	11 54 4.40	−54 25 15.4
(f)	11 54 3.06	−54 25 6.4
	11 54 2.98	−54° 25′ 21.6″ (mean 1875)

Identified Aug 7/1908 as C.P.D. −54° 4904
11h 54m 2.7s −54 25.4 (1875)
Magn. 9.8

Corr x   Obs x   Corr y
+306.7   304.4   −2.3 −0.5 = 387.9   394.3   −6.4   +3.6   6.4   −4
−363.4   365.5   −2.1 −0.3 ~~335.7~~ −360.1   374.4   −14.3   −4.3   368.1   6.3   −3
+206.9   ~~246.8~~ 204.4   −2.9 −1.1 +480.2   467.2   −13.0   −3.0   472.2   5.0   +1.0
−351.9   351.9   0.0 +1.8 +456.7   450.3   −6.4   +3.6   6.4   −4
1.73   40.1   10.0   6.0   ±0.5

Orientation Thus 5 See page 177.

x +285.4   −381.8   −8.6   +26.5   −402.9   +460.0   −19.0   +26.8
+231.2   −326.9   −7.2   +23.7   −347.9   +474.0   −16.3   +25.0
+516.6   −708.7   −15.8   +50.2   −750.8   934.0   −35.3   +51.8
1225.3   66.0   1684.8   87.1

.0538   61265   0517   84240
0539   47350   .0539   28600
36757   0528   16848
105910   .053   117520
198024   117936
78860

x×528   y
+15.91   +21.3   15.1   21.3
−10.2
+12.2   +18.4   20.2   18.4
+20.2   +24.3   12.2   24.3
−17.3   +25.0   17.2   25.0

Plate B 11153

Completion of reduction on page 176.

(b) $11^{h}\,52^{m}\,14^{s}.07$	$-54^{\circ}\,5'\,23''.1$	
$1\,48.77$	$20\,13.6$	
$11^{h}\,54^{m}\,2^{s}.84$	$-54^{\circ}\,25'\,36''.7$	
(a) $11^{h}\,52^{m}\,9^{s}.97$	$-54^{\circ}\,16'\,35''.1$	
$1\,51.84$	$8\,57.0$	
$11^{h}\,54^{m}\,1^{s}.81$	$-54^{\circ}\,25'\,32''.1$	
(c) $11^{h}\,53^{m}\,46^{s}.74$	$-54^{\circ}\,33'\,33''.5$	
15.39	$8\,6.9$	
$11^{h}\,54^{m}\,2^{s}.13$	$-54^{\circ}\,25'\,26''.6$	
(d) $11^{h}\,54^{m}\,40^{s}.60$	$-54^{\circ}\,32'\,39''.8$	
36.94	$7\,27.5$	
$11^{h}\,54^{m}\,3^{s}.66$	$-54^{\circ}\,25'\,12''.3$	
(e) $11^{h}\,55^{m}\,0^{s}.83$	$-54^{\circ}\,33'\,33''.0$	
56.43	$8\,17.6$	
$11^{h}\,54^{m}\,4^{s}.40$	$-54^{\circ}\,25'\,15''.4$	
(f) $11^{h}\,56^{m}\,39^{s}.02$	$-54^{\circ}\,29'\,56''.4$	
$2\,35.96$	$4\,50.0$	
$11^{h}\,54^{m}\,3^{s}.06$	$-54^{\circ}\,25'\,6''.4$	

Mean Pos. of IV Type. $11^{h}\,54^{m}\,2^{s}.98$ $-54^{\circ}\,25'\,21''.6$ (1875)

11 54 3.1 − 54 25 24 Ann (1875) Adopt

Identified Aug 7 1908 as

C.P.D. −54° 4904 11 54 2.7 − 54 25.4 (1875) magn. 9.8

See plate B 38406

(This star was called Type V on B 8312 see Book 3 page 99 but is now proved to be Type IV)

For meas. of var. star 58 see p. 186.

August 4, 1896

Meas. to determine positions of catalogue stars near Messier 5 in order to find correction for error in orientation in enlarging X 6813.

Plate X 6813

	x	y	x	y	B.D. No.	R.A. 1855	Dec.	Magn.	
+2° 2945	31.98 -32.00	7.72 -7.70	31.95	-7.75	+2° 2945	15h 12m 44.3s	+2° 50.0'	9.5	
+2° 2944	-15.75	38.62 +38.65	-15.75	+38.60	+2° 2944	15 11 57.2	+2 18.7	5.0	
+2° 2942	0.00	+40.00	0.00	+40.00	+2° 2942	15 11 7.3	+2 17.7	9.5	
+3° 3008	-0.15	-31.85	-0.15	-31.85	+3° 3008	15 11 14.7	+3 8.4	9.5	
+3° 3006	37.72 +37.70	-38.80	37.75	-38.80	+3° 3006	15 9 32.5	+3 13.4	9.3	
+3° 3007	+12.40 +12.50	50.38 -50.35 50.25	{12.40 12.50	{50.40 50.30	+3° 3007	15 10 43.5	+3 22.5	9.5	
+3° 3010	-37.75	34.62 -34.60	37.75 ~~37.65~~	-34.65	+3° 3010	15 13 5.4	+3 9.3	9.5	
+2° 2943 Cl.	0.00	13.42 +13.45	0.00	+13.40	+2 2943	15 11 14.8	+2 36.9	neb.	
III a I *	-5.85	+2.40	-5.80	+2.40	-5.82	13.42 +2.40	13.42-y -11.02	x×424 -246.8	y×424 -467.2
I b III	-8.20	+22.75	-7.15	+22.70	-7.18	22.72	+9.30	-304.4	+394.3
II c IV	+8.65	+22.25	+8.60	+22.25	+8.62	22.25	+8.83	+365.5	+374.4
IV d ~~III~~ II	+8.30	+2.80	+8.30	+2.80	+8.30	2.80	-10.62	+351.9	-450.3

Diff. x	-31.98	-15.75	0.00	-0.15	+37.72	+12.40	-37.75
×42.4	1355.952	667.800	0.00	6.360	1599.328	525.760	1600.600
÷15	90.397s	44.520s	0.00	0.424s	106.622s	35.051s	106.707s
	1m 30.397s				1m 46.622		1m 46.707
	11m 13.9	12.7s :	7.3s	14.3s	19.1s	18.5s	18.7s
Diff. y	-21.14	+25.20	+26.58	-45.27	-52.22	-63.80	-48.04
×42.4	896.336"	1068.480"	1126.992"	1919.448"	2214.128"	2705.120"	2036.896"
	14' 56.336"	17' 48.480"	18' 46.992"	31' 59.448"	36' 54.128"	45' 5.120"	33' 56.896"
	35.1'	36.5'	36.5'	36.4'	36.5'	37.4'	35.4'

5.82
.424
2328
1164
2328
2.46768

8.8
36.3

A later examination shows that for "a" the value of x should be 4.82 not 5.82

	x	y					Oh x	Oh y		
I	+285.4	-402.9	-246.8	-467.2	+38.6"	+64.3	-304.4"	+394.3	-19.0"	-8.6"
II	-381.8	-347.9	+351.9 ~~+365.5~~	-450.3 ~~+374.4~~	-29.9	+107.4	+365.5	+374.4	-16.3	+26.5
III	+231.2	+460.0	-304.4	+394.3	-73.2	+65.7	-246.8	-467.2	-15.6	-7.2 +23.7
IV	-326.9	+474.0	+365.5	+374.4	-38.6	-100.4	+351.9	-450.3	+25.0	~~-17.3~~ 424 -17.4

178 Positions charted M. C. S. See chart no. 20b

No. 69 U Crucis

October 20, 1896

Meas. of position of new var. star in Crux. Sp. Md on Plate B 15612 No. 9116, RA 12ʰ 25ᵐ.4 Dec. −56° 53′ (1875)

Mean Dec. = −56° 51′ 35.″2 =
Log. 0.26226
1.07700
1.33926

Plate B13173

		x	y	x	y	Z.C. (1875)	RA	Dec.	
+2.60 −2.70	a	+0,55	+6.60	+0,55	+6,60	12ʰ 1619	12ʰ 26ᵐ 22.98ˢ	−57° 1′ 35.″6	8
+4.05 −7.90	b	+2,00	+1.40	+2,00	+1,40	1642	12 26 53.10	−57 17 4.3	8½
+8.27 −7.30	c	6.22 +6,25	+2.00	+6,20	+2,00	1745	12 28 28,24	−57 15 29.0	8.8
+6.35 −2.52	d	+4,30	6.78 +6,75	+4.30	+6,80	1696	12 27 46.03	−57 1 4.1	8½
+4.37 +1.00	e	2.32 +2,35	+10.30	+2.30	+10,30	1652	12 27 4,16	−56 50 30.0	8.8
−4.65 −0.45	f	−6,70	+8,85	−6,70	+8,85				
−1.45 −1.10	g	−3.50	+8,20	−3,50	+8,20				
−4.55 +0.70	h	−6,60	+10.00	−6,60	+10.00				
−0.33 −1.15	k	2.38 −2,~~40~~	+8,15	−2,35	+8,15				
+0,25 −1.55	l	−1,80	+7,75	−1,80	+7,75				
+ 0.55 + 0.20 ~~+0.03 −0.02~~	m	− 1.~~2.02~~ ~~77~~ 56 ~~−2.00~~	+9.~~48~~ 58 ~~9.28~~ ~~+9.25~~	− 1.~~47~~ 50 ~~−2.00~~	+9.~~48~~ 58 ~~+9.30~~				
−1.65 −0,10	n	−3,70	+9.20	−3,70	+9.20				
−0.20 −0.02	o	−2,25	9.28 +9,25	−2.25	+9.30				
−0.70 0,00	p	−2.75	+9,30	−2.75	+9.30				
.. ..	var.	−2.05	+9,30	−2.05	+9,30				
+0.30 +4.90	4	−1,75	+14,20	−1,75	+14,20	1563	12 25 34.59	−56 38 50.3	8½
−3.15 +9.95	3	−5,20	+19,25	−5,20	+19.25	1495	12 24 21.79	−56 23 22.8	7½
−3.45 +9.45	2	−5,50	+18.75	−5,50	+18.75	1484	12 24 14.55	−56 24 45.7	2½

	x × 1.79	y × 1.79
a	465.40	483.30
b	724.95	1414.10
c	1480.33	1306.70
d	1136.65	451.08
e	782.23	179.00
f	832.35	80.55
g	259.55	196.90
h	814.45	125.30
k	59.07	205.85
l	44.75	277.45
m	98.45 ~~5.37~~	35.80 ~~3.58~~
n	295.35	17.90
		3.58
o	35.80	0.00
p	125.30	877.10
4	53.70	1781.05
3	563.85	1691.~~7~~5 5
2	617.55	

Diff x	+2.60	+4.05	+8.~~30~~ 27	+6.35	+4.~~40~~ 37	+0.30	−3.15	−3.45
Log. Diff	0.41497	0.60746	0.91~~408~~ 754	0.80277	0.64~~345~~ 048	9.47712	0.49831	0.53782
	1.33926	1.33926	1.33926	1.33926	1.33926	1.33926	1.33926	1.33926
	1.75423	1.94672	2.25677	2.14203	1.97974	10.81638	1.83757	1.87708
No. of Log.	56.78ˢ	88.45ˢ 6	180.~~02~~ 62ˢ	138.69	95.44	6.55ˢ	68.80ˢ	75.35ˢ
		1ᵐ 28.45ˢ 6	3ᵐ 0.62	2ᵐ 18.69	1ᵐ 35.44ˢ		1ᵐ 8.80ˢ	1ᵐ 15.35ˢ

Diff. y.	−2.70	−7.90	−7.30	−2.52	+1.00	+4.90	+9.95	+9.45
× 179	483″.30	1414″.10	1306″.70	451″.08	179″.00	877″.10	1781″.05	1691″.55
	8′ 3″.30	23′ 34″.10	21′ 46″.70	7′ 31″.08	2′ 59″.00	14′ 37″.10	29′ 41″.05	28′ 11″.55

(a) 12h 26m 22s.98 −57° 1′ 35″.6
56.78 8 3.3
12h 25m 26s.20 −56° 53′ 32″.3 ✓

(b) 12h 26m 53s.10 −57° 17′ 4″.3
1 28.4$\overset{6}{5}$ 23 34.1
12h 25m 24s.$\overset{4}{6}$5 −56 53′ 30″.2 ✓

(c) 12h 28m 28s.24 −57° 15′ 29″.0
3 0.62 21 46.7
12h 25m 27s.62 −56° 53′ 42″.3 ✓

(d) 12h 27m 46s.03 −57° 1′ 4″.1
2 18.69 7 31.1
12h 25m 27s.34 −56° 53′ 33″.0 ✓

(e) 12h 27m 4s.16 −56° 50′ 30″.0
1 35.44 2 59.0
12h 25m 28s.72 −56° 53′ 29″.0 ✓

(4) 12h 25m 34s.59 −56° 38′ 50″.3
6.55 14 37.1
12h 25m 28s.04 −56° 53′ 27″.4 ✓

(3) 12h 24m 21s.79 −56 23′ 22″.8
1m 8.80 29 41.0
12h 25m 30s.59 −56° 53′ 3″.8 ✓

(2) 12h 24m 14s.55 −56° 24′ 45″.7
1 15.35 28 11.6
12h 25m 29s.90 −56° 52′ 57″.3 ✓

Mean Position of Var. 12h 25m 27s.88 −56° 53′ 24″.4 (1875)
12h 26m.9 −57° 1′.4 (1900)

~~Curr~~ ~~12h 25m 25s.4~~ ~~−56° 53′ 30″ (1875)~~
Adopt. Curr 12h 25m 27s.5 −56° 53′ $\overset{22}{\cancel{25}}$″ (1875)
12h 26m.9 −57° 1′ (1900) ✓

Positions charted
March 13, 1897.
See Chart No. 20b,

Var. No. 116

Mean Dec = 62° 14′ 45.1″ =
Log. 0.33192
1.07700
1.40892

March 12, 1897.

Meas. to determine position of new var. in Pavo, and its Comparison Stars. Sp. Md on B 17043 No. 9319.
R.A. 17h 38.8m Dec. -62° 22′ (1875)

Plate B 17079

		x	y	x	y	Z.C. h	R.A. 1875 h m s	Dec. ° ′ ″	
	1	0.80	18.90	0.80	18.90	17 2480	17 36 5.19	-61 58 37.1	7½ 8 8 } 7.8
	2	3.12 3.10	16.60	3.15	16.60	17 2522	37 2.98	-62 5 40.3	8.2
e =	3	3.55	15.22 15.20	3.55	15.25	17 2539	37 15.15	-62 10 1.4	9
a =	4	6.38 6.35	5.82 5.85	6.40	5.80	17 2623	38 26.96	-62 37 57.1	8
	5	7.25	21.00	7.25	21.00	17 2647	38 50.24	-61 52 42.9	7
d =	6	9.20	10.90	9.20	10.90	17 2685	39 38.42	-62 22 47.2	8.8
b =	7	9.50	6.72 6.70	9.50	6.75	17 2698	39 48.24	-62 35 30.0	7.8
	c	2.55	0.78 0.80	2.55	0.75				
	f	3.28 3.25	6.22 6.20	3.30	6.25				
	g	3.75	12.95	3.75	12.95				
	h	7.28 7.30	9.28 9.30	7.25	9.25				
	k	5.95	10.50	5.95	10.50				
	l	5.55	10.95	5.55	10.95				
	m	6.28 6.25	10.88 10.90	6.30	10.85				
	n	6.28 6.25	11.28 11.25	6.30	11.30				
	o	6.78 6.80	11.22 11.20	6.75	11.25				
	var.	7.10	11.30	7.10	11.30				

Diff.	Diff	× 1.79	× 1.79
1 - 6.30	+ 7.60	1127.70	1360.40
2 - 3.98	+ 5.30	712.42	948.70
e=3 - 3.55	+ 3.92	635.45	701.68
a=4 - 0.72	- 5.48	128.88	980.92
5 + 0.15	? +10.70	26.85	~~1915.30~~ 1736.30
d=6 + 2.10	- 0.40	375.90	71.60
b=7 + 2.40	- 4.58	429.60	819.82
c - 4.55	-10.52	814.45	1883.08
f - 3.82	- 5.08	683.78	909.32
g - 3.35	+ 1.65	599.65	295.35
h + 0.18	- 2.02	32.22	361.58
k - 1.15	- 0.80	205.85	143.20
l - 1.55	- 0.35	277.45	62.65
m - 0.82	- 0.42	146.78	75.18
n - 0.82	- 0.02	146.78	3.58
o - 0.32	- 0.08	57.28	14.32

Diff. x	- 6.30	-3.98	-3.55	-0.72	+ 0.15	+ 2.10	+ 2.40
Log. " ".	0.79934 1.40892	0.59988 1.40892	0.55023 1.40892	9.85733 1.40892	9.17609 1.40892	0.32222 1.40892	0.38021 1.40892
	2.20826	2.00880	1.95915	11.26625	10.58501	1.73114	1.78913
No. of Log.	161.53s	102.05s	91.02s	18.46s	3.85s	53.84s	61.54s
	2m 41.53	1m 42.05s	1m 31.02s				1m 1.54s

{checked by M.A.G.
Oct. 8-1903}

Diff. y.	+7.60	+5.30	+3.92	−5.48	+9.70	−0.40	−4.58
×179	1360.40"	948.70 ~~927.50~~	701.68"	980.92"	1736.30"	71.60"	819.82"
	22' 40.40"	15' 48.70" ~~27.50~~	11' 41.68"	16' 20.92"	28' 56.30"	1' 11.60"	13' 39.82"

(1) 17h 36m 5.19s −61° 58' 37.1"
2 41.53 22 40.4
17h 38m 46.72s −62° 21' 17.5"

(2) 17 37 2.98 −62 5 40.3
1 42.05 15 48.7 ~~27.5~~
17h 38m 45.03s −62° 21' 29.0" ~~7.8~~

(3) 17 37 15.15 −62 10 1.4
1 31.02 11 41.7
17h 38m 46.17s −62° 21' 43.1"

(4) 17 38 26.96 −62 37 57.1
18.46 16 20.9
17h 38m 45.42s −62° 21' 36.2"

(5) 17 38 50.24 −61 52 42.9
3.85 28 56.3
17h 38m 46.39s −62° 21' 39.2"

(6) 17h 39m 38.42s −62° 22' 47.2"
53.84 1 11.6
17h 38m 44.58s −62° 21' 35.6

(7) 17h 39 48.24 −62 35 30.0
1 1.54 13 39.8
17h 38m 46.70s −62° 21' 50.2"

	h	m	s.	°	'	"		
(1)	17	38	46.72	−62°	21'	17.5"	18	15
(2)	17	38	45.03	−62	21	29.0 ~~17.8~~	8	7 ~~25~~
(3)	17	38	46.17	−62	21	43.1		
(4)	17	38	45.42	−62	21	36.2	43	10
(5)	17	38	46.39	−62	21	39.2	36	3
(6)	17	38	44.58	−62	21	35.6	39	6
							36	3
(7)	17	38	(46.70) (46.54)	−62	21	50.2 (49.7)	50	17
	17h	38m	45.86s (45.84)	−62°	21'	35" ~~32.8~~ (35.8)	(1875)	+39 −40 7 a.D ±.11

Mean Position of Var. adopt Mean (Oct. 10, 1903). 17h 38m 45.86s −62° 21' 35 ~~32~~.8 (1875)
curve 17 38 45.9 −62 21 37 ~~(1900)~~
adopt 17 38 45 − 62 21 34 1875

−Oct. 12, 1903− Using A.G.C. 24126. 17h 39m 48.08s −62° 35' 39.5 in place of 17h 26.98
1 1.54 13 39.8
17h 38m 46.54 −62° 21' 49.7
makes the mean of the Var. 17h 38m 45.84s − 62° 21' 35.8

After computation was completed, No. 1 seemed to be out in Dec. so glass ruled in Mm. was put on Plate again and x & y readings of No. 1 made hence 4.85 & 4.80 changed to 3.85 & 3.80 — March 23, 1897.

Positions charted March 24, 1897.
See Chart No. 186

Mean Dec. = −43° 26′ 31.0″ =
Log. = 0.13902
1.07700
1.21602

March 20, 1897.

Meas. to determine position of new IV Type star on B17006 No. 9228. 16h 19.3m −43 20 (1875).

Plate B5244

In computation A.G.C. positions have been used in preference to Z.C. positions when they could be.

	x	y	x	y	Z.C. 16h Zone		R.A. 1875 h	m	s	Dec. °	′	″	Magn
1	0.92 0.90	3 4.82 ~~4~~.85	0.95	3 ~~4~~.80	1281	—	16	18	4.74	−43	37	42.5	8
								18	7.38	−43	30	42.0	8¼ A.
2	1.10	6.22 6.20	1.10	6.25	1286	22254		18	7.29	−43	30	40.8	8 (Z.C.)
3	1.82 1.80	14.40	1.85	14.40	1298	—		18	19.71	−43	6	3.0	9
4	2.38 2.40	6.78 6.75	2.35	6.80	1305	~~22263~~		18	29.89	−43	28	55.5	9
								18	59.25	−43	44	46.6	8¼ (A.G.C.)
5	4.22 4.25	1.50	4.20	1.50	1330	22263		18	59.08	−43	44	44.8	8 (Z.C.)
6	7.65	7.42 7.40	7.65	7.45	1390	—		19	56.42	−43	26	54.4	10 (Z.C.)
								20	7.60	−43	10	33.0	8½ (A.G.C.)
7	8.35	12.92 ~~14~~ 12.90	8.35	12.95	1400	22289		20	7.76	−43	10	31.0	8 (Z.C.)
Type IV	5.22 5.25	8.82 8.80	5.20	8.85	—								

Diff. x	−4.30	−4.12	−3.40	−2.84	−1.00	+2.43	+3.13
Log. " "	0.63347	0.61490	0.53148	0.45332	0.00000	0.38561	0.49554
	1.21602	1.21602	1.21602	1.21602	1.21602	1.21602	1.21602
	1.84949	1.83092	1.74750	1.66934	1.21602	1.60163	1.71156
No.	70.71s 1m 10.71s	67.75s 1m 7.75s	55.91s	46.70s	16.44s	39.96s	51.47s
Diff. y.	~~−4.00~~ 5.00	−2.60	+5.58	−2.04	−7.32	−1.40	+4.10
× 179	~~716.00″~~ 895.00	465.40″	998.82″	365.16″	1310.28″	250.60″	733.90″
	14′ ~~11′~~ 56.00″ 55.00	7′ 45.40″	16′ 38.82″	6′ 5.16″	21′ 50.28″	4′ 10.60″	12′ 13.90″

(1) 16h 18m 4.74s −43° 37′ 42.5″
1 10.71 14 ~~11~~ ~~56~~ 55.0
16h 19m 15.45s −43° 22 ~~25~~′ 47 ~~46~~.5″

(2) 16h 18m 7.38s −43° 30′ 42.0″
1 7.75 7 45.4
16h 19m 15.13s −43° 22′ 56.6″

(3) 16h 18m 19.71s −43° 6′ 3.0″
55.91 16 38.8
16h 19m 15.62s −43° 22′ 41.8″

(4) 16h 18m 29.89s −43° 28′ 55.5″
46.70 6 5.2
16h 19m 16.59s −43° 22′ 50.3″

(5) 16h 18m 59.25s −43° 44′ 46.6″
16.44 21 50.3
16h 19m 15.69s −43° 22′ 56.3″

(6) 16h 19m 56.42s −43° 26′ 54.4″
39.96 4 10.6
16h 19m 16.46s −43° 22′ 43.8″

(7) 16h 20m 7.60s −43° 10′ 33.0″
51.47 12 13.9
16h 19m 16.13s −43° 22′ 46.9″

16h 21.1m −43° 26.8′ (1900)

Mean Position of IV Type Star. 16h 19m 15.87s −43° 22′ 49.0″ (1875) ~~adopt~~

Identified as 16h 19m 15.9 −43 22.8 (1875) magn 9.2 C.P.D. −43° 10810 April 10 1908 L.A.W.

Curve 16 19 15.8 −43 22 52″ ~~adopt.~~

16 21.0 − 43 26 (1900) (A. Winlock. Adopted).

Diff x	Diff y	x1.79	x1.79
-3.78	+14.70	676.62	2631.30
-1.68	-5.43	300.72	971.97
-1.56	+4.30	279.24	769.70
-0.66	-12.16	118.14	2176.64
+0.17	-12.50	30.43	2237.50
+3.37	+10.17	603.23	1820.43
+4.27	-8.76	764.33	1568.04

Positions charted: March 24, 1897.
See Chart No. 18b.

Mean Dec. = −47° 10′ 10.″26 =
Log. = 0.16761
1.07700
1.24461

March 22, 1897,

Meas. to determine position of new variable in . Marked by Dr. L. Stewart in Peru on A 2088. as peculiar. Classified as Md and found to be variable by M. Fleming.

In computation A.G.C. positions have been used, in preference to Z.C. positions, when they could be.

Plate B5706

	x	y	x	y	Z.C. 0h	R.A. 1875 h	m	s	Dec. °	′	″	Magn.
1	−1.80	21.28 +21.30	−1.80	+21.25	626	0	23	14.75	−46	22	7.3	8½
2	+0.30	+1.15	+0.30	+1.15	637	0	23	55.22	−47	22	25.8	9
3	0.42 +0.45	10.88 +10.85	+0.40	+10.90	638	0	23	55.84	−46	53	9.6	9
4	1.32 +1.35	5.58 −5.55	+1.30	∓5.60	A.G.C. 422	0	24	14.46	−47	42	24.1	9½
5	+2.15	5.92 −5.90	+2.15	−5.95	A.G.C. 430	0 0	24 24	27.69 27.95	−47 −47	43 43	33.8 31.6	9 A.G.C. 8½ Z.C. 650
6	+5.35	+16.75	+5.35	+16.75	A.G.C. 442	0 0	25 25	20.38 20.22	−46 −46	35 35	32.2 30.7	7¾ A.G.C. 7½ Z.C. 669.
7	+6.25	2.18 −2.20	+6.25	−2.15	Z.C. 676	0	25	41.13	−47	31	59.0	9½
Md. var.	1.98 +1.95	6.58 +6.60	+2.00	+6.55								

Diff. x	−3.78	−1.68	−1.56	−0.66	+0.17	+3.37	+4.27
Log. " "	0.57749	0.22531	0.19312	9.81954	9.23045	0.52763	0.63043
	1.24461	1.24461	1.24461	1.24461	1.24461	1.24461	1.24461
	1.82210	1.46992	1.43773	11.06415	10.47506	1.77224	1.87504
No. of Log	66.39s 1m 6.39s	29.51s	27.40s	11.59s	2.99s	59.19s	75.00s 1m 15.00s
Diff. y.	+14.70	−5.43	+4.30	−12.16	−12.50	+10.17	−8.76
× 179	2631.″30	971.″97	769.″70	2176.″64	2237.″50	1820.″43	1568.″04
	43′ 51.″30	16′ 11.″97	12′ 49.″70	36′ 16.″64	37′ 17.″50	30′ 20.″43	26′ 8.″04

(1) 0h 23m 14.75s −46° 22′ 7.″3
1 6.39   43 51.3
0h 24m 21.14s −47° 5′ 58.″6

(2) 0h 23m 55.22s −47° 22′ 25.″8
29.51   16 12.0
0h 24m 24.73s −47° 6′ 13.″8

(3) 0h 23m 55.84s −46° 53′ 9.″6
27.40   12 49.7
0h 24m 23.24s −47° 5′ 59.3

(4) 0h 24m 14.46s −47° 42′ 24.″1
11.59   36 16.6
0h 24m 26.05s −47° 6′ 7.″5

(5) 0h 24m 27.69s −47° 43′ 33.8
2.99   37 17.5
0h 24m 24.70s −47° 6′ 16.″3

(6) 0h 25m 20.38s −46° 35′ 32.″2
59.19   30 20.4
0h 24m 21.19s −47° 5′ 52.″6

(7) 0h 25m 41.13s −47° 31′ 59.″0
1 15.00   26 8.0
0h 24m 26.13s −47° 5′ 51.″0

0h 25.6m   −46° 58.0 (1900)

Mean Position of Var. 0h 24m 23.88s −47° 6′ 2.″7 (1875) Adopt.

Chart 0 24 23.8 −47 6 5   17
0 24 22.8 −47 6 8   1.204

Positions charted March 25, 1897.
See chart No. 218
RZ Sagittarii
Variable No. 168.

Mean Dec. = -44° 33' 9".2 =
Log. = 0.14716
1.07700
1.22416

March 22, 1897.

Meas. to determine pos. of new var. in on A 2023, Marked by De L. S. in Peru as br. line. Star.
B. plates show ft. object resembling Cl. H with no marked peculiarity.
On A 2023 has a short banded spectrum which does not show the violet end. It somewhat resembles IV type on this plate but has no resemblance to type IV on B plates. Sp. Pec. and found to be variable by M. Fleming.

B 3731 ch. superposed on B 13787 shows that sp. extends from about Hβ to Hγ or a little beyond.

Plate B 3731

In Computation A.G.C. positions have been used in preference to Z.C. positions when they could be.

	x	y	x	y	Z.C. 20h	A.G.C.	R.A. 1875 h m s	Dec. ° ' "	Magn.
1	-2.45	11.08 +11.10	-2.45	+11.05	179	-	20 5 4.98	-44 29 30.6	8½
2	-1.35	+ 9.95	-1.35	+ 9.95	193	27668	20 5 23.73 20 5 23.92	-44 32 43.3 -44 32 40.5	8 (A.G.C.) 8½ (Z.C.)
3	+1.35	11.82 +11.85	+1.35	+11.80	211	-	20 6 9.48	-44 26 57.0	9
4	+1.55	+12.25	+1.55	+12.25	213	27686	20 6 12.59 20 6 12.69	-44 25 59.4 -44 25 58.7	8 (A.G.C.) 8½ (Z.C.)
5	+2.10	+19.75	+2.10	+19.75	—	27689	20 6 20.12	-44 3 12.6	8
6	+4.00	+1.20	+4.00	+1.20	234	-	20 6 54.26	-44 59 4.3	9 (Z.C.)
7	+15.80	+2.45	+15.80	+2.45	32 236	27786	20 10 14.61 20 10 14.66	-44 54 37.5 -44 54 35.8	7½ A.G.C. 8 Z.C.
Sp. Pec. Var.	3.48 +3.50	+5.15	+3.45	+5.15	-	—			

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Diff. x.	- 5.93	- 4.83	- 2.13	- 1.93	- 1.38	+ 0.52	+ 12.32
Log. Diff. x.	0.77305 1.22416 1.99721	0.68395 1.22416 1.90811	0.32838 1.22416 1.55254	0.28556 1.22416 1.50972	0.13988 1.22416 1.36404	9.71600 1.22416 10.94016	1.09061 1.22416 2.31477
No. of Log.	99.36 1 39.36	80.93 1 20.93	35.69	32.34	23.12	8.71	206.43 3 26.43
Diff. y. × 179	+5.93 1061.47 17' 41".47	+4.80 859.20 14' 19".20	+6.67 1193.93 19' 53".93	+7.10 1270.90 21' 10".90	+14.60 2613.40 43' 33".40	- 3.95 707.05 11' 47".05	-2.70 483.30 8' 3".30

(1) 20h 5m 4s.98 -44° 29' 30".6
1 39.36 17 41.5
20h 6m 44s.34 -44° 47' 12".1

(2) 20h 5m 23s.73 -44° 32' 43".3
1 20.93 14 19.2
20h 6m 44s.66 -44° 47' 2".5

(3) 20h 6m 9s.48 -44° 26' 57".0
35.69 19 53.9
20h 6m 45s.17 -44° 46' 50".9

(4) 20h 6m 12s.59 -44° 25' 59".4
32.34 21 10.9
20h 6m 44s.93 -44° 47' 10".3

(5) 20h 6m 20s.12 -44° 3' 12".6
23.12 43 33.4
20h 6m 43s.24 -44° 46' 46".0

(6) 20h 6m 54s.26 -44 59' 4".3
8.71 11 47.0
20h 6m 45s.55 -44° 47' 17".3

(7) 20h 10m 14s.61 -44° 54' 37".5
3 26.43 8 3.3
20h 6m 48s.18 -44° 46' 34".2

20 8.5 - 44 43, (1900) (A Winlock Z adopted)

20h 8m.6 -44° 43'.0 (1900)

Mean Position of Var. 20h 6m 45s.15 -44° 46' 59".0 (1875) Adopt.

For later pos. see B 16 p. 52. Curve 20 6 46.1 - 44 47 0 "

~~20 8.6 -44 43 (1900)~~

Diff $_x$	Diff $_y$	×179 $_x$	×179 $_y$
-5.93	+5.93	1061.47	1061.47
-4.83	+4.80	864.57	859.20
-2.13	+6.67	381.27	1193.93
-1.93	+7.10	345.47	1270.90
-1.38	+14.60	247.02	2613.40
+0.52	-3.95	93.08	707.05
+12.32	-2.70	2205.28	483.30

Positions charted
March 25, 1897.
See Chart No. 21 b

Mean Dec. = −69° 53′ 33.″6 =
Log. 0.46373
1.07700
1.54073

March 23, 1897.

Meas. to determine pos. of new gas neb.
Sp. br. line on B 17101 No. 9414. R.A. 5^h 35.^{m}0 Dec. −69 48 (1900).

Plate B 10267

	x	y	x	y	A.G.C.	R.A. 1875			Dec.			Magn.
						h	m	s	°	′	″	
1	−11.00	28.38 +28.40	−11.00	+28.35	6441	5	27	39.50	−68	43	16.3	6.4
2	9.48 −9.50	−0.40	−9.45	−0.40	6446		27	51.68	−70	9	49.7	7 3/4
(3	−4.25	15.28 −15.25	−4.25	−15.30	6517		30	42.24	−70	54	59.8	8)
4	−3.80	1.78 +1.75	−3.80	+1.80	6527		31	12.39	−70	3	53.4	8
(5	−2.40	−15.25	−2.40	−15.25	6544		31	49.76	−70	55	1.5	9)
	[−11.50	−17.00 16.98	−11.50	−16.95]								
6	+9.40	−6.55 6.52	+9.40	−6.50	6723		39	0.81	−70	29	7.5	8 1/2
7	9.78 +9.75	+2.70	9.80	+2.70	6729		39	9.57	−70	1	41.1	8
Br. line gas. neb.	+3.05	+5.60	+3.05	+5.60	—							

Diff. x.	−14.05	−12.53	−6.85	+6.35	+6.73.
Log. " "	1.14768 1.54073 2.68841	1.09795 1.54073 2.63868	0.83569 1.54073 2.37642	0.80277 1.54073 2.34350	0.82802 1.54073 2.36875
No. of Log	487.99^s 8^m 7.99^s	435.19 7^m 15.19^s	237.91 3^m 57.91^s	220.55 3^m 40.55	233.75 3^m 53.75^s

Diff. y.	+22.78	−6.00	−3.82	−12.12	−2.90
×179.	4077.″62	1074.00	683.″78	2169.″48	519.″10
	1° 7′ 57.″62	17′ 54.00	11′ 23.78	36′ 9.48	8′ 39.10

(1)	(2)	(4)	(6)	(7)
5^h 27^m 39.50^s −68° 43′ 16.″3 8 7.99 1 7 57.6 5^h 35^m 47.49 −69° 51′ 13.″9	5^h 27^m 51.68^s −70° 9′ 49.″7 7 15.19 17 54.0 5^h 35^m 6.87 −69° 51′ 55.″7	5^h 31^m 12.39 −70° 3′ 53.″4 3 57.91 11 23.8 5^h 35^m 10.30^s −69° 52′ 29.″6	5^h 39^m 0.81^s −70° 29′ 7.″5 3 40.55 36 9.5 5^h 35^m 20.26^s −69° 52′ 58.″0	5^h 39^m 9.57^s −70° 1′ 41.″1 3 53.75 8 39.1 5^h 35^m 15.82 −69° 53′ 2.″0

5^h 35.^{m}1 −69° 51.′3 (1900)
Mean Position of New Gas. Neb. 5^h 35^m 20.15^s −69° 52′ 19.″8 (1875)
Curve 5 35 20.0 −69 52 51 adopt.
5^h 35.^{m}1 −69° 52′ (1900)
5 35.2 −69 52 (1900) (A. Winlock Adopted).

May 18, 1897.

Meas. to determine position of var. star No. 58 in the Cluster Messier 5 (Serpentis). Glass Plate ruled in mms. used, and set so ~~that~~ results will coincide with ~~those~~ on p 177.

Plate X 6813

	x	y	x	y
+2° 2942	00.00	+40.00	00.00	+40.00
+3° 3008	00 00	∓31.80	00.00	−31.80
+2° 2943 (C)	+0.20	+13.50	+0.10	+13.45
var. No. 58	+14.40	+9.60	+14.45	+9.60

Orientation wrong
Reject

+2° 2942	00,00	+40.00	00.00	+40.00
+3° 3008	−00,15	31.82 −31.80	−00,15	−31.85
+2° 2943	00.00	13.42 +13.40	00.00	+13.45
var. No. 58	+14.35	9.58 +9.60	+14.35	+9.55

Positions Charted. Aug. 2, 1897.
See Chart No. 22b.

July 26, 1897.

Meas. of A 2207 to determine positions of stars having peculiar spectra found on Plates A 2210 and A 2211. Larger Magellanic Cloud.

Plate A 2207. Region 1.

	X	Y	X	Y	Gillis No. ~~284~~	1850 pos. h m s	° ' "	mag.	Log.
1	+21.55	+18.65	+21.55	+18.65	2811	4 53 17.41	-66 54 53.6	6.0 =	0.40661
2	10.38 -10.35	+21.25	-10.40	+21.25	2869	4 58 40.72	-66 56 58.6	9.5 =	0.40723
3	-6.75	-7.10	-6.75	-7.10	2860	4 57 57.37	-66 28 57.7	9.5 =	0.39901
4	10.78 -10.75	10.72 -10.75	-10.80	-10.70	2867	4 58 37.18	-66 25 23.3	9.5 =	0.39797
5	4.58 -4.55	-14.10	-4.60	-14.10	2858	4 57 35.52	-66 22 7.8	10.0 =	0.39701
Type V	+3.40	6.02 +6.00	+3.40	+6.05					
neb.	+2.75	2.28 +2.30	+2.75	+2.25					

Type V Diff X.	+18.15	-13.78	-10.15	-14.18	-7.98
Log. "	1.25888 0.40661 0.60206 2.26755	1.13925 0.40723 0.60206 2.14854	1.00647 0.39901 0.60206 2.00754	1.15168 0.39797 0.60206 2.15171	0.90200 0.39701 0.60206 1.90107
No.	185.16 s 3m 5.16s	140.78 s 2m 20.78s	101.75 s 1m 41.75s	141.81 s 2m 21.81s	79.63 1m 19.63s

Diff. y.	+12.63	+15.23	-13.12	-16.74	-20.12"
×60"	757.80"	913.80"	787.20"	1004.40"	1207.20"
	12' 37.80"	15' 13.80"	13' 7.20"	16' 44.40"	20' 7.20"

(1)	(2)	(3)	(4)	(5)
4h 53m 17.41s -66° 54' 53.6"	4h 58m 40.72s -66° 56' 58.6"	4h 57m 57.37s -66° 28' 57.7"	4h 58m 37.18s -66° 25' 23.3"	4h 57m 35.52s -66° 22' 7.8"
3 5.16 12 37.8	2 20.78 15 13.8	1 41.75 13 7.2	2 21.81 16 44.4	1 19.63 20 7.2
4h 56m 22.57s -66° 42' 15.8"	4h 56 19.94s -66 41' 44.8"	4h 56 15.62s -66° 42' 4.9	4h 56 15.37s -66° 42' 7.7	4h 56 15.89s -66° 42' 15.0

Mean Position of V Type Star. 4h 56m 17.88 -66° 42' 5.6" (1850) Adopt. Mean.
4 56 18.8 -66 42 10 (1850) Curve.

Diff. X.	+18.80	-13.13	-9.50	-13.53	-7.33
Log. "	1.27416 0.40661 0.60206 2.28283	1.11826 0.40723 0.60206 2.12755	0.97772 0.39901 0.60206 1.97879	1.13130 0.39797 0.60206 2.13133	0.86510 0.39701 0.60206 1.86417
No. of Log.	191.79 s 3m 11.79s	134.14 s 2m 14.14s	95.23 s 1m 35.23s	135.31 2m 15.31s	73.14 1m 13.14

Diff. y	+16.37	+18.97	-9.38	-13.00	-16.38
×60"	982.20	1138.20"	562.80"	780.00"	982.80"
	16' 22.20	18' 58.20"	9' 22.80"	13' 0.00"	16' 22.80

(1)	(2)	(3)	(4)	(5)
4h 53m 17.41s -66° 54' 53.6"	4h 58m 40.72s -66° 56' 58.6"	4h 57m 57.37s -66° 28' 57.7"	4h 58m 37.18s -66° 25' 23.3"	4h 57m 35.52s -66° 22' 7.8"
3 11.79 16 22.2	2 14.14 18 58.2	1 35.23 9 22.8	2 15.31 13 0.0	1 13.14 16 22.8
4h 56m 29.20 -66° 38' 31.4"	4h 56m 26.58s -66° 38 0.4	4h 56m 22.14s -66° 38' 20.5"	4h 56m 21.87s -66° 38' 23.3"	4h 56m 22.38s -66 38' 30.6"

Mean Position of Neb. 4h 56m 24.43s -66° 38' 21.2" (1850) Adopt. Mean.
4 56 24.7 -66 38 30.- (1850)

Positions
Charted Aug. 2, 1897.
See Chart No. 23 b.

July 26, 1897.

Meas. to determine positions of objects having peculiar spectra on A 2210 and A 2211. Larger Magellanic Cloud.

Plate A 2207. Region 2.

	x 9.38	y 22.28	x	y	Gillies No.	h		1850 position				Magn.	Log.
1	+9.40	+22.30	+9.35	+22.25	~~2C.~~ 3024	5	13	14.04	-67	54	49.4	9.8	= 0.42480
2	+5.20	+12.20	+5.20	+12.20	~~2C~~ 3032	5	13	56.62	-67	44	43.3	10.0	= 0.42167
3	12.72 -12.75	10.18 +10.20	-12.70	+10.15	~~2C.~~ 3065	5	17	2.57	-67	42	2.1	9.5	= 0.42084
4	21.82 -21.85	+3.25	-21.80	+3.25	~~2C.~~ 3084	5	18	34.18	-67	34	44.8	10.0	= 0.41860
5	+4.75	11.48 -11.50	+4.75	-11.45	3031	5	13	52.48	-67	21	14.7	8.0 θ Dorado	= 0.41449
6	+13.25	16.78 -16.80	+13.25	-16.75	3010	5	12	23.76	-67	16	4.5	9.5	= 0.41294 5
No. 186.	+3.80	4.42 +4.40	+3.80	+4.45									

Diff. x.	+5.58	+1.40	-16.52	-25.62	+0.95	+9.45
Log. " "	0.74663	0.14613	1.21801	1.40858	9.97772	0.97543
	0.42480	0.42167	0.42084	0.41860	0.41449	0.41294 5
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	1.77349	1.16986	2.24091	2.42924	10.99427	1.99043 4
No. of Log.	59.36 s	14.79 s	174.14 s	268.68 9 s	9.87 s	97.82 s
			2m 54.14 s	4m 28.68 9		1m 37.82

Diff. y.	+17.86	+7.78	+5.76	-1.17	-15.90	-21.20
×60	1071.60	466.80	345.60	70.20	954.00	1272.00
	17 51.6	7 46.80	5 45.60	1 10.20	15 54.0	21 12.0

(1) 5h 13m 14.04s -67° 54' 49.4"
59.36 17 51.6
5h 14m 13.40s -67° 36' 57.8"

(2) 5h 13m 56.62s -67° 44' 43.3"
14.79 7 46.8
5h 14m 11.41 -67° 36' 56.5"

(3) 5h 17m 2.57s -67° 42' 2.1"
2 54.14 5 45.6
5h 14m 8.43s -67° 36' 16.5"

(4) 5h 18m 34.18s -67° 34' 44.8"
4 28.68 9 1 10.2
5h 14m 5.50 49s -67° 35' 55.0"

(5) 5h 13m 52.48s -67° 21' 14.7"
9.87 15 54.6
5h 14m 2.35s -67° 37' 8.7

(6) 5h 12m 23.76s -67° 16' 4.5
1 37.82 21 12.0
5h 14m 1.58s -67° 37' 16.5

Mean Position of No. 186. { 5h 14m 7.11s -67° 36' 45.2" (1850)
5 14 5.9 67 37 0 (1855) curve adopt.

1893phae.pr0J..805F

A 2207. Region 3.

No. 5974. Diffus. Neb.

Diff. x	+20.10	+31.33	+43.13	+2.07	+7.27	+15.75	+31.30
Log. "	1.30320	1.49596	1.63478	0.31597	0.86153	1.19728	1.49554
	0.42483	0.42356	0.42106	0.41838	0.41606	0.41156	0.41240
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	2.33009	2.52158	2.65790	1.33641	1.87965	2.21090	2.51000
No. Log.	$213^{s}.84$	$332^{s}.34$	$454^{s}.88$	$21^{s}.70$	$75^{s}.80$	$162^{s}.52$	$323^{s}.59$
	$3^{m}33^{s}.84$	$5^{m}32^{s}.3$	$7^{m}34^{s}.88$		$1^{m}15^{s}.80$	$2^{m}42^{s}.52$	$5^{m}23^{s}.59$
Diff. y	+14.08	+9.35	+0.52	−5.90	−13.98	−29.60	−27.60
×60	844″.80	561″.00	31″.20	354″.00	838.80	1776″00	1656″00
	14′ 4″.80	9′ 21″.00		5′ 54″.00	13′ 58.8	29′ 36″.00	27′ 36.0

(1) $5^{h}\ 32^{m}\ 26^{s}.48\ -67°\ 54'\ 56''.4$
$\quad 3\ \ 33.84 \qquad 14\ \ 4.8$
$5^{h}\ 36^{m}\ 0^{s}.32\ -67°\ 40\ \ 51.6$

(2) $5^{h}\ 30^{m}\ 24^{s}.62\ -67°\ 50'\ 49''.6$
$\quad 5\ \ 32.34 \qquad 9\ \ 21.0$
$5^{h}\ 35\ \ 56^{s}.96\ -67°\ 41'\ 28''.6$

(3) $5^{h}\ 28^{m}\ 16^{s}.58\ -67°\ 42'\ 43''.1$
$\quad 7\ \ 34.88 \qquad 31.2$
$5^{h}\ 35\ \ 51^{s}.46\ -67°\ 42'\ 11''.9$

(4) $5^{h}\ 35^{m}\ 21^{s}.07\ -67°\ 34'\ 1''.6$
$\quad 21.70 \qquad 5\ \ 54.0$
$5^{h}\ 35^{m}\ 42^{s}.77\ -67°\ 39\ \ 55''.6$

(5) $5^{h}\ 34^{m}\ 22^{s}.52\ -67°\ 26'\ 23.6$
$\quad 1\ \ 15.80 \qquad 13\ \ 58.8$
$5^{h}\ 35^{m}\ 38^{s}.32\ -67\ \ 40'\ 22''.4$

(6) $5^{h}\ 32^{m}\ 42^{s}.73\ -67°\ 11'\ 28''.8$
$\quad 2\ \ 42.52 \qquad 29\ \ 36.0$
$5^{h}\ 35^{m}\ 25^{s}.25\ -67°\ 41'\ 4''.8$

(7) $5^{h}\ 30^{m}\ 4.90\ -67°\ 14'\ 16''.3$
$\quad 5\ \ 23.59 \qquad 27\ \ 36.0$
$5^{h}\ 35^{m}\ 28^{s}.49\ -67°\ 41'\ 52''.3$

5^{h}	36^{m}	$0^{s}.32$	−67°	40′	51″.6
5	35	56.96	−67	41	28.6
5	35	51.46	−67	42	11.9
5	35	42.77	−67	39	55.6
5	35	38.32	−67	40	22.4
5	35	25.25	−67	41	4.8
5	35	28.49	−67	41	52.3

Computed Mean Position $5^{h}\ 35^{m}\ 43^{s}.37\ -67°\ 41'\ 6''.7$ (1850)

Positions Charted Aug. 2, 1897. M.C.S.
See Chart No. 24b.

July 26, 1897.

Meas. to determine position of objects having peculiar Spectra on A 2210 and A 2211. Larger Magellanic Cloud.

Plate A 2207 Region 3.

1850 position

	x	y	x	y	Gillies No.	h	m	s	°	′	″	Magn. Log.
1	-2,75	23.98 +23,95	-2,75	+24,00	3271	5	32	26.48	-67	54	56.4	9.8 = 0.42483
2	8.48 +8,45	+19,25	+8,50	+19,25	3246	5	30	24.62	-67	50	49.6	9.0 = 0.42356
3	20.28 +20,30	10.42 +10,40	+20,25	+10,45	3207	5	28	16.58	-67	42	43.1	10 = 0.42106 5
4	20.78 -20,80	+4,00	-20,75	+4,00	3308	5	35	21.07	-67	34	1.6	10.0 = 0.41838
5	15.58 -15,60	4.08 -4,05	-15,55	-4,10	3295	5	34	22.52	-67	26	23.6	10.0 = 0.41606
6	-7,10	-19,70	-7,10	-19,70	3279	5	32	42.73	-67	11	28.8	10.0 = 0.41156
7	+8,45	-17,70	+8,45	-17,70	3238	5	30	4.90	-67	14	16.3	10.0 = 0.41240
183	6.92 +6,95	+0,90	+6,90	+0,90								
No. 5974 diffuse neb.	-22.85 -21,70 -24,00	+9.90 +8,50 +11,30	-21,70 -24,10	+8,50 -+11,30								

Diff x.	-9.67	+1.56	+13.36	-27.70	-22.50	-14.02	+1.53
Log. ″	0.98543	0.19312	1.12581	1.44248	1.35218	1.14675	0.18469
	0.42483	0.42356	0.42106 5	0.41838	0.41606	0.41156	0.41240
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	2.01232	1.21874	2.14893	2.46292	2.37030	2.16037	1.19915
No. of Log.	102.88 s	16.55 s	140.91 s	290.35 s	234.58 s	144.67 s	15.82 s
	1 m 42.88		2 m 20.91 s	4 m 50.35	3 m 54.58 s	2 m 24.67	
Diff y.	+23.08	+18.35	+9.52	+3.10	-4.98	-20.60	-18.60
× 60	1384″.80	1101″.00	571″.20	186″.00	298″.80	1236″.00	1116″.00
	23′ 4″.80	18′ 21.0	9′ 31.20	3′ 6″.00	4′ 58.80	20′ 36″.0	18′ 36″.00

(1) 5h 32m 26s.48 -67° 54′ 56″.4
1 42.88 23 4.8
5h 30m 43.60 -67° 31′ 51″.6

(2) 5h 30m 24s.62 -67° 50′ 49″.6
16.55 18 21.0
5h 30 41s.17 -67° 32′ 28″.6

(3) 5h 28m 16s.58 -67° 42′ 43″.1
2 20.91 9 31.2
5h 30m 37s.49 -67° 33′ 11″.9

(4) 5h 35m 21s.07 -67° 34′ 1″.6
4 50.35 3 6.0
5h 30m 30s.72 -67° 30′ 55″.6

(5) 5h 34m 22s.52 -67° 26′ 23″.6
3 54.58 4 58.8
5h 30m 27s.94 -67° 31′ 22.4

(6) 5h 32m 42s.73 -67° 11′ 28″.8
2 24.67 20 36.0
5h 30m 18s.06 -67° 32′ 4.8

(7) 5h 30m 4s.90 -67° 14′ 16.3
15.82 18 36.0
5h 30m 20.72 -67° 32′ 52″.3

Mean Position of No. 183.
5h 30m 31s.39 -67° 32′ 6″.7 (1850)
Curve 5 30 30.0 -67 32 30 (1850) adopt

Mean Position of Diffus. Neb. No. 5974.
5h 35m 43s.37 -67° 41′ 6″.7 (1850)

Positions Charted Aug. 2, 1897. M.C.S.
See Chart No. 24 b.

July 26, 1897.

Meas. to determine positions of objects having peculiar spectra on A 2210 and A 2211. Larger Magellanic Cloud

Plate A 2207 Region 4.

	x	y	x	y		1875 pos. h	m	s	°	′	″	magn.	Log.
1	14.95 -15.00	+24,50	-14.90	+24,50	Z.C. 991	5	27	39.57	-68	43	14.2	7	= 0.44018
2	-19,25	-8,50	-19,25	-8,50	Z.C. 1018	5	28	10.76	-68	10	15.4	9½	= 0.42966
3	12.22 +12,20	-8,30	+12,25	-8,30	Z.C. 811	5	22	32.99	-68	11	25.2	9½	= 0.43001
4	+19.00	13.75 -~~17.35~~	+19,00	-13,75	Z.C. 764	5	21	20.66	-68	6	6.9	9	= 0.42834
5	-4,30	12.82 -12,80	-4,30	-12,85	Z.C. 907	5	25	29.27	-68	6	24.2	9	= 0.42843
6	2.48 -~~3~~,45	-19,25	-2,50	-19,25	Z.C. 898	5	25	7.67	-68	0	12.6	9½	= 0.42648
No. 208	4.48 -4,45	15.42 +15,40	-4,50	+15,45									

Diff. x.	-10.47	-14.77	+16.70	+23.48	+0.18	+2.00
Log. "	1.01995 0.44018 0.60206	1.16938 0.42966 0.60206	1.22272 0.43001 0.60206	1.37070 0.42834 0.60206	9.25527 0.42843 0.60206	0.30103 0.42648 0.60206
	2.06219	2.20110	2.25479	2.40110	10.28576	1.32957
No. of Log.	115.40 s	158.89 s	179.80 s	251.83 s	1.93 s	21.36 s
	1m 55.40s	2m 38.89s	2m 59.80s	4m 11.83s		
Diff. y.	+9.08	-23.92	-23.72	-29.17	-28.24	-34.67
×60	544.80″	1435.20″	1423.20″	1750.20″	1694.40″	2080.20″
	9′ 4.80″	23′ 55.20″	23′ 43.20″	29′ 10.20″	28′ 14.40″	34′ 40.20″

(1) 5h 27m 39.57s -68° 43′ 14.2″
1 55.40   9 4.8
5h 25m 44.17s -68° 34′ 9.4″

(2) 5h 28m 10.76s -68° 10′ 15.4″
2 38.89   23 55.2
5h 25m 31.87s -68° 34′ 10.6″

(3) 5h 22m 32.99s -68° 11′ 25.2″
2 59.80   23 43.2
5h 25m 32.79s -68° 35′ 8.4″

(4) 5h 21m 20.66s -68° 6′ 6.9″
4 11.83   29 10.2
5h 25m 32.49s -68° 35′ 17.1″

(5) 5h 25m 29.27s -68° 6′ 24.2″
1.93   28 14.4
5h 25m 31.20s -68° 34′ 38.6″

(6) 5h 25m 7.67s -68° 0′ 12.6″
21.36   34 40.2
5h 25m 29.03s -68° 34′ 52.8″

No. 185.

Diff. x.	+11.88	-21.37	+6.70	+0.70	-14.00
Log. "	1.07482 0.47018 0.60206	1.32980 0.46415 0.60206	0.82607 0.46060 0.60206	9.84510 0.45995 0.60206	1.14613 0.45363 0.60206
	2.14706	2.39601	1.88873	10.90711	2.20182
No. of Log.	140.30	248.89	77.40 s	8.07 s	159.15 s
	2m 20.30	4m 8.89	1m 17.40		2m ~~37.5~~ 39.15 s
Diff. y.	+48.33	+30.38	+20.46	+18.70	+0.18
×60	2899.80″	1822.80	1227.60″	1122.00″	10.80
	48′ 19.80	30′ 22.8″	20′ 27.60	18′ 42.0″	10.80″

Mean Position of No. 208.
5h 25m 33.59 -68° 34′ 42.8″ (1875)
5 25 41.0 -68 34 40.- Corrd (1875) Adopt

Positions charted
Aug. 2, 1897. M.C.S.
See Chart. No. 25b.

July 26, 1897.

Meas. to determine positions of objects having peculiar spectra on A 2210 and A 2211. Large Magellanic Cloud

Plate A 2207 Region 5.

	x	y	x	y	Gillis No.	1850 pos.	Log
1	+19.00	+31.25	+1900	+31.25	3066	5h 17m 4s.53 −70° 12′ 7″.8 mag. 10.0	= 0.47018
(2	25.38 +25.35 +25.55	+26.10 +25.90	+25.40 +25.55	+26.10 +25.90	3047	5 15 47.83 −70 6 49.2 10.0	= 0.46832)
3	−14.25	+13.30	−14.25	+13.30	3154	5 23 29.13 −69 54 50.2 10.0	= 0.46415
4	13.82 +13.80	3.38 +3.35	+13.85	+3.40	3077	5 18 3.67 −69 44 30.3 10.0	= 0.46060
5	7.82 +7.80	1.62 +1.65	+7.85	+1.60	3091 ~~3092~~	5 19 12.49 ~~16.36~~ −69 42 ~~23~~ 38.6 ~~58.2~~ 10 ~~9.8~~	= 0.45995 ~~0.45365~~
6	6.88 −6.85	−16.90	−6.90	−16.90	3129	5 21 56.48 −69 23 56.9 10.0	= 0.45362
No. 185	7.12 +7.10	17.08 −17.05	+7.15	−17.10			
No. 184	1.08 +1.10	+7.10	+1.05	+7.10			

No. 184.

Diff. x.	+17.92		−15.33	+12.74	+6.74	−7.96
Log. "	1.25334		1.18554	1.10517	0.82866	0.90091
	0.47018	0.46832	0.46415	0.46060	0.45995 ~~0.45365~~	0.45362
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	2.32558		2.25175	2.16783	1.89067 ~~1.88437~~	1.95659
	211s.63		178s.55	147.17	77.74 ~~76.62~~	90s.49
No. Log.	3m 31s.63		2m 58s.55	2m 27s.17	1m 17s.74 ~~16.62~~	1m 30s.49
Diff. y.	+24.15		+6.20	−3.72	−5.48	−24.00
× 60.	1449″.00		372″.00	223″.20	328″.80	1440″.00
	24′ 9″.0		6′ 12″.0	3′ 43″.2	5′ 28″.8	24′ 0″.0

(1) 5h 17m 4s.53 −70° 12′ 7″.8
3 31.63 24 9.0
5h 20m 36s.16 −69° 47′ 58.8

(2) 5h 15m 47s.83 −70° 6′ 49″.2

(3) 5h 23m 29s.13 −69° 54′ 50″.2
2 58.55 6 12.0
5h 20m 30s.58 −69° 48′ 38″.2

(4) 5h 18m 3s.67 −69° 44′ 30″.3
2 27.17 3 43.2
5h 20m 30.84 −69° 48′ 13.5

(5) 5h 19m 12s.49 ~~16.36~~ −69° 42′ ~~23′~~ 38″.6 ~~58.2~~
1 17.74 ~~16.62~~ 5 28.8
5h 20m 30.23 ~~32s.98~~ −69° 48 ~~29~~ 7.4 ~~27.0~~

(6) 5h 21m 56s.48 −69° 23′ 56″.9
1 30.49 24 0.0
5h 20m 25s.99 −69° 47′ 56″.9

5 20 30.1 − 69 48 8.− (1850) Curve

Mean Position of No. 184. 5h 20m 30s.76 − 69° 48′ 1″.0 (1850) Adopt Mean

(1) 5h 17m 4s.53 −70° 12′ 7″.8
2 20.30 48 19.80
5h 19m 24s.83 −69 23′ 48.0″

(3) 5h 23m 29s.13 −69° 54′ 50″.2
4 8.89 30 22.8
5h 19m 20s.24 −69° 24 27″.4

(4) 5h 18m 3s.67 −69° 44′ 30″.3
1 17.40 20 27.6
5h 19m 21s.07 −69° 24′ 2.7″

(5) 5h 19m 12s.49 −69° 42′ 38″.6
8.07 18 42.0
5h 19m 20s.56 −69° 23′ 56″.6

(6) 5h 21m 56.48 −69° 23′ 56.9
2 39.15 10.8
5h 19m 17s.33 −69° 23′ 46″.1

5h 19m 20s.81 −69° 24′ 0.2 (1850) Mean Position of No. 185

5 19 17.2 − 69 23 56.5 − Curve (1850) adopt

Positions charted. Aug. 2, 1897.

July 26, 1897.

Meas. to determine position of objects having peculiar spectra on A 2210 and A 2211. Large Magellanic Cloud.

Plate A 2207. No. 6.

		x	y	x	y	Gilliss No.	h	m	s	°	′	″	magn. Log.
	1	~~+~~-12,05	22.38 +22,35	-12,05	+22,40	3398	5	41	50.69	-69	55	36.6	9.8 = 0.46442
	2	3.78 -3,75	+15,20	-3,80	+15,20	3378	5	40	11.85	-69	48	53.3	9.0 = 0.46212
	3	+17,80	0.92 -0,90	+17,80	-0,95	3316	5	35	56.86	-69	33	40.9	9.0 = 0.45693
	4	+10,75	5.22 -5,20	+10,75	-5,25	3335	5	37 ~~35~~	15.72	-69	29	16.2	10.0 = 0.45544
	5	-0,40	23.121 -23,10	-0,40	-23,15	3360	5	39	12.65	-69	10	55.4	10.0 = 0.44928
	6	-14.48 14 50 -32,90 tr.	-32,90 -14,50	-14,45	-32,90 ~~-14,45~~	3393	5	41	43.27	-69	0	31.6	9.5 = 0.44584
	176	-11.30	-6,55	-11,30	-6,55								
Type V?	176a	-9,80	4.92 -4,90	-9,80	-4,95								
	177	8 -8.65	+9,40	-8,65	+9,40								
( ) Hydrogen br.	177a	8.58 -8,55	9.48 +9,50	-8,60	+9,45								
	178	-8,10	+17,10	-8,10	+17,10								
	179	4.38 -4,40	-27,45	-4,35	-27,45								
neb. diff. centr.	179a	-3,00	-24,00	-3,00	-24,00								
	181	+8,85	-6,50	+8,85	-6,50								
	182	+19,80	16.08 +16,05	+19,80	+16,10								

Diff. x.	-3.47	+4.80	+26.38	+19.33	+8.18	-5.90
Log. "	0.54033	0.68124	1.42127	1.28623	0.91275	0.77085
	0.46442	0.46212	0.45693	0.45544	0.44928	0.44584
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	1.60681	1.74542	2.48026	2.34373	1.96409	1.81875
No. Log.	$40^s.44$	$55^s.64$	$302^s.18$	$220^s.66$	$92^s.06$	$65^s.88$
			$5^m\ 2^s.18$	$3^m\ 40^s.66$	$1^m\ 32^s.06$	$1^m\ 5^s.88$
Diff. y.	+12.90	+5.72	-10.40	-14.70	-32.60	-42.38
× 60	774″.00	343″.20	624″.00	882″.00	1956″.00	2542″.80
	12′ 54″.0	5′ 43.2	10′ 24.0	14′ 42.0	32′ 36″.0	42′ 22″.8

(1) $5^h\ 41^m\ 50^s.69$ -69° 55′ 36″.6
40.44 / 12 54.0
$5^h\ 41^m\ 10^s.25$ -69° 42′ 42″.6

(2) $5^h\ 40^m\ 11^s.85$ -69° 48′ 53″.3
55.64 / 5 43.2
$5^h\ 41^m\ 7^s.49$ -69° 43′ 10″.1

(3) $5^h\ 35^m\ 56^s.86$ -69° 33′ 40″.9
5 2.18 / 10 24.0
$5^h\ 40^m\ 59^s.04$ -69° 44′ 4″.9

(4) $5^h\ 37^m\ 15^s.72$ -69° 29′ 16″.3
3 40.66 / 14 42.0
$5^h\ 40^m\ 56^s.38$ -69° 43′ 58.3

(5) $5^h\ 39^m\ 12^s.65$ -69° 10′ 55″.4
1 32.06 / 32 36.0
$5^h\ 40^m\ 44^s.71$ -69° 43′ 31″.4

(6) $5^h\ 41^m\ 43^s.27$ -69° 0′ 31″.6
1 5.88 / 42 22.8
$5^h\ 40^m\ 37^s.39$ -69° 42′ 54″.4

Mean Position of No 177a.
$5^h\ 40^m\ 55^s.88$ - 69° 43′ 23″.62 (1850)

Curve 5^h ~~40^m~~ 41 ~~$54^s.3$~~ 40 -69° 43′ ~~56″~~ 4″ (1850) Adopt

No. 176.

Book 4. Plate A 2207. No. 6.

Pos. Diff x + 2.72
Log. " 0.43457
0.460~~46~~12
0.60206
1.49~~76~~ 7 03 35
No. of Log. 31.~~41~~ 39

Diff. y. + ~~2.93~~ +16.03
×60 ~~175.80~~ 961.80
~~2' 55.80~~ 16' 1.80

~~Mean Position of No. 176.~~
5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4.0 8
31.4 1 26 ~~55.8~~
Mean Position 5h ~~40m~~ 41m ~~22.9~~ 35.4 - 69° ~~46'~~ ~~40'~~ 27' ~~52"~~ ~~8"~~ 2.2 (1850

No. 176a.
Diff. x + 1.22
Log. 0.08636
1.062~~46~~ 8
1.14882
No. of Log. 14.0~~9~~8 5.4

Diff. y. + 14.40
×60 864.00
14' 24.0

~~Mean Position of No. 176a.~~
5h ~~40~~ 41 ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
14.1 14 24
Mean Position 5h ~~40m 40.2 - 69° 58' 20"~~ (1850
41 18.0 - 69° 28' 40"

No. 177
Diff. x . + 0.07
Log. " 8.84510
1.062~~46~~ 8
9.907~~56~~ 28
No. of Log 0.81

Diff. y. + 0.08
×60 4.80

~~Mean Position of No 177~~
5h ~~40~~ 41 ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
0.8 5
5h ~~40 53.5 - 69° 44' 1"~~ Mean Position
41m 4.8 - 69° 42' 59"

No. 178
Diff. x - 0.48
Log. 9.68124
1.062~~46~~ 8
10.74370 42
No. Log. 5.54

Diff. y. - 7.62
×60 457.20
7' 37.20

5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
5.5 7 37
5h 40 ~~59.8~~ - 69° ~~36'~~ ~~19"~~ Mean Position
58.5 50' 41"

No. 179
Diff. x. - ~~4.18~~ 4.20
Log. 0.62~~118~~ 325
1.06246 18
~~1.68364~~ 1.68543
No. Log. 48.2~~7~~3 48.47

0.62325
1.06218
1.68543

Diff. y. + 36.93
×60 2215.80
36' 55.8

5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
48.3 25 36 56
5h ~~41m 42.6 - 70° 20' 52"~~ Mean Position
40m ~~15.7~~ 15.5 - 69° 6' 8"

No. 179a. Diff x
- 5.58
Log. 0.74663
1.062~~46~~ 8
~~1.80909~~ 881
No. Log 64.43 39 = 1m 4.43 39

Diff. y + 33.48
×60 2008.80
33' 28.8

5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
1 4.4 33 29
5h ~~41m 58.7 - 70° 17' 25"~~ Mean Position
39 59.6 - 69° 9' 35"

---

181 Diff. x
- 17.43
Log 1.24130
1.062~~46~~ 8
2.30376
No. Log. 201.~~26~~ 13 48 = 3m 21.~~26~~ 13

Diff. y + 15.98
×60 958.80
15' 58.8

5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
3 21.3 15 59
5h ~~44m 15.6 - 69° 59' 55"~~ Mean Position
37m 42.9 - 69° 27' 5"

---

182 Diff. x. - 28.38
Log. " 1.45301
1.062~~46~~ 8
2.515~~47~~ 19
No. Log. 327.~~70~~ 48 = 5m 27s.~~70~~ 48

Diff. y - ~~6.57~~ 6.60
×60 ~~394.20~~ 396.00
6' ~~34.2~~ 36.0

396.00
6' 36.0

5h ~~40m~~ 41m ~~54.3~~ 4.0 - 69° 43' ~~56"~~ 4
5 27.75 6' 3~~4~~6
5h ~~46 22.0 - 69° 37' 22"~~ Mean Position
35 36.35 - 69° 49' ~~38"~~ 40

5h 19m 17s.33 - 69° 23' 46".1   5 19 17.2 - 69 ~~23~~ 24 ~~56~~ 35 - Curve (1850) adopt.

85

90. Charter 7.. M.C.S. 24 b

26 1897

Clas

og.

4018

2966

43001

2834

2843

42648

5)

dopt

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Positions charted Aug. 2, 1897. See Chart No. 26 b

July 26, 1897.

Meas. to determine position of objects having peculiar Spectra on A 2210 and A 2211, Larger Magellanic C

Plate A 2207. Region 7

	x.	y	x	y		1875 pos.							Log
						h	m	s	°	′	″	magn.	
1	+19.55	+14.75	+19.55	+14.75	2.C.1068	5	29	14.10	-71	18	44.8	9	= 0.49428
2	16.42 +16.45	+7.45	+16.40	+7.45	2.C.1090	5	29	51.33	-71	11	30.6	9	= 0.49160
3	18.12 -18.10	+9.30	+18.15	+9.30	2.C.1362	5	36	58.55	-71	12	37.5	8	= 0.49201
4	+4.00	3.62 -3.60	+4.00	-3.65	2.C.1177	5	32	22.97	-71	0	20.0	8¾	= 0.48747
5	+6.70	-8.95	+6.70	+8.95	2.C.1156	5	31	.74 49.~~69~~	-70	55	2.3	9¼	= 0.4855
6	+15.60	-4.25	+15.60	-4.25	2.C.1093	5	30	1.69	-70	59	55.6	8¾	= 0.4873
7	12.22 +12.25	-9.00	+12.20	-9.00	2.C.1116	5	30	42.09	-70	55 ~~54~~	0.3	8¾	= 0.4855
No. 205	4.42 +4.45	+2.75	+4.40	+2.75									

Diff x.	+15.13	+12.00	-22.54	-0.42	+2.28	+11.18	+7.80
Log. ″	1.17984	1.07918	1.35295	9.62325	0.35793	1.04844	0.89209
	0.49428	0.49160	0.49201	0.48747	0.48553	0.48732	0.48553
	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206	0.60206
	2.27618	2.17284	2.44702	10.71278	1.44552	2.13782	1.97968
No. Log.	188.88	148.88	279.91	5.16	27.~~89~~ 90	137.35	95.43
	3m 8.88	2m 28.88	4m 39.91			2m 17.35	1m 35.43

Diff. y.	+12.00	+4.70	+6.55	-6.37	-11.70	-7.00	-11.75
× 60	720.00″	282.00″	393.00″	382.20″	702.00″	420.00″	705.00″
	12′ 0.00″	4′ 42.00″	6′ 33.0″	6′ 22.2″	11′ 42.0″	7′ 0.00″	11′ 45.00″

(1) $5^{h}\ 29^{m}\ 14^{s}.10\ -71^{\circ}\ 18'\ 44''.8$
$3\ \ 8.88\qquad 12\ \ 0.0$
$5^{h}\ 32^{m}\ 22^{s}.98\ -71^{\circ}\ 6'\ 44''.8$

(2) $5^{h}\ 29^{m}\ 51^{s}.33\ -71^{\circ}\ 11'\ 30''.6$
$2\ \ 28.88\qquad 4\ \ 42.0$
$5^{h}\ 32^{m}\ 20^{s}.21\ -71^{\circ}\ 6'\ 48''.6$

(3) $5^{h}\ 36^{m}\ 58^{s}.55\ -71^{\circ}\ 12'\ 37''.5$
$4\ \ 39.91\qquad 6\ \ 33.0$
$5^{h}\ 32^{m}\ 18^{s}.64\ -71^{\circ}\ 6'\ 4''.5$

(4) $5^{h}\ 32^{m}\ 22^{s}.97\ -71^{\circ}\ 0'\ 20''.0$
$5.16\qquad 6\ \ 22.2$
$5^{h}\ 32^{m}\ 17^{s}.81\ -71^{\circ}\ 6'\ 42''.2$

(5) $5^{h}\ 31^{m}\ 49^{s}.\overset{74}{\cancel{69}}\ -70^{\circ}\ 55'\ 2.3$
$27.\cancel{89}\,90\qquad 11\ \ 42.0$
$5^{h}\ 32^{m}\ \cancel{17^{s}.58}\ -71^{\circ}\ 6'\ 44''.3$
17.64

(6) $5^{h}\ 30^{m}\ 1^{s}.69\ -70^{\circ}\ 59'\ 55''.6$
$2\ \ 17.35\qquad 7\ \ 0.0$
$5^{h}\ 32^{m}\ 19^{s}.04\ -71^{\circ}\ 6'\ 55''.6$

(7) $5^{h}\ 30^{m}\ 42^{s}.09\ -70^{\circ}\ \overset{55}{\cancel{54}}\ 0.3$
$1\ \ 35.43\qquad 11\ \ 45.0$
$5^{h}\ 32^{m}\ 17^{s}.52\ -71^{\circ}\ 6'\ 45''.3$

Mean Position of No. 205. $5^{h}\ 32^{m}\ 19^{s}.\overset{2}{\cancel{1}}\ -71^{\circ}\ 6'\ 40''.8$ (1875) Adopt
5 32 19.3 -71 6 40.- Curve (1875)

(Positions charted Aug. 2, 1897. M.C.S.
See Chart No. 27 b.

July 26, 1897.

Meas. to determine positions of objects having peculiar spectra on A2210 and A2211. Larger Magellanic Cloud.

Dec. = -69° 55′ 22.1″ =
Log. 0.46436 × 4 = ~~1.85744~~
0.60206 = 1.06642

Dec. = -69° 43′ 22.0 =
Log. 0.46023 × 4 = ~~1.84092~~
0.60206 = 1.06229

Dec. = -69° 38′ 43.5 =
Log. 0.45863 × 4 = 1
0.60206
1.06069

Plate A2207. Region No. 8

	x	y	x	y
	15.12 +15.10	+15.75	+15.15	+15.75
2	-7.35	3.78 +3.80	-7.35	+3.75
3	+3.45	-0.95	+3.45	-0.95
No. 188	-5.00	13.78 -13.75	-5.00	-13.80
No. 189	+11.15	25.22 +25.20	+11.15	+25.25

Gillies No.	1850 pos. h	m	s	°	′	″	magn.
2783	4	51	3.03	-69	55	22.1	10.0
2832	4	55	22.14	-69	43	22.0	10.0
2813	4	53	17.77	-69	38	43.5	8.0

No. 188

Diff. x.	+20.12	-2.35	+8.45	Diff. y.	+29.53	+17.56	+12.83
Log. " "	1.30363	0.37107	0.92686	× 60	1771.80″	1053.60″	769.80″
See Below	~~0.46436~~	~~0.46023~~	~~0.45863~~		29′ 31.80″	17′ 33.60″	12′ 49.8″
	~~1.85744~~	~~1.84092~~	~~1.83452~~				
	~~1.76799~~	~~0.83130~~	~~1.38549~~				
	~~3.16107~~	~~2.21199~~	~~2.76138~~				
No. of Log.	~~58.6~~	~~6.78~~	~~24.29~~				
	~~1440~~	~~162.93~~	~~577.27~~				

(1) 4ʰ 51ᵐ 3.03ˢ -69° 55′ 22.1″
3 54.45 29 31.8
4ʰ 54ᵐ 57.48ˢ -69° 25′ 50.3″

(2) 4ʰ 55ᵐ 22.14ˢ -69° 43′ 22.0″
27.12 17 33.6
4ʰ 54ᵐ 55.02ˢ -69° 25′ 48.4″

(3) 4ʰ 53ᵐ 17.77ˢ -69° 38′ 43.5″
1 37.17 12 49.8
4ʰ 54ᵐ 54.94ˢ -69° 25′ 53.7″

Mean Position of No. 188 4ʰ 54ᵐ 55.81ˢ -69° 25′ 50.8″ (1850) Adopt.
(a A2210)
4 54 56.6 - 69 25 52.- Curve (1850)
Identified later as CPD -69° 302 4 54.6 -69 21 (1900)

No. 189

Diff. x.	+3.97	-18.50	-7.70	Diff. y.	-9.47	-21.44	-26.17
Log. " "	0.59879	1.26717	0.88649	× 60	568.20″	1286.40″	1570.20″
	1.06642	1.06229	1.06069		9′ 28.20″	21′ 26.40″	26′ 10.20″
	1.66521	2.32946	1.94718				
No. of Log.	46.26ˢ	213.53	88.55ˢ				
		3ᵐ 33.53ˢ	1ᵐ 28.55				

(1) 4ʰ 51ᵐ 3.03ˢ -69° 55′ 22.1″
46.26 9 28.2
4ʰ 51ᵐ 49.29ˢ -70° 4′ 50.3″

(2) 4ʰ 55ᵐ 22.14ˢ -69° 43′ 22.0″
3 33.53 21 26.4
4ʰ 51ᵐ 48.61ˢ -70° 4′ 48.4

(3) 4ʰ 53ᵐ 17.77ˢ -69° 38′ 43.5″
1 28.55 26 10.2
4ʰ 51ᵐ 49.22ˢ -70° 4′ 53.7″

No 188

Diff. x.	+20.12	-2.35	+8.45
Log. "	1.30363	0.37107	0.92686
	1.06642	1.06229	1.06069
	2.37005	1.43336	1.98755
	234.45″	27.12″	97.17″
	3′ 54.45″		1ᵐ 37.17

Mean Position of No. 189 4ʰ 51ᵐ 49.04ˢ -70° 4′ 50.8″ (1850) adopt.

1893phae.proj...805E

September 7, 1897.

Meas. of bright lines in Gas. neb. Dreyer 418.
Sid. Mess. X, 240. mm. scale used.

Plate B18649 B-0.85

	0.20	1.0	.25	.20	.20	00		5007
	0.40	0.5	.45	.40	.40	00		4959
Hβ	0.80	10.0	.85	.80	.80	00	4862	
Hγ	3.60	7.0	3.65	3.60	3.60	00.	4341	
Hδ	5.35	4.0	5.45	5.40	5.38	32	4102	
Hε	6.55	2.0	6.80	6.55	6.55	00	3970	
Hξ	7.35	1.0	7.40	7.35	7.35	00	3889	
H~~ε~~η	7.70	0.5	8.00	7.95			3836	
	8.20	0.3						
	9.20	6.0	9.20	9.15	9.18	23		~~3700?~~ 3724

B
1.05
1.25
1.65
4.45
6.25
7.40
8.20
8.80
10.00

September 11, 1897.

Meas. to determine position of new star (No. 2 in Centaurus R.A. 11h 9m −47°.7 (approx 1900). No. 9786 on B19002. lines Hγ, Hδ and Hε br. Cont. sp. ft. Not found on charts plates.

		B19002 x	y	Z.C. 11h	h	m	s 1875	° 1900	'	" ~~magn~~	magn
Hγ	a	−4.~~55~~ 25	−18.~~65~~ 90	298	11	3	56.96	−47	57	8.8	8½
	b	−2.30	−17.30	326	11	4	28.97	−47	51	48.2	9
	c	+0.90	−0.80	370	11	5	4.79	−47	1	38.7	9
	d	+10.15	−3.80	557	11	7	49.77	−47	8	31.1	8½
	e	+16.20	−13.20	719	11	9	50.81	−47	34	39.9	8½
	Nova?	~~+8.00~~ +8.20	−10.70								

				+.65	−.45
Hδ	a	−4.25	−19.55	19.55	19.55
	b	−2.30	−17.95	17.95	17.90
	c	+0.90	−1.50	1.45	1.45
	d	+10.15	−4.45	4.45	4.45
	e	+16.20	−13.70	13.85	13.75
	Nova?	~~+8.00~~ +8.20	−11.50	11.35	11.45

Hε	a	−4.25	−~~19.6~~ 20.00	−4.25	000	−19.55	000
	b	−2.30	−18.35	−2.30	000	−17.93	223
	c	+0.90	−1.90	+0.90	000	−1.47	232
	d	+10.15	−4.90	+10.15	000	−4.45	000
	e	+16.20	−14.20	+16.20	000	−13.77	872 ~~783~~
		~~+8.00~~ 8.20	−11.90	+8.20	000	−11.43	872

Nova Hδ−Hγ	.80	.78	.65	.65
Hε−Hδ	.40	.52	.45	.45
	1.20	1.30	1.10	1.10

Correct for orientation

1893phae.prog....805F

September 11, 1897

Meas. to determine position of new star (No. 2 in Centaurus (Cont).

Plate B 19030 On edge of plate.

		x	y			J.C. 11ʰ
Hγ	a	−4.25	−15.70			298
	b	−2.30 ~~−4.25~~	−14.10 ~~−16.45~~			326
Off pl.	c	—	—			370
	d	+10.10	−0.55			557
	e	+16.25	−9.65 −9.75			719
	nova?	+8.10	−7.45	+8.15	−7.40	—

Hδ	a	−4.25	−16.45		−16.35	16.40
	b	−2.30	−14.75		−14.75	14.80
Off pl.	~~c~~	—	—			
	d	+10.10	−1.25		−1.20	1.20
	e	+16.25	10.40		−10.30 −10.40	10.45
	Nova?	+8.10	−8.20	8.10 805 +8.15	−8.20	8.30 8.25

8.10
805
8.20
8.20
8.30
8.25
110
8.18

820
742
.78

Hε	a	−4.25	16.85			−4.25	0 0 0	−16.40	5 5 0
	b	−2.30	−15.25			−2.30	0 0 0	−14.77	2 2 3
Off pl.	c	—	—			—			
	d	+10.10	−1.65			+10.10	0 0 0	−1.22	2 3 2
	e	+16.25	−10.85			+16.25	0 0 0	−10.42	2 2 3
	nova?	8.10	−8.75	+8.15	−8.70	+8.12	2 3 2 3 2 3	−8.18	8, 13, 2, 2, 12, 7,

Correct for orientation

September 11, 1897.

Meas. to determine position of new star (No. 2) in Centaurus (Cont).

Plate ~~X~~ B 1900~~X~~ 4 (Near edge of plate. Very faint). Images very poor.

		x	y	J.C. 11^h
Hγ	a	-8,65	-13,65	298
	b	-7,70	-11,95	326
	c	—	—	370
	d	Too poor		557
	e	Too poor		719
	Nova	+~~1~~2,85	4,65	

Hδ	a	-8,65	-14,35	14.30	14.304
	b	-7,70	-12,60	12.60	12.65
	c	—	—		
	d	Too poor			
	e	Too poor			
	~~f~~				
	Nova	+2,85	5,30 (uncertain	5.30	5.30

Hε	a	-8,65	-14,75	-8.65	0 0 0	-14.32	2 3 2
	b	-7,70	-13,10	-7.70	0 0 0	-12.62	2 2 3
	c	—	—				
	d	Too poor					
	e	Too poor					
	Nova ~~f~~	+2,85	-5.75 (uncertain).	+2.85	0 0 0	-5.30	0 0 0

The Nova shows the lines Hγ, Hδ and Hε bright in the above plate, but the object is so faint, the lines become almost invisible when the plate ruled in mms. is superposed. M. F. Sept. 11, 1897.

Corrected for orientation

Mean Dec. = −47° 30′ 45.″3

Log. = 0.17042
1.07700
1.24742

B 19002	x	y.	Z.C. 11h	h	m	s.	1875			
a	−4.25	−19.55	298	11	3	56.96	−47°	57′	8.″8	8½
b	−2.30	−17.93	326	11	4	28.97	−47	51	48.2	9
c	+0.90	−1.47	370	11	5	4.79	−47	1	38.7	9
d	+10.15	−4.45	557	11	7	49.77	−47	8	31.1	8½
e	+16.20	−13.77	719	11	9	50.81	−47	34	39.9	
Nova?	+8.20	−11.43	—							

Diff x.	−12.45	−10.50	−7.30	+1.95	+8.00
Log. "	1.09517	1.02119	0.86332	0.29003	0.90309
	1.24742	1.24742	1.24742	1.24742	1.24742
	2.34259	2.26861	2.11074	1.53745	2.15051
No. Log.	220.08 s	185.61	129.04	34.47 s	141.42
	3m 40.s08	3m 5.s61	2m 9.04		2m 21.s42

Diff. y.	−8.12	−6.50	+9.96	+6.98	−2.34
× 179	1453.48	1163.″50	1782.″84	1249.42	418.″86
	24′ 13.″48	19′ 23.″50	29′ 42.″84	20′ 49.42	6′ 58.″86

(a) 11h 3m 56.s96 −47° 57′ 8.″8
3 40.08 24 13.5
11h 7m 37.04 −47° 32′ 55.3

(b) 11h 4m 28.s97 −47° 51′ 48.″2
3 5.61 19 23.5
11h 7m 34.s58 −47° 32′ 24.″7

(c) 11h 5m 4.s79 −47° 1′ 38.″7
2 9.04 29 42.8
11h 7m 13.s83 −47° 31′ 21.″5

(d) 11h 7m 49.s77 −47° 8′ 31.″1
34.47 20 49.4
11h 7m 15.s30 −47° 29′ 20.″5

(e) 11h 9m 50.s81 −47° 34′ 39.″9
2 21.42 6 58.9
11h 7m 29.s39 −47° 27′ 41.″0

Mean Position of Nova? 11h 7m 26.s03 −47° 30′ 44.″$\overset{6}{8}$ (1875)

Mean Dec. = $-47^\circ 38' 20''$ = Log 0.17142
1.07700
1.24842

B 19030

	x	y
a	−4.25	−16.40
b	−2.30	−14.77
d	+10.10	−1.22
e	+16.25	−10.42
Nova?	+8.12	−8.18

Z.C. 11^h	1875.						
298	11^h	3^m	$56^s.96$	-47°	$57'$	$8''.8$	$8\frac{1}{2}$
326	11	4	28.97	−47	51	48.2	9
557	11	7	49.77	−47	8	31.1	$8\frac{1}{2}$
719	11	9	50.81	−47	34	39.9	$8\frac{1}{2}$

Diff. x	−12.37	−10.42	+1.98	+8.13.
Log.	1.09237	1.01787	0.29667	0.91009
	1.24842	1.24842	1.24842	1.24842
	2.34079	2.26629	1.54509	2.15851
No. Log.	$219^s.17$	$184^s.62$	$35^s.08$	$144^s.05$
	$3^m 39^s.17$	$3^m 4^s.62$		$2^m 24^s.05$

Diff. y.	−8.22	−6.59	+6.96	−2.24
× 179	$1471''.38$	$1179''.61$	$1245''.84$	$4\cancel{1}00''.96$
	$24' 31''.38$	$19' 39''.61$	$20' 45.84$	$6' \cancel{5}40''.96$

(a) $11^h 3^m 56^s.96 - 47^\circ 57' 8''.8$
$3\ 39.17 \quad 24\ 31.4$
$11^h 7^m 36^s.13 - 47^\circ 32' 37''.4$

(b) $11^h 4^m 28^s.97 - 47^\circ 51' 48''.2$
$3\ 4.62 \quad 19\ 39.6$
$11^h 7^m 33^s.59 - 47^\circ 32' 8''.6$

(d) $11^h 7^m 49^s.77 - 47^\circ 8' 31''.1$.
$35.08 \quad 20\ 45.8$
$11^h 7^m 14^s.69 - 47^\circ 29' 16''.9$

(e) $11^h 9^m 50^s.81 - 47^\circ 34' 39''.9$
$2\ 24.05 \quad 6\ \cancel{5}41.0$
$11^h 7^m 26^s.76 - 47^\circ 27' \cancel{4}58''.9$.

Mean Position of Nova? $11^h 7^m 27^s.79 - 47^\circ 30'$ ~~28.0~~ 30.4 (1875)

Mean Dec. = $-47^\circ 54' 28.5''$ = Log. 0.17372
1.07700
1.25072

B1900~~2~~ 4

	x	y
a	-8.65	-14.32
b	-7.70	-12.62
Nova?	+2.85	- 5.30

Z.C. 11^h	1875.		
298	$11^h\ 3^m\ 56.96^s$	$-47^\circ 57' 8.8''$	$8\frac{1}{2}$
326	11 4 28.97	-47 51 48.2	9

Diff. x.

	-11.50	-10.55
Log.	1.06070	1.02325
	1.25072	1.25072
	2.31142	2.27397
No. Log.	204.84^s	187.92^s
	$3^m\ 24.84^s$	$3^m\ 7.92^s$

Diff. y.	-9.02	-7.32
× 179	$1614.58''$	$1310.28''$
	$26' 54.58''$	$21' 50.28''$

(a) $11^h\ 3^m\ 56.96^s\ -47^\circ 57' 8.8''$
3 24.84 26 54.6
$11^h\ 7^m\ 21.80^s\ -47^\circ 30' 14.2''$

(b) $11^h\ 4^m\ 28.97^s\ -47^\circ 51' 48.2''$
3 7.92 21 50.3
$11^h\ 7\ 36.89^s\ -47^\circ 29' 57.9''$

Mean Position of Nova? $11^h\ 7^m\ 29.34^s\ -47^\circ 30' 6.0''$ (1875)

Positions charted. m.c.S.
See Chart No. 28 b

September ~~29~~ 30, 1897. Var. No. 78

Meas. to determine position of new var. star in Centaurus ℔. Type IV? Pec. Two br. lines like ζ Puppis. No: 9122 on B 15613. Mean Dec. = −55° 53′ 22.0 = Log. 0.25121. 1.07700 / 1.32821

A meas. of this star has already been made on p. 175.

Plate B 16268

	x	y	x	y	Z. 13h	R.A. 1875 h	m	s	Dec. °	′	″	Magn. mag.	Diff. x	Diff. y	× 1.791	× 1.79
a	3.78 +3.75	+11.85	+3.80	+11.85	1808	13	30	6.27	−55	34	59.8	8				
b	+3.20	+3.65	+3.20	+3.65	1795	13	29	53.18	−55	59	26.5	8				
c	+4.80	+1.65	+4.80	+1.65	1835	13	30	28.65	−56	5	34.6	8				
d	+9.60	+5.68 +5.65	+9.60	+5.70	1936	13	~~30~~ 32	~~28.97~~ 11.76	−55	53	27.0	9½				
e	9.12 +9.10	+6.30	+9.15	+6.30	—								+1.53	+5.10	273.87	912.90
f	+1.30	6.08 +6.10	+1.30	+6.05	—								+0.95	−3.10	170.05	554.90
g	+3.75	+7.55	+3.75	+7.55	—								+2.55 +7.35	−5.10 −1.07	456.45 1315.65	912.90 191.53
h	+3.25	+5.80	+3.25	+5.80	—								+6.87 −0.95	−0.45 −0.67	1229.73 170.05	80.55 119.93
k	2.58 +2.55	+5.50	+2.60	+5.50	—								+1.50	+0.80	268.50	143.20
l	+1.95	+5.60	+1.95	+5.60	—								+1.00 +0.33	−0.95 −1.25	179.00 59.07	170.05 223.75
m	+1.80	+6.00	+1.80	+6.00	—								−0.30	−1.15	53.70	205.85
n	2.32 +2.30	+7.80	+2.35	+7.80	—								−0.45	−0.75	80.55	134.25
var.	+2.25	+6.75	+2.25	+6.75	—								+0.07	+1.05	12.53	187.95

Diff. x.	+1.53	+0.95	+2.55	+7.35
Log. "	0.18469 1.32821 1.51290	9.97772 1.32821 11.30593	0.40654 1.32821 1.73475	0.86629 1.32821 2.19450
No. of Log.	32.58	20.23	54.29	156.50 2 36.50

Diff. y.	+5.10	−3.10	−5.10	−1.07
× 179	912.90″	554.90″	912.90″	191.53″
	15′ 12.90″	9′ 14.90″	15′ 12.90″	3′ 11.53″

(a)	(b)	(c)	(d)
13h 30m 6.27s −55° 34′ 59.8″	13h 29m 53.18s −55° 59′ 26.5″	13h 30m 28.65s −56° 5′ 34.6″	13h 32m 11.76s −55° 53′ 27.0″
32.58 15 12.9	20.23 9 14.9	54.29 15 12.9	2 36.50 3 11.5
13h 29m 33.69s −55° 50′ 12.7″	13h 29m 32.95s −55° 50′ 11.6″	13h 29m 34.36s −55° 50′ 21.7″	13h 29m 35.26s −55° 50′ 15.5″

Mean Position of var. 13h 29m 34.06s −55° 50′ 15.4″ (1875)
Curve 13 29 34.2 −55 50 16 (1875 Sep. 175

Positions charted n. C. S.
See Chart No. 28 b

September 30, 1897,

Meas. to determine pos. of new var. star in Pavonis
R.A. 17° 38m Dec. −62°

Mean Dec. = −62° 19′ 48.″0 = Log. 0.33313
1.07700
1.41013

Plate B 17079

Diff x	Diff y		x	y	x	y	G.C. 17h	R.A. 1875 Dec.	Magn.
		5	+7.80	20.78 +20.75	+7.80	+20.80	A.G.C. 24106	17h 38m 50s.28 −61° 52′ 44.″6	7.1 mag.
+0.22	+9.58	a	+6.95	+5.70	+6.95	+5.70	2623	17 38 26.96 −62 37 57.1	8
−0.63	−5.50	b	+10.10	+6.60	+10.10	+6.60	A.G.C. 24126 2698	17 39 48.08 −62 35 29.5	8
+2.52	−4.60	c	3.18 +3.20	0.62 +0.65	+3.15	+0.60			
−4.40	−10.58	d	9.72 +9.70	+10.75	+9.75	+10.75	2685	17 39 38.42 −62 22 47.2	8¾
+2.14	−0.45								
−3.38	+3.88	e	+4.20	15.08 +15.10	+4.20	+15.05	2539	17 37 15.~~12~~ 15 −62 10 1.4	9
−3.78	−5.12	f	+3.80	6.08 +6.10	+3.80	+~~5~~ 6.05	—		
−3.26	+1.60	g	4.32 +4.35	+12.80	+4.30	+12.80	—		
+0.24	−1.98	h	7.82 +7.85	9.22 +9.20	+7.80	+9.25	—		
−1.10	−0.82	k	6.48 +6.50	10.38 +10.35	+6.45	+10.40	—		
−1.43	−0.38	l	+6.15	10.82 +10.85	+6.15	+10.80	—		
−0.78	−0.45	m	+6.80	+10.75	+6.80	+10.75	—		
−0.78	−0.05	n ~~var~~	+6.80	+11.15	+6.80	+11.15	—		
−0.28	+0.35	o	+7.30	+11.55	+7.30	+11.55			
		var	7.58 +7.60	+11.20	+7.55	+11.20			

x 1.79	x 1.79
x 39.38	y 17 140.82
112.77	984.50
451.08	823.40
787.60	1893.82
383.06	80.55
605.02	694.52
676.62	916.48
583.54	286.40
42.96	
196.90	354.42
255.97	146.78
139.62	68.02
139.62	80.55
50.12	8.95
	62.65

Diff x	+0.22	−0.63	+2.~~4~~ 52	+2.14	−3.38
Log. " "	9.34242	9.79934	0.~~38382~~ 40140	0.33041	0.52892
	11.41013	1.41013	1.41013	1.41013	1.41013
	10.75255	11.20947	~~1.79395~~ 1.81153	1.74054	1.93905
	5s.66	16s.20	62.22 1m ~~2.22~~ 64.79 1 14.79	55s.02	86s.91 1m 26.91

Diff y x 179	+9.58	−5.50	−4.60	−0.45	+3.88
	1714.″82	984.″50	823.″40	80.″55	694.″52
	28′ 34.″82	16′ 24.″50	13′ 43.″40	1′ 20.″55	11′ 34.″52

(5)	(a)	(b)	(d)	(e)
17h 38m 50s.28 −61° 52′ 44.″6	17h 38 26.96 −62° 37 57.1	17h 39 48s.08 −62° 35 29.″5	17h 39m 38s.42 −62° 22′ 47.″2	17h 37m 15.15 −62° 10′ 1.″4
5.66 28 34.8	16.20 16 24.5	1 2.22 13 43.4	55.02 1 20.6	1 26.91 11 34.5
17h 38m 44s.62 −62° 21′ 19.″4	17h 38m 43s.16 −62° 21′ 32.″6	17h 38m 45s.~~86~~ 87 −62° 21′ 46.″1	17h 38m 43s.40 −62° 21 26.6	17h 38m 42s.06 −62° 21′ 35.″9

38 33.29

Mean Position of var. 17h 38m 43.~~82~~ 31 −62° 21′ 32.″1 (1875)
Curve. 17 38 44.0 − 62 21 32 See p. 181

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Positions charted.
M. C. S.
See Chart no. 28 b.

For identif. of 7 see Jou. vi. 183, where one [illegible] var. has already been made. W.F.

September 30, 1897.

Meas. to determine position of ^comparison stars of new var. in Phoenix — Marked by Dr L. Stewart as bright line (hydrogen?) Classified as Md and found to be variable by M. Fleming.

Mean Dec. = −47° 5′ 46″6 = Log. 0.16700
1.07700
1.24400

Plate B 5706

	x	y	x	y
6	+8.25	+20.80	+8.25	+20.80
7	8.98 +9.00	+1.95	+8.95	+1.95
a	3.08 +3.05	5.28 +5.30	+3.10	+5.25
b	+3.30	+15.10	+3.30	+15.10
c	+8.60	13.28 +13.25	+8.60	+13.30
d	+4.35	+10.70	+4.35	+10.70
e	6.98 +7.00	11.28 +11.25	+6.95	+11.30
f	1.38 +1.35	+12.90	+1.40	+12.90
g	+10.45	+8.30	+10.45	+8.30
h	4.22 +4.20	9.58 +9.55	+4.25	+9.60
k	4.22 +4.20	8.18 +8.15	+4.25	+8.20
l	4.28 +4.25	8.52 +8.50	+4.30	+8.55
m	4.58 +4.55	11.12 +11.15	+4.60	+11.10
var.	+4.75	+10.70	+4.75	+10.70

Cord.	h	R. A. 1875		Dec.			Magn.
[illegible]	0	25	20.38	−46	35	32.2	7¾
669	0	25	20.22	−46	35	30.7	7½
676	0	25	41.13	−47	31	59.0	9½
637	0	23	55.22	−47	22	25.8	9
638	0	23	55.84	−46	53	9.6	9

x × 1.79	y × 1.79
626.50	1807.90
757.17	1566.25
298.93	970.18
259.55	787.60
689.15	461.82
71.60	00.00
399.17	103.82 ✓
603.23	393.80
1020.30	429.60
94.87	200.48
94.87	451.08
84.13	390.22
30.43	75.18

Diff. x	+3.50	+4.23	−1.67	−1.45
Log. ″	0.54407	0.62634	0.22272	0.16137
	1.24400	1.24400	1.24400	1.24400
	1.78807	1.87034	1.46672	1.40537
	61.39s	74.19s	29.29s	25.43s

Diff. y	+10.10	−8.75	−5.42	+4.40
× 1.79	1807″.90	1566″.25	970″.18	787″.60
	30′ 7″.90	26′ 6.25	16′ 10″.18	13′ 7″.60

(6) 0h 25m 20s.38 −46° 35′ 32″.2
1 1.39 30 7.9
0h 24m 18s.99 −47° 5′ 40″.1

(7) 0h 25m 41s.13 −47° 31′ 59″.0
1.14.19 26 6.2
0h 24m 26s.94 −47° 5′ 52″.8

(a) 0h 23m 55s.22 −47° 22′ 25″.8
29.29 16 10.2
0h 24m 24s.51 −47° 6′ 15″.6

(b) 0h 23m 55s.84 −46° 53′ 9″.6
25.43 13 7.6
0h 24m 21s.27 −47° 6′ 17″.2

Mean Position of var. 0h 24m 22s.93 −47° 6′ 1″.4 (1875)
Corr. 0 24 22.18 −47 6 8 Sup. 183

Identified later as CPDM −47° 131 0h 24m 22s.6 −47° 6′.1 (1875)

December 31, 1897.

Meas. to check identification of Cord. Z. 5h 243

34.0 ~~34.0~~ 40.6 6.6 34.0 3 437
37.0 43.6 6.6 37.0 d 3.0 158 159 4h 33.4s
42.6 49.1 6.5 42.6 ~~5~~
43.8 50.4 6.6 43.8 1.2 6 8.1 6 29.3
45.3 51.9 6.6 45.3 1.5 6 40.6

A graphical construction gives as the ~~[illegible]~~ R.A. of
5h 243 6m 59s

~~x1.79~~ 4
~~626.5~~ 0
~~757.17~~

x	y
+3.50	+10.10
+4.23	- 8.75
-1.67	-5.42
-1.45	+4.40
+3.85	+2.58
-0.40	0.00
+2.23	+0.56
-3.37	+2.20
+5.70	- 2.40
-0.53	- 1.12
-0.53	- 2.52
-0.47	- 2.18
-0.17	+0.42

Positions charted.
Jan. 21, 1898. M.C.S.
See chart No. 29 b.

Var. No. 119.

January 20, 1898.

Meas. to determine position of new var. in Ara
Sp. Md on B 19961 No. 10738 Apprt. pos. 17h 44.0m -51° 39' (1875)

Mean Dec. = 51° 54' 20.0" = Log. 0.20974
1.07700
1.28674

Plate B 13576

		x	y	x	y
-4.07 -0.60	a	-1,55	5.62 +5,60	-1.55	+5,65
-2.60 -15.92	b	-0.08 -0.10	-9.70	-0.05	-9.70
-0.32 -1.12	c	+2.20	+5.10	+2.20	+5.10
-9.07 -7.24	d	-6.55	-1.02 -1.05	-6.55	-1.00
+6.90 -7.12	e	9.42 +9.40	-0.90	+9.45	-0.90
+3.73 +3.40	f	+6.25	9.62 +9.60	+6.25	+9.65
+0.03 +2.78	g	+2.55	+9.00	+2.55	+9.00
-1.04 -2.10	h	1.48 +1.50	4.12 +4.15	+1.45	+4.10
-2.77 -2.50	k	-0.25	3.72 +3.75	-0.25	+3.70
-1.54 -1.64	l	0.98 +1.00	4.58 +4.55	+0.95	+4.60
+2.10 +1.28	m	4.62 +4.65	+7.50	+4.60	+7.50
-0.32 -0.42	n	+2.20	+5.80	+2.20	+5.80
-0.62 +0.33	* o	+1.90	+6.55	+1.90	+6.55
∓0.17 +0.60	~~p~~ o	+2.35	6.82 +6.80	+2.35	+6.85
+0.03 -0.20	~~q~~ p	+2.55	6.02 +6.05	2.55	+6.00
	var.	2.52 +2.50	6.22 +6.20	+2.55	+6.25

	R.A. 1875 h m s	Dec. ° ' "	Mag.
a G.C. 24205	17 42 22.80	-51 40 34.9	7½
Z.C. 17h 2880	17 42 40.15	-52 26 32.8	8½
Z.C. 17h 3103	17 45 52.28	-52 0 54.0	9
Z.C. 17 3041	17 44 55.20	-51 29 18.4	9

	×1.79	×1.79
a	728.53	107.40
b	465.40	2849.68
c	57.28	200.48
d	1623.53	1295.96
e	1235.10	1274.48
f	667.67	608.60
g	5.37	497.62
h	186.16	375.90
k	495.83	447.50
l	275.66	293.56
m	375.90	229.12
n	57.28	75.18
o	110.98	59.07
p	30.43	107.40
q	5.37	35.80

* See note on next page — this star is prismatic comp. of c.

Diff x.	-~~3.77~~ 4.0	-2.60	+6.90	+3.73
Log. "	~~0.57634~~ 60~~2~~59	0.41497	0.83885	0.57171
	1.28674	1.28674	1.28674	1.28674
	~~1.86308~~ 1.89633	1.70171	2.12559	1.85845
No. Log. "	~~72.96~~ 78.76	50.32	133.53	72.18
	1m ~~12.96~~ 18.76s		2m 13.53s	1m 12.18s

Diff y.	-0.60	-15.92	-7.12	+3.40
×179	107.40"	2849.68"	1274.48"	608.60"
	1' 47.40"	47' ~~26.72~~ 29.68"	21' 14.48"	10' 8.60"

(a) 17h 42m 22.80s -51° 40' 34.9"
1 ~~12.96~~ 18.76 1 47.4
17h 43m ~~35.76~~ 41.56s -51° 38' 47.5"

(b) 17h 42m 40.15s -52° 26' 32.8"
50.32 47 ~~26.7~~ 29.7
17h 43m 30.47s -51° 39' ~~6.1~~ 3.1"

(e) 17h 45m 52.28s -52° 0' 54.0"
2 13.53 21 14.5
17h 43m 38.75s -51° 39' 39.5"

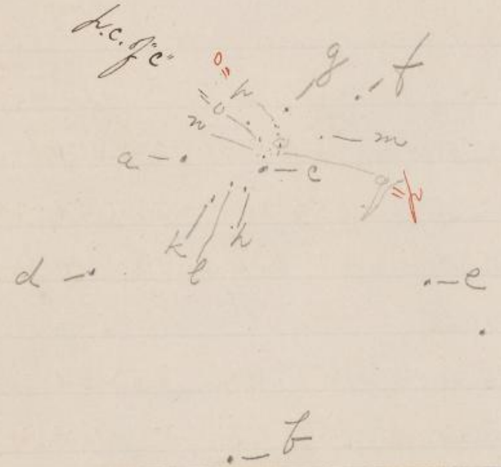
(f) 17h 44m 55.20s -51° 29' 18.4"
1 12.18 10 8.6
17h 43m 43.02s -51° 39' 27.0"

Jan, 20, 1898.

Chart of region of new var in Ara.

17h 44m.0 − 57° 39′

For Meas. of brightness see Book 10 p. 182.



Mean Dec. = 52° 2′ 40″.6 =
Log. = 0.21109
1.07700
1.28809

Diff. x.	−7.80	−6.33	+3.17
Log. "	0.89209	0.80140	0.50106
	1.28809	1.28809	1.28809
	2.18018	2.08949	1.78915
	151s.42	122.88	61.54
	2m 31s.42	2m 2s.88	1m 1.54

Diff. y.	−4.00	−19.32	−10.52
×179	716″.00	3458″.28	1883″.08
	11′ 56″.00	57′ 38″.28	31′ 23″.08

(a) 17h 42m 22s.80 − 51° 40′ 34″.9
2 31.42 11 56.0
17h 44m 54s.22 − 51° 28′ 38″.9

(b) 17h 42m 40s.15 − 52° 26′ 32″.8
2 2.88 57 38.3
17h 44m 43s.03 − 51° 28′ 54.5

(c) 17h 45m 52s.28 − 52° 0′ 54″.0
1 1.54 31 23.1
17h 44m 50s.74 − 51° 29′ 30″.9

Mean Position of 'f' 17h 44m 49s.33 − 51° 29′ 1″.4 (1875)

	h	m	s	°	′	″
a.	17	43	~~35.76~~ 41.56	−51	38	47.5
b	17	43	30.47	−51	39	3.1
l	17	43	38.75	−51	39	39.5
f.	17	43	43.02	−51	39	27.0
f	17	43	~~37.00~~ 38.405	−51	39	14.3
	17	43	~~40~~ 41.8	−51	39	~~17~~ 15

(Mean Position for 1875)

curve Adopt

17h 45m.6 − 51° 40′ (Computed Mean Position for 1900)

17 45.7 − 51 40 (Curve Position for 1900) Adopt

Position Charted.
January, 21, 1898. M.C.S.
See Chart No. 30 b.

January 21, 1898.

Meas. to determine position of new var. star in Cp.: Md on B I 16947 No. 4474. R.A. $23^h 55^m.9$ Dec. + 54°.8 (1855).

mean Dec. = 54° 46.~~8~~'6 = =
Log ~~0.23894~~ 0.23900
1.03623 1.03623
~~1.27517~~ 1.27523 ✓

Plate I 9379

	x	y	x	y	DM. No.	R.A. 1855	Dec.	Magn.
a	+2.20	+5.80	+2.20	+5.80	+54° 3101	$23^h 55^m 12^s.6$	+54° 46'.9	8.3
b	+1.40	2.38 +2.40	+1.40	+2.35	+54 3098	23 54 55.2	+54 36.7	9.1
c	+7.10	+9.30	+7.10	+9.30	+54 3105	23 56 41.8	+54 54.0	9.5
d	+5.25	+11.35	+5.25	+11.35				
e	5.98 +5.95	5.22 +5.25	+6.00	+5.20	~~+54 3103~~	~~23 56 1.9~~	~~+54 44.9~~	~~7.9~~
f	+1.75	+7.20	+1.75	+7.20	+54 3099	23 55 3.2	+54 48.8	9.5
g	+4.50	+8.60	+4.50	+8.60				
h	7.42 +7.40	+7.55	+7.45	+7.55				
k	+5.20	8.98 +8.95	+5.20	+9.00				
l	4.58 +4.55	+9.15	+4.60	+9.15				
m	+4.60	+8.35	+4.60	+8.35				
n	+4.00	+8.65	+4.00	+8.65				
o	4.58 +4.55	+9.55	+4.60	+9.55				
var	+4.45	8.28 +8.30	+4.45	+8.25				

				omit	
Diff. x	−2.25	−3.05	+2.65	+1.53	−2.70
Log. "	0.35218	0.48430	0.42325	0.18469	0.43136
	1.275~~17~~23	1.275~~17~~23	1.275~~17~~23	1.27517	1.275~~17~~23
	1.627~~35~~41	1.759~~47~~53	1.6984~~2~~8	1.45986	1.7065~~3~~9
No. Log.	$42^s.40$	57.4~~7~~8	$49^s.94$	$28^s.83$	$50^s.88$

				omit	
Diff. y	−2.48	−5.90	+1.02	−3.06	−1.08
X 163	404".24	961".70	166".26	498".78	176".04
	6' 44.24	16' 1.70	2' 46.26	8' 18".78	2' 56.04

(a) $23^h 55^m 12^s.6 + 54° 46'.9$
42.4 6.7
$23^h 55^m 55^s.0 + 54° 53'.6$

(b) $23^h 54 55^s.2 + 54° 36'.7$
57.5 16.0
$23^h 55^m 52^s.7 + 54° 52'.7$

(c) $23^h 56^m 41^s.8 + 54° 54'.0$
49.9 2.8
$23^h 55 51^s.9 + 54° 51'.2$

omit.
(e) $23^h 56^m 1^s.9 + 54° 44'.9$
28.8 8.3
$23^h 55^m 33^s.1 + 54° 53'.2$

Mean Position of Var. $23^h 55^m$ ~~49.4~~ $53^s.4$ + 54° 52'.~~5~~3 (1855) adopt.

Curve 23 55 53.5 + 54 52'.~~6~~4 (1855)

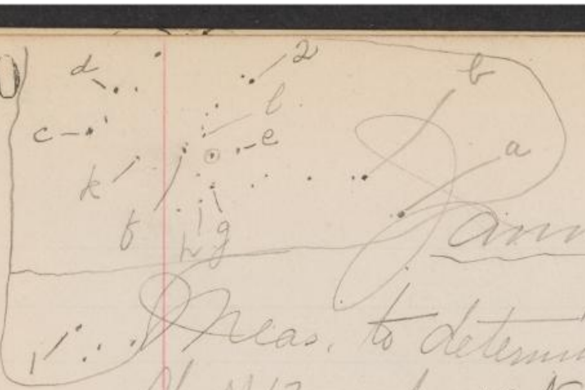
23 58.2 + 55 7 (1900)

	x	y	× 1.79 x	× 1.79 y	× 1.63 x	× 1.63 y
a	−2.25	−2.48	~~402.75~~	~~443.92~~	366.75	404.24
b	−3.05	− 5.90	~~545.95~~	~~1056.10~~	497.15	961.70
c	+2.65	+ 1.02	~~474.35~~	~~182.58~~	431.95	166.26
d	+0.80	+ 3.07	~~143.20~~	~~549.53~~	130.40	500.41
e	+1.53	− 3.06	~~273.87~~	~~547.74~~	249.39	498.78
f	−2.70	− 1.08	~~483.30~~	~~193.32~~	440.10	176.04
g	+0.05	+ 0.32	~~8.95~~	~~57.28~~	8.15	52.16
h	+2.97	− 0.73	~~531.63~~	~~130.67~~	484.11	118.99
k	+0.75	+ 0.70	~~134.25~~	~~125.30~~	122.25	114.10
l	+0.13	+ 0.87	~~23.27~~	~~155.73~~	21.19	141.81
m	+0.15	+ 0.07	~~26.85~~	~~12.53~~	24.45	11.41
n	−0.45	+ 0.37	~~80.55~~	~~66.23~~	73.35	60.31
o	+0.13	+ 1.27	~~23.27~~	~~227.33~~	21.19	207.01

(f) $23^{h}\ 55^{m}\ 3^{s}.2 + 54^{\circ}\ 48'.8$

$50.9 \qquad 2.9$

$23^{h}\ 55^{m}\ 54^{s}.1 + 54^{\circ}\ 51'.7$



Var. No. 76

Positions charted: See chart. No. 31 b

January 24, 1898.

Meas. to determine position of new var. star in pp Md? on A 2218 No. . R.A. 13 ~~17.3~~ 13.5 − 60°.9 (1875)

var. about 0.6 magn

Plate B35243

Mean Dec. = −61° 0′ 40″.6 = Log. 0.31459
1.07706
1.39159

			x	y	x	y
−4.02	−8.10	1	1.78 +1.~~80~~	+1.25	+1.75	+1.25
+1.28	+3.70	2	7.08 +7.10	+13.05	+7.05	+13.05
+9.20	−2.35	a	+15.00	+7.00	+15.00	+7.00
+6.48	−0.77	b	12.28 +12.30	8.58 +8.60	+12.25	+8.55
−4.12	+1.05	c	1.68 +1.70	+10.40	+1.65	+10.40
−3.60	+3.00	d	+2.20	+12.35	+2.20	+12.35
+1.02	+0.15	e	6.82 +6.85	+9.50	+6.80	+9.50
−1.20	0.00	f	+4.60	+9.35	+4.60	+9.35
−0.05	−1.03	g	+5.75	8.32 +8.35	+5.75	+8.30
−0.38	−1.63	h	5.42 +5.40	7.72 +7.75	+5.45	+7.70
−2.30	−0.10	k	+3.50	+9.25	+3.50	+9.25
−0.45	+ 0.87 ~~−8.10~~	l	+5.35 ~~+5.65~~	10.22 +10.25 ~~+9.20~~	+5.35	+10.20
..	..	var.	+5.80	+9.35	+5.80	+9.35

Cat.	R.A. 1875 h	m	s	Dec. °	′	″	magn.
a. G.C. 18109	13	11	46.12	−61	18	38.0	8¼ use a.G.C. star
Z.C. 13h 725	13	11	46.29	−61	18	35.4	8.25
Z.C. 13h 851	13	14	5.52	−60	43	59.0	9
Z.C. 13h 1044	13	17	16.95	−61	2	33.5	9
Z.C. 13h 968	13	16	9.62	−60	57	31.7	9½

	x × 1.79	y × 1.79
1	719.58	1449.90
2	229.12	662.30
a	1646.80	420.65
b	1159.92	137.83
c	737.48	187.95
d	644.40	537.00
e	182.58	26.85
f	214.80	0.00
g	8.95	184.37
h	68.02	291.77
k	411.70	17.90
l	80.55	155.73

Diff. x.	−4.02	+1.28	+9.20	+6.48
Log.	0.60423	0.10721	0.96379	0.81158
	1.39159	1.39159	1.39159	1.39159
	1.99582	1.49880	2.35538	2.20317
No. of Log.	99.04 s	31.54 s	226.66	159.65
	1m 39.04		3m 46.66	2m 39.65

Diff. y.	−8.10	+3.70	−2.35	−0.77
× 1.79	1449.90″	662.30″	420.65″	137.83″
	24′ 9″.90	11′ 2″.30	7′ 0.65	2′ 17″.83

	h	m	s	°	′	″
(1)	13	11	46.12	−61	18	38.0
		1	39.04		24	9.9
	13	13	25.16	−60	54	28.1
(2)	13	14	5.52	−60	43	59.0
			31.54		11	2.3
	13	13	33.98	−60	55	1.3
(a)	13	17	16.95	−61	2	33.5
		3	46.66		7	0.6
	13	13	30.29	−60	55	32.9
(b)	13	16	9.62	−60	57	31.7
		2	39.65		2	17.8
	13	13	29.97	−60	55	13.9

Mean Position 13h 13m 29s.85 − 60° 55′ 4″.0 (1875)

Curve 13. 13. 31.2 − 60 54 52 (1875) Adopt.
13 15m.1 − 61° 3′ (1900)

checked by M.A.G. May 5. 1903

May. 1903.

After Computation was made, this star was found to be a Cat. ~~Star~~.

= Cat. Star. C.P.D. -60° 4611. $13^h\ 13^m\ 32^s.5$ $-60^\circ\ 54'.9$ (1875)

February 25, 1898

Meas. of position of Z.C. 5^h 243.

Plate B 17832

~~5^h 24~~

	x	y
5^h 243	+1,35 ~~-0,2~~	+4,20
1	-0,25	+4,00
2	-1,45	+3,65
3	[+0,75] assumed [+1,75]	+2,70
4	+4,00	+2,20
5	+2,15	+9,55
6	+1,50	+9,70
7	-25,85	+4,00
5^h 243	+1,30	+4,20

Plate B 4393

	5^h 243	+3,45	+0,40
	1	+2,20 ~~0,00~~	0,00 ~~+2,20~~ assumed
	2	+0,90	-0,30
very ft	3(?)	+3,10	-1,25
	4	+6,30	-1,80
	5	+4,50	+5,55
	6	+3,90	+5,70
	7	-23,50	0,00
	5^h 243	+3,40	+0,40

February 25 1898.

Meas. of position of J.C. $5^h 243$.

Plate B 20179

		x	y
	$5^h 243$	+2,50	+7,~~12~~ 15
	1	+1.00	+7,00
	2	-0.30	+6,65
very ft.	3(?)	+2,00	+5,70
	4	+5,20	+5,20
	5	+3,30	+12,55
	6	+2,75	+12,70
	7	∓24,70	+7,00
	$5^h 243$	+2,55	+7,20

Plate B 5803 Images very much elongated.

$5^h 243$	+4.30	+3.35
1	+3.00	+3,00
2	+1,75	+2,70
3	+4,00	+1.75
4	+7,20	+1,20
5	+5,35	+8,55
6	±4,75	+8,70
7	+22,70	+3.00
$5^h 243$	+4.25	+3.35

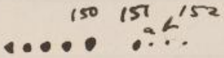
February 26, 1898.

Meas. of pos. of images of 26 Arietis

C 11008

	x	y
151	-2,95	+0,50
151a	-3,15	+0.52
151b	-3,55	+0,47
152?	-3.80	+0,50
101	+32,00	+0,50
101a	+ ~~31.45~~ 31.75	+0,52
111	+24,95	+0,45
111a	+24.75	+0.47
121	+17,70	+0,50
121a	+17,55	+0,52
131	+11.70	+0,48
131a	+1~~1~~0,35	+0,50
141	+4,15	+0.48
141a	+3,70	+0,50
151	-2,90	+0,50
151a	-3.20	+0.52
151b	-3.55	+0,48
152?	-3.80	+0.50
142	+3.50	+0.50
132	+10,20	+0,50
122	+17,20	+0 50
112	+24 40	+0,52
102	+31,45	+0.52

	0-2	1 2
151	20	60. 85
101	25	55
111	20	55
121	15	50
131	35	50
141	45	65
151	30	65 90



151a ⊙

If a and b are defects.
time of exposure was 151.00 to 151.99
If a is ~~[illegible]~~ real and b is a defect
end of exposure is 152.00
If a and b are real end of ex is 152.01

These images examined with a microscope appear to be defects. M.F. Feb. 26, 1898.

February 28, 1898.
Meas. of stars in Pleiades to determine diff. in scale bet. br. and faint images taken with var. star apparatus.

C 10868

A 41	6.4	6.38	
51	6.3		
61	6.3		
71	6.3		
B 41	6.7	6.68	
51	6.7		
61	6.7		
71	6.6		
C 41	7.0	6.95	
51	7.0		
61	6.9		
71	6.9		
a 41	9.4	9.35	2.97
51	9.4		
61	9.3		
71	9.3		
b 41	9.8	9.78	3.10
51	9.8		
61	9.8		
71	9.7		
c 41	10.2	10.20	3.25
51	10.2		
61	10.2		
71	10.2		

Mean 3.11

March 1, 1898.
Meas of br. images of 26 Arietis.
C 11008

No.	10.45	11.22
151	8.8	8.9
150	8.9	8.9
149	8.8	8.9
148	8.9	8.9
147	8.8	9.0
146	8.9	8.9
145	8.8	8.9
144	8.8	8.9
143	8.8	8.9
142	8.8	8.9
141	8.9	9.0
131	8.9	9.0
121	8.9	9.0
111	8.9	8.9
101	8.6	8.7
151	8.8	8.9
	10.48	11.25

147	8.90	+.03
148	8.90	+.03
149	8.85	-.02
150	8.90	+.03
151	8.85	-.02

8.83 8.91
8.87

Images measured out of order and plate turned 180° before second measures were made.

1.2 8.8
12.44 17.5 18.5 .054

For continuation. See Mrs Fleming's Book. No. 12

Date 1896.	Objects.	Page
March 5	Meas. to determine pos. of Comp. Stars for C.D.M. $-33^{\circ}\,2251$	158
June 1	" " " " " Var. in Centaurus. $11^{h}\,15.0^{m}\,-61^{\circ}\,11'$ (1875)	159
" 1	" " " " " " " Horologium $2^{h}\,21.7^{m}\,-60^{\circ}\,8'$ (1875)	160
" 10	" " " " " Comp. Stars. for A.G.C. 31427.	161
" 10	" " " " " " " " A.G.C. 13420	162
" 10	" " " " " " " " B.D. $+5^{\circ}\,1797$	163
" 10	" " " " " Var. $18^{h}\,34.3^{m}\,-37^{\circ}\,55'$ (1900)	164
" 11	" " " " " Comp. Stars for C.D.M. $-33^{\circ}\,13234$.	165
" 11	" " " " " " " " C.D.M. $-35^{\circ}\,11829$.	166
June 11	" " " " " $^{h}\ ^{m}\ ^{\circ}\ '$ (18[illegible]5)	167
" 12	" " " " " V Type Star $18^{h}\,15.0^{m}\,-13^{\circ}\,47'$ (1855)	168
" 13	" " " " " V " " $18^{h}\,19.6^{m}\,-16^{\circ}\,54'$ (1855)	169
" 13	" " " " " " " " $17^{h}\,55.8^{m}\,-44^{\circ}\,31'$ (1875)	170
" 15	" " " " " Susp. Var. $23^{h}\ -4^{\circ}.5$ (1875)	171
" 15	" " " " " Pec. Star. $7^{h}\,38.4^{m}\,-70^{\circ}\,4'$ (1875)	172
" 16	" " " " " Gas. Neb. $20^{h}\,13.5^{m}\,+16^{\circ}\,17'$ (1855)	173
July 2.	" " " " " IV Type Star. $17^{h}\,11.6^{m}\,-45^{\circ}\,52'$ (1900)	174
Aug. 3.	" " " " " Pec. Star $13^{h}\,31.1^{m}\,-55^{\circ}\,58'$ (1900.)	175
" 3		176
" 4	" " " " " Cat. Stars near Messier 5	177
October 20	" " " " " Var in Crux. $12^{h}\,26.9^{m}\,-57^{\circ}\,1'$ (1900)	178-179
1897. March 12	" " " " " Var. in Pavo $17^{h}\,38.8^{m}\,-62^{\circ}\,22'$ (1875)	180-181
" 20	" " " " " IV Type Star $16^{h}\,21.0^{m}\,-43^{\circ}\,26'$ (1900)	182
" 22	" " " " " Var. & Pec. Star. $0^{h}\,25.6^{m}\,-46^{\circ}\,58'$ (1900)	183
" 22	" " " " " " $20^{h}\,8.6^{m}\,-44^{\circ}\,43'$ (1900)	184
" 23	" " " " " New Gas. Neb. $5^{h}\,35.2^{m}\,-69^{\circ}\,52'$ (1900)	185
May 18	" " " " " Var. Star. No. 58 in Messier 5 (Reject)	186
July 26	" of A 2207 to determine pos. of {stars having peculiar spectra on A 2210 & 2211	187
" 26	" to determine pos. of objects {having peculiar spectra on A 2210 & A 2211	188
" 26	" " " " " " " " " "	189

Date	Object	Page
July, 26, 1897	Meas. to determine position of objects having peculiar spectra on A 2210 & A 2211	190 - 194
Sept. 7. "	Meas. of bright lines in Gas. Neb. Dryer 418	195
" 11, "	Meas. to determine position of new star (No 2) in Centaurus RA $11^h\ 9^m\ -47^\circ 7$	196 - 201
" 30, "	Meas. to determine position of new var. star in Centaurus	202
" " "	Meas. to determine position of new var. star in Pavonis	203
" " "	Meas. to determine position of comp. stars of new var. in Phoenix	204
Dec. 31, "	Meas. to check identification of Cord.	205
Jan. 20, 98	Meas. to determine position of new var. in Ara	206
" " "	Chart of region of new var. in Ara	207
" 21, "	Meas. to determine position of new var. in Sp. Md. on I 16947 No 4474	208
" 24, "	Meas. to determine position of new var. star in Sp. Md? on A 2218	210
Feb. 25, "	Meas of position of J.C. 5^h 243	212 - 213
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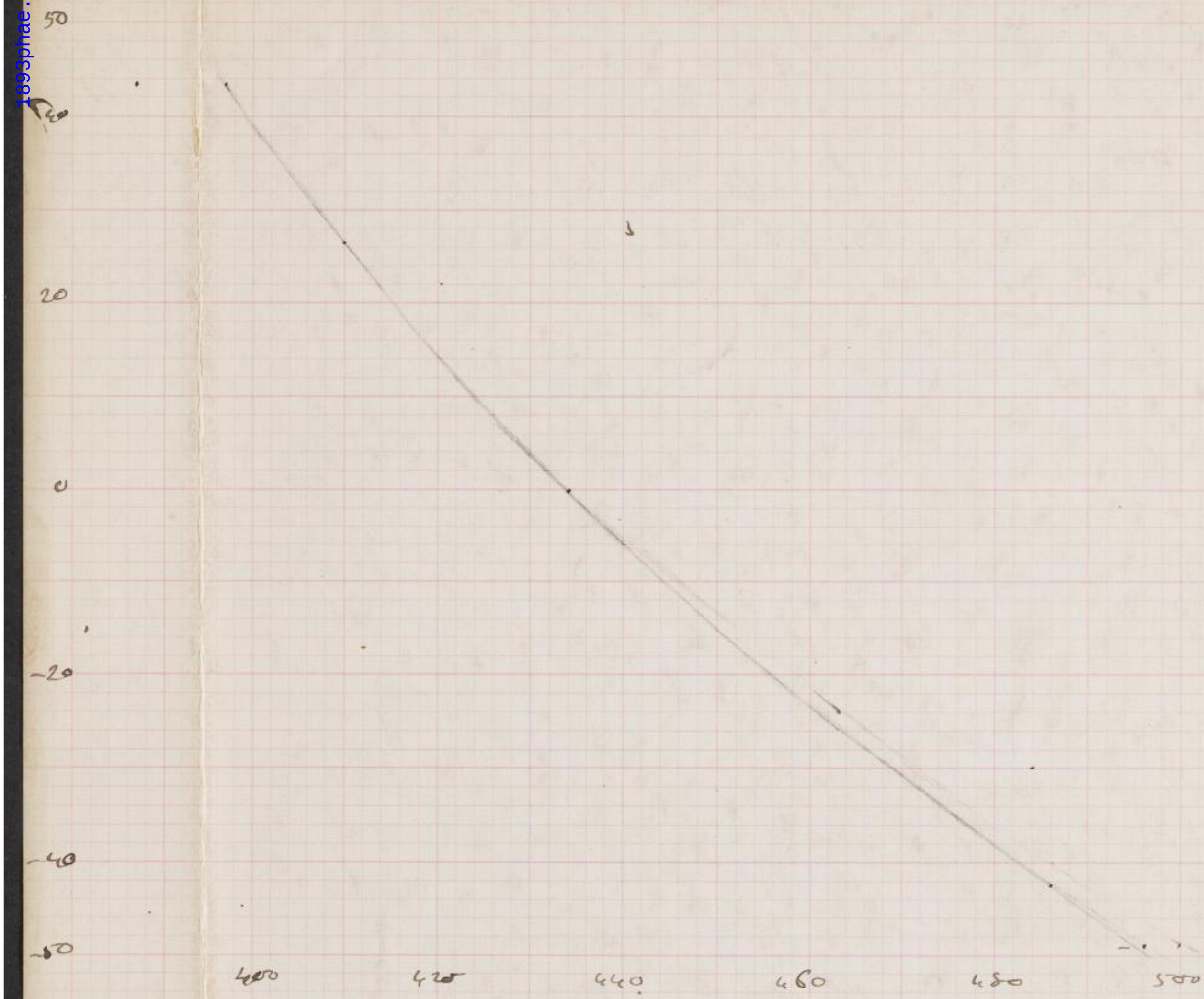
" 28, "	" " stars in Ple. to determine diff in scale.	215



Lines of Planet-Neb. near C.D.M. −27°13151

$y = \tan(\alpha - q)$ $y = \cot$

$$x = \frac{\tan\alpha \sin q}{\cos\delta'}$$

$\tan q = \tan\delta \overset{\sec\alpha}{\cancel{\cot\alpha}}$

	55°	60°	65°
log tan δ	.15477	.23856	0.33133
log sec α 10°	.00665	.00665	0.00665
log tan q	.16142	.24521	.33798
	55°22′	60°23′	65°20′

$10° = 40^m = 10$ cm

Table

Position of Nova Persei.

B.D.	R.A. 1855.	Dec. 1855.	Mag.	X	Relid.	Y	Relid.
~~+55° 473~~	$1^h\ 51^m\ 46^s.8$	$+55°\ 17'.8$	9.5	0.00	000000	0.00	000000
+56° 406	1 51 49.4	+56 43.0	9.2	0.00	000000	27.28	$2222\underline{33}$
+56° 404	1 51 21.0	+56 4.8	9.5	0.60	000000	15.13	$2222\underline{33}$
Nova	. . . ..	..	..	..	1.12	$\underline{2222}33$	13.40	$5500\underline{55}$