KG
11366
v.328

1691phot proj. 1332.

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1891phae..proj.1322.

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Dec. 30, 1891.

For observations ~~on~~ during early part of this evening see Book 60

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Dec. 30, 1891.

Reexamination of faint comp. stars for R. Tauri.

4	22	+10.0	N. obs.
26	57		
+22	35		

Selection of comp. stars made on Dec. 28, seems quite good.

♄ Reappearance of Jap. III Phot. R N. obs. Harvard Rec. Compared with Sat. following Jup. = Sat. II

h 8	31	3	140.8
		13	174.9
		20	148.0
		26	178.8
		32	142.4
		38	184.0
		44	146.9
		52	183
		56	142.5
[32]		0.0	185.1
		11	132.5
		13	188.8
		19	139.5

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Dec 30, 1891

[32]	~~32~~ (24)		190.4	
	34		134.0	
			191.7	
	44		137.2	
	49		192.0	
	53		132.0	
	59		191.7	
[33]	~~26~~		130.0	
	11		185.0	
	19		129.2	
23	27		194.9	
	32		129.0	
	41		199.1	
	49		126.1	
	59		200.0	
24	5	75.8	123.2	
	10	74.3	199.0	161.2
	59 / 15 19	14.8	75.0	124.7 645.9
	25		75.8 / 74.3 / 150.1 / 75.0	199.0 161.2
	31		81.4	121.0
	40	80.2	202.4	162.4
	175 / 44 49	43.8	80.8	123.0 649.6 162.4
	55	81.4 / 80.2 / 161.6 / 80.8		203.2
[35]	~~25~~ 5		86.3	119.2
	61 3 / 16.5 19	16.5	86.1	205.0 168.6
	29	86.3 / 86.1 / 172.4 / 86.2		121.6 654.0 163.5
	36			207.7
	52	55.0	93.7	118.1
26	~~3~~	98.9 / 96.3 / 93.7 / 98.9 / 192.6 / 96.3	211.8	168.2 653.0 163.2
			112.1	

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Dec. 30, 1891

36	~~12ᵛ assumed~~ ~~19.2 (9.2)~~	211.0			
	21	115.10		94.0	
	136 29	209.0	163.4	97.4	
	34 39 34.0	116.1	45 3.6	95.7	
	47	213.0	163.4	94.0 / 97.4 / 191.4 / 95.7	
	58	109.2		104.6	
37	8 11.0	213.8		104.2	
	44 11 16	109.0	161.3 / 645.2 / 161.3	104.4	
	22	213.2		104.6 / 104.2 / 208.8 / 104.4	
	29	110.5		102.7	
	40 ~~43.0~~ ~~36.8~~	213.2	162.8	103.0	
	49	112.2	657.1 / 162.8	102.8	
328	~~Second set~~ ~~27.2~~	215.2		102.7 / 103.0 / 205.7 / 102.8	
	59	105.1			

Round image slightly in field.

~~32~~ 39	20	217.8	161.5	112.7	
~~30~~	68 22.0 30 22.0	105.1	645.9	112.8	
~~39~~	39	217.9	161.5	112.8	112.7 / 112.8 / 225.5 / 112.8
	56	106.7		110.2	
[40]	10 11.8	216.9	161.0	113.9	
	47 11.8 19 ~~26.8~~	103.2	643.9 / 162.0	112.0	110.2 / 113.9 / 224.1 / 112.0
	22	217.1			
	42	108.6		105.2	
	48	213.8	161.6	118.2	105.2 / 118.2 / 223.4 / 111.7
	212 53 53.0 57	103.0	644.6 / 161.6	111.7	
41	5	221.2			
	15	106.8	163.5		107.1 / 113.0 / 220.1 / 110.0
	123 24 30.8 30.8 35	213.8 / 110.1	653.9 / 163.5	107.1 / 113.0 / 220.1 / 110.1	
	49	223.1			

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Dec. 30, 1891

41	59		108.5			104.7	
42	10		213.2		2	104.4	
	20	14.8	100.0	161.5		209.1	
	30		214.4	646.1 / 161.5		104.6	104.7 / 104.4 / 209.1 / 104.6
	41		105.8				
	51		218.2	161.3			
43	16		102.2	645.0 / 161.2	3	112.4 / 116.6 / 229.0 / 114.5	112.4 / 116.6 / 229.0 / 114.5
	25	3.3	218.8				
	36		102.9			114.1 / 101.6 / 215.7	114.1
	49		217.0	160.3			
	58	52.8	109.8	641.1 / 160.3	4	107.9	
44	8		211.4				
	18		108.2				
	28		215.9			107.7 / 110.0 / 217.7 / 108.9	
45	38	32.5	102.0	159.6 / 638.1 / 159.5	5		
	46		212.0				
	55		105.2				
46	7		220.0	161.4		114.8 / 116.6 / 231.4 / 115.7	
	14	9.8	101.8	645.4 / 161.4	6		
	23		218.4				
	33		107.2				
	40		218.3	162.3		111.1 / 112.1 / 223.2 / 111.6	
	51	45.8	105.8	649.2 / 162.3	7		
4	59		217.9				
47	8		105.9				
	17		213.5	160.1		107.6 / 111.1 / 218.7 / 109.4	
	25	21	104.9	640.3 / 160.1	8		
	34		216.0				
	42		102.7				
	49		221.7	162.4 / 649.6 / 162.4	9	119.6 / 114.6 / 234.2 / 117.1	

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1891phae.proj.1332.

Dec 30, 1891.

48 27 ÷ 3 = 8.2 26 8.3 105.6
36 220.2

Limit of Vis.

8.	50	29	143.0	~~7.0~~ 43.0
		46	186.0	42.6
	51	247 ÷ 1.8 = 144	144.2	165.0 ~~5.6~~ 42.8
		38 1.8	186.8	660.0 / 166.0

Seeing pretty good at first, gradually becoming worse on account of wind and decreasing altitude. Satellites in general pretty well seen except at limit of visibility

B. + C. 1162.

9	A	25.5	
	9	25.5	

B. 394.

9	14	0.0
	15	0.0

R. Cygni.

+49.9

19 32
28 27
+8 55

R = n in finder
n 1.5 R, R 30 cm large tel
Est. 9.9 Region rather low.

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1891phae.proj.1332.

Dec 30, 1891

S. Cygni

20	7	+57.1
28	42	
+8	35	

m 5 & 8 1.5 m in large tel.
Too faint for finder
Est. 12.8
Region rather low

R. Lyncis

6	49	+55.0
28	46	
+21	57	

1 R R 3 m in large tel
Too faint for finder
Est. 14.5

S. Bootis

14	16	+54.6
29	4	
+14	48	

2 8, 8 1 in large tel.
Too faint for finder
Est 11.2

10 22

* see next page

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1891phae.proj.1332.

Dec. 30, 1891

Regiomontanus Comp

R. Ursa. Maj.

10	32	+69.2
29	17	
+18	45	

R = 2 in large tel.
R = 2 in finder, but faint.

10 31 Est. 10.6

R. Tauri.

4	28	+9.9
28	27	
+24	59	

h 2 R, R 1.5 h in large tel.
h 2 R, R 1 h in finder

10 50 Est. 10.2

Still cloudy & growing worse.

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1891phae.proj.1332.

Dec. 31. 1891.

B & C. 1142.

6 39 9.0
40 9.1

B. 394.

6 4V 0.0
K6 0.0

6 V2 16
1 1V

7 0 24
6 4V 0

1V 24

6 39 9

6 V4 37.

Resp. Jup. I Comp. with Sat. for P. obs. - Fr. rec. Compared circle. Thin clouds, seeing poor; Comp with Sat. II. Limit of Vis.

6 V4 2.
4.
1V1
23

1V1V
19 4V
12.40
17.9

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1891phae.proj.1332.

Dec. 31. 1891.
Cloudy.

6	25		154.2
	31.		[2]74.3
	38.		70.3
	5K.		202.2
56	12.		189.6
	18.		216.0

Cloudy. Nat. invisible.

56	3K		190.9
	4K.		216.1
	52.		131.2
	57		230.6
57	22.		134.0
	29.		221.2
	K5.		127.8
58	5.		23K.9
	14.		133.5
	20.		225.0 →
	26.	110.5	12K.0
	33 - 46.3	99.1	23K.5 - 181.1
	59.	209.6	133.K
		104.8	
59	3.		232.5
	24.	94.0	132.1
	31. 36.3	99.6	226.5 - 180.4
	38.	193.6	131.9
	52.	96.8	234.5

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Dec. 31. 1891.

7	0	0, C		121.5	126
		12,		106.2	206 185.1
		K1, 25.3		227.7	127 33
		K4, —		113.9	235 —
		7,			
	1	7,		107.0	127 6
		22, 22.5		107.4	23K6
				214.4	127 179.0
				107.2	

Obs. irregular and almost worthless owing to thick and changing clouds K4

		7			120.6
	2	6			230
		16 —			124.0 —
		23 44.3		94.2	222, 177.7
	3	6		100.6	130.0
		12 —		194.8	230.6 —
		18,		97.4	127
		35, 46.8		103.8	235 182.5
	K	1,		108.5	130 6
		13, —		212.3	236, —
		23,		106.2	129
		31, 44.8		103.0	232 180.0
		K3,		105.6	126 7
	5	22, —		208.6	231.6 —
		29,		104.3	
		34, 49.0		96.1	129, 182.0
		K1,		108.9	232, 2 A
[6]		32, —		205.0	132 3
				102.5	241, 2

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1891phae.prpj.1332.

Dec. 31. 1891.

Jupiter sometimes nearly invisible

6 Eyes.

	B. & C. 1842,		B. 39K.	
7	13	4.4	19	0.0
	14	4.3	20	0.0

8 40 Night still cloudy and bad

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Jan 1, 1892

Somewhat cloudy.

R Cygni

19 32 +48.9
24 .37
+7 5

R = m in large tel.
Too cloudy for finder
Est. 9.8.
87 48 Observation made through clouds.

S. Cygni

20 7 +57.1
24 49
+6 42

m 1.5 S ≤ S 1.5 m in large tel
Too faint for finder
87 54 Est. 12.2
Est. through cloud probably somewhat affected.

Sky becoming cloudy throughout
Stars dim + observations difficult.

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1891phae.proj.1332.

Jan 1, 1892

R. Lyncis

6	49		+55.0
26	55		
+20	6		

+ 2 R R 2 n in large tel.
Too faint for finder
8 4 Est. 14.5
Observation difficult although R is not very far from zenith in a place somewhat clearer than other parts of sky.

R. Ursa Maj.

10	32		+69.2
27	6		
+6	34		

R = 9 in large tel.
Too cloudy for finder
8 12 Est. 10.7

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1891phae.proj.1332.

Jan. 5. 1892.

B. + C. 1142.

7	5	39.5	=	
7	6	39.4		

B. 394.

7	6	0.2
7	0	0

Trans. ~~Trans.~~ I. Ecl.

7	20	3	
7	6	0	
	14	3	
7	5	60	
7	20	19	
	4	12	
7		24	30

Resp. Jup. II. Phot. R. P. obs. Trans.
Comp. with Sat. I.

7	29	2	
		5	15.3.0
		13	167.3
		20	182.0
		26	171.6
		30	146.1

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Jan. V. 1892.

7	29	36		179.6
		42		183.7
		49		175.2
		56		180.0
	30	1		181.3
		8		134.1
		15		189.4
		22		135.6
		32		147.3
		40		132.6
		48		188.8
		56		130.6
	31	5		194.6
		15		123.8
		24		196.0
		32		124.1
		39		200.6
		46		121.2
		53		199.8
	32	1		117.6
		11		201.0
		18	82.5 84.5	119.1
		26	167.0	201.6 159.7
		35 31.0	83.5	116.8
		45		201.3
		55	83.3	119.0
	33	14 16.3	85.5 168.8 84.4	202.3 160.0

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Jan. 5. 1892

7	33	24		.X	116.6
		32			202.6 —
		37		85.8	116.8
		46		85.8	202.6
		56	50.8	85.8	116.4 159.7
	34	4			202.6 —
		17		84.4	116.3
		24	55	82.3	200.7 159.4
				166.7	
				83.4	
Done beginning to cut off.					Moved done.
	35	25			119.1
		34			201.4 —
		42			114.2
		50	55.3	83.4	197.6 158.0
				88.2	
				172.6	
	36	0		86.3	116.0
		9			204.2 —
		16		87.5	116.6
		24	28.0	86.2	204.1 159.4
				173.7	
		32		86.9	117.3
		40			201.5 —
		47		86.5	119.4
		54		91.2	205.9 161.7
				177.7	
	37	6	0.8	88.9	117.2
		16			206.4 —
		27		85.7	117.2 158.6
		35	38.8	87.0	200.9
				172.7	
		43		86.4	114.6
		50			202.6 —

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1891phae.proj.1332.

Jan. 5. 1892.
Limit of Vis.

7 38 E 5 — 20.2 — 16 7.6
12 — 26.9 — 16 7.2 159.9
2 ~ 17 — 47.1 — 16 4.7
30 — 23.6 — 17 1.6

Seeing good.

B. 39 K.

7 48 3 4.7 — 7 49 0.0
49 3 4.7 — 50 0.0

R. Cygni — N. obs.

E 19 49 32 — +49.9 — +55.0
27 24
+20+8 35 52
+7 52

l3 R, R 2m in finder.
l3 R, R 2m in large tel.

8 31 Est 9.6

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Jan. 5, 1892

S. Cygni

20	7	+57.1
27	45	
+7	38	

L 48, S/nn in large tb.
Too faint for finder
8 37 Est. 11.9

R. Lyncis

6	49	+55.0
27	52	
+21	3	

L = R in large tb.
Too faint for finder
8 51 Est 14.3

R. Hya. May.

10	32	+69.2
28	5	
+17	33	

R = 9~~4~~ in large tb
Rather too faint for finder
9 - 6 Est 10.5

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1891phae.proj.1332.

Jan 5, 1892.

S. Bootis

14	16	+54.6
28	42	
+14	26	

fr 3 & S2 h, in large tel.
Too faint for finder.

9 42 Est. 10.7

R. Tauri

4	28	+9.9
29	0	
+24	32	

5	13
+0	45

~~Relative estimates~~
Examination of comp: stars and relative est. of same.

a 6b
b 3c
b seems about 3 grades brighter than c in large tel, but there is not much difference in brightness in these stars and in finder c seems a bright as

(over)

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Jan. 5, 1892.

b.
c 6 d
d 5 e
e 3 f
f 5 g
g 4 h
h 2.5 k

There does not seem to be much difference in brightness between h and k, ~~although~~ either in large tel. or finder; although k seems to be a little brighter:

k 4 l
l 6 m
m 2 n
n 2.5 o
R = 0 in large tel.
Too faint for finder

10 45 Est: 11.7

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Jan. 7. 1892. H. obs.

S. Aquarii

22	46	-20.0
26	50	
+4	4.	

Too low.

SV. +9° +4777

21	11	+9.7
26	51	
+5	40	

Too low.

R Cygni

19	32	+49.9
26	52	
+7	20	

l 3.5 R R 1m in finder
l 3 R R 2m in large tel.
Est 9.6

47 47

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1891phae.proj.1332.

Jan 7, 1892.

S. Cygni

20	7	+57.1
27	9	
+7	2	

l38 ⊆ 1 m in large tel.
Too faint for finder
7 53 Est. 12.0

R. Lyncis

6	49	+55.0
27	15	
+20	26	

27	31	
+20	42	

t = R in large tel
Too faint for finder
8 13 Est 14.4

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Jan 7, 1892.

R. Urs. Maj.

10	32	+69.2
27	35	
+17	3	

fr 1.5 R R 3 ~~o~~ in large tub.
Rather ~~two~~ faint for finders

8 24 Est 10.4

S. Bootis

14	16	+54.6
27	46	
+13	30	

fr 2 S S 2 k in large tub.
Rather ~~two~~ low and faint for finder.

8 33 ~~10.6~~ Est. 10.6

B. + C. 1842.

A	35	57.1
	36	57.1

B. 39 C.

A	37	0.0
	38	0.0

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1891phae.proj.1332.

Jan 7 1892

A rr 49.0
A 37 0
1A 49.
A 3r r7
A rr 46. Ap. hine ed.

Reap. Jup. I Phot. R. A. obs.
Homes Ref. Powe read circle.
Compared with Sat. III.

8		55	56	mah.
		56	3	293.2
			40	341.8
			50	296.2
		57	8	342.3
			20	288.2
			31	346.8
			49	289.0
		58	7	356.5
			41	276.8
			58	356.2
		59	10	290.2
			22	352.0
			37	287.8
			46	349.5
9	0		1	288.6

61.8
61.7
123.5
61.8

319.9

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1891phae.proj.1332.

Jan 7 1892

9	0	23 53	356.2	67.6
	1	22 47	289.8	60.8
			321.3	128.4
			350.6	64.2
	23	53	265.5	$2Av.v.^2$
	45	4 41	349.3 285.5	

Impossible to obtain any farther readings. Jup. very low. Seeing very bad and steadily growing worse. Jup. boiling and overlapping Sat. I, so that settings were very difficult at the first and somewhat problematical while at the last they were quite uncertain.

B. + C. 1142.

9	17	56.5
	18	56.6

B. 39 K.

9	19	0.0
	20	0.0

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1891phae.proj.1332.

Jan 7 1892

R. Tauri

4 28 +9.9
5 0
+0 32

+5 8
+0 40

R = 5 in large tel.
Too faint for finder
9 50 Est. 11.6

S. Tauri

S = h in large tel.
S = h in finder
10 1 Est 9.8

R Cassiop

23 51 +49.7
29 26
+5 35

m 2R R 3 in finder
m 2R R 3 in large tel.
10 15 Est 9.6

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1891phae.proj.1992.

Jan 7 1892

T. Cassiop.

0	18		+55.9
5	37		
+5	19		

d 5 T, T 1e in finder
d 5 T, T 1e in large tel.
10 28 * Est. 8.1

S. Persei

2	8		+57.2
5	50		
+3	42		

b 3 S, S 1c in ~~large tel~~. finder.
b 3 S, S 1.5 c in large tel.
10 38 Est 8.6 *

T. Persei

d 3 T, T 1e in finder
d 3 T, T 1e in large tel.
10 45 Est. 9.1

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1891phae.proj.1832

Jan. 16. 1892.

B. + C. 1142.

P	V V	36.1
	V 6	36.0

B. 39 ☾.

☾	V 9	0.0
5	0	0.0

V 11 ☾2
8 12

V 19 V ☾
V 0 0

19 V ☾
☾ V 6 36

V 16 3 ☾ Ha time Ech,

Reap. Jups. I. Phots. R W, obs. Attwd's Rec
! Compared with mast remarks satellite on following side. = Sat. III.

V Transit, 12m 19sec

21.3	32	53.3	
53.2			
m 0.2			
13 39			

95,0
115,5 16.1
95,0 4 20.2
114,7 105.0

20.5	20.5	
19.7	19.7	
40.2	40.2	
20.1		

~~Sat.~~ 16
~~R~~ 57
17 03
11
16
20
26
31
37
43
48

Suspected.
98,2
118,9
92,0
121,2
91,2
126,7
87,5
126.3
84,2

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Jan. 16, 1892.

	53	126,8
	59	78,8
18	06	~~132,2~~
	11	82,2
	12	137,0
	22	77,1
	28	~~131,2~~
	33	80,8
	39	135,0
	45	74,7
	51	~~148~~
	56	76,2
19	02	144,0
	17	70,1
	12	139,8
	15	~~74,2~~
	23	142,0
	27	71,2
	35	~~141,9~~
	42	69,2
	48	141,9
	54	67,4
20	00	137,0
	08	68,2
	14	141,2
	19.8 25 19.8	69,4
	32	148,7
	40	68,5
	47	141,5
	50.3 50.25 4 50.3	64,0
21	00	143,0

105.8
423,3
105.8
104.3
417.0
104.2

1	73.0	73,0
	75.5	75,5
	148.5	148,5
	74.3	74.2
2	73.0	73.0
	79.0	79.0
	152.0	152.0
	76.0	76.0

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Jan. 16, 1892.

	10	68,0			72.4	72.4	
18	15	140,4		3	77.8	77.8	
19.5	20 19.5	65,0	104.1		150.2	150.2	
			416.2		75.1	75.1	
	30	142,8	104.0				
	42	65,7			75.7	75.7	
	50	141,4			73.2	73.2	
21.5					148.9	148.9	
53.8	55 53.8	71,6	106.0	4	74.5	74.4	
22	07	145,8	423.9				
			106.0				
	16	67,2					
	28	139,2			72.0	72.0	
120			104.6		73.7	73.7	
30.0	35 30.0	69,1		5	145.7	145.7	
			418.3		72.9	72.8	
	41	142,8	104.6				
	47	70,7					
228	54 57.0	141,8	106.7		71.1	71.1	
57.0				6	69.6	69.6	
	00	72,0	426.7		140.7	140.7	
	09	141,9	106.7		70.4	70.4	
23							
	16	65,3			75.3	75.3	
	24	140,6			77.3	77.3	
30	38	66,5	104.1	7	153.6	152.6	
27m 2.8			416.2		76.8	76.3	
	50	143,8	104.0				
	06	66,0					
91	29	144,1	104.9		78.1	78.1	
141					79.5	79.5	
35.4	35.3 3	65,0	419.6		158.6	157.6	
			104.9		79.3	78.8	
32	03	144,5		8			

Seeing fairly good. Images a very little blurry at the first, but improving during observation.

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Jan. 16. 1892.

B. & C. 11 42.
✓ 4K 3✓.0
4✓ 3✓.0

B. 39 K.
✓ 42 0.0
49 0.0

~~R. Cygni~~

R Lyncis

N. obs.

+55.0

6	49
27	28
+20	39

27	37
+20	48

2 3.5R R 1.5 2 in large tel.
Too faint for finder
7 49 Est. 14.1

R. Cygni

+49.9

19	32
27	46
+8	14

k 3.5 R R 2l in finder
k 3 R R 2l in large tel.
8 11 Est. 9.2

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1891phae.proj.1332.

Jan 16, 1892.

S. Cygni

20	7	+57.1
28	7	
+8	0	

L 2.5 S S 2.5m in large tel.
Too faint for finder
8 19 Est. 11.7

R. Mrs. Maj.

10	32	+69.2 9
28	14	
+17	44	
28	24	
+17	52	

m 2.5 R, R 2.5m in large tel.
m 2 R, R 2m in finder.
8. 38 Est. ~~9.3~~ 9.5

1891phae.proj.1332.

Jan 16, 1892

D. M. Wedge gone N. obs.

Series 93. +29°

1	4	+29.2
5	10	
+4	6	
5	15	
+4	11	

9 27

177	2.90	×	
	3.10		
	3.45	9.45	4.09
		~~3.15~~	
178	3.38		
	3.59		
	3.52	10.49	4.54
		~~3.44~~ 3.50	
206	3.81		
	4.00		
	4.12	11.93	5.16
		~~3.98~~	
208	2.95		
	3.18		
	3.07	9.20	3.98
		~~3.07~~	

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1891phae.proj.1332.

Jan 16, 1892

220	3.40		
	3.47		
	3.39	10.26	4.44
	~~3.42~~		
227	3.10		
	3.30		
	3.44	9.84	4.26
	~~3.28~~		
232	2.90		
	3.10		
	3.11	9.11	3.94
	~~3.04~~		
234	2.96		
	2.82		
	2.88	8.66	3.75
	~~2.89~~		
238	3.31		
	3.30		
	3.41	10.02	4.34
	~~3.34~~		
255	3.13		
	3.08		
	3.67	9.88	4.28
	~~3.29~~		
256	4.34		
	4.22		
	4.57	13.13	5.68
	~~4.38~~		

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1891phae.proj.1332.

Jan 16, 1892

Found ~~not cloudy~~ at 10.~~X~~ hours 5 min that ~~the~~ clouds had suddenly overspread the sky. Possibly some of the last stars ~~10 55~~ affected.

10 55 ~~X~~ Sky still cloudy.

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1891phae.proj.1332.

Jan 20, 1892

W. obs.

R. Lyncis.

6	49	+55.0
27	35	
+20	46	

Canon balls frozen down. Dome cannot be moved, ice on balls as well as on tracks.

After considerable delay and labor, finally succeeded in clearing off ice, so that dome could be moved, although with difficulty.

R Lyncis

6	49	+55.0
28	36	
+21	47	

L 4R, R 1m in large tel.
Too faint for finder

8 36 Est. 12.9

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1891phae.proj.1332.

Jan 20, 1892

R. Cygni

19	32	+49.9
28	48	
+9	16	

k 3 R, R 2 l in finder.
k 3.5 R, R 2.5 l in large tel.

8 59 Est 8.2

Region low + est. rather uncertain

S. Cygni

20	7	+57.1
29	11	
+9	4	

k 3 S, S 1 l in large tel
Too faint for finder.

9 8 Est. 11.2

R. Ursa. Maj.

10	32	+69.2
29	27	
+18	5	

Star k seems two or three grades fainter than star l to night: hence not used in comp.

(over)

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1891phae.proj.1332.

38

Jan 20, 1892.

h 5 R, R 2 l in finder
h 5 R, R 2 l in largetel.
9 37 Est. 8.8

Comet Wolf h. h.

4	20	−11.7
6	15	
+1	55	
6	23	
+2	3	
6	26	
2	11	
4	15	

Position geo.

340.2
45.0
295.2

h.	m.	acc	
6	41	8.5	=
	41	34.5	=
	41	55.5	+
	42	31.0	+

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1891phae.proj.1332.

Jan 20, 1892

h	m	sec
6	42	58.0
	43	24.5
	43	45.2
	44	20.9
	44	45.3
	45	12.0
	45	32.5
	46	7.5
	46	34.2
	47	0.5
	47	21.0
	47	57.1
	48	24.5
	48	51.3
	49	11.6
	49	46.6

Order in rec. transits.
Comet, Comet, Star, Star.
Comet in southern half. Unlettered star in northern half.

Comp. Star = S.D. −11° 877 (A.7 K) which is lettered. (See p. 54)

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1891phae.proj.1332.

Jan 20, 1892.

7	0	32.2
	0	58.6
	1	36.3
	1	58.0
	2	20.8
	2	47.4
	3	25.0
	3	47.2
	4	11.5
	4	38.0
	5	15.8
	5	37.5
	5	58.8
	6	24.5
	7	2.3
	7	24.8
	7	45.8
	8	11.6
	8	49.0
	9	11.8
	9	34.4
	10	0.2
	10	37.5
	11	0.5

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1891phae.proj.1332.

Jan 20. 1892

Order in rec. transits. lettered star, lettered star, unlettered star unlettered star. Lettered star in northern half. Unlettered star in southern half.

Comet rather faint. Magn 8.8 Pretty well defined nucleus.

11 6 Diameter total nebulosity 1.5'

"Unlettered" turns out to be lettered. It is SD -11° 4773 (9.7K)

The other star = -11° 4773 (9.0K)

	B. 236.		B. 394	
7	25	1,0	11 14'	0,0
	26	1,0	15	0,0

∴ B236 was 4m 28s slow.

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1891phae.proj.1332.

Jan 21, 1892

R. Cygni.

19	32	+49.9
27	33	
+8	1	

h 3 R, R 3 l in large tel.
h 3 R, R 3 l in finder.

7 33 Est. 8.1 8

S. Cygni.

20	7	+57.1
27	48	
+7	41	

h 3 S, S 1 l in large tel.
Two faint for finder

7 39 Est. 11.3

R. Ursa. Majoris.

10	32	+69.2
27	55	
+17	23	

h 5 R, R 2 l in large tel,
h 4 R, R 2 l in finder

7 47 Est. 8.7

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1891phae.proj.1332.

Jan 21, 1892

R. Lyncis.

6e	49	+55.0
28	17	
+21	28	

L 3 R R 2 m in large tel.
Too faint for finder.

8 9 Est. 13.2

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1891phae.proj.1332.

Jan 23, 1892

Recap Jan 22. W. obs. Homestead.

7 10 Sat. invisible in tel. Thickly cloudy.

7 12 Sat. still invisible, clouds growing thicker.

7 14 Sat. invisible, clouds thicker.

7 15 Sat, invisible, clouds still thicker.

7 16 It is now 1 min. past theoretical time for the eclipse but no sats. visible + clouds thick.

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1891phae.proj.1332.

Jan. 26. 1892.

U Geminorum. H. obs.

7 44 +22,4
7 17
-2 27

5 29
-2 15

U U
(18 p) 2 U U 3 (19 m) in large tel.
Too cloudy and faint for finder

9 6 Est. 9.2 mags
Estimate through clouds. Stars rather faint.

Sky somewhat clearer.

(18 p) 1 U U 3 (17 m) in finder.
(18 p) 1 U U 2 (17 m) in large tel.
9 20 Est. 9.2

R Provisional selection of comp. stars.

12 p
18 o
4 g
2 o
3 r
2 r
(a)

(over)

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1891phae.proj.1332.

Jan 26, 1892

11. g
6 t
9 a
14 b
15 e

So much cloud and haze it is not safe to proceed farther. Identification of last stars a little doubtful but ~~may~~ can be settled on the next clear night.

(18,0) 1 U, U 2.5 (17 m) in finder
~~U = 18,0 in large tel.~~
~~Est.~~ (18,0) 1 U U 2 (17m) in large tel.
10 13 Est. 9.0

R. Urs. Maj.

10	32	+69.2
30	53	
+20	21	

R = h in finder
R = h in large tel
10 33 Est. 8.1

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1891phae.proj.1332.

Jan 26, 1892.

F. Mrs. Maj.

12	31	+60.8
31	10	
+18	39	

Sky too hazy for observation of any value. Identification of variable uncertain. Ref. star assumed for variable is such it is about equal star m, It is impossible to give correct absolute estimate. Relative est. somewhat uncertain.

10 13

A slight film of ice seems to have formed between lenses of object glass, as was suspected a little earlier in the evening from appearance star images.

Sky becoming thickly cloudy again.

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1891phae.proj.1332.

Jan 27, 1892

N. obs.,

N. Geminorum.

7	44	+22.8
28	33	
+20	49	

8 20 (18o) I.M., M 2.5 (17m) in finder.

Est. 9.1

Ice on lenses ~~tenses~~ prevents correct est., inv large tel.

Feb. 8. 1892.

Between the date at top of page (Jan. 27.) and date at top of next page (~~Jan~~ Feb. 4) Mr. A. G. Clark ~~took~~ cleaned lenses of 18" inch object glass. (Exact date not recalled).

O. C. W.

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Feb. 4. 1892. W. Obs.

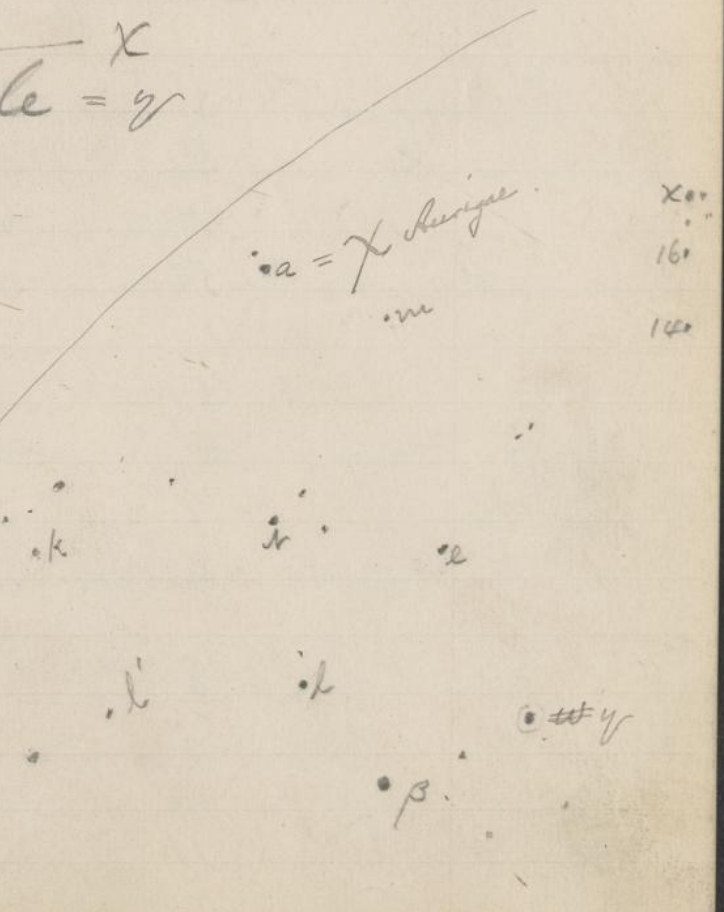
Copeland's Nova

+ Nova

8 34 Nova = ~~χ~~ χ (Chi) Aurigae to naked eye
Nova = ~~χ~~ χ Aurigae in opera glass
χ to right in comparisons.

~~14 Aurigae~~

a 16 Aurigae
b c ~~χ~~ Aurigae ← χ
e d Star with circle = γ
~~d~~ e Star ~~d~~ e
~~e~~ f " k
~~f~~ g " l
~~g~~ h " m
~~h~~ k " n



(Cont. on p. 52.)

~~k~~ l Star n
~~l~~ m " o
~~m~~ n " p
~~n~~ o " q

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Feb. 4, 1892

Location of Copeland's Nova with reference to 8 Lac. + 30° 932.

Position Zero

358.6
45.0
313.6

h.	m.	sec.	
6	58	35.6	Nova.
	59	4.0	Nova.
7	0	12.6	932
	1	3.0	932
	1	17.0	938
	1	28.0	938
	2	5.2	9KK
	2	21.1	9KK
	3	3.2	Nova
	3	31.5	Nova
	4	40.5	932
	5	30.8	932
	5	59.0	
	6	26.9	
	7	36.0	
	8	26.2	
	8	55.1	
	9	23.4	
	10	32.8	
	11	22.5	

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Feb. 4, 1892.

h.	m.	sec.	
7	11	48.5	
	12	16.5	
	13	26.0	
	14	15.5	
	19	42.5	9.3
	20	11.0	9.3
	21	20.3	9.44
	22	9.5	
	22	36.0	
	23	4.5	
	24	13.8	
	25	3.0	

Order in preceding transits
Nova, Nova, 932, 932 (in first set)
also 938, 938, 944, 944)
Nova in southern half of square, stars
in northern half.

Comp. Star = 2 Aq. +30° 932 (9.1 K)

Direct of light of Nova by comp: with 11 mag.
star close by. Phot. R. Fr. to.

10 53 173.3 ^ 44.7 < flr. to right, and disappears.
218.0 ^
44.7 < mags to rear end.
174.3 ^
347.6 ^ 219.0

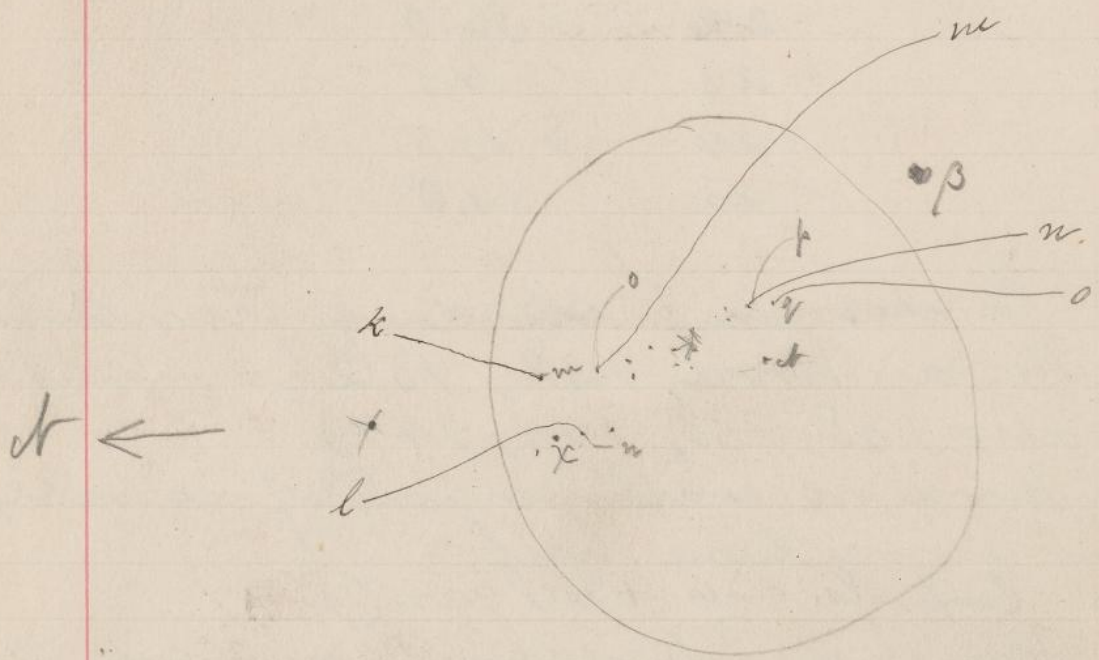
~~K 3~~ ✓
12.K -6.33

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1891phae.proj.1332.

Feb 4. 1892.

		173.0	45.0
			218.0
			44.1
		174.9	219.0
		347.9	
		-6.3	
			45.2
		172.9	218.1
			45.0
11	5	174.0	219.0
		346.9	
10	59	-6.21	



Con. from p. 49.

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1891phae.proj.1332.

53 ~~7~~ 8

Feb. 5 1892

W. obs.

Considerably cloudy.

7 30 Nova = ✻ χ Aurigae
Observation made through gap in clouds. Sky pretty clear at this point at time of observation.

7 41 Cloudy again

7 50 Clear again in this region
Nova = χ Aurigae.

7 55 Clouds again

Identification of comparison stars selected last night
a = 16 Aurigae = DM+33° 1000
~~b = DM+33° 1013~~
b = χ Aurigae = DM+32° 1024
c = DM+33° 1013
d = DM+29° 869

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Feb. 5, 1892

c =	DM + 30°	898
f =	DM + 29°	947
g =	DM + 29°	909
h =	DM + 27°	806
k =	DM + 32°	1003
l =	DM + 31°	1001
m =	DM + 31°	989
n =	DM + 30°	912
o =	DM + 30°	913

Mean't of light of Nova by comp. with 11 mag. star close by. Phot. R. W. obs

10 23

45.7
218.0 172.3^

44.0
218.7 174.7^ / 347.0^ 13.0 ~~-6.23~~ -6.23 ✓

43.9 174.5^
218.4

~~45.0~~ 43.8
218.0 174.2^ / 347.7^ 11.3 ~~-6.53~~ -6.53 ✓

44.9 173.2^
218.1

43.8
218.1 174.3^ / 347.5^ 12.5 ~~-6.31~~ -6.31 ✓

10 30

10 26.5

Mean = -6.35

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1891pnae.proj.13382.

Feb. 5, 1892.

Selection of additional comp. stars for Copeland's Mora.

(2)

a.

N ← E

12 20

12 30 Mora = χ Aurigae. in Field Glass.

p

N ← w r t s ⊙ u

(Field rotation. See also p. 56.)

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1891phae.proj.1332.

This list of stars published in Astron. & Astro. Physics Vol. XI. p. 230.

Copeland's Nova. (Comparison Stars.)

			Right Ascension		Declination	Magnitude	
a	=	3h. + 33° 1000	5h	4m 39.2s	+33° 13.1	5.1	
b	=	" + 32° 1024	23	14.4	+32 4.4	4.4	
c	=	" + 33° 1013	10	24.7	+33 4.1	5.9	
d	=	" + 29° 469	11	59.6	+29 25.4	6.0	
e	=	" + 30° 494	17	51.4	+30 4.2	6.2	
f	=	" + 29° 947	30	5.9	+29 7.6	6.2	
g	=	" + 29° 909	20	27.9	+29 3.9	7.0	
h	=	" + 27° 406	26	50.0	+27 33.7	7.1	
k	=	" + 32° 1003	19	52.4	+32 4.4	7.4	
l	=	" + 31° 1001	23	20.4	+31 55.0	7.6	
m	=	" + 31° 949	20	56.5	+31 40.4	7.7	
n	=	" + 30° 912	20	27.2	+30 24.4	4.5	
o	=	" + 30° 913	20	44.6	+30 19.4	4.7	
p	=	" + 30° 918	21	55.6	+30 3.9	9.3	a
q	=	" + 30° 914	20	44.4	+30 24.0	9.4	b
r			22	36.4	+30 27.5		c
s			22	43.6	+30 21.3		d
t			22	55.3	+30 26.2		e
u			22	54.7	+30 14.3		f
w			22	43.6	+30 29.4	(Ht. 12 mag.)	g
Nova			22	40.3	+30 19.9		

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1894phae.proj.1332.

Feb. 6. 1894.

B. + C. 11 h 2.

6 h 6 53.7

57 53.7

B. 39 h.

7 6 0.0

7 0.0

Cor. to B. + C. 11 h 2 is +9m 6.s3

Reds. Jups. II. Plat. R. P. No. Greenwich.

Comps. with Sat. III.

7 1h 9

2 12

7 20 21

7 6 0

14 21.

6 h6 h14.

7 11 1h.

Limit of Vis.

7 10 h h.0

242 h h, 0.5

11 0.5 7. 0.5

h.

39.9
32.5
72.4
36.2

11.4
h1.7
17.h 32.6 130.4 32.6
h9.7

39.9
32.5
72.4
36.2

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7	13	2.	Probe. aurora.
		4.	16.4
		16.	ν4.3
		25.	12.0
		32.	60.3
		41.	14.2
		47.	ν6.6
		ν5.	3.4
	14	2.	60.3
		10.	4.4
		14.	64.1
		26.	11.3
		34.	6ν.6
		43.	2.1
		ν0.	60.ν
		ν7.	3.6
	15	6.	61.7
		12.	~~3ν.4~~ 3ν9.5
		19.	ν6.6
		26.	6.1
		33.	63.4
		40.	1.2
		ν3.	60.4
	16	0.	3ν2.2
		11.	66.4 ←
		21.	3ν2.4 30.8
151 37.8		30. 37.8	62.6 ~~30.8~~ 123.2 30.8

63.8 63.8
65.0 65.0
64.4 128.8
64.4

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Feb. 6. 1892.

7 16 F1. 3v4.K
v9. 63.K —
17 16. 3v6.2
2v. 6v.2
11 9 29.8 3v. 29.8 1.2
2.9.8 K3. —
v3. 3v9.9
18 2. 69.7 62.0 65.8 69.9 64.0 67.0 6 9.2
23 10. 5.8 3v9.0
5.8 16. — 63.0 —
26. 72.6 70.1 71.4 73.6 70.5 71.6 0.2
17 2 37. 43.0 72.4
43 K9. 3v9.4
19 0. — 70.3
14. 66.7 68.1 67.4 69.3 68.1 68.7 3v4.7
180 36. 6.4.0
45 vv. 30. 72.9 —
20 11. —
30. 69.6 65.9 67.8 69.6 68.7 69.2 1.2
184 K0. 70.4
46 v2. 3v4.6
21 2. — 67.3 —
14. 3v6.7
14324. 35.8 62.0 68.2 65.1 68.6 73.8 71.2 6v.3
3 5.8 K2. 3v7.2
vv. — 71.0 —
22 9. 3v1.1
26. 62.7 62.8 62.4 71.6
114 28.5 3v. 28.5 80.5 66.4 3v7.4
vv. — 78.4 6K.2 —

32.0 128.2 32.0
32.9 131.7 32.9
36.1 144.4 36.1
34.5 137.9 34.5
32.6 130.2 32.6
31.2 124.7 31.2

69.0 62.0 131.0 65.5
69.9 64.0 133.9 67.0
72.6 70.5 143.1 71.6
69.3 68.1 137.4 68.7
69.6 68.7 138.3 69.2
68.6 73.8 142.4 71.2
80.5 66.4 146.9 73.4

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Sky very cloudy and very low altitude. This calculation is merely mechanical & also of dispute of which is one single set of ones clouded & three. Nova one night of Jupiter was nearly white very low in very low altitude.

B. & C. 1142.

7	32	5 3.5	7	42	0.0
	33	5 3.5		43	0.0

Cor. to B. & C. 1142 is +9m 6.5

~~Copelands Nova~~

Copelands Nova N. obs.

#7 56 a 1.5 Nova, Nova 1.5 b in fieldglass. Nova also looks a little brighter than star b to naked eye, but moon too bright for any satisfactory estimate.

Location of faint 11th mag. star with reference to Copelands Nova.

(Position circ.)

265.1
45.0
220.1

6h	0m	13.4	11th mag.
6	0	15.6	Nova.
	0	48.4	Nova.
	0	7.3	11th mag.

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6	2	8.3
6	2	10.8
	2	43.5
	2	52.2
	3	10.5
	3	12.8
	3	45.9
	3	58.9
	4	1.2
	4	17.4
	4	50.5
	4	59.5
	5	1.0
	5	17.5
	5	50.9
	5	59.9

Order in preceding transits. faint star Nova, Nova, faint star. Both in southern half.

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Transits of Copeland's Nova and D.M. +30° 932 (9.1K)

h. 6	m. 12	sec 53.0	Nova.
	13	24.5	Nova.
	14	34.0	932.
	15	20.3	932.
	16	9.8	
	16	32.5	
	17	41.8	
	18	31.8	
	20	8.5	
	20	37.8	
	21	46.7	
	22	35.9	
	23	5.4	
	23	34.1	
	24	43.4	
	25	32.5	
	26	10.0	
	26	39.0	
	27	48.4	
	28	37.3	

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Feb. 6, 1892

h.	m.	sec.
6	29	6.7
	29	35.8
	30	44.7
	31	34.2
	32	7.2
	32	36.4
	33	45.2
	34	34.5

Order in preceding transits Nova, Nova, 932, 932!
Nova in southern half, 932 in northern.

Light of Nova compared with 11th magnitude star.

10 10

54.0 172.2^
226.2
54.4 172.1^
226.5 344.3^ - 5.82
15.7

54.6 171.5^
226.1
54.4 171.8^
226.2 343.3^ - 5.68
16.7

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Feb. 6, 1892

54.7
226.7 172.0
54.7 -58
226.7 172.0
344.0 16.0
8 ~~20~~

10 25
10 17.5

Examination of comp. stars for Copeland's Nova to see if photographic stars can be substituted for any of the others. It is probable that two can and perhaps three, but moon is so near and sky bright that it is a little hazardous to do so to night

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Feb. 9. 1892.

B. + C. 11A2.

ν	1K	1.ν
	1ν	1.ν
Cor.	+9	ν4.ν

B. 39K.

ν	2K	0.0
	2ν	0.0

Dis: Jup. IV. P. obs. Green. Phot. R.
Comp. with Sat. I.

ν	KK	ν9.
	4	1~
ν	ν3	11.
ν	2K	0
	29	11.
ν	1K	2.
ν	K3	13. Mp. time sol.

ν 2K 27.
K1.
ν0. KK.0
ν6. 34 43 329.8
2ν K.
1K. 20.0ν
26. 35 19 331.1
3ν.
K6.
νν.

300.2 ν7.K
3ν7.6
302.-
3ν9.2 ν7.0 ν7.2
303.3 ν6.4
3ν9.7
301.ν 59.1
0.3 ν7.8
302.2 56.0
3ν4.2

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Feb. 9. 1892.

	26	K	00.0	331.0	303.K	57.0 / 56.5
		35 59			0.K	
		1V.				
		2V.			306.2	50.7
		33.			3V6.K	
		KK.	38.2	330.6	30V.A	48.3 / 49.2
		36 37			3VK.1	
		V1.				
	27	1.			30K.31	
		16.	19.V	330.2	3V3.A	49.5
		27.	37 19		307.0	
		3K.			3VV.6	48.6 / 49.0
		KV.			30K.A	
		V2.	58.8	329.6	3V3.A	49.0
	28	3.	37 58		30V.K	
		1V.			3VK.K	49.0 / 49.0
		23.			30A.0	47.0
		3K.		331.9	3VV.0	
		KV.	38.8		310.6	43.6 / 45.3
		38 38			3VK.2	
		V3.				
	29	2.			307.7	
		4.			3V2.0	44.3
		17.	13.2	330.6	307.K	
		39 12			3V5.3	47.9 / 46.1
		26.			312.K	
		K2.			3V2.0	39.6
		VV.	00.0	331.6	310.2	41.4 / 40.5
	30	K.	39 59		3V1.6	
		19.			31V.3	
		30.	40 29		3V5.0	
		34.	37			

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Feb. 9. 1891.

V	30	K9.	40 48	311.9
	31	1.	00	3K0.A
		1K.	41 13	31K,6
		26.	25	3KK6
		3V.	34	316.0
		KV.	44	3K7.A
		VK.	53	31V.K
	32	K.	42 3	3K7.1
		17.	16	31K.3
		33.	32	3V0.3
		KK.	43	31V.0
		VK.	53	3K6.0
	33	3,	43 2	316.1
		2V.	24	3KK.7
		K0.	39	Susp.
		K6.	45	3K3.A
	3K	6.	44 5	Susp.

Removed Plot. R. and Sq. 1, using micrometer eye piece substituted.

3V 22. Not seen with ordinary eye piece.

Limit of Vis. (Plot. replaced)

36	16		41.1	310.2
	33		35.2	3V1.3 331.7
			76.3	
	K6	40.0	38.2	31V.0
		46 39		
37	3			3V0.2

Sol I 0.2 mm higher than Sol II. Poles Sol. faint and hazy, therefore difficult exactly determ. best setting for time. I & II Wobs

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Feb. 9. 1892.

	B. + C. 1892.			B. 39 K.	
5.	51	1.0	6	1	0.0
	52	1.1		2	0.0
Cor.	+9	+9.0			

Relative estimate of Copeland's Nova

N. obs.

7 56 (16 Aurigae) 1.5 Nova, Nova 15 x Aurigae

~~A~~ Transits of Copeland's Nova with D.M. +30° 1932.
Position zero

~~345.8~~	346.3
~~45.0~~	45.0
~~300.8~~	301.3

5	43	34.7	Nova.
	44	21.0	"
	45	30.3	1932.
	46	2.2	"
	51	19.2	
	52	5.6	
	53	15.1	
	53	46.6	

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Feb. 9, 1892.

5	54	13.0
	54	59.6
	56	8.6
	56	40.2
	57	24.8
	58	5.5
	59	14.9
	59	52.0
6	~~1~~	~~15.0~~
	~~1~~	~~55.9~~
	3	5.3
	4	9.9
	4	50.8
	6	0.2
	6	37.6
	7	49.7
	8	31.8
	9	40.1
	10	17.2
	~~10~~	~~46.5~~
	11	28.8

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Feb. 9, 1892

6	13	13.0
	13	54.5
	15	3.5
	15	40.5

Order in preceding transits Nova, Nova, 932, 932. Nova in southern half, 932 in northern.

Transits of Nova and 11.th magn. comp. star. A. obs.

6	47	51.2	11th mag.
	48	53.5	Nova.
	49	15.2	Nova.
	49	24.3	11th mag.
	49	34.1	
	49	36.4	
	49	58.0	
	50	7.1	
	50	17.9	
	50	20.1	
	50	41.5	
	50	50.4	

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Feb. 9, 1892

6	V1	18.1
	51	13.3
	51	35.0
	V1	44.8
	V1	V4.1
	52	0.4
	52	21.9
	V2	31.2

Order in preceding transits, 11th mag Nova, Nova, 11th mag. Both in southern half.

R. Lyrae.

6	49	+55.0
6	59	
+0	10	

Too faint in moonlight.

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Feb. 9, 1892.

S. Cygni.

20	7
31	2
+10	55

+57.1

Too low for est. in moonlight.

Diests of light of Nova. in terms of adjacent 11th mag. star. Fr. obs.

10 59

75.2 ⌐ ftr. dis. 172.4

247.6

75.7

248.0

172.3

(Turned 180°)

165.0

337.0

165.2

337.0

172.0

171.4

165.0

337.4

172.4

164.9

337.5

172.6

Turned Pos. circle to reading in 10th cat.

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Feb. 9, 1892.

74.6	174.4^	
249.0		
76.0	173.0^	
249.0	347.4^	~~4.3~~ v
	126	~~6.30~~
75.1	173.7^	
248.8		
75.8	173.2^	
249.0	346.9^	~~4.2~~ v
Turned 1400.	13.3	-6.18
165.2	171.4^	
337.0		
165.4		
336.9	171.5^	
	343.3^	~~3.7~~ v
	16.6	-5.70

11 23
11 11

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Feb. 10, 1892

Cloudy early part of evening.

Δt 0ᵐ Pretty clear in gap overhead. Clouds to north and south.

8 25 b 1.5 stora. stora 2,5ᵛ C in field glass. Fr. Ob.

The above est. made before clouds came again. Became cloudy immediately afterwards.

8 48 Still cloudy and growing worse

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Feb. 12, 1892

Cloudy early part of the evening.

Copeland's Nova,
Still somewhat cloudy.

9 24 b 2.5 Nova, Nova 2.5 c in field glass

Location of faint comparison stars for R Scutinorum,

7	12	+22.1
7	26	
+0	14	

Dome frozen and cannot be moved.

10 0 Still more or less cloudy.

Copeland's Nova.

10 4 b 2.5 Nova, Nova 2.5 c in field glass
Sky pretty clear in this vicinity at time of estimate

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Feb. 13, 1892

7 30 Brilliant aurora. First noticed about 7 o'clock. Very brilliant rose colored mass of light a little to the north of west extending half way to Zenith or more, with whitish arches running round through the north. At the present time rose color very brilliant a little to north of west as before, the whole northern heavens & to a little way above the pole star being filled with auroral light consisted of arches, diffused light and streamers intermingled. The rose tint now extends each into the east all over the northern sky but is much more strongly marked and brilliant in the north west as at first. Moon not full moon up. Otherwise the display would be still more magnificent.

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Feb. 13, 1892

Copeland's Nova.

8 3 b 3 Nova, Nova 2 c in field glass

8 4 Auroral display much less marked at present than before. Rose colored tint extends from north west to nor the east with about uniform distribution of rose tint. Rose tint much less prominent throughout.

8. 47 Scarcely any trace of aurora No rose tint perceptible. &

9 45 Diffused auroral light throughout the north extending up to the pole star. No rose tint perceptible.

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Feb. 13, 1892.

Transits to locate faint comparison stars for Copeland's Nova

Position Zero

236.1
45.0
281.1

7	42	32.5	R
	42	52.4	Nova
	43	9.6	Nova
	43	22.1	R
	43	54.2	R
	44	13.5	Nova
	44	30.8	Nova
	44	43.5	R

Nova in southern half. Star R in northern half.

Star R is the 11th. magn. close to variable and has already been located.

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Feb. 12, 1892.

~~7 49 47.6 F~~

7	50	29.1 F
	50	39.0 Nova
	51	3.5 Nova
	51	23.1 F
	51	52.5 F
	52	2.6 Nova
	52	26.5 Nova
	52	47.0 F

F in northern half, Nova in southern half.

~~53~~	~~45.0 Nova~~
~~54~~	~~6.6 N~~
~~54~~	~~31.0 Nova~~
55	15.0 Nova
55	22.1 N
55	45.5 Nova
56	7.3 N
~~56~~	~~37.7 Nova~~
~~57~~	~~3.2 Nova~~
58	5.0 Nova
58	11.8 N
58	35.3 Nova.
58	57.4 N

Both in northern half.

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Feb. 13, 1892.

~~7~~ 8 ~~7~~ 0.0 Nova
~~7~~ 15.0 nv
~~7~~ 28.1 nv
Nova

8 7 57.5 Nova
8 12.5 nv
8 25.5 nv
8 33.6 Nova

9 1.4 Nova
9 15.9 nv
9 29.5 nv
9 37.5 Nova

Nova in southern half, nv in northern half.

Relative est. for faint comp stars for Copeland's Nova

~~q 3 r~~ q 3.5 r
~~r 3 s~~ r 3 s
~~s 4.5 t~~ s 4 t
t 3.5 u
u 3 nv

Meas'ts. of light of Nova in terms of adjacent 11th mag. stars. Phot R Nova.

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Feb. 13, 1892.

10 59

Ziraley ~~Passing~~ ~~Looking~~ to right and below

254.1
64.0
254.0
66.4

Ft. dis at 339°

169.9 ^ ~~109.9~~ ~~112.4~~
~~3.6~~ ✓ 172.4 ^ / 3 ✓ ^ 2.3
-5.56 ~~17.7~~

Tan Rotated position circle 180°

172.9 ^ 164.1
337.0
170.7 ^ 165.3
~~3.7~~ ✓ 343.6 ✓ ^ 336.0
-5.72 16.7

left and abor E.

171.1 ^ 165.3
336.4
171.1 ^ 164.9
~~3.5~~ ✓ 342.2 ✓ ^ 336.0
~~-5.54~~ 7.8

Turned position circle 180°

~~66.4~~
254.2
171.0 ^ 65.2
253.5
172.9 ^ 66.4
~~3.0~~ ✓ 3.7 3.9 ✓ ^ ~~66.4~~
-5.76 16.1

right and below.

254.0
172.7 ^ 66.7
254.0
171.9 ^ 65.9
~~2.9~~ ✓ 3.4 4.6 ✓ ^
-5.86 15.4

Turned position circle 180°

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Feb. 13, 1892

171.0 165.6 Index to left and 336.6 above.

171.8 165.1

3 K2.8 336.9

11 28

11 13.5

-5.62 17.2

Copeland's Nova.

11 34 b 3 Nova, Nova 2 c in field glass N. obs.

11 38 The whole heavens north of the Zenith more or less filled with auroral light, arches, streamers and diffused light commingled together. Probably in places a faint rose tint but not very marked. Phenomenon brilliant even in moonlight.

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Feb. 15. 1892.

B & C, 11 in.

6	⊽4	36.7	
	⊽⊽	36.4	

B 394

7	6	00
	7	00

Reap. Jup. I N. obs. Homes recor

7	20	⊽⊽	
	2	12	
7	20	⊽6.	
7	6	0	
	22	⊽6	
6	⊽4	37	
7	17	33.	Ap. Time cal.

Jupiter close to horizon although it is still 10 min. before eclipse time. Sat. II at full brightness and much farther from Jupiter than Sat. I would be, if is only visible at intervals, Hence it would be utterly impossible to get any thing of value for Sat. I.

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Feb. 15, 1892.

Copeland's Nova

8 11 b 4 Nova, Nova 1 c in field glass
b 4 5 Nova with naked eye,

Meas'ts of light of Nova in terms of adjacent 11th magn. star. Phot. R Pole

8 23

	171.7^	75.1 Brad[illegible] to
		246.8 right and below,
	167.6^	77.6
~~5.2~~ ✓	339.3^	245.2
-5.22		20.7

Turned index 180°

	167.8^	~~177.4~~	167.3
			345.1 Prob. 335.1
	169.2^	169.2	166.5
~~5.0~~ ✓	337.0^	~~347.0~~	335.7
-4.98			23.0

	170.0^	166.0
		336.0
	164.3^	167.2
~~5.1~~ ✓	334.3^	335.5
-5.11		21.7

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Feb. 15, 1892.

Turned index 180°

256.0 164.8^
64.8
255.8
65.8 170.0^
334.6^ ~~3.2~~ v
21.2 -5.16

256.1 169.9^
66.0
255.2
65.2 170.0^
339.9^ ~~-5.28~~ v
20.1 -5.28

Turned index 180°

165.5 Prism to left and
169.7^ 335.2 above
165.9
170.0^ 335.9
v
339.7^
~~-5.26~~ 20.2

8 45
8 34

Copeland's Nova.

b 4 Nova, Nova / c in field glass.
8 50 b 4.5 Nova with naked eye.

Feb. 15. 23h.2 State with reference to means of light of Nova with 11th mag. star above.

At time of above observation, Nova was only about 1 hour west of the meridian and so inconveniently high, being not far from zenith. The position of the head and body was necessarily much constrained. Probably it would have been better to have measured it

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Feb. 15. 1892

the star later in the evening, but a cold prevented this. All the care possible under the circumstances to get both emergent pencils into the eye, as well as to get the eye normal to the eye piece and avoid the effect of the constrained position, was taken, and it was thought the measures were pretty good. although the altitude and constrained position probably may have effected them somewhat.

J. C. H.

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1991plate_proj_1992

Feb. 16, 1892

Measts. of light of Nova, in terms of adjacent 11th magn. star. Phot. R. Ot. obs.

10 33

171.3 75.8 Index to right and
247.1 below

169.2 77.0
3 ± 0.1 246.2
-3.35 18.5

Turned index 180°

170.5 165.3
335.8 Index to left + above.
166.0 165.5

170.4
3 ± 0.9 335.9
-3.39 19.1

170.1 165.9
336.0 " " " " "
166.0

170.0
3 ± 0.1 336.0
-5.30 19.9

Turned index 180°

170.2 255.1 Index to right + below.
65.3

169.2 255.0
339.4 64.2
-5.28 20.6

170.0 255.2 " " " " "
65.2

169.2 255.4
339.2 64.6
-5.20 20.8

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Feb. 16, 1892.

Turned ~~180~~ indx 180°

169.9 ~ 166.0 Indx to left and
335.9 above.
165.5

169.2 ~ 335.3
339.7

~~0~~ -5.26 = 20.3

10 54
10 43.5

Copeland's Nova.

11 11 Nova = 6 in field of 6 1/2
Too faint for naked eye estimate.
Moon four days past the full.
X Aurigae easily visible to naked
eye; Nova nearly invisible.

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Feb. 17. 1892

R Lyncis. W. Ho.

6	49	+√√.0
7	50	
+1	1	
7	56	
+1	7	

m 2.5 R R 2 in large tel.
Rather too faint for finder.

10 13 Est 11.3

Meas'ts. of light of Nova in terms of adjacent 11th magn star. Phot. R. M. obs.

10 31

174.0 √1 75.0 leading to right and 249.0 below

170.6 √1 76.2

3 4 4.6 √2 246.8

-5.86 √1 15.4

Turned index 180°
Front and Micol

173.3 √1 344.6
157.9

173.0 √1 344.2
157.2

3 4 6.3 13.7

-6.11 √1

3240
1620

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90

Feb 17, 1892.

344.2
157.2
343.8
157.2

173.0
173.4
346.4
13.6 - 6.13

Turned index 180°
Slight frost on Nicol.

248.3 253.9
£7.0 67.0 £6.9 67.9 174.0
£7.0 £7.1
£7.3 256.9 £7.2 253.6
£7.1 68.0 £7.2 68.0 174.4
346.4
4|643.4 11.6 - 6.48
160.2 +180° = 340.4

253.3
£7.6 68.2 174.9
£7.3
£6.9 254.0
£7.1 68.0 174.0
4|643.5 346.9
160.9 11.1 - 6.57

Turned index 180°

173.2 344.2 Index to left
157.4 and above.

344.1
173.2
4|643.0 157.9
160.3

11 2
10 46.5

Troubled more or less by frost on Nicol. Moon came up during observations.

Copeland's Nova.

11 7 b 2.5 Nova, Nova 2.5 c in field glass.
b 2.5 Nova to naked eye.

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1894phot.proj.1532

Feb. 14. 1892.

R Lyncis. Yr. No.

6 K9 +V V.O
7 2V
+36

m 3R, R 2 m in large tel.
Too faint for finder.
Est. 11,2

Copeland's Nova

9 33 b 3.5 Nova, Nova 1.5 c in field glass
b 4 Nova with naked eye.

S. Cassiop.

1 10 +72.1
7 37
+6 27

S = 2 in large tel
Too faint for finder
9 55 Est 12.8

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1891phae.proj.1332

Feb. 18, 1892.

δ Persei

2	8	+57.2
7	5-9	
+5-	5-1	

b 3.5 d, δ 1.5- c in finder,
b 4δ, δ 2 c in large tel.

10 9 Est. 8.6

T. Ursae. Maj.

12	33	+60.4
32	15-	
+19	42	

32	25-
+19	5-2

~~+27~~

μ 2 1, T 29 in large tel.
Too faint for finder.

10 30 Est. 12.0

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1891phae.proj.1332.

Feb. 18, 1892

Means of ~~X~~ light of Nova in terms of
H. adjacent to magn. star. Phot. R. Hr. obs.

10 44

172.7 254.3 Index to right and
67.0 below

173.7 254.0
346.4 67.7
13.6 ~~4.4~~ -6.13

Turned index 180°

~~344~~ 345.5 171.9
157.0
345.0 172.2
157.2 343.7 ~~3.7~~
~~5.78~~ 16.3

345.0 172.0
157.0
345.0 172.0
157.0 344.0 ~~3.8~~
-5.78 16.0

Turned index 180°

~~03.7~~ 75.0 172.2
~~247.7~~ 247.2

75.0 172.5
247.5 347.7 ~~3.9~~
-5.87 15.3

76.0 171.2
247.2
75.7 172.0
247.7 343.7 ~~3.7~~
-5.67 16.8

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1891phae.proj.1332

Feb. 18, 1892,

Turned index 180°

170.5 344.8 Index to left
155.3 and above

170.7 340.0
341.2 15 5.7

11 5

Reject above Shutter found to overlap object glass.

171.9 345.3 Index to left and
157.2 above.

11 16

171.8 345.0
343.7 156.8

11 00

16.3 - 5.74.

Copeland's Nova

b 4 Nova, Nova 1 c in field glass,

11 22 b 4 Nova to naked eye.

Rest stands to make Nova = c in

11 26 field glass

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1891phae.proj.1332.

Feb. 22, 1892.

Copeland's Nova

Nova at first thought to be one grade brighter than star a, but finally concluded that
7 . 30 Nova = a in field glass.
Sky a very little hazy.

Came to Observatory latter part of evening but fog came in suddenly preventing measurement of Nova.
Waited until about midnight but still thickly foggy. W.

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1891phae.proj.1332

Mar 4, 1892

Copeland's Nova.

N. obs.

8 ~~Nova Aurigae~~

8 10 ℰ 1.5 Nova, Nova 1.5 f in field glass.

9 45 ℰ 2 Nova, Nova 1.5 f in field glass.

Measts of light of Nova in terms of adjacent 11th magn star Phot. R.

N. obs.

10 23

170.6 ^ 76.0 Index to right
246.6 and below

76.5

~~3.3~~ 169.9 ^ / 340.5 ^ 246.4

Turned index 180° 19.5 - 5.36

166.5 ^ 166.5 Index to left
335.0 and above.

169.9 ^ 166.1

~~3.4~~ / 332.4 ^ 336.0

21.6 - 5.12

169.0 ^ 167.0
336.0

166.9

~~3.0~~ 169.3 ^ / 337.3 ^ 335.2

22.7 - 5.81

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1891phae.proj.1332.

Mar. 4, 1892

Turned index 180°

	76.1	Index to right and
170.9^	247.0	below
	77.8	
168.5^		
~~3.2~~ 339.3^	246.2	
20.7	- 5.22	
	77.9	
168.1^	246.0	
	76.6	
169.5^		
~~3.0~~ 337.6^	246.1	
22.4	- 5.04	

Turned index 180° 167.2 Index to left and

167.7^ 334.9 above

166.5

168.5^

~~2.9~~ 336.2^ 335.0

23.8 - 4.91

10 45

10 34.0

Copeland's Nova

11 7 & 2 Nova, Nova 1.5 f. in field glass

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Mar. 5, 1892 — At. obs.

Copeland's Nova.

7 29 ℓ 2 Nova, Nova 1.5 f infield glass.

Examination of comparison stars for U. Orionis.

5	46	+20.2
7	27	
+1	41	

Interval from d to e is rather large being apparently some six or seven grades. DM. +19° 1110 is some two or three grades fainter than star d and could be inserted between d and e

DM. +20° 1188 can very well be used in sequence for U. Orionis as it is some 4 grades fainter than star m' which is the last one on list as already selected.

The stars selected seem in general to be pretty good.

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Mar. 5, 1892
Copeland's Nova

9 34 ≏ 1.5 Nova, Nova 2 f in field of glass.

Reexamination of comparison star h ~~for Nova Aur~~ (= l in old notation) for Nova Aurigae, to see if star assumed is h is the correct one,
A thorough examination of the region proves that star assumed for h is right.

S. Cassiop.

1	10	+72.1
9	26	
+8	16	

Moon rather bright but S. Cassiop thought to be identified,
S = n in large tel.
~~Est +~~ Too faint for finder.
10 31 Est 12.5

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1891phae.proj.1332.

100

Mar. 5, 1892.

Meas'ts of light of Nova in terms of adjacent 11th magn. stars. Phot. R Obs.

2 2	40.3	+ 30.2
3 9	55	
+11	15	

5	23
9	57
+4	34

10 51

77.2 Index to right
169.8^ 247.0 and below
78.2
167.8^ 246.0
-3.0^ 337.6^ - 5.04
22.4

167.8 Index to left and
165.7^ 333.5 above
166.7^ 168.2
-2.6^ 332.6^ 334.9
27.6 - 4.59

166.0^ 168.1
334.1
166.2^ 167.8
-2.6^ 332.2^ 334.0
27.8 - 4.57

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1891phae.proj.1332.

Mar. 5, 1892

Index to right and below,

77.3 166.6 ^
243.9
77.6 167.4 ^
245.0 334.0 ^ ~~-2.7~~ ✓
26.0 -4.72

77.0 168.1 ^
245.1

76.1 170.5 ^
246.6 334.6 ^ ~~-3.1~~ ✓
21.4 -5.14

Index to left and above,

166.9 168.0 ^
334.9

167.7 167.3 ^
335.0 335.3 ^ ~~-2.8~~ ✓
24.7 -4.83

11 4
10 57.3

Copeland's Nova

11 10 2 Nova, Nova 1.5 f in field glass

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1891phae.proj.13321

Mar. 6. 1892.

Observations of Capelandi Nova made at Lowell mar 6. evening and copied after coming to the Observatory Mar. 7. A. M.

9h 25m ε 3 A, A 1 f (Field Glass.)

9h 50m A = f " "

10h 30m A = f " "

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Mar. 7, 1892

Copeland's Nova

St. obs.

7 38 ~~pr~~ b 1.5 Nova, Nova 1.5 g in fieldglass.

Nov. maj.

12 33 +60.6
7 12
5 21

~~g~~ 3 S, I 1.5 r in large tel.
Too faint for finder

8 15 Eat. 11.8

S. Cassiop.

1 10 +72.1
7 43
+6 33

S = b in large tel.
Too faint for finder.

8 46 Eat. 13.1

Observation difficult and region rather difficult of identification on account of brightness of moon, but S thought to be certainly identified to night. It is probable however

(over)

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Mar. 7, 1892

that wrong star was assumed for S on March 5 (Sat night) as careful identification to night seems to prove that wrong star was then assumed for S. which was then found diffi to be difficult of identification.

Copeland's Nova.

9 2 Nova = 9 in field glass

Examination of comparison stars for S. Canis Minoris.

7	20		+8.6
8	26	Abandoned for the present	
+1	6		

Mr. Wendell + Mr. Reed examined region of N. Orionis to see if D.M. +19° 1110 and +20° 1188 ~~could be used~~ (M. P. stars) could be used in the six inch, as well as 15 inch, in sequence on above variable. With the result that they can be as indicated by both instruments.

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Mar. 7, 1892.

Examination of comparison stars for δ. Canis Minoris.

7	20	+8.6
9	25	
+2	5	

Comparison stars for δ. Canis Minoris partially examined. Interval between a and b looks a little large, and between c and d perhaps a little small.

Measrs of light of Copeland's Nova in terms of adjacent 11.0 magn. stars Phot. R. Obs.

5	23	+30.2
9	45	
+4	22	

10 29

167.6 77.6 Index to right
245.2 and below
78.9
166.3 245.2
333.9
-4.91 26.1

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1891phae.proj.1382

Mar. 7, 1892.

166.2 ^ 168.0 Index to left and
334.2 above.

164.3 ^ 168.2
v
-~~2.0~~ = 330.5 ^ 332.5
-4.44 29.5

169.1
16v.0 ^ 334.1

168.0
166.v ^
v 334.5
-~~2.5~~ = 331.v ^
-4.52 28.5

169.v ^ 76.3 Index to right and
245.8 below.

78.0
167.8 ^
v 245.8
-~~3.0~~ = 337.3 ^
-5.01 22.7

78.5
167.3 ^ 245.8

77.2
169.0 ^
v 246.2
-~~2.9~~ = 336.3 ^
-4.92 23.7

166.9 ^ 167.2 Index to left and
334.1 above.

166.2 ^ 168.0
v 334.2
-~~2.6~~ = 333.1 ^
-4.64 26.9

10 40
10 34.5

Setting on position of new comet for morning observation

1891phae.proj.1332.

Mar. 7, 1892

Setting on position of new comet for morning observation.

18	59	−31.4
15	30	
−3	29	

Copeland's Nova,

10 56 Nova = 9 in fieldglass.

Swifts draw ⟵ Fr. obs.

18	ν9	
1ν	22	
−3	37	−31.3

16	ν
−2	ν4

R.A.	−2	3ν	−30.°3ν
Time	16	14	
R.A.	18	49	~~It~~ This is 2 degrees 67 ν.

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Mar. 7. 1892.

Con. from previous page.

as thorough an examination of region of telegraphed place of comet made as possible. Troubled by low altitude. Somewhat cloudy also in this region. Comet not found.

It is hardly possible that Swift may have found Dreyer 671 mentioned on previous page and which answers pretty well to his description of the comet's appearance.

It is some 10 minutes west of the telegraphed position and about 3/4 of a degree north.

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Mar 9. 1892

Ot. obs.

Copeland's Nova.

9 18. h 2 Nova, Nova 2.5 k in field glass.

Examination of comparison stars for S. Canis Minoris.

7	28	+7.9	~~8.6~~
9	2		
+1	34		
9	12		
	44		

7	32	
9	12	
+1	40	

Interval between a and b rather large. Stars c and d are rather close in brightness. There is no perceptible difference between them in finder; there is however a very little, in the large tel., but even there, there does not seem to be much difference. The rest of the selection seems very good.

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Mar. 9, 1892

Measrs of light of Copeland's Nova in terms of adjacent 11th magn star
Phot. R. Obs.

5 23 +30.2
9 46
+4 23

10 29

16 v. 7 v 78.1 Index to right and
v 243.8 below.
82.5

1 v 9.4 v 241.9
v 32 v 1 v
34.9 -4.07

162.0 v 170.2 Index to left and
332.2 above.

162.9 v 169.1
v 324.9 v 332.0
35.1 -4.06

162.2 v 169.9
332.1

161.0 v 170.0
v 323.2 v 331.0
36.8 -3.95

16 v. v 78.7 Index to right and
244.2 below.

164.4 v 78.8
v 329.9 v 243.2
~~3~~ 40.1 -~~3.7~~
-4.46

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Mar. 9, 1892.

163.2 ✓ 80.0
243.2
163.3 ✓ 79.9
✓ 326 ✓ ✓ 243.2
33.5 −4.16

162.0 ✓ 170.0 Index to left and
332.0 above
162.7 ✓ 169.2
✓ 3247 ✓ 331.9
353 −4.04

10 42.
10 35.5

Copeland's Nova.

10 47 h 2.5 Nova, Nova 2.5 h in fieldglass.

Setting on position of new comet for morning observation

19 00 −30.5
15 25
− 3 35

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Mear. 9. 1892.

Swifts' new comet. Fr. Ho.

19 7 −29.8
15 37
−3 30

Comet found.
−3 15 −28.9
15 57
19 12 −28.9 ∝ 6° pos.

Pos. Zero 3♈9.♈
4♈.0
31 4.♈

16 7 ♓9.0 0≡
8 13.♈ 0≡
11 27.0 ✶
11 ♈0.♈ ✶

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Mar. 9. 1892.

13	1K.0
13	31.0
16	49.v
17	9.0
19	21.4
19	40.9
2v	56.1
23	18.9
2K	33.v
2K	K9.v
24	V.v
24	27.v

Order in preceding transits = = * *
Comet in northern half inside
Star " southern " outside.
Comp. Star 7.v to 8.0 magn.

Am 8.v fol = K secs. 13' south.
At 6.v " comp. star 2m 6s, 1K.v south.
At 7.0 pr. the 6.v; 3m 3s, 13' south.
There is also a 7.v to 7.4 which precedes the 7.0 a half equator ±, and 3' ± south, but daylight so strong that it was lost before transits could be taken.

over.

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Mar. 9. 1891.

The comet is pretty bright; but just how bright is difficult to say from the strong moonlight. It might very well be up to naked eye visibility, possibly, if the moon was out of the way.

Not seen however this morning with naked eye. Comet quite round with no tail visible. Coma 3' diam. Strong central condensation. Nucleus pretty well defined.

At times it seems as if the nucleus was a little eccentric, with the coma a little more extended on the fol. side.

There is more or less light cloud in region of comet. ~~mark~~

Comp. Star = Gould's Cat. Gen. (Vol. 4) 26h 24.
Mag. 7 3/4

	B. 236.			B. 394.		
17	19	6.5		17	50	0.0
	20	6.6			51	0.0

∴ B. 236 was 0m 40.1 slow.

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Swar. 11. 1892.

Swift's star ε Y. Ls.

19	21	−27.3
15	4V	
−3	36	

−3	3K	−27,0
1V	K7	
19	21	

Pos. Zero 3V9.V
KV.0
31K.V

1V	V1	39.V	ε
	V2	17K	ε
	V2	53.9	*
	53	30.V	*
	V4	1K.7	
	V4	K9.K	
	VV	2V.V	
	V6	V.K	

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Mar. 11. 1892.

15	17	9.0	∞
	17	41.4	∞
	12	16.0	*
	54	54.1	*
	59	49.1	
16	0	19.4	
	0	54.0	
	1	34.4	
	2	31.1	
	3	41.1	
	3	37.0	
	4	24.1	
	5	6.1	
	5	35.0	
	6	7.2	
	76	56.0	
	7	51.6	
	14	14.9	
	8	10.2	
	9	40.1	

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1891phae.proj.1332.

Mar. 11. 1892.

Order ○= ○= * *

○= in southern half,

* " northern "

Comps. star bright — 5.5 to 6 magn.

~~13~~	~~50~~	~~Comp. Star~~	Dec.
16	41	Comp star.	0.0
19	52	(4 mag.)	−4.0
20	44	(4 ")	−4.5
20	50	(9 ")	−4.5
20	56	(4.5 mag)	−11.5
21	24	(7.7 ")	−10.5
21	32	(4.3 ")	−11.0

0	0	(4.4 mag.)	~~+5.0~~ 0.0
0	15	(Comp. *)	+7.5
0	19	(4.2 mag)	+4.0.

∴ Comp. Star = Cord. Ob. Cat. Gen. Vol. 14. 26642 (6 mag)

Comet bright. Coma 3′ diam.
Strong central condensation. No tail visible in moonlight. Nucleus seems a little eccentric as in previous night, with coma a little more extended on south pol. side.

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Mar. 11. 1892.

B 236.			B. 394.		
16	49	42.7	17	13	0.0
	50	42.9		14	0.0

∴ B 236 was 0^m 50.9 slow.

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Mar. 12. 1892.

Copeland's Nova. Lr. Mo.

~~Nova~~

8h 0m K. 4# Nova in field glass.
~~4~~ Sky pretty clear in this region.
Moon bright. Obs. difficult.

Clouds again

8 34 Rather clear again

Copelands Nova.

5	23	+30.2
8	15	
+2	52	
8	18	
+2	55	

More or less clouds about but pretty clear in this region at time of obs.

Nova = l in large tel.

8 50 Nova = l in finder

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March 12, 1892

Means of Copeland's Nova in terms of adjacent 11th mag. stars. Phot. R. Ast. Obs.

8 55

	82.8	Index to right
1 V V.2 ^	238.0	and below.
	85.1	
1 V 1.1 ^	236.2	
~~+1~~ V 3063 ^		
5 3.7	- 3.11	
	174.2	Index to left and
1 V 6. V ^	325.7	above.
	174.1	
1 V 3.0 ^	327.1	
~~+0~~ V 304 V ^		
55.5	- 3.04	
	174.2	
1 V 4.3 ^	328.5	
	174.6	
1 V 3.3 ^	327.9	
~~+0~~ V 307.6 ^		
52.4	- 3.17	
	83.9	Index to right and
1 V 4.1 ^	238.0	below.
	86.5	
1 V 1. V ^	238.0	
~~+1~~ V 30 V 6 ^		
57.4	-3.08	
	86.0	
1 4 9.6 ^	235.6	
	84.0	
1 V 4. V ^	238.5	
~~+1~~ V ~~3 0 6 9~~		
304.1 ^		
55.9	- 3.02	

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1891phae.proj.1332.

Mar. 12, 1892

174.0 Lucky to ✗ left
152.2 326.2 and above,
173.2
153.9 327.1
306.1
53.9 - 3.1

9 10
9 02.5

Clouds running.
Position of head a little constrained in measurement, but measurement thought to be pretty good.

D. M. Jones with Abridge Plant.
+9°

Series

Clouds again

9 50 Still cloudy

10 20 Still cloudy,

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1891phae.proj.1332.

Mar 14, 1892

Copeland's Nova

N. obs.

+30.2

5	23		
7	24		
+2	1		

7 5 1 l 2.5 Nova, Nova 3 m in finder
l 2.5 Nova, Nova 3 m in large tel.

Mean Δα of light of Nova in terms of adjacent 11th mag'n. star. Plate R. N. obs.

8 4

151.2^	85.8	Ladder to right
	237.0	and below
150.3^	85.0	
~~0.9~~ ✓ 301.5^	235.3	
58.5	-2.92	
149.1^	175.9	Ladder to left and
	325.0	above
	176.2	
147.7^ ✓	323.9	
~~0.7~~ 296.8^		
63.3	.274	
149.1^	177.0	
	326.1	
	175.8	
144.4^ ✓	324.2	
~~0.4~~ 297.5^		
62.3	-2.77	

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Mar. 14, 1892.

151.5^ 85.5 Index to right
237.0 and below.
86.0
149.5^ 235.5
~~0.9~~ v 301.0^ 58.0 88.0 -2.90

147.4^ 88.0
235.4
150.9^ 85.1
~~-0.8~~ v 294.3^ 236.0
61.7 -2.80

148.0^ 178.1 Index to left and
326.1 above
149.3^ 175.9
~~-0.8~~ v 297.3^ 325.2
62.7 -2.76

8 19
8 11.5

8 21

150.0^ 175.2 Index to left and
325.2 above
149.7^ 175.2
~~-0.8~~ v 299.7^ 324.9
60.3 -2.85

150.4^ 85.2 Index to right and
236.0 below.
150.9^ 85.3
~~-0.9~~ v 301.7^ 236.2
58.3 -2.93

148.2^ 86.8 Passing clouds.
235.0
151.2^ 85.5
~~-0.8~~ v 299.4^ 236.7
60.6 -2.84

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Mar, 14, 1892

177.0 Image to left
147.1^ 324.1 and above,
175.0
1v0.2^ 325.2
~~0.4~~ v 297.3^ -2.76
62.7

174.4
1v1.7^ 326.1

177.2
1v6.3^ 323.5
~~0.4~~ v 294.0^ -2.79
62.0

Clouds

84.2 Image to right
1v2.6^ 236.8 and below
86.8 ~~Clouds~~
1v4.v^ 235.3
~~.9~~ v 301.1^ -2.90
58.9

8 36
8 28.5

Clear Image to right
8 49 88.0 and below
1v.7^ 233.7
86.7
1v4.4^ 235.5
~~.7~~ v 29v.v^ -2.66
65.5

177.5 Image to left and
~~1v6.v~~^ 324.0 above.
175.0
1v2.0^ 327.0
~~0.4~~ v 29v.v^ -2.80
61.5

175.0
1v0.8^ 325.8
175.9
1v7.9^ 323.8
~~.4~~ v 29v.7^ -2.81
61.3

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Mar. 14, 1892.

149.2^ 86.0 Index to right and
235.2 below.

147.5^ 87.4
−0.7 296.7^ 234.9
63.3 −2.74

144.1^ 89.1
233.2
86.0

150.6^ 236.6
−0.7 294.7^ −2.67
65.3

175.2 Index to left and above,
149.4^ 325.0

176.2
146.6^ 322.8
−0.7 296.4^ −2.73
63.6

9 8
8 58.5

9 28

176.8 Index to left, and above
146.4^ 323.2

175.2
149.3^ 324.5
−0.7 294.7^ −2.70
64.3

87.1 Index to right, and below.
147.9^ 235.0

87.0
148.2^ 235.2
−0.7 296.1^ −2.72
68.9

92.2
142.3^ 234.5

88.0
148.1^ 236.1
−0.7 294.4^ −2.52
69.6

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Mar. 14, 1892

1K5.4	176.2	Index to left
	322.0	and above.
	175.3	Clouds
1K2.5	323.8	
29K.3	-2.65	
65.7		
1K0.2	175.0	
	325.8	
1K6.1	177.1	
296.9	323.2	
69.1	-2.74	
1K7.4	87.4	Index to right and
	235.2	below
1K3.6	91.4	
296K	235.0	
68.6	-2.55	
1KK3	88.2	Index to right and
	232.5	below.
1K7.0	87.2	
291.3	234.2	
68.7	-2.55	
1K9.9	174.1	Index to left and
	324.0	above.
	175.4	
1K7.7	323.1	
297.6	-2.77	
62.4		
1K6.2	176.8	
	323.0	
1K9.0	176.0	
295.2	325.0	
64.8	-2.68	

9 43
9 35.5

9 50

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Mar. 14, 1892

	1K7.6^	86.8	Image to right and
		234.4	below,
	1K2.3^	89.0	
	249.9^	231.3	
	70.1	-2.50	
	1K1.5^	91.3	
		232.8	
	1K9.5^	87.0	
	291.0^	236.5	
	68.9	-2.57	
	1K5.2^	177.4	Image to left and
		322.6	above,
	1K5.7^	178.0	
10 5	290.9^	323.7	
9 57.5	68.1	-2.57	
10 17	1K6.1^	175.9	Image to left and
		322.0	above
	1K4.1^	178.7	
	290.2^	322.8	
	69.8	-2.51	
	1K2.0^	90.2	Image to right and
		232.2	below
	139.5^	92.2	
	256.5^	231.7	
	78.5	-2.24	
	1K1.3^	92.2	
		233.5	
	1K3.2^	89.7	
	254.5^	232.9	
	75.5	-2.33	

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1891phae.proj.1392

Mar. 14, 1892

176.6 1K8.2^ Index to left and above
324.8

177.7
323.7 1K6.0^
2K2.2^ -0.6^
65.8 -2.65

177.0 1K6.2^
323.2

177.2
323.0 1K5.8^
2920^ -0.6^
68.0 -2.57 Index to right and below

~~K9~~

86.7 1K8.3^
235.0

91.0
232.0 1K1.0^
2A9.3^ -0.4^
70.7 -2.48

10 30
10 23.5

10 31

1K3.6^ 91.2 Index to right and below
234.8

1K4.5^ 90.2
-0.4^ 2A81^ 234.7
71.9 -2.44

1K6.3^ 176.3 Index to left and above
322.6

1K6.7^ 176.3
-0.6^ 2930^ 323.0
67.0 -2.61

1K8.8^ 177.5
322.3

67.1
-2.60 1K8.1^ 176.0
-0.6^ 2929^ 324.1

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1891phae.proj.1332

Mar. 14, 1892.

	87.1	Ladey to right and
149.1	236.2	below
	89.2	
149.0	234.2	
−0.6 | 296.1	−2.65	
65.9		
	89.4	
143.6	233.0	
	88.6	
145.9	234.5	
−0.4 | 294.9	−2.49	
70.5		
	177.9	Ladey to left and
146.1	324.0	above
	177.0	
146.4	323.4	
10 45		
−0.6 | 292.5	−2.59	
10 38.0	69.5	
10 45		
	177.4	Ladey to ~~left~~ right and
147.8	320.2	above
	175.8	
146.2	324.0	
−0.7 | 296.0	−2.71	
64.0		
	87.2	Ladey to right and
147.8	235.0	below
	89.6	
145.9	234.5	
−0.6 | 292.7	−2.60	
67.3		
	90.0	
143.0	233.0	
	87.7	
147.3	235.0	
−0.4 | 290.3	−2.52	
69.7		

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1891phae.proj.13321

Mar. 14, 1892

	149.6^	175.8	Lindsey to left
		325.4	and above
	148.9^	175.9	
-0.8 ✓	298.5^	324.8	
	61.5	-2.80	
	147.2^	177.0	
		324.2	
	148.8^	176.2	
-0.7 ✓	296.0^	325.0	
	64.0	-2.71	
	145.8^	88.4	Lindsey to night
		234.2	and below.
	143.3^	90.5	
-0.1 ✓	289.1^	233.8	
	70.9	-2.48	
10 59.			
10 52.0			

Copelands Nova.

11 8 l 4 Nova, Nova $\frac{1}{2}$in, in large tel.
l 4 Nova, Nova $\frac{1}{2}$in, in finder.

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1891phae.proj.1332.

Mar. 15, 1892

Copeland's Nova N. obs.

8 0 l 4 Nova, Nova 2.5m, in large tel.
8 0 l 4 Nova, Nova 2 m, in finder.

Examination of comparison stars for R. Canari.

N. obs.

8	8	+9.7
8	0	
~0	8	

Star a (1st star on the list) is about 7½ magn. whereas the variable at maximum comes up to 6.0 so that series of comparison stars should be brought up some 2 magns brighter than they now are.

Interval between a and b, decidedly large

Stars c and d seem to be of about the same brightness in finder but c seems to be 2 or 3 grades brighter in the large tel. so that they are probably all right.

Interval between c and f, though not very bad looks rather large certainly 5 or 6 grades. (over)

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1891phae.proj.1382

Mar 15, 1892.

Otherwise the selection seems to be very good to star 8 inclusive which is as far as the list goes.

f 4R, R1g in large tel.
~~Rabbit~~

f 4R, R1g in finder.

9 23 Est. 9.1

Means of light of Copeland's Nova in terms of adjacent 11th magn. star

	Phot. R.	Obs.
5	23	+30.2
9	30	
+4	7	

9 52

146.0 ^ 88.8 binding to right
234.8 and below

143.1 ^ 90.0
~~2~~ 249.1 ^ 233.1
70.9 - 2.48

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1891phae.proj.1332.

Mar. 15, 1892

	178.1	Index to left and
1K2.9	321.0	above.
	177.0	
1K7.0	324.0	
2A9.9	~~179.1~~	
70.1	-2.50	
	179.1	
1K2.0	321.1	
	178.1	
1K1.9	320.0	
2A3.9		
76.1	-2.31	
	92.0	Index to right and
1K0.7	232.7	below.
	89.9	
1K2.3	232.2	
2A3.0		
77.0	-2.28	
	91.2	
1K2.4	234.0	
	89.5	
1K4.7	234.2	
2A7.5		
72.5	-2.43	
	178.2	Index to left and
1K2.3	320.5	above.
	178.0	
1K7.0	323.0	
2A7.3		
72.0	-2.42	

10 6
9 59.0

Slight cloudiness during measurs especially when the 2nd set was being taken. Generally, however, pretty clear. Became cloudy immediately after ending series so that 2nd relative ests. could not be taken.

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Mar. 15, 1892

Removed phot. and inserted number 1 micrometer eye piece Thickly cloudy however. Nova

10 11 invisible in large tel.

10 30 Still cloudy

Comet b 1892 (Swift) H. obs.

19	∠ o	−23.5
16	9	
−3	31	

Sky a little cloudy on coming to the observatory, but yet it looked as if the ☌ might possibly be obtained. Cloudy, however, became thicker rather suddenly, & did for comet. Let on position and swept about thoroughly, but no star or ☌ visible. H.

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Posted up to here.

Mar. 16, 1892

Copeland's Nova. At. obs.

	5	23	+80.2
	7	24	
	+2	1	

7 45 m 2 Nova, Nova 3 m in finder
m 2 Nova, Nova 2 m in large tel.

Relative estimates of comparison stars for Nova Aurigae which can be seen easily with field glass.
Relative estimates made with field glass.

7 58 a 3 b
b 4.5 c
c 4.5 d
d 3 e
e 3.5 f
f 3 g
g 5 h
8 30 h 4.5 k

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Mar. 16, 1892

Faint Circumpolar variables.

S. Cassiop. M. obs.

1	10
8	30
+7	40

+72.1

ℓ 4 S, S 1 F in large tel.
Too faint for finder
9 9 Est. 13.1

R. Aurigae. M. obs.

5	4
9	7
+4	3

+53.0

n 2 R, R 3 O in large tel.
Rather too faint for finder.
9 23 Est. 11.5

T. Urs. Maj. M. obs.

12	33
9	20
−3	13

+60.4

2 2 T, T 2 2 in large tel.
Too faint for finder
9 25 Est. 12.3

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1891phae.proj.1332.

Mar. 16, 1892

R. Camelop. 4t. obs.

14	40	+84.1
9	34	
−5	6	

~~k~~ 5 R, R 1.5 k in large tel.
Too faint for finder
9 54 Est. 12.1

Examination of 4 comparison stars for U. Cancri, 4t. obs.

8	14	+16.6
9	53	
+1	39	

Star a is 6.8 mag. by the D.M. and looks to be of about that magn. in the tel. As the variable comes up to 6.8 magn. at maximum, there ought to be at least one star brighter than a included in the series.

Interval between b and c looks too large and there ought to be another star inserted.

The rest of the sequence very good to g inclusive.

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1891phae.proj.132.

Mar. 16, 1892.

Measrs of light of Copeland's Nova in terms of adjacent 11th magn. star. Phot. R. Obs.

5	23	+30.2
10	25	
+5	2	

10 50

135.7 94.1 Lucky to right
229.8 and below

92.8
135.K 228.2
0.1 271.1

Lucky to left and above,

There is so much cloud and images are so faint that it is impossible to continue, Images very faint in the set obtained. Set probably not of much value.

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1891phae.proj.1332.

Mar. 17, 1892

~~5~~ ——— 2

	Copeland's Nova.	N. obs.
5	23	+30.2
7	25	
+2	2	

Nova = n in finder

7 36 n 1.5 Nova, Nova 1.5 o in large tel.

7 48 All cloudy with no prospect of clearing.

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1891phae.proj.1332.

May. 19. 1892.

Copelands Nova. Gr. Obs.

+30.2

5 23
7 51
+2 28
7 55
+2 32

n 3 Nova, Nova 1.5 S in finder.
7 54 Nova = 0 in largetel

~~Comet Barnard~~
Denning's new Comet. (May. 18) Gr. Obs.

22 44 +59°
8 6
+9 22

~~8h.~~ ~~16~~
8 16.~~23~~ 23 ~~58.9°~~
Dec. 58.9°
H.A -2 31

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1891phae.proj.1332.

Mar. 19, 1892

~~A 16 23~~
~~2~~

~~A 16 23~~
~~2~~

A 16 23
2
32 16 23
9 29
22 47 = R.A. + v - 4.9

Position of Damoiseau's star = Sr. 6.

Poz. Zero.
320.6
45.0
275.6

h.	m.	sec.		
8	55	33.0	=	=
	56	46.0	=	=
	57	0.5	=	*
	57	27.5		*
	58	31.9		
	59	42.0		
	59	56.9		
9	0	24.5		

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1891phae.proj.1382

Mar, 19, 1892

h.	m.	sec.	
9	2	2.9	
	3	14.0	
	3	27.5	
	3	54.8	
	6	2.0	−0.2
	7	14.3	
	7	26.2	
	7	54.0	
	10	32.5	
	11	47.5	
	11	56.3	
	12	25.0	

Order in preceding transits comet, comet, star, star. Comet in southern half inside square, ✱ star in northern half outside square. Comet small and faint one min. of arc in ~~dd~~ diameter; nucleus fairly well defined; comet 12th magn. Observations rather difficult on account of low altitude and rather poor seeing from wind.
Comp. star = D.M. +59° 2595 (6.3 A.)

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Mar. 19. 1892.

B. 236.

9	37	A.O
	34	A.O

B. 394

9	31	0.0
	32	0.0

∴ B 236 is 1m 42s.0 slow.

Examination of remainder of comparison stars for U. Canori. M. obs.

8	17	+17.5
9	58	
+1	41	

10	3
+1	46

There is not much difference between stars k and l, but l is perhaps 2½ grades fainter than k so it can too very well be retained, interval between m and n perhaps a little large though interval is not bad. Perhaps D.M. +18° 1923 could be inserted with advantage, This is marked as 8.2 magn. in the D.M. but the D.M. is wrong. The 8.2 is the preceding about 2/6 of the square and 2 min. south.

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Mar. 19, 1892.

Measts. of light of Copeland's Nova in terms of adj

	Copeland's Nova.	N. obs.
5⁻	23	+30.2
10	32	
+5⁻	9	

10 36 0 2.5 Nova, Nova 2 p in finder
0 1.5 Nova, Nova 3 p in large tel.

Measts. of light of Copeland's Nova in terms of adjacent 11th magn. star

	Plust. R.	N. obs.
~~43~~		~~41.0~~
10 46		
121.5^		102.0 binder to right
		223.5 and below.
110.2^		102.0
0.2 v 2603^		220.8
129.7		-1.20
121.8^		188.9 binder to left and
		310.3 above.
121.1^		188.9
0.6 v 2432^		310.0
117.5		-1.25

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1891phae..proj..1332.

Mar. 19, 1892.

188.9
122.8 311.3
123.6 187.5
0.7 246.0 311.1
114.0 -1.33

119.9 103.6 Index to right and
223.5 below

123.2 100.8
1.7 246.3 224.0
116.9 -1.26

121.9 100.0
221.9

120.6 101.5
0.8 247.5 222.1
117.5 -1.25

121.2 189.9 Index to left and above.
311.1

120.9 189.3
0.1 242.1 310.2
117.9 -1.24

11 3
10 54.5

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Mar. 20. 1892.

Comet 1892 a (Swift)

16h K3 29.7 ≈
KK 10.9 ≈
14.0 *
33.0 *

Kv 6.1
K 7.1
v K.1

K6 9.3

K6 v 3.1
K7 33.K
K0.6
v 5.0

KA v 6.9
K9 37.K
KK.0
v 7.7

v1 29.2
v2 9.0
16.v K 9.0

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1891phae.proj.1332.

Mar. 20. 1892.

16 √3 ⊀2.3
√⊀ 22.⊀
29.√
⊀1.√

√√ 23.√
√6 3.0
9.9
22.√

Order in preceding branch ○≡ ○≡ * *
Comet in northern half inside square.
Star " " " outside "

Comet bright visible to naked eye. about equal to ⊀th mag. star. No tail visible either inside or outside the telescope. Moon a little past the last quarter and sky somewhat bright. Nucleus fairly well defined. Coma traced for a distance of some 6' ~~of arc~~ but well defined for 3'.
Comp. star = SD. −12° 5609 (A.O. ⊀)

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1891phae.proj.1332

10

March 20. 1892.

Chronometer comparison.
March 20. 1892.
In connection with Observation of Comet b 1892 (Swift)

B. 236.			B. 396.		
17	24	11.5	17	13	0.0
	25	11.6		14	0.0

∴ B.236 was 1m 5s.0 slow.

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1891phae.proj.1332.

Mar 21, 1892

Copeland's Nova. N. obs.

5 23 +30.2
7 42
+2 19

7 40 ∴ 2.5 Nova. Nova 1 q in finder.
Nova = q in target

Means of light of Nova in terms of adjacent 11th mag. star.
Plut. R N. obs.

7 47 ~~108.9~~ 109.0 body to right
~~223.0~~ and below,
~~169.0~~

8 0 100.2 111.8 body to right
212.6 and below,

10 5.7 168.0
~~1.5~~ 206.5 213.7
153.5 -0.5

10 5.5 197.7 body to left and
303.2 above,

106.9 196.1
~~1.5~~ 212.5 303.0
147.6 -0.62

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1891phae.proj.1282

Mar. 21, 1892.

103.9 ^	196.1	
	300.0	
101.0 ^	199.0	
204.9 ^	300.0	
155.1	-0.48	
106.1 ^	110.0	Index to right
	216.1	and below.
104.0 ^	109.7	
210.1 ^	213.7	
149.9	-0.58	
104.3 ^	110.4	
	214.7	
103.9 ^	110.0	
208.2 ^	213.9	
151.8	-0.54	
103.1 ^	199.1	Index to left
	302.2	and above
103.4 ^	198.6	
206 ^	302.0	
153.5	-0.51	

8 17
8 8.5

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1891phae.proj.1332.

Mar. 21. 1892.

Const a 1892 (Dennis) Gr. Mn.

22	57	+59.0
2	57	
+9	-2	
8	48	
+10	1	
8	53	
+10	6	

59.3

32	0	
2	59	
10	0	
-2	59	

h.	m.	sec.	
9	18	45.4	*
	19	6.5	*
	21	2.4	≡
	22	22.0	≡
	22	57.5	
	23	18.9	
	25	15.3	
	26	35.3	

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1891phae.proj.1332

Mar 21, 1892.

h.	m.	sec.
9	27	11.2
	27	35.1
	29	30.5⁻
	30	57.5⁻
~~33~~	~~44.5~~	
	34	39.5⁻
	35⁻	4.0
	37	0.0
	38	23.5⁻
	39	3.0
	39	27.9
	41	23.3
	42	49.0

Order in preceding transits star, star, comet, comet, both in southern half. Comet faint, 12.5 magn. 1′ in diameter. Nucleus fairly well defined.

Comp. Star = 8 Ue. + 9° 26 2 (7.3 S.)

B. 236.		B. 394.	
9 ~~52~~	0.2	9 40	0.0
59	0.4	46	0.0

∴ B. 236 was 1m 55.2 slow.

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Mar. 21, 1892

~~Meas'ts of light of Copelands Nova, in terms of adjacent 11th magn. star. Pl. at R. Ntabs.~~

~~5 23~~ ~~+30.2~~

Copelands Nova, Ntabs

11 16 g 2 Nova, Nova 1.5 r in large tel.
g 1.5 Nova, Nova 1.5 r in finder.

Meas'ts of light of Copelands Nova in terms of adjacent 11th magn. star. Plat. R. Ntabs.

11 22



107.4 Star to right
213.1 and below.
111.2
210.2
-0.47

198.9 ~~+19.8~~ Star to left and above.
99.0
297.9
101.0 199.6
200.0 300.6
160.0 -0.38

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1891phae.proj.1332.

Mar, 21, 1892.

	200.0
100.0 ^	300.0
	201.0
99.9 ^	300.9
~~X6~~ ✓ 199.9 ^	
160.1	-0.38
	110.2 Index two right
99.8 ^	210.0 and below,
	111.0
99.1 ^	210.1
~~X6~~ ✓ 194.9 ^	
161.1	-0.36
	109.3
101.9 ^	211.2
	112.9
96.1 ^	209.0
X ✓ 194.0 ^	
162.0	-0.34 Index two left and
	198.5 above
101.7 ^	300.2
	198.1
102.4 ^	300.5
X ✓ 204.1 ^	
65.9	-0.46

11 33
11 28.5

Region rather low, and observations somewhat difficult from faintness of images.

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1999phae.proj.1332

Mar 22, 1892.

Copelands Nova.

5	23	+30.2
8	32	
+3	9	
8	36	
+3	13	

n 1 Nova, Nova 2 R in large tel.

8 22 Too faint for finder.
Stars faint. Observation difficult, but
X value given is the final result of
several trials. Observation thought
to be fairly good

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 Posted up to here.

1891phae.proj.1322

Mar. 24, 1892

~~5~~ Copeland's Nova Ot. obs.

5 23 +90.2
7 35
+2 12

7 17 ± 2 Nova, Nova 2 ν in large tel. Too faint for finder.

Measts. of light of Copeland's Nova in terms of adjacent 11th magn. star.
Phot. R. Ot. obs.

7 22

64.9 ^	127.3	Index to right
	192.2	and below.
76.0 ^	123.8	
~~2.2~~ v 140.9 ^	199.8	
+0.76		
	~~213.0~~	Index to left and
	216.3	above,
67.7 ^	284.0	
	212.3	
73.9 ^	286.2	
2.7 v 141.6 ^		
+0.74	215.1	
72.1 ^	287.2	
	214.8	
71.4 ^	286.2	
~~2.7~~ v 143.5 ^		
+0.70		

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1891phae.proj.1332.

Mar. 24, 1892.

		126.9	Limbs to right and
	67.0 ^	193.9	below
		125.1	
	73.4 ^	198.5	
2.0 ✓	140.4 ^		
	+ 0.77		
		127.2	
	66.6 ^	193.8	
		125.7	
	70.6 ^	196.3	
2.0 ✓	137.2 ^		
	+ 0.83		
		214.4	Limbs to left, and
	71.8 ^	286.2	above
		216.3	
	71.7 ^	288.0	
7 47	143.5 ^		
7 34.5	+ 0.70		
7 53			
		~~287.1~~	
		213.1	Limbs to left, and
	76.9 ^	290.0	above
		212.0	
	73.7 ^	285.7	
2.6 ✓	150.6 ^		
	+ 0.56		
		127.0	Limbs to right, and
	67.8 ^	194.8	below.
		125.2	
	72.8 ^	198.0	
2.4 ✓	140.6 ^		
	+ 0.76		

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1891phae.proj.1392

Mar. 24, 1892

	123.0	
75.8 ^	198.8	
	127.7	
69.5 ^	197.2	
145.3 ^		
+0.67		
	212.0	Lindley to left and
74.2 ^	286.2	above,
73.7 ^	213.3	
147.9 ^	287.0	
+0.62		
	216.0	
71.0 ^	287.0	
	215.0	
71.5 ^	286.5	
142.5 ^		
+0.72	127.6	Lindley to right
67.6 ^	195.2	and below
72.8 ^	125.0	
140.4 ^	197.8	
+0.77		

8 12
8 02.5

8 13

	127.8	Lindley to right
65.4 ^	193.2	and below.
	126.7	
70.1 ^	196.8	
135.5 ^		
+0.87		
	216.0	Lindley to left and
71.0 ^	287.0	above
	213.0	
75.8 ^	288.8	
146.8 ^		
+0.62		

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1891phae.proj.1332

Mar. 24, 1892.

		213.0	
	72.2^	285.2	
		215.2	
	71.9^	287.1	
2.7	144.1^		
	+0.69	128.1	Images to right and
	67.9^	196.0	below.
		127.0	
	68.2^	195.2	
2.9	136.1^		
	+0.85		
		126.1	
	67.8^	193.9	
		127.2	
	66.3^	193.5	
2.9	134.1^		
	+0.89	214.0	Images to left and
	71.0^	285.0	above.
		213.2	
	74.0^	287.2	
2.7	143.0^		
	+0.67		
8 28			
8 20.5			
8 29		212.1	Images to left and
	75.9^	288.0	above.
		213.5	
	71.5^	285.0	
2.6	147.4^		
	+1.63	124.6	Images to right and
	73.0^	197.6	below.
		126.8	
	67.0^	193.8	
2.6	140.0^		
	+0.77		

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1891phae.proj.1382:

Mar. 24, 1892

		127.5
	65.5 ^	193.0
		126.8
	68.9 ^	195.7
~~2.9~~ ✓	134.4 ^	
	+0.89	
		212.1 Ends to left and
	74.5 ^	286.6 above
		213.6
	72.6 ^	286.2
~~2.6~~ ✓	147.1 ^	
	+0.63	
		212.2
	74.7 ^	286.9
		214.2
	70.9 ^	285.1
~~2.7~~ ✓	145.6 ^	
	+0.66	
		127.2 Ends to right
	68.9 ^	196.1 and below.
	65.8 ^	128.2
~~2.9~~ ✓	134.7 ^	194.0
	+0.88	

8 45
8 37.0

Copeland's Nova. At. obs.

8 50 t ~~2.5~~ 2.5 3 Nova, Nova 1.5 ar in large tel.
Too faint for finder.

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1891phae.proj.1332.

Mar, 24, 1892.

Meas'ts of light of Nova in terms of adjacent 11th magn. star.

	Phot. R.	Vt. obs.
9 16		127.5 Sunday to right
	68.0^	195.5 and below.
		125.9
	68.6^	194.5
	136.6^	
	+0.84	
		214.9 Sunday to left and
	71.7^	286.6 above.
		215.8
	70.4^	286.2
	142.1^	
	+0.73	
		215.7
	70.2^	285.9
		214.5
	69.5^	284.0
	139.7^	
	+0.78	
		127.8 Sunday to right
	68.4^	196.2 and below
		127.0
	66.8^	193.8
	135.2^	
	+0.87	
		123.9
	70.4^	194.3
		127.2
	70.0^	197.2
	140.4^	
	+0.77	

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1891phae.proj.1382.

Mar. 24, 1892.

71.9 ^ 213.1 Index to left and
285.0 above.
73.3 ^ 216.9
2.7 ✓ 145.2 ^ 285.2
+0.67

78.8 ^ 213.2 Index to left and
287.0 above
70.3 ^ 215.2
2.7 ✓ 144.1 ^ 285.5
+0.69

64.4 ^ 125.8 Index to right and
190.2 below.
63.1 ^ 129.7
3.0 ✓ 127.5 ^ 192.8
+1.03

64.5 ^ 127.5
193.0
65.5 ^ 125.5
3.0 ✓ 132.0 ^ 191.5
+0.96

73.0 ^ 214.0 Index to left and
287.0 above.
70.1 ^ 216.1
2.7 ✓ 143.1 ^ 286.2
+0.71

70.1 ^ 214.0
284.1
69.3 ^ 214.9
2.4 ✓ 139.4 ^ 284.2
+0.79

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1891phae.proj.1332.

Mar. 24, 1892

	71.0^	126.2	Index to right and
		197.2	below.
	65.7^	128.3	
9 50	2.4 136.7^	194.0	
9 40.5	+0.84		

10 9	67.5^	127.2	Index to right and
		194.7	below
	71.4^	125.2	
	2.4 138.9^	196.6	
	+0.80		
	71.9^	214.2	Index to left and
		286.1	above.
	74.9^	211.2	
	2.6 146.8^	286.1	
	+0.64		
	74.0^	214.2	
		288.2	
	75.7^	212.1	
	2.6 149.7^	287.8	
	+0.58		
	63.7^	129.1	Index to right and
		192.8	below
	69.1^	126.4	
	2.7 132.8^	195.5	
	+0.92		
	67.3^	126.2	
		193.5	
	68.3^	127.5	
	2.9 135.6^	195.8	
	+0.86		

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1891phae.proj.1332

Mar. 24. 1892.

		73.8 ^ 212.0	Index to left and
		285.8	above,
		73.5 ^ 212.8	
		~~2.6~~ ✓ 147.3 ^ 286.3	
		+0.63	
10	23		
10	16.0		
10	24		
		73.4 ^ 212.4	Index to left and
		285.8	above
		74.2 ^ 211.2	
		~~2.6~~ ✓ 147.6 ^ 285.4	
		+0.62	
		71.8 ^ 126.0	Index to right and
		197.0	below,
		69.7 ^ 125.3	
		~~2.4~~ ✓ 140.7 ^ 195.0	
		+0.76	
		68.0 ^ 126.4	
		194.4	
		67.9 ^ 126.5	
		~~2.9~~ ✓ 135.9 ^ 194.4	
		+0.86	
		74.8 ^ 212.2	Index to left and
		287.0	above,
		77.0 ^ 210.2	
		~~2.5~~ ✓ 151.8 ^ 287.2	
		+0.54	
		73.6 ^ 211.5	
		285.1	
		76.8 ^ 212.0	
		~~2.6~~ ✓ 150.4 ^ 288.8	
		+0.57	

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Mar. 24, 1892.

67.8^ 127.0 Indy to right and
194.8 below.

67.2^ 127.3
2.9 135.0^ 194.8
+0.88

10 34
10 29.0

10 35

67.5^ 126.0 Indy to right and
193.5 below.

70.7^ 125.5
2.4 138.2^ 196.2
+0.81

75.1^ 212.0 Indy to left and
287.1 above

74.2^ 212.7
2.6 149.3^ 286.9
+0.59

72.0^ 213.5
285.5

70.8^ 213.4
2.7 142.8^ 284.2
+0.72

65.3^ 127.9 Indy to right and
193.2 below

66.0^ 127.2
3.0 131.3^ 193.2
+0.95

66.1^ 127.7
193.8

70.7^ 124.9
2.7 136.8^ 195.6
+0.84

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1891phae.proj.1382.

Mar. 24, 1892.

76.0 ^ 212.2 Index to left and
288.2 above

75.8 ^ 212.0
151.8 ^ 287.8
+0.34

10 45
10 39.0
10 45

85.8 ^ 212.0 Index to ~~right~~ left and
297.8 above.

69.4 ^ 214.8
155.2 ^ 284.2
+0.47

66.3 ^ 126.5 Index to right
192.8 and below.

66.4 ^ 127.5
132.7 ^ 193.9
+0.92

66.4 ^ 126.6
193.0

68.0 ^ 127.0
134.4 ^ 195.0
+0.89

Index to left and
above.

73.0 ^ 213.5
286.5

73.6 ^ 212.2
146.6 ^ 285.8
+0.64

74.7 ^ 212.1
286.8

73.8 ^
~~71.6~~ 213.2

~~146.3~~ ~~284.8~~ Seem to be moving.
148.5 ^ 287.0
+0.60

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1891phae.proj.1332

Mar. 24, 1892

65.6° 127.3 Index to night and
192.9 below

64.2° 127.8
3.0 129.8° 192.0
+0.98

11 00
10 57.5

Copeland's Nova

At. obs.

11 6 t. 2.5 Nova, Nova 2 in large tel.
Too faint for finder.

Observations especially in the last series becoming rather difficult.

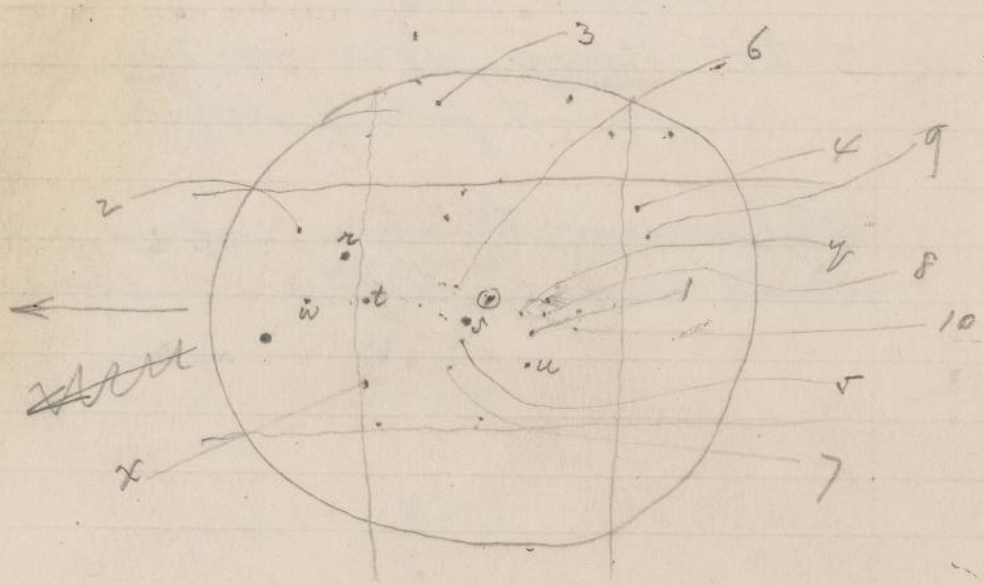
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1891phae.proj.1382

March. 25, 1892

Copeland's Nova Pt. obs.

5	23	+30.2
7	45	
+2	22	



7 39 .. t 3.5 Nova, Nova. l.w in large tel.
Nova = (Star 1)
Nova 3 w
(Star 2) 2 Nova
Nova 3 (Star 3)
(Star 4) 4.5 Nova

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1891phae..proj.1332.

Mar. 25, 1892

Measts. of light of Copeland's Nova in terms of adjacent W. mag. Stars, Plant. R. N. obs.

7 59

	61.2	131.0	Index to right
		192.2	and below
	62.4	128.5	
31	123.6	190.9	
	+1.11		
	63.2	217.0	Index to left and
		280.2	above.
	66.0	216.5	
30	129.2	282.5	
	+1.00		
	64.8	218.2	
		283.0	
	64.0	217.1	
30	128.8	281.1	
	+1.00		
	66.0	129.2	Index to right
		195.2	and below
	62.2	130.7	
30	128.2	192.9	
	+1.02		
	63.6	131.4	
		195.0	
	61.4	129.8	
31	125.0	191.2	
	+1.08		

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1891phae.proj.1332

Mar. 25, 1892.

65.6 ^ 217.3 Index to left and
282.9 above.
63.2 ^ 217.0
3.0 v 128.8 ^ 280.2
+1.00

8 20
8 09.5

Comparison of Star ~~S~~ Smith Star
M. Platt R. At. obs.

8 50

46.2 ^ 289.0 Index to left and
335.2 above
57.6 ^ 281.9
3.6 v 103.8 ^ 339.5

55.3 ^ 283.0 v ∠ S disappears.
338.3
51.4 ^ 286.1
3.5 v 106.7 ^ 337.5

51.7 ^ 14.4 v Index to right and
66.1 below.
57.4 ^ 11.7
3.4 v 109.1 ^ 69.1

57.0 ^ 13.0
70.0
50.9 ^ 16.9
9 8 3.5 v 107.9 ^ 67.8

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1891phae.proj.1332.

Mar. 25, 1892.

Comparisons of stars with star 17.

Phut. H.

9	37	38.0 ^	352.0	Sunday to right and below
			30.0 <	1st disappears.
		41.0 ^	351.0	
		4.2 v 79.0 ^	32.0	
		40.0 ^	349.2	
			29.2	
		40.4 ^	350.1	
		4.2 v 80.4 ^	30.5	
		47.0 ^	259.8	Sunday to left and above
			306.8	
		45.2 ^	260.0	
		3.9 v 92.2 ^	305.2	
		46.3 ^	261.1	
			307.4	
		46.6 ^	259.2	
9	54	3.8 v 92.9 ^	305.8	

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1891phae.proj.1332.

Mar. 25, 1892.

Meas'ts. of light of Nova in terms of adjacent 11th magn stars.

	Phot. R.	M. obs.	
10 0	61.2^	133.8	Lindsey to
		195.0	right and
	56.2^	133.8	below
3.3 v	117.4^	190.0	
	+1.25		
	50.6^	228.2	Lindsey to left
		278.8	and above.
	53.1^	222.0	
3.6 v	103.7^	275.1	
	+1.57		
	53.2^	223.0	
		276.2	
	51.9^	223.2	
3.1 v	105.1^	275.1	
	+1.53		
	63.9^	128.0	Lindsey to right
		191.9	and below.
	63.1^	129.1	
3.0 v	127.0^	192.2	
	+1.04		
	64.1^	128.5	
		192.6	
	64.0^	129.0	
3.0 v	128.1^	193.0	
	+1.02		

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1891phae.proj.1332.

Mar. 25, 1892

56.0 222.8 Index to left and 278.8 above.

554 223.1

~~34~~ 111.4 278.5

10 16

10 08.0 Observations difficult; images faint. Sky considerably foggy especially at this altitude.

Capulands Nova; At. obs.

10 20 Nova = ~~ss~~ in large tub.

(Star 1), 1 Nova " "

Nova 1.5 w

(Star 2), 3 Nova

Nova 1.5 (Star 3)

10 24 (Star 4) 5 Nova

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1891phae.proj.1332

Mar. 26, 1892

Copelands Nova At. obs.

5	23	+30.2
8	22	
+2	5-9	

7 56 ∞ 2 Nova, Nova l w in large tel. Too faint for finder.

Meastr. of light of Copelands Nova in terms of adjacent 1/ :: magn. star.
Phot. R. Obs.

8 3

57.0	132.0	Index to right and
	189.0	below
60.6	131.0	
~~3.8~~ 117.6	191.4	
+1.25		

59.2	220.8	Index to left and above
	280.0	
60.8	219.2	
~~3.2~~ 120.0	280.0	
+1.19		

54.9	223.1	
	278.0	
58.5	221.9	
~~3.3~~ 113.4	280.4	
+1.34		

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1891phae.proj.1332.

Mar. 26, 1892.

	61.0 ^	130.9	Index to right, and
		191.9	below.
	59.5 ^	132.1	
3.2 ✓	120.5 ^	191.6	
	+1.18		
	57.8 ^	133.0	
		190.8	
	58.2 ^	133.0	
3.3 ✓	116.0 ^	191.2	
	+1.28		
	61.0 ^	220.0	Index to left, and
		281.0	above.
	59.9 ^	221.6	
8 35	3.2 ✓ 120.9 ^	281.5	
8 19.0	+1.17		

Mean of s and n

Phot. R. / M. obs.

8 48	49.6 ^	88.4	Index to right and
		138.0	below
	50.2 ^	88.3	
3.7 ✓	99.8 ^	138.5	
	50.7 ^	88.0	
		138.7	
	49.5 ^	89.0	
3.7 ✓	100.2 ^	138.5	

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1891phae.proj.1332

Mar. 26, 1892.

	55.4 ^	172.0	Index to left and
		227.4	above.
	52.3 ^	176.2	
3.5 v	107.7 ^	228.5	
	50.5 ^	177.5	
		228.0	
	49.5 ^	178.2	
3.7 v	100.0 ^	227.7	

9 0

Meas'ts. of light of Copeland's Nova in terms of adjacent 11th magn star. Phot. R. N. obs.

9 5

	54.4 ^	134.0	Index to right
		188.4	and below.
	57.0 ^	132.7	
3.4 v	111.4 ^	189.7	
	+ 1.39		
	60.4 ^	220.8	Index to left and
		281.2	above.
	61.8 ^	220.0	
3.6 v	122.2 ^	281.8	
	+ 1.14		
	61.3 ^	220.3	
		281.6	
	57.7 ^	222.2	
3.2 v	119.0 ^	279.9	
	+ (.2)		

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March 26, 1892.

	56.7 ^	133.0	Index to right and
		189.7	below.
	57.0 ^	132.7	
3.3 ✓	113.7 ^	189.7	
	+1.33		
	56.2 ^	133.0	
		189.2	
	57.9 ^	131.2	
3.3 ✓	114.1 ^	189.1	
	+1.32		
	58.7 ^	221.2	Index to left and
		279.9	above.
	61.0 ^	219.1	
3.2 ✓	119.7 ^	280.1	

9 22
9 13.5 The altitude^0 means a little difficult. Sky a little foggy and hazy.

Copelands Nova Ast. obs.

9 40 m 2.5 Nova, Nova 2 m in large tel.

Stars rather faint in above estimate

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Mar. 26, 1892

Nova estimated relative to adjacent stars. H. obs.

(Star 1) 2 Nova
(Star 2) 3.5 Nova
Nova 2 (Star 3)
10 7 (Star 4) 6 Nova

In above the above estimates region rather low and stars somewhat faint.

Sky became clearer so that the following relative estimates of bright comparison stars for Copeland's Nova could be taken with field-glass as below.

10 34 a 3.5 b
b 4.5 c
c 5 d
d 3.5 e
e 3.5 f
f 4 g
g 5 h
h 5 i

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Mar. 26. 1892.

Search for possible comet, thought to be ~~discovered~~ found by Max Wolf of Heidelburg Germany on photographic plate.

11 34 +9.5
11 25
-0 9

An Object found. = ?
11 39
0 15
11 24

11 ✓✓
31 +9.K -20'
11 2K

11 23 2
-30
11 22 32
+1✓
11 22 K7

+10° 4'
-5
+10 3
-1
+10 2
79 ✓4

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Mar. 26, 1892

The object found on preceding page is Nebula Dreyer. 370 v.

11 3v Comet not found.

There are two nebulae in this vicinity. Pretty thorough search made for comet. but none found. H. B.

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(Posted up to here)

Mar. 28, 1892

Copelands Nova Dr. obs. +30.2

5 23
9 8
+3 45

8 30 Sky more or less cloudy Nova barely visible

8 35 w 2.5 Nova, Nova 2.5 f in large tel. Observation difficult; made through light cloud.

Direct vision spectroscope put on, but there is so much cloud and haze that spectrum of Nova, cannot be seen with certainty, and for a still greater reason no conclusion can be reached. Spectrum practically
8 50 invisible.

Sky now becoming worse. Nova almost invisible in no. 1 micrometer eye-piece.

8 35 Aurora in the north below pole Mainly ~~eten~~ taking a horizontal direction but several streamers also At 7h 55 I a long streamer,

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Mar. 28. 1892

in north a little to the west of pole and extending 2/3 of the way from horizon to pole, Recn.

Meas'ts. of light of Nova in terms of adjacent 11th magn. star. Phot. R

Ob. obs.

9 17

49.0^ 135.0 Index to right
184.0 and below

43.5^ 137.0
92.5^ 180.5
+1.85

45.0^ 226.2 Index to left and
271.2 above

45.0^ 225.5
90.0^ 270.5
+1.91

44.0^ 225.0
269.0

44.9^ 225.3
88.9^ 270.2
+1.92

43.6^ 136.5 Index to right
180.1 and below,

47.5^ 134.0
91.1^ 181.5
+1.87

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Mar. 28, 1892

~~13.5~~
45.4 ^ 135.8
181.2
44.7 ^ 137.1
~~3.9~~ v 90.1 ^ 181.8
+1.91
43.9 ^ 227.1
271.0 Index to left and above.
47.3 ^ 224.2
~~3.9~~ v 91.2 ^ 271.5
1.88

9 40
9 28.5

Observations made with difficulty through light cloud and haze.

Corel and's Nova N. obs.

9 45 m 2.5 Nova, Nova 2.5 ℞ in large tel.

Estimate rather difficult. Nova and comparison stars faint.

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1891phae.proj.1332.

Mar. 29, 1892

Copeland's Nova. Ph. obs.

5 23 +30.2
8 3
+2 40

8 7
+2 44

w 3 Nova, Nova 1.5 x in large tel.
7 28 Too faint for finder

Measts: of light of Copeland's Nova in terms of adjacent 11th magn. stars.

	Phot. R.	Ph. obs.	
7 33	47.8 ^	135.2	Nova to right
		183.0	and below
	42.6 ^	138.2	
3.9 v	90.4 ^	180.8	
	+1.90		
	46.6 ^	225.3	Nova to left
		271.9	and above.
	46.1 ^	226.0	
3.8 v	92.7 ^	272.1	
	+1.84		

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1891phae.proj.1382.

March 29, 1892.

45.8 225.2
271.0
47.0 225.9
3.4 92.8 272.9
+1.84

44.7 135.5 Ends to right and
180.2 below.
44.6 136.0
3.9 88.7 180.0
+1.95

48.3 135.5
183.8
45.0 135.7
3.4 93.3 180.7
+1.83

47.9 223.8 Ends to left and
271.7 above.
48.9 223.5
4.7 96.8 272.4
+1.74

7 58
7 45.5

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1891phae.proj.1332.

Mar 29, 1892

Relative estimates of bright comparison stars for Nova Aurigae with field glass 2d. obs.

a 4 b
b 4.5 c
c 5 d
d 3.5 e
e 4 f
f 3 g
g 4.5 h
h 4 k

~~f 10 f~~

Relative Estimates of Nova and adjacent stars. 2n. obs.

w 2.5 Nova, Nova 2 K in large telescope.

Nova 4 4

f K2 Nova 2.5 (5)
Nova 5 (6)
Nova 4.5 (7)

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1891phae.proj.1332.

Mar. 29. 1892.

Selection of faint Comp. Stars for Nova Aurigae ~~Aut.~~ additional to those on pages 4-6, the last of which is W.

For location of these additional faint stars, see ~~page~~ diagram on p. 160

X

Star 6.
" A.

Measrs. of light of Copelands Nova in terms of adjacent 11th magn. stars.

		Phot. R.		Obs.
9	26	45.1^	137.1	Index to right and
			182.2	below
		45.7^	135.0	
	~~3.9~~	90.8^	180.7	
		+1.89		
		48.7^	223.2	Index to left and
			271.9	above.
		43.9^	227.1	
	~~3.8~~	92.6^	271.0	
		+1.84		

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Mar. 29, 1892

	46.0^	225.0	
		271.0	
	43.6^	226.4	
39 ✓	89.6^	270.0	
	+1.92		
	46.1^	136.9	Index to right
		183.0	and below
	45.0^	136.0	
39 ✓	91.1^	181.0	
	+1.88		
		136.7	
	43.3^	180.0	
	42.2^	137.8	
40 ✓	85.5^	180.0	
	+2.04		
	44.5^	226.7	Index to left
		271.2	and above.
	45.1^	225.7	
39 ✓	89.6^	270.8	
	+1.92		

9 44
9 35.0

Relative estimates of Copeland's Nova and comparison stars. Gr. obs.

9 47 w 3 Nova, Nova 2 y in large tub.
Nova 4.5 ~~y~~
Nova 2.5 (Star 5)
Nova 5 (Star 6)
Nova 4.5 (Star 7)

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1894phae.proj.1892.

Mar. 29. 1892.
Relative Estimates of Nova by Asst. Reed.
w 1 Nova, Nova 3 X
10 20 Nova 3 (Star 6)
Nova 5 4
Nova 5.5 (Star 7)
Nova 2 (Star 5)

~~T. Nov. Aug.~~

+2 R. Cameron.

14	40	+84.1
12	28	
~~-2~~	~~29~~	
-3	12	

m 2 R, R 2n in large tel.
Rather too faint for finder.
10 51 Est. 12.4

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1891phae.proj.1332

Swear. 29, 1892.

Comet b, 1892. (Swift) Robbins

21 2 −4.0
16 2√
−4 37

−4 0
16 39
20 39 −9.°1

Pos. Zero 194.4
4√.0
239.4

17 11 56.8 *
12 41.0 *
14 3.0 ≈
14 26.0 ≈

~~2√~~
1√ 2√.3
16 9.8
17 32.√
17 √4.6

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Mar. 29. 1892.

17	1h	37.5
	19	22.1
	20	4V.V
	21	7.3
	21	4V9.3
	22	3V.2
	23	V4.V
	24	19.1
	2V	V.4
	2V	V0.7
	27	1V.2
	27	3V.4

Order in preceding transits * * = =
Both in northern half.
Comet bright, Visible to naked eye as a hazy star. No tail visible to naked eye. Coma some 6' in diam.

Comp. Star = S. D. −9° VV60 (7.4 V)

B. 236.

17	V3	4V.3	
	V4	4V.V	

B. 394.

17	h	0.0
	9	0.0

∴ B236 is 2m 4V.1 slow.

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1891phae.proj.1332.

Mar. 30, 1892

Chair out of gear. Adjusted it

Copeland's Nova. N. obs.

+30.2

5	23
8	8
+2	45

7 25 ± 2 Nova, Nova 1/4 in large tel.

7 44. Relative estimates of ~~stars adjacent to~~ 146.7 Nova and adjacent stars. N. obs.

(Star 5) 4.5 Nova

Nova 3 (Star 6)

Nova 2.5 (Star 7)

(Star 9) 3 Nova

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1891phae.proj.1332.

Mar. 30, 1892

Meas^ts of light of Nova in terms of adjacent 11th magn. star.

		Phot. R.	Pt. obs.
7 44	39.3 ^	140.7	Index to right
		180.0	and below
	39.8 ^	139.8	
~~4.2~~ ✓	79.1 ^	179.6	
	222		
	39.0 ^	228.9	Index to left
		267.9	and above.
	41.5 ^	227.6	
~~4.2~~ ✓	80.5 ^	269.1	
	218		
	40.8 ^	228.2	
		269.0	
	40.3 ^	228.0	
~~4.2~~ ✓	81.1 ^	268.3	
	+2.16		
	39.1 ^	139.9	Index to right
		179.0	and below.
	36.5 ^	140.7	
~~4.3~~ ✓	75.6 ^	177.2	
	+2.33		
	38.9 ^	140.0	
		178.9	
	39.0 ^	140.0	
~~4.2~~ ✓	77.9 ^	179.0	
	+2.26		
	38.3 ^	~~134~~ 228.9	Index to left and
		267.2	~~below~~ above
+2.25 ✓	39.9 ^	228.2	
8 21 ~~8~~ 02.5	~~4.2~~ 78.2 ^	268.1	(over)

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Mar. 30, 1892

Observations difficult; images faint.

Selection of faint Comp. Stars for Nova Aurigae.

	x	y
Star	6	
"	8	
"	10	

Star 10 is the faintest comp. star which can be seen with certainty to-night. Sky a little smoky and hazy.

Relative estimates of Nova and adjacent stars. No. obs.

x 2 Nova, Nova 1 y

(Star 5) 4 Nova

Nova 3 (Star 6)

Nova 2 (Star 7)

(Star 9) 3 Nova

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Mar. 30, 1892.

Measts. of light of Copeland's Nova in terms of adjacent 11th magn. star.

	Phot. R.	St. obs.	
8 54	39.9 ^	139.8	Index to right
		179.7	and below
	38.0 ^	140.0	
	77.9 ^	178.0	
	+226		
	39.1 ^	228.9	Index to left and
		268.0	above.
	39.7 ^	229.5	
	78.8 ^	269.2	
	+2.23		
	41.4 ^	228.0	
		269.4	
	41.6 ^	227.6	
	83.0 ^	269.2	
	+2.11		
	38.4 ^	140.4	Index to right
		178.8	and below
	37.4 ^	141.8	
	75.8 ^	179.2	
	+2.32		
	37.6 ^	141.1	
		178.7	
	38.1 ^	140.9	
	75.7 ^	179.0	
	+2.32		

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Mar. 30, 1892.

39.3^ 229.0 Sundry to left and
268.3 above.
40.2^ 228.8
~~41.1~~ 79.5^ 269.0
+221

9 28
9 11.0

Relative Estimates of Nova and adjacent Comp. Stars by Mr. Read.

Nova 0.v (Star 6)
Nova 3 4
9. 4v ~~xx~~ x 2 Nova
(Star v) 1 Nova. } Est. a little uncertain.
Nova 1 (Star 7)
(Star 9) 4 Nova.

Examinations of comparison stars for S. Hydrae.

		Nr. obs.
8	41	+3.0
11	13	
+3	32	
11	16	
+2	35	

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Mar. 30, 1892.

There is not much difference between stars d and e, but e seems to be certainly fainter, perhaps about 3 grades, Dome found to interfere in the above estimate. When dome was turned, interval found to be about 4 grades.

Interval between g and h rather large.

There should also be a brighter star at beginning of series.

Star inserted between g and h and one star added at beginning of series.

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Posted up to here.

Mar. 31, 1892

Copeland's Nova. 9h. obs.

5	23	+30.2
8	6	
+2	+3	

Twilight too strong for estimate just at present. Nova almost
7 22 invisible.

7 26. γ 2 Nova, Nova 1 (Star 6) Lalande 21185.
Nova 3.5 (Star 8)
Nova 6 (Star 10)
(Star 5) 3 Nova
(Star 7) 1 Nova

Estimates rather difficult. Considerable twilight in sky. Some Moon also, not very far from this region.

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Mar. 31, 1892

Meas'ts. of light of Copeland's Nova, in terms of adjacent 11th magn. star.

Phot. R. Knobs.

7 36

38.1^ 141.6 Index to right
179.7 and below.
34.6^ 141.4
~~2.4~~ 72.7^ 176.0
2.42

Nova. ~~229.2~~ Index to left
230.2 and above.
35.1^ 265.3
~~2.4~~ 39.0^ 229.0
74.1^ 268.0
+2.37

228.5
39.9^ 268.4
36.0^ 229.8
~~2.3~~ 75.9^ 265.8
+2.32

38.5^ 140.2 Index to right
178.7 and below.
36.2^ 141.0
~~2.4~~ 74.7^ 177.2
+2.36

36.1^ 141.0
177.1
39.0^ 141.0
~~2.3~~ 75.1^ 180.0
+2.37

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Mar. 31, 1892.

36.6 ^ 230.0 Index to left and
266.6 above
36.8 ^ 230.1
73.4 ^ 266.9
+2.40

8 23
7 59.5

Relative estimates of Nova and adjacent comparison stars. Yr. obs.

8 30 Nova 2.5 Nova
Nova 0.5 (Star 6)
Nova 3 (Star 8)
Nova 5.5 (Star 10)
(Star 5) 3.5 Nova
(Star 7) 2 Nova

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Mar. 31 1892.

Est. of Nova and Comp. Stars by Mr. Read.

	7	2	Nova
	(Star 6)	4	Nova
4	4 (Star 5)	3	Nova
	(Star 7)	1	Nova
	Nova	4	(Star 4)

Meas'ts. of light of Perkel and's Nova in terms of adjacent 11.^m0 magn. star.

	Plat. R.	St. obs.	
9 8	35.0	141.2	Index to right
		176.2	and below
	39.9	139.0	
	74.9	178.9	
		2.35	
	37.6	229.2	Index to left and
		266.8	above.
	39.1	229.9	
	76.7	269.0	
		2.29	
	38.8	229.2	
		268.0	
	37.8	230.0	
	76.6	267.8	
		2.38	

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Mar. 31, 1892.

37.6 141.1 Index to right and
178.7 below,
36.0 141.0
73.6 177.0
239

34.6 140.9
175.5
39.3 139.9
73.9 179.2
2.38

37.0 230.9 Index to left and
267.9 above
40.3 229.0
77.3 269.3
2.28

* 9 46
9 27.0

Examination of comparison stars for T. Hydrae

8 54 −8.7
11 10
+2 16
11 18
+2 24

9 2 −8.0
11 24
+2 22

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Mar. 31, 1892

8	54
11	27
+2	33

Some 3 cases examined and one change made.

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(Posted up to here.)

Apr. 1, 1892

Copeland's Nova.	Obs. obs.
5 23	+30.2
8 18	
+2 55	

7 50 (Star 6) 3 Nova.
y 45 Nova
7 Nova 2 (Star 8)
Nova 4 (Star 10)
(Star 5) 5 Nova
(Star 7) 2.5 Nova

Estimates difficult. Moon near. Sky considerably hazy. Field too bright for ordinary eye piece. Achromatic eye piece of power 400 used. The above estimate was finally made after trying several eye pieces, the one used being the most satisfactory. Estimate made as carefully as possible, but images not very sharply defined.

Nova certainly seen in photometer, but not steadily enough or well enough for satisfactory meas't.

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1891phae.proj.1332.

April 1, 1892.

Too much moon and haze to see faint comparison stars for Nova Aurigae; accordingly series of relative estimate abandoned for tonight.

R. Aurigae

5	4	+53.0
9	24	
+4	20	

5 1 R, R 3.5 p in large tel.
Too faint for finder.
8 36. Est. 11.9

S. Cassiop.

1	10	+72.0
9	34	
+8	24	

~~A~~ t 2 S, S 2.5 n in large tel
Too faint for finder,
8 50 Est. 13.4

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April 1, 1892.

Copeland's Nova. 8 h. obs.

5	23	+30.2
9	47	
+4	24	

9 2 y 5 Nova, (Star 6) 3 Nova
Nova 2.5 (Star 8)
(Star 5) 6 Nova
(Star 7) 2 Nova

Relative Estimates of Nova and Comp. Stars by Mr. Read.

9 24 (Star 6) 3 Nova.
(Star 7) 4 Nova.
(Star 5) 2 Nova.
(Star 7) = Nova.

T. Nov. Maj.

12	33	+60.4
10	39	
−1	54	

I = 2 Im large tel.
Tow faint for finder.
9 56 Est 12.1

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April 1, 1892.

Examination of comparison stars for R. Leonis.

10	1	+ 12.5
10	53	
+0	54	

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 (Posted up to here.)

Apr. 5, 1892

	Copeland's Nova.	At obs.
	5 23	+30.2
	11 7	
	+5 44	
	11 19	
	+5 56	

Starry pretty certainly seen.

10 19 Starry pretty. Star to be thought to be seen at intervals Nova not seen. Examination of region made at a time when sky in this vicinity ~~poor moderately~~ seemed fairly clear. Examination carefully made. Probably sky not perfectly clear even when it seems to be passably so. Clouds of a rather feathery and deceptive nature. Now becoming all cloudy again.

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April 6, 1892

Copeland's Nova M. obs.

5	23	+30.2
8	34	
+5	11	

8	39	
+3	16	

8 45 Star y and star 6 seen. Nova not certainly seen. It must be at least several grades fainter than star 6. Moonlight rather strong.

S. Canis Maj. M. obs.

1	10	+72.1
9	30	
+8	20	

N 1.5 S, S 2.5 W in large tel. Too faint for finder.

8 33 Ext 13.8

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Apr: 6, 1892.

R. Aurigae — M. obs.

5	4	+53.0
9	45	
+4	41	

8 38 — Est. 12.1

o 2.5 R, R 2.5 p in large tel.
Rather too faint for finder.

T. Mrs. May' — M. obs.

12	33	+60.4
10	55	
~~+1~~	~~38~~	

10	6
-2	27

8. 59 — Est. 12.1

T = r in large tel.
Too faint for finder.

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1891phae.proj.1332.

Aper. 6, 1892

R. Camelop. St. abs.

~~17~~	40	+84.1
10	16	
~~5~~	24	
-4		
10	21	
~~+5~~	19	
-4		

R = nn in large tel.
Too faint for finder.
9 17 Est. 12.7

Examination of comparison stars for T. Virginis.

12	7	-4.9
10	56	
~~+1~~	11	
11	15	
~~+1~~	~~57~~	
-0	52	

As the variable only comes up to 4.0 magn. the first two comparison stars could well be omitted.
Stars f and g should be inverted if both are retained, but they are almost exactly equal

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1891phae.proj.1332

Apr. 6, 1892

in brightness. Two other stars differing more could be used instead, and make the interval about this point better ~~every~~ — every way.

S. Cygni.

20	8	+ 57.1
12	4	
− 8	4	

A careful examination of region of S. Cygni made, but S not seen; comparison star seen, comparison star small & quite certainly seen. S. Cygni probably fainter than 14.4

" " Some Aurora in north. Probably a faint ~~a~~ low auroral arch, but arch better defined on eastern side of meridian than on western; in fact on western " 17 side it is about invisible.

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Apr. 8, 1892

Copeland's Nova Obs. Coles.

5	23	
8	40	+30.2
+3	17	

7 25 Nova certainly seen, before clouds came, with achromatic eyepiece power 200. Star 6 and star 9 both seen with comparative ease, Nova is much fainter than star 6: but before any very definite estimate could be obtained or star 8 carefully looked for, clouds came and stopped observation. Nova probably as much as ½ two a whole magn. fainter than star 6.

5	23	
9	17	
+3	54	

9	26	
+4	3	

5	24	
9	39	+32.0
+4	15	

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Apr. 2, 1892

Copeland's Nova. Ot. obs.

	5	23	+30.2
	8	85	
	+3	12	

8 22 Nova certainly seen with achromatic finder 400 but better seen with Marz micrometer eyepiece. Seen with the latter quite steadily. Estimated 3½ grades fainter than star 10

8 57 Nova 2.5 (Star 11) in large tel.
9 12 Nova 2 (Star 12)

(11)
(8)
7

(12)
(6)
5.5

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Apr. 9, 1892.

Star # 11 thought to be certainly seen and star 12 also pretty certainly seen.

Observation of Nova by Mr. Reed.

9 v-o (10) 2 Nova.

5	24	+32.0
11	24	
+6	0	

Relative estimates of a portion of comparison stars for Nova Persei.

10 10 g 4.5 h in large tub
h 4 k in large tub
g 4 h in finder
h 4 k in finder.
k 4.5 l in finder
k 5.5 l in large tub.
l 5 m in finder
l 6 m in large tub.
m 4 n in finder
m 4.5 n in large tub.
n 4 o in finder
n 4.5 o in large tub.
o 4 p in large tub.

(over)

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1894phot.proj.1932.

Apr. 9, 1892

p 4.5 q in large tub.
q 3.5 r in large tub.
r 3 s in large tub.
s 4.5 t in large tub.

Mars Micrometer eye piece put on
t 4.5 u in large tub.
u 2 v in large tub.
11 0 v 4 x in large tub.

Last estimate made with
ring micrometer eye piece no. 2.
~~All the~~ 8 Observations rather
difficult on account of bright
moonlight. Last observation
rather uncertain. Altitude getting
rather low. No fainter stars
could be seen to compare with
each other.

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All of this book is posted.

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