1906phate.proj.2287B

Variable stars
Messier 3

S. J. B.

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1969phkc.proj..228Z

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Photographs of the Variable Star Cluster
M 3 Can. Ven. - made with the Crossley Reflector
of the Lick Observatory by Professor Keeler -

Remembered

Date 1900 May 20 - Sky fair - Seeing fair -

Plate		Beginning of Exposure			mean time	End of Exposure.			Length of Expl.	Qual.
—	1	9^h	12^m	46^s	$9^h\ 42.8$	10^h	12^m	46^s	1^h 0^m	5
A	2	10	32	37	10. 37.6	10	42	37	0 10	5
B	3	10	45	7	10. 50.1	10	55	7	0 10	5
C	4	11	2	36	11 7.6	11	12	36	0 10	4
D	5	11	15	7	11 20.1	11	25	7	0 10	4 -
E	6	11	33	35	11 38.6	11	43	35	0 10	4
F	7	11	46	26	11 51.4	11	56	26	0 10	3
G	8	12	5	23	12 10.4	12	15	23	0 10	2 - 3
H	9	12	19	11	12 24.2	12	29	11	0 10	2

Date 1900 May 21. Sky fair. Seeing fair Sometimes poor

A	10	8^h	57^m	38^s	$9^h\ 2.6^m$	9^h	7^m	38^s	0 10^m	5
B	11	9	10	30	9 15.5	9	20	30	10	4
C	12	9	29	14	9 37.2	9	39	14	10	4 - 5
D	13	9	41	40	9 46.8	9	51	40	10	4 - 5
E	14	9	56	6	10 4.1	10	9	6	10	5
F	15	10	11	18	10 16.3	10	21	18	10	5
G	16	10	29	44	10 34.7	10	39	44	10	5
H	17	10	42	23	10 47.4	10	52	23	10	4
I	18	11	1	19	11 6.3	11	11	19	10	4
J	19	11	14	0	11 19.0	11	24	0	10	4
K	20	11	31	0	11 36.0	11	41	0	10	4
L	21	11	43	12	11 48.2	11	53	12	10	4
M	22	12	1	21	12 6.4	12	11	21	10	5

(over)

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Crossley plates cont. from p 1-

Plate		Beginning of Exposure.			mean time	End of Exposure.			Length of Exposure.		Qual.
N	23	12^h	14^m	26^s	$12^h\ 19.4$	12^h	24^m	26^s	0^h	10^m	4
O	24	12	35	11	12 40.2	12	45	11		10	4 - 5
P	25	12	48	27	12 53.4	12	58	27		10	4 - 5

The above is a copy of Professor Kuiers communication except that the quality has been entered here by D.S.B-

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Messier 3.
Measures of Var. No 119.
on Crossley plates - (see p. 1.)

Plate				
No 1	0e ± 5.0 ± A Images too intense for very exact comparison			
2	c3, 0d, 2e	2.7	3, 5 3.	3.0, 2.2, 3.0
9	f3, 0g, 1h.	11.2	0, 6, 6.	11.2, 10.6, 11.8
5	e1, 3f	5.6	4, 4.	6.0 5.2
7	e2, 1f	7.1	1, 1.	7.0 7.2
8	f1, 1g	9.4	2, 2.	9.2, 9.6
10	m2, 0n, 3 X 0	19.7	1. 1. 1.	19.6, 19.8, 19.8
21	d2, 1e	4.1	1, 1.	4.2, 4.0
11	m2, 1n	19.2	4. 4	19.6, 18.8
13	k2, 0l, 2m	15.5	2. 1. 1.	15.3, 15.6, 15.6
15	e3, 0f, 3g	7.9	1. 3. 3.	8.0, 8.2, 7.6
16	d1, 2e	3.1	1. 1	3.2, 3.0
17	C2, 0d, 3e	2.1	1. 1. 1.	2.0, 2.2, 2.0

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4	e1, 3f	5.6	4. ±	6.0, 5.2
19	d1, 2e	3.1	1. ±	3.2, 3.0
20	d2, 1e	4.1	1. ±	4.2, 4.0
14	g1, 3h	10.7	9. ±	11.6, 9.8
24	e3, 0f, 3g	7.9	1, 3, ±	8.0, 8.2, 7.6
25	e3, 0f, 3g	7.9	1. 3. ±	8.0, 8.2, 7.6
22	d3, 0e, 3f	5.1	1. ±. 1	5.2, 6.0 5.2
23	e2, 1f	7.1	±. 1	7.0, 7.2
18	c2, 0d, 2e	2.4	±, ±, 6.	2.0, 2.2. 30
12	m2, 1n	19.2	4, ±.	19.6, 18.8.
3	d2, 1e	4.1	1, ±	4.2, 4.0
6	e2, 1f	7.1	±. 1	7.0. 7.2

Sequence of Comparison stars
Plate 8 elongated. c2 d4 e3 f2 g2 h1 k3 l2 m2 n30.
" 10 5 quad. c2, d2 e3 f1 g2 h3 0 k2 l2 m1 n, 3 o 3 p

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Sequence grades -

c - d

3, 2, 2, 2, 2 mean 2.2

d - e

2, 3, 3, 3, 3, 3, 3, 2, 3, 4, 2 mean 2.8

e - f

4, 3, 3, 4, 3, 3, 3, 3, 3, 3, 3, mean 3.2

f - g

3, 2, 3, 3, 3, 2, 1. mean 2.4

g - h

1, 4, 2, 2; mean 2.2

h - k . 1, 0, mean 0.5

K - l . 2, 3, 2, mean 2.3

l - m . 2, 2, 2 mean 2.0

m - n 2, 3, 3, 2, 1. mean 2.2

n - o 3, 3, 3, mean 3.0

o - p . 3.0

calling C . 0.0

grades -

C	0.0
d	2.2
e	5.0
f	8.2
g	10.6
h	12.8
k	13.3
l	15.6
m	17.6
n	19.8
o	22.8
p	25.8

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June 7 - 1900

M 3 -

Var No 11

Lick plates of May 21 - '00

S, I, B -

using grade maps from page 7

Plate				
12 -	m 1. 2 m	18.2	4, ±.	18.6 17.8
10	k 2. 0 l. 2 m	15.5	2. 1, 1.	15.3, 15.6 15.6
16	m 1. 2 m	18.2	4, ±	18.6 17.8
24	d 2, 0 e, 3 f.	4.8	6. 2. 4.	4.2, 5.0 5.2
20	c 2, 0 d 2 ~~e~~ e.	2.4	4, 2. 6	2.0 2.2 3.0
17	k 1. 1 l	14.4	1, 2.	14.3, 14.6
19	c 2. 0 d, 2 e.	2.4	4, 2, 6	2.0, 2.2 3,0
22	c 2. 0 d 3 e	2.1	1. 1. 1.	2.0, 2.2 2.0
13	m 1. 1 m	14.7	1. 1.	18.6 18.8
11	m 1, 2 m	18.2	4, ±.	18.6 17.8
25	e 1, 1 f	6.6	6, 6.	6.0, 7.2
21	c 1, 1 d	1.1	1, 1,	1.0 1.2
18	e 3. 0 f. 3 g	7.9	1, 3, 3.	8.0, 8.2, 7.6
15	m 2. 0 m, 3 o	19.7	1. 1. 1.	19.6, 19.8, 19.8

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1900phae.proj.2287B

23	d 2, 2 2	3.6	6, 6.	4.2, 3.0
14	m 2, 1 n	19.2	4, 4.	19.6, 18.8

Var - N° 96

12	m 1, 2 n	18.2	4, 4.	18.6, 17.8
10	m 2, 1 n	19.2	4, 4	19.6, 18.8
16	m 1, 1 n	18.7	1, 1.	18.6, 18.8
24	c 2, 0 d, 3 e	2.1	1, 1, 1.	2.0, 2.2, 2.0
20	m 2, 1 n	19.2	4, 4	19.6, 18.8
17	m 1, 1 n	18.7	1, 1.	18.6, 18.8
19	m 2, 1 n	19.2	4, 4.	19.6, 18.8
22	e 3, 0 f, 3 g	7.9	1, 3, 3.	8.0, 8.2 7.6
13	m 2, 1 n	19.2	4, 4.	19.6, 18.8
11	m 2, 1 n	19.2	4, 4	19.6, 18.8

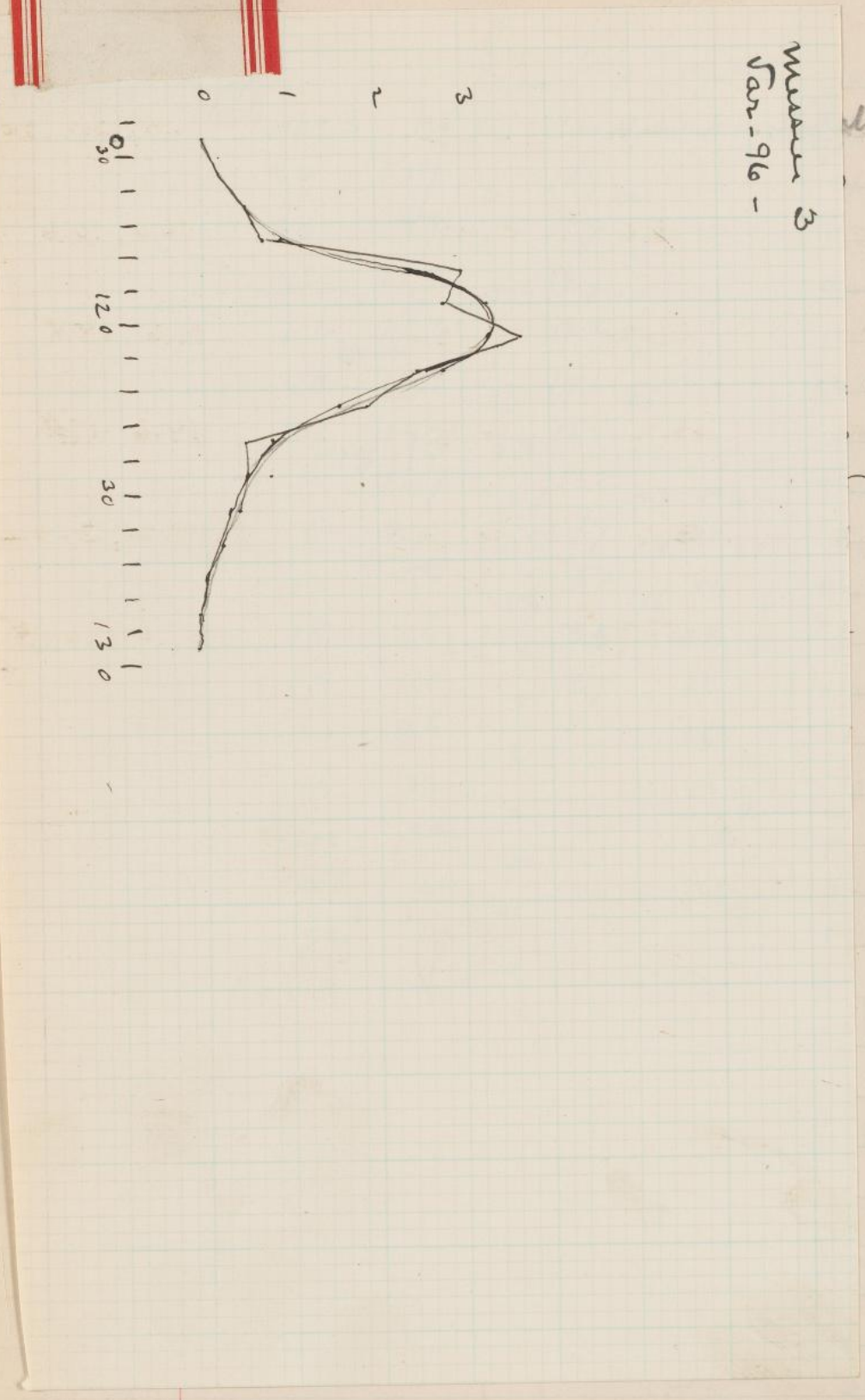
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25′	C2, 0d, 3e	2.1	1, 1, 1,	2.0, 2.2, 2.0
21	h1, 1m	16.6	0.0	16.6, 16.6
18	m2, 1m	19.2	4.4.	19.6, 18.8
15′	m1, 2m	18.2	4.4	18.6 17.8
23	d2, 2e	3.6	6.6.	4.2, 3.0
14	l2.0m 2 d^m	17.7	1.1.1,	17.6, 17.6, 17.8

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June 7. 1902

Mercs 3 No 96 Condensers of Lefebvre Camera

11	24	18.9	0	18.9	0			0
	30	18.9	2	18.9	2			0
	36	18.7	5	18.7	5			0
	42	18.2	7	18.2	11			0
	48	17.8	30	17.1	26			+4 0
	54	14.5	28	14.5	33			0
12	0	11.7	3.7	11.2	33	32		+5
	6	8.0	2.5	7.9	28	8.0	26	0
	12	5.5	19	5.1	16	5.4	16	+1
	18	3.6	5	3.5	8	3.8	8	−2
	24	3.1	5	2.7	30		5	+1
	30	2.6	4		25		3	+1
	36	2.2	2		22		2	0
	2e2	2.0	0		20		0	0
	48	2.0	−1		20		−1	0
	54	2.1	−1		21		−1	0
13	0	22			22			0

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1900phae.proj.2287B

June 8 - 1900 -

Measure of Lick plates - May 20 - '00

Plate				
	Var No 11.			
1	K1, 1f, l ±	14.4	1, 2	14.3 14.6
3	e1, 2f	6.1	1, 1	6.0, 6.2
9	d3.0e, 2f	5.5	3, 5, 7.	5.2, 5.0 6.2
4	c2.0d, 3f, e.	2.1	1, 1, 1	2.0, 2.2 2.0
8	d2.1e	4.1	1, 1.	4.2, 4.0
6	c2.0d, 3e.	2.1	1, 1.1	2.0, 2.2, 2.0
5	d1, 3e	2.6	6, 6	3.2 2.0
7	d1.2e	3.1	1, 1	3.2 3.0
2	f1, 1g	9.4	2, 2	9.2, 96
	Var. No 96.			
1	0l ±.	15.6 ±		
3	m1, 1n	18.7	1, 1.	18.6, 18.8
9	d2.1e	4.1	1, 1.	4.2, 4.0
4	m2.0n, 20	20.1	5, 3, 7.	19.6, 19.8 20.8

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6	m2, 0m, 20	20.1	5, 3, 7	19.6, 19.8, 20.8
5	m2, 0m, 20	20.1	5, 3, 7	19.6, 19.8, 20.8
7	k1, 1l	14.4	1, 2,	14.3, 14.6
2	m2, 0m, 20	20.1	5, 3, 7	19.6, 19.8, 20.8
8	d2, 1e	4.1	1, 1,	4.2, 4.0

var No 83 - plate of May 21.

14	m2, 0m, 30	19.7	1, 1, 1,	19.6, 19.8, 19.8
23	g2, 1h	12.2	4.4	12.6, 11.8
15	m3, 0m, 30	20.1	5, 3, 3,	20.6, 19.8, 19.8
18	m2, 0m, 20	20.1	5, 3, 7,	19.6, 19.8 20.8
21	m3, 0m 30	20.1	5, 3, 3,	20.6 19.8
25	0d	2.2		
11	m2, 0m, 20	20.1	5, 3, 7,	19.6 19.8 20.8
12	m2, 0m, 30	19.7	1, 1, 1,	19.6, 19.8 19.8
22	m1, 1m	18.7	1, 1	18.6, 18.8

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19	m 2, 1 n	19.2	4, ±,	19.6 18.8
17	m 2, 1 n	19.2	4. ± ,	19.6 18.8
20	~~m 1~~ + n 1, 2 0	20.8	0, 0	20.8 20.8
24	d 3, 0 r, 3 f	5.1	1, 1, 1	5.2, 5.0, 5.2
16	m 1, 1 n	18.7	1 . 1	18.6 , 18.8
10	m 2, 0 n, 2 0	20.1	5, 3, 7,	19.6, 19.8 20.8
12	m 2, 0 n 3 0	19.7	1 , 1, 1,	19.6 , 198, 19.8

var No 83. Plate of May 20 -

1	0 m ±	17.6		17.2
9	e 2, 1 f	7.1	1, 1	7.0 , 7.2
4	m 2, 1 n	19.2	4, ±	19.6, 18.8
6	n 1, 2 0	20.8	0, 0	20.8, 20.8
5	m 2, 0 n, 2 0	20.1	5 3, 7	19.6, 18.5, 20.8
7	m 2, 1 n	19.2	4, ±	19.6, 18.8

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2	m2.0n, 20	20.1	5, 3. 7	19.6, 19.8, 20.8
8	k2.0h, 2m	15.5	2, 1, 1,	15.3, 15.6, 15.6
3	m2.0n, 20	20.1	5, 3, 7.	19.6 19.8 20.8

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1900phae.proj.2287B

M 3 June 11 - 1900

Measurement of star - 71° 11 -

1751	q 2, 1h
7482	e 1, 2 f
7483	k 2, 0 k, 2 m
6792	d 1, 2 e
6820	~~m~~ k 2, 1 m
3679	k 1, 0 k 1 m.
3678	k 1, 1 k
3675	0 m ±
3673	k 1, 1 m ±
3677	k 2, 0 m, 2 m
9205	k 2, 0 k, 0 m
9558	m 1, 1 m
6854	m 1, 2 m
6875	0 m ±

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1900phae.proj.2287B

6876 0m =

6909 g1, 1h

6828 m1, 1n

6837 k1. 1l.

6844 m1, 1n

8611 e3. 0f. 3g.

8612 k1, 1l

8618 e1. 3 f

3674 0l *

8619 g2. 1h

8624 d2, 0e, 3f

8625 g1. 2h

8631 d3. 0e. 3f

8632 f2. 1g

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1900phae.proj.2287B

No 11 Cont.

7488 e2, 2f

8444 0m, m2.

8563 12, 1m

8584 0m ±

8597 m1, 1m

8605 0l ±

8650 d3, 0e, 3f

8655 m1, 1m

8656 0e ± dbl image.

9158 f1, 1g

9166 0k ±

9204 0h

6923 e3, 0f, 2g

6925 d4, 0e, 2f

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1900phae.proj.2287B

3672 K1. 1l

3684 K1. 1l

3682 Ol =

3681 Om =

3680 Ol =

1838 d3, Ol, 3f.

1840 OK =

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1900phae.proj.2287B

M2 - June 11 - '00

measurement of var. No 96 -

1751 0k :

7482 k2, 0f, 2q

7483 k1, 1m

6792 k2, 0m, 2m

6820 m1, 2m

3679 m1, 1m

3678 k2, 0m, 2m

3675 0m :

3673 0m :

3677 m2, 0m, 3o

9200 k2, 0m, 0k

9558 k2, 0k, 1m

6854 m1, 2m

6875 0m :

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1900phae.proj.2287B

6876 (0m +) ? bubble in glass near -

6909 0m ±

6828 m 1, 1m

6837 0m ±

6844 0m ±

8611 d 2. 0 e. 3 f

8612 f 1, 2 g

8618 d 3, 0 e, 3 f

3674 0 l ±

8619 f 1, 1 g

8624 d 3. 0 e. 3? f

8625 f 2. 1 g

8631 e 1, 2 f

8632 f 1. 2 g

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1900phae.proj.2287B

No 96. Cont:

7488	f3.0q.2h
8444	d3.0e.3f
8563	d2.0e.3f.
8584	e3.0f.2q
8597	e4.0f. 2q
8605	f1.2q
8650	e1.2f
8655	d3.0e.3f
8656	0f + dble images
9158	0n +
9166	0n +
9204	0n +
6923	0l +
6925	0n +

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1900phae.proj.2287B

3672 0m

3684 ml. 1m

3682 0l ±

3681 0m ±

3680 0l ±

1838 +1.2q

1840 0l ±

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June 14 - 1900 -

Messier 3. Tar - No 119 -

31680	m1.1n
31681	0n
31682	0m
31684	0l
31672	l2.0m.1na
69255	q3.0h.2m
6923	k2.0l 2m
9204	m3.0n.10.
9166	l2.2f
9158	q1.1h
8656	l2.0m.2n
86555	q2.0h.2k
8650	l2.0m 2n
86055	q1.1h

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1900phae.proj.2287B

8597 q 3.0 h. 1 k

8584 l 2.0 m. 2 n

8563 m 2. 0 n. 3 o

✓ 8444 m 1. 1 n

7488 0 m ±

✓ 8632 m 2, 1 n

✓ 8631 m 1. 1 n

8625 m 1. 2 n

8624 m 2. 1 n

✓ 8619 e 3. 0 f. 2 g

✓ 8614 m 2. 0 n. 3 o

8618 m 1. 2 n

8612 e 1. 3 f

8611 m 2. 1 n

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1900phae.proj.2287B

6844 k2.0k.1m ±

✓ 6837 m1.1m

✓ 6828 l2.0m, 2n

✓ 6909 m1.1n

✓ 6876 q2.1h

✓ 6875- e2.2f

6854 k2.0k.1m

✓ 9558 e4.0f.2g

9205- e3.0f.3g

3677 m2.0n, 3o

✓ 3673 m1.1m

✓ 3675- On ±

3678 l2.0m, 2n

3679 m1.1m

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1900phae.proj.2287B

- 6820 m 2. 1n

6792 (oh ±) ? stat ?

7483 0m ± ?

7482 l 1. 1m ±

1751 m 1. 1n

✓ 1840 OK ± ?

✓ 1838 d 2. 1e, 4f.

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1900phae.proj.2287B

M 3 - 1.189
Variable Nos 1 | Aug. 14. 1901

Var	
1	A 1751 0g
89	A 1751 g1, 1h
1	A 3672 m1, 1n
89	A 3672 h0
1	A 3677 m1, 1n
89	A 3677 f1, 2g
1	A 3678 m1, 1n
89	A 3678 m1, 1n
1	A 3679 m1, 1n
89	A 3679 m1, 1n

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1900phae.proj.2287B

1 A 3681
mz, 1n

89 A 3681
f.0

1 A 3682
Poor plate. Dif.

89 A 3682
e1, 2f

1 X 6792
d3, 1e

89 X 6792
0m

1 X 6820
m1, 1n

89 X 6820
m1, 1n

1 X 6844
g1, 1

X 6844

89 m1, 1e

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1900phae.proj.2287B

30 M 3

See also Record book No 2 Far-st. for other M 3. Obs -

Far

1	X 6854 d 3,0 e, 2 f
89	X 6854 m 0
1	X7482 m1, 1m
89	X7482 g 0
1	X7483 e 0
89	X7483 k 0
1	X7488 m 0
89	X7488 d 3,0 e 2 f
1	X8563 d 3,0 e, 2 f
89	X 8563 h 1, 1m

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1000phae.proj.22878

var

1 X8584
k2, 0 l, 1 m.

89 X8584
e 3, 0 f. 1 g

1 X8597
k2. 0 l. 1 m

89 X8597
m 0

1 X8611
f 1. x² g

89 X8611
0 g

1 X8612
k 0

89 X8612
e 1., 2 f

1 X8618
~~f~~ i 1, 1 f

89 X8618
m 0

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1900phae.proj.2287B

m 3.

Var.

1 x 8624
d 3, 0 e, 2 f

89 x 8624
l 1, 1 m

1 x 8625-
f 1, 2 g

89 x 8625-
l 0.

1 x 9158
m 1, 1 m

89 x 9158
l 1, 1 k

1 x 9204
d 3, 0 e, 3 f

89 x 9204
m 0

1 x 9205-
g 1, 1 l

89 x 9205-
d 3, 0 e 2 f

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1900phae..proj..2287B

M 3

1901- aug. 30.

Var No. 12.

K 22 e2, 0f. 1g

17 k2, 0l. 2m

24 e1, 2f

21 e2, 0f. 2g

16 l0

5 l0

4 l1, 1m

3 l1, 1m

23 e1, 2f

18 f2. 0f, 9g 1h.

13 l0

12 l1, 1m

7 h1. 0k. 2l

6 l1, 1m

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1900phae.proj.2287B

M 3
var. No 12.

Plate	
K 14	l0
9	g1.1h
19	g0
20	e2.1f
15-	l1.1m
2	l0
1	l0
8	k1.1l
10	l0
11	l1.1m
25-	d2.0e 2f
X 9205-	g0
X 9204	e2.1f
X 9158	h1.1k

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1900phae.proj.2287B

M 3

x 8625 k 0

x 8624 f 1. 2 g

x 8618 e 2. 0 f. 2 g

x 8612 f 2. 1 g

x 8611 e 2, 0 f. 2 g

x 8597 k 1. 1 l

x 8584 g 1. 1 h

x 8563 l 0

x 7488 l 0

x 7483 g 1. 1 h

x 7482 k 1. 1 l

x 6854 k 2. 1 l

x 6844 k 0

x 6820 l 0

x 6792 g 0

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1900phae.proj.2287B

M 3
Var No. 12

a 3682 lO ±

a 3681 KO

a 3679 f1.1g

a 3678 gO

a 3677 gO

a 3672 lO

a 1751 f1.1g

additional meas. of var No 12.

x 8779 fO 8.2 ✓

x 8655 fO 8.2 ✓

x 6925 f1.1g 9.4 ✓

x 6872 f1.1g 9.4 ✓

x 6809 f1.1g 9.4 ✓

A 1775 fO 8.2 ✓

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1900phae.proj.2287B

A 1780 f 1,1 g 9.4 ~

A 1838 g O 10.6 ~

Measure

K 8 h O 12.8.

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1900phae.proj.2287B

M 3. Var № 126. Sept. 6. 1901.

Plate	
K 22	ll.lm
17	kl.ll
24	mO
21	ll.lm
16	kO
5	ll.lm
4	ll.lm
23	ll.lm
18	kl.ll
13	f2.lg
12	kO
7	ll.lm
6	lO
14	g2.lh

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1900phae.proj.2287B

K 9 b0

19 b1.1m

20 b0

15 k1.1b

2 k0

1 b0

8 b0

10 g1.2b

11 g:1.3b

25 m0

3 b1.1m

A1751 b0

A 3672 b1.1m

A 3677 k1.1b

A 3678 g2,1b

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1900phae.proj.2287B

M 3

N° 126

a 3679 g1.1h

a 3681 k1.1l

a 3682 k0=

X 6792 h0

X 6820 g1.2h

X 6844 k2.1l

X 6854 g1.2h

X 7482 k1.1l

X 7483 k1.1l

X 7488 h1.1k

X 8563 h0

X 8584 k0

X 8597 f0

X 8611 k0

X 8612 h0

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1900phae.proj.2287B

M3

#126

X8618 f 2.0g.2h

X8624 f 1.2g

X8625 h0

X9158 l 1.1m

X9204 f 2.0g.2h

X9205 k0 =

K12 reexamined helium h0, or even g0 - ?

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1900phae.proj.2287B

M 3 - Var No 13 - Sept 7 1901.

Plate	
K 3	m 1. 1m
25	d 3, 0e, 2f.
11	m 0
10	l 1. 1m
8	m 2. 1m
1	m 1. 1m
2	m 0
15	m 1. 1m
20	m 1. 1m
19	m 0
9	m 0
14	m 0
6	l 2. 1m
7	l 2. 1m
12	m 0

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1900phae.proj.2287B

13 m l. ln

18 m l. ln

23 KO

4 m l. ln

5 m l. ln

16 m 2. ln

21 m l. ln

24 e 2. O f. 2g

17 m O

22 m O

x 9205 l O

x 9204 m O

x 9158 m O

x 8625 l l. lm

x 8624 K O

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1900phae.proj.2287B

Jan. 13

X 8618	g 2, 0 h, 1 k
X 8612	k 1, 2 l
X 8611	f 2, 1 g
X 8597	e 1, 1 f
X 8584	e 1, 1 f
X 8563	m 0
X 7488	f 2, 0 g, 2 h
X 7483	h 0 +
X 7482	e 1, 2 f
X 6854	k 1, 1 m
X 6844	m 0
X 6820	f 1, 1 g
X 6792	k 1, 1 l
A 3682	d 2, 1 e

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1900phae.proj.2287B

a 3681 lO

a 3679 m O

a 3678 m l, l n

a 3677 m l, l n

a 3672 m l, l n

a 1751 m O

additional measures of No. 13 -

X 6876 el. lf ✓

X 7654 fl. lg ✓

X 8605 - fl. lg

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1900phae.proj.2287B

m 3. Var - No 14. Sept. 9. '01

Plate	
K 3	m 0
25	k 1.1 l
11	d 2.2 e
10	d 2.2 e
8	m 1.1 n
1	m 0
2	m 1.1 n
15	d 3.0 e, 2 f
20	f 2.0 g.2 h
19	f 2.0 g.1 h
9	m 0
14	d 3.1 e
6	m 1.1 n
7	m 0
12	d 2.1 e

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1900phae.proj.2287B

K 13 d 3.0 e, 2 f

18 f 1.1 g

23 f 2.0 g. 2 h

4 m 1. 1 m

5- m 1. 1 m

16 e 1. 2 f

21 f 2. 0 g. 1 h

24 h 1. 1 k

17 d 3. 0 e, 2 f

22 g 1. 1 h

a 1751 m 1. 1 m

a 3672 l 1. 1 m

a 3677 e 3. 0 f. 1 g

a 3678 m 0

a 3679 m 0

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1900phae.proj.2287B

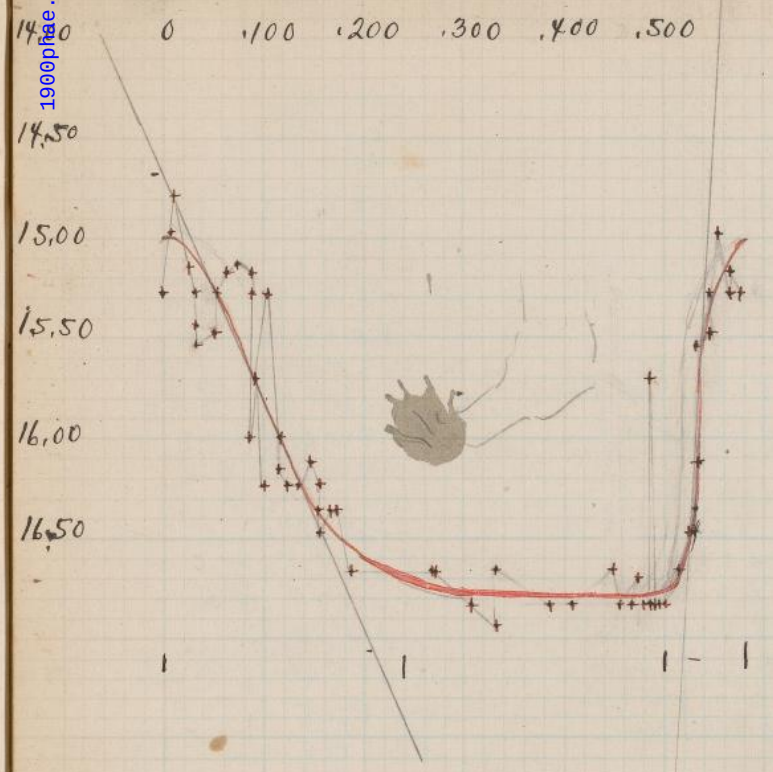
M. 3. Var. No 14

Plate	
a 3681	m 0
a 3682	m 0
x 6792	m 0
x 6820	g 3.0 h. 1 k
x 6844	m 0
x 6854	k 0
x 7482	d 3.1 e
x 7483	f 2.0 g. 2 h
x 7488	m 0
x 8563	m 0
x 8584	m 1.1 m
x 8597	f 2.0 g. 2 h
x 8611	e 1.1 f
x 8612	g 1.1 h
x 8618	m 1.1 m

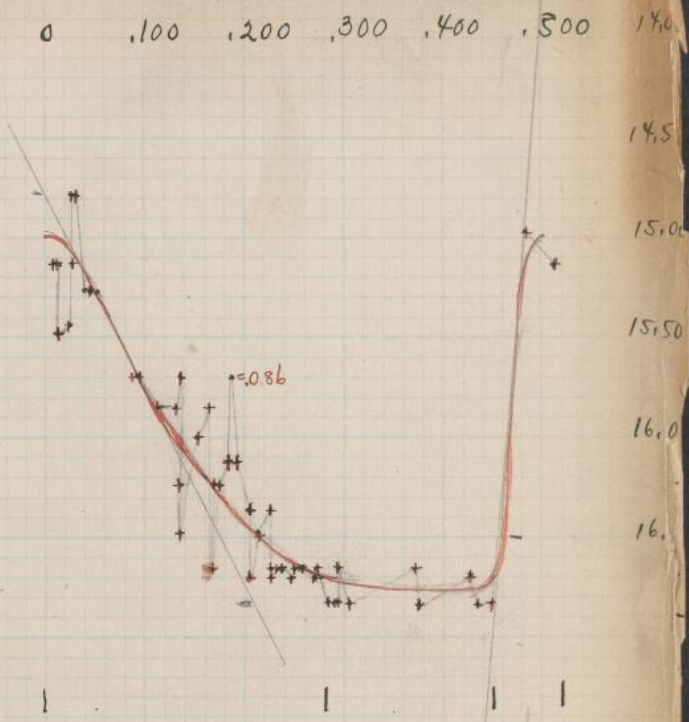
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1900phae.proj.22879

0.57612

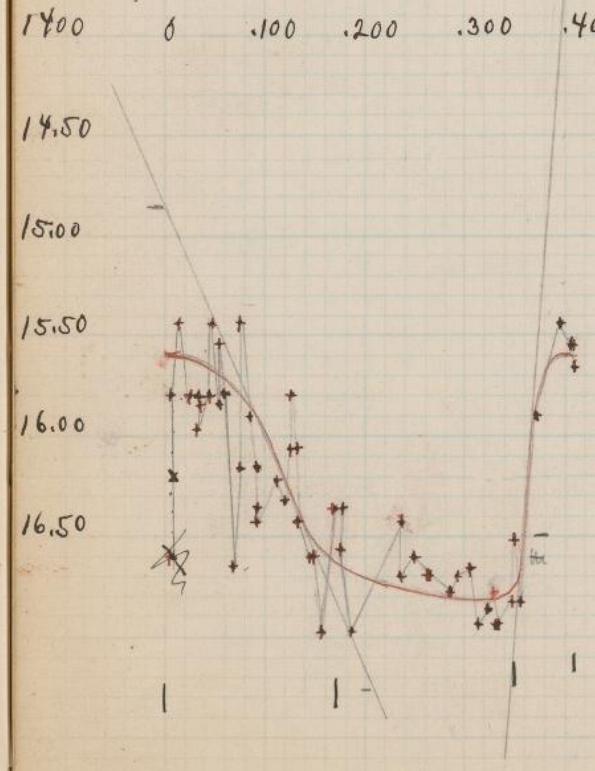


0.51633



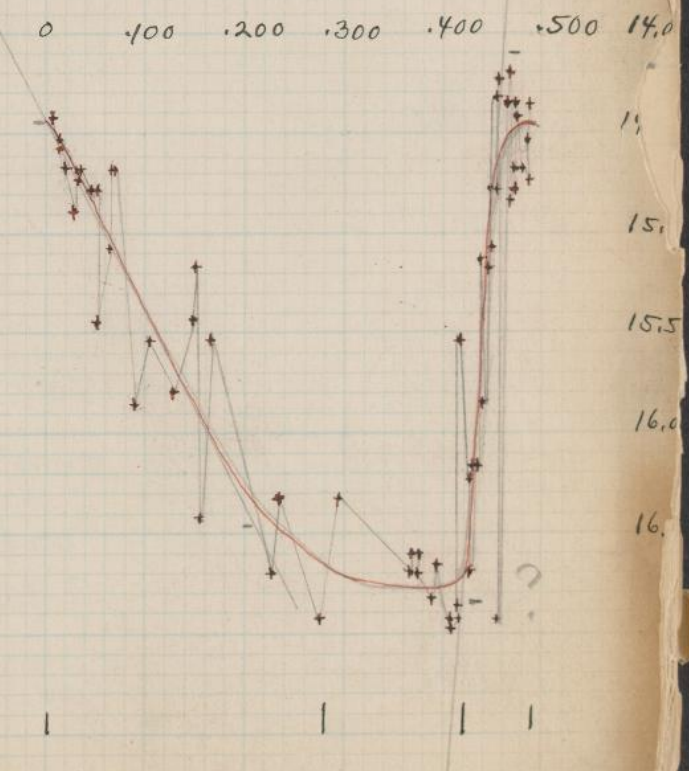
M 3 No 19

0.41172



M 3 No. 20

0.49129



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1900phae.proj.2287B

(1)

3161.73
1789.33512
3372.39488 ✓
4.94064
3377.33552 ✓
5.76408
.41172
3383.51132 !!
.82344
3384.33476 ✓
24.7032
3631.36676
28.82040
4.11720
.41172
3664.71608 ✓
24.70320
2.0586
3691.47788 ✓
.82344
3692.30132 ✓
1.23516
3693.53648 ✓
370.54800
3.29376
4067.37824 ✓
4.1172
4071.49544 ✓
2.0586
4073.55404 ✓
3.70548
4077.25952 ✓
1.23516
4078.49468 ✓
.82344
4079.31812 ✓
5.76408
.41172
4085.49392 ✓
370.548
.41172
4456.45364 ✓
20.586
4435.86764
1.64688
4437.51452 ✓
370.54800
28.82040
2.47032
4839.35324 ✓
.82344
4840.17668 ✓
1.23516
4841.41184 ✓

4346 | 1789.33 | .41172
17384 | 4346 ✓
5093
43746
7470
4346
31240
30422
8180
46

247032
164688
123516
164688
1789.33512

4841.41184
329.376
5170.78784
20.586
5150.20184
8.23440
2.0586
5160.49484
1.23516
5161.73000

3372.39488
1789.33512
5161.73000

VV
.41172
.82344
1.23516
1.64688
2.05860
2.47032
2.88204
3.29376
3.70548
4.11720
.82344
4.94064
5.76408

Gas fill well tis
pork about right. though
there are two large residuals
for seconds on curve.

5161.73
164.688
4997.042
20.586
3.70548
5021.33348 ✓
140.39652 | 341
123516
16880
16468
4117
4117

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1900phae.proj.2287B

19

.4117) 384.9000 | 935~
370 53 00
14370 0
12331 0
2019 0
2058 5~

.4117) 352.0500 | 855~
329 36
22690
20585~
21050
20585~

.4117) 375.8500 | 913
370 53
5320
4117
12030
12351

.4170

Adjust to here next

.913

3691.50 ✓
8234
3692.3234 ✓
1.2351
3693.5585~ ✓
370.53
4064.0885~
3.2936
4067.3821 ✓
4.117
4071.4991 ✓
2.05851
4073.5576 ✓
3.7053
4077.2629 ✓
3.7638
2.4702
4085~.4969 ✓

4085~.4969
370.53
4117
4435.4386 +2
20.5850
4435.8536
1.6468
4437.5004 +✓2
370.530
20.5850
8234
4829.4388
8.2340
1.6468
4839.3196
1.2351
4840.5547 +34
.8234
4841.3781 +3.4
2588 19
20.585
5150.1531
8.2340
3.2936

3571) 1470.200 | .4117
14284
4180
3571
6090
3571
2519 0
24997
1930

3691.50
28.819
3662.681
2.0585~
3664.7395 -3
329.36
3335.3795~
32.9360
4.117
3372.4325~ ✓
4.9404
3377.3729 -
5.7638
4117
3383.5484 !
8234
3384.3718 -

5161.6807
3372.4325~
.4117) 1789.2482 | 4346
16468
14244
12351
18938
16468
2470 2
2470 2

5161.73
3372.40
1789.33

.82340
1.2351
1.6468
2.0585~
2.4702
2.8819
3.2936
3.7053
4.1170
8234
4.9404
5.7638

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1900phae.proj.2287B

19

5161
3691
1470

3691.50 ✓
368.928
4060.428 ✓
4.0992
2.86944
4067.39664 ✓ −
4.0992
4071.49584 ✓
2.0496
4073.54544 ✓
4.0992
4077.64464 ✓ +
.81984
4078.46448 ✓
1.81984
4079.28432 ✓
4.0992
2.04960
4085.43312 ✓
368.928
4454.36112
2.0496
4456.41072 ✓ +
16.3968
4440.01392
2.45952
4437.55440 ✓
368.92800
28.69440
4.09920
4839.27600 ✓ +
1.22976
4840.50576 !! 58
.81984
4841.32560 ✓ +
286.9440
32.7936
5161.06320
40.992
5761.47312 !!!
3691.50
1469.97312 | 3586
1229 76
240 213
204960
35 25 31
32 29 36
2 95 52

3691.50	375.85	913
4067.35	18.10	44
4085.45	352.05	855
4437.50	19.00	46
4456.50	384.90	935
1891.40	320.30	778
5161.70		
1470.20	1470.20	3571

.40992
.81984
1.22976
1.63968
2.04960
2.45952
2.86944
3.27936
3.68928

41) 18.10 (44
164
160
124

41) 19.00 (46
164
260
287

46) 19.00 (413
184
60
46
140

44) 18.10 (411
176
50
44
60

90) 18.10
19.00
37.100
412

412) 320.300 (777
288.4
3190
2884
3060
2884
6

778) 320.30 (.4117
312
910
778
1320
778
5420
5446

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1900phae.proj.2287B

No 19

(a)

1

3691.46 ✓
3692.28 ✓
3693.51 ✓
369
4.92
4067.43
4071.53 ✓
4073.38 ✓
4077.68 ✓
4078.50 ✓
4079.32 ✓
4085.47 ✓
369.
4454.47
4456.52 ✓
4436.02
4437.25 (!)

4456.52
369.
4825.52
12.30
1.64
4839.46 ✓
4840.28 ✓
4841.51 !
328.
5169.51
6.15
5163.36
1.64
5161.72

3582) 1470.20 (.4104
14328
3740
3582
15800
14328
14720

3691.50
82088
3692.32088
1.23132
3693.55220
369.396
4.104440
4067.05260
41044
4067.46304
4104440
4071.56744
2.05220
4073.61964
3.69396
4077.31360

3578) 1470.200 (4109
1431 2
3900
3578
32200
32202

3691.50
369.81
3.6981
4065.0081
2.4654

927) 380.00 (.40992
3708
9200
8343
8570
8343
2270

.41
.82
1.23
1.64
2.05
2.46
2.87
3.28
3.69
4.10
4.92
1.23
6.15

.41044
.82088
1.23132
2.05220
2.46264
2.87308
3.28352
3.69396
4.10440
4.92528
1.23132
6.15660

.4109
.8218
1.2327
1.6436
2.0545
2.4654
2.8763
3.2872
3.6981

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1900phae.proj.2287B

No 19. (a)

0.412

5- 2.10
5- 2.01
12 4.91
17 6.99
46 18.95-
51 1.92
90 | 36.88
.4098
say .41

.82
1.23
2.46
2.05-

.41) 377.97 (922
369
89
82
77

.41) 352.07 (854
328
240
205-
357
369

41) 382.98 (934
369
139
123
168

41) 320.30 (781
287
333
328
50

41
.46
246
164
18.86

.412) 18.950 (46
1648
2470
2472

.412) 6.990 (17
412
2870
2884

412) 491 (12
412
790
824

3691.50
320.30
3371.20
1.23
3372.43 ✓
3376.53
82
3377.35- ✓
4.10
2.05- !!
3383.50
82
3384.32 ✓

3586) 1470.20 (.40998
14344
35800
32274
35260
32274
29860
29688

3586
.41
3586
14344
1470.26
5161.72
3691.46

.40998
3586
245988
32798
20499
122994
1470.18828

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1900phae.proj.2287B

March 19.

3691.50	2.10	3	5
3693.60	377.97	543	922
4071.57	2.01	3	5
4073.58	4.91	7	12
4078.49	6.99	10	17
4085.48	352.07	506	859
4437.55	18.95	27	46
4456.50	382.98	550	934
4839.48	1.92	3	5
4841.40	320.30	460	781
5161.70			
1470.20	1470.20	2112	3586

30

2112) 1470.200 (.69612
12672
203008
190080
129200
126720
2480
2112
3680
3681

2104) 1470.30 (
12624
20790
18936
18540
18532
17080
16832
2480

2.10
2.01
1.92
3) 6.03
3) 2.01
.67) 4.91 (7
469

7) 4.91
70
6.
.70) 6.99 (9
9
70) 18.95 (.696
27
70
18.90

3	2.10	
3	2.01	
7	4.91	
10	6.99	
27	18.95	
3	1.92	
53	36.88	1.696
	318	
	508	
	477	
	310	
	318	

.696) 352.070 (506
3480
4070
4176
3480
352.176

.696) 382.980 (550
3480
3498
3480
180
34800
3480
382.800

377.970
3480
2997
2784
2130
2088

1.543 .696 (460
696
3258
4887
3258
378.028

320.300
2784
4190
4176
140
41760
2784
320.160

70
53
210
350
37.10

69612
643
208836
278448
348060
377.99316

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1900phae.proj.2287B

19

3691.50
349.88
3341.62
27.9904
1.39952
3391.00992
4.19856
2.09928
3337.30778
6.99760
3384.30538
1.39952
3383.90586
69976
.20610

3371.00992
1.39952
3372.40944

3691.50
27.9904
3663.50966
69976
3664.20936

2101 | 1470.20

3691.50
0.69976
3692.19976
1.39952
3693.59928
349.88
4043.47928
20.99280
2.79904
4067.27112
4.19856
4071.46968
2.09928
4073.56896
3.49880
4077.06776
1.39952
4078.46728
69976
4079.16704
4.19856
2.09928
4085.46488
349.88000
2.09928
4437.44416
13.99520
4.19856
.69976
4456.33768
349.88
20.9928
4827.21048
6.9976
4.19856
1.39952
4839.80616
69976
4839.10640
1.39952
4840.50592
.69976
4841.20568

4841.20568
279.90400
41.98560
5163.09528
1.39952
5161.69576
1.39952
5160.29624
Fault found in addl. 4839-41

.69976
1.39952
2.09928
2.79904
3.49880
4.19856

4067.25
71.45
73.55
77.75
.33
78.59
79.43
4.20
1.68
85.31
.42
85.73
67.25
42) 18.48 | 44
168
168
85.48
67.25
44) 18.23
176
63
44
190
176

.42
.84
1.26
2.10
1.68

.42
.84
1.26
1.68
2.06
2.52
2.94
3.36
3.708

4067.25
71.39
2.52
73.46
77.60

4067.33
4.12
4071.47
4073.53
4077.65
4078.474
4079.298

4079.298
4.120
2.06
4085.478

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1900phae.proj.2287B

19

458 320.40 .6996

2748
4560
4122
4380
4122
2580
2748

2104 for 3691 – 5161

.6988.
1.3976
2.0964
2.7952
3.4940
4.1928
4.8916
5.5904
6.2892

3691.50
320.40
3371.10
72.50
77.40

3691.40
349.40
3342.00
27.952
2.0964
3372.0484
5.5904
3377.6388
5.5904
3383.2292
1.3976
3384.6268
279.520
27.952
3692.0988 +
6988
3691.4000 +
27.952
3663.4480
6988
3664.1468

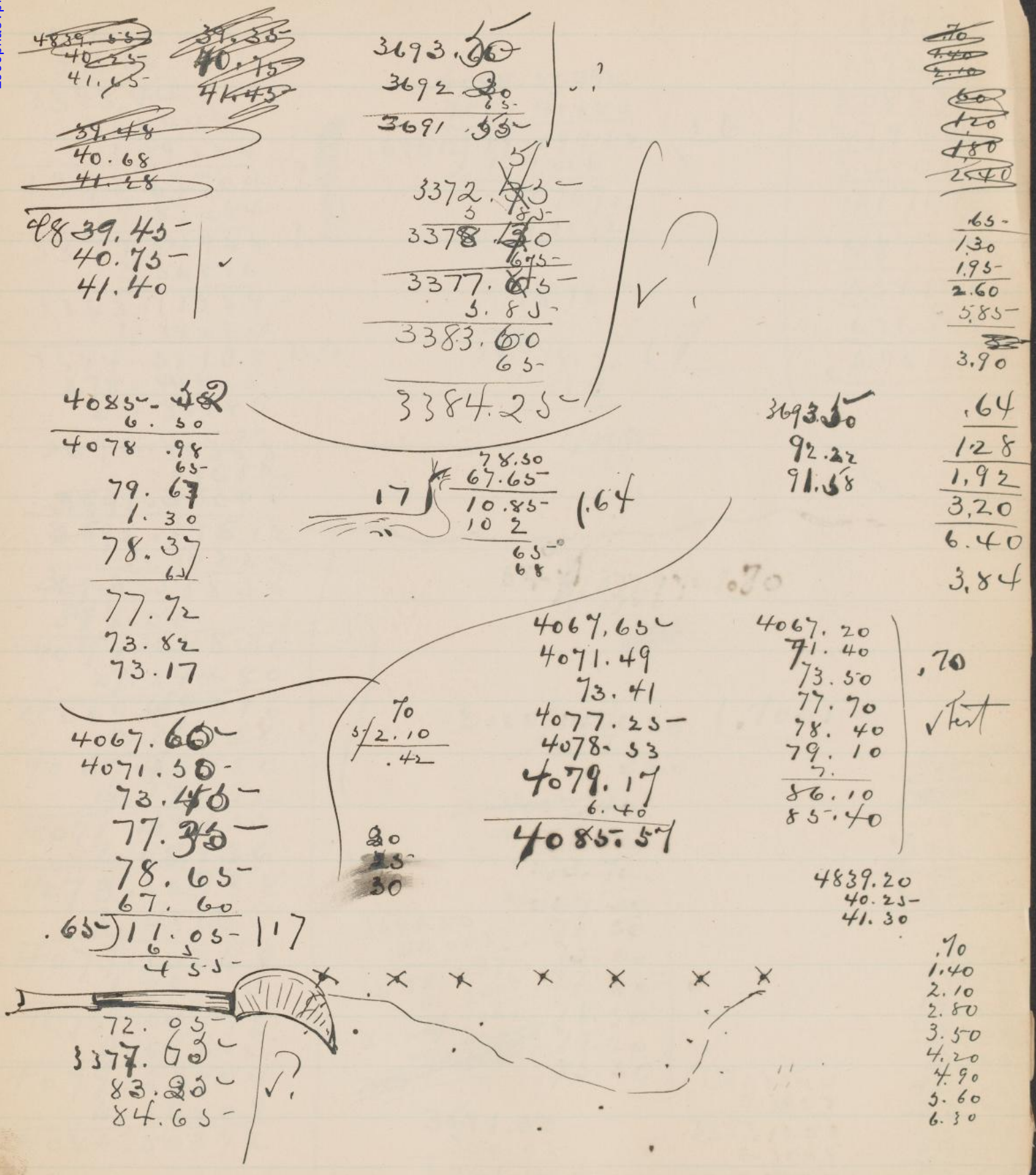
3691.40
0.6988
3692.0988
1.3976
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349.4000
20.9640
4.8916
4068.7540
1.3976
4067.3564 –
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4071.5492

4071.5492 –
2.0964
4073.6456 –
3.494
4077.1396 –
1.3976
4078.5372 –
6988
4079.2360 –
6.2892
4085.5252
349.40
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4437.0216 –
20.9640
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4841.6268 –
279.520
41.928
5163.0748
2.7952
5160.2796
1.3976
5161.6772 +

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No 19



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M 3 No 19.

3691.50
348.06
3343.44
27.8448
1.39224
3372.67704
4.87284
3377.54988
5.56896
3383.11884
1.39224
3384.51108
278.44800
27.84480
3690.80388
.69612
3691.50000
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1.39224
3693.58836
348.06
4041.64836
27.84480
4069.49316
2.08836
4067.40480
4.17672
4071.58152
2.08836
4073.66988
3.4806
4077.15048
1.39224
4078.54272
0.69612
4079.23884
6.26508
4085.50392

4085.50392
4067.40480
.69612 | 18.09912 | 26
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417672
417672

18.16
26 | 18.20 | .7
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18.95
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.69612
1.39224
2.08836
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4.87284
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54 | 377.940 | .70
378
17

2100 | 1470.20 | .70010
147
020

~~4067.40~~
~~4071.60~~
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4067.30
71.50
73.60
77.80
78.50
79.20
85.50

~~.70010~~
~~1.4002~~
2.1003
4.2006
~~6.3009~~
~~2.8004~~

.7001
1.4002
2.1003
2.8004
3.5005
4.2006
4.9007
5.6008
6.3009

3691.50
21.003
3670.497
6.3009
3664.1961
6.3009
3657.8952
1.4002
3656.4950

3691.50
350.05
3341.45
28.004
2.8004

3372.2544
4.9007
3377.1551
6.3009
3383.4560

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1900phae.proj.2287B

4085.32
81.32
1.68
4079.64
1.26
4078.38
4077.12
42
54

41.35-
39.55
31.80
60

4085.48
4081.38
4079.33
4078.51
4077.28
4073.18
59
4071.54
4067.44
4085.48
41) 18.04 (44
164
164
4085.48
4067.35-
44) 18.13 (412
176
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90

0.42
2.10
.84
1.26
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2.52
2.94
3.36
3.78
4.20

4078.48
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85.52
78.38
42) 7.14 (17
42
294
85.48
78.48
17) 7.00 (41
68
20

4067.35-
4071.47
4073.53
4077.65-
78.474
224
4079.298
4.12
2.06
4085.478

4841.28
0.824
4840.576
1.236
39.340

3693.60
1.236
3692.364
824
3691.540

.412
824
1,236
1,648
2.060
2.472
2.884
3.296
1.6
6.768

3372.70
4.12
.824
3377.394
4.120
2.060
3383.574

3377.70
73.48
82
72.956
34

72.35-
5.768
412
5.530

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1900phae.proj.2287B

No 19

2096) 1470.20 (.70143
1672
3000
2096
9040
8384
6560

3691.50
28.05-72
3663.44428
.70143
3664.14423
.70143
3664.84566
280.572
3384.27366
14.0286
3370.24506
2.10429
3372.34935-
4.91001
3377.25936
6.31287
3383.57223
70143
3384.27366

5) 2.10
.42

5) 2.01
.40

5) 1.92
1.

.70143
1.40286
2.10429
2.805-72
3.50715-
4.20858
4.91001
5.61144
6.31287

4839.20
40.60
41.30

320.40

1200
600
1800.

3691.50
3372.05-
319.45-
.7
320.30

3691.40
320.40
3371.00
3372.40
3377.30
6.30
83.60
84.30

77.65-
6.31
83.96
84.66

77.65-
72.05-
77.66
6.31
83.9727
84.67

3691.50
3692.20
3693.60
3691.50
320.40
3371.90
1.40
3372.50
4.90
3377.40

2) 320.40
45.8

3691.40
320.40
3371.80
1.40
3372.40
77.30

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1900phae.proj.2287B

Sel
Sp 292

M 3 – Vars. 18-19. 20

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18-19-20

No. 18.

J.D.	Comp	Magnr	Phase	Resid
3372.527	f1.1q	14.70 15.13	0.027	+08
3377.518	m1.1m	16.29 16.66	0.370	+11
3383.514	k0	15.76 16.23	0.170	+02
3384.515	k0	15.76 16.23	0.138	+21
3664.670	n0	16.49 16.82	0.448	+10
3691.529	..	....	....	..
" .640	g0.	14.83 15.28	0.051	+02
3692.537	n0	16.49 16.82	0.432	+06
4067.527	g0	14.83 15.28	0.046	+03
4071.574	f0	14.58 14.98	0.482	+12
4073.582	m2.1m	16.34 16.70	0.425	+06
4077.490	m2.1m	16.34 16.70	0.202	+24
" .579	n0	16.49 16.82	0.291	+11
4078.498	m1.1m	16.29 16.66	0.169	+43
4079.497	n0	16.09 16.49	0.137	+47
" .578	m2.1m	16.34 16.70	0.223	+15
4437.548	n0	16.49 16.82	0.377	+06 +11
4456.501	m1.1m	16.29 16.66	0.225	+11
" .574	n0	16.49 16.82	0.298	+10
4839.481	k0	15.16 15.70	0.086	+06

254

No. 19.

Comp	Magnr	Phase	Resid
k1.2l	15.56 16.06	0.132	+32
m1.1o	16.72 16.98	0.181	+32
m1.2n	16.24 16.60	0.002	+100
l1.1m	15.92 16.36	0.179	+29
k2.1k	15.36 15.90	0.370	+03
q2.1h	15.04 15.54	0.055	+15
l1.1m	15.92 16.36	0.165	+24
k2.1m	15.98 16.41	0.239	+36
m1.2n	16.24 16.60	0.142	+11
k2.1k	15.36 15.90	0.082	+07
k2.0k2l	15.46 15.98	0.031	+36
m2.1n	16.34 16.70	0.232	+06
m1.1o	16.62 16.88	0.321	+06
g2.0k2k	15.15 15.66	0.409	+06
m1.2n	16.19 16.56	0.175	+09
m2.1n	16.34 16.70	0.261	+09
k1.1k	15.26 15.80	0.036	+17
k1.2k	15.26 15.80	0.048	+13
k1.2l	15.56 16.06	0.121	+22
k1.2k	15.26 15.80	0.127	+46

459

No. 20.

Comp	Magn	Phase	Resid
n1.2o	16.46 16.94	0.488	+235
e2.1f	14.39 14.79	0.044	+03
g1.2h	14.94 15.44	0.145	+37
g1.2h	15.04 15.54	0.163	+46
l1.2m	15.88 16.31	0.288	+38
h1.2k	14.26 15.80	0.126	+17
k1.2m	15.88 16.31	0.236	+17
f2.1g	14.76 15.18	0.150	+68
n1.2o	16.66 16.94	0.276	+30
n1.2o	16.66 16.94	0.403	+17
f2.1g	14.76 15.18	0.445	+20
k2.0k2m	15.77 16.24	0.422	+36
e1.2f	14.29 14.69	0.020	+12
h1.1k	15.31 15.85	0.439	+15
e2.1f	14.39 14.79	0.458	+23
e2.1f	14.39 14.79	0.053	+10
m2.1n	16.34 16.70	0.365	+07
k2.1m	15.98 16.41	0.156	+49
m2.1n	16.34 16.70	0.229	+27
g2.1h	15.04 15.54	0.419	+118

825

No 18

3389.546	f1.1g	9.4
3692.647	e2.1f	7.1
3693.650	f1.1g	9.4
3724.663	e2.1f	7.1
4084.539	g1.2h	11.2
4085.560	f1.1g	9.4

No 19

3693.607	g1.2h	11.2
4085.485	g2.1h	12.2

No 20

3378.521	e1.2f	6.1
4074.587	e3.1f	7.6
4078.577	e1.2f	6.1
4080.484	e1.2f	6.1
" .569	f1.2g	8.9
4084.539	g2.1h	12.2
4085.485	e1.2f	6.1
4140.481	e1.2f	6.1
4807.611	e2.2f	6.6

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J.D	No. 18. Comp	Magn	Phase	Resid.	No. 19. Comp	Magn	Phase	Resid.	No. 20. Comp	Magn	Phase	Resid.
4840.524	h0	15.70	0.097	+02	k2,0m,2n	16.51	0.346	+23	e2,3f	14.69	0.480	+23
4841.472	g1.1h	15.49	0.013	+49	h1,2k	15.80	0.060	+08	f1.2g	15.08	0.446	+18
" 503	g0	15.28	0.044	+02	k1.1m	16.36	0.091	+46	e2.1f	14.79	0.477	+32
" 517	h1.1k	15.85	0.112	+02	m1.1o	16.98	0.159	+10	g1.2h	15.44	0.054	+24
" 603	"	"	....	....	"	k15.9 16.3	0.191	"	h1.1k	15.85	0.086	+62
5160.738	"	"	....	....	m1.2n	16.60	0.246	+18	m2.1n	16.70	0.376	+08
" 776	m1.1n	16.66	0.190	+09	m2,0n,3o	16.79	0.284	+02	m1.2o	16.94	0.414	+20
" 785	m1.1n	16.66	0.237	+07	m2.1n	16.70	0.293	+11	m2.1n	16.70	0.428	+12
" 797	m1.1n	16.66	0.249	+03	m2.2n	16.66	0.305	+11	k2.1l	16.16	0.435	+08
" 806	m1.1n	16.66	0.258	+00	m1.2o	16.94	0.314	+12	e2.1f	14.79	0.444	+00
" 819	m1.1n	16.66	0.271	+02	m2,0n,3o	16.79	0.327	+02	e2,0d,2e	14.23	0.457	+32
" 827	m2.1n	16.70	0.279	+01	m1.2o	16.94	0.335	+15	e1.0d,2e	14.20	0.465	+29
" 840	m1.1n	16.66	0.292	+06	m3,0n,3o	16.82	0.348	+05	d2.1e	14.41	0.478	+05
" 850	n0	16.82	0.302	+09	m2,0n,2o	16.82	0.358	+14	d1.1e	14.36	0.488	+10
5161.719	h1.1k	15.85	0.130	+13	g1,2h	15.44	0.395	+16	m1.2n	16.60	0.366	+18
" 749	h0	15.70	0.139	+31	g2.1h	15.54	0.404	+06	m1.2n	16.60	0.375	+18
" 732	k0	16.00	0.152	+13	h1.2k	15.80	0.415	+20	m3,0n,3o	16.82	0.388	+04
" 741	h1.1k	15.85	0.161	+35	g1,2h	15.44	0.414	+17	m2.2n	16.66	0.397	+11
" 753	h0	16.23	0.173	+03	h1,2k	15.80	0.426	+18	m2.2o	16.98	0.409	+22
" 761	h1.1l	16.11	0.181	+21	h1.1k	15.85	0.434	+22	m1.3o	16.88	0.417	+15
		207				306				347		

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5/ 3

J.D.	№ 18. Comp	Magn	Phase	Resid	№ 19. Comp	Magn	Phase	Resid	№ 20. Comp	Magn	Phase	Resid
5161.774	k1.1l	16.11	0.194	+28	g1.2h	15.44	0.047	+23	k2.1k	16.16	0.430	+00
" 783	k1.1m	16.36	0.203	+08	k1.1k	15.85	0.056	+15	f2.2g	15.13	0.347	+27
" 795	m0	16.49	0.216	+01	m2.2m	16.66	0.069	+18	d1.2e	14.31	0.452	−37
" 805	k1.1m	16.36	0.225	+18	k2.1k	16.16	0.078	+36	d1.1e	14.35	0.461	−15
" 817	m1.1m	16.66	0.237	+07	k2.1k	16.16	0.090	+27	d1.1e	14.35	0.473	+11
" 825	m2.1m	16.70	0.245	+09	k2.1m	16.41	0.098	+16	d2.0e.3f	14.53	0.481	+07
" 837	m1.1m	16.66	0.257	+00	k1.0k2m	16.21	0.110	+11	d2.1e	14.41	0.002	−06
" 847	m2.1m	16.70	0.267	+03	k1.2m	16.31	0.120	+10	d2.0e.2f	14.57	0.012	−00
" 861	m0	16.82	0.281	+12	k2.1m	16.41	0.134	+03	e2.0f.3g	14.89	0.026	+20
" 873	m0	16.82	0.290	+10	m2.3m	16.60	0.143	+10	e2.2f	14.74	0.035	+02
				96				181				130
				254				459				825
				207				306				347
				96				181				130
				557+13				946 +47				1302+174
				47+6				2				49 +9
				693				947				1476
				53				20				58
				±.13								±25

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M. 3. Var. No 14

Plate	
a 3681	m 0
a 3682	m 0
x 6792	m 0
x 6820	g 3.0 h. 1 k
x 6844	m 0
x 6854	k 0
x 7482	d 3.1 e
x 7483	f 2.0 g. 2 h
x 7488	m 0
x 8563	m 0
x 8584	m 1.1 n
x 8597	f 2.0 g. 2 h
x 8611	e 1.1 f
x 8612	g 1.1 h
x 8618	m 1.1 n

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1900phae.proj.2287B

x8624 f2.0g.2h

x8625 k0

h0

x9158

x9204 e1.1f

x9205 f2.1g

addition measure of N°14.

x6837 e1.1f ✓

x8779 f1.2f9g ✓

x6875 f1.1g ✓

A1783 e2.1f ✓

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Messier 3. Var No 28 Sept. 10,

Plate	
K 22	h0
17	f1.1g
24	h0
21	h1.1k
16	e1.2f
5	e0
4	e0
23	k1.1l
18	e2.1f
13	e0
12	d2.1e
7	e2.1f
6	e1.2f
14	e0

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K 9 e2.0f.2g

19 f2.0g.1h

20 h1.0K.2l

15- e1.2f

2 e0

1 h0 +

8 f2.0g.2h

10 e1.1f

11 e0

25- k1.1l

3 d3.1e

x9205- h0

x9204 h0

x9158 g1.1h

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1900phae.proj.2287B

M 3. Var. 28

x8625 k1. 1l

x8624 l 1. 1m

x.8618 l1. 1m

x8612 l 0

x8611 l 0

x 8597 f2. 0g. 2h

x8584 f2. 1g

x8563 h 0

x 7488 k 0 +

x7483 l 0

x 7482 f2. 0g. 2h

x6854 k1. 1l

x6844 l 1. 1m

x6820 l 0

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1900phae.proj.2287B

λ6792 l0

a3682 —

a3681 l0 ±

a3679 l1.1m

a3678 m0 ±

a3677 m0 ±

a3672 m0 ±

a1751 k0 ±

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1900phae.proj.2287B

1901

M 2. Var. № 76 Sept 10.

Plate	
K 3	d O
25	f 1.1 g
11	m 1.1 n
10	h 1.1 m
8	e 1.1 f
1	n O
2	d 1.2 e
15	h 1.1 K.
20	d 2.1 e
19	d 2.2 e
9	e O
14	h 1.1 m
6	e O
7	e O
12	n O

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13 nO

18 d1.2e

23 e2.1f

4 d2.2fe

5 d3.1e

16 e1,2f

21 e0

24 f1.1g

17 d0

22 e1.1f

A1751 — Same pow. for this star

A3672 — " " " " "

A3677 nO +

A3678 nO +

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1900phae.proj.2287B

Var 76.

A 3679 nO +

A 3681 — Sw. Eff.

A 3682 — " —

λ 6792 e2.1 f

λ 6820 nO +

λ 6844 nO +

λ 6854 nO

λ 7482 nO ±

λ 7483 e2.0 f.2q

λ 7488 nO +

λ 8563 g1.2h

λ 8584 h1.1k

λ 8597 h1.1k

λ 8611 d2.1e

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1900phae.proj.2287B

x8612 g1, 1h

x8618 e1, 2f

x8624 d3, 0e, 2f

x8625 g1, 1h

x9158 m0

x9204 k0 +

x9205 m0 +

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1900phae.proj.2287B

M 3 - Var. No 88. Sept 11

Plate	
K 3	ko
25	fo
11	ko
10	k1.1l
8	k1.1l
1	l0 +
2	k1.1l
15	ko
20	e2.1f
19	e2.0f.2g
9	k1.1l
14	ko
6	k1.1l
7	ko

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1900phae.proj.2287B

K 12 kO

13 kO ±

18 e2.0f.2g

23 d3.0e.2f

4 lO ±

5 h1.1k

16 hO

21 e1.2f

24 e2.0f.1g

17 f1.1g

22 ~~g~~ e2.1f

X9205 g1.1h

X9204 e1.2f

X9158 lO

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1900phae.proj.2287B

Var. No. 88

x 8625 kO

x 8624 g0 ±

x 8618 g0 ±

x 8612 ±2. g0, 2h

x 8611 h0 ±

x 8597 k0 ±

x 8584 k0 ±

x 8563 e2, f0, 1g

x 7488 g0 ±

x 7483 g1.1h ±

x 7482 g0 ±

x 6854 h0 ±

x 6844 k1, 1m

x 8620 h0 ±

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1900phae.proj.2287B

x6792 g1.1h ±

a3682 g0 ±

a3681 g1.1h ±

a3679 k0 ±

a3678 l0 ±

a3677 l0 ±

a3672 l0 ±

a1751 l0 ±

Additional measures.

x6916 l1.2f 3397.53 ~~35~~ 35 ✓

x6876 f1.1g ± 3390.526 ✓

x6923 g0 3399.522 ✓

x7654 f0 3747.563 ✓

x8619 f0 4078.577 ✓

a dif star. Small range but fairly variable

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1900phae.proj.2287B

m 3. Tar. Nº 122 - Sept. 12

Plate

K 22	d 2. 0 e. 2 f
17	e 1. 1 f
24	d 3. 0 e. 2 f
21	d 2. 0 e 1. f
16	e 1. 1 f
5	d 3. 0 e, 2 f
4	d 2. 0 e. 2 f
23	f 0
18	e 1. 1 f
13	e 2. 1 f
12	e 1. 1 f
7	e 1. 2 f
6	e 1. 2 f
14	e 1. 1 f

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1900phae.proj.2287B

K 9 —

19 f0

20 e1.1f

15 e2.0f.2g

2 d2.0e2f

1 —

8 e1.1f

10 e0

11 d2.1e

25 e1.1f

3 d3.0e.2f

a1751 — ~~Too Diff~~

a3672 — " "

a3677 — " "

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1900phae.proj.2287B

M3. No 122

Plate	
a 3678	— . clear Diff.
a 3679	— — .
a 3681	— — —
a 3682	— " "
x6792	d1.2e +
x6820	d1.2e
x6844	d2.1e
x6854	d1.3e
x7482	d0 +
x7483	e0 +
x7488	d0 +
x8563	d1.1f
x8584	e0
x8597	e0

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1900phae.proj.2287B

x8611 e2.0f.2g

x8612 e2.0f.2g

x8618 e1.1f

x8624 f1.1g ±

x8625 e2.0f.2g ±

x9158 d3.0e.2f

x9204 e1.1f ±

x9205 d1.3e

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1900phae.proj.2287B

M 3 - Var. No 29

Plate	
K 22	e2. 0 f 2 g
17	d3. 0 e. 2 f
24	f 0 +
21	e1. 1 f
16	d2. 0 e. 2 f
5	d2. 2 e
4	d1. 2 e
23	e1. 1 f
18	e1. 2 f
13	d2. 2 e
12	d1. 2 e
7	d3. 1 e
6	d3. 1 e
14	d2. 2 e

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1900phae.proj.2287B

K 9 d3.1e

19 e1.2f

20 f0

15- d3.1e

2 d1.3e

1 —

8 e0

10 d1.3e

11 d1.2e

25- g0

3 d1.2e

X9205 e1.2f

X9204 d2.0e.2f

X9158 e1.2f

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1900phae.proj.2287B

Nº 29

X 8625	el.2f
X 8624	f0 +
X 8618	f0 +
X 8612	d2.1e
X 8611	el.2f
X 8597	d1.2e
X 8584	el.1f
X 8563	d3.1e
X 7488	d2.2e
X 7483	el.2f
X 7482	d0
X 6854	d3.1e
X 6844	el.2f
X 6820	el.2f

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1900phae.proj.2287B

X6792	d O
a 3682	e 2.1 f
a 3681	e 2.1 f
a 3679	f O
a 3678	f 2.1 g
a 3677	g O
a 3672	f O
a 1751	e O

Star is close dbl Diff.
Variability seems sure, but whether of one or both components not certain.
Images of the component stars well separated in very best plates, making the image in contact — but on other plates the two coalesce in one hazy image.

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1900phae.proj.2287B

M 3. Ver. No 27

Plate

K 3 m1.1n

25 b1.1m

11 e3.0f.2g

10 f2.0g.2h

8 m1.1n

1 m1.1n

2 n0

15 f2.0g.2h

20 k0

19 h2.k0.2l

9 m1.1n

14 g1.1h

6 n0

7 m1.1n

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1900phae.proj.2287B

12 e2.1f

13 f1.1g

18 h0

23 l1.1m

4 m0

5 m1.1m

16 g1.1h

21 l0

24 l1.1m

17 fg1.1h

22 l0

A 1751 h0

A 3672 m1.1n

A 3677 m0

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1900phae.proj.2287B

M 3. № 27

a 3678 gz.1h

a 3679 f2.0g.2h

a 3681 —

a 3682 —

X 6792 m2.1w

X 6820 g1.1h

X 6844 m0 +

X 6854 g1.1h.

X 7482 l0 +

X 7483 m1.1w +

X 7488 f1.1g

X 8563 m0 +

X 8584 m0

X 8597 g1.2h

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1900phae.proj.2287B

X8611 l1.1m

X8612. e3,1f.

X8618 m0

X8624 m0

X8625 m1.1m

X9158 m0

X9204 l0. +

X9205 l1.1m +

additional measures.

X8650 f1.1q ✓

X8632 g1.1h ✓

X8631 e3,f0.2q ✓

X7654 g0 ✓

X6923 f1.1q ✓

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1900phae.proj.2287B

M 3. Var. No 9 Sept. 17.

Plates -

K 3	m1.1n
25-	m1.1n
11	nO
10	nO
8	d2.1e
1	m1.1n
2	nO
15-	nO
20	m2.1n
19	m1.1n
9	d3.10.2f
14	nO
6	d3.e0.2f
7	d3.e0.2f

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1900phae.proj.2287B

K 12 m2.1n

13 m1.1n

18 m2.1n

23 nO

4 KO ±

5 f2.1g

16 nO

21 nO

24 nO

17 m1.1n

22 nO

X9205 nO ±

X9204 m1.1n

X9158 m1.1n

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1900phae.proj.2287B

M 2. No 9.

x 8625 m 2, 1n

x 8624 m 1, 1n

x 8618 n 0

x 8612 n 0

x 8611 n 0

x 8597 m 1, 1n

x 8584 n 0

x 8563 l 0

x 7488 m 0 +

x 7483 g 2, 1h

x 7482 f 1, 1g

x 6854 e 2, f 0, 2g

x 6844 g 2, 1h

x 6820 f 1, 1g

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1900phae.proj.2287B

x6792 K0 +

a3682 n0 +

a3681 n0

a3679 n0

a3678 h1, K0, 2l

a3677 n0

a3672 n1, 1n

a*1751 K1, 1l

additional

x6916 d3, 1e ✓

x6828 f1, 1g ✓

x7489 e2, 1f ✓

x8444 f2, g0, 2h ✓

x8779 f1, 1g ✓

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1900phae.proj.22878

M 3. Var. № 97 Sept. 18

Plate	
K 22	g1, 1h
17	h0
24	h0
21	g1, 1h
16	h0
5	f1, 1g
4	g0
23	g1, 1h
18	h0
13	k0
12	k1, 1l
7	f2, 1g
6	f2, g0, 1h
14	k0
9	g1, 1h

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1900phae.proj.22878

19	gl, lh
20	fz, g0, lh
15-	h0
2	h0
1	—
8	h0
10	k1, ll
11	k0
25-	h0
3	gl, lh
A1751	gl, lh
A3672	m0 +
A3677	h0 +
A3678	l0 +
A3679	m0 +

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1900phae.proj.2287B

M3. No 97

A 3681 —

A 3682 g1.2h

x 6792 k1.1l

x6820 k1.1m

x 6844 k0

X 6854 k1.1l

x 7482 ~~k0.k0~~ k1.1k

x7483 —

x7488 k0

x8563 K1.1l

x 8584 +3.g0.2h

x 8597 g1.1h

X8611 m0

X8612 g2.1h

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1900phae.proj.2287B

x8618 m0

x8624 m1.1m

x8625 h1.1k

x9158 l2.1m

x9204 h0

x9205 l0

additional measures.

x8605 g1.1h 11.7 ✓

x6980 h0 12.8 ✓

A1832 g0 + 10.6 ✓

Certainly variable. Indeed well marked.

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1900phae.proj.2287B

M 3 - N° 15 - Sept 19 -

Plate.	
K 22	fl.1g
17	d2.1e
24	k0
21	fl.1g
16	d3.1e
5	h0
4	fl.1g
23	g0
18	~~d1~~ e1.2f
13	g1.1h
12	e1.1m
7	g1.1h
6	g0
14	e1,1f

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1900phae.proj.2287B

9 k1.1l

19 e2.f0.2g

20 e1.1f

15 d2.1e

2 e2.f0.2g

1 d3.1e

8 h1.1k

10 m0

11 m1.1m

25 h1.1k

3 h0

X9205 m0 *

X9204 n0

X9158 n0

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1900phae.proj.2287B

No 15-

x 8625'	ml.lm
X 8624	KO
X 8618	mO
X 8612	nO
x 8611	nO
x 8597	hl.lk
x 8584	mO
x 8563	nO
x 7488	–
x 7483	mO ±
x 7482	lO ±
x 6854	fl.lg
X 6844	lO
X 6820	fO

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1900phae.proj.22878

λ6792 ml.1n

a3682 el.1f

a3681 gl.2h

a3679 m0

a3678 ml.1n

a3677 e3.f0.2g

a3672 e2.1f

a1751 m0

additional measures.

f1780 e0 ✓

λ7654 e2.1f ✓

λ8605 e2.1f ✓

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1900phae.proj.2287B

M 2. Var No 35

Plate

K 3 mO

25 ml.ln

11 gO

10 g2.1f

8 ml.ln

1 mO+

2 mO

15 gl.1h

20 kl.1l

19 kl.1l

9 nO

14 kO

6 mO

7 ml.ln

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1900phae.proj.2287B

12	hO
13	hO
18	lO
23	ml, ln
4	ml, ln
5	mO
16	gl, lh
21	lO
24	mO
17	kO
22	mO
A 1751	gl, lh
A 3672	kO
A 3677	mO

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1900phae.proj.2287B

Var. No. 35

A 3678 mO

A 3679 m l. lm

A 3681 mO

A 3682 mO +

X 6792 m l. lm

X 6820 —

X 6844 m l. lm

X 6854 bO +

X 7482 mO +

X 7483 e 3. 1 f

X 7488 m l. lm

X 8563 M l. lm

X 8584 gO

X 8597 m l. lm

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1900phae.proj.2287B

X8611 f2.1g

X8612 K0

X8618 e2.1f

X8624 n0

X8625 e2.1f

X9158 m0

X9204 g1.1h

X9205 l0 ±

additional Measures 35°.

X6909 e1.2f ✓

X6828 l0 ✓

X6980 f0 ✓

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1900phae.proj.2287B

M3 Tur 59, Sept 22

K

3	ml, lr
25	ml, lr
11	m O
10	m O
8	l O
1	m O
2	m O
15	m O
20	m O
19	ml, lr
9	hl, lk
14	ml, lr
6	ml, lr
7	m O

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1900phae.proj..2287B

12 no

13 ml, lm

18 no

23 no

4 no

5 ml, lm

16 ml, lm

21 no

24 no

17 ml, lm

22 no

X9205 no +

X9204 no

X9158 ml, lm

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1900phae.proj.2287B

No 59

X 8625	ml. lm
X 8624	nO
X 8618	nO
X 8612	kO
X 8611	fl. lg
X 8597	ml. lm
X 8584	r2. lf
X 8563	gl. lh
X 7488	hO
X 7483	nO ±
X 7482	ml. lm ±
X 6854	fl. 2g
X 6844	m O ±
X 6820	kO

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1900phae.proj.2287B

x6792 ml.ln

a3682 –

a3681 nO

a3679 ml.ln

a3678 ml.ln

a3677 g2.1h

a3672 hO

a1751 bl.hm

additional Mentues - 59.

X 9558 e1.1f ✓

x 8779 fh.1g ✓

X 8650 fh.1g ✓

A 1775 fO ✓

A 1776 fh.1g ✓

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1900phae.proj.2287B

M3 Var 110–124.

Dept. 24

K 3	lo
K 25	mo
11	ll. lm
10	mo
8	mo
1	mo ±
2	lo
15	ll. lm.
20	lo
19	mo
9	ll. lm
14	mo
6	mo
7	mo

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1900phae.proj.2287B

12 MO

12 mO

18 m1.2n

23 mO

4 mO

5 l1.1m

16 m1.1n

21 m1.1n

24 mO

17 mO

22 mO

a 3682 –

a 3681 hO ±

a 3679 hO

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1900phae.proj.2287B

Var 124

a 3678 ho +

a 3677 h1.1m

a 3672 h1.1m

a 1751 ho +

x 6792 h1.1m

x 6820 k1.1l

x 6844 h0

x 6854 m0

x 7482 —

x 7483 k1.1l

x 7488 g1.1h

x 8563 h1.1m

x 8584 h0

x 8597 h1.1m

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1900phae.proj.22878

X8611 l1.1m

X8612 l0

X8618 h0

X8624 l1.1m

X8625 k1.1l

X9158 k0

X9204 l0

X9205 l0 ±

appear to vary - but within very small limits
at times about as h to k - generally l to m

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1900phae.proj.2287B

M 2. Var - 50 Sept. 24 1901

K 22 m 2.1n

17 m2.1n

24 nO

21 nO

16 nO

5 m2.1n

4 nO

23 nO

18 m2.1n

13 nO

12 nO

7 m2.1n

6 m1.1n

14 m2.1n

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1900phae.proj.2287B

K 9 nO

19 m1.ln

20 m2.ln

15 nO

2 m2.ln

1 m1.ln

8 m2.ln

10 nO

11 m1.ln

25 m2.ln

3 m1.ln

x9205 KO

x9204 g1.1h

x9158 hO

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1900phae.proj.2287B

No 50.

X 8625	m1.1n
X 8624	m1.1n
X 8618	m2.1n
X 8612	n0
X 8611	m2.1n
X 8597	f1.2q
X 8584	e1.1f
X 8563	e1.1f
X 7488	g0
X 7483	m1.1n
X 7482	h0
X 6854	K0
X 6844	e1.2f
X 6820	h0

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1900phae.proj.2287B

X6792 nO

A1751 l1.1m

A3672 nO

A3677 m1.1m

A3678 nO

A3679 m2.1m

A3681 nO

A3682 m1.1m

additional Measures - 50 -

A1780 fO ✓

X6918 fO * ✓

X6828 hO ✓

X6925 e1.2f ✓

X6923 fO ✓

X8653 gO ✓

X9166 gO ✓

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1900phae.proj.2287B

M 3. No 51 Sept - 26

K 3 . mo

22 bl.lm

17 ko

24 bl.lm

21 bl.lm

16 bl.lk

5- ml.lm

4 ml.lm

23 bo

18 bo

12 bo

12 bl.lk

7 ml.lm

6 no

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1900phae.proj.2287B

K 14 h1.1k

9 nO

19 k1.1l

20 nO

15- hO

2 nO

1 nO

8 m2.1m

10 gO

11 gO

25- m1.2n

a 3682 fO

a 3681 hO

a 3679 mh.h

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1900phae.proj.2287B

51

a 3678	mO
a 3677	g2.1h
a 3672	mO
a 1751	ml.ln
x 6792	ml.ln
x 6820	kO
x 6844	hO
x 6854	mO
x 7482	kl.lm
x 7483	mO
x 7488	mO
x 8563	ml.ln
x 8584	mO
x 8597	kl.lk

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1900phae.proj.2287B

X8611 nO

X8612 nO

X8618 ~~f3.1m~~

X8624 f0

X8625 g3.1h

X9158 f2.1g

X9204 nO

X9205 nO

Additional measures - 57

X6916 g0 ✓

A1774 f1.1g ✓

A1775 g2.1h ✓

A1776 g2.1h ✓

A1783 g1.2h ✓

A1838 f0 ✓

A1830 f1.1g ✓

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1900phae.proj.2287B

M3 1902 90 Sept. 28

K 3 m0

22 m1.1n

17 m0

24 m2.1n

21 m2.1n

16 m0

5 m1.1n

4 m1.1n.

23 m1.1n

18 m1.1n

13 d0

12 k1.1d

7 m2.1n

6 n0

14 l1.1m

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1900phae.proj.2287B

K 9 no

19 no

20 mli.lm

15 hli.lm

2 no

1 mli.lm

8 mli.lm

10 hli.lk

11 hli.lk

25 mli.lm

x9205 no

x9204 ho

x9158 no

x8625 ho

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1900phae.proj.2287B

m 3 M 2 90

× 8624 gl. 2h

× 8618 h1. k0. 2l

× 8612 m1. 1m

× 8611 k1. 1l

× 8597 m2. 1m

× 8584 m 0

× 8563 ~~k~~ 2 0

× 7488 ~~l 2 k~~ m1. 1m

× 7483 l 3. 1 f

× 7482 m1. 1m

× 6854 f1. 1g

× 6844 l 1, 3 f

× 6820 m1. 1m

× 6792 m1. 1m

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1900phae.proj.2287B

A 1751 ml.1n

A 3672 e2.1f

A 3677 e3.+0.2g

A 3678 ml.1n

A 3679 g0

A 3681 e2.1f

A 3682 g0 ±

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1900phae.proj.2287B

1901

M 3 - No 18 Sept 30

K 25- no

11 ho

10 hl.lk

8 ml.ln

1 n

2 ml.ln

15- kl.lh

20 ml.ln.

19 hl.lm

9 no

14 ho

6 ml.ln

7 m2.ln

12 ko

13 hl.lk

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1900phae.proj.2287B

18 m0

23 m2.1m

4 m1.1m

5 m1.1m

16 K1.1l

21 m2.1m

24 m0.

17 l1.1m

22 m1.1m

3 m1.1m

a 3682 —

a 3681 k1.1k

a 3679 g0

a 3678 g1.2h

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1900phae.proj.2287B

No 18

a 3677 ho

a 3672 ho

a 1751 no

x 6792 f1.1g

x 6820 m 1.1n

x 6844 lo

x 6854 lo

x 7482 —

x 7483 go

x 7488 no

x 8563 go

x 8584 fo

x 8597 m 2.1n

x 8611 m 2.1n

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1900phae.proj.2287B

x 8612	n 0	
x 8618	m l. 1 n	
x 8624	n 0	
x 8625	n 2. 1 n	
x 9158	n 0	
x 9204	m l. 1 n	
x 9205	n 0	=

additional Measurements.

A 1840	e 2. 1 f	✓
A 1777	f h 1 g	✓
x 6875	f 1. 1 g	✓
x 7489	e 2. 1 f	✓
x 8650	g 1. 2 h	✓
x 8656	f 1. 1 g	✓

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1900phae.proj.2287B

M2 no 118 Oct 1-

K 11 ho

25 no

10 ho

8 ml.2n

1 –

2 no

15 l/l.ln

20 no

19 ml.ln

9 no

14 kl.ll

6 m2.ln

7 ml.ln

12 ko

13 hl.lk

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1900phae.proj.2287B

K 18 m0

23 m2.1n

4 m1.2n

.5 m1.2n

16 m0

21 n0

24 n0

17 m0

22 m2.1n

3 m0

X9205 g1.1h

X9204 e1.2f

X9108 e1.2f

X8625 k1.1l

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1900phae.proj.2287B

№ 118

x 8624	f 1.1 g
x 8618	f 0
x 8612	l 1.1 m
x 8611	g 0
x 8597	l 1.1 m
x 8584	l 0
x 8563	g 0
x 7488	g 1.2 h
x 7483	m 0
x 7482	g 1.1 h
x 6854	m 0
x 6844	m 1.1 m
x 6820	m 1.1 m
x 6792	m 0

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1900phae.proj.2287B

A 1751 mO

A 3672 g1.2h

A 3677 e2.1f

A 3678 k1,1l

A 3679 e1,1f

A 3681 g1.2h

A 3682 g2.1h

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1900phae.proj.2287B

M3 N°60 Oct 2.

K3 g ~~Hdh~~

22 l 1.1m

17 l 0

24 m 0

21 l 0

16 l 1.1m

5 c 2.1 f

4 c 2.1 f

23 l 0

18 l 1.1m

13 l 0

12 l 0

7 f 0

6 f 0

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1900phae.proj.2287B

14 h1,1m

9 f1,1g

19 h0

20 k2,1l

15 k1,2l

2 ~~f1,1g~~ g0

1 —

8 f1,1g

10 k0

25 m1,1n

11 k0

A3682 f0

A3681 h0

A3679 n0

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1900phae.proj.2287B

A 3678 nO

A 3677 mO

A 3672 f2.1g

A 1751 gO

X 6792 gO

b 6820 h1.1k

X 6844 mO

b 6854 g1.2h

b 7482 kO

X 7483 g1.2h

X 7488 hO

X 8563 h1.1k

X 8584 f2.1g

X 8597 m1.1n

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1900phae.proj.2287B

x8611 lo

x8612 mo

x8618 ml, lm

x8624 ho

x8625 ko

x9108 gö

x9204 ml, lm

x9205 lo

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1900phae.proj.2287B

M2-NO-93

K 3 no

22 m1.1n

17 m1.1n

24 no

21 no

16 m1.1n

5 m2.1n

4 m1.1n

23 m2.1n

18 no

13 no

12 no

7 m1.1n

6 no

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1900phae.proj.22878

14 m1.2n

9 h0

19 m0

20 m1.1n

15 m1.1n

2 n0

1 —

8 h0

10 ~~k~~ ~~1.1~~ ~~m~~

25 n0

11 m1.1n

x9205 —

x9204 n0

x9158 f2.g0.2h

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1900phae.proj.2287B

× 8625 m l.1m

× 8624 m2.1m

× 8618 g1.1h

× 8612 m2.1m

× 8611 h0

× 8597 m0

× 8584 m1.1m ±

× 8563 m1.1m.

× 7488 g1.1h

× 7483 K1N

× 7482 K1N

× 6854 m l.1m

× 6844 e3.f0,2g

× 6820 e3.f0.2g

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1900phae.proj.2287B

~~x~~6792 mli.lm

~~x~~A1751 mli.lm

A3672 mO

A3677 gli.lh

A3678 mO

A3679 mli.2m

A3681 mli.lm

A3682 kO +

additional measures.

X6837 fO ✓

x8650 gli.2h ✓

x8619 gO ✓

x6875 f2.1g ✓

~~x~~A1838 gO ✓

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1900phae.proj.2287B

M 3 - No 123.

The object marked for 123 is a star (or other faint star). The stellar image is a trifle lower down on the print - perhaps 0.2 mm south on original. This star does not appear on photographic as it is the most distant var. being far beyond the apparent limits of the cluster.

This star is not on the Keeler plates -

A 3682	m0 ±
A 3681	m0 ±
A 3679	g2.1h ±
A 3678	g1.1h
A 3677	m1.1m
A 3672	m0 ±
A 1751	m1.2m
X 6792	f2.1g
X 6820	h0
X 6844	h1.1k
X 6854	f0

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1900phae.proj.2287B

x7482 mO ±

x7483 gO ±

x7488 m1N

x8563 l1.1m ±

x8584 m1.1o

x8597 mO

x8611 m1.1o

x8612 m1.1o

x8618 n2.1o

x8624 l1.1m

x8625 m1.1m

x9158 " " scratched.

x9204 m1.1O ±

x9205 m1N

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1900phae.proj.2287B

No 123 -

additional measures -

A 1832	f 1.1 g	✓
x 6909	h 1.1 k	✓
x 6876	f 1.1 g	✓
x 6828	f 0	✓
x 6990	g 0	± ✓
x 8605	h 1.1 k	✓
x 8631	e 2.1 f	✓
x 8655	h 0	✓
x 8779	f 0	✓
x 9558	e 1.1 f	✓

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1900phae..proj.2287B

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1900phae.proj.2287B

M 3 - No 112 Oct - 8 -

K 3	KO	± stained
22	gl. lh	
17	hl. lk	
24	KO	
21	hl. lk	
16	KO	
5-	hl. lm	
4	KO	± stained
23	gl. lh	
18	kl. lh	
13	hl. lk	
12	gl. lh	
7	—	stained
6	—	"

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1900phae.proj..2287B

This star is near edge of K plates - + has slightly dif image. Also remote from comparison stars.

K	14	gO
	9	gO
	19	hO
	20	g1.1h
	15	hO
	2	— stained
	1	—
	8	hO
	10	g1.1h
	25	hO ±
	11	— stained
X	9205	g1.1h
X	9204	f2.1g
X	9158	gO

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1900phae.proj.2287B

No 112

x 8625'	f1.1g
x 8624	g0
x 8618	f0
x 8612	f1.1g
x 8611	f2.1g
x 8597	f1.1g
x 8584	g0
x 8563	g0
x 7488	g1.1h
x 7483	h0
x 7482	g1.1h
x 6854	g0
x 6844	g1.1h
x 6820	g1.2h

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1900phae..proj..2287B

X 6792 g2, 1h

A 1751 g1, 1h

A 3672 g0

A 3677 f0

A 3678 g0

A 3678[9] g0

A 3681 g0

A 3682 f1, g0, 2h

There seems to be small prob'y variability. At least if variable the star has an coherent small range. The wide range in the measured brightness on the K plates may be caused by the fact that the star is near the edge of plate. Nevertheless, it is not improbable that the star really varies thro' a small range. But it would probably be profitable to try to determine the elements

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1900phae.proj.2287B

M3 No. 113.

K 11 n1.10

25 k1.1l

10 n1.10

8 ho

2 eO

1 —

20 eO

19 eO

9 lO

14 nO

6. f1.1g

7 — stained

12 oO

13 n2.10

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1900phae.proj.2287B

18 d3.1e

23 e1.1f

4 f0

5- f1.1g

16 f1.1g

21 e2.1f

24 k0.

17 e1.1f

22 g0

3 f0 + slaund

15- l1.1m

A 3682 m1N

A 3681 n0 +

A 3679 n1.1o

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1900phae.proj.22017B

No 113

A 3678	n0
A 3677	n0
A 3672	o0
A 1751	n0
x 6792	k2.1l
x 6820	m1.1n
x 6844	m1.2n
x 6854	n0
x 7482	f0
x 7483	k1.1l
x 7488	f1.1g
x 8563	e2.1f
x 8584	k2.1l
x 8597	o0

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1900phae.proj.2287B

X8611 mO

X8612 m1.1o

X8618 mO

X8624 mO

X8625 m1.1o

X9158 kO

X9204 g1,1h

X9205 mO

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1900phae.proj.2287B

M3 - 82, oct-9

K 15	ml.lm
11	bl.lm +
25	ml.lo
10	gO
8	nO
2	– stärnd
1	–
20	m2.lm
19	nO
9	ml.lo
14	mO
6	ml.lo
7	– stärnd
12	bl.lm

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1900phae.proj.2287B

K 13 ll.lm

18 nO

23 n1.20

4 n2.10

5 n1.10

16 n1.1n

21 nO

24 ~~nO~~ n2.10

17 n2.1n

22 n1.10

3 n1,10

X9205 nO +

X9204 oO

X9158 nO

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1900phae.proj.2287B

M 3 - No 82 -

x 8625	f 0
x 8624	g l, 2 h
x 8618	e l, 2 f
x 8612	k l, l m
x 8611	f l, l g
x 8597	n 0
x 8584	n 0
x 8563	f 0
x 7488	f l, l g
x 7483	m 0 +
x 7482	k l, l k +
x 6854	n 0 +
x 6844	k l, l m
x 6820	n 0 +

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1900phae.proj.2287B

x6792 f2.1g

A1751 e3.1f

A3672 no

A3677 no

A3678 no

A3679 no

A3681 no.

A3682 ml.ln

additional Measures.

A1838	f0	✓
X9558	e3.1f	✓
X8632	e2.1f	✓
X8444	f0	✓
X7654	f1.2g	✓
X6990	go	✓
A1774	e2.1f	✓
A1775	f0	✓

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1900phae.proj.2287B

M3. No. 91 (Oct 10

K 3 ko

22 ho

17 e3.f0.2g

24 k1.1l

21 f1.1g

16 e2.1f

5 k2.1l

4 k2.1l

23 ko

18 go

13 f1.1g

12 h1.1k

7 m0 + stained

6 k1.1l

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1900phae.proj.2287B

14 f O

9 h 1, 1 m

19 f O

20 f O

1 —

2 k 1. 1 l

8 m O.

10 k 1, 1 l

25- l O

11 k O

15- e 2. 1 f.

A 3682 g 2, 1 h

A 3681 f 1. 1 g

A 3679 k O

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1900phae.proj.2287B

N°91

A 3678 mO

A 3677 fl.1g

A 3672 gl.2h

A 1751 kO

X 6792 mO

X 6820 m2.1n

X 6844 fO

X 6854 ml.1n

X 7482 mO

X 8624 m2.1n

X 7483 el.2f

X 7488 nO

X 8563 lO +

X 8584 nO

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1900phae.proj.2287B

X 8597 mO

X 8611 fO

X 8612 g2.1h

X 8618 mO

X 8625 hO

X 9158 e2.1f

X 9204 mO

X 9205 mO +

Additional Measures -

X 6925 fO

X 6923 hO

X 7489 f1.2g

X 8619 fO

X 8655 fO

X 9158 e2.1f

A 1838 fO

(over)

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1900phae.proj.2287B

No 91. additional Measures.

x6837	lO	±
x9166	mO	±
x8779	ml, lm	
x 8656	q2, 1h	
x 8650	KO	
x 8632	nO	
x8631	nO	
x 8605	ml, lm	
x 8444	ml, lm	
x 6980	ml, lm	
x 6990	mO	
x 7654	nO	±
x 6828	ml, lm	
x 6872	nO	±

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1900phae.proj.22878

X 6875 mO ±

x 6876 kl.l ±

x 6909 mli.ln

x 6916 mO ±

x 6918 lO ±

A 1774 mO ±

A 1775 mO

A 1776 mO

A 1780 mli.ln ±

A 1783 mO

A 1840 mO ±

A 1830 mO ±

A 1832 mlin ±

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1900phae.proj.2287B

M 2. No. 92, Oct. 19

K 2 ml.1n

22 n0

17 ml.2n

24 n0

21 ml.1o

16 m2.1n

5 n0

4 n0

23 n0

18 n0

13 m0

12 l1.1m

7 m2.1n

6 n1.20

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1900phae.proj.2287B

K 14 mO

9 m1.1o

19 m2.1m

20 m1.2o

2 mO

8 m1.1o

10 kO

25 m1.1o

11 mO +

15 mO

X 9205 hO +

X 9204 mO +

X 9158 f1.2q

X 8625 mO

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1900phae.proj.2287B

m 3110 -92-

x 8624 h0

x 8618 h0
x 8612 m1.1m

x 8611 h0

x 8597 n1.20

x 8584 n0

x 8563 m2.1m

x 7488 n0

x 7483 n0

x 7482 n0

x 6854 f1.1g

x 6844 f1.2g

x 6820 e2.1f

x 6792 g1.1h

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1900phae.proj.22872B

A 1751 mO ±

A 3672 mO

A 3677 m2.1m

A 3678 kO ± =

A 3679 l1.1m ±

A 3681 mO ±

A 3682 mO ±

additional Measures -

A 1838 f1.2g ✓

X 6872 f1.1g ✓

X 6828 fO ✓

X 8444 gO ✓

X 8655 e1.1f ✓

X 9166 fO ✓

X 9558 e f1.1g + ✓

X 6837 fO ✓

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1900phae.proj.2287B

M2. No = 117.

K 3	nO
22	m2.1n
17	m1.1n
24	nO
21	nO
16	nO
5	m2.1n
4	m2.1n
23	nO
18	nO
13	m1.2n
12	m1.2n
7	l1.1m
6	l1.1m
14	mO

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1900phae.proj.2287B

K 9 lo

19 m 2. ln

20 no

1 -

2 no

8 ll. lm

10 ll. lm

25 no

11 ml. lm

15 no

A 3682 lo +

3681 ll. lm +

3679 ho +

3678 gl. lh

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1900phae.proj.2287B

NO - 117.

a 3677 nO

3672 nl.ln

A 1751 n2.1n

x 6792 K h.1l

x 6820 lO

x 6844 KO

x 6854 K1.1l

x 7482 –

x 7483 nO ±

x 7488 –

8563 nO

8584 gl.1h

8597 nO

8611 gl.1h

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1900phae.proj.22078

x 8612 g1,1h

8618 m1,1m

8624 m0

8625 m1,1m

x 9158 m0

9204 f0

9205 f0

additional Measurements

A1780 h0 ✓

x 6909 h0 ✓

6990 g1,1h ✓

7489 g0 ✓

8605 g1,1h ✓

A1830 f0 ✓

8631 h0 ✓

8632 g1,1h ✓

9166 f2,1g ✓

A1838 f1,1g ✓

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1900phae.proj.2287B

M 3 No. 17 Oct. 24

K 3 ko

22 go

17 mO

24 fl.lg

21 gO

16 m1.1n

5 kO

4 k2.1l

23 e2.1f

18 k1.1l

13 nO

12 m2.1n

7 k1.1l

6 kO

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1900phae.proj.22078

K 14 nO

9 bl.lm

19 gl.lh

20 ~~fO~~

1 –

2 hO

8 bl.l-m

10 ml,lm

25 gO

11 nO

15 nO

X 9205 nO

x 9204 nO

x 9158 nO

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1900phae.proj.2287B

m3 M0-17

x 8625	m1.1m
x 8624	m1.1m
x 8618	m1.2o
x 8612	g o
x 8611	h o
x 8597	g2.1h
x 8584	m1.1m
x 8563	m o
x 7488	m o +
x 7483	f2.1g
x 7482	d1.1m
x 6854	f o
6844	h o
x 6820	m o

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1900phae.proj.22878

× 6792 K0

A 1751 k1,1m

3672 m1,1m

3677 m0

3678 g2,1h

3679 f2,1g

3681 g1,1h

3682 K0 ±

additional measures.

A 1832 g0 ✓

1830 g0 ✓

1838 g0 ✓

× 9558 f2,1g ✓

6923 g1,2h ✓

6909 g0 ± ✓

A 1780 f1,1g ✓

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1900phae.proj.2287B

M 110. 95- Nov. 28.

K 3 bo

2 2 bo

17 b1. 2c

24 bo

21 bo

16 bo

5- bo

4 bo

23 b1. 2c

18 b1. 2c

13 b1. 2c

12 b1. 2c

7 b1. 3c

6 b1. 3c

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1900phae.proj.2287B

K 14	b 0
9	b 0 ±
19	b 1.2 c
20	b 1.2 c
1	b 1.2 c
2	b 1.2 c
8	b 1.2 c
10	b 0
25	b 0
11	b 0
15	b 0

{ small diam K plates. the var N 95 is distinctly brighter than the close comp. anon. wh. is just about = to c. these plates (Keeler) give no proof of variation

x 9205	c 0
9204	c 0

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1900phae.proj.2287B

95.

9158	b 3.1 c
8625	a 0
8624	a 0
8618	a 0
8612	a 0
8611	Var 1 a
8597	Var 1 a
8584	Var 2 a
8563	b 0; a 0 = a + b all two equal & on the plate
7488	a 0
7483	a 0
7482	Var 1 a
6854	a 0
6844	Var 1 a a = b on the plate

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X 6820	a0
6792	var 2 a
A 1751	—
3672	a 0 ±
3677	-
3678	-
3679	. .
3681	Var 2 a. ±
3682	—

In all cases of x + A plates abve var. is dist. brighter than close comps. In most A plates exact no comp. is possible as images run together. all above differences of 95° & close comp. can perhaps be explained by difference in the plates.

Additional Measures.

over

x 6990	b 3, 1c
8444	b 3, 1c
8636	var 2a
8779	b 2, 2c
9166	b 3, 0c
9338	var. 1a

Star is bright & the diff. but variable seem the reasonable true.

but an examination of the other 32 reg. zebra plates shows it fainter than other ~~plates~~ was faint

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X 6787 Var is very bright, very much brighter than close comparison, & also much brighter than a and there is no convenient star for comparison I judge it to be about Var 5 A. −9.0
This exp was rel. short so that only brighter stars of cluster shown. But it makes a better comparison of the Var possible than in better plate with long exp's.

+2.6
X 7347 d 1, 2e very much fainter than cl. comp. ✓
and on this plate $A_2 a$; a_2 b ; A_4 b.

−9.0
X 7436 Var 5 A. very much brighter than cl. comp. + also than other near stars, much brighter than a or A – but the star b appears here, rather brighter than a and evidently brighter than A.

−9.0 +
X 8713 Var half-way full magn brighter than A, a, or b.

0.0
X 9206 A 2 b 1 a. Var Much fainter than either by perhaps = cl. comp. about equal C. ✓

all x plates have been examined for cases where Var 9s is faint. No others found — also 26 C plates were examined but the most of them are worthless for this purpose not showing even the bright star of the cluster well. The few good (fair) C plates show no minimum

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although the star is too bright for measurement on most plates ($X^K_1 + A$) there seem little doubt that the star is variable but for the determination of period &c. shorter but good exposures shown up the brighter stars would be desirable. (e.g. $15^m - 20^m$ in 13")
The Sutherland chart of it was an algol. is hardly borne out though only one plate shows it at its faintest.

The examination also shows that there is variability in either one or more of the stars A, a, or b. probably in b. which should be further studied.

Approximately the VAR 95° varies between grades ± -10 and $+2$. or a magnitude more or less.
There may be large systematic difference in the measures on the different plates depending on the series strength of each. the comps. are much safer where the spectral sch. is short.

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1900phae.proj.2287B

m 3 - N0 - 116.

3	m1.2n
22	m1.1n
17	m1.1n
24	n0
21	m2,1n
16	m1.2n
5	m1.1n
4	m1.2n
22	m2.1n
18	n0
13	n0
12	m1.1n
7	m2.1n
6	m1.1n

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1900phae.proj.2287B

K14	ml.2n
9	m2.1n
19	nO
20	nO
1	–
2	nO
8	ml.1n
10	lO
25	nO
11	l2,3n
15	m2,1n
x9205	mO ±
9204	~~nO~~ ml.1n
9158	nO

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1900phae.proj.2287B

116

X 8625	m1.2n
X 8624	h0
8618	h1.1m
8612	m1.1n
8611	m0
8597	m2.1n
8584	m1.1n
8563	e2,1f
7488	m1.1n +
7483	h1.1m
7482	m0 +
6854	g1.2h
6844	h0 +
6820	m0

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1900phae.proj.22872B

3672
×8822 obs

×6792 kO

A 1751 mO

3672 mO

3677 ml.1n

3678 kO

3679 mO

3681 nO

3682 nO ±

additional Measures

×8656 e0 ✓

×8650 d3,1e ✓

8631 g1.1h ✓

6872 f1.1g ✓

6875 f2.1fg ✓

A 1832 e2.1f ✓

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1900phae.proj.2287B

m 3 - N° 94

K 3	n1.2o
22	nO
17	nO
24	n1,2o
21	nO
16	nO
5	n1,2o
4	nO
23	nO
18	n1,2o
13	n1,2o
12	nO
7	nO
6	m2.1n

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1900phae.proj.2287B

K14 nO ±
9 nl,2O
19 nO
20 nO
1 –
2 nl,lo
8 nO
10 nO
25 nl,lo
11 nl,lo
15 nl,lo
A3682 –
3681 ho ±
3679 ±1,2g

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1900phae.proj.2287B

94.

A 3678	e 2.1 f
3677	h 0
3672	h 0
1751	n 0
X 6792	e 0
6820	m 1.1 n
6844	e 2.1 f
6854	l 0 +
7482	g 1.1 h
7483	m 0 +
7488	e 2.1 f
8563	K 0
8584	g 0
8597	n 0

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1900phae.proj.2287B

x8611 lO +

8612 nO

8618 gO

8624 e2.1f

8625 KO

9158 n1.2O

9204 nO.

9205 e2.1f

additional measures.

a 1838	f2.0g.2h	✓
A 1783	g1.2h	✓
A 1776	f1.1g	✓
1775	fO	✓
1774	e2.1f	✓
x 7654	gO	✓
8444	e2.1f	✓
8631	gO	✓
8632	fO	✓

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1900phae.proj.2287B

M 3. N 0 45° - NW. 19 -

K. 15 nO

11 m2.1n

25 m1.20

10 m1.1n

8 m2.1n

2 m1.10

1 nO

20 m1.20

19 nO

9 m1.20

14 m1.20

6 m1.10

7 nO

12 m1.1n

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1900phae.proj.2287B

K 13 ml, lm

18 nO

23 ml, lo

5 nO

16 nO

21 ml, lo

4 nO

24 ml, lo

17 nO

22 nO

3 nO

X 9205 go

9204 nO

9158 nO

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1900phae.proj.2287B

45

X 8625	mo
8624	no
8618	nl.lo
8612	ko
8611	fl.lg
8597	no
8584	fl.2g
8563	no
7488	hl.lk
7483	kl.ll
7482	el.lf
6854	kl.ll
~~86~~ 6844	no
6820	hl.lk

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1900phae.proj.22878

X6792 mO

A1751 e2,1f

A3672 kO

A3677 hO

3678 hO

3679 fO

3681 h1,1k

3682 —

additional measures

X8656 fO

8650 g1,1h

8619 e2,1f

6923 f2,1g

6925 e1,2f

6828 f1,2g

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1900phae.proj.2287B

M 3 No 16 - Nov 21

K 15 h0

11 h0

25 n0

10 h0.1k

8 m2.1n

2 m1.1n

1 –

20 m1.2n

19 k1.1m

9 m1.20

14 k1.1l

6 n0

7 n0

12 k1.1l

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1900phae.proj.2287B

K 13 ko

18 mO

23 m2 1n

5 m1.1n

16 l1.1m

21 m1.1n

4 m2.1n

24 n1.20

17 l1.1m

22 m2.1n

3 mh2n

A 3682 —

3681 mO +

3679 g2.1h

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1900phae.proj.2287B

16

A 3678 g1,2h

3677 ~~3b~~ m0 ±

3672 h0 ±

1751 m1,1m ±

6792 h0

6820 - e3,0f,2g

6844 m1,1m

6854 n0

7482 e0

7483 h1,1k

7488 f0

8563 g0

8584 e2,1f

8597 e2,2f

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1900phae.proj.2287B

X8611 n1, 20

8612 n1, 10

8618 n1, 20

8624 n0

8625 n0

9158 n2, 1n

9204 n0

9205 n0

additional Measures

A 1783 q0
1776 f1, 1q
1775 e2, 1f
6916 q0
6828 e1, 1f
6925 e1, 2f
6923 f1, 1q
8605 q0
6837 d3, 1e

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1900phae.proj.2287B

M 3 - No. 83 Nov. 22.

K 3 no

22 ml. ln

17 no

24 eO

4 ml. 2n

21 nO

16 ml. ln

5 ml. ln

23 gO

18 nO

13 m2. ln

12 m2. ln

7 nO

6 nO

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1900phae.proj.2287B

K 14 nO

9 fO

19 nO

20 nO

1 nO

2 m2, 1n

8 l1, 1m

10 nO

25 d2, 1e

11 n1, 2o

15 n1, 2o

A 3682 e1, 1f

3681 eO

3679 nO

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1900phae.proj.2287B

83.

A	3678	m1, 2o
	3677	m1. 2m
	3672	m1, 1o
	1751	g1, 2h
x	6792	e0
	6820	d3. 1e
	6844	e1, 2f
	6854	d3, 0e, 2f
	7482	m0 +
	7483	m0 +
	7488	m0 +
	8563	m2. 1m
	8584	m0
	8597	m0

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1900phae.proj.2287B

X 8611 n1.20

8612 n1.10

8618 n1,20

8624 n1.10

8625 n1.10

9158 kO

9204 nO

9205 nO ± additional Measures.

X 6837 e0

6828 d2.1e

8444 f0

6872 e1.1f

6875 e1.2f

6876 e1.2f

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1900phae.proj.2287B

M3 - No. 40. Nov. 23 01

K 3 l0

22 g2.1h

17 f0

24 (g?) (l1.1h

4 l0

21 g1.1h

16 f0

5 k1.1l

23 h0

18 f0

13 d3.1e

12 d3.1e

7 m1.1n

6 l2.1m

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1900phae.proj.2287B

K 14 e2.1f

9 no

19 g0

20 f2.1g

1 –

2 l1.1m

8 m1,2n

10 f0

25 k1.1l

11 l0

15 e1.1f

X9205 n0 +

9204 l1.1m

9158 f1.1g

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1900phae.proj.2287B

40 –

X 8625	e2.1f
8624	n0
8618	f0
8612	m1.1m
8611	h0
8597	g1.1h
8584	n0
8563	g1.1h
7488	~~f0~~ h1.1k
7483	n0
7482	m1.1m
6854	m2.1m
6844	k1.1l
6820	l2.1f
6792	e2.1f

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1900phae.proj.2287B

A1751 b1.1m ÷

3672 m0 ÷

3677 m1.1n

3678 k1.1d

3679 m1.1n

3681 m2.1n

3682 m1.1n ÷

additional Measures -

A1783 f1.1g

1776 g0

1775 f1.1g

1774 e1.1f

X 7654 f0

8444 e2.1f

8605 f1.1g

8650 e2.1f

9558 g0

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1900phae.proj.2287B

M 3 No. 39

K

3	eO
22	nO
17	m1,1n
24	nO
4	d3,1e
21	nO
16	m1.1n
5	eO
23	m1.1n
18	nO
13	m1,1n
12	m1,1n
7	d2,1e
6	eO

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1900phae.proj.2287B

K 14 m2.1n

9 e2.1k

19 m1,1n

20 n1

1 —

2 e1,1f

8 e1,2f

10 m1,1n

25 n0

11 m2.1n

15 n0

A 3682 n0 +

3681 n0 +

3679 R1,1k +

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1900phae.proj.2287B

39.

3678	g2.1h
3677	n0
3672	m2.1n
1751	m1.1n
X6792	g0
6820	m1.2n
6844	m1.1n
6854	l1.1m
7482	k1.1l
7483	m0
7488	f1.1g
8563	m0
8584	n0
8597	h0

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1900phae.proj.2207B

X 8611 m1.1m

8612 f2.1g

8618 m0

8624 h1.1k

8625 h1.1m

9158 g0 *

9204 m0 *

9205 m2.1m Additional Measures.

X 8779 f1.1g

✓ 8632 f2.1g

✓ 6980 f0

✓ 6828 g1.1h

✓ 6909 f2.1g

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1900phae.proj.2287B

M 3 - 110 - 38. N00 25 -

K

3	nO
22	m2.1n
17	m2.1n
24	n1.20
4	nO
21	m2.1n
16	m1.2n
5	m1.1n
23	nO
18	m2.1n
13	mO
12	mO
7	nO
6	m2.1n

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1900phae.proj.22878

K 14 nO

9 nO

19 m l. l n

20 nO

1 –

2 nO

8 m2. l n

10 l l. l m

25 nO

11 nO +

15 m l. l n

X 9205 m l. l n

9204 m l. l n

9158 nO

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1900phae.proj.2287B

No. 38

x 8625	h0
8624	≠g2,1h
8618	h0
8612	m2.1n
8611	m0 +
8597	n0
8584	f1.2q
8563	n0
7488	n0
7483	e1.2f
7482	n0 +
6854	n0
6844	m2.1n
6820	e1,2f

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1900phae.proj.22978

x 6792 f2.1g

A 1751 m1,1m

3672 g0

3677 n1,1o

3678 n1,1o

3679 n1,1o

3681 n1,1o

3682 m0 +

Additional Measures.

A 1780 g0

x 8632 g0

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1900phae.proj.2227B

MB. No 37 1900-26.

K 15	g0
11	g0
25	m1.2m
10	f2.1g
8	k1.1m
2	g1.2k
1	–
20	k1.1k
19	k1.2k
9	k0
14	g0
6	k0
7	k0
12	f2.1g

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1900phae_proj_22878

K 12 f1, 1g

18 k0

23 m0

5 g1, 1h

16 g2, 1h

21 m0

4 h0

24 m0

17 h0

22 k0

3 g2, 1h

A 3682 g0 +

3681 g0 +

3679 k1, 1l

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37

	l 1.1m
3678	~~K~~ O ±
3672	mO ±
3677	h 1.1 K ±
1751	~~h~~ g 1.1 h
X 6792	l 1.1m
6820	ko
6844	g 1.2 h
6854	g 2.1 h
7482	f 1.1 g
7483	l 1.1m
7488	go
8563	ko
8584	l 1.2m
8597	go

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1900phae.proj.22878

X 8611 gO
x 8612 f2, 1g
· 8618 gO
8624 f2.1g
8625 g2, 1h
9158 g1, 1h
9204 f2, 1g
· 9205 kO ±

additional Measures –

A 1838 f1, 1g ✓
X 95·58 gO ✓
X 6837 fO ✓
9166 f1, 1g ✓
8655 g1, 2h ✓
8631 f1, 2g ✓
8605 gO ✓
6923 f2, 1g ✓
6925 f2, 1g ✓

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1900phae.proj.2287B

M 2, 120, Nov. 27

K 3 k1.1l

22 k0

17 k1.1m

24 m0

4 k0

21 m0

16 k1.1m

5 k0

23 m0

18 m1.2m

13 m0

12 k1, 1m

7 g1, 2k

6 g2.1k

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1900phae.proj.22878

K 14 l1.1h ~~p~~ m?

9 g2.1h

19 l0

20 m0

1 –

2 l0

8 g0

10 l1.2m

25 m1.2m

11 m0

15 l0

A3682 l0 +

3681 k0 +

3679 h1.1K +

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1900phae.proj.1287B

120 -

A	3678	g1.1h
	3677	l1.1m
	3672	g2.1h
	1751	mO
X	6792	lO
	6820	g2.1h
	6844	l1.1m
	6854	g2.1h
	7482	l1.1m
	7483	lO
	7488	hO
	8563	hO
	8584	~~X~~ l1.2m
	8597	m1.2u

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1900phae.proj.22978

X 8611 ~~g~~ m0

8612 m1, 2n

8618 h0

8624 m2, 1n

8625 g2, 1h

9158 h0

9204 m0

9205 m1, 2n

120 has small range but is certainly variable -

additional Measures -

X6990 h0

8605 h0

8779 g1, 1h

rather difficult on many of these plates of poor quality - but near always appears str than h.

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1900phae.proj.2287B

M 2 - 11 = 108 = 1100,29 -

K 15 m2.1n

11 n0

25 f0

10 m2.1n

8 e0 ±

2 m1.1n

1 –

20 m2.1n

19 m2.1n

9 d1.2e

14 m1.1n

6 ~~m1.1n~~ → m0

7 f2.1g

12 m1.1n

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1900phae.proj.22878

K	12	m1.1n
	18	n0
	23	m1.1n
	5	m2.1n
	16	n0
	21	m2.1n
	4	m1.1n
	24	h1.1k
	17	n0
	22	m2.1n
	3	n0
X	9205	n0
	9204	n0
	9158	f1.1g

a very shaky assembly large range & extreme rapidity inc-

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1900phae.proj.2287B

108 –

X8625 f1.2g

8624 f2.1g

8618 e1.2f

8612 d1.1e

8611 f0

8597 n0

8584 n0

8563 k0

7488 f1.1g

7483 m1.1n+

7482 h0

6854 l1.1m+

6844 m0

6820 m1.1n

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1900phae.proj.2287B

X 6792 kO

A 1751 mO ±

3672 nO

3677 nO

3678 hl.1k

3679 ml.1k m?

3681 nO

3682 nO.

additional Measures -

x 9558 gO

8632 e1, 2f ✓

8619 gO ✓

6923 gO ✓

6990 fO ✓

7654 e1.2f ✓

6875 e2.1f ✓

A 1774 e1.1f ✓

1780 e1.1f ✓

1840 e2.1f ✓

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1900phae.proj.2287B

M3 - No 5-3- Nov 29

K 15- kl1.1m

11 KO

25 m2.1n

10 KO

8 m2.1n

2 nO

1 m1.1n

20 m1.2n

19 m1.2n

9 m2.1n

14 mO

6 m1.2n

7 m2.1n

12 k1.1m

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1900phae.proj.2287B

K 19 d0

18 m1.1n

23 m1.1n

5 m1.1n

16 m0

21 n0

4 m2.1n

24 m1.1n

17 m1.2n

22 m2.1n

3 n0.

A 3682 ~~k11~~ g1.1h +

3681 e1.1f

3679 e1.1m

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1900phae.proj.2287B

55.

A 3678 nO ±

3677 fO

3672 fO ±

1751 ml.1n ±

X 6792 hO

6820 nO

6844 e2.1f

6854 nO

7482 l1.1m ±

7483 nO ±

7488 h1.1k

8562 fO

8584 nO

8597 ml.1n

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X 8611 gl,1h

8612 fl,2g

8618 ~~mO~~ ml,20

8624 ml,20

8625 mO

9158 mO

9204 hO

9205 mO

Additional Measures -

A1780 eO ✓

X 7654 fO ✓

6925 eO ✓

6923 gO ✓

8619 e2.1f ✓

8655 d3.1e ✓

8656 fO

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M 2. No 56. Nov. ~~29~~ 30.

K. 3 ~~f2.1~~ e2.1f

22 g0

17 f0

24 h1.1k

4 f0

21 g0

16 f1.2g

5 g0

23 h0

18 f0

13 e2.1f

12 f1.1g

7 g0

6 e3.1f

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K 14 f0
9 h0
19 f1.2g
20 f0
1 –
2 f0
8 h0
10 f1.1g
25 h1.1k
11 f2.1g
15 e2.1f
A 3682 h1.1m +
3681 m1.1n
3679 l0 +

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A 3678 g2.1h

3677 h0

3672 h1.1k

1751 g0

X 6792 h0

6820 h0

6844 g1,2h

6854 g0

7482 h0

7483 h0

7488 h1.1m

8563 h0

8584 h2.1m

8597 m0

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✱8611	mO
8612	hO
8618	mO
8624	mO
8625	g1.2h
9158	hO
9204	h1.1k
9205	k1.1m

additional Measures.

✱6837	g1.1h	✓
8656	g1.2h	✓
8650	g1.2h	✓
6872	gO	✓
6876	f2.1g	✓
6909	gO	✓

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M-3-

Star No	Measured on 50 plates (or more.)
1	123
89	112
11	113
119	82
96	91
12	92
126	117
13	17
14	116
28	94
76	45
88	16
122	83
29	40
27	39
9	38
97	37
15	120
35	108
59	55
124	56
50	95
51	
90	
18	
118	
60	
93	

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