

NGC 6656

M 22

J. E.

Prof. Gould

Obs.

Prof. Gould

5.1.13

1907phae.proj.2289B

Cluster

July 9 1907
Gould

Dreyer's NGC 7078

Study of variable stars.

To establish grades between comparison
stars.

			++(1)(2)(3)(4)(5) Mean					
			(1)	(2)	(3)	(4)	(5)	Mean
(1)	Plate X18780	a 4 b 4 c 2 d 2 e 1 f	a	0	0	0	0	0
		f 2 g 3 h 1 k 4 l 3 m	b	4	4	4	4	4
		m 1 n 30 2 p 2 q	c	8	6	7	7	7
			d	10	8	11	10	10
(2)	Photo 8122	a 4 b 2 c 2 d 1 e 2 f	e	12	9	13	13	12
		f 1 g 3 h 2 k 3 l 3 m	f	13	11	16	15	14
		m 2 n 20 2 p 3 q	g	15	12	18	18	16
			h	18	15	21	21	19
(3)	Plate X8920	a 4 b 3 c 4 d 2 e 3 f	k	19	17	24	22	21
		f 2 g 3 h 3 k 1 l 1 m	l	23	20	25	24	24
		m 3 n 30 4 p 3 q	m	26	23	26	26	26
			n	27	25	29	29	28
(4)	Plate X8921	a 4 b 3 c 3 d 3 e 2 f	o	30	27	32	31	31
		f 3 g 3 h 1 k 2 l 2 m	p	32	29	36	34	34
		m 3 n 20 3 p 3 q	q	34	32	39	37	37
(5)	plate X8869	a 4 b 3 c 3 d 2 e 2 f						
		f 3 g 3 h 2 k 4 l 3 m						
		m 2 n 30 3 p 4 q						

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Cluster N.G.C. 6656
 Grades of comparison stars

Plate

X 11357	a b c d e f g h i k l m n o p q r s	(1) (2) (3)			Mean
		a	b	c	
		0	0	0	0
		1	1	1	1
		3	3	3	3
		6	6	6	6

Plate X 10878	a b c d e f g h i k l m n o p q r s	(1) (2) (3)			Mean
		a	b	c	
		8	8	8	8
		10	10	10	10
		13	12	13	13
		17	15	16	16
		20	18	18	19
		23	20	20	21
		27	23	23	24
		30	26	25	27
		32	28	28	29
		34	30	30	31
		35	32	31	33
		38	34	33	35
		40	36	36	37

X 10839	a b c d e f g h i k l m n o p q r s	(1) (2) (3)			Mean
		a	b	c	
		27	23	23	24
		30	26	25	27
		32	28	28	29
		34	30	30	31
		35	32	31	33
		38	34	33	35
		40	36	36	37

X 10859	a b c d e f g h i k l m n o p q r s	(1) (2) (3)			Mean
		a	b	c	
		27	23	23	24
		30	26	25	27
		32	28	28	29
		34	30	30	31
		35	32	31	33
		38	34	33	35
		40	36	36	37

X 7995	a b c d e f g h i k l m n o p q r s	(1) (2) (3)			Mean
		a	b	c	
		27	23	23	24
		30	26	25	27
		32	28	28	29
		34	30	30	31
		35	32	31	33
		38	34	33	35
		40	36	36	37

July 10 07

Quality
 A. all comp. stars seen
 B. 2 or 3 faintest comp stars not seen.
 C. About 5 of faintest stars not seen
 D. Blurred or many stars not seen.

No	Quality	No	Qual.	Qual
X 4914	B	X 9308	B	X 10935 C
5317	B	9343	B	10984 C
5332	C	9578	C	~~11356 D~~
5349	B	9604	C	11357 B
6764	C	9611	C	A7340 C
6789	C	9612	B	4340 D
6793	A	9613	B	4293 D
6800	A	9614	B	2811 C
6855	A	9621	C	1837 B
6891	A	9622	B	
6975	B	9623	B	
7026	B	9915	A	
7141	B	10858	A	
7161	A	10859	A	
7662	B	10863	B	
7791	B	10864	A	
7995	A	10865	B	
8644	B	10866	B	
8663	A	10867	C	
8665	D	10869	A	
8717	C	10870	A	
8755	D	10878	A	
8756	B	10882	B	
8758	B	10888	C	
8839	C	10889	C Will use	
8876	A	10891	B	
8904	A	10892	C	
8919	A	10894	B	
		10895	A	
		10896	B	

Fifty plates selected including A's + B's and No 10889.

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Plate	No	Date	J D	mag 1922	dist from comp
6/26/11 357	~~h~~ 0				14.4
6/9/04 10839	h2, 1k				14.55
6/9/04 10878	h2, 1k				14.35
6/28/00 10984	f4, 1g				13.65
6/9/04 10838	h2, 1k				14.85
6/7/04 10828	h1, 1l				14.5
6/6/04 10823	g2, 2h				14.0
7/2/02 10584	h2, 1l				14.55
7/1/02 10579	g2, 2h				14.0
10/14/01 10047	g2, 2h				14.0
8/14/01 9983	h1, 2k				14.3
8/28/01 9914	h2, 1l			Mag	14.55
4914	h2, 2k	7/11/93 17 13	2412656.609	618 17.5	14.3
5317	h1, 1l	10/5/93 21 54	2742.569	20	14.5
5349	h1, 1l	10/14/93 21 43	2751.537	20	14.5
6793	h2, 1k	8/27/95 16 30	3372.620	18	14.35
6808	h1, 2k	6/28/95 16 24	3373.612	17	14.3
6855	g2, 1h	7/9/95 16 45	3384.597	15	14.1
6891	h1, 2k	7/17/95 16 50	3392.578	14	14.3
6975	g2, 2h	8/5/95 19 45	341 ¹ .648	14.5	14.0
7026	h1, 1k	8/14/95 17 30	3420.530	17.5	14.3
7141	h2, 1k	9/16/95 20 02	3453.545	16.	14.35
7161	f1, 2g	9/19/95 20 40	3456.563	11	13.5
7662	h1, 1l	7/7/96 17 32	3748.633	636 20	14.5
7791	h0	8/3/96 19 45	3775.652	16	14.2
7995	l1, 1f	9/19/96 20 35	3821.553	556 9	13.2
8644	h1, 2k	6/7/97 16 35	4083.676	19.6	14.5
8663	f2, 1g	6/10/97 16 22	4086.659	12,	13.6

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Cluster N.G.C. 6656

No	Star	Date	J D	Magn	Py mag 1922 dist from comp
8756	h1, 1k	7/29/97 16 59	2414135.551	17.5	14.3
8758	h1, 1k	7/29/97 20 06	4135.680	17.5	14.3
8876	f1, 1g	10/3/97 20 40	4203.518	11.5	13.55
8904	*g0 g2, 1h	10/11/97 21 04	4209.518	13.	14.1 13.75
8919	g1, 2h	10/14/97 21 00	4212.508	14.	13.95
9308	k1, 1l	8/17/98 19 34	4519.606	20.	14.5
9343	h2, 1k	10/15/98 21 45	4578.537	18	14.35
9612	g0	6/10/99 17 20	*4816.617 4816.700	10 13	13.75
9613	g2, 1h	6/10/99 18 59	4816.769	15	14.1
9614	h1, 1k	6/10/99 20 30	4816.832	17.5	14.3
9622	g2, 1h	6/12/99 17 18	*4818.612 4818.694	14. 15.	14.1
9623	h0	6/12/99 19 00	4818.765	16.	14.2
9983	h1, 1k	9/14/99 19 20	4912.521	17.5	14.3
~~10047~~	~~g2, 1h~~	~~7/1/02 17 20~~	~~645~~		
10579	g1, 2h	7/1/02 17 20	5932.645	14.	13.95
10584	k1, 1l	7/2/02 17 15	5933.639	20.	14.5
10823	g2, 1h	6/6/04 15 58	6638.655	15	14.1
10838	h1, 1k	6/9/04 14 56	6641.605	17.5	14.3
10839	k2, 2l	6/9/04 16 10	6641.656	20.3	14.55
10858	g2, 1h	6/13/04 15 05	6645.600	15.	14.1
10859	l1, 1f	6/13/04 16 30	6645.659	9.	13.2
10863	h1, 2k	6/14/04 14 00	6646.552	17.	14.3
10864	h2, 1k	6/14/04 15 30	6646.614	18.	14.35
10865	k1, 1l	6/14/04 17 15	6646.687	20.	14.5
10866	k1, 1l	6/14/04 19 42	6646.789	20.	14.5
10869	f0	*6/14/04 22 04 6/15/04 15 19	*6646.886 6647.603	15.2 10.	13.35
10870	l1, 2g	6/15/04 16 27	6647.651	11.	13.5
10878	h2, 1k	6/16/04 15 46	6648.619	18.	14.35

* Extra Plates

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No	Star 7.	Date	h	m		Magn	pg map 1972
10889	g ₂ , 1h	10/8/04	22	02	2416760.575	15.	14.1
10891	h ₁ , 1k	10/7/04	20	39	6761.514	17.5	14.3
10894	k ₀	10/11/04	21	49	6765.552	19.	14.4
10895	f ₁ , 2g	10/12/04	20	50	6766.508	11.	13.5
10896	g ₂ , 1g	10/12/04	21	54	6766.552	12.	13.6
11357	k ₀	8/20/06	20	17	7443.631	19.	14.4
A 1837	h ₁ , 2k	6/2/96	16	43	3723.668	17.	14.3

7443
2656
4787

Extra plates for Star 7

X 9611	f ₀	6/10/99	15	20	4816.617	10.	13.35
9621	g ₁ , 2h	6/12/99	15	20	4818.612	14.	13.95
10047	g ₀	10/16/99					13.75
10984	f ₁ , 2g	6/28/05					13.5

Aug 7
 4h 46m 12s W of Zen

Cluster N.C.C. 6656

July 12 07

Star 1

Plate	ID	Comp	Magn	Pg Mag (1922) Direct from comp.
X 4914		f1, 2g	11	13.50
5317		m0	24	14.75
5349		g1, 2h	14	13.95
6793		g1, 2h	14	13.95
6800		k1, 1h	20	14.50
6855		l1, 1m	22.5	14.70
6891		h0	19.	14.40
6975		l1, 1m	22.5	14.70
7026		f1, 2g	11.	13.50
7141		k1, 1h	20.	14.50
7161		k1, 2h	19.6	14.50
7662		f2, 1g	12.	13.6
7791		h0 h1, k	19.	14.40
7995		l1, 1m	22.5	14.7
8644		k1, 2h	19.6	14.5
8663		h0	16.	14.2
8756		k1, 1h	20	14.5
8758		l1, 1m	22.5	14.7
8876		g1, 2h	14	13.95
8904		m1, 1m	25.5	14.8
8919		k1, 1h	20	14.5
9308		m0	24.	14.75
9343		h2, 1k	17.	14.3
9612		g3, 1h	15	14.1
9613		k1, 1h	20	14.5
9614		k1, 1h	20	14.5
9622		h0	21	14.6
9623		h0	21	14.6
9983		h0 [no.]	29.27	14.85

Comparison difficult
stars faint

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Star 1

Plate	J D	Comp	⁹² Magn	(⁹² mag (1922) derived from comparison)
X 10579		h ₁ , 2 k	17	14.3
10584		l ₁ , 1 m	22.5	14.7
10823		g ₂ , 1 h	15	14.1
~~10828~~		~~h₁, 2 k~~		
10838		m ₀	24	14.75
10839		g ₂ , 1 h	15	14.1
10858		l ₁ , 1 m	22.5	14.7
10859		m ₀	24	14.75
10863		k ₀	19	14.4
10864		g ₁ , 2 k	14	13.95
10865		h ₁ , 1 k	17.5	14.3
10866		k ₁ , 1 l	20	14.5
10867		m ₀	24	14.75
10869		l ₀	21	14.6
10870		m ₁ , 1 m	25.5	14.8
✓ 10878		~~h₂~~ [l ₂ , 1 m]	27, 23	14.7
10888		g ₀	13	13.75
10889		g ₂ , 1 h	15	14.1
10891		l ₁ , 1 m	22.5	14.7
~~10892~~		~~h₁, 2 k~~		
10894		k ₀	19	14.4
10895		m ₀	24	14.75
10896		l ₁ , 1 m	22.5	14.7
11357		l ₁ , 1 m	22.5	14.7
R 1837		m ₁ , 1 m	25.5	14.8

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NSC	6656	Star 2	Magn	(Pg maps 1922 direct from comp)	
Plate	J D	Comp			
X 4914		g2, 1 h	15-	14.1	Comparison not reliable because of overlapping star.
5317		g2, 1 h	15-	14.1	
5349		g2, 1 h	15-	14.1	
6793		g1, 2 h	14	13.95	
6764		* g1, 2 h	14	13.95	
6800		g2, 1 h	15-	14.1	"
6855		h1, 1 k	17.5-	14.3	"
6891		h2, 1 k	17.	14.3	"
6975		h0	16.	14.2	"
7026		h0	16.	14.2	"
7141		h0	16.	14.2	"
7161		h0	16.	14.2	"
7662		h1, 1 k	17.5-	14.3	"
7791		g2, 1 h	15.	14.1	"
7995		h1, 1 k	17.5-	14.3	"
8644		g2, 1 h	15.	14.1	"
8663		h0	16	14.2	"
8756		g2, 1 h	15.	14.1	"
8758		g2, 1 h	15-	14.1	"
8876		h1, 1 k	17.5-	14.3	"
8904		h0	19	14.4	"
8919		g2, 1 h	15.	14.1	"
9308		h1, 1 k	17.5-	14.3	"
9343		h0	16	14.2	"
9612		h1, 1 k	17.5-	14.3	"
9613		h0	16	14.2	"
9614		h0	16	14.2	"
9622		h0	16	14.2	"
9623		g2, 1 h	15-	14.1	"

July 30.07

99e	6656	Star 2			
Plate	JD	Comp		By mag. (1922) direct from comp	
X 9983		h ₁ , i k	17.5	14.3	Comparison very difficult
10579		h ₁ , i k	17.5	14.3	
10584		h ₁ , i k	17.5	14.3	
10823		h ₀	16	14.2	
10829		* g ₁ , 2 h	14	13.95	
10838		h ₁ , i k	17.5	14.3	
10839		h ₀	19	14.4	
10858		h ₁ , i k	17.5	14.3	
10859		h ₁ , i k	17.5	14.3	
10863		h ₀	16	14.2	
10864		h ₁ , i k	17.5	14.3	
10865		h ₀	19	14.4	
10866		h ₀	16	14.2	
10867		* g ₁ , 2 h	15	14.1	
10869		h ₀	16	14.2	
10870		h ₁ , i k	17.5	14.3	
10878		g ₂ , 1 h	15	14.1	
10884		* h ₀	16	14.2	
10889		h ₀	16	14.2	
10891		h ₀	16	14.2	
10892		* g ₁ , 2 h	14	13.95	
10894		h ₀	16	14.2	
10895		h ₀	16	14.2	
10896		h ₀	16	14.2	
11357		g ₂ , 1 h	15	14.1	
A 1837		g ₁ , 2 h	14	13.95	

In several observations there seems to be evidence of variation in the adjoining star.

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Extra plates

The work on the plate makes me think that the star is variable but the variation is too small to determine the period.

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NGC	6656	Star 3			
Plate	J D	Comp		Pg mag 1922 direct from comps	
X 4914		g0	33	15.0	Could just detect 7 + 30 very faint.
5317		01 <u>n</u>	30 <u>n</u>	<14.95	
5349		p0	31	15.0	Comparison difficult
6793		s1	38		
6800		s0	37		
6855		h2, 1k	18	14.35	
6891		g1 <u>n</u>	32 <u>n</u>		Comparison difficult
6975		r0	35		
7026		s1 <u>n</u>	38 <u>n</u>		
7141		m1 <u>n</u>	25 <u>n</u>	<14.8	
7161		r0	35		
7662		m1, 1n	25.5	14.8	
7791		r1 <u>n</u>	36 <u>n</u>		
7995		r1, 1s	36		
8644		g5, 1r	34		
8663		s0	37		
8756		r1 <u>n</u>	36 <u>n</u>		
8758		g1 <u>n</u>	34 <u>n</u>		
8876		h1, 2s	35.6		
8904		h2, 1L	19.6	14.55	
8919		s0	37		
9308		01	30	14.95	
9343		s0	37		
* 9578	4811.661	l1, 1m	22.5	14.7	
9612		g1 <u>n</u>	34 <u>n</u>		
9613		m1, 10	28	14.9 2nd Obs [m1, 10]	
9614		m1, 10	28	2nd Obs [m0] 14.9	
9622		g1 <u>n</u>	34 <u>n</u>		
9623		g1, 1r	34		

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Plate	J.D.	Star 3	Comp	Pg mag 1922
* 9914	4875.559	21, 2m	21	14.7
X 9983		21 <u>n</u>	36 <u>n</u>	
10579		50	37	
10584		21 <u>n</u>	36 <u>n</u>	
10823		21, 2m	22	14.7
10838		21, 1S	36	
10839		51	38	
10858		50	37	
10859		51	38	
10863		21, 1S	36	
10864		51	38	
10865		22 <u>n</u>	37 <u>n</u>	
10866		21 <u>n</u>	36 <u>n</u>	
* 10867	6646.886	21 <u>n</u>	27 <u>n</u>	14.9
10869		21, 1S	36	
10870		50	37	
10878		21, 2S	35.6	
10889		51	34.	
10891		50	37	
10894		21, 10	28.	14.9
10895		210	27	14.85
10896		21, 1P	30	15.0
11357		51	38	
A 1837		21, 1S	36	

* Extra plates.

Comparison difficult throughout because of faintness of image.

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Star 4

Plate	Comp	Magn	Pg mag 1922 direct from comps
4914	g2, 1h	15	14.1
5317	g2, 1h	15	14.1
5349	g1, 2h	14	13.95
6793	g0	13	13.75
6850	h2, 1k	18	14.35
6855	f1, 2g	11	13.5
6891	f0	10	13.35
6975	h1, 1l	20	14.5
7026	f2, 1g g1, 2h	14	13.6 13.95
7141	f1, 2g	11	13.5
7161	h1, 2k	17	14.3
7662	f1, 2g	11	13.5
7791	h2, 1k	18	14.35
7995	h1, 2k	17	14.3
8644	g2, 1h	15	14.1
8663	g1, 2h	14	13.95
8756	g2, 1h	15	14.1
8758	g2, 1h	15	14.1
8876	g1, 2h	14	13.95
8904	h0	19	14.4
8919	h1, 1l	20	14.5
9308	g2, 1h	15	14.1
9343	h1, 1k	17.5	14.3
9612	f0	10	13.35
9613	g2, 1h	15	14.1
9614	g2, 1h	15	14.1
9622	h1, 2k	17	14.3
9623	h0	16	14.2

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Star 4

Plate	JD	Comp.	Magn	Pg mag 1922 direct from comps.
X 9983		h ₀	21	14.6
10579		k _{1,2} l	19.6	14.5
10584		g _{1,2} h	14	13.95
10823		g _{2,1} h	15	14.1
10838		h _{1,1} k	17.5	14.3
10839		h _{1,1} k	17.5	14.3
10858		f _{1,2} g	11	13.5
10859		g _{1,2} h	14	13.95
10863		g _{1,2} h	14	13.95
10864		g _{2,1} h	15	14.1
10865		k _{1,1} l	20	14.5
10866		h _{1,2} k	17	14.3
10869		k _{2,1} l	19.6	14.5
10870		k _{2,1} l	19.6	14.5
10878		h _{1,2} k	17	14.3
10889		h _{1,2} k	17	14.3
10891		h _{1,1} k	17.5	14.3
10894		h ₀	16	14.2
10895		h _{1,1} k	17.5	14.3
10896		h _{2,1} k	18.	14.35
11357		h _{1,2} k	17	14.3
A 1837		g _{1,2} h	14.	13.95

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Star 5

Plate	JD	Comp	Pg mag 1922 dist from comp
X 4914		c2, 2d	4.4 12.35
5317		c3, 1d	5.1 12.50
5349		c1, 3d	3.7 12.2
6793		d0	6. 12.65
6800		d1, 2e	6.6 12.80
6855		d1	7. 12.75
6891		c2, 2d	4.4 12.35
6975		c0	3. 11.95
7026		c1, 2d	4. 12.2
7141		d0	6. 12.65
7161		d1, 2e	6.6 12.8
7662		c2, 2d	4.4 12.35
7791		c2, 2d	4.4 12.35
7995		c2, 1d	5.1 12.50
8644		c1, 3d	3.7 12.2
8663		c3, 1d	5.1 12.5
8756		c0	3. 11.95
8758		c2, 2d	4.4 12.35
8876		d0	6. 12.65
8904		c3, 1d	5.1 12.5
8919		c1, 3d	3.7 12.2
9308		c3, 1d	5.1 12.5
9343		c3, 1d	5.1 12.5
9612		c2, 2d	4.4 12.35
9613		c1, 3d	3.7 12.2
9614		c1, 3d	3.7 12.2
9622		c1, 3d	3.7 12.2
9623		c2, 2d	4.4 12.35

Plate badly damaged by
ink marks, & covered.Comp made
July 15 1907

July 15 07

N.G.C. 6656

Star 5

Plate	JD	Comp	Magn	Pg mags 1922 direct from comp.
X 9983		C3, 1d	5.1	12.5
10579		C2, 2d	4.4	12.35
10584		C2, 2d	4.4	12.35
10823		C3, 1d	5.1	12.5
10838		C1, 3d	3.7	12.2
10839		C2, 2d	4.4	12.35
10858		C2, 2d	4.4	12.35
10859		C2, 2d	4.4	12.35
10863		C2, 2d	4.4	12.35
10864		C2, 2d	4.4	12.35
10865		C1, 3d	3.7	12.2
10866		C2, 2d	4.4	12.35
10869		C1, 3d	3.7	12.2
10870		C2, 2d	4.4	12.35
10878		C3, 1d	5.1	12.5
10889		C3, 1d	5.1	12.5
10891		C2, 2d	4.4	12.35
10894		C3, 1d	5.1	12.5
10895		C2, 2d	4.4	12.35
10896		C2, 2d	4.4	12.35
11357		C3, 1d	5.1	12.5
A 1837		do	6.	12.65

Star may be variable but results do not give sufficient range to determine the period.

July 15 07 17

NGC 6656

Star 6

Plate	JD	Comp	Magn	pg mag 1922 direct from comp
X 4914		l2,2f	9	13.2
5317		h0	16	14.2
5349		h1,2k	17	14.3
6793		h1,2k	17	14.3
6800		k1,1l	20	14.5
6855		g0	13	13.75
6891		h2,1k	18	14.35
6975		h2,1k	18	14.35
7026		g2,1h	15	14.1
7141		f0	10	13.35
7161		h2,1k	18	14.35
7662		g0	13	13.75
7791		h0	16	14.2
7915		h1,2k	17	14.3
8644		k1,2l	19.6	14.5
8663		h1,2k	16.6	14.3
8756		f1,2g	11.	13.5
8758		g1,2h	14.	13.95
8876		k2,1l	20.3	14.55
8904		l1,1m	22.5	14.7
8919		h1,1k	17.5	14.3
9308		h0	16	14.2
9343		h2,1k	18	14.35
9612		h1,1k	17.5	14.3
9613		h0	19	14.4
9614		g1,2h	14	13.95
9622		h0	16	14.2
9623		g1,2h	14	13.95

July 15 1913

NGC

6656

Star 6

Plate

JD

Comp

Mag

Pg mag 1922
direct from comp.

9983

ko

19

14.4

10579

g1,2h

14

13.95

10584

g2,1h

15

14.1

10823

f1,2g

11

13.5

10838

h1,1k

17.5

14.3

10839

k1,2l

19.6

14.5

10858

ko

19.

14.4

10859

g2,1h

15.

14.1

10863

ho

16.

14.2

10864

k1,2l

19.6

14.5

10865

ko

19

14.4

10866

h1,2k

19

14.3

10869

g2,1h

15.

14.1

10870

g2,1h

15.

14.1

10878

m1,1n

25.7

14.8

10889

ho

16.

14.2

10891

ko

19.

14.4

10894

k1,1l

20.

14.5

10895

g2,1h

15.

14.1

10896

g2,1h

15.

14.1

11357

k1,2l

19.6

14.5

A 1837

6/12/96

16 43

g0

13.

13.75

July 16 1913

July 16 07, 19

NGC	6656	Star #		
Plate	J D	Comp		Pg mags 1922 Direct film comp
X 4914		c1, 3d	3.7	12.2
5317		c2, 2d	4.4	12.35
5349		c2, 2d	4.4	12.35
6793		b2, 1c	2.3	11.8
6800		b2, 1c	2.3	11.8
6855		b1, 2c	1.6	11.6
6891		b2, 1c	2.3	11.8
6975		c2, 1d	5.	12.5
7026		c1, 2d	4.	12.25
7141		b1, 1c	~~4.6~~ 4.52	11.7
7161		c1, 2d	4.	12.25
7662		c0	3.	11.95
7791		c2, 1d	5.	12.5
7995		c1, 1d	4.5	12.35
8644		c1, 2d	4.	12.25
8663		c1, 2d	4.	12.25
8756		c1, 1d	4.5	12.35
8758		c1, 1d	4.5	12.35
8876		c2, 1d	5.	12.5
8904		c2, 1d	5	12.5
8919		c1, 2d	4	12.25
9308		c1, 2d	4	12.25
9343		c2, 1d	5	12.5
9612		c1, 2d	4	12.25
9613		c1, 2d	4	12.25
9614		c1, 2d	4	12.25
9622		c0	3	11.95
9623		c1, 2d	4	12.25

July 16 07

Plate	N.E.C. 6656	Star 8	Magn	Pg mag 1922 distinct from comp
X 9983	J D	C 2, 1d	5	12.5
10579		C 1, 2d	4	12.2
10584		C 1, 2d	4	12.2
10823		C 2, 1d	5	12.5
10838		C 1, 2d	4	12.2
10839		C 1, 2d	4	12.2
10858		C 2, 1d	5	12.5
10859		C 2, 1d	5	12.5
10863		C 2, 1d	5	12.5
10864		C 2, 1d	5	12.5
10865		C 2, 1d	5	12.5
10866		C 2, 1d	5	12.5
10869		C 2, 1d	5	12.5
10870		C 1, 2d	4	12.2
10878		C 2, 1d	5	12.5
10889		C 2, 1d	5	12.5
10891		C 1, 2d	4	12.2
10894		C 2, 1d	5	12.5
10895		C 2, 1d	5	12.5
10896		C 2, 1d	5	12.5
11357		C 2, 1d	5	12.5
A 1837		d, 1e	7	12.85

This star does not vary sufficiently to determine the period. I would not however, say it was not variable.

July 17 07 21

NGC	6656	Star 9			
Plate	J.D.	Comp.	Pg mag d922	direct from comps.	
X 4914		e1, 2 f	8.6	13.15	
5317		e1, 2 f	8.6	13.15	
5349		e1, 2 f	8.6	13.15	
6793		e1, 2 f	8.6	13.15	
6800		e2, 1 f	9.3	13.25	
6855		f0	10	13.35	Very questionable, Stars inked over.
6891		e1, 2 f	8.6	13.15	
6975		e0	8	13.0	
7026		do	6	12.65	
7141		e0	8	13.0	
7161		e0	8	13.0	
7662		e2, 1 d	5	12.5	
7791		e0	8	13.0	
7995		e2, 1 f	9.3	13.25	
8644		e1, 2 f	8.6	13.15	Large diff bet e & f on this plate.
8663		e2, 1 f	9.3	13.25	
8756		do	6	12.65	
8758		do	6	12.65	
8876		d1, 1 e	7	12.85	
8904		e0	8	13.0	
8919		e2, 1 d	5	12.5	
9308		e1, 2 f	9.3	13.25	
9343		do	6	12.65	
9612		d2, 1 e	7.3	12.9	
9613		d2, 1 e	7.3	12.9	
9614		d1, 2 e	6.6	12.8	
9622		d2, 1 e	7.3	12.9	
9623		d1, 2 e	6.6	12.8	

July 17 07

N.G.C. 6656	Star 9		
Plate	J.D.	Comp	p _g mags 1922 direct from comps
9983		e 0	8 13.0
10579		c 2, 1 d	5 12.5
10584		d 0	6 12.65
10823		e 0	8 13.0
10838		d 0	6 12.65
10839		d 0	6 12.65
10858		d 1, 2 e	6.6 12.8
10859		d 1, 2 e	6.6 12.8
10863		d 2, 1 e	7.3 12.9
10864		d 1, 2 e	6.6 12.8
10865		d 1, 2 e	6.6 12.8
10866		d 1, 2 e	6.6 12.8
10869		d 1, 2 e	6.6 12.8
10870		d 1, 2 e	6.6 12.8
10878		d 1, 1 e	7.1 12.85
10889		c 2, 1 d	5. 12.5
10891		c 1, 2 d	6 12.2
10894		c 2, 1 d	5 12.5
10895		c 2, 1 d	5 12.5
10896		c 2, 1 d	5 12.5
11357		e 0	8 13.0
A 1837		e 2, 1 f	9.3 13.25

The range of variation is small but I think the star is a variable.

July 18 1907 23

N.G.C. 6656	Star 10	Pg. mags 1922	direct from compo.
Plati	J.D.	Comp	
X 4914		e2, 1f	9.3 13.25
5317		f2, 1g	12. 13.6
* 5349		g1, 2h	14. 13.95
6789	3371.790	h1, 1k	9. 13.2
6793		h2, 1k	18. 14.35
6800		k1, 1l	20 14.5
6855		lo	21 14.6
6891		g2, 1h	15 14.1
6975		lo	21 14.6
7026		k1, 1l	20 14.5
7141		ko	19 14.4
7161		h2, 1k	18 14.35
7662		h1, 1k	17.5 14.3
7791		g1, 2h	14. 13.95
7993		h1, 1k	17.5 14.3
8644		f1, 2g	11. 13.5
8663		mo	24. 14.75
8756		g2, 1h	15. 14.1
8758		mo	24. 14.75
8876		lo	21. 14.6
8904		k1, 1l	20 14.5
8919		k1, 1l	20 14.5
9308		h1, 1k	17.5 14.3
9343		fo	10 13.35
9612		k1, 1l	20 14.5
9613		k1, 1l	20 14.5
9614		lo	21 14.6
9622		k1, 1l	20 14.5
9623		k1, 1l	20 14.5

Indications of two stars
in position of variable.

July 18 1907

NEG	6656	Star 10		
Plate	J D	Comp	Magn	Pg mag 1922 direct from comp
9983		g0	13.	13.75
10579		g2,1h	15.	14.1
10584		k1,1l	20	14.5
10823		g1,2h	14	13.95
10838		lo	21	14.6
10839		no	24	14.75
10858		lo	21	14.6
10859		lo	21	14.6
10863		g2,1h	15.	14.1
10864		h2,1k	18	14.35
10865		k1,1l	20	14.5
10866		ko	19	14.4
* 10867	6646.886	~~ko~~ ko	~~16~~ 19	14.4
10869		lo	21	14.6
10870		lo	21	14.6
10878		h1,2m	22	14.65
* 10888	6760.524	k1,1l	20	14.5
10889		k1,1l	20	14.5
10891		g1,2h	14	13.95
10894		h1,1k	17.5	14.3
10895		lo	21.	14.6
10896		ko	19.	14.4
11357		g0	13.	13.75
A1837		h1,1k	17.5	14.3
* Extra plates				

Comparison
difficult

July 18¹⁷ 25

N.C.	6656	Star 11		
Plate	J.D.	Comp	mag 1922 direct from comp	
X 4914		l1,2 f	8.6	13.15
5317		l1,2 f	8.6	13.15
5349		l0	8.	13.0
6793		do	6.	12.65
6800		d1,1e.	7.	12.85
6855		d3,2 f	10.4?	13.1 (?)
6891		do	6	12.65
6975		f1,2 g	11	13.5
7026		f1,2 g	11	13.5
7141		e2,1 d	5	12.5
7161		do	6	12.65
7662		f2,1 g	12	13.6
7791		e2,1 d	8.6 ^{9.3}	13.25
7995		f1,2 g	11	13.5
8644		do	6	12.65
8663		f0	10	13.35
8756		l1,3 f	8.5	13.1
8758		f0	10	13.35
8876		g1,2 h	14	13.95
8904		f0	10	13.35
8919		l0	8	13.0
9308		e2,1 f	9.3	13.25
9343		f1,2 g	11.	13.5
9612		e2,1 f	9.3	13.25
9613		f1,2 g	11	13.5
9614		f0	10	13.35
9622		f1,2 g	11	13.5
9623		f1,1 g	10.6 ^{11.5}	13.55

Junk marks cross
star e.

July 18 1907

NGC

6656

Star 11

Plate

JD

Comp

Magn

Pg mags 1922
direct from comp.

9983

fo

10

13.35

10579

go

13

13.75

10584

fo

10

13.35

10823

fo

10

13.35

10838

d_{1,1e}

7

12.85

10839

do

6

12.65

10858

l_{2,1f}

9.3

13.25

10859

f_{2,1g}

12.

13.6

10863

c_{2,1d}

5

12.5

10864

l_{1,2f}

8.6

13.15

10865

l_{1,2f}

8.6

13.15

10866

l_{1,2f}

8.6

13.15

10869

f_{2,1g}

12

13.6

10870

f_{2,1g}

12

13.6

10878

go

13

13.75

10889

fo

10

13.35

10891

d_{1,2e}

6.6

12.8

10894

f_{1,2g}

11

13.5

10895

l_{1,2f}

8.6

13.15

10896

c_{2,1d}

5.

12.5

11357

f_{1,2g}

11

13.5

A1837

go

13.

13.75

Comparison
very difficult

July 19 07

27

N.G.C. 6656

Star 12

Plati J.D.

Comp

Magn Pg mag 1922
direct from comp

X4914	g2,1h	15	14.1
5317	g1,2h	14	13.95
5349	ko	16	14.2
6793	h1,1k	17.5	14.3
6800	h1,1k	17.5	14.3
6855	h1,1k	17.5	14.3
6891	h1,1k	17.5	14.3
6975	ko	19.	14.4
7026	h2,k	17.5	14.3
7141	g1,2h	14	13.95
7161	h2,1k	18	14.35
7662	g2,1h	14	14.1
7791	h1,1k	17.5	14.3
7995	h1,1k	17.5	14.3
8644	h1,1k	17.5	14.3
8668	h1,1k	17.5	14.3
8756	h1,1k	17.5	14.3
8758	h1,1k	17.5	14.3
8876	ko	19.	14.4
8904	ko	19.	14.4
8919	g0	13.	13.75
9308	ko	16	14.2
9343	h1,1k	17.5	14.3
9612	g2,1h	15.	14.1
9613	h1,1k	17.5	14.3
9614	ko	16.	14.2
9622	ko	16.	14.2
9623	ko	16.	14.2

July 19 07
S.

NGC	6656	Star 12		
Plate	J D	Comp	Magn	Pg mago 1922 direct from compo
X 9983		ko	19	14.4
10579		h _{1,1} k	17.5	14.3
10584		h _{1,1} k	17.5	14.3
10823		ko	16.	14.2
10838		h _{1,1} k	17.5	14.3
10839		h _{1,1} k	17.5	14.3
10858		h _{1,1} k	17.5	14.3
10859		ko	19.	14.4
10863		ko	16.	14.2
10864		ko	16.	14.2
10865		h _{1,1} k	17.5	14.3
10866		h _{1,1} k	17.5	14.3
10869		ko	19	14.4
10870		h _{2,1} k	18	14.35
10878		ko	21	14.6
10889		h _{1,1} k	17.5	14.3
10891		ko	19.	14.4
10894		h _{1,1} k	17.5	14.3
10895		ko	19.	14.4
10896		h _{1,1} k	17.5	14.3
11357		ko	16.	14.2
A 1837		ko	19.	14.4

July 20 07

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Extra Plates with corresponding Julian Days Computed.

Plate	Date	J. D.	
X. 6764	6/21/95 16 30	13366.635	
6789	6/26/95 20 35	3371.790	
8717	6/21/97 17 38	4097.681	
8839	8/19/97 20 30	4156.639	
9578	6/5/99 16 04	4811.661	
9604	6/9/99 15 54	4815.643	
9611	6/10/99 15 20	4816.616	
9621	6/12/99 15 20	4818.611	
9914	8/8/99 17 50	4875.559	
10047	10/16/99 21 25	4944.520	
10828	6/7/04 15 36	6639.636	
10867	6/14/04 22 04	6646.886	
10882	10/5/04 21 24	6759.549	
10888	10/6/04 20 50	6760.524	
10892	10/7/04 21 45	6761.559	
10935	4/1/05 16 35	6937.861	
10984	6/28/05 17 05	17025.641	
A 7340			
" 4340			

July 22 07
S!

NGC	6656	Star 13		
Plate	J D	Comp	Magn	Pg mago 1922 dint from comp
X 4914		f2, 1 g	12.	13.6
5317		f2, 2 g	11.5	13.55
5349		g2, 1 h	15.	14.1
6793		h1, 1 k	17	14.3
6800		g2, 1 h	15	14.1
6855		h0	19	14.4
6891		h1, 2 k	17	14.3
6975		h1, 1 k	20	14.5
7026		~~h0~~	~~19.2~~	13.35
7141		f2, 1 g	12.	13.6
7161		h0	19.	14.4
7662		g1, 2 h	14.	13.95
7791		g1, 2 g	11	13.5
7995		h0	16	14.2
8644		g0	13	13.75
8663		h2, 1 k	18	14.35
8756		g1, 2 h	14	13.95
8758		h1, 2 k	17	14.3
8876		h0	16	14.2
8904		g2, 1 h	15	14.1
8919		h1, 1 k	17.5	14.3
9308		g1, 2 h	14	13.95
9343		f2, 1 g	12	13.6
9611		~~h0~~	10	13.35
9612		~~f1, 2 g~~	11	13.5
9613		g1, 2 h	14	13.95
9614		g2, 1 h	15	14.1
9622		f1, 0 g	11.5	13.55
9623		g0	12	13.75

* Extra Plate

July 22 07
9

Plate	JD	Star 13	Magn	P _g mag 1922 distant from compo
X 9983		ko	19	14.4
10579		h _{1,2} k	17	14.3
10584		g _{1,2} h	14	13.95
10823		g _{1,1} h	14.5	14.0
10838		h _{1,1} k	17.5	14.3
10839		ko	19	14.4
10858		ko	19	14.4
10859		ko	19	14.4
10863		f _{1,2} g	11	13.5
10864		g ₀	13	13.75
10865		g _{1,2} h	14	13.95
10866		h _{1,2} k	17	14.3
10869		ko	19	14.4
10870		ko	19	14.4
10878		f _{2,1} g	12	13.6
10882		* f _{1,2} g	11	13.5
10889		ko	19	14.4
10891		g _{1,2} h	14	13.95
10892		* g ₀	10	13.35
10894		g _{2,1} h	15	14.1
10895		h ₀	16	14.2
10896		h _{1,1} k	17.5	14.3
10935		* f _{2,1} g	12	13.6
11357		g _{1,2} h	14	13.95
A 1837		h _{1,1} l	20	14.5

* Extra plate.

July 23 07 33

N.G.C.	6656	Star 14			
Plate	J D	Comp	Magn	Pg mags 1922	
X 4914		n1 <u>n</u>	28 <u>n</u>	< 14.9	
5317		m1 <u>n</u>	25 <u>n</u>	< 14.8	
5349		m0	24	14.75	Comparison difficult
6793		f1,2g	11	13.5	see 6764
6850		g1,2h	14	13.95	
6855		g0	13	13.75	
6891		g2,1h	15	14.1	Comp difficult
~~6973~~ ~~7026~~		~~h0~~	19	14.4	Comp difficult
7026		00	29	14.95	" "
7141		h2 <u>n</u>	23 <u>n</u>	< 14.7	
7161		g3 <u>n</u>	36 <u>n</u>		
7662		h1,2l	20,3	14.5	
7791		g2,1h	15	14.1	
7995		h1,1p	30	15.0	Comp difficult
8644		p1 <u>n</u>	32 <u>n</u>		
8663		h2 <u>n</u>	37 <u>n</u>		
8756		g2 <u>n</u>	35 <u>n</u>		
8758		h1,2	30 <u>n</u>	< 15.0	
8876		h1,2l	20	14.5	
8904		h0	21	14.6	
8919		m0	24	14.75	
9308		h1 <u>n</u>	30 <u>n</u>	< 15.0	
9343		h0	16	14.2	
9612		p0	31		Comp difficult
9613		h0	35		" "
9614		p0	31		" "
9622		h2 <u>n</u>	31 <u>n</u>		
9623		h1,1p	30	15.0	

July 23 1907

N.G.C.	6656	Star 14	Magn	Pg mag 1922 direct from comp.	
Plate	J.D.	Comp			
9983		g0	33.		Comp difficult
10579		S1 <u>n</u>	38 n		
10584		R1 <u>n</u>	36 n		
10823		R2 <u>n</u>	37 n		
10838		S1 <u>n</u>	38 n		
10839		S2	39.		Comp difficult
10858		R1 <u>n</u>	36 n		
10859		R1 <u>n</u>	36 n		
10863		R1 <u>n</u>	36 n		
10864		R2 <u>n</u>	37 n		
10865		g2 <u>n</u>	35 n		
10966		R1 <u>n</u>	36 n		
10869		S1 <u>n</u>	38 n		
10870		S2 <u>n</u>	39 n		
10878		S2	39		
* 10888	6760524	g1,1 h	14.5	14.0	Was barely seen
10889		g1,2 h	14	13.95	
10891		g1,2 h	14	13.95	
10894		g1,2 h	14	13.95	
10895		g1,2 h	14	13.95	
10896		g2,1 h	15	14.1	
11357		S1 <u>n</u>	38 n		
A 1837		S2	39		Comp difficult
* 9 7340		g2,1 h	15	14.1	

* Extra Plates

July 23/1907
S.

NGC	6656	Star. 15-	Magn	Pg mag 1922 direct from comp.
Plate	J. D.	Comp		
X 4914		k ₁ , 1 k	17.5	14.3
5317		g ₂ , 1 h	15.	14.1
5349		h ₁ , 2 k	17	14.3
6793		h ₁ , 1 k	17.5	14.3
6800		h ₀	16	14.2
6855		k ₁ , 1 h	20	14.5
6891		g ₂ , 1 h	15	14.1
6975		g ₂ , 1 h	15	14.1
7026		g ₂ , 1 h	15	14.1
7141		g ₂ , 1 h	15	14.1
7161		h ₁ , 1 k	17.5	14.3
7662		g ₁ , 2 h	14	13.95
7791		k ₀	19	14.4
7995		k ₀	19	14.4
8644		h ₁ , 1 k	17.5	14.3
8663		k ₀	19	14.4
8756		k ₀	19	14.4
8758		g ₂ , 1 h	15	14.1
8839	*	g ₁ , 2 h	14	13.95
8876		k ₀	19	14.4
8904		k ₀	19	14.4
8919		h ₀	16	14.2
9308		g ₂ , 1 h	15	14.1
9343		h ₁ , 1 k	17.5	14.3
9578	*	g ₁ , 1 h	14.5	14.0
9612		h ₀	16	14.2
9613		h ₁ , 1 k	17.5	14.3
9614		g ₂ , 1 h	15.	14.1
9622		g ₁ , 2 h	14	13.95
9623		g ₁ , 1 h	14.5	14.0

July 24 07

Extra plates

July 24 07 37

NGC	6656	Star 15		
Plate	J D	Comp	Magn	Pg mags 1982 direct from comp.
X 9983		h 0	16	14.2
10579		g1, 2 h	14	13.95
10584		h1, 1 k	17.5	14.3
10823		h1, 1 k	17.5	14.3
10828		* g2, 1 h	15	14.1
10838		k0	19	14.4
10839		k1, 1 l	20	14.5
10858		g2, 1 h	15	14.1
10859		h1, 1 k	17.5	14.3
10863		g2, 1 h	15	14.1
10864		g1, 1 h	14.5	14.0
10865		g1, 2 h	14	13.95
10866		h1, 2 k	17	14.3
10869		k0	19	14.4
10870		h1, 1 k	17.5	14.3
10878		h1, 2 k	17	14.3
10888		* g1, 2 h	14	13.95
10889		h0	16	14.2
10891		h1, 1 k	17.5	14.3
10894		h1, 1 k	17.5	14.3
10895		g2, 1 h	15	14.1
10896		h2, 1 k	18	14.35
11357		k1, 1 l	20	14.5
91837		g2, 1 h	15	14.1

Extra plates

July 25⁰⁷

NGC	6656	Star 16		
Plate	J.D.	Comp.	Magn.	Pg. suraps 1922 direct from comp.
X 4914	2656.609	g1, 2 h	14	13.95
5317	2742.569	g2, 1 h	15	14.1
5349	2751.537	h1, 1 k	17.5	14.3
6793	3372.620	g2, 1 h	15	14.1
6800	3373.612	g2, 1 h	15	14.1
6855	3384.597	h2, 1 k	18	14.35
6891	3392.578	g1, 1 h	14.5	14.0
6975	3411.648	h0	16	14.2
7026	3420.530	g1, 2 h	14	13.95
7141	3453.545	h2, 1 k	18	14.35
7161	3456.563	g2, 1 h	15	14.1
7662	3748.633	h1, 1 k	17.5	14.3
7791	3775.652	h2, 1 k	18	14.35
7995	3821.553	h1, 1 k	17.5	14.3
8644	4083.676	h1, 1 k	17.5	14.3
8663	4086.659	h2, 1 k	18	14.35
8756	4135.551	g1, 2 h	14	13.95
8758	4135.680	h0	16	14.2
8876	203.518	h0	16	14.2
8904	209.518	h1, 2 k	17	14.3
8919	212.588	h0	19	14.4
9308	519.606	h1, 1 k	17.5	14.3
9343	578.637	h2, 1 k	18	14.35
9612	4816.700	h0	19	14.4
9613	816.769	g1, 1 h	14.5	14.0
9614	816.832	g1, 2 h	14	13.95
9622	818.694	h0	16	14.2
9623	818.765	g1, 2 h	14	13.95

NGC 6656

Star 16

Plate	JD	Comp.	Magn	Pg mag 1922 dist from comp
X 9483	912.521	g2, 1h	15	14.1
10579	5932.645	ho	16	14.2
10584	933.639	g2, 1h	15	14.1
10823	6638.655	h1, 1k	17.5	14.3
10838	6641.605	ho	16	14.2
10839	41.656	g2, 1h	15	14.1
10858	46.600	g1, 1h	14.5	14.0
10859	45.659	ho	16	14.2
10863	46.552	g2, 1h	15	14.1
10864	46.614	ho	16	14.2
10865	46.687	h1, 1k	17.5	14.3
10866	46.789	h1, 1k	17.5	14.3
* 10867		g1, 2h	14	13.95
10869	47.603	h1, 1k	17.5	14.3
10870	47.651	ko	19	14.4
10878	48.619	ko	19	14.4
10889	6760.575	h1, 1k	17.5	14.3
* 10888		g2, 1h	15	14.1
10891	61.574	h1, 1k	17.5	14.3
10894	65.552	h1, 1k	17.5	14.3
10895	66.508	h2, 1k	18.	14.35
10896	66.552	g2, 1h	15	14.1
* 10935	10984	g2, 1h	15	14.1
11357	7443.631	g1, 2h	14	13.95
Q 1837	3723.668	g2, 1h	15	14.1

* Extra Plates

Aug 30 1907
L.

NGC 6656 Proximal star 17 To determine

Plate	JD	Est	Magn	Variability.
X 4914		a'5, 3 b'	5	Considering $a' = 0$. for Magn. One grade in this comparison is equal to approximately $\frac{1}{2}$ grade as used in the previous work.
5317		a'4, 4 b'	4	
5349		a'6, 2 b'	6	
6793		b'2 ~~2~~	10	
6800		b'2	10	
6855		b'0	8	
6891		a'3, 5 b'	3	
6975		b'1	9	
7026		b'0	8	
7141		a'3, 5 b'	3	
7161		a'7, 1 b'	7	
7662		a'2, 6 b'	2	
7791		a'7, 1 b'	7	
7795		a'6, 2 b'	6	
8644		a'5, 3 b'	5	
8663		a'5, 3 b'	5	
8756		a'2, 6 b'	2	
8758		a'3, 5 b'	3	
8876		a'4, 4 b'	4	
8904		a'7, 1 b'	7	
8919		b'1	9	
9308		a'2, 6 b'	2	
9343		a'6, 2 b'	6	
9612		a'4, 4 b'	4	
9613		a'2, 6 b'	2	
9614		a'4, 4 b'	4	
9622		a'2, 6 b'	2	
9623		a'7, 1 b'	7	

Aug 30 1907 41
E.

Plate	JD	Est	
9983		a'4, 4b'	4
10579		x1a'	-1
10584		x2a'	-2
10823		x1a'	-1
10838		x1a'	-1
10839		x3a'	-3
10858		x1a'	-1
10859		a'4, 4b'	4
10863		1a'	-1
10864		a'o	0
10865		a'3, 5b'	3
10866		a'o	0
10869		a'4, 4b'	4
10870		a'3, 5b'	3
10878		a'4, 4b'	4
10889		a'o	0
10891		a'3, 5b'	3
10894		a'1, 7b'	1
10895		a'6, 2b'	6
10896		a'o	0
11357		a'5, 3b'	5
A 1837		a'6, 2b'	6

Extra Plates	Comp	Magn	Plate	JD	Comp	Magn
8717	4097.681	TA a'1, 7b'	1	10892	6761.559	2a' -2
10828	6639.636	a'2 2a'	-2			
9604	4815.643	a'1, 7b'	1			
9914	4875.559	a'o	0			
10047	4944.520	a'b	0			
10882	6759.549	a'2, 6b'	2			
10884	7025.641	a'o	0			
10935	6937.861	1a'	-1			
8755		a'o				

J.I.B.

W.G.C. 6656

May 25, 1920 -
Variable No. 3 -

MM 3887	$\sqrt{00}^{34.8} \pm$	fol. image		
3888	$m_{1.10}^{33.8}$	-		
3891	$\sqrt{01}^{37.5} \pm$	" "		
4516	$\sqrt{00}^{34.8} \pm$	fine. "	diffic. poss. NS.	
4517	$> 0^{34.8}$	both	var not sure seen	
4519	$> m^{32.9}$	"	" " " "	
4522	$> 0^{34.8}$	"	" " " "	
4523	$\sqrt{01} \pm^{37.5}$	"		
4524	$\sqrt{01} \pm^{37.5}$	"		
4525	$\sqrt{0m} \pm^{29.9}$	"		
4526	$\sqrt{0m} \pm^{32.9}$	"		
4528	fogged -			
4531	$> 1^{37.5}$	"	var. not sure seen	pr seen faint
4533	$> 1^{37.5}$	"	" " " "	" " "
4538	? poor -			

The images on all plates when var. is faint
are so near limit of plates that no very precise
measure can be obtained.

May 26 + 27

Also

Repeated	X	Also	
n ₁₁₀ 33.8		10823	l1.1m vv
100 34.8		10828	100 = Repeated N.S. ? < ² checked vv
100 37.5		10894	100 =
100 37.5		10892	> n var N.S.
100 37.5	var. N.S.	10891	> g var. N.S. ?
> 0 34.8		10888	> 0 " " ?
7h 37.5 > 40		10858	> g " " ?
7h 37.5		10839	100 =
7h 38.5	the same 4524	10838	100 =
100 37.5		6800	> g " " ?
100 28.6		6855-	l1.2m
100 32.9		6891	< s
7h 37.5		6975-	100 =
7h 37.5		8919	100 =
7h 37.5		4914	> h var. N.S.
in poor		8904	l1.1m
		10878	100 =
		10870	100 =
		12168	> h var. N.S.
		10859	> s var. N.S. ?
		10895-	m2.1m
		10896	01.1h
		10935-	> 0 vns
		10984	> h "
		9612	> h "
		9613	100 =
		9611	> 0 var. N.S.
		9614	m2.1m
		9621	> 0 " "
		9623	100 =

WFE 6656
var. 3. out.

X 6793	Var 0 s	→
8717	> m	var. 118 ?
6789	low parr	
6764	Var 0 m	±
5349	Var 0 o	±
5317	> o	v ns ?
10866	> r	r ns ?
10889	> r	" " "
9604	> o	" " "
8839	> r	" " ?
9308	> o	" " "
5332	huar	
10867	Var 0 o	±
10882	< r	v ns ?
10869	m 11 s	
10863	Var 0 r	±
10584	m 21 s	
10579	Var 0 s	±
10575	Var 0 s	±
10047	Var 0 r	±
9983	Var 0 r	±
12159	Var 0 m	±
12129	Var 0 s	±
8756	> r	r ns ?
8758	> r	" " ?
8876	b1v	
9343	Var 0 s	±
9578	m 12 m	
9622	> r	

Whe 6656

var 3-

X 12139	VO p	
9914	VO l	
7026	7 n	vns ?
7141	7 m	vns
7161	211 s	
7662	VO m	=
7791	7 g	vns
7995	Var O s	
8644	Var O o	=
8663	Var O s	=
11357	Var O s	=
11795	Var O f	=

~~U.S. 6656~~
var. no. 14

July 20, 1920

W 4516	Vol. +	22
4517	Vol. +	22
4519		23
4522		23
4523		23
4525		23
4526		23
3891	ns	> 38
3888	ns	> 35
3887	ns	> 35
4524		23
4533		23
4531		23
4528	logged	-
4538		23

August 2

X 4914	7- ns	> 37
5317	ns?	> 35
5349		31 ±
6764		21°
6789		20
6793		19
6800		19
6855		19
6891		22
6975		27
7026		32 ±
7141	ns?	> 32

X 7161		> 39
X 7662		28
7791		19
7990 -		35 ±
8644		> 41
8663	ns ?	> 44
8717	ns	> 33
8756	ns ?	> 37
8758	ns ?	> 39
8839	ns ?	> 32
8876		24 ⁵ =
8904		28
8919		30
9308	ns	> 35 -
9343		20 ⁸
9578		28
9604	ns	> 32
9611	ns ?	> 34
9612	faint	39 ±
9613		37 ±
9614		37
9621	ns ?	> 33
9622	ns ?	> 37
9623		35 ±
9914	ns	> 38
9983		43 ±
10047		24
10575 -	ns	> 41
10579	ns	> 43
10584	ns	> 41

M 22. No. 14. Cont.

X 10823	ns.	> 42	
10828	ns	> 41	X 10864 ^{ns} < 45-
10838	ns :	> 41	10865 ^{ns} < 45-
10839	ft	46 ±	
10858	ns	> 44	
10859	ns	> 45-	
10863	ns	> 42	
10866	ns	> 42	
10867	hur	-	
10869	ns	> 45-	
10870	ns :	> 46	
10878		47 ±	
10882		20	
10888		20	
10889		19-	
10891		19	
10892		21	
10894		20	
10895		20	
10896		20	
10935	ns :	> 32	
10984	ns	> 34	
11357		> 45-	
11795		33	
12129		19	
12139		18	
12159		18	
12168		17	

Oct 8, 1920.
m 22. m 0.14.

MC 16931.	Oct 7, 1920.	J.D. 22605. ²⁴	$\pm .5$	g_{2+4}^h	13.64
" 16930	" " "	" "	$\pm .4$	g_{4+2}^h	13.74
					mean 13.64

DEC-1921.

MC 17664.	July 16, 1921.	"	2897.	ns. does not show st.
{ 17680.	Aug 3.	"	2905.	ns. < 16.8
{ 17681. <i>broken</i>	" "	"	"	ns. < 16.8
{ 17692	" 4	"	2906.	ns. < 16.6
{ 17693	" "	"	"	ns. < 16.6
17819	" 24	"	2926.	ns. < 16.5
17823	" 26	"	2928.	17.0 $\pm$
17841	" 31	"	2933.	ns. < 16.6
17842	Sept. 1	"	2934.	ns? < 16.8
17849 <i>broken</i>	" 2	"	2935.	n.s. 110 ft slant
17865 "	" 7	"	2940.	" "
17913	" 22	"	2955.	15.6 $\pm$ from plate
17923	" 23	"	2956.	15.6
17934	" 24	"	2957.	15.7 $\pm$ " "
17950	" 27	"	2960.	ns. no st.
17963	" 29	"	2962	14.3 $\pm$ from pl.
17964.	Oct. 1	"	2964	14.2 $\pm$
17981	" 4	"	2967	13.9

no more MC plates at this time Obs'd for rest.

82 1898 - Oct 27
 122 1898 Dec 15
 443 1899 Sept 15
 507 1899 Nov 7
 663 1900 Jan 6
 2157 1902 Jan 3
 2283 1902 Feb 6
 2375 1902 Mar 2
 2943 1902 Oct 28
 2981 1902 Nov 7
 3219 1903 Jan 26
 3292 1903 Feb 13
 3450 1903 May 25
 3496 1903 April 12
 3541 1903 " 24
 3984 1903 Sept 24
 4141 1903 Oct 30

$6^h + 30^0$

beam. & ac. Plate
 P.I.B.

20859 1918, Dec 21

21941 1919, Oct 22

23005 1920 Oct 21
 23090 1920 Nov 29
 23097 1920 Dec 2
 23126 1920 Dec 12
 23151 1920 " 18
 23196 1920 " 28
 23217 1921 Jan 3
 23271 1921 " 15
 23357 1921 " 27
 23326 1921 " 24
 23402 1921 Feb 4
 23426 1921 " 12
 23475 1921 " 25
 23518 1921 Mar 11

23546 --- 1921 --- Mar 22
 23594 --- 1921 --- Apr 2
 23619 --- 1921 " 12
 23647 1921 " 25
 23866 1921 July 23
 23897 1921 " 31
 23905 1921 Aug 3

12.22 8161

Good.
 Mt Wilson
 60-inch

Messier 22

Rec'd July 26 - 1918
 15 plates.

Miss Bass

Aug. 14, 1917

3 plates Sec 27, 3887, 8, 91.

July 4, 1918 " " 30. 4516, 17, 19.

" 5 " 4 " " 30. 22, 23, 24, 25, 26
 4528, 31, 33, 38

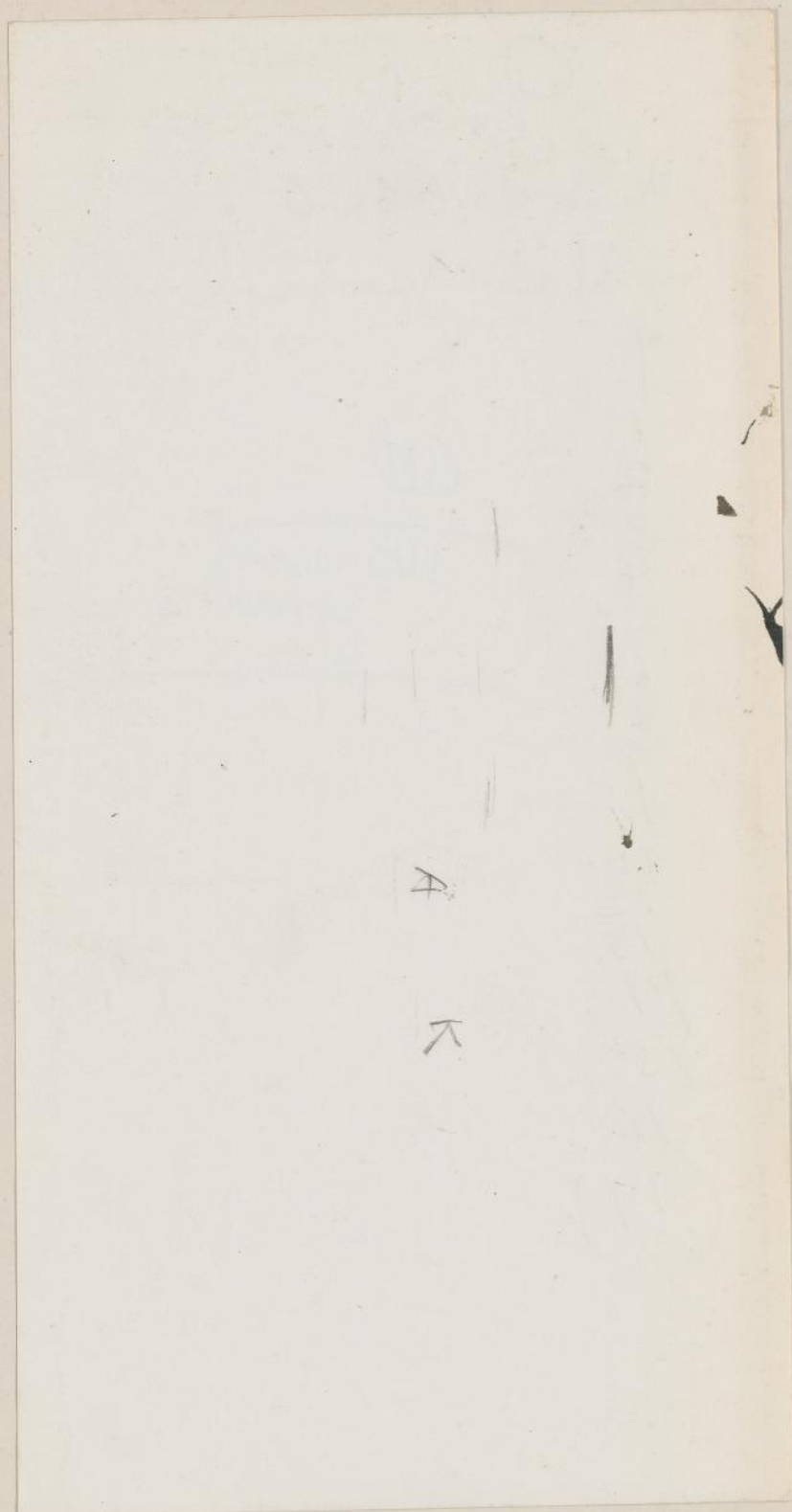
Good.

Net 6656.
Van Sloan method.

7
1
2
3
4
5-
6
8
9
10
11
12
13
14
15-
16
(17)

All

measured in
grooves.



1907phae.proj.2289B