

KG
11366
164

H.C.O.

Hanover. C.C.

Variable Star Observations.

KG 11366.164

Probably

L.S. Schultz

Probably L.S. Schultz
see Bailey: History of the
Observatory N 65

Hanover, S. Africa
Variable Star Obs.

Probably

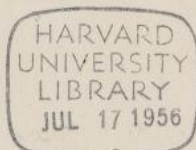
L. S. Schultz

The Harvard Observatory

Variable Star Observations

Hanover, C.C.

KG 11366, 164.



Stanover July
2nd E of Meru

Stanover.

July 16 - 1909

5" + field glass.

No circles

P.m.

A.S.S. Obs. in connection with other mts.

8:50 ⁵R Doradus b 3 var 1 c 043562

9:10 ⁴R Reticuli d 3 var 3 e 043263

10 45 ⁶R Coeli d 1, 3 e 043738

11 10 ⁷R Pictoris d 3, 4 e 044349

am
12:30 ⁸R Columbae d 1, 2 e 054629

2:30 ⁹R Octantis var M.S. too faint. ⁰⁵⁵³⁸⁶ Strk m.

2:40 ¹⁰R₂ Puppis d ^{5.0}2, 2 e 071044

3:15 ¹¹R₁ Puppis var 0 c ^c 074347

3 40 ¹³R Carinae 3.8 094262

3:50 ¹²R Carinae 8.8 092962

copied

Wed. Feby 17, 1909

P.M.

S.I.B. - vs. 5" + sub glass.

10:10 ¹⁴R R Carinae 7.7 093428- ¹⁵R Antliae, omit. Small range. -11:40 ¹⁶S Carinae, 6.0 10066112 00 ¹⁷Z Carinae M.S. & seen night clear 101058
am1 25 ¹⁸U Centauri 8.5- 1228341 40 ¹⁹T Centauri 6.4 1336332 00 ²⁰R Centauri 10.8 1409592 15 ²¹S Lupi } only one star seen in position 144646
" - Lupi } cannot say which - est. it as
" - Lupi } 11.6 (5" clear.)2 40 ²²R. Inang. ast. Small range, omit. -3 15 ²³R Lupi. Too faint < 12.0 154736

copied

Sh. Seley 18 1909

PM

10 45 ⁵²	T Eridani	7.8	035 124
11 25 ⁵⁴	T Leporis	11.6	050 022
11 45 ⁵⁵	Z Puffis n.s. clear.	< 12.0	072 820 b
12 0 ⁵⁹	R Hydrae	8.7	132 422
1 0 ⁵⁶	S Pyxidis	9.5-	090 024
1 15 ⁵⁷	R R Hydrae	W.S. clear.	< 12.5 094 023
1 45 ⁵⁸	V Hydrae	7.8	104 620
2 5 ⁶⁰	R S Librae	8.6	151 822
2 30 ⁶³	R Z Scorpii	9.2	155 823

actual

4

Hammer. Tues. Feb 23.

Pm.

8 : 20 ⁵¹ Eridani 11.7 Al Erid 034625-8 30 ⁵³ W Erid <12.5 glimpsed? 040720-

11 45 Seeing, Sirius, alt 50. 7.

12 00 " & Erid. " 10 4-5.

1 00 " Procyon " 30 5-6.

2 10 " Al Librae 11.2 153620 a

2 10 ⁶² - Librae 11.5 153620 b2 15 ⁶⁴ Z. Scorpii 11.0 1600212 35 ⁶⁵ RX Scorpi. <12.0 ns. 1605242 45 ²⁴ R S Scorpi. ns. <12. 1648443 5 ²⁵ RR Scorpi. 6.8 1650303 10 ²⁶ RT Scorpi <11. ns. 1656363 25 ²⁷ RW Scorpi. <11. ns. 170833

Stopped by dew.
 Lens continuously covered.
 Not safe to proceed.

Cepheid

mid. Feby 24.

am

2.25²⁸ S Octantis n.s. < m 172586

2.45²⁹ RU Aurp. 9.0 173543

2.55³⁰ R Pavonis 10.8 180363

cloudy.

3.40³¹ R V Sagittarii 11.8 182133

3.50³² S Cor. Aust. 12.0 185437

3.52³³ R Cor. Aust. 11.5 ± 185537a

3.54³⁴ T Cor Aust. 12.0 ? diff. 185537b

copy

6

Lat. Feb 27.

P.M.

8:45

Jering, & Kent, 12°, 5°.

9:30

" β " 22 6

9:35

" γ ~~Capricorn~~ 65° 7

9:37

" β Orion. 47 7

A.M.

3:35

³⁵ π Pavonis 12.0

193972

348

³⁶ σ Pavonis 7.0

194659

Heavy dew on lens.

Copied

Sun. Feb 28.

Am

3:35

~~66 Z. Jag. N.S. < 12.0~~

13
19 ~~37~~ 21

4:30

~~RR Jag. N.S. but dew cond. forming on lens.~~

~~stars do not seem to agree exactly. a pretty big star where no star appears on photo.~~

~~The 10.4 looks very ft. Perhaps~~

~~identification is wrong. Look up again.~~

~~Dew too heavy. Incorrect C is the Var.~~

See next page.

copied

8

March 1, 1909.

am

3:05	Seeing	Canopus	15°	5-6.	1st
3:08	"	β Cent	60	7.	brng. SK ±
3:15	"	γ Boot.	38	7	

³4:45 ³⁸R U Sag. 8.2 195142

4:55 ³⁷R R Sag. 7.5 Last night's ident. incorrect. 194929

4:30 ³⁹R Del. N.S.? < 12.0 200747
 I see the star 12.2 barely.

sky ddy. E + elsewhere 0.7 ddy

April

March 15 - 1909

P.M.

~~8~~7 51 ⁵¹ U Eridani 11.3 034625-7 57 ⁵² T Eridani 8.0 0351248 10 ⁵³ W Eridani < 12.0 N.S. surely 040725-8 40 ³ R Stenlog. Var = a 0250508 58 ⁵ R Doradus b3 Var OC 3d. 0435-629 10 ⁴ R Reticuli Var = g 0432639 25 ⁶ R Aeli c1, 2d 0437389 40 ⁷ R Pict Var = a. 0443⁵⁻499 55 ⁵⁴ T Leporis 11.6 05002210 10 ⁸ R Columbae Var = b 05462910 25 ⁹ R Octantis b3, 2m 05568610 40 ¹⁰ h² Puppis f1, 2g ^{5.6} 071044

11 00 " S Puppis Var = c. 1074347

am
3 15 ¹² R Carinae 9.0 092962

10

March 15, 1909

am

3 26 ¹³ h Carinae 3.8 0942623 40 ¹⁴ RR Carinae 7.7 0954583 55 ¹⁶ S Carinae 8.0 1006614 15 ¹⁷ L Carinae 25.5 g (diff) 101058

C. W. C.

March 16 - 1909

P.M.

8 0	¹⁸ U Centauri	9.3		122854
8 10	¹⁹ T Centauri	7.3		133633
8 30	²⁰ R Centauri	10.8		140959
9 30	⁵⁸ V Hydrae	8.2		104620
9 50	⁵⁹ R Hydrae	9.2		132422
10 10	^{21a} S Lupi	10.3	} ? see below only one star seen cannot be sure which	144646a
10 10	^{21b} - Lupi	?		144646b
10 30	⁵³ L Puppis	< 12.	n.s.	072820b

night very wet - 5-inch (with dew cap) too covered
with dew for use.

Copied

12

Stanner, March 17, 1909

P.M.

8 30	⁵⁶ S Pyeiden	9.5	090024
8 40	⁵⁷ RR Hydrae	11.5 < 12.8	094023
9 15	⁵⁸ S Octantis	ns. < m.	172586
11 15	²³ R Lupi	ns < 12.0	154736
11 40	⁶⁰ R & Librae	7.5	151822
Am 12 5	⁶¹ U Librae	11.3	153620a
12 10	⁶² - Librae	ns. < 12.	153620b
1 0	⁶³ R L Scorp.	11.2	155823
1 10	⁶⁴ L Scorp.	10.7	160021
1 20	⁶⁵ RX Scorp	ns. < 12.	160524
1 40	²⁴ R & Scorp.	ns. surely < 12.	164844
1 50	²⁵ RR Scorp.	7.5	165030

C. F. J. J.

ann

Jan. 25-9 March 1909

1	18	²⁶	R J Scorp.	N.S. $\leftarrow$ 12.0	168036
1	20	²⁷	R or Scorp	N.S. $<$ 12.0	170833
1	40	²⁸	Ru Scorp.	10.1	173543
1	58	³⁰	R Paronis	12.2 $\pm$ seen with diffuser	180363
2	5	³¹	R V Sag.	N.S. $<$ 12.	182133
2	15	³²	S Cor. Ant.	12.0	185437
2	20	³³	R Cor. Ant.	12.2 $\pm$ diff.	185537a
2	25	³⁴	T Cor. Ant.	12.3 $\pm$ rel. ft.	185537b

copied

14

Han. 26th March.

am

1	15	³⁵	T Paronis	12.0	193972
1	20	³⁶	S Paronis	7.0	194659
2	30	⁶⁶	I Sagittarii	N.S. < 12.0	191321
2	40	³⁷	R R Sagittarii	6.8	194929
2	50	³⁸	R U Sagittarii	8.0	195142
3	5	³⁹	R Telescopii	N.S. < 12.0	200747
3	14	⁴⁰	R T Sagittarii	11.0 $\pm$ diff.	201139
3	25	⁴¹	R Microscopii	$\pm 1, 2 \mu$	203429

C. M. J.

Ham - June 28th March -

AM

3 55 ⁻	⁶⁷ √	Capricorni	N.S. < 12.0	210124
4 ⁵ 0 ⁴²	⁵⁰ S	Indi	N.S. < 12.0	204954
4 10 ⁴⁴	R	Gruis	d 3, 3 f	214247
4 20 ⁴³	T	Octantis	N.S. < 12.0	205782

Copied

16

Hanover - 30th March -P.M.
8:20Seeing. β Centauri. 30° 6. thin clds everywhere. - NW
windy

8:25

 β Orionis 35° 6.

8:30

Canopus 47° 7 ±

observation rather diff. on account of
the haze.

8:40

Sirius 60° 7 ±

am

3:0

Canopus 5° 3

3:35

 ϵ Lyrae 10 3-4

3:40

 ϵ Bootis 35° 5°

3:45

 ϵ Virginis 50 6

3:50

 ϵ Centauri 57 6.

Late night obs. no wind - Damp - clear.

Sund. Apr. 4th 1909.

P.M.

Seeing

10 25	γ Bootis	25 ⁰	5-
10 30	β Centauri	50	6-7
10 45	Canopus	33	6-7

Mon. Apr. 5th

P.M.

9 25-	β Cent.	40	6-7.
9 35-	β Crucis	50	7
9 40	Canopus	45-	6.
9 45	Procyon	40	6.
9 48	γ Orionis	17	5-
9 50	β Orionis	16	5-

Hamover, ³14th April 1909

P.M.

Early Evening cldy

8:20	⁵¹	M Eridani	10.2	034625
8 35	⁵²	T Erid.	9.0	035124
8 45	⁵³	W Eridani	N.S. < 12.0	040725
8 55	⁵⁴	T Leporis	12.0 ±	050022
9 5	⁶	R Coeli	c 3, 2d	043738
9 15	⁴	R Reticuli	K1.1l	043263
9 20	⁵	R Doradus	a 2, 1b	043862
9 40	⁷	R Pictoris	o 0 var 2a	044349
9 50	⁸	R Columbae	c 3, 0d, 3e	054629
10 10	⁹	R Octantis	K2, 10, Hm	055686
10 20	¹⁰	L ² Puffis	4.5-	071044
10 30	¹¹	S ⁵ Puffis	c 2, 2d	074347
10 50	¹²	L Puffis	N.S. < 12.0	072820 b
11 20	¹²	R Carinae	9.2	092962

³
~~14~~¹⁴ April -
 P.M. 11 25¹³ L Carinae 4.2 09 42 62
 11 55¹⁴ RR Car. 7.5 09 54 58
 Am
 12 10¹⁶ S Carinae 8.8 10 06 61
 12 25¹⁷ L Car. N.S. < 11.5 10 10 58

Slotted by cld, dew frozen.

20

Stamover ⁵14¹⁰ April, 1909

Pine				
7:20	18	U Cent	12.2	122854
7:30	19	T Cent	6.4	133633
7:40	20	R Cent	8.6	140959
7:55	21 ^a	S Lupi	} only one star seen 9.8	144646a
"	21 ^b	- Lupi		144646b
8:15	59	R Hydrae	9.3	132422
8:35	23	R Lupi	N.S. < 12.0	154736
9:45	56	Q Pyraide	~~9.5~~ 10.2	090024
10 5	60	R S Libra	8.2	151822
10 40	61	U Libra	11.3	153620a
10 45	62	- Libra	12.2 =	153620b
10 55	63	R Z Aepf.	N.S. < 12.0	155823
11 5	64	Z Aepf.	9.5	160021
11 15	65	R X Aepf.	N.S. < 12.0	160524

Jan. 18⁴ Apr.

P.M.				
11:25	²⁴	R S Scorp.	11.0	164844
11:30	²⁵	RR Scorp.	9.2	165030
11:35	²⁶	RT Scorp.	n.s. < 12.0	165636
11:40	²⁷	RV Scorp.	n.s. < 12.0	170833
		a little dew. Dew cap heated.		
am				
12:10	²⁸	S Octantis	n.s. < m	172586
12:20	²⁹	RM Scorp.	10.2	173543
12:30	³⁰	R Paronis	n.s. < 12.0	180363
12:40	³¹	R V Sag.	12.4 ±	182133
12:50	³²	S ^u Cor. Aust.	12.2	185437
"	³³	R Cor. Aust.	12.0 ±	185537a
"	³⁴	T Cor Aust.	12.4 ±	185537b
1 5	³⁵	RR Hydrae	n.s. < 12.0	094023
1 15	³⁶	V Hydrae	8.8	104620

Hamover. ⁵ 19th April 1909

~~Seeing~~

2:20	66	L Jdg.	N.S. ?	< 12.0	191321
2:30	35	T Pav.	10.6		193972
2:40	36	S Pav.	7.0		194659
2:55	37	RR Jdg	7.1		194929
3:00	38	RU Jdg.	8.1		195742
3:10	39	R Tel.	N.S.	< 12.0	200747
3:25	40	R T pag.	10.0		201139
3:50	41	R Mic.	N.S.	< 12.0	203429
3:55	42	S Indi	N.S.	< 12.0	204954
4:10	43	T Oct.	N.S.	< 12.0	205782
4:20	44	R Grus	Var O e		214247
		d is much better than e. + f is much better than g			
4:30	67	✓ Cap.	N.S.	< 12.0	210124

clear all night.

Hanover. 16th April

am

2:50	⁴⁸	R Indi.	11.2	22 28 67
3:10	⁴⁵	R Pisc. Aust. N.S.	< 12.0	22 12 30
3 25	⁴⁶	T Grus	d 2, 1 f	22 19 38
3 40	⁴⁷	S Grus	12.0	22 19 48
4 0	⁶⁸	X Aquarii	9.2	22 13 21
4 5	⁶⁹	R T Aquarii	11.0	22 17 22
4 20	⁷⁰	S Aquarii	N.S. < 11.5 faint moon.	22 51 20
4 45	⁵⁰	{ R Tucanae	Var 0 l	23 52 65
			l appears like the brightest star of the sequence.	
5 0	⁴⁹	R Phoen.	10.1	23 51 50

Night cl'd less. but 3 are
for light cl'd esp. E 3-5 "

24

Haarmer. 17th April Sat.

P.M.

8:15-

3

R Horologii (var 1g) 6.2 025050

am

5:15-

1

S Sculptoris f 2.2 g 001032

5:35-

2a

R Sculptoris 6.2 ± 012233a

u

2b

R S Sculptoris N.S. < 11.0

some twilight

012233b

Sky very hazy. Wet dew. low fog.

checked w/
hus

April 21, 1909 while ascending Mr. J.

10 20²⁰ R Cent 8.1 14095.9

am

12 30¹⁴ RR Larinae 7.5-

095458

Hau. April 22, 1909

P.M.

7:20	⁵¹	U Sridani	10.0	034625
7:35	⁵²	T Srid	9.8	035124
7:45	⁵³	W Srid	N.S. <12.0	040725
7 55	⁵⁴	T Leporis	N.S.? <12.0	050022
8 10	³	R Stenologus	A4, 2q	025050
8 20	⁴	R Reticuli	K3, 1L	043263
8 25	⁵	R Doradus	A2, 1b	043562
8 45	⁶	R Carli	Var O d	043738
9 0	⁷	R Pictoris	Var O o	044349
9 15	⁸	R Columbae	d2, 2e	054629
9 30	⁹	R Octantis	L1, 3m	055686
9 40	¹⁰	L2 Puppis	4.5	072044
9 50	¹¹	S Puppis	Var. O c	074347
10 0	¹²	R Carinae	9.3	092962

Jan. April 22 -

P.M.

10 10	¹³ l	Carinae	3.4	094262
10 20	¹⁶ S	Car.	8.1	100661
10 30	⁵⁵ L	Puffin	11.5 < 12.0	0728206
10 50	⁵⁶ d	Pyxis	10.2	090024
11 0	⁵⁷ RR	Hydrae	11.5 < 12.0	094023
11 15	¹⁷ L	Car.	11.5 < 12.0	101058
but a star marked W near d was obs. about as bright as e - on Apr. 13. Tonight it is 5 grades or more brighter than e & about equals γ - so pos. of var. in error, or is this possibly a new var.?				
12 30	¹⁸ U	Centauri	11.5 < 12.0	122854
2 50	⁵⁸ V	Hydrae	9.5	104620

Copied

28

Hammer Apr. 25. June.

P.m.					
7:25	59	R Hydrae	9.2		132422
7:30	19	T Centauri	6.2		133633
7:38	21a	S Lupi	9.3	only one star seen.	144646a
"	21b	- Lupi		trial with 2" + 1" apertures.	144646b
8:5	23	R Lupi	N.S.	<12.0	154736
8:20	60	R S Libral	8.5		151822
8:30	24	R S Scorpii	11.0		164844
		sky & cldy, heavy cum.			
10:35	61	U Libral	11.3		153620a
"	62	- Libral	12.0	±	153620b
11:5	63	R Z Scorpii	12.2	±	155823
		above 3 stars obs'd thru breaks in clds.			
11:40	64	Z Scorpii	9.6		160021
11:55	65	R X Scorpi.	N.S.	<12.0	160524
		cldy			

checked

Han - 27th April -

P.M.

8 45	²⁵	RR Scorpi	9.8	165030
8 50	²⁶	RT Scorpi. N.S. < 11.5 (quadrant Moon)		165036
8 55	²⁷	RW Scorpi.	11.0	170833
9 15	²⁹	RU Scorpi	10.6 ±	173543
9 20	³⁰	R Pavonis	N.S. < 11.5	180363
10 35	³¹	RV Sag	N.S. < 11.5	182133
10 30	²⁸	S Octantis	K 2.2 l	172586

A.M.

12 45	³²	S Cor. Aust.	11.8	185437
"	³³	R Cor. Aust.	12.0 ± long seen	185537a
"	³⁴	T Cor Aust.	12.0 ± " "	185537b
12 55	³⁵	T Pav.	9.0	193972

cldy

Heavy clds from SW forming & moving over whole sky. From 1 cldy at about 12 50 it became q within 5 or 6 m.

cloud

30

stan. sh. 29th april

10 - inch. set up today.

Definition of lens seems poor. Considerable aberration causing colored rays. Symmet. around light plane. It seems do not seem sharp. Setting on object for adjustment of tel.

P.M.				
10:40	³⁰ R	Pav.	N.S. < 12.5	180363
am				
216:40	³² R	Cor. Aust	11.8	185437
"	³³ S	" "	12.5 ±	185537a
"	³⁴ T	" "	13.0 ±	185537b
216 50	³⁶ S	Pav.	7.0	194659
216 58	³⁷ RR	Doq.	7.5	194929
311 0	³⁸ R	M Doq	8.2	195142
4 55	⁴⁵ R	Pisc. Aust. N.S.	< 13.0	221230

Copied.

Star. Fr. 30 April.

The Crown glass has been reversed. and the definition now is excellent. The crown glass should be put so that the dot + remark under on top of glass with diamond - "visual side", shall be out, away from flint glass & not next to it as given in instructions.

am

3 15⁴¹ R Mic. (n) 3 var. 203429
or r 6 var.

3 30³⁹ R. Tel. N.S. < 13.5 200747
star marked 13.4 plainly seen.

3 45⁴⁰ R T. Jang. 10.0 201139

The star K (10.2) is distinctly brighter than the star m, close to the var. (10.0) this has before been noted with the 5". K seems to agree with h, (9.8) being a little fainter. I think m must be in error. prob. misread marked as it is. I think K I estimate them h 2 K 7 m 5 l.

4 10⁴² S Indi N.S. < 13.1 204954
star marked 13.1 seen very fthly.

4 20⁴³ T Oct. N.S. < 13.0 205782
lens covered again with dew

Cob.

Han. fat. may 1,
moon ~~not~~ full 10 - inch.

am

2 20 ⁶⁶ F. Jap. 12.3 191321

2 40 ⁶⁷ U Cap N.S. < 12.5 210124
The 12.5 seen.

2 50 ⁶⁸ X Aqu. 9.5 221321

3 5 ⁴⁴ R Grus f 5, 3 h 214247
g is much str h. f

3 20 ⁴⁵ R Pis. Aust. N.S. < 12.0 221330
moon shape.

Lens fd covered with dew. altho. tel.
has a dew cap. Tel. inverted & lens dried
over oil steel turned low,
moon set about 3:45

4 10 ⁴⁶ T Grus Var. O c 22938

4 15 ⁴⁷ S Grus 11.8 221948

4 20 ⁴⁸ R. Indi 10.0 226867

4 25 ⁶⁹ R J Aqu. 9.8 221722

4 35 ⁷⁰ S Aqu. 13.0 225120

Ham. May 1.

am				
4 40 ⁴⁹	R Phoe.	10.3		23 51 50
4 50 ⁵⁰	R Luc.	N.S. < 13.0		23 52 65
	m + n pen.			
5 0 ¹	S Penep.	Var 0 f		00 10 32
5 15 ^{2a}	R Penep.	6.0		01 22 33 a
	very red.			
5 25 ^{2b}	R S Penep.	N.S. < 12.5		01 23 33 b

night clear since 3 am
 and night a few light scat. cld.
 considerable dew.

copied
 last page
 15.

Hammer - 1909. May 21.
10-inch

P.M.

11 30	¹⁶	S Carinae	6.4	100661
11 40	¹⁷	L Car. n.s. < l "w" equal to [or (d)]		101058
11 48	¹⁸	M Cent. n.s. < 12.5		122854
11 58	¹⁹	T Cent	6.6	133633
12 25	²⁰	R Cent.	6.4	140959

col.

Han - May 25, 1909

P.M. Sequence selected for R Volantis, 070772, (115)
 8 5- $a_3 b_3 c_6 d_4 e_3 f_3 g_2 h_4 k_4 l$ as marked on
 photograph -
 8 15- $e_2, 1 f$. (R. Volan.)

S Volantis, 073173, (116)
 8:30 $a_3 b_4 c_3 d_4 e_3 f_3 g_3 h_3 k$ selected.
 $h_2, \text{var. } 1 k$.

c is much ftr visually than photographed.
 b is much btr visually than the adjacent bgt (photo.)
 star.

R Cham. 082476, (118)
 9:10 $a_3 d_4 b_2 c_4 e_2 l_5 k_3 m_4 o_2 n$
 var. N.S. $r, s + t, n.s.$
 when 2 or more photog-seq. stars appear
 equal visually only one will be taken, in general.

am
 4:0 Y Lphi, 145254 (137)
 $a_5 b'_2 c_4 d_4 e_2 g_4 f_5 h_2 k_2 l_2 m_3 o$
 $p, n.s. \text{ var. } n.s.$
 b is double & hence b' is substituted for it.
 d and m are omitted as not necessary.

copy

P.M.
10:00

Th. May 27, 1909
R M, Carinae 091365 (119) adapted
a₃ c₃ c'₂ f₄ h₂ k₅ l₃ m
f₂ var 2 h.

11:00

R V Carinae 091868 (120) adapted
a₃ a' c₃ d₃ e₄ f₃ g₄ h₃ h₄ m

b omitted as it appears equal to d
c is too remote. h + k seem =.
var. N.S. no star for them in seen.

am
2 30

R V Centauri (132) 133155. adapted
a₃ b₂ c₃ c'₄ d₂ e₂ f₂ g₄ h₄ k
l seems rather by the h. k. in N.S.
var. 0 c'

3 30

3 Afodis 145971 (138) adapted.
a₄ a' s' d₀ e₄ f₂ g₃ h₃ l₁ k₃ m₃ o₃ n
b is by the h. a & not needed
c not on chart
var. 0 g.

Fr. May 28, 1909

P.M.

6:30

W Puffin 074241 (117) adapted.
 a₂ b₅ c₉ d₁ f₃ e₃ g₅ h₃ h'₄ K₂ l
 a₁ Var 2 b

selected

11:30

V. Velorum 092551 (121)
 a₄ b₄ c₄ d₃ e₂ f₃ g₂ h₃ K
 h₂ Var 2 k

May 30.

at 12 P.M. the lens (without dew cap) was
 found completely covered with dew (or frost).

38

all
4 151 Jan, May 31,

'S Jeph.

K1, 2 L

001032

5 0

2 \$ R Jeph.

6.2 ±

012233

2^b R S Jeph

ns. < 12.5

012233b

5 15

3 R Horiz.

Var Oe

025050

Hammer. June 1. 1909

Moon near full.

all
2 18

⁴⁴R Grus Var 2 k 21 42 47
also h? 1 var - the h marked is fainter than 1

2 50 ⁴⁵R Pisc. Aust. vis. < 12.0 22 12 30

3 5- ⁴⁶T Grus Var OC 22 19 38

3 10 ⁴⁷S Grus 11.5- 22 19 48

3 40 ⁴⁸R Indi 9.5- 22 28 07

Lens covered with frost dew.

June
~~May~~ 2, 1909
 moon no full

P.M.

6 20	4	R Ret.	N.S. str th. o	043263
			fr n.s.	
u	5	R Dor.	a, var 1 b ±	043562
6 28	6	R Fuel.	23, 1 f	043738
7 20	11	S Pubhis	C2, 2 d	074347
7 30	12	R Car.	8.5'	092962
7 35	13	l Car.	3.5'	094262
7 45	14	RR Car.	8.1	095458
11 0	16	S Car	6.0 ±	100661
11 10	17	T Car.	N.S. < 12.5'	101058
11 15	18	U Cent	N.S. < 12.5'	122854
11 20	19	T Cent	7.5' ±	133633
11 30	20	R Cent	6.2	140959
11 35	21a	S Lupi	8.3	144646a
u	21b	- Lupi		144646b
			only one star seen S?	

aM

Han. June 2-

12 0	²³	R Lupi	11.2	154736
12 5	²⁴	RS Scorp.	7.6	164844
12 13	³⁰	R Pav.	12.5	180363
12 20	³¹	RV Sag.	8.7	182133
12 30	³²	S Cor Aust	12.5	185437
"	³³	R Cor Aust	12.7 =	185537a
"	³⁴	T Cr Aust	11.5. ? < 12.6	185537b
12 35	³⁵	T Pav.	7.6	193972

Hav. June 3 - 1909

Full moon.

P.M.

6:20

54

T Leporis

11.6 ±

050022

6:30

7

R Pictoris

shining twilight

Var 0 a

044349

7:25

55

Z Puppis

N.S. < 11.5

072820b

7:35

10

L² Puppis

4.5

071044

7:45

56

S Pyxidis

12.8

090024

7:55

57

RR Hydrae

N.S. < 12.8

094023

8:00

58

V Hydrae

9.8

104620

8:07

59

R Hydrae

8.0

132422

8:12

60

R & Librae

10.2

157822

near moon

8:30

25

RR Scorpii

10.5

165030

8:40

26

RT Scorpii

N.S. < 12.0

165636

8:45

27

RW Scorpi.

10.1

170833

8:55

28

S Octantis

Var 0 e

172586

9:00

29

RM Scorpi.

10.6

173543

Ham. - June 4, 1909

P.M.					
6.20	⁸	R Columbae	Var OK		054629
6 30	⁹	R Octantis	a ₃ .3C		055686
7 25	⁶¹	U Libral	11.5		153620a
7 30	⁶²	- Libral	11.8		153620b
7 35	⁶³	RZ Scorpi	9.8		155823
7 40	⁶⁴	Z Scorpi.	9.5 ⁴		160021
7 45	⁶⁵	RX Scorpii	10.0		160524

44

Har. Mon. June 7, 09 moon rather bright -

P.M.

10 : 40	⁴⁶	T Jov.	12.0	191321
10 45	³⁶	S Pav.	7.2	194659
10 50	³⁷	R R Jov.	8.8	194929
10 55	³⁸	R U Jov.	10.8	195142
haus fld covered with frost.				
11 40	³⁹	R Tel.	n.s. < 12.2	~~19~~ 200747
11 45	⁴⁰	R T Jov.	8.0.	201139
11 50	⁴¹	R Mic.	Var ₂ h	203429
11 58	⁴²	S Indi	n.s. < 12.4	204954
am 12 5	⁴³	T Oct.	n.s. < 12.2	205782
12 15	⁴⁴	R Grus	h 3, 4 K	214247
12 20	⁴⁵	R Pisc. Aust	N.S. < 12.0	221230
12 30	⁴⁶	T Grus	Var 1 C	221938
12 35	⁴⁷	S Grus	11.1	221948
12 40	⁴⁸	R Indi	9.5	222867

Han. June 9 - 09

Early Evening v. cldy - sky 0.4. thin.
 P.M. Sequence for γ Velorum. 094953 (122)
 selected by S.I.B. No photog. seq.
 8:30 $a_4 b_2 c_2 d_4 e_3 f_3 g_3 h_2 k_2 l_2 m_4 n_2 o_3 p$.
 var 0 h.

RV Carinae 095563 (123)
 selected by S.I.B. No photog. seq.
 9:10 $a_5 b_4 c_3 d_3 e_3 f_2 g_4 h_4 k$
 var 0 h
 there is a striking difference bet. vis. + photog. magnitudes of many stars in this region.

γ Velorum. 101153. (124)
 selected by S.I.B. No photog. seq.
 9 40 $a_5 b_3 c_3 d_1 e_3 f_2 g_3 h_4 k$
 g_1 var 2 h

R S Hydrae 104628 (126)
 selected by S.I.B. No photog. seq.
 10.10 $a_5 b_2 c_2 d_3 e_2 f_3 g h k l$
 var 0 h

46

stan. June 9, 09

2	10	67	V Cap.	N.S. < 12.5	210124
2	40	68	X Aqua.	11.2	221321
2	50	69	R T Aqua.	9.0	221722
3	0	70	S Aqua.	N.S. < 12.0 moon near.	225120
3	10	49	R Phoen.	12.0	235150
3	35	50	R Tucanae	N.S. < 12.5	235265

about where
present.
last page 21.

Ham. June 10-1909

P.M. Arrangement of seq. for adapted
 11 H0 R Z Carinae 103270. (125)
 c1 a3 b4 d4 d'3 f2 g3 m3 h20.
 Var. n.s. h to n.s.

R.S. Carinae 110361 (127) adapted
 120 a1 b3² c3 d3 d'3 f3 k3 g4 h2 l3 m3 n.
 Var. n.s.
 o to n.s.

R.S. Cent. 111661 (128) adapted.
 1220 b4 a6 c4 d2 f4 g2 h
 k l to n.s.
 Var. O c
 also a star wh. is not. ft on photo. (x) equals d

48

Har. June 11 - 09am
12 10

X Cent. 114441 (129) adapted
 $a_3 b_2 c_3 d_2 e_3 f_2 g_2 h_3 h'_4 k$
 l n.s.
 Var O d.

12 30

W Cent. 115058 (130) adapted,
 $a_3 a'_3 c_3 d_3 e_4 f_2 h_2 k_3 l_3 m$
 $a + b$ often = visually -
 Var O h
 g is bright & omitted n n.s.

Star. June 17, 09

8 P.M.

R Cham. 082476 (118)
 $a_5 d_2 b_3 c_4 e_0 b_3 k_2 m_3 o_2 n$ 2nd time

8 10

R.M. (ar. 091365- (119)
 $a_3 c_3 c'_{3f} h_4 k_4 l_2 m$ 2nd time

11 35-

U Octantis, 131283, (131)
 $a_6 b_2 c_2 d_2 e_3 f_4 g_2 h_2 k_3 l$ selected.
 var 0_g

11 55-

T Apodis 134677 (135-)
 $a_2 b_4 c_2 d_4 e_2 f_3 g_5 h$ selected.
 var n.s.

50

8
Jan. June 19. '09

P.M.

6.20

M. Puphis

07+241 (117)

2nd time

$a_2 b_4 c_0 d_0 f_4 e_5 g_1 h_5 h' + k_3 l.$
 var ob.

M 50

R Volantis

070772 (115)

" "

$a_0 b_2 c_4 d_3 e_3 f_3 g_3 h_3 k + l$
 var of.

8 5-

S Volantis

073173 (116)

" "

$a_3 b_3 c_3 d_3 e_3 f_2 g_4 h_5 k$
 var oh.

Han. July 5, 1909

P. M. R T Cent 134236 adapted. (133)
 10 0 b 5 b' + e ³ f 3 f' + ~~g~~ h + l 5 m 3 p 3 s 3 u 4 z
 var 0 u.

R X Cent 134536 adapted. (134)
 10 30 h 5 g 7 g' + m 0 0 ~~g~~ 2 q 4 t 4 x.
 for additional stars see seq. of 134236.
 g 2 var. 5 g'

R U Hydrae 140528 adapted. (136)
 11 0 C 3 l 8 f o g 2 h 3 l 2 k, n, m 2 o 2 p.
 d is dbl. a & b are remote & prob. not needed.
 var 0 p ±. p & var very ft.
 bgt moonlight -

Ham. Tues. - July 6 -

P.M.				
7 23	¹⁰	L ² Puphis	5.0	071044
7 30	¹¹	S Puphis	Var Od	074347
7 40	⁵⁶	S Pyg.	13.2	090024
8 0	⁵⁷	R R Hydrae	12.6	094023
8 10	⁵⁸	V Hydrae	10.8	104620
8 20	⁵⁹	R Hydrae	6.5 ⁺ ±	132422
am 12 0	¹⁹	T Cent.	6.5 ⁻	133633
12 5 ⁻	²⁰	R Cent.	6.3	140959
12 20	^{21a}	S Lupi	} only one star seen magn. 9.8 aid with diff. eyepiece 10.0	144646a
"	^{21b}	- Lupi		144646b ⁵
12 25 ⁻	²³	R Lupi		154736

Han. wd. July 7.

P.M.				
11 35	⁶⁰	RS Librae	11.5-	15 18 22
11 55	⁶¹	U Librae	9.5-	15 36 20a
12 0	⁶²	- Librae	11.8	15 36 20 6
am				
12 5	⁶³	R L Scorpi	8.8	15 58 23
12 10	⁶⁴	I Scorpi.	9.5-	16 00 21
12 20	⁶⁵	R X Scorpi.	11.7	16 05 24
12 25	²⁴	RS Scorpi.	7.0	16 48 44
12 30	²⁵	RR Scorpi.	11.2	16 50 30
12 35	²⁶	RT Scorpi	ns. < 12.10	16 56 36
12 38	²⁷	RW Scorpi.	10.8	17 08 33
12 45	²⁸	S Oct	25-Var 5-f	17 25 86
12 50	²⁹	RU Scorpi.	ns. < 12.5-	17 35 43
12 55	³⁰	R Pav -	10.0	18 03 63
1 0	³¹	RR Sag.	8.2	18 21 33

Ham. July 8, 1909

P.M.

7.15-	12	R Car.	6.5-	092962
7 20	13	l Car.	3.7	094262
7 23	14	RR Car.	8.5-	095458
7 27	16	S Car.	6.0	100661
7 33	17	Z Car.	ns. < 13.0°	101058
7 38	18	H Cent.	12.8	122854
am				
12 8	68	X Aqua.	ns. < 13.0	222/321
12 15	69	R T Aqua.	8.8 ± no comp. st. as by as var.	221722
12 18	70	S Aqua.	ns. < 12.0 moon	225120
12 25	44	R Gemin	ns. < 12 (12.0)	214247
		Lins covered with dew.		
		Dried once earlier -		

Han. July 9, 1909

P.M.					
7 10	³²	S Cor. Aust.	12.7		185437
7 15	³³	R " "	11.0 ±		185537 _a
7 17	³⁴	T " "	13.0 ±		185537 _b
7 22	³⁵	T Pavonis	10.2		193972
7 28	³⁶	S Pavonis	8.5		194659
7 37	⁶⁶ ~~37~~	Z Sag.	8.2		191321
7 44	³⁷	RR Sag.	10.2		194929
7 49	³⁸	RR Sag.	13.0		195142
7 54	³⁹	R Tel.	ns. < 12.8		200747
8 0	⁴⁰	RT Sag.	7.3		201139
11 33	⁴¹	R Mic.	C ₂ , 2 d		203429
11 55 am	⁴²	S Indi	ns. < 13.0		204954
12 5	⁴³	T Oct.	9.2		205782
12 20	⁶⁷	V Laph.	ns. < 12.5		210124

Han. July 9. 09

Am

12 30 45 R Pisc. Austr. 13.0 221230

12 40 46 T Gemin 11.39 221938

12 45 47 S Gemin 7.5 221948

12 50 48 R Indi 10.8 222867

12 55 49 R Phoen. 10.2 235150

1 0 50 R Luc. MS. < 12.0 235265

1 5 1 S Aeneid. MS. < 12.0 001032

Stan. July 10. 09moon 

Am

2	45	²	R Scorpionis	6.0	012233a
2	52	²⁶	~~R~~ S Scorpionis	NS. < 12.5°	012233b
2	58	³	R Horolog.	11.5° < 12.5°	025050
3	10	⁹	R Octantis	a _{10,5} f	055686.
4	25	⁴	R Reti.	NS. < 12.5°	043263
4	28	⁵	R Dor.	Var. 0 b.	043562
4	40	⁶	R Laeli	Var 0 t	043738
			hens heard cov. with dew.	Drill -	
5	10	⁷	R Pic.	Var 0 d	044349
5	15	⁵¹	U Srid	NS. < 12.2	034625-
5	20	⁵²	T Srid	NS. < 12.0	035124
5	25	⁵³	W Srid	9.3	040725-
5	28	⁵⁴	T Leporis	11.2	050022
5	30	⁸	R Columbae	NS. < 12.0	054629

(Collected where & sent July 11. last page 27.)

Ham. July 13. 59

PM
7 545

seq. adapted for
D.W. Jagg. 191331. (144).
b₃ a₁ c₃ d₂ e₀ f₃ g₂ h₃ m. 0 ns.
var. n.

seq. selected for S. Zehrf. 195855. (145)
8 15 a₃ b₃ c₅ d₂ e₂ f₂ g₄ h₃ k₅ l.
var. o k

am
12 45

seq. adapted for
R. Normae 152849. (139).
a₆ a'₆ f₄ g₀ h₆ k₃ l₂ m₂ n₂ o⁰ p₂ r.

1 10

seq. adapted for
T. Normae 153654. (140).
a₅ b₃ c₅ d₄ e₀ f₃ k₂ l₄ m₃ o₃ p.
var. o d.

Han - July 14. 09

P.M.

7 30

2nd obs. of RW Karinae .091868 (120)
 $a_5 a'_3 d_2 e_3 f_1 g_3 h_4 h_3 m$.
 var 0 m.

7:40

2nd obs. of Y Vel. 092551 (121)
 $a_6 b_4 c_4 d_2 e_2 f_3 g_2 h_2 k$.
 var. n.s. < 13.

am

12 20

Seq. adapted for W Pav. 174162 (141)

$a_2 b_4 d_1 e_4 e'_3 f_3 h_4 k_1 l_5 m$.
 var. n.s. < 13.

12 45

Seq. adapted for S V Decaf. 174135 (142)
 $a_2 c_3 d_5 f_2 g_4 n_2 k_2 l_3 p_2 o_2 r$.
 var. n.s. < 13.

1 15

Seq. adapted for U Arae. 174551 (143)
 $a_7 c_1 f_3 g_4 h_1 k_4 l_3 m$.
 var. 0 h.

Ham. July 15, 09 lgt. low cld. Hazy.

Pill

7:30 2nd obs. of seq. of
 F Vel. 094953. (122)
 $a_5 b_2 c_3 d_3 e_2 f_1 g_2 h_1 k_2 l_2 m_3 n_2 o_3 p$

7:50 2nd obs. of seq. for
 R V (Car. 094563 (123)
 $a_4 b_4 c_2 d_1 e_3 f_2 g_3 h_3 k$
 var. 0 k

8:10 2nd obs. of seq.
 RS (Car. 110361. (127)
 $a_2 b_2 c_3 d_3 d'_2 f_2 k_3 q_4 h_2 l_2 m_3 n$
 var. N.S.

8:30 2nd obs. of seq.
 RS (Cent. 111661. (128.)
 $b_3 a_3 c_5 d_2 f_3 g_3 h_2 k_2 l$
 $C_3 \text{ var. } 2d$

I see no star at "x", but a star near at $y = k$.
 If the obs of star "x" was correct it must be a var.
 See page 47.

Sky later 5 or 6 cldy but thin.

Star. July 16. 09.

Pill.

0.4 cldy

7 25-

2nd obs. of seq.

R Vel. 10115.3 (124)

$a_6 b_2 c_4 d_3 e_1 f_3 g_2 h_3 k$

Var. 0 c

0.7 cldy

7 55-

2nd obs. of seq.

0.3 -

R Z star. 103270 (125)

$a_0 c_3 b_4 d_5 d'_2 f_2 g_2 m_1 l_3 o_3 p$

Var. n:5

0.7 cldy

10 0

2nd obs. of seq.

X Lupi. 145254 (137)

$a_6 b'_1 c_2 e_0 g_4 f_3 h_2 g'_2 l_2 m_2 o$

Var. n:5.

2 cldy

10 30

2nd obs. of seq.

R Normae. 152849 (139)

$a_2 a'_6 f_2 g_1 h_3 k_3 l_2 m_2 n_3 o_2 p$

Var. 0 ~~g~~ a'

10 45

2nd obs. of seq.

T Normae. 153654 (140)

$a_4 b_3 c_2 d_4 e_0 f_3 k_2 l_3 m_2 o_3 p$

d₂ Var. 12 e

Stan. July 17.

P.M.

7: 45-

2nd obs. of seq.

R S Hydrae, 104628. (126)

$a_6 b_3 c_3 d_2 e_2 f_3 g_3 h_2 k_3 l$.

Var. n.s.

8 20

2nd obs. of seq.

X Cent. 114441 (129)

$a_6 b_3 c_3 d_3 e_3 f_1 g_2 h_3 h'_3 k$.

~~Var. 0 h~~ h_1 var. 2 h'_1 .

8 40

2nd obs. of seq.

W Cent. 115058. (130)

$a_5 a'_3 c_5 d_3 e_3 f_2 h_3 k_3 l_3 m$.

~~the~~ Var. n.s.

9 15-

2nd obs. of seq.

U Oct. 131283. (131)

$a_5 b_2 c_3 d_3 e_2 f_3 g_3 h_2 k_3 l$

Var. 0 f.

9 30[±]

2nd obs. of seq.

R Cent. 133155. (132)

$a_3 b_0 c_3 c'_3 d_3 e_3 f_2 g_3 h_3 k$

c_2 var. c'_1

Var. very red.

Han - July 18.

PM.

7 35.

Seq. for
 U Mic. 202240. (146) adapted.
 $b_4 a_2 c_3 e_4 f_2 g_3 h_0 k_4 l_5 m.$ n us.
 $b_2 var_2 a.$

10 0

2nd obs. of seq.

R T Cent. 134236. (133)

$b_2 b'_4 e_4 f_2 f'_4 h_4 l_3 m_2 p_2 \Delta_3 u_3 z$
 $var_0 z.$

10 20

2nd obs. of seq.

R X Cent. 134536. (134)

$k_3 g_8 g'_3 m_0 o_2 q_4 t_3 x$
 $g_4 var_2 g'.$

64

Ham. July 19.

P. III. 7 40 2nd obs. & seq. -
 H Mic. 202240. (146.)
 $b_4 a_2 c_3 e_3 f_3 g_3 h_{10} k_3 l_3 m.$
 $b_2 \text{ var. } 2 a.$

Seq. for adapted.
 R R (Capr. 205627. (147)
 8 10 $a_3 b_3 d_3 e_3 f_3 g_3 h_2 k_3 l.$
 Var 0 l.
 c is too near bgt. star for use in standard work.

Ham. July 20.

sky 3 edg.

P.M. ^{2nd obs. of seq.}
 7:25- S M J. 191331. (144.)
 b + a 3 c 2 d 3 e 0 f 3 g 0 h + n.
 Jan. n.s.

7:45- ^{2nd obs. of seq.}
 S J. 195855-5656. (145.)
 a 3 b + c + d 1 e 2 f 3 g + h + k + l.
 Jan o.k.

Han - July 22.

P.M.
7: 15

33 obs. of seq.

R 5 Hydrae . 104628 . (126)

a₆ b₂ c₂ d₃ e₁ f₄ g₁ h₃ k₄ l.

Var. N.S.

< l.

(small moon)

9 5

Sequence for

selected

S Mic . 212030 . (148.)

a₄ b₃ c₂ d₃ e₂ f₄ g₂ h₂ k₂ l₅ m.

Var. o d.

9 25

Seq. for

Selected.

- Pisc. austr. 215828

(149.)

x 5 " " 215628

a₄ b₄ c₃ d₄ e₁ f₃ g₂ h.

Var. N.S.

9 45

Seq. for

Selected.

T₁ T₂ Meanae . 223462 . (150.)

a₅ b₂ c₃ d₀ e₃ f₃ g₃ h₃ k.

Var o k

Han. July 23.

aul

12 0

Aug. for
- Phoenix. 232746. (151.) selected.
 $a_2 b_3 c_1 d_2 e_4 f_2 g_3 h_4 k_2 l_2 m.$
 $h, \text{var. } 3 \text{ } k.$

12 20

Aug. for
V Jaulp. 000339. (101.) adapted.
 $a_5 b_5 c_3 d_3 e_4 g_5 h_3 m$
 $m, \text{var.}$

12 40

Aug. for
T Jaulp. 002438 a. (103.)
 $a_2 b_5 c_2 d_2 e_3 f_5 g_3 h.$
 $g_2 \text{ var. } 1 \text{ } h.$

Ham. July 24.

am

2:30	¹	S Scaph.	Var o n	001032
2:35	^{2a}	R "	6.2 ±	012233a
2:45	^{2b}	R D "	n.s. <13.0	012233b
2:50	³	R Horol.	n.s. <13.0	025050
3:0	⁵¹	U Erid.	n.s. <13.0	034625-
3:5	⁵²	T Erid.	12.2	035124
3:20	⁵³	W "	9.0	040725-
3:30	⁴	R Retic.	p o Var.	043263
3:35	⁵	R Dor.	Var. b ± var. very red.	043562
3:40	⁶	R Coeli	Var o n	043738
3:45	⁷	R Pictoris	Var o d	044349

Ham. July 28.

2	20 ³⁰	R Pav.	7.7	180363
2	25 ³¹	R V Jagg.	7.8	182133
2	30 ³²	S Car. Aust.	11.8	185437
2	33 ³³	R u u .	12.8 ±	185537a
2	36 ³⁴	T u u .	13.0 ±	185537b
2	40 ³⁵	T Pav.	11.6	193972
2	50 ³⁶	S u .	8.3	194659
3	25 ³⁷	RR Jagg.	10.6	194929
3	35 ³⁸	RU Jagg.	13.0 ^{var. m.} est. no faint enough comp.	195142 star with magn.
3	55 ³⁹	R Lel.	12.8	200747
4	0 ⁴⁰	R T Jagg.	7.2	204139
4	15 ⁴¹	T Leporis	10.3	050022
4	20 ⁸	R Columbae	vis. < 12.8	054629
4	30 ⁹	R Octantis	Var. of.	055286

70

Haw. Aug. 5. Th.

sky poor. Early but cloudy.

P.M.				
9 40	41	R Mic.	h ₁ var 3 h.	203429
9 45	42	S Indi	12.8	204954
9 50	43	T Oct.	9.2	205782
9 55	44	R Gruis	vis. $\left\{ \begin{matrix} 12.8 \\ m \end{matrix} \right.$	214247
10 30	67	V Cap.	vis $\left\{ \begin{matrix} 12.5 \\ \text{moon phase} \end{matrix} \right.$	210124

whole sky obscured with clouds. Moon.

Hans Aug. 6. Fri.

Pill

8. 15⁻¹⁸ U Cent 9.8 12 28 5.4

8 25⁻¹⁹ T Cent 6.4 13 36 33

8 35⁻⁵⁹ R Hydrae 6.4 13 24 22

8 40⁻²⁰ R Cent 7.0 14 09 5.9

Ann

12 5⁻²⁴ R D Scorp. 7.4 16 48 44

12 10⁻²⁵ R R " 10.3 16 50 30

12 15⁻⁴⁶ R T " N.S. < 12.5 16 56 36.

12 20⁻²⁷ R W " 11.3 17 08 33

12 25⁻²⁸ S Oct. 9.5 var 5.6 17 25 86

12 35⁻²⁹ R U Scorp. 12.6 17 35 43

12 50⁻⁶⁶ Z Aeg. 8.3 19 13 21

72

Jan. Mon. Aug. 9.

Sky 9 cldy.

P.M.

8 30

43

R Lupi

10.0

154736

10 cldy.

* Either an error was made in reading the letter or his var -
 for on Aug. 12. he was bluer light than he and the order was
 to 3 to 3 K, most or less. & he was rather light sh. g'.

Han. Tues. Aug 10. clear.

P. 11				
7 15	⁵⁸	✓ Hydrae	9.8	10 46 20
7 20	¹⁴	RR Car.	8.1	09 54 58
7 25	¹³	l Car.	3.4	09 42 62
7 30	¹⁶	S Car.	7.0	10 06 61
7:40	¹⁷	L Car.	vis. (12.5-	10 10 58
7:45	^{21a}	S Lupi		14 46 46a
"	^{21b}	- " "	only one star seen magn 10.5-	14 46 46b
7 55	⁶⁰	RS Librae	11.0	15 18 22
8 0	⁶¹	u Librae	10.6	15 36 20a
8 5	⁶²	- Librae	12.8	15 36 20b
8 10	⁶³	RZ Scorp.	9.5-	15 58 23
8 15	⁶⁴	L " "	10.5-	16 00 21
8 25	⁶⁵	RX " "	13.0	16 05 24

am
12 30 Seq. adalbed for T P Phoen. 002546. (104)
a + b 3 e 1 c 1 f 3 d 2 g 2 g' 3 h 3 k 1 r 1 s 1 t 1 u 1 v 1 w 1 x 1 y 1 z 1

74

Ham. Md. Aug. 11.P.M.
7:45

12 R Car.

4.6

092962

7 55

2nd obs. of sig.

T Aphodis. 134677. (135)

a₂ b₅ c₁ d₆ e₃ f₃ g₄ h

Var. n.s. (< 12.8)

8:10

2nd obs. of sig.

R U Hydrae. 140528. (136)

c₃ e₅ f₀ g₂ h₄ l₂ k₂ m₂ n₂ o₂ p₃ q₅

25. Var. 1 f.

11:40

sig. adapted for

W fenestr. 002833 (105)

e₈ f₀ g₂ h₃ i₄ l₄ m₀ n₄ o₂ p₁ r₁ q₅

Var. 0 m.

a b c & d too remote. & prob. not nec.

P.M.

Han. Sh. Aug. 12.

8 0 3rd obs. of seq.
 X Cent. 114441 (129)
 a₈ b₀ c₃ d₂ e₂ f₀ g₂ h₂ h'₅ - k
 Var. 0 K.

8 10 3rd obs. of seq.
 W Cent. 115058. (130)
 a₆ a'₂ c₆ d₂ e₃ f₃ h₃ k₄ l₂ m
 Var. N.S. < m (12.5)

8 25 ⁴⁵	R Pisc-auct.	10.8	22 12 30
8 30 ⁴⁶	T Gruis	d ₂ Var, e	22 19 38
8 35 ⁴⁷	S " "	7.6	22 19 48
8 40 ⁴⁸	R Indi	12.8	22 28 67
8 45 ⁶⁸	X Aqua.	13.5 ±	22 13 21
8 50 ⁶⁹	R T Aqu.	10.2	22 17 22
8 55 ⁷⁰	S Aqua.	13.0	22 51 20
9 0 ⁷⁹	R Phoen.	7.8	23 51 50
9 5 ⁵⁰	R Tucanae	Var. 0 h	23 52 62 -

Ham. Aug. 13.

P. M.

7 20

3rd obs. of ~~Ham.~~ W Vel. 101153. (124)
a₃ b₃ c₃ d₂ e₁ f₃ g₃ h₃ k.
Var. 0 b.

7 40

3rd obs. of ~~Ham.~~ R L Car. 103270. (125)
c₀ a₃ b₄ d₄ d'₁ f₃ g₃ m₀ l₂ o₂ p.
Var. 0 0. ?

8 0

3rd obs. of ~~Ham.~~ U Oct. 131283. (131.)
a₈ b₀ c₂ d₄ e₂ f₃ g₃ h₂ k₄ l.
d₂ Var. 1 e.

8 15

3rd obs. of ~~Ham.~~ R V Cent. 133155. (132)
a₃ b₀ c₂ c' + d₃ e₄ f₀ g₄ h₄ k.
c₁ Var. 1 c'

8:30

3rd obs. of ~~Ham.~~ R T Cent. 134236. (133.)
b₂ b'₃ e₃ f₃ f'₃ h₃ l₃ m₂ n₂ o₃ u₄ x.
Var. 0 u.

8:45

3rd obs. of ~~Ham.~~ R X Cent. 134536. (134)
k₆ g₆ g'₃ m₀ o₄ q₄ x.
Var. 0 0.

9 0

3rd obs. of ~~Ham.~~ T Afodis. 134677. (135)
a₃ b₅ c₂ d₆ e₂ f₃ g₃ h.
Var. W.S. (<13.0)

Pc III Stan. Aug 13 -

10 30 Arg. adapted for X Juep. 004435. (106.)
 $a_3 c_2 h_0 e_3 g_2 k_3 l_2 m_0 o_2 n_3 f_3 r$
 Var. M. puer, S. < r.

Copied & sent to him. Aug. 17.

last page 39.

inc. obs by Mr. S. July 12-25.

Star. Mon. Aug. 16.

P. M.

7 35

2nd obs. of ^{seq.} RS Car - 110361. (127.)
 $a_2 b_2 c_3 d_3 d'_2 f_3 k_2 g_4 h_2 m_4 n.$
 Var. n.s. $\angle m$

7 45

3rd obs. of ^{seq.} RS Cent. 111661. (128.)
 $b_5 a_5 c_4 d_2 f_4 g_2 h_3 k_2 l.$
 h_2 var. $\angle k$.

7 55

3rd ~~obs.~~ obs. of ^{seq.} RLL Hydral. 140528. (136)
 $c_3 e_6 f_0 g_2 h_4 l_2 k_2 m, m, o o p_5 q$
 d is dbl. e_3 var. $\angle f$.

8 10

3rd obs. of ^{seq.} Y Lupi - 145254. (137.)
 $a_5 b'_0 c_4 e_0 g_5 f_5 h_2 k_2 l, m_2 o_3 r$
 Var. n.s. $\angle r$.

8 30

3rd obs. of ^{seq.} R Normal, 152849. (139)
 $a_3 a'_1 f_2 g_1 h_4 k_3 l, m_2 n_3 o_3 p.$
 Var. $o a$.

10 30

^{seq.} adapted for S Tuc. 001862. (102)
 $a_7 b_0 c_5 d_3 e_4 f_1 g_2 h_2 k_4 l_0 m_4 n.$
 e_3 var. $\angle f$.

10 45

^{seq.} adapted for U Tuc. 005475. (107)
 $a_5 b_4 d_3 e_4 f_3 h_3 h_2 k_3 m, m, n, n, p, p$
 Var. $o n$.

Ham - Tues. Aug. 17.

Pill.

7 30

2nd obs. of seq. U Mic. 202240. (146.)
by $a_2 c_4 e_3 f_3 g_3 h_1 k_3 l_2 m$.
 e_2 var. f

7 45-

2nd obs. of seq. for S + - Tel. 195855-56. (145)
 $a_4 b_4 c_3 d_0 e_3 f_3 g_3 h_3 k_3 l$.
 $k_2 s_1 l$. - Tel. n. sure p. l .

8 0

2nd obs. of seq. RR Cap. 205627. (147.)
 $a_5 b_2 c_3 d_2 f_0 g_1 h_3 k_4 l$.
Var. a .

10 30

Seq. adapted for U Juefr. 010630. (108)
 $b_0 c_0 d_0 e_5 f_2 g_2 h_4 k_2 l_3 m_3 n$.
 n_3 var.

Mon - Wed. Aug. 18.

P. M.

7 30 2nd obs. of Aug. RR Cap. 205627. (147.)
 $a_7 b_2 c_3 d_3 f_2 g_1 h_3 k_3 l$
 Var. 2 a.

7 45 2nd obs. of Aug. S Mic. 212030. (148.)
 $a_5 b_3 c_2 d_4 e_1 f_4 g_2 h_2 k_0 l_5 m$
 Var 0 c

8 5 2nd obs. of Aug. - + S Pire. Const. 215828, 215628. (149.)
 $a_6 b_5 c_2 d_5 e_1 f_3 g_2 h$
 Var. n.s. $\left\{ \begin{array}{l} h \\ 12.8 \end{array} \right.$

8 20 2nd obs. of Aug. T Tne. 223462. (150)
 $a_4 b_3 c_3 d_2 e_3 f_3 g_2 h_2 k$
 h_2 Var. 1 k.

8 30 2nd obs. of Aug. S Aphodis. 145971. (138.)
 $a_4 a'_4 d_0 e_4 f_0 g_0 h_3 h_2 k_3 m_3 o_2 n$
 e_2 Var. 2 f.

Jan. Th. Aug. 19.

Fair, very cloudy.
+ cloudy

PM

8 15

3rd obs. of seq. Svr Sag. 191331. (144.)

b₃ a₄ c₂ d₂ e₀ f₂ g₂ h₃ m.

Var. n. much s.

The var is very close to g.

There seems to be a haziness on that side of g. < h.

8 30

3rd obs. of seq. S Mic. 212030. (148.)

a₅ b₃ c₂ d₄ e₄ f₄ g₂ h₂ k₀ l₆ m.

Var. 0 C.

8 45

3rd obs. of seq. - + S Pisc. Ant. ^{215828, 215628} (149)

a₄ b₆ c₂ d₅ e₂ f₃ g₂ h.

Var. vs. { ^h_{12.8}.

9 0

3rd obs. of seq. S Aphidis. 145971. (138.)

a₃ a' b₀ c₀ d₀ e₅ f₀ g₀ h₂ k₂ l₃ m₃ o₂ n.

l₃ Var 2 f.

9 15

3rd obs. of seq. T Norma. 153654 (140)

a₃ b₄ c₄ d₃ e₀ f₃ k₂ l₂ m₃ o₂ h.

l₂ Var, m.

9 30

3rd obs. of seq. T Tuc. 223462. (150.)

a₆ b₃ c₂ d₂ e₄ f₃ g₂ h₃ k.

Var 0 k.

Han. Fr. Aug. 20.

P.M.

9 ³⁰	³⁶ S	Pav.	8.0	194659
9	55 ⁴⁶	T Grin's	Jaro C	22 19 38
1 ⁰ ~~8~~	5 ⁴⁷	S u	7.9	22 19 48
10	55 ⁴⁸	R Indi	12.8	22 28 67

Ham. Date. Aug 21.

all

2 10 Seq. adapted for R Fornacis 022426. (109)
 $b_2, c_5, e_4, h_2, k_1, l_2, m_4, n_2, o_2, p_2, q_1$.

The star marked as the var = 0, var 2 p.
 There is however a late star wh. does not appear
 on the photog. nr. the one marked as the var.
 Either this is really the var. or a new one.
 It is called x. & is m_1, x_3, n .

3 10 Seq. selected for T Horolog. 025751 (110.)
 $a_3, b_5, c_3, d_3, e_3, f_1, g_3, h_3, k$.
 h_1, var_2, k .

4 10 Seq. adapted for S Pic. 050848. (111.)
 $a_6, b_0, c_4, d_4, e_2, f_2, g_0, h_4, k_3, l$.
 m, r, n are too close for vis. obs.
 Var. n.s. $\leftarrow l$.

4 30 Seq. adapted for T Pic. 051247. (112.)
 $a_1, b_3, c_3, e_3, g_3, h_3, m_3, o_3, p$.
 Var. 0.0.

Pae

Haw. Med. Aug. 25-8 10 ⁴² S Indi 12.2° = 2049548 55 ⁴³ T Oct 9.7 2057829 30 ⁴⁴ R Grus vs. Lm 21424710 10 ⁴⁵ R Pis. Aust. 9.8 22133010 20 ⁴⁹ R Phoen. 7.8 23515011 0 ⁵⁰ R Tuc. var. 0 23526511 40 ¹ S Sculp. h. var. 3 R 00103212 0 ² R Sculp. 6.8 = 012233aam ²⁶ R D " N. Sculp. { 12.5' 012233b1 0 ³ R Horol. var. 0 f 0250501 30 ⁴ R Ret. m₃ var. 10 0432631 45 ⁵ R Dor. var. 0 b 043562

Star. Sh - Aug. 26moon 

and						
1	45 ⁵¹	U Srid -	W. Auger pen	< 13.0	034625	
1	55 ⁵²	T u .		11.0	035124	
2	0 ⁵³	W u		10.3	040725	
2	15 ⁶	R Coel.	U ₃ var.		043738	
2	20 ⁷	R Pic	var. ob		044349	
2	30 ⁵⁴	T Lep.	9.5 ⁻ +		050022	
2	50 ⁸	R Colum.	n.s. $\left\langle \begin{smallmatrix} 1 \\ 13.0 \end{smallmatrix} \right.$		054629	
3	0 ⁹	R Oct.	g ₂ var. 2h		055686	
3	30 ¹⁰	L ₂ Puffin	4.4		071044	
4	10 ¹¹	S u .	C ₂ var 2d		074347	
4	35 ⁵⁵	Z u .	12.5 ⁻		072820h	
5	0 ¹²	R Car.	4.6		092962	
5	5 ¹³	L u .	4.2		094262	

Ham. 30th August 1909

Full moon -

P.M.
7 45¹⁹ T Cent

7.9

133633

9 0^{21a} S Lupi

11.4 ?

144646a

" 21^b - Lupi

ns ? } only one star seen.

144646b

9 30²⁰ R Cent

7.7

140959

10 10²⁸ S Oct.

K₃ Var.
diff. on acct full moon

172586

10 25²⁹ Rll Scor.

11.5 ±
diff. mean

17³ 543

Ham. Sh. Sept. 2.

Pall

7	20	¹⁸	U Cent.	8.7	122854
	30	⁵⁹	R Hydrae	5.7	132422
	40	⁶⁰	R S Librae	9.7	151822
	50	⁶¹	U Librae	12.5 ⁻	153620 a
	55	⁶²	- Librae	12.5 ⁻	153620 b
8	0	²³	R Lupi	11.5 ⁻	154736
	30	⁶⁷	V Capr.	~~11.5~~ 12.4	210124
	35	⁶⁸	X Aquae.	ns. < 13.4	221321
	45	⁶⁹	R γ u	11.5 ⁻	221722
	50	⁷⁰	S u	11.7	225120
9	0	⁶³	R Z Scorp.	10.8	155823
	5	⁶⁴	Z u	11.0	160021
	15	⁶⁵	R X u	ns. < 12.5 ⁻ moon.	160524
	35	²⁴	R S u	8.8	164844

Han. Sh. Sept. 2. cont.

P.M.

9	45 ²⁵	RR fcrp.	8.6	165030
	50 ²⁶	RT u.	MS. $\angle$ 12.5°	165636
10	5 ²⁷	RW u.	10.7	170833
	15 ³⁰	R Pav.	9.1	180363
	50 ³¹	R V Sag.	8.5	182133
11	5 ³²	S Cor. Aust.	11.5	185437
	10 ³³	R u u.	$11.5 \pm$	185537a
	15 ³⁴	T u u.	$13.0 \pm$	185537b
	25 ³⁶	Z Sag.	9.0	191321
	40 ³⁵	T Pav.	13.4	193972
	45 ³⁷	RR Sag.	12.2	194929
	55 ³⁸	RR Sag.	12.1	195142
all	12			
	15 ³⁹	R Lel.	12.2	200747
	20 ⁴⁰	R J Sag.	7.6	201139
	50 ⁴¹	R Mic.	Var. ov	203429

C. J. ...

Han. Fri. Sept. 17.

and Seq. adapted for T Columbae. 051533. (113)

2 45⁻ a⁵ a' 4 b₄ e, d + g₂ h₂ k₃ l₂ m, n₆ o.
Var. o b.

c is about = b, and dbl.

3 0 Seq. selected for S Columbae. 054331. (114)
a₇ b₇ c + d₃ e₃ f₃ g₃ h.
Var. M.S. < h.

3 20⁵⁴ T Leporis (050022) 8.5⁻

3 30⁹ R Oct. Var. o h 053686

3 40¹⁰ L² Puffis H. o 071044

4 0^M S Puffis Var o C ± 074347

4 10¹² R Car. 5.0 092962

4 15¹³ L Car. 4.0 094262

4 ~~25~~²⁵₅₅ L Puffis. ns < 12.1 072820 b

4 ~~30~~³⁰₅₅ R R Car. 7.7 095458

4 35⁵⁶ S Pyx. 9.4 090024

Han. Fri. Sept 17. cont

Am

4	4-5-	16	S Car.	7.2	100661
4	5-5-	17	L " Ms. {	12.5-	101058
5-	5-	57	RR Hydral	10.0	094023

Ham. Pm - Sept 19.

B. III

7: 30

2nd obs. of seq. - Phoen. 232746. (151)
 $a_2 b_4 c, d p_2 e + f, g_2 h + k_3 l_3 m - m_2$ var.

7 55

2nd obs. of seq. ✓ Aenlf. 000339. (101)
 $a_6 b_4 c_2 d q_1 e_6 g + h_2 m - m_5$ var.
 I see no star fainter than m in the vicinity
 of the var.

8 20

2nd obs. of seq. S Tue. 001862. (102)
 $a_7 b_0 c_4 d_0 e + f, g_3 h_0 k_4 + m_2 n_2$ var. 0 d.

8 35

2nd obs. of seq. T Aenlf. 002438a (103)
 $a_3 b_5 c_2 d p_1 e_3 f + g + h. b_3$ var. 2 c.

8 45

2nd obs. of seq. T Phoen. 002546. (104)
 $a_3 b_3 e_2 c_0 f_3 d_2 g_0 h_2 g'_3 l_3 k.$
 var. 1 a.

9 40

2nd obs. of W Aenlf. 002833. (105)
 $e_6 f, g_0 k_3 h + l_2 m, n_2 o, p_2 q.$
 var. 0 m.

9 55

2nd obs. of X Aenlf. 004435. (106)
 $a_2 c_2 h, i, g_4 k_3 l_2 m, o, n_2 p_3 q_r.$
 var. not clearly seen. at least 5 grades
 fainter than r.

Han. Mon. - Sept 20.

P.M.
8 0

2nd obs. of U Luc. 005475.

(107)

$a_6 b_6 d_0 e + g_2 h_2 l_2 k_3 m_2 n + q_2 p.$
g, var., h.

X 25

2nd obs. of seq. U Lucif. 010630. (108)
 $b_0 c_0 d_0 e + f, g_3 h_3 k_0 l_3 m, n.$
var. n. sure p. at least 3 grade L m.

Han. Sues - Sept. 21.

P M

7.	50	⁶⁸	X Aqua.	N.S. < 13.0	221321
7	55	⁶⁹	R T Aqua.	11.7	221722
8	0	⁷⁰	S Aqua.	9.9	225120
8	5	⁴⁵	R Pisc. aust	9.5	221230
8	10	⁴⁶	T Liris	b ₃ var ₃ C	221938
8	15	⁴⁷	S α	8.5	221948
8	20	⁴⁸	R Indi	13.2 ±	222867
8	25	⁴⁹	R Phoen.	8.0	235150
8	35	⁵⁰	R Lue -	ϕ ₃ var ₃ l	235265

Han. Sept. 22. moon 6 d old

Pull						
7	40	¹⁸	U Cent.	8.5		122854
7	45	¹⁹	T Cent.	8.4		133633
7	50	²⁰	R α	8.0		140959
7	55	^{21a}	S Lupi.	12.5 ± ?	} only one st seen	144646a
7	58	^{21b}	- α	vis.?		144646b
8	0	²²	RS Librae	8.8		151822
8	10	²⁴	RS Scorp.	9.2		164844
8	20	²⁵	RR "	8.0		165030

Stan. Sept. 24. Fri.

PM

8 0' S Scuf.

e, var. 2 f

001032

8 20² R u.

7.0 ±

012233a

8 25²⁶ - u.

N.S. < 12.0
bgt mean

012233b

Han. Sat. Sept. 25-
Bgl moon.

P.M.

8	30	⁶¹ u	Librae	11.2	153620 a
8	35	⁶² -	"	12.0 ±	153620 b
			u dif. moon.		
9	0	⁶³	RT Scorpi.	11.5	155823
9	10	²³	R Lupi	ns. < 12.0	154736
9	20	⁶⁴	R Scorpi.	11.0	160021
9	30	⁶⁵	RP u	ns. < 12.0	160524
9	45	²⁶	RT u	10.6	165636
9	50	²⁷	RW u	ns < 12.3	170833
9	55	²⁸	S Oct.	ns. < 12.0	172586
10	5	²⁹	RM Scorpi.	10.3	173543
10	25	³⁰	R Pav.	9.9	180323
10	30	³¹	RV Sag	8.9	182233
10	40	³²	S Cor. Austr.	12.9	183543
10	45	³³	R u u	12.8 ±	185533 a
10	50	³⁴	T u u	12.8 ±	185533 b

Han. Sat. Sept. 25. Cont.

Pul

11 15 ^{.66}	Z fog.	10.5-	191321
11 25 ^{.35}	W Pav.	W.S. < 12.0	193972.
11 35 ^{.36}	S Pav.	8.8	194659
11 45 ^{.37}	RR fog.	12.2	194929.
11 50 ^{.38}	Pul u.	9.6	195142.

Hau - Oct. 6 - Wed.

P.M.

8 15⁶⁷ ✓ Capr. 10.0 210124

25³⁹ R Tel. 12.5 200747

30⁴⁰ RT Jov. 9.2 201139

35⁴¹ R Mic. K_2 Var 2u 203429

9 15 3rd obs. of seq. - Phoen. 23 27 46. (15-1)
a₂ b₅ c₀ d₃ e + f₂ g₃ h + k₂ l₃ m.
m₂ Var.

9 30 3rd obs. of seq. ✓ Jov. 000339. (101)
a + b₃ c₃ d₂ e₆ g₆ h₂ m.
Var. n. Jov. 2. at least 5 gr. for th. m.

9 45 ~~3rd~~ 2nd obs. of seq. R Lomacis. 022426. (109)
p₅ c₇ e₅ h₁ k₁ l₁ m + n₀ o₃ p₂ q₅.
o, Var. 2 p. "X" o e.

A comp. of prev. obs. of "q." shows it
it to be purely var. Prob. the wrong
star was marked as the var.

Han. Oct 7. Sh.

4 day.

PM.

8 30 2nd obs. of seq. S Sue. 001862. (102)
a₆ b₀ c₄ d₁ e₄ f₂ g₂ h₀ k₅ l₂ m₂ n.
c₂ var 2 d.

8 45 2nd obs. of seq. T Suep. 002438a (103)
a₃ b₈ c₂ d₁ e₂ f₂ g₄ h.
b₂ var 5 c.

9 0 2nd obs. of seq. X Suep. 004435. (106)
a₃ b₂ c₂ d₂ e₀ f₃ g₂ h₁ i₀ j₃ k₂ l₁ m₁ n₃ o₂ p₂ r.
Var. Ws. at least 3qr. fr th. r.

9 15 3rd obs. of seq. ~~U~~ Suep. 010630. (108)
b₀ c₀ d₀ e₅ f₁ g₂ h₃ i₀ j₃ k₀ l₃ m₀ n.
Var. N. Suep 5. at least 4qr fr th. n.

10 30
~~9 30~~ 2nd obs. of seq. R Lornacis. 022426. (109)
clay. b₅ c₇ d₄ e₂ f₂ g₀ h₂ i₃ j₀ k₃ l₀ m₃ n₁ o₂ p₃ q.
o, var. h. "X" o e.

P.M.

Han. Oct 8. Fri.

- 7 55 2nd obs. of Arg. - W Pav. 174162 (141)
 $a_3 b_4 d_3 e_3 f_2 h_3 k_2 l_3 m$
 $d, \text{var. } 2e.$
- 8 10 2nd obs. of Arg. - SV Acrop. 174135. (142)
 $a_0 c_3 d_5 f_0 g_6 m_2 k_2 l_3 n_2 o_3 r$
 $\text{Var. } 0 k.$
- 8 25 2nd obs. of Arg. - U Oval. 174551 (143)
 $a_7 c_0 f_5 g_3 h_2 k_4 l_2 m_3 n$
 $n_2 \text{var.}$
- 8 40 3rd obs. of Arg. - T Phoen. 002546. (104)
 $a_4 b_4 e, c_0 f_4 d_2 g_0 h, g'_3 l_3 k.$
 $\text{Var. } 0 b$
- 9 0 3rd obs. of Arg. - W Acrop. 002833 (105)
 $e_8 f_0 g_2 k_3 l_6 m_2 n_2 o_2 p, q.$
 $\text{Var. } 0 n.$
- 9 15 3rd obs. of Arg. - U Luc. 005475. (107)
 $a_5 b_5 d_3 e_4 g_3 h_2 l_2 k_4 m_2 n_3 p, q.$
 $\text{var. } 0 g.$
- 9 40 2nd obs. of Arg. - T Horolog. 025751 (110)
 $a_3 b_8 c_2 d_4 e + f_2 g_4 h + k$
 $g_3 \text{var. } 1 h.$

RME Han. Oct. 8. Cont.

9 55-	³	R Horolog.	Var. 1 b.	02 50 50
10 0	⁴	R Retie	var. 0 g.	04 32 63
10 5	⁵	R Dor.	Var. 0 b ±	04 35 62
10 10	⁶¹	U End.	U. Super p. < 13.0	03 46 25-
10 15	⁵²	T End.	8.2	03 51 24

Am.

Star - Sat. Oct. 9.

- 12 30⁵³ W Erid. 11.8 040725-
- 35⁵⁴ T Leonis 8.2 050022
- 40⁶ R Coeli est. 12.5- 043738
 To sequence I add $\mu_4 \nu_4 \pi$.
 π is last letter of present sequence.
 π, ν .
- 45⁷ R Pic. Var., a 044349
- 50⁸ R Columbae us. $\left(\begin{smallmatrix} 13.0 \\ 1 \end{smallmatrix} \right)$ 054629.
- 1 0 2nd obs. of S Pic. seq. (w, 050848. (111)
 $a_1 b_2 c_3 d_4 e_2 f_2 g_2 h_3 k_2 l_2 l'$.
 Var., l .
- 1 20 2nd obs. of T Pic. 051247. (112)
 $a_1 b_3 c_2 d_3 g_5 h_4 m_2 o_4 p$.
 Var., o a
- 1 40 2nd obs. of seq. T Columbae. 051533. (113)
 $a_5 a'_3 b_3 d_2 d_3 g_1 h_2 k_2 l_0 m_4 n_4 o$.
 Var., o g.
- 1 55 2nd obs. of seq. S Columbae 054331. (114)
 $a_1 b_5 c_2 d_3 e_4 f_2 g_3 h_3 k$.
 Var., us. $< k$.

Stan. Sat Oct. 9. Cont.

am

2 15 3^{rs} obs. of seq. R Volantis. 070772. (115)
 $a_3 b_0 c_5 d_2 e_2 f_3 g_2 h_4 k_4 l_1$
 Var. 0 g.

2 30 3^{rs} obs. of seq. S Volantis. 073173. (116)
 $a_2 b_5 c_0 d_4 e_2 f_2 g_2 h_2 k_1$
 Var. 0 a.

Ham. Sun. Oct 10.

P.M.

7 55- 3rd obs. of Arg. W Pav. 174162 - (141)
 $a_3 b_4 d_2 e_3 e'_3 f_2 h_4 k_4 m.$
 $d_3 \text{ var. } e_2.$

8 10 3rd obs. of Arg. SV Scorp. 174135. (142)
 $a_0 c_3 d_5 f_0 g_4 n, k_3 l_3 p, o_3 r.$
 $k_2 \text{ var. } l.$

8 30 3rd obs. of Arg. U Arae. 174551. (143)
 $a_7 c_0 f_6 g_3 h_2 k_3 l_2 m_4 n.$
 $\text{var. n. } f_6 \text{ } p. < n.$

Copied sent
 Oct. 12.

new box 9 cols 62.

Jan - Wed. Oct 13

am

cls 4.
wind SW f

1 20 3rd obs. of T Hordy. 025751. (110)
a₂ b₇ c₃ d₃ e₃ f₂ g₃ h₃ i₃.
var. 0 h.

1 40 3rd obs. of S Pic. 050848. (111)
a₇ b₀ c₄ d₃ e₃ f₃ g₀ h₃ i₃ j₃ l₃ l'.
var. 0 l.

1 55 3rd obs. of T Pic. 051247. (112)
a₁ b₃ c₃ d₃ e₃ f₃ g₅ h₄ i₃ m₃ o₃ p.
var. 2 a.

2 0 3rd obs. of T Columbae. 051533. (113)
a₅ a' b₃ c₃ d₃ e₃ f₄ g₂ h₁ i₂ j₀ m₂ n₅ o.
var. 0 g.

2 15 3rd obs. of S Columbae. 054331. (114)
a₈ b₆ c₃ d₃ e₄ f₄ g₃ h₄ i₄.
var. n. sun seen < h.
sky 9 day. heavy rain.

3 am sky 10 day.

Har. Jh. Oct. 14.

am.

1 35 3rd obs. of W Puffin. 074241. (117)
 $a_0 b_4 c_2 d_0 f_3 e_4 g_2 h_2 h'_3 k_3 l.$
 var. $c.$

1 55 3rd obs. of R Cham. 082476. (118)
 $a_3 d_2 b_0 c_5 e_1 h_3 k_3 m_3 o_3 n.$
 var. $o c$

2 25 3rd obs. of RU Car. ←
 $a_2 c_2 c'_1 f_3 h_3 k_3 l_3 m.$ (091365. (119)
 var. $o f.$

2 40 3rd obs. of RW Car. 091868. (120)
 $a_7 a'_3 d_2 e_2 f_2 g_3 h_3 h_2 m.$
 var. $o a'.$

2 55 3rd obs. of Y Vel. 092551 (121)
 $a_6 b+c_4 d_2 e_3 f_3 g_2 h_2 k.$
 var. $o c.$

3 10 3rd obs. of Z vel. 094953 (122)
 $a_5 b_3 c_0 d_3 e_3 f_3 g_2 h_1 k_1 l_2 m_3 m_2 o_2 p.$
 var. $o h.$

3 30 3rd obs. of R.V Car. 095523 (123)
 $a_6 b_4 c_4 d_3 e_3 f_2 g_3 h_3 k$
 var. $ns. \leftarrow k.$

Han. Fri. Oct 15-

am

2	50	115	R. Volantis	Var. o h.	070772
2	55	116	S u	Var. o a.	073173
3	0	101	V Jueft.	Var. us. Lm	000339
3	5	102	S Jue.	c ₂ Var. 1 d	001862
3	10	103	T Jueft.	Var. o b	002438a
3	15	104	T Phoen.	Var. o e	002546
3	35	105	W Jueft.	Var. o m	002833
3	40	106	X u	Var. o p	004435-
3	45	107	U Jue.	d ₂ Var. 2 e	005475-
3	50	108	U Jueft.	us. Lm	010630
4	0	109	R. Fornacis	o ₁ var. 1 p. c ₄ "X" 2 e.	022426

P.M.

Han - Sat Oct 16.

8 5' Splen. of seq. of R S Acroph. 164844 (24)
 $l_4 b^2_3 g_3 k_1 l_3 m_2 n_3 q_5$
 var. 10.4

8 25' Ceteris in of seq. R T Acroph. 165636. (26)
 $m_2 l_5 m_1 o_4 g_4 r_5$
 var. 10.2

8 40' Ept. of seq. S Oct. 172586. (28)
 $f_1 g_5 l_0 k_1 k'_3 m_1$
 var. n.s. < m.

9 15' Est. of seq. for R Tucanae. 235265. (50)
 $X_5 l_2 l_2 f_2 m_2 g_2 h_1 n_1 o_7 p_3 q_5$
 var. 0.2

9 35' Ext. of seq. R R Dog. 194929. (37)
 $f^2_7 l_4 p^2_5 p^2_3 p^2_2$
 var. 0 p^2 .

9 45' Ext. of seq. R M Dog. 195142. (38)
 $g_3 h_4 k_1 l_3 l'_3 l^2_3 m_3 n_1$
 var. 8.2

10 50' Ext. of seq. R Retic. 043263. (4)
 $l_3 m^2_3 m_4 o_3 p_3 q_5$
 var. 0.2

Pul
11 5

Ham. Dat Oct 16
rot. of $\text{H}\alpha$ - R Culi. 0.43738. (6).
 $s_3 t_3 u_3 v_4 w$.
 w_2 var.

am

Han. Tues. Oct. 19.

1 35' Set. of seq. R Retic. 043263. (4)
 $l_3 m_3 n_4 o_2 p_3 q_1$

1 45' Set. of seq. R Coeli. 043738 (6)
 $p_3 t_3 u_3 v_3 w$
 $w_2 \text{ var.}$

2 50' Set. of seq. R Columbae. 054629 (8)
 $h_2 k_3 l_2 m_4 n$
 $\text{var. ns. } \angle n$

3 10' Set. of seq. R Oct. 055686. (9)
 $h_4 k_0 l_7 m_2 n_0 o_4 p_3 q$
 $h_4 \text{ var. } 3m$

3 20' Set. of seq. Z Car. 10 10 58. (17)
 $g_4 h_3 k_0 l_3 m$
 $\text{var. ns. } \angle m$

The star marked w on Apr. 13 '09 and
 called Equal ϵ in brightness is now invisible
 & must be var.

Han. fr. Oct. 22.

P.M.

Set. of Aug. ^S Scorp. 001032 - (1)
 8 15 f 5 g 3 h 2 k 3 ~~l~~ 3 m. ^{sky v. hazy - thin streaks}
 var. vis. moon.

8 25 ^{Obs} ~~Set~~ of Aug. RS Scorp. 012233 b (2b)
 a 8 b 6 c 5 d 3 e.
 var. vis. { e

8 30 Set. of Aug. RS Scorp. 164844. (24)
 l 3 b 2 g 5 k 2 l 5 m 2 n 4 q 5.
 var. 10.6

8 35 Set. of Aug. RT Scorp. 165636. (26)
 n 3 l 5 m 0 o 3 q 3 r.
 var. 10.0

9 0 Set. of Aug. S Oct. 172586. (28)
 f 2 g 8 h 0 k 6 k' 4 m.
 var. vis. Lm.

9 20 Set. of Aug. RR Aug. 194929. (37)
 f 2 g 5 l 3 h 3 h' 3 h' 2 2
 var. 12.4 =

9 35 Set. of Aug. Rll Aug. 195142 (38)
 g 2 h 4 k 1 l 3 l' 3 l' 2 m 4 n.
 var. 8.0

Han - Fr. Oct. 22 - Cont.

P.M.

9 50³⁹ R Gel. 12.2 200747

10 20⁴⁰ R T fog. 9.5 ± 201139

The comp. star K, called 10.2, appears some
distinctly later than m, marked 10.0.
I estimate them $f_3 g_4 h_1 k_4 m_2 l$.

10 30⁴¹ R Mic. d_3 var. 1 e. 203429

10 35⁴² S Indi 8.1 204954

10 45⁴³ T Oct. 13.2 200782

10 50⁴⁴ R Gruis k_3 var. l 214247

11 15 Set. of seq. R Retic. 043263. (4)
 $h_3 m_4 n_4 o_3 p_4 q$.
 d_2 var. 2 e ± comp. st. distant.

11 30 Set. of seq. R Corio. R Colum. 054629 (8)
 $h_3 k_4 l_3 m_4 n$.
var. ns. $\angle m$.

11 40 Set. of seq. R Oct. 055686 (9)
 $h_2 k_2 l_7 m_3 n_0 o_4 p_4 q$.
 l_4 var. 3 m.

P.M.

Han. Oct. 22 - Cont.

11 55

Seq. for R Tue. 235265.

(50)

 x_6 b₆ m₀ f₂ e₀ g₂ h₀ n₂₀ p₃ q₀.
 l_4 var. 2 m.

The stars e & f are a rather close double and difficult to estimate - their inclusion in the sequence can only be approved on acct of their being the nearest stars to the var. and of ~~a~~ convenient magnitudes.

A.M.

12 30

Ext. of Seq. S Sculp. 001032.

(1)

 e_5 f₅ g₄ h₂ k₃ l₂ m₃ o.
 d_2 var. 2 e.

40

~~Ext.~~ ^{Seq.} of Seq. RS Sculp. 012233 b. (2b)
a₈ b₆ c₅ d₃ e.

var. n.s. L e.

45 10

L2 Puppis . 3.8

071044

50

11

S Puppis . Var. o d = 074347.

7

~~1~~ 0 12

R Pic.

var. 2 a.

044349

P.U.

Han. sat. oct 23.moon phase
no dist. sed.8 15 Sct. of seq. RS Scorp. 164844. (24)
 $l_3 b^2 + q_3 k_2 l_5 m_2 n_2 q_5$ 25 Sct. of seq. RT Scorp. 165636. (26)
 $n_4 l_5 m_0 o_4 q_4 r$ diff. moon.40 Sct. of seq. S Oct. 172586. (28)
 $f_3 q_8 l_2 k_4 k'_3 f_m$ 9 30 Sct. of seq. RR Sag. 194929. (37)
 $f_7 l_6 p_4 p'_3 p_2$ 45 Sct. of seq. RU Sag. 195142. (38)
 $q_4 h_5 k_0 l_5 l'_3 l_2 m_4 n$
var. 7.8

10 20 45 R Pisc. Aust. 9.8 221230

30 46 T Grus b_5 var. 3c 221938

35 47 S Grus 10.0 221948

40 48 R Indi 12.0 222867

11 0 49 R Phoen 9.2 233150

10 Sct. of seq. R Tuc. 235265. (50)
 $x_7 l_6 m_2 f_2 l_1 q_1 h_1 n_1 o_5 p_3 q_5$
 $l_3 m_0 o_4 q_4 r$

Han. Sat. Oct 23 Cont.

Pill.

11 55- Eret. of seq. S Sculp. 001032. (1)
 $f + g + h_3 k_3 l_3 m_3 n^0$.

am

12 10 Seq. - for RS Sculp. 012233b (2b)
 $a_8 b_6 c_3 d_2 e$.

20 Eret. of seq. R Columbae. 054629 (8)
 $h_3 k_4 l_3 m_5 n$

40 Eret. of seq. R Octantis. 055686. (9)
 $h_3 k_0 l_8 m_2 n_1 o_4 o'_4 r$.

Hanner, C. 27. 1909
 Wd. Oct. 27.

For the list of New Stars. Nos. 101-151, for which sequences have been determined in those cases in which charts giving photographic ~~letter~~ sequences were available at the time, these letters of the photog. seq. were used as far as possible in the adaptation of a visual sequence - in those cases no change in the letters employed has yet arisen or is at present proposed.

In many cases, however, sequences were selected at Hanner, before charts were received giving the photographic sequences. In all such cases the ~~letter~~ ^{vis. seq.} selected at Hanner have been used for obs. & measures of all kinds to this date.

Today, however, the letters of all such sequences have been changed to agree with those of the photographic seq's later received - and from this date obs. of all kinds will be carried on at Hanner - with the use of the corrected sequences.

Exceptions. For two stars. Nos. 110 & 114 - 025751 & 054331 - no photog. seq's were received - hence the seq's for these 2 stars are still & will remain the visual seq's selected at Hanner.

a set of charts clearly marked is left at Hanner for obs.
 & " " " " " " " " sent to Cambridge for checking

Han. Tri. Oct 29.

am

1	10	¹¹¹ S Pic. k_{12}		050848
	15	¹¹² T u Var. o a		051247
	40	⁵⁴ T Leonis 7.5-		050022
	45	⁸ R Columbae NS < m		054629
	50	⁵⁵ Z Puffis 7.5-		0728206
	55	⁵⁶ S Pyxidis 9.2		090024
2	5	¹² R Car 6.2		092962
	15	¹³ L Car. 4.0		094262
	20	¹⁴ RR Car. 7.6		095458
	25	¹⁶ S Car. 6.0		100661
	30	⁵⁷ RR Hydrae 10.6		094023
40	¹⁷	Sid. of J. Car. 101058. 94h ² 30 moon is bright for the stars Var. vis. < k		

of day. Stars from N.

Ham. Oct. 30. 1909

Pill.					
7	55	141	W Pav.	var. 0 f.	174162
8	0	142	S V Scorp.	g ₃ var. in	174135
	5	143	U Arae	h ₂ var. in	174551
	7	30	R Pav.	12.5	180363
	10	31	R V Sag.	10.5	182133
	13	32	S Cor. Aust.	12.5	185437
	15	33	R " "	11.0	185537a
	17	34	T " "	13.0	185537b
	40	66	Z Sag.	12.5	191321
	45	144	S V Sag.	var. 0 g.	191331
	50	145	S Tel.	var. 0 m'	195855
	55	145b	- Tel.	us. < m'	195656
9	5	36	S Pav.	8.5	194659
	10	35	T Pav. ^{strong wind}	vis. < 13.0	193972
	15	37	R R Sag.	12.5	194929

P.M. Han. Oct 30 - cont

- 9 18³⁸ R U. Dog - 7.5[±] 195142
 no comp. slat tgt enough
- 20 39 R Tel. 12.2[±] 200747
- 25 67 V Cap. 9.5[±] 210124
- 30 40 R T Dog. 10.2[±] 201139
 The magn. of close slat (10.0) I assume
 to be in error & do not use it in the rest.
- 35 41 R Mic d₁ var. 3 l 203429
- 40 42 S Indi 8.0 204954
- 45 43 T Oct - ns - < 12.0 205782
 moon has risen - very full -
- 50 146 U Mic - K₃ var. 3 l. 202240
- 55 147 RR Cap - e₂ var. 1 d 205627
- 10 0 148 S Mic - var. 0 m' ± 212030
- 5 149 S Pisc. Aust. ns < q 215828
- 10 149b - " " ns < q 215628
- 15 44 R Grus K₃ var. 2 l. 214247

P.M.

Han. Oct. 30 Cont.

10	30 ⁴⁵	R Pic. ant.	10.8	221230
35	46	<u>b₈ var., c.</u>	<u>(T Gruis)</u>	221938
40	68	X Aqua.	ns. $\angle$ 12.0	221321
45	69	RT u.	ns. $\angle$ 12.0	221722
50	47	S Gruis	10.3	221948
55	48	R Indi	11.8	222867
11	5 ¹⁵⁰	T Luc.	f_2^1 var. f_2^2	223462
10	70	S Aqu.	8.6	225120
15	151	- Phoen.	Var. 0 n	232746
20	49	R Phoen	9.2	235150

notes on additional Obs needed of
50 ang. Δ o. vars -

42 S Indi, No star in merge bet 11.3 + 12.6

1989phae.proj.1166S