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Book IV

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23.30

May 19, 1896.

Measures of positions of images on Iceland Spar plates

C 8836 taken Feb. 14, 1896

		x		y	
a	1	52637	4	49486	6
		52642	1	49496	4
		52643	2	49493	1
		52641	±2	49492	±4
	2	52474	1	50277	1
		52478	3	50277	1
		52474	1	50273	3
		52475	±2	50276	±2
	3	51982	4	51022	4
		51992	6	51025	1
		51985	1	51030	4
			±4		±3
		51986		51026	
	4	52156	4	50221	5
		52152	0	50216	2
		52149	3	50217	1
			±2		±2
		52152		50218	
b	1	53508	5	55810	4
		53497	6	55804	2
	2	53505	2	55804	2
		53503	±4	55806	±3

xxx

continued May 19, 1896

Measures of positions of images on Iceland Spar plates

		x		y	
b	2	53326	0	55599	2
		53325	1	55603	2
		53327	1	55601	0
			±1		±1
		53326		55601	
	3	52860	5	56361	3
		52851	4	56358	0
		52853	2	56356	2
			±4		±2
		52855		56358	
	4	53009	2	55565	2
		53011	0	55562	1
		53014	3	55563	0
			±2		±1
		53011		55563	
c	1	57776	0	61654	1
		57778	2	61654	1
		57774	2	61652	1
		57776	±1	61653	±1
	2	57619	3	62449	5
		57616	0	62442	2
		57613	3	62441	3
			±2		±3
		57616		62444	

24.5

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24.5

May 19, 1896.

Measures continued

		H		P	
C	3	57137	0	63167	1
		57138	1	63166	2
		57137	0	63171	3
		57137	±0	63168	±2
	4	57302	2	62394	0
		57301	1	62394	0
		57297	3	62393	1
		57300	±2	62394	±0
d	1	64667	4	59037	1
		64671	0	59039	1
		64676	5	59037	1
		64671	±3	59038	~~±1~~ ±1
	2.	64501	1	59828	3
		64502	0	59832	1
		64504	2	59833	2
		64502	±1	59831	±2
	3.	64025	5	60570	2
		64031	1	60573	1
		64033	3	60572	0
		64030	±3	60572	±1
	4	64201	6		
		64~~18~~ 84	1		
		64190	5		
		64195	±4		

24.20

24.20

May 19, 1896

Measures continued
Plate C 8902

		H	P
a	1	47010	60305
		47002	60308
		47002	60306
	2	47888	60358
		47890	60358
		47885	60357

24.35

The focus seemed to change while this plate was being measured. Accordingly it has been taken off and is to be remeasured tomorrow.

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21.30

May 20, 1896

Measures of Oeland Spar plates continued

	H.	V.
a 1.	46949	60352
	46954	60352
	46952	60361
		60354
a 2.	46685	59612
	46683	59613
	46685	59613
a 3.	45954	60100
	45956	60100
	45959	60104
a 4.	46232	60865
	46234	60859
	46230	60879

May 20, 1896.

Measures continued

	H	V
b 1	49755	49561
	49750	49559
	49759	49561
b 2	50474	49064
	50472	49059
	50485	49052
b 3	50734	49884
	50735	49814
	50730	49808
b 4	50019	50325
	50030	50331
	50028	50332

The focus changed again on this plate and none of these measures therefore should be used.

23.10

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May 22, 1896

Measures of positions of stars on Zeeland Iris plates.

Pole Star 7 exposures a

Plate C 9098 taken April 22, 1896

		H	Diff	V	Diff
1		49894 3	1+2 = 764	47138 6	1+2 = 394
		49895 2	1+3 = 924	47131 1	1+3 = 886
		49898 1	1+4 = 133	47128 4	1+4 = 808
		±2	2+3 = 166	±4	2+3 = 780
		49897	2+4 = 631	47132	2+4 = 1202
			3+4 = 791		3+4 = 422
2		49134 1		47522 4	
		49132 0		47530 4	
		49132 0		47527 1	
		±0		±3	
		49133		47526	
3		48969 4		46743 3	
		48975 2		46749 3	
		48974 1		46745 1	
		±2		±2	
		48973		46746	
4		49764 0		46318 6	
		49764 0		46325 1	
		49763 1		46329 5	
		±0		±4	
		49764		46324	

May 22, 1896

Meas. Cont.

		H	Diff	V	Diff
b	1	51695 2	1+2 = 752	50415 4	1+2 = 388
		51701 4	1+3 = 897	50425 6	1+3 = 861
		51694 3	1+4 = 110	50417 2	1+4 = 786
		±3	2+3 = 145	50419 ±3	2+3 = 749
		51697	2+4 = 642		2+4 = 1174
			3+4 = 787		3+4 = 425
	2	50947 2		50807 0	
		50942 3		50806 1	
		50945 0		50807 0	
		±2		±0	
		50945		50807	
	3	50801 1		50056 2	
		50800 0		50062 4	
		50800 0		50056 2	
		±0		±3	
		50800		50058	
	4	51589 2		49631 2	
		51584 3		49630 3	
		51587 0		49638 5	
		±2		±3	
		51587		49633	

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May 22, 1896.

Iceland Spar Mass, cont.

Plate C 9098 cont.

e	H	H Diff	V	V Diff	V/H
1	5~~7~~778	1+2=769	619711 8		
2	57768 3	1+3=920	61961 2		
	57769 2	1+4=145	61958 5		
	57775 4	2+3=151	~~57002~~ ±5		
	57771	±3 2+4=624	61963		
		3+4=775			
2	57002 0		62407 14		
	57004 2		62385 2		
	56999 3		62386 7		
	±2		±10		
	57002	V Diff	62393		
		1+2=480			
3	56848 3	1+3=349	61613 1		
	56852 1	1+4=770	61612 2		
	56854 3	2+3=779	61617 3		
	±2	2+4=1250	±2		
	56851	3+4=421	61614		
4	57629 3		61194 1		
	57624 2		61192 1		
	57625 1		61192 1		
	±2		±1		
	57626		61193		

Diff	1+2	3+4
a	764 0	791 13
b	752 8	787 9
c	769 5	775 3
g	769 5	769 19
	764 ±4	778 ±11

Diff	1+4	2+3
a	133 4 7	160 6
b	110 27 23	145 9
c	145 8 5	151 3
g	171 34 21	161 7
	137 ±18	154 ±6
	140	

Diff	1+3	2+4
a	924 6	681 7
b	684 21	642 18
c	920 2	624 0
g	930 12	598 26
	918 ±10	624 ±13

May 22, 1896

Plate C 9098 cont.

g	Jet.	Jet Diff	V	V Diff
		1+2=769		
1	61345 3	1+3=930	68638 3	
	61341 1	~~1+4=829~~	68645 4	
	61341 1	1+4=171	68639 2	
	±2	2+3=161	±3	
	61342	2+4=598	68641	
		3+4=759		
faint image	2 60576 3		69051 2	
	60573 0	V Diff	69050 1	
	60569 4	1+2=408	69047 2	
	±2	1+3=369	±2	
	60573	1+4=889	69049	
		2+3=777		
3	60408 4	2+4=1227	68269 3	
	60416 3	3+4=450	68272 0	
	60413 1		68274 2	
	±3		±2	
	60412		68272	
4	61171 0		67~~82~~822 0	
	61169 2		67822 0	
	61172 1		67822 0	
	±1		±0	
	61171		67822	

Diff	1+2	3+4
a	394 16	422 8
b	386 8 15	425 5
c	430 36 5	421 9
g	408 44 3	450 20
	405 ±14	430 ±10

Diff	1+3	2+4
a	386 20	1202 1
b	361 5	1174 27
c	349 17	1200 1
g	369 3	1227 26
	366 ±11	1201 ±14

Diff	1+4	2+3
a	838 12	780 9
b	786 10	749 22
c	770 24	779 8
g	819 23	777 6
	796 ±18	771 ±11

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$23^h\ 2^m$

May 26, 1896.

Measure with micrometer to determine angles of stars on Dreland Spar plates

Superseded see p. 30

North Field Plate C 9142 taken April 30, 1896

		H		V	
a	1	46606	5	45011	1
		46597	1	45011	1
		46599	2	45009	1
			±4		±1
		46601		45010	
	2	45848	1	44451	4
		45847	0	44455	0
		45846	1	44459	4
			±1		±3
		45847		44455	
Image much elongated	3	46443	0	43904	1
		46441	2	43905	0
		46446	3	43906	1
			±2		±1
		46443		43905	
	4	47194	0	44354	3
		47196	2	44349	2
		47193	1	44349	2
			±1		±2
		47194		44351	

$23^h\ 35^m$

May 26, 1896

Dreland Spar Plates Continued

Superseded see p. 19

Plate C 9097 taken April 22, 1896

		H		V	
d	1	46118	1	44875	4
		46119	0	44868	3
		46120	1	44870	1
			±1		±3
		46119		44871	
	2	46419	1	45377	1
		46419	1	45380	2
		46417	1	45378	0
			±1		±1
		46418		45378	
Image elongated	3	46165	2	44634	1
		46167	4	44632	1
		46158	5	44633	0
			±4		±1
		46163		44633	
	4	46860	2	44113	0
		46864	2	44111	2
		46863	1	44114	1
			±2		±1
		46862		44113	

On this + all pending plates Stars not kept 5th end lines in the center of the dot. On the following plates I have

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$0^h\ 15^m$ May 27, 1896 Iceland Spar Ant.

Plate C 9141 taken April 30, 1896

Praesepe f		H			V		
A sudden jar disturbed the focus. Measures begun over again.	1	42168	42193	1	31880	31874	2
		42172	42194	0		31880	2
		42168	42196	2		31872	0
		42		±1			±1
		42194			31872		
	2	42994		2	32213		1
		42992		0	32213		1
		42990		2	32215		1
				±1			±1
		42992			32214		
	3	42471		2	32826		3
		42474		1	32832		3
		42475		2	32830		1
				±2			±2
		42473			32829		
Very Faint Image	4	41675		4	32495		0
		41670		1	32493		2
		41667		4	32498		3
				±3			±2
		41671			32495		

On this plate I have been careful to keep both lines on center of star.

$1^h\ 45^m$ May 27, 1896 Iceland Spar Ant.

Plate C 9095 taken April 22, 1896 Praesepe

		H			V		
	1	45745	45706	1	41469	41491	3
Screw needs adjusting. Measures recommenced		45748	45700	0		41485	3
		45751	45708	3		41489	1
				±3			±2
		45705			41488		
	2						
Image elongated		46507		1	41123		2
		46505		1	41127		2
		46507		1	41126		1
		46506		±1	41125		±2
	3	46602		3	41918		1
Image elongated		46594		6	41919		0
		46602		3	41920		1
		46599		±4	41919		±1
	4	45805		1	42278		1
Image elongated		45808		2	42279		0
		45806		0	42281		2
		45806		±1	42279		±1

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1h 25m

May 27, 1896

Iceland Spar Comb.

North Field

Plate C 9108 taken April 23, 1896 Crassipe.

		H		V	
C	7				
1	2	46070	1	41796	1
	3	46071	2	41795	0
		46067	2	41793	1
			±2		±1
		46069		41795	
	1				
	2	46891	3	42140	1
		46887	1	42142	1
		46887	1	42142	1
		46888	±2	42141	±1
	3	46408	1	42779	1
		46407	2	42778	0
		46412	3	42776	2
			±2		±1
		46409		42778	
	4	45601	2	42470	1
Faint image		45596	3	42469	0
		45599	0	42468	1
			±2		±1
		45599		42469	

$2^h\ 25^m$

May 27, 1896

Iceland Spar Comb.

Pole Star

Plate C 9097 remeasured (from 7 to 15) in order that both cross lines may be kept in center of Star.

		H		V	
d	1	49721	3	61834	2
		49724	0	61829	3
		49727	3	61832	0
			±2		±2
		49724		61832	
	2	48904	0	62099	2
		48905	1	62095	2
		48903	1	62096	1
			±1		±2
		48904		62097	
	3	48888	1	61301	2
		48891	2	61298	1
		48889	0	61299	0
			±1		±1
		48889		61299	
	4	49724	1	61025	2
		49722	1	61022	1
		49723	0	61023	0
			±1		±1
		49723		61023	

Cont. p. 30

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May 27, 1896

Measures of the photographic brightness of the companion stars to 8 Ursae Majoris. (From Vol 3 p)

Plate I 15084

a	7.3
b	7.4
c	7.2
d	7.3
e	8.8
f	8.1
f'	8.7
g	9.0
h	9.0
h'	9.2
k	8.9
l	9.3
m	9.5
n	9.9
o	10.1
X	9.0
V	
Y	5.6 5.9

For earlier measures see III p 141

May 27, 1896

Measures of Comparison stars for 8 Ursae on plates C 8278 + C 5934, only a, c, e, f, g, h

Plate C 5934

a	6.6	6.0
c		6.9
e	7.0	6.7
f		7.1
g		8.4
h		8.3

Plate C 8278

a	6.1	
c	6.8	6.4
e	6.6	6.1
f	6.9	6.5
g		7.0
h		7.9

On each of these plates the measures with the upper and lower scales have been made entirely independently. Went back and measured the bright stars on the fainter scale after going over through the list.

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May 27 1896.

Measures on plate C 6714 of the brightness of Comparison Stars to S Bootis. To take the place of C 8707, one star, k, was not in field

a	5.4	4.9
b	6.7	6.1
c		7.1
d		Not on plate
e		8.6
f		8.0
g		9.1
h		9.2
k		9.6
l		9.8
m		10.0
n		n.s.
o		n.s.
p		n.s.
q		n.s.
r		n.s.
s		n.s.
V		7.8

May 27 1896

Measures of Plate C 7064 to find magnitudes of comparison stars to ψ Cephei. To take the place of C 6077 one star k is absent

a		Not on plate	
b		Not on plate	
c		Not on plate	
d	5.7	~~5.7~~	5.2
e	6.2	~~6.2~~	5.7
f	6.8	~~6.8~~	6.3
g	7.0	~~7.0~~	6.7
h	6.7	~~6.7~~	6.2
l		6.9	
k		7.7	
l		8.5	
m		8.6	
n		9.6	
o		9.0	
o'		9.2	
p		9.8	
q		9.7	
r		9.7	
s'		9.9	
e		n.s.	
t		n.s.	
V	6.0		

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May 27, 1896

Measurement of magnitudes & comparison stars a, b, m', n for R Ursae Majoris

See note next page.

Plate I 838

a	5.9	6.2
b	6.3	6.7
m'	8.0	8.0
n	8.0	8.0

These plates are very poor

Plate I 3170

a	5.7	6.0
b	6.1	6.6
m'		8.0 2.
n		8.2

Image blurred

Plate I 8916

a	5.7	6.0
b	6.0	6.5
m'		8.0
n		8.1

Plate I 14846

a	5.1	5.4
b	5.6	6.0
m'	7.0	7.3
n	7.1	7.6

Very bad focus.

May 28, 1896

R Ursae Maj. Cont

C 6224

a	5.7
b	6.1
m'	7.6
n	7.9

On these plates m' is usually near the edge

C 6527

a	5.9
b	6.4
m'	9.0
n	8.2

Extreme edge

C 6709

a	6.0
b	6.6
m'	8.6
n	8.5

These means apparently were taken on account of large residuals from original means. They are in substantial agreement with the original means. These have not been used and are not to be used.

Note December 8, 1902

C 6763

a	5.9
b	6.3
m'	8.0
n	8.0

C 7635-9

a	6.0
b	6.4
m'	7.7
n	8.0

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May 28, 1896

Measures of the brightness of the comparison stars to R Aurigae

Plate I 2924 taken Jan. 26, 1891

a	4.4	4.7	
b	5.0	6.3	
c	5.7	6.6	Image much elongated
c'	6.1	6.5	
d	7.0	7.2	
e		7.6	
f		7.7	
g'		8.0	
g		8.2	
h		8.9	
k		8.8	
l		9.0	
m		9.6	
n		9.1	
o		9.2	
o'		9.7	
p		n.s.	
q		10.0	
r		n.s.	
s		n.s.	
t		n.s.	
u		n.s.	
v		10.1	

May 28, 1896

R Aurigae Cont

Plate I 5481 taken Jan. 31, 1892

a	3.0	3.3	
b	5.3	5.8	
c	4.8	6.0	
c'	5.0	6.4	
d	5.5	6.0	
e	6.1	6.5	
f	6.9	7.0	
g	6.9	7.0	
g'		7.5	
h		8.1	
k		8.0	
l		8.2	
m		8.9	
n		8.6	
o		8.8	
o'		9.0	
p		9.9	What I measure as p may be a grain in plate
q		10.0	
r		n.s.	
s		n.s.	
t		n.s.	
u		n.s.	
v		8.1	

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May 28, 1896

R Aurigae Cont,

Plate I 7864 taken Jan. 8, 1893

a	4.1	4.4
b	5.2	5.6
c	5.0	5.3
c'	5.3	5.7
d	5.8	6.1
e	6.0	6.3
f	6.1	6.5
g	6.2	6.7
g'	6.7	6.9
h	7.7	7.7
k		7.6
l		7.6
m		8.8
n		8.0
o		8.7
p		10.0
ó		9.0
q		10.0
r		10.1
s		10.3?,
t		n.s,
u		n.s.
V	6.3	6.6

May 28, 1896

R Aurigae Cont.

Plate I 11908 taken Nov. 15, 1894

a	4.8	5.1
b	5.6 6.4	6.7
c	5.9	8.2
c'	6.6	6.9
d		7.6
e		7.7
f		8.0
g		8.0
g'		8.3
h		9.0
k		8.8
l		9.0
m		9.6
n		9.2
o		9.4
o'		9.6
p		10.2?
q		10.1?
r		n.s.
s		n.s.
t		n.s.
u		n.s.
V		n.s.

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May 29, 1896

Measure of positions of Images on Ilford Spectra plates, with micrometer. Cont from p. 19

Pratt Ast C 9143

Pratteope		H		V	
b	1	56981	2	55970	3
		56977	2	55972	1
		56978	1	55977	4
			±2	5	±3
		56979		55973	
	2	56181	0	55648	0
		56181	0	55647	1
		56182	1	55648	0
			±0		±0
		56181		55648	
Image elongated	3	56694	1	55030	0
		56696	1	55028	2
		56695	0	55031	1
			±1		±1
		56695		55030	
	4	57499	1	55376	0
		57498	0	55374	1
		57498	0	55375	0
			±0		±0
		57498		55375	

June 4, 1896

Remeasurement of positions of Images on Ilford Spectra plate C 9108 Pratteope

Mt. Field		H	V
c	1	44750	54285
		44750	54286
		44760	54283
	2	45603	54461
faint Image		45604	54459
		45609	54462
	3	45210	
		45214	
	4		

A jar disturbs focus here

Measurements next page

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June 4, 1896

Remeasurement of positions of images
Mult. Field on plate C 9108. Praesepe

Mult. Field				
C				
1	44708	2	53892	1
	44711	1	53904	1
	44710	0	53903	0
		±1		±1
	44710		53903	
2	45574	0	54091	0
	45574	0	54091	0
	45575	1	54092	1
		±0		±0
	45574		54091	
3	45178	0	54790	0
	45178	0	54789	1
	45179	1	54790	0
		±0		±0
	45178		54790	
4	44329	1	54609	1
	44327	1	54609	1
	44327	1	54612	2
		±1		±1
	44328		54610	

June 5, 1896

Measurements of magnitudes of Comparison stars to R Aurigae.

Plate C 6017 taken Sept. 30, 1893

a		
b		
a	4.8	4.3
b	6.4	5.9 Edge of field
c		Not on any C plate
c'	6.7	6.1
d		6.8
e		6.8
f		7.2
g		7.3
g'		7.7
h		8.7
k		8.6
l		8.9
m		9.4
n		9.0
o		9.3
o'		9.6
p		9.9
q		9.9
r		10.0
s		10.2
t		n.s.
v		n.s.

Right hand measures of b + c' taken independently after all other measures were finished

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June 5, 1896
R Aurigae Cont.

Plate C 6645 taken March 19, 1894

a	5.0	4.5	
b	6.3	5.8:	5th magn. in defect.
* c'	6.3	5.7:	" " " "
d	6.9	6.4	
e		6.9	
f		7.3	
g		7.5	
g'		7.7	
h		8.8	
k		8.7	
l		9.0	
m		9.7	
n		9.2	
o		9.5	
p		9.7 10.1	o' measured first
q		10.2	
r		n.s.	
s		n.s.	
t		n.s.	
V		8.2	
o'		9.7	

* I have used value 5.8 in reducing, since the second measure is uncertain and b and c' come out alike when measured on the good scale.

June 5, 1896
R Aurigae Cont

Plate C 7228 taken Nov. 16, 1894

a	5.1	4.6
b	6.4	5.9
c'	6.6	6.0
d	7.0	6.8
e		7.1
f		7.6
g		7.7
g'		7.9
h		8.7
k		8.6
l		8.8
m		9.6
n		9.1
o		9.3
o'		9.7
p		9.9
q		10.0
r		10.2
s		n.s.
t		n.s.
V		10.3:

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June 5, 1896

R Aurigae Cont

Plate C 8285 taken Sept. 5, 1895

a	3.8	3.3
b	5.3	4.8
c	5.1	4.6
d	6.0	5.6
e	6.3	5.8
f	6.7	6.1
g	6.6	6.0
g'	6.7	6.0
h		7.0
k		6.9
l		7.2
m		8.2
n		7.6
o		7.9
o'		8.5
p		9.5
q		9.6
r		9.7
s		10.0
b		a.s.
V		6.0

June 9, 1896

Estimates of the brightness of S Canis Majoris extracted from III p 28

Plate C 9153 taken April 30, 1896

v m.s. v < 12.2

11.98 p = .2

Plate I 15349 taken

v o t 14.55 v = 14.55

Plate I 15459 taken July 12, 1896

12.74 s 3 s'

13.13 s' 5 r 13.63 v = 13.89

14.15 r 4 t 14.55

Plate I 15896 taken Sept. 4, 1896

v o k 10.48 v = 10.48

Plate I 15515 taken July 21, 1896

v m.s. v < 12.4

12.30 q = .1

Plate I 15413 taken Aug. 18, 1896

Too pm

Continued page 213

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Reduced April 13, 1915 G.F.M.

June 9, 1896

Estimates of the brightness of R Aurigæ, continued from III p. 22

Plate I 14930 taken April 16, 1896

v m. s. v < 13.5

13.44 q = .1

Sept. 23, 1896

Plate I 15352 taken June 22, 1896

The 3 following are offset from opposite page

11.62 0 3 v 11.92 12.00 v = 11.96 04 04

12.00 v 1 0 12.10

Plate I 15374 taken May 27, 1896

v m. s. v < 12.0

11.92 vm = .1

Plate I 15741 taken Aug. 19, 1896

10.98 b 5 v 11.48 11.22 v = 11.35 13 13

11.22 v 1 m 11.32

Reduced Dec. 23, 1914 G.F.M.

June 9, 1896

Estimates of the brightness of R Lyncis, continued from III p. 26

Plate I 15139 taken May 19, 1896

10.18 $h_6^{=k}$ v 10.78 10.91 v = 10.84 06 07

10.91 v 2 m 11.11

Sept. 23, 1896

Plate I 15357

0 3 v

v 1 0

These are for R Aurigæ

Plate I 15374

v m. s.

m = .1

Plate I 15741 taken Aug. 19, 1896

b 5 v

v 1 m

Plate I 15290 taken

9.08 $f_6^{p'}$ v 9.68 9.39 v = 9.54 14 15

9.39 v 4 q 9.79

Plate I 15175 taken

v 0 q 9.79

Plate I 15742 taken

v 0 m 11.11

Continued p. 84

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Reduced March 1915
W.F.M.

June 9, 1896

Estimates of the brightness of R. Ursae Majoris, continued from III p. 60

Plate C g127 taken April 29, 1896
8.32 h 2 v 8.52 v < 8.52?
v - n
In comparison stars on plate between h + n

Plate C g154 taken April 30, 1896
8.32 h 2 v 8.52 v = 8.52?
v - n

Sept. 23, 1896

Plate I 15916 taken June 19, 1896
11.50 q 1 v 11.60 11.47 v = 11.54 ob of
11.47 v 3 r 11.77

Plate I 15796 taken May 27, 1896
10.28 v 0 m 10.28 v = 10.28

Plate I 15696 taken Aug. 17, 1896
v n. s. v < 14.6
14.50 X = .1

Reduced Oct 3, '14
S.R.

June 9, 1896

Estimates of the brightness of R Cassiopeiae continued from III p. 213

Plate C g151 taken April 30, 1896
11.00 r 2 r? 11.20 = r
s n. s.

Sept. 19, 1896

Plate I 15605 taken
12.09 t 3 v 12.39 12.69 12.54 15 15
12.69 V 1 w 12.99

Plate I 15530 taken July 25, 1896
12.79 u n. s. July
11.00 r = .1 v < 11.10

Plate I 15756 taken Aug. 20, 1896
v n. s.
10.51 X = .1 v < 10.61

very poor focus
Plate I 15237 taken June 2, 1896
v 0 s 11.85 v = 11.85
I 15658?
v is too blurred together for accurate estimate
Plate I 15668 taken Aug. 10, 1896
12.09 t 3 v 12.39 12.69 12.54 15 15
12.69 V 1 w 12.99

Plate I 15347 taken June 22, 1896
v 0 u 12.79 v = 12.79
Continued p 79

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June 10, 1896

Measures of Images on Iceland Spar plates.

Plate I 15250

1	a	5.2	5.6
	b	6.0	6.3
	c	6.4	6.9
	d		7.6
	e		7.8
2	a		8.8 2 Image very fine - large and pale
	b		8.9 2 " " " " " "
	c		8.7 2 " " " " " "
	d		9.0 2
	e		9.0 2
3	a	4.5 5	5.7
	b	6.0	6.5
	c	6.6	7.0
	d		7.7
	e		7.8
4	a		8.7 2 1
	b		8.4 Better image than previous in 2 or 4
	c		8.7 9.2 " " " " " "
	d		9.0
	e		9.0

Images faded in appearance. Measures uncertain

June 10, 1896.

Iceland Spar Plates Continued

Plate I 15251 taken June 3, 1896

1	a	8.1
	b	8.2
	c	8.2
	d	7.6
	e	8.0
2	a	9.0
	b	9.2
	c	9.2
	d	9.0
	e	9.4
3	a	8.2
	b	8.3
	c	8.2
	d	7.8
	e	8.2
4	a	9.1
	b	9.2
	c	9.2
	d	8.9
	e	9.2

These images all measured on lower scale.

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June 10, 1896

Iceland Spar Plates Continued

Plate I 15-25-2 taken June 3, 1896

1	a	5.0	5.2
	a, b	7.0	7.2
	p a	~~8.1~~	8.1
	b d	~~7.4~~	7.4
	b e	~~7.8~~	8.8
	c f		8.6
	d g		8.7
	e h		8.1
	f k		8.7
2	a	6.8	7.1
	a, k		8.7
	p a		9.5
	b d		8.7
	b, e		10.2 [3]
	c f		10.1
	d g		10.3 [2]
	e h		9.6
	f k		10.3 [2]

June 10, 1896

Plate I 15-25-2 continued

3	a	5.0	5.2
	a, b	6.9	7.2
			~~8.2~~
	p a		~~7.4~~
	b d		7.3
	b e		8.8
	c f		8.6
	d g		8.7
	e h		8.2
	f k		8.9
4	a		7.5
	a, b		8.7
	p a		9.4
	b d		8.8
	b e		10.0
	c f		10.2
	d g		10.3
	e h		9.6
	f k		10.2

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June 10, 1896

Iceland Spar Cont

Plate I 15-25 3 taken June 3, 1896

1	a	4.8	5.1
	a, k	6.8	6.9 7.1
	p a	8.0	8.0
	b d	5.1	5.6
	b, k		7.6
	c f	5.9	6.0
	d g	6.6 7.6	6.8
	e k		7.5
	f k		8.0
	g k		8.6
	e m		10.8 8.7
	d, m		9.8 8.4
	c, a		8.2
2	a	6.8	7.2
	a, k		8.8
	p a		9.7
	b d		7.7
	b, k		8.9
	c f		8.2
	d g		8.7
	e k		8.7
	f k		9.0
	g k		10.0
	e m		10.2
	d, m		9.8
	c, a		9.4

June 10, 1896

Plate I 15-25 3 cont.

3	a	4.8	5.0
	a, k	6.8	6.9
	p a		8.2
	b d	5.3	5.7
	b, k		7.3
	c f	5.9	6.2
	d g	6.6	6.9
	e k	7.0	7.3
	f k		7.5
	g k		8.4
	e m		8.8
	d, m		8.4
	c, a		8.6
4	a		7.5
	a, k		8.8
	p a		9.4
	b d		7.8
	b, k		8.8
	c f		8.0
	d g		8.6
	e k		8.7
	f k		9.0
	g k		9.7
	e m		10.2
	d, m		9.9
	c, a		9.2

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June 18, 1896.

Iceland Spar Cont.

Plate $\frac{I}{H}$ 15254 later June 3, 1896

1	a	4 5.6	4.9		
	a,	6.8	7.0	Upper	
	p		8.0		
	b	5.0	5.5	5.1	
	b,		7.7		
	c	5.7	6.0		
	d	6.1	6.8		
	e	6.7	7.0		
	f		7.7		
	g		8.3		
	r		8.7		
	d,		8.3		
	c,		8.1		
	e,		8.5		
2	a	6.8	7.0		
	a,		8.7		
	p		9.3	Lower	
	b	7.0	7.3	7.3	
	b,		8.7		
	c		8.0		
	d		8.3		
	e		8.6		
	f		8.9		
	g		10.0		
	r		10.4?		
	d,		9.9		
	c,		9.2		
	e,		10.0		

June 11, 1896

Iceland Spar

Plate $\frac{I}{H}$ 15254 continued

3	a	4.7	5.0	
	a,	6.7	7.0	
	p		8.2	
	b	5.2	5.5	
	b,		7.7	
	c	5.8	6.0	
	d	6.4	6.7	
	e	7.0	7.3	
	f		7.8	
	g		8.5	
	r		8.8	
	d,		8.4	
	c,		8.0	
	e,		(8.5)	
4	a	7.0	7.2	
	a,		8.8	
	p		9.3	Lower
	b		7.9	7.7
	b,		8.9	
	c		8.2	
	d		8.6	
	e		8.9	
	f		9.0	
	g		9.7	
	r		10.3?	
	d,		9.9	
	c,		9.5	
	e,		10.1?	

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June 11, 1896

Measures of positions of images on sidereal span plates

Plate I 15254

a	Y	H	V	H1-2 = 861
	1	61904 4	55385 2	4-3 = 866
		61911 3	55387 0	4-1 = 413
		61908 0	55388 1	3-2 = 408
		±2	±1	
		61908	55387	
				V21 = 195
	2	62771 2	55583 1	3-4 = ~~222~~ 222
		62767 2	55579 3	4-1 = ~~558~~ 672
		62768 1	55584 2	2-3 = 391 699
		±2		
		62769	55582	
	3	62363 2	56278 3	
		62359 2	56282 1	
		62362 1	56282 1	
		±2	±1	
		62361	56281	
	4	61496 1	56055 4	
		61496 1	56060 1	
		61494 1	56061 2	
		61495 ±1	56059 ±2	

My forces for this plate not my satisfactory

Re note opp. page, obs. applies also here

June 11, 1896

Measures continued.

Plate #I 15252 taken June 3, 1896

a	H	V	
Images 1	62538 1	55704 3	H12 = 850
Images	62541 2	55709 2	4-3 = 844
	62538 1	55707 0	4-1 = 430
	±1	±2	3-2 = 436
	62539	55707	
2	63388 1	55726 1	
	63388 1	55729 2	V21 = 220.
	63390 1	55727 0	3-4 = 228
	±1	±1	4-1 = 3-2 617
	63389	55727	2-3 = 315 685
3	62952 1	56613 1	
	62954 1	56611 1	
	62954 1	56612 0	
	±1	±1	
	62953	56612	
4	62109 0	56383 1	
	62109 0	56384 0	
	62108 1	56384 0	
	±0	±0	
	62109	56384	

On this plate I assumed that I had made a mistake in reading for 3; remembering that the plate was so placed that (4) was lower than (2) and higher than (3) it is evident that the original reading for (3) is right and that the correction should be applied to (4)

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June 11, 1896

Measures of positions on Leland Stan. plates cont.

Plate I 15253

a	x	H	V
Image 14 singular		61219	55183
		61217	55179
		61221	55182

Changes in focus &c. necessitate measurement next page

June 11, 1896

Cont. from preceding Page

Plate I 15253

a		H		V		H/L2 = 858
	1	61236	1	55236	4	4-3 = 801
		61239	0	55228	3	4-1 = 865
		61238	0	55230	1	32 = 422
			±0		±3	
		61251		55231		V2-1 = 211
						4-3 = 220
	2	62108	1	55441	1	1-4 = 672
		62106	3	55444	2	2-3 = 681
		62112	3	55441	1	
			±2		±1	
		62109		55442		
	3	61687	0	56121	2	
		61685	2	56125	2	
		61688	1	56123	0	
			±1		±1	
		61687		56123		
	4	60886	0	55901	2	
		60886	0	55904	1	
		60885	1	55904	1	
			±0		±1	
		60886		55903		

A change came after 61V1 owing to a jar. Second meas. right I think another jar caused a slight disturbance during meas. Image used

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June 11, 1896

Reduction of the rotations on Roland Spec Plates

	Horizontal Diffuses			Vertical Diffuses				
	1-2	4-3	4-1	2-3	2-1	3-4	1-4	2-3
I 15252	860	844	430	436	220	228	677 ~~323~~	685 ~~315~~
I 15253	858	801	365	422	211	220	672	681
I 15254	861	866	413	408	197.5	222	672	699

June 11, 1896

Plate I 15252

$\tan \alpha = \frac{H4-1}{V1-4} = \frac{430}{323\ 677}$ — 2.6335, 2.8306, 2.5072, 0.1243, 9.8029

$\alpha = 53^\circ\ 25'$, $\alpha' = 75^\circ\ 29'$

$\tan \alpha' = \frac{H1-2}{V2-1} = \frac{850}{220}$ — 2.9294, 2.3424, 0.5870

$128^\circ\ 54'$, $107^\circ\ 54'$

$\tan \beta = \frac{V2-1}{H1-2} = \frac{220}{850}$ — 2.3424, 2.9294, 9.4130

$\beta = 14^\circ\ 81'$, $\beta' = 37^\circ\ 31'$

$\tan \beta' = \frac{V2-3}{H3-2} = \frac{685\ 315}{436}$ — 2.8357, 2.6395, 9.8088, 10.1962

$52^\circ\ 29'$, $72^\circ\ 2'$

$\tan \gamma = \frac{H3-2}{V2-3} = \frac{436}{315\ 685}$ — 2.6395, 2.8357, 9.8038

$\gamma = 54^\circ\ 9'$, $\gamma' = 74^\circ\ 53'$

$\tan \gamma' = \frac{H4-3}{V3-4} = \frac{844}{228}$ — 2.9263, 2.3579, 0.5684

$129^\circ\ 2'$, $107^\circ\ 22'$

$\tan \delta = \frac{V3-4}{H4-3} = \frac{228}{844}$ — 2.3579, 2.9263, 9.4316

$\delta = 15^\circ\ 7'$, $\delta' = 36^\circ\ 55'$

$\tan \delta' = \frac{V1-4}{H4-1} = \frac{323\ 677}{430}$ — 2.8306, 2.5072, 2.6335, 0.1971

$52^\circ\ 2'$, $72^\circ\ 42'$

Mittel $\angle \alpha = 107^\circ\ 54'$
" $\angle \beta = 72^\circ\ 2'$
" $\angle \gamma = 107^\circ\ 22'$
" $\angle \delta = 72^\circ\ 42'$

$180^\circ - \alpha = 72^\circ\ 6'$ 4′
$72^\circ\ 2'$ 2′
$72^\circ\ 38'$ 16′
$72^\circ\ 42'$ 2′
88 ±18′

$72^\circ\ 22'$

$\log \tan \gamma 2^\circ 2' = 0.4978$

$\frac{\log \tan^2}{4} = 2.49$

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June 11, 1896

Plate I 15263

$\tan\alpha = \frac{H4-1}{V1-4} = \frac{365}{672}$ 2.5623 − 2.8274 = 9.7349

$\tan\alpha' = \frac{H1-2}{V2-1} = \frac{858}{211}$ 2.9335 − 2.3243 = 0.6092

$\alpha = 28° 30'$

$\alpha' = 76° 11'$

$104° 41'$

$\tan\beta =$

$\tan\beta = \frac{V2-1}{H1-2} = \frac{211}{858}$ 2.3243 − 2.8585 = 9.3908

$\tan\beta' = \frac{V2-3}{H3-2} = \frac{681}{422}$ 2.8332 − 2.6253 = 0.2079

$\beta = 13° 49'$

$\beta' = 58° 13'$

$72° 2'$

$\tan\gamma = \frac{H3-2}{V2-3} = \frac{422}{681}$ 2.6253 − 2.8332 = 9.7921

$\tan\gamma' = \frac{H4-3}{V3-4} = \frac{801}{220}$ 2.9036 − 2.3424 = 0.5612

$\gamma = 31° 47'$

$\gamma' = 74° 38'$

$106° 25'$

$\tan\delta = \frac{V3-4}{H4-3} = \frac{220}{801}$ 2.3424 − 2.9036 = 9.4388

$\tan\delta' = \frac{V1-4}{H4-1} = \frac{672}{365}$ 2.8274 − 2.5623 = 0.2651

$\delta = 15° 27'$

$\delta' = 61° 30'$

$76° 52'$

Sum $\angle\alpha = 104° 41'$

" $\angle\beta = 72° 2'$

" $\angle\gamma = 106° 25'$

" $\angle\delta = 76° 52'$

$360°$

$180° - \alpha = 75° 18'$

$72° 2'$

$180° - \gamma = 73° 35'$

$76° 52'$

$296° 107'$

$74° 27'$

$\log\tan 74° 27' = 0.5555$

$\log\tan^2 = 2.78$

$\cdot 4$

June 12, 1896

Plate I 15254

$\tan\alpha = \frac{H4-1}{V1-4} = \frac{413}{672}$ 2.6160 − 2.8274 = 9.7886

$\tan\alpha' = \frac{H1-2}{V2-1} = \frac{861}{195}$ 2.7358 − 2.2975 = 0.6450

$\alpha = 31° 35'$

$\alpha' = 77° 14'$

$108° 49'$

$\tan\beta = \frac{V2-1}{H1-2} = \frac{195}{862}$ 2.2975 − 2.7356 = 9.3509

$\tan\beta' = \frac{V2-3}{H3-2} = \frac{699}{408}$ 2.8445 − 2.6107 = 0.2338

$\beta = 12° 46'$

$\beta' = 59° 44'$

$72° 30'$

$\tan\gamma = \frac{H3-2}{V2-3} = \frac{408}{699}$ 2.6107 − 2.8445 = 9.7662

$\tan\gamma' = \frac{H4-3}{V3-4} = \frac{866}{222}$ 2.9375 − 2.3467 = 0.5911

$\gamma = 30° 16'$

$\gamma' = 75° 37'$

$105° 53'$

$\tan\delta = \frac{V3-4}{H4-3} = \frac{222}{866}$ 2.3464 − 2.9375 = 9.4089

$\tan\delta' = \frac{V1-4}{H4-1} = \frac{672}{413}$ 2.8260 − 2.6160 = 0.2114

$\delta = 14° 23'$

$\delta' = 58° 25'$

$72° 48'$

Sum $\angle\alpha = 108° 49'$

" $\angle\beta = 72° 30'$

" $\angle\gamma = 105° 53'$

" $\angle\delta = 72° 48'$

$360°$

$180° - \alpha = 71° 18'$

$72° 30'$

$180° - \gamma = 74° 7'$

$72° 48'$

$289° 103'$

$72° 43'$

$\log\tan 72° 42' = 0.4961$

$\log\tan^2 = 2.52$

$\cdot 4$

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June 18, 1896

Remeasurement of the four brightest stars & images in prisms measured & reduced from plates.

Plate I 15252

a	1 a	4.9	5.2	

Plate I 15253

	1 a	4.7	5.0	

Plate I 15254

	1 a	4.7	5.0	
b	1 b	5.0	5.6	
a_2	2 I 15252	7.0	7.2	
	15253	6.8	7.1	
	15254	6.6	7.0	
b_2	2 15254		7.6	
a_3	3 15252	~~4.8~~ ~~5.2~~	5.2 ~~5.0~~	First mean 5.0 confused two plates upper scale covered
	15253	4.9	5.1	
	15254	4.7	5.0	
b_3	3 15254	6.3	6.6	
a_4	4 15252	6.9	~~7.2~~ 7.5	Plates at first confused here
	15253	6.9	~~7.4~~ 7.3	
	15254	6.8	7.1	
b_4	4 15254		7.6	

Shifting shields made the light unsteady and may have affected some of the measurements.

June 26, 1896

Remeasurement with Mrs. Fleming's scale of the inland spar plates measured pp. 42-49

Plate I 15250

1	a	4.8	5.0	
	b	5.6	5.9	
	c	5.9	6.4	
	d	6.9	7.2	
	e	7.0	7.3	
2	a	~~8.~~ 7	~~8.~~ 7.7	
	b		~~8.~~ 7.9	
	c		~~8.~~ 8.5	
	d		9.0	
	e		9.2	
3	a	5.0	5.0	
	b	5.7	5.9	
	c	6.0	6.3	
	d	6.9	7.4	
	e	6.9	7.4	
4	a		7.8	
	b		8.0	
	c		8.6	
	d		9.0	
	e		9.0	

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June 26

Confirmation of Iceland Spar Mrs. Fleming's scale

Plate I 15251

1	a	7.8
	b	8.4
	c	8.4
	d	7.0
	e	8.0
2	a	9.7
	b	10.0
	c	10.0
	d	9.1
	e	10.0
3	a	7.8
	b	8.1
	c	8.2
	d	7.2
	e	7.0
4	a	9.8
	b	9.9
	c	9.9
	d	9.1
	e	9.9

June 26.

Plate I 15252 Mrs. Fleming's scale

1	a	4.7	5.0
	a		6.9
	b	6.9	7.2
	b		8.9
	c		9.0
	d		8.9
	e		8.8
	f		9.0
	p		8.3
	a	4.7	5.0
2.	a	6.7	7.0
	a		8.8
	b		8.9
	b		10.4
	c		10.4
	d		10.3
	e		10.0
	f		10.4
	p		10.0
	a	6.6	6.9

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June 24 & 25. 1896

Plate $\frac{C^{I}}{5252}$ Continued Mrs. Fleming's scale

3	a	4.8	5.0
	a'	7.0	7.1
	b	6.8	7.2
	b'		7.7
	c'		8.7
	d		9.0
	e		8.5
	f		8.9
	p		8.5
	a	4.7	5.0
4	a	*	9.0
	a'		8.9
	b'		9.0
	b		10.4
	c'		10.3
	d		10.3
	e		10.0
	f		10.2
	p		9.9
	a		6.9

June 25, 1896

Deland Spec

Plate $\frac{C^{I}}{5253}$ Mrs. Fleming's Scale

	a	4.4	4.7
	a'	6.2	6.8
	b	4.9	5.2
	b'	7.0	7.3
	c	5.5	5.8
	c'		7.8
	d	5.8	6.2
	d'		8.3
	e'		6.9
	f		7.6
	g		
	p		8.0
	q		8.7
	r		8.9
	a	4.6	4.9
	a	6.7	6.8
	a'		8.8
	b	6.9	7.2
	b'		9.1
	c'		7.7
	c'		9.3
	d		8.5
	d'		10.2
	e		8.7
	f		9.2
	p		10.0
	q		10.2
	r		10.4
	b	6.5	6.7

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June 25/1896

Plate I 1525-3 continued Mrs. Fleming's scale

3	a	4.5	4.8
	a	6.3	6.7
	b'	5.0	5.1
	b		7.4
	c'	5.6	5.8
	c		7.8
	d	6.4	6.7
	d,		8.2
	e	6.8	7.0
	f		7.7
	p		8.4
	g		8.6
	h		9.0
	a	4.6	4.9
4	a	6.8	6.8 6.9
	a		8.8
	b'	7	7.5
	b		9.1
	c'		8.0
	c		10.0
	d'		8.7
	d,		10.1
	e		8.8
	f		9.0
	f x		9.9
	g		10.2
	h		10.4?
	a	6.8	7.1

June 25, 1896

Plate I 1525-4 Mrs. Fleming's scale Leland Stanford Jr. Mus.

a	4.2	4.5
a	6.4	6.7
b'	4.8	5.0
b	7.0	7.4
c'	5.4	5.7
c		8.0
d'	5.8	6.2
d,		8.6
e	6.1	6.4
f	6.9	7.4
p		8.0
g		8.4
h		8.9
a	4.2	4.5
b	4.9	5.2
e,		8.8
a	6.4	6.7
a		7.7
b	6.8	8.9 7.1
b		7.6 8.9
c		7.6
c		9.7
d'		8.1
d,		10.1
e		8.8
f		9.0
p		10.0
h		10.3
g	6.2	6.7 e, 10.3

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June 25, 1896

Plate E 5254 Continued Mrs. Fleming's scale

3	a	4.5	4.8	
	a_1	6.2	6.5	
	b	4.8	5.1	
	b_1	6.8	7.0	
	c	5.4	5.9	
	c_1		8.0	
	d	6.0	6.4	
	d_1		8.0	
	e	6.5	6.9	
	f		7.4	
	p		8.0	
	q		8.4	
	r		9.0	
	a	4.5	4.8	
	b	5.0	5.1	
	e_1		8.6	
	a	6.9	7.2	
	a_1		8.8	
	b		7.5	
	b_1		9.0	
	e		8.2	
	c_1		9.7	
	d		8.6	
	d_1		10.1	
	e		9.0	
	f		9.1	
	f_1		9.7	
	b_2		10.1	
	a	6.8	10.5	
	b		7.1	a_1 10.3
			7.6	

June 27, 1896

Estimates of the brightness of the prismatic companions & companion stars to Ursae Majoris.

Prismatic companions denoted by subscripts, thus a_1, b_1 are prismatic companions of a and b.

Superseded by measures pp 201-205

Plate I 5723

a o p 10.30

10.30 p 4 b_1 10.70 10.70 $b_1 = 10.70$ .00 .00

10.70 b_1 1 q 10.80

10.87 z 1 c_1 10.97 11.20 $c_1 = 11.08$ .11 .12

11.20 c_1 1 S 11.30

d_1 o S 11.30

10.87 z 3 f_1 11.17 11.20 $f_1 = 11.18$ .01 .02

11.20 f_1 1 S 11.30

g_1 o S 11.30

Plate I 8 5470

a_1 o e 10.26

10.30 p 3 b_1 10.60 10.70 $b_1 = 10.65$ .05 .05

10.70 b_1 1 q 10.80

c_1 o q 10.80

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June 7, 1896

Superseded - all on this page

Plate I 3470 continued

1 d_1 o g 10.80

10.87 2 3 g 11.17

5 pm image

Plate I 3477

a_1 o o 10.26

bad frame

Plate I 3437

9.84 m 5 a_1 (?) 10.34 10.16 a_1 = 10.25 .09 .09

10.16 a_1 1 o 10.26

b_1 o o 10.26

10.26 o 1 c_1 10.36 10.10 c_1 = 10.23 .13 .13

10.10 c_1 2 p 10.30

10.30 p 3 d_1 10.60 10.70 d_1 = 10.65 .05 .05

10.70 d_1 1 q 10.80

Plate I 3492

9.84 m 5 a_1 10.34 10.16 a_1 = 10.25 .09 .09

10.16 a_1 1 o 10.26

10.30 p 1 b_1 10.40 p b_1 = 10.40 .00 .10

10.40 b_1 4 q 10.80

June 7, 1896

All these measures superseded

Plate I 3492 continued

10.30 p 4 c_1 10.70 10.60 c_1 = 10.65 .05 .05

10.60 c_1 2 q 10.80

d_1 o q 10.80

Plate I 5-5-29

9.84 m 4 a_1 10.24 10.16 a_1 = 10.20 .04 .04

10.16 a_1 1 o 10.26

10.26 o 1 b_1 10.36 10.20 b_1 = 10.28 .08 .08

10.20 b_1 1 p 10.30

10.30 p 5 c_1 10.80 10.70 c_1 = 10.75 .05 .05

10.70 c_1 1 q 10.80

10.30 p 4 d_1 10.70 10.70 d_1 = 10.70 .00 .00

10.70 d_1 1 q 10.80

f, o r 4 10.87

g, o 8 2 11.30

Plate I H900

a_1 o o 10.26

b_1 o p 10.30

10.30 p 4 c_1 10.70 10.70 c_1 = 10.70 .00 .00

10.70 c_1 1 q 10.80

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June 27, 1896

All these measures cancelled

Plate Q I 4900 continued

10.80 q 1 d_1 d_1 = 10.90
2 m. s.

Plate I 5835

9.84 m 3 a_1 10.14 10.06 a_1 = 10.10 .04 .04
10.06 a_1 2 o 10.26

b_1 0 o 10.26

10.30 f 2 c_1 10.50 10.50 c_1 = 10.50 .00 .00
10.50 c_1 3 g 10.80

d_1 0 g 10.80

10.80 g 2 b_1 11.00 10.77 f_1 = 10.88 .12 .11
10.77 f_1 1 r 10.87

10.87 r 4 g_1 11.27 11.20 g_1 = 11.24 .03 .04
11.20 g_1 1 s 11.30

Plate I 5925

9.84 m 5 a_1 10.34 10.16 a_1 = 10.25 .09 .09
10.16 a_1 1 o 10.26

10.30 f 3 b_1 10.60 on this plate f is slightly
10.40 b_1 4 g 10.80 brighter than o
f_1 = 10.50 .10 .10

June 27, 1896

Plate I 5925 continued

10.36 f 6 c_1 10.60 10.60 c_1 = 10.60 .00 .00
10.60 c_1 2 g 10.80

d_1 0 g 10.80

10.87 r 3 g g_1 11.17 11.10 f_1 = 11.14 .03 .04
11.10 g_1 2 s 11.30

g_1 0 s 11.30

These measures for S Ursae Majoris and those on the following pages for T Ursae Majoris are superseded by new measures needed on pages 204-205. This is because prismatic comparisons for the other circumpolar variables were being measured. Many individual measures would have had to be repeated in any case. Some of these plates were to be omitted. It seemed better on the whole to let the complete series of measurements of prismatic comparisons made near the same time. December 8th 1902.

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June 27, 1896

Estimate of magnitudes of principal comparisons to comparison stars for Pleiades Nights.

Superseded by measures pp 201-225

Plate I 5723

10.76 n | a, 10.86 10.70 a_1 = 10.78 .08 .08
10.70 a_1 4 o 11.10

e_1 o q 11.34

11.94 t | f_1 12.04 11.74 f_1 = 11.89 .15 .15
11.74 f_1 2 u 11.94

g_1 o t 11.94

12.10 ? f_1 | h_1
h_1 t 11.94

I 5925

a_1 o n 10.76

11.20 p 4 e_1 11.60 11.24 e_1 = 11.42 .18 .18
11.24 e_1 | q 11.34

f_1 o u ? 11.94

g_1 o u 11.94

June 27, 1896

Princeton Comp. cont.

Plate I 5835

a_1 o n 10.76

e_1 o q 11.34

Plate I 4900

a_1 o n 10.76

11.20 p | e_1 11.30 11.24 e_1 = 11.27 .03 .03
11.24 e_1 | q 11.34

f_1 o u 11.94

g_1 o u 11.94

See remark page 73

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June 27, 1896

Estimate of brightness of prismatic companions of companions close to R Cassiopeiae

Plate I 9121

S 1 t,
f, 2 t
a 3 g,
g 2 t
k 0 m
k 0 s

Plate I 9937

Images not comparable

Plate I 11439

f, 0 s 10.50

These magnitudes are taken directly from I plates. Nov. 26, 1902

10.50 s 2 g, 10.70 10.42 g, = 10.56 .14 .14
10.42 g, 3 t 10.72
10.72 t 2 k, 10.92 11.02 k, = 10.97 .05 .05
11.02 k, 2 w 11.22

k, 0 w 11.50 k, = 11.50

995 g 4 k, 10.35 10.30 k, = 10.32 .03
10.30 k, 2 s 10.50

Reduced June 22, 1915 A.F.M.

September 19, 1896

Continuation of Measures of Brightness of R Cassiopeiae Jour. III p. 37

Plate I 15347 taken June 22, 1896

9.37 g 5 v 9.87 10.12
10.12 v 1 g' 10.22 v = 10.00 13 12

Plate I 15348 June 22, 1896

9.37 g 4 v 9.77 10.02 a slip of the pencil in recording
10.02 v 2 g' 10.22 v = 9.90 13 12

new edge of plate image from

Plate I 15658 taken Aug. 10, 1896

9.37 g 3 v 9.67 9.82 v = 9.75 08 07
9.82 v 4 g' 10.22

Plate I 15237 taken June 2, 1896

v 0 g' 10.22 v = 10.22

Plate I 15646 taken Aug. 9, 1896

9.37 g 3 v 9.67 9.82 v = 9.74 07 08
9.82 v 4 g' 10.22

Plate I 15531 taken July 25, 1896

9.37 g 5 v 9.87 10.12
10.12 v 1 g' 10.22 v = 10.00 13 12

Plate I 15257 taken June 3, 1896

v 0 g' 10.22 v = 10.22

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Reduced June 22, 1915 S.F.Tm.

September 19

T Cassiopeiæ continued

Plate I 15756 530 taken July 25, 1896

9.37 g 5 r 9.87 10.12
10.12 r 1 g' 10.22 v = 10.00 13 12

Plate I 15605 taken Aug. 4, 1896

9.37 g 5 r 9.87 10.02 v = 9.94 07 08
10.02 r 2 g' 10.22

Plate I 15709 taken Aug. 18, 1896
Plate too poor

Plate I 15783 taken Aug. 27, 1896

9.87 g 2 r 9.57 9.92 v = 9.74 14 18
9.92 r 3 g' 10.22

Plate I 15790 taken Sept. 4, 1896

9.37 g 4 r 9.77 9.92 v = 9.84 07 08
9.92 r 3 g' 10.22

Plate I 15892 taken Sept. 4, 1896

9.37 g 4 r 9.77 10.02 v = 9.90 13 12
10.02 r 2 g' 10.22

Continued page 93

Reduced Oct 3 16 S.T.

September 19, 1896

Estimates of brightness of B Cassiopeiæ continued from p. 41

Plate I 15783 taken Aug. 27, 1896

11.85 S 5 V 12.35 11.99 12.17 18 18
11.99 r 1 t 12.09

Plate I 15709 taken Aug. 18, 1896

v n. s.
10.51 0 -.1 v < 10.61

N.B. See also p. 126

Plate I 15895 taken Sept. 4, 1896

11.85 S 1 V 11.95 11.59 11.77 18 18
11.59 r 5-2 ? 12.09

Continued page 119

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September 19, 1896

Estimates of the brightness of S Persei continued from III f. 24

Plate I 15893 taken Sept. 4, 1896
V o l

Plate I 15484 taken July 17, 1896
to from

Plate I 15351 taken June 22, 1896
K 1 r
V 5 l

Plate I 15711 taken Aug. 18, 1896
to from

Plate I 15542 taken July 28, 1896
K 2 r
V 4 l

Plate I 15258 taken June 3, 1896
K 3 r
V 2 l

Plate I 15894 taken Sept. 4, 1896
K 5 r
V 1 l

Sept. 19, 1896

S Persei continued

Plate I 15189 taken May 27, 1896
V o K

Plate I 15414 taken Aug. 13, 1896
to from

Continued Vol. II, page

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September 19 1896

Estimates of brightness of T Persei continued from Vol III p 26

Plate I 15893
L' & 4 V
V 1 ½ θ

Plate I 15484
too fine

Plate I 15351
L' & 3 V
V 2 ½ θ'

Plate I 15711 too poor

Plate I 15542 taken July 28, 1896
V 0 & L'

Plate I 15258 taken
L & 2 V
V 4 ½ θ

Plate I 15894 taken
L & 3 V
V 2 ½ θ

Plate I 15189 taken
L' & 4 V
V 2 ½ θ

September 19, 1896

T Persei continued

Plate I 15714
too poor

Continued Vol. I page

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Reduced Dec. 23 1914
9.7 fm

September 23, 1896

Estimates of the brightness of R Lyncis continued from page 39

Plate I 15558 taken July 30, 1896
9.79 9 4 v 10.19 9.78 v = 9.98 21 20
9.78 v 4 h-5' 10.18

Plate I 14823 taken April 8, 1896
11.71 0<0' 4 v 12.11 12.14 v = 12.12 01 02
12.14 v 1 0<0'2 12.24

Plate I 15259 taken June 4, 1896
9.08 f<7' 4 v 9.48 9.39 v = 9.44 04 05
9.39 v 4 g 9.79

Continued Volume I, page 116

Reduced April 19, 1915
9.7 fm.

September 23, 1896

Estimates of the brightness of T Ursae Majoris continued from III p. 68

Plate I 15356 taken June 23, 1896
v m. s. v < 14.3
14.22 w = .1

Plate I 15277 taken June 10, 1896
v m. s. v < 12.9
12.80 g = .1

Plate I 15357 taken June 23, 1896
v m. s. v < 13.9
13.80 u = .1

Plate I 15179 taken May 27, 1896
v m. s. v < 13.9
13.80 u = .1

Plate I 15476 taken July 17, 1896
13.80 v 0 u 13.80 v = 13.80

Plate I 15300 taken June 18, 1896
13.19 56 v 13.79 13.70 v = 13.74 05 04
13.70 v 1 u 13.80

Plate I 15522 taken July 25, 1896
12.80 v 0 g 12.80 v = 12.80

Continued page 87

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Reduced April 27, 1915
H.T.M.

September 23, 1896

Estimates of brightness of S Hrs. Maj.
continued from III p. 59

Plate I 15300 taken June 18, 1896

9.34 *g 2 v 9.54 9.80 v = 9.67 13 13
9.80 v 4 h 10.20

Plate I 15522 taken July 25, 1896

11.00 k 1 v 11.10 11.10 v = 11.10 00 00
11.10 v 3 w 11.40

Plate I 15177 taken May 27, 1896

~~M 0 ?~~ 9.34 *g 2 v 9.54 9.90 v = 9.72 18 18
~~x + y~~ 9.90 v 3 h 10.20

? Images very faint

* g = g' according to a later desig. See cover of ref. plate I 17812

Reduced April 19, 1915
H.T.M.

September 23, 1896

Estimates of brightness of S Hrs. Maj. ante, from p. 85

* Plate I 15177 taken May 27, 1896

~~g 2 v~~ 14.52 w 3 v 14.52 15.59 v = 15.06 54 53
~~v 3 h~~ 15.59 v 1 y 15.69

Continued VI. VI ; 42

* Rejected See 37:181

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Reduced February 17, 1916
H.F.M.

September 23, 1896

Estimates of the brightness of S Boötis Cont. from III p. 15

Plate I 15509 taken July 21, 1896
V O C 9.28 v = 9.28

Plate I 15310 taken June 18, 1896
10.35 r 4 V 10.75 10.98 v = 10.86 11 12
10.98 V 1 q 11.08

Plate I 15517 taken July 23, 1896
9.28 C 2 V 9.48 9.58 v = 9.53 05 05
9.58 V 5 f 10.08

Reduced March 25, 1916
H.F.M.

September 23, 1896

Estimates of the brightness of R Canum Venaticorum
Continued from III p. 113

Plate I 15209 taken May 31, 1896
9.51 C 6 d V 10.11 10.20 v = 10.16 05 04
10.20 V 1 d 10.30

Plate I 15907 taken Sept. 7, 1896
V n. s. v < 14.8
14.53 p = .3

* Assumed intended for I 15311 as I 15217 does not cover, and I 15311 agrees in date.

Plate *I 15217 taken June 19, 1896
10.30 d 4 V 10.70 10.64 v = 10.67 03 03
10.64 V 3 r 10.94

Plate I 14912 taken April 15, 1896
10.30 d 1 V 10.40 10.44 v = 10.42 02 02
10.44 V 5 r 10.94

Both stars on the verge of invisibility

Plate I 15699 taken Aug. 17, 1896
V O p^2 14.53 $v\sqrt{4} = 14.53^{\frac{1}{2}}$

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September 24, 1896

Estimates of the brightness of R Ursae Minoris
continued from III p. 67

Plate I 15223 taken June 2, 1896
f 3 v
v 1 f'

2. The variable has a blip of light on it, making comparison uncertain

Plate I 15344 taken June 22, 1896
f 3 v
v 1 f'

Plate I 15729 taken August 19, 1896
v o k

Plate I 15279 taken June 10, 1896
f 2 v
v 2 f'

bad focus — Plate I 15233 taken June 2, 1896
v o f'

Plate I 15477 taken July 17, 1896
v o f'

Plate I 15306 taken June 18, 1896
v o f'

Reduced Dec. 15, 1915 W.F.M.

September 24, 1896

Estimates of the brightness of R Draconis
continued from III p. 43

Plate I 15222 taken June 2, 1896
10.82 n 2 v 11.02 v = 11.02 ? 7.
o n.s.

Plate I 15701 taken Aug. 17, 1896
10.01 k' 1 v 10.11 10.02 v = 10.06 05 04
10.02 v 3 k 10.32

Plate I 15234 taken June 2, 1896
v o q 12.68 v = 12.68 2

Plate I 15319 taken June 19, 1896
v o s 13.62 v = 13.62 2

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September 24, 1896

Estimates of the brightness of S Cygni
continued from II p. 172

Plate I 15703 taken Aug. 18, 1896
2 3 V
V 1 S

Plate I 15320 taken June 19, 1896
l 1 V
V 5 m

Plate I 15235 taken June 2, 1896
V 0 m

Plate I 15797 taken Aug. 28 1896
V m s.
p = .1

Plate I 15512 taken July 21, 1896
m 4 V
V 1 o

September 6, 1902

Estimates of the brightness of T Cassiopeiae
continued from page 78

Plate I 2600 taken Dec. 25, 1890
10.47 10.57 10.55
9.76 m 1 V 9.86 9.74 V = 9.80 .06 .06
10.74 11.03
9.74 V 5 m 10.24 V = 10.56 01 01

Extreme edge of plate — Plate I 27289 taken Aug. 4, 1901
9.37
V 0 q 8.86 V = 9.37

Extreme edge of plate — Plate I 28105 taken Dec. 21, 1901
11.32
V 0 ~~q~~ 10.48 V = 11.32

Plate I 23520 taken Sept. 15, 1899
12.33 12.33 12.50
11.04 r 1 V 11.14 10.97 V = 10.06 .08 .09
12.50 12.40
10.97 V 4 5 11.37 V = 12.42 09 05

Plate I 16627 taken Dec. 1, 1896
8.37 9.47 9.62
8.86 g 1 V 8.96 8.96 V = 8.96 .00 .00
9.62 10.22
8.96 V 6 g 9.56 V = 9.54 07 08

Plate I 24842 taken March 16, 1900
9.37 10.07 10.12
8.86 g 7 V 9.56 9.46 V = 9.51 .05 .05
10.12 10.22
9.46 V 1 g 9.56 V = 10.~~02~~ 10 03 02

Plate I 27976 taken Nov. 20, 1901
10.22 ~~9.66~~ 10.42 ~~9.26~~ 9.37 9.71 ~~36~~ 10
~~8.86~~ g' 2 V 8.96 9.76 9.66 V = ~~9.71~~ ~~36~~ ~~30~~ .05 .05
10.37 10.47
9.66 V 1 m 9.76 V = 10.40 03 03

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Sept. 6, 1902
γ Cassiopeiae Cent.

Plate I 18260 taken June 21, 1897
11.32 11.82 11.79
10.48 v 5 r 10.98 10.72 V=10.85 .13 .13
11.79 11.97
10.72 r 2 v 10.92 v = 11.80 02 01

Plate I 16018 taken Sept. 23, 1896
9.37
v 0 g 8.86 . v = 9.37

Plate I 19104 taken Sept. 30, 1897
9.37 9.62 9.62
8.86 g 3 v 9.16 . 9.16 V = 9.16 .00 00
10.22
9.16 v 4 g 9.56 . v = 9.64 03 02

Plate I 18438 taken Aug. 5, 1897
10.22 10.32 10.26
9.56 g 1 v 9.66 9.48 V = 9.57 .09 .09
10.26 10.56
9.48 v 3 r 9.78 v = 10.29 03 03

Plate I 15967 taken Sept. 20, 1896
9.37
v 0 g 8.86 v = 9.37

Plate I 24055 taken Aug. 13, 1898
11.99 12.09 12.13
10.92 g 2 v 11.12 10.94 V = 11.03 .09 .09
12.13 12.23
10.94 v 1 r 11.04 v = 12.11 02 02

Plate I 18070 taken May 7, 1897
11.99
10.92 g 1 v < 11.02
v m.s.

Sept. 6, 1902
γ Cassiopeiae Cent.

Plate I 25633 taken Aug. 9, 1900
10.22
v 0 g 9.56 v = 10.22

Plate I 23965 taken Nov 2, 1899
11.99 12.09 12.13
10.92 g 2 v 11.12 9.94 V = 10.03 .09 .09
12.13 12.33
9.94 v 1 r 11.04 v = 12.16 03 02

Plate I 27834 taken Oct 21, 1901
9.37 9.71 10.12
8.86 g 4 v 9.26 9.36 V = 9.31 .05 .05
10.12 10.22
9.36 v 1 g 9.56 v = 9.74 13 18

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September 8, 1902
γ Cassiopeiae Cont.

Edge of plate

Plate I 21443 taken Oct. 17, 1898
8.86 g 3 V 9.16 9.36 V = 9.26 .10 .10
9.36 V 2 g 9.56 v = 9.24 17 18

edge of plate

Plate I 23546 taken Sept. 16, 1899
10.48 g 3 V 10.78 10.82 V = 10.80 .02 .02
10.82 V 1 g 10.92 v = 11.76 14 13

Plate I 24216 taken Dec. 12, 1899
V 0 m 9.76 v = 10.47

Plate I 27837 taken Oct 21, 1901
8.86 g 3 V 9.16 9.46 V = 9.31 .15 .15
9.46 V 1 g 9.56 v = 9.40 23 22

Plate I 17548 taken March 13, 1897
10.48 g 4 V 10.88 10.82 V = 10.85 .03 .03
10.82 V 1 g 10.92

Plate I 15951 taken Sept. 15, 1896
8.86 g 1 V 8.96 9.26 V = 9.11 .15 .15
9.26 V 3 g 9.56 v = 9.70 23 22

Plate I 18632 taken Sept. 2, 1897
8.86 g 3 V 9.16 9.36 V = 9.26 .10 .10
9.36 V 2 g 9.56 v = 9.64 17 18

September 8, 1902
γ Cassiopeiae cont.

Extreme edge of plate

Plate I 27385
8.86 g 1 V 9.47 V = 8.96 v = 9.47?
g' not on plate

Plate I 23524 taken Sept. 15, 1899
11.04 R 1 V 11.14 10.97 V = 11.06 .08 .09
10.97 V 4 S 11.37 v = 12.42 09 08

Plate I 21751 taken Nov. 23, 1898
8.86 g 2 V 9.06 9.26 V = 9.16 .10 .10
9.26 V 3 g' 9.56 v = 9.71 17 18

Plate I 18185 taken June 1, 1897
11.04 R 1 V 11.14 10.97 V = 11.06 .08 .09
10.97 V 4 S 11.37 v = 12.42 09 08

edge of plate

Plate I 16749 taken Dec. 13, 1896
8.86 g 4 V 9.26 9.46 V = 9.36 .10 .10
9.46 V 1 g' 9.56 v = 9.74 17 18

Extreme edge of plate

Plate I 27455 taken Sept. 7, 1901
8.86 g 1 V 8.96 9.16 V = 9.06 .10 .10
9.16 V 4 g' 9.56 v = N.64 17 18

Plate I 16523 taken Nov. 14, 1896
V 0 g 8.86 v = 9.37

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September 8, 1902
γ Cassiopeiae cont.

Plate I 27995 taken Nov 21, 1901
10.23 9.56 g 2 v 9.76 9.66 v = 9.71 .05 .25
10.37 9.66 v 1 m 9.76 v = 10.40 02 03

Plate I 18440 taken Aug. 5, 1897
v 0 g' 9.56 v = 10.22

Plate I 25635 taken Aug. 9, 1900
8.86 g 4 v 9.26 9.46 v = 9.36 .10 10
10.12 9.46 v 1 g' 9.56 v = 9.94 17 18

Plate I 21189 taken Sept. 13, 1898
10.24 n' 1 v 10.34 10.18 v = 10.26 .08 .08
10.18 v 3 0 10.48

Plate I 21736 taken Nov. 21, 1898
8.86 g 3 v 9.16 9.26 v = 9.21 .05 .05
9.26 v 3 g' 9.56

Plate I 17299 taken Feb. 10, 1897
Edge of plate 9.76 m 3 v 10.06 10.14 v = 10.10 .04 .04
10.14 v 1 n' 10.24

Plate I 16750 taken Dec. 13, 1896
8.86 g 3 v 9.16 9.36 v = 9.26 .10 10
9.36 v 2 g' 9.56

September 8, 1902
γ Cassiopeiae cont.

Plate I 37653 taken Sept 30, 1901
8.86 g 2 v 9.06 9.26 v = 9.16 .10 .10
9.26 v 3 g' 9.56 v = 9.74 17 18

Plate I 18364 taken July 20, 1897
10.24 n' 4 v 10.64 10.38 v = 10.51 .13 .13
10.38 v 1 8 10.48 v = 11.64 09 11 12

Plate I 15895 taken Sept. 4, 1896
8.86 g 3 v 9.16 9.26 v = 9.21 .05 .05
9.26 v 3 g' 9.56 v = 9.80 13 12

Plate I 18745 taken Sept. 9, 1897
8.86 g 1 v 8.96 9.06 v = 9.01 .05 05
9.06 v 5 g' 9.56 v = 9.60 13 12

Plate I 21530 taken Oct. 28, 1898
8.86 g 2 v 9.06 9.26 v = 9.16 .10 .10
9.26 v 3 g' 9.56 v = 9.74 17 18

Plate I 17054 taken Jan. 12, 1897
v 0 g' 9.56 v = 10.22

Plate I 28297 taken Jan. 19, 1902
10.45 0' 3 v 10.78 10.82 v = 10.80 .02 .02
10.82 v 1 g 10.92 v = 11.76 14 13

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September 8, 1902
J Cassiopeiae cont.

Plate I 16224 taken Oct. 22, 1896

dist too great for accurate measure of f-r

~~7.84 f 4 r 8.24 8.66 v=8.45 .21 .21~~
8.17 9.37 v=8.17?
8.66 r 2 g 8.86 v=8.66

Plate I 25654 taken Aug. 11, 1900

10.22 10.32 10.17
9.56 g' 1 r 9.66 9.46 v=9.56 .10 .10
10.47 10.47
9.46 r 3 m 9.76 v=10.24 08 07

Plate I 17300 taken Feb. 10, 1897

10.47 10.77 10.95
9.76 m 3 r 10.06 10.14 v=10.10 .04 .04
10.95 11.03
10.14 r 1 n' 10.24 v=10.86 09 09

Plate I 15892 taken Sept. 4, 1896

9.37 9.57 9.92
8.86 g 2 r 9.06 9.26 v=9.16 .10 .10
9.92 10.22
9.26 r 3 g' 9.56 v=9.74 13 18

Plate I 19258 taken Oct. 13, 1897

9.37 9.57 9.92 v=9.84 14 18
8.86 g 2 r 9.06 9.26 r=9.16 .10 10
9.92 10.22
9.26 r 3 g' 9.56

edge of plate

Plate I 17055 taken Jan. 12, 1897

10.22 10.42 10.37
9.56 g' 2 r 9.76 9.66 v=9.71 .05 .05
10.37 10.47
9.66 r 1 m 9.76 v=10.40 02 03

~~Plate AC 2632 taken Dec. 1, 1901~~

September 8, 1902
J Cassiopeiae cont.

Plate AC 1852 taken Oct. 8, 1901

9.37 9.67 9.92
8.86 g 3 r 9.16 9.26 r=9.21 .05 .05
9.92 10.22
9.26 r 3 g' 9.56 v=9.80 13 12

Extreme edge images elongated, value lost behind e

Plate AC 2032 taken Dec. 1, 1901

10.47 11.05
r 0 n' 10.24? v=10.24? v=11.05?

Plate AC 565 taken Dec. 4, 1899

10.47 10.87 10.97
9.76 m 4 r 10.14 10.14 v=10.14 .00 .00
10.97 11.05
10.14 r 1 n' 10.24 v=10.71 04 04

Extreme edge

v identified with difficulty. Extremely faint and almost lost in the image of e

Plate AI 98 taken Feb. 2, 1892
Useless for this investigation

Plate AI 141 taken March 6, 1901
Useless for this investigation

Plate AI 79 taken Jan. 7, 1901
useless

Plate AC 698 taken Jan. 30, 1900

v too close to e for good comparison

10.22
r 0 g' 9.56? v=10.22?

Very doubtful if may simply be higher bg of e

Plate AC 1052 taken Dec. 11, 1900

11.83 v n.s.?
10.480' = 1 v < 11.9

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September 8, 1902
γ Cassiopeiae cont.

Plate AI 71 taken Jan 3, 1901
v too close to g

Plate AC 1892 taken Oct. 21, 1901
8.86 g 3 v 9.16 9.26 v=9.21 .05 .05
9.26 v 3 g' 9.56 v=9.50 13 12

Estimate difficult on account of hazy nearness of g

Plate AC 1800 taken Sept. 27, 1901
v 0 m? 9.76? v=10.47?
m=.1

Plate AC 1770 taken Sept. 22, 1901
v n.s. v < 8.34
g n.s. v < 8.8
7.84 f=.5

Plate AC 1956 taken Nov. 4, 1901
v 0 g' 9.56 v=10.22

Plate AC 902 taken June 27, 1900
Image blended with g -
cannot be distinguished

Plate AC 2037 taken Dec. 2, 1901
9.76 m 2 v 9.96 9.94 v=9.95 .01 .01
9.94 v 3 m' 10.24

September 8, 1902
γ Cassiopeiae cont.

Plate AC 710 taken Feb. 6, 1900
Image of v lost in that of g

Plate AC 656 taken Jan. 4, 1900
v 0 g? 9.56? v=10.22?

Image closer than that of g
g Companion diff

Plate AC 1690 taken Aug. 28, 1901
v 0 g? 8.86? v=9.37?

Plate AC 1207 taken Feb. 6, 1901
useless

Plate AC 1662 taken Aug. 16, 1901
f 10 v? v=8.73
8.73 v 1 8.83 v=9.32?

Interval f-v too long to estimate

Plate AC 1977 taken Nov. 10, 1901
8.86 g 4 v 9.26 9.36 v=9.31 .05 .05
9.36 v 2 g' 9.56 v=9.40 12 12

Plate AC 2095 taken Dec. 21, 1901
v n.s. v < 10.8
9.76 m=.3 v < 10.06

Plate AC 762 taken May 21, 1900
v 0 g 8.86 v=9.37

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September 8, 1902
γ Cassiopeiae cut.

Plate AC 1996 taken Nov. 21, 1901.
8.86 g 5 v 9.36 9.46 v = 9.41 .05 .05
9.46 v 1 g 9.56 v = 10.00 13 12

Plate AC 1833 taken Oct 5, 1901
8.86 g 1 v 8.96 9.16 v = 9.06 .10 .10
9.16 v 4 g 9.56 v = 9.64 17 18

Plate AC 1985 taken Nov. 20, 1901
v 0 m 9.76 v = 10.47

Plate AC 67 taken Oct. 20, 1898
8.86 g 3 v 9.16 9.36 v = 9.26 .10 .10
9.36 v 2 g 9.56 v = 9.84 17 18

Plate AC 1884 taken Oct, 19, 1901
8.86 g 4 v 9.26 9.36 v = 9.31 .05 .05
9.36 v 2 g 9.56 v = 9.70 13 12

Plate AC 1727 taken Sept. 7, 1901
v n.s.
n' n.s. v < 9.96
9.76 m = .2 v < 10.7

Plate AC 1765 taken Sept 21, 1901
8.86 g 1 v 8.96 9.06 v = 9.01 .05 .05
9.06 v 5 g 9.56 v = 9.56 13 12

September 8, 1902
Kassiopeiae cut.

Plate AC 1943 taken Nov. 2, 1901
v 0 g 9.56 v = 10.22

Plate AC 1696 taken Aug. 29, 1901
v 0 g 8.86 v = 9.37

Plate AC 1883 taken Oct. 19, 1901
8.86 g 2 v 9.06 9.16 v = 9.11 .05 .05
9.16 v 4 g 9.56 v = 9.70 13 12

Plate AC 1737 taken Sept. 11, 1901
useless

Plate AC 1900 taken Oct. 24, 1901
8.86 g 2 v 9.06 9.26 v = 9.16 .10 .10
9.26 v 3 g 9.56 v = 9.74 17 18

Plate AC 1792 taken Sept. 26, 1901
v 0 g' 2 9.56 ?
dark plate image print g' = .1 v = 10.22 ?

Plate AC 1971 taken Nov. 9 1901
9.56 g' 2 v 9.76 9.64 v = 9.76 .15 .05
9.66 v 1 m 9.76 v = 10.40

Plate AC 2272 taken Feb. 5, 1902
v not separated from e

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September 8, 1902
T Cassiopeiae cont.

Note

The AI plates covering the region of this star are useless, on account of the close proximity of the bright comparison star e. The image of the variable is completely lost in that of e

All estimates based on examination of AC plates are made with difficulty on account of the nearness and brightness of the comparison star e. All are given to a doubt of usual tenths of a magnitude.

Comparison stars are marked on plates I 81 and C 6367

September 9, 1902
T Cassiopeiae cont.

Plate A C 2077 taken Dec. 15, 1901
~~10.56~~ 11.85 ~~11.05~~ ?
v 0 n' ? 10.24 ? v = ~~10.56~~ ?

Plate C 9081 taken April 16, 1896
v n. s. v < 9.6
9.37 g' n. s. v < 9.06
8.86 g. = .2

Plate I 17865 taken April 16, 1897
v n. s
11.99 10.92 g = .1 v < 12.1 v < 11.02
r n. s.

Plate I 19237 taken Oct. 12, 1897
9.37 9.67 9.62
8.86 g 3 v 9.16 9.16 v = 9.16 .00 .00
9.82 9.82
9.16 v 4 g' 9.56 v = 9.34 01 08

Plate I 15951 taken Sept. 15, 1896
9.37 9.57 9.82
8.86 g 2 v 9.06 9.16 v = 9.11 .05 .05
9.82 10.22
9.16 v 4 g' 9.56 v = 9.70 13 12

Plate I 18003 taken April 22, 1897
11.05 v n. s. v < 10.48
10.24
~~9.78~~ n' = .4 v < 11.4
0' n. s.

Plate I 18149 taken May 25, 1897
useless

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September 9, 1902
γ Cassiopeiae Cont.

Plate I 17550 taken March 13, 1897

11.32 0 11.72 11.89
10.48 v 4 v 10.88 10.82 v = 10.85 .03 .03
11.87 11.17
10.82 v 1 v 10.92 v = 11.80 08 07

~~Plate AC 1640 taken Aug. 4, 1901~~

Mean edge of plate n' brighter than m (m-n' 3 mag) (m-p 2.0)

Plate I 18340 taken July 14, 1897

11.05
v o n' ? 10.24? v = 11.05?

Sept. 16 No! many star spots on, with is unusual brightness.

Plate I 18308 taken July 1, 1897

Useless - e just seen

Images extremely faint. Identification of v given to some doubt

Plate AC 2194 taken Jan. 16, 1902

v o n' ? 11.05 Probably intended n'
v = 11.05 ?

Plate AC 2280 taken Feb. 6, 1902

11.32 11.22 v n.s. v < 10.58
10.48 0 v = .1 v ≤ 11.4

Plate AC 482 taken Oct. 16, 1899

v n.s. v < 9.96
10.47
9.76 m = .2 v ≤ 11.7

Plate AC 1154 taken Jan. 18, 1901

11.32 11.62 11.79
10.48 v 3 v 10.78 10.72 v = 10.75 .03 .03
11.11 11.49
10.72 v 2 v 10.92 v = 11.70 08 07

v may be lost in elongated image of e

September 9, 1902
γ Cassiopeiae Cont.

Plate AC 2650 taken June 27, 1902

9.37
v o q 8.86 v = 9.37

Plate AC 1640 taken Aug. 4, 1901

useless e n.s.

Plate AC 493 taken Oct. 24, 1899

useless

Plate AC 957 taken Aug. 9, 1900

v n.s. v < 9.16
9.37
8.86 q = .3 v ≤ 9.7

Plate AC 1579 taken June 28, 1901

9.37
v o q 8.86 v = 9.37

Plate AC 103 taken Dec. 7, 1898

9.37 9.52
8.86 q 2 v 9.06 9.16 v = 9.11 .05 05
9.82 10.22
9.16 v 4 q' 9.56 v = 9.70 13 12

Plate AC 2085 taken Dec. 18, 1901

11.05 11.25 11.22
10.24 n' 2 v 10.44 10.38 v = 10.41 .03 .03
11.22 11.32
10.38 v 1 0 10.48 v = 11.24 01 02

Plate AC 2188 taken Jan. 14, 1902

11.32
v n s v < 10.58 ? Rigid plate. See
10.48 0 v = :1 v ≤ 11.4 ? Remark in margin

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September 9, 1902
7 Cassiopeiae cont.

Plate AC 2684 taken July 11, 1902
9.37 9.57 9.82
8.86 g 2 v 9.06 9.16 v = 9.11 .05 05
9.82 11.22
9.16 v 4 g' 9.56 v = 9.70 13 12

Plate AC 2241 taken Jan. 25, 1902
1 m.s.
11.05
10.24 n' = .2 v < 11.2
v < 10.44

Plate AC 427 taken Sept. 13, 1899
v m.s. v < 10.34
11.05
10.24 n' = .1 v < 11.2

Plate AC 1119 taken Jan. 2, 1901
10.36 v m.s.
9.78 n = .1 v < 9.88
n' m.s. v < 10.7

Plate AC 673 taken Jan. 10, 1900
10.41 10.67 10.75
9.76 m 2 v 9.96 10.04 v = 10.00 .04 .04
10.85 11.05
10.04 v 2 n' 10.24 v = 10.76 09 09

Plate AC 506 taken Nov. 7, 1899
11.05 v m.s. v < 9.88
10.56
9.78 n' = .1 v < 11.2

Assumed to be intended for n', 9.7 m. g = 4.1915

Plate AC 1222 taken Feb. 8, 1901
12.23
v o v? 11.04? v < v = 12.23?

September 9, 1902
7 Cassiopeiae cont.

Plate AC 1167 taken Jan. 22, 1901
11.32 11.42 11.89
10.48 g' 4 v 10.88 10.82 v = 10.86 .02 .02
11.31 11.99
10.82 v 1 g 10.92 v = 11.80 08 09

Plate AC 69 taken Oct. 20, 1898
v m.s.
9.37 g = .1 v < 9.5

Plate AC 919 taken July 9, 1900
9.37 9.47 9.92
8.86 g 1 v 8.96 9.06 v = 9.01 .05 .05
9.72 10.22
9.06 v 5 g' 9.56 v = 9.60 13 12

Plate AC 960 taken Aug. 11, 1900
10.22
v o g' 9.56 v = 10.22

Plate AC 2141 taken Jan. 2, 1902
11.32 11.52 11.89
10.48 g' 2 v 10.68 10.82 v = 10.75 .07 .07
11.89 11.99
10.82 v 1 g 10.92 v = 11.70 18 19

Plate AC 505 taken Nov. 7, 1899
v m.s. v < 10.58
11.32
10.48 g' = .1 v < 11.4

Plate AC 954 taken Aug. 4, 1900
useless e = .1
1 m.s.

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September 9, 1902
J Cassiopeiae cont.

Plate AC 2045 taken
10.47 10.67 10.95
9.76 m 2 v 9.96 10.14 v = 10.05 .09 .09
10.95 11.03
10.14 v 1 n' 10.24 v = 10.81 14 14

Plate AC 2342 taken Feb 19, 1902
v n.s. v < 10.68
11.32 0
10.48 0' = .2 v < 11.5

Plate AC 134 taken Dec. 19, 1895
9.37 9.47 9.72
8.86 g 1 v 8.96 9.06 v = 9.01 .05 .05
9.72 10.23
9.06 v 5 g' 9.56 v = 9.60 13 12

Plate AC 1181 taken Jan. 29, 1901
v n.s. v < 10.34
11.05
10.24 n' = .1 v < 11.1

Plate AC 1094 taken Dec. 27, 1900
v n.s.
11.32 v < 11.4
10.94 0 = .1 v < 11.04

Plate AC 157 taken Jan 17, 1899
9.37 9.67 9.92
8.86 g 3 v 9.16 9.26 v = 9.21 .05 .05
9.92 10.23
9.26 v 3 g' 9.56 v = 9.80 13 12

Plate AC 950 taken Aug. 1, 1900
9.37 9.87 10.12
8.86 g 5 v 9.36 9.46 v = 9.41 .05 .05
10.12 10.82
9.46 v 1 g' 9.56 v = 10.05 13 12

September 9, 1902
J Cassiopeiae cont,

Plate AC 2019 taken Nov. 28, 1901
11.08 11.27 11.32
10.24 n 3 v 10.54 10.38 10.46 .08 .08
11.23 11.32
10.38 v 1 0' 10.48 v = 11.28 07 06

from plate image extremely faint

Plate AC 2656 taken June 29, 1902
v 0 g ? 9.37
8.86 ? v = 9.37 ?

Plate AC 2142 taken Jan. 3, 1901

v may be lost in slight image of e

Plate AC 2225 taken Jan, 23, 1902
3 v n. s.
11.32 v < 11.5 ?
10.48 0' = 2 v < 10.68 ?

Plate AC 2073 taken Dec. 12, 1901
11.05
10.24 v 0 n' v = 11.05

Plate AC 2153 taken Jan 3, 1902
v 0 0' ? 11.32
10.48 ? v = 11.32 ?

Plate AC 996 taken Sept. 7, 1900
v n. s.
10.23 v < 10.8
9.3 9.56 g' = .1 v < 9.66

Plate AC 638 taken Dec, 30, 1899
9.37 9.87 10.12
8.86 g 5 v 9.36 9.46 v = 9.41 .05 .05
10.12 10.82
9.46 v 1 g' 9.56 v = 10.00 13 12

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September 9, 1902 J Cassiopeiae cont.

V may be lost in the rather diffuse image of c

Plate AC 511 taken Nov. 9, 1899
V n. s.
11.32 V = .1 V < 11.4

Plate AC 2063 taken Dec. 6, 1901
V O n' 11.05 10.24 V = 11.05

V may be lost in elongated + irregular image of c

Plate AC 2134 taken Jan. 1, 1902
V n. s.
11.32 V = .1 ~~V = 11.3~~ V < 11.4

Plate AC 1009 taken Sept. 21, 1901
Nebulous

September 10, 1902 J Cassiopeiae cont.

Plate AC 2142 taken Jan. 3, 1901
11.05
V O n' 10.24 V = 11.05

Plate AC 684 taken Jan. 22, 1900
9.37 9.87 10.02
8.86 g 5 V 9.36 9.36 V = 9.36 .00 .00
10.02 10.22
9.36 V 2 g' 9.56 V = 9.74 01 08

Plate AC 2692 taken July 13, 1902
notably
Image of V partly erased by c. More elongated than g
V O g 2 9.37 V = 9.37

Plate A 115 taken Dec. 26, 1893
9.37 9.87 10.12
8.86 g 5 V 9.36 9.46 V = 9.41 .05 .05
10.12 10.22
9.46 V 1 g' 9.56 V = 10.00 13 12

Plate A 169 taken Jan. 20, 1894
9.37 9.87 10.12
8.86 g 6 V 9.46 9.46 V = 9.46 .00 .00
10.12 10.22
9.46 V 1 g' 9.56 V = 10.04 04 ~~06~~

Plate A 1206 taken Dec. 20, 1894
12.23
V O n 11.04 V = 12.23

Plate A 887 taken Sept. 23, 1894
V n. s. V < 10.16
10.47
9.76 m = .4 V < 10.9

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September 11, 1902
7 Cassiopeiae cont

Plate C 8377 taken Oct. 2, 1895
8.86 g 2 v 9.06 9.16 v=9.11 .05 .05
9.16 v 4 g 9.56 v = 9.70 13 12

Plate C 8071 taken July 31, 1895
f 7 v ? Cent too great to measure
8.76 v 1 g 8.86 v = 8.76

Plate C 3999 taken
8.86 g 4 v 9.26 9.26 v=9.26 .00 .00
9.26 v 3 g 9.56 v = 9.84 08

Plate C 8350 taken Oct. 8, 1895
8.86 g 4 v 9.26 9.46 v=9.36 .10 .10
9.46 v 1 g 9.56 v = 9.91 13 12

September 13, 1902
7 Cassiopeiae Cont,

Plate AC 373 taken July 30, 1899
9.76 m 1 v v = 9.86
n' n.s. v = ?

Plate AC 570 taken Dec. 6, 1899
Useless e = 2 g n.s,

Plate AC 902 taken June 27, 1900
Useless - v lost in image of e

Plate AC 1207 taken Feb. 1901
useless - e n.s,

Plate AC 399 taken Aug. 16, 1899
v n.s. lost probably in image of e
12.23 e = .1 v < 12.3
Omitted from Ledger

Plate AC 487 taken Oct. 21, 1899
Image of e diffuse - v lost

Plate AC 2076 taken Dec. 15, 1901
v 0 n' 2 10.24? v = 11.05?

Plate AC 396 taken Aug. 15, 1899
v 0 m' 9.76? v = 10.47?
Images extremely faint

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September 13, 1902
T Cassiopeiae cont.

Plate AC 1912 taken Oct. 26, 1901
9.31 9.77 9.72
8.869 4 v 9.26 9.26 v=9.26 .00 .00
9.92 10.22
9.26 v 3 g 9.56 v = 7.84 05 08

Plate AC 1240 taken Feb. 11, 1901
11.32
v 0 0 2 10.48? v = 11.32?
Image faint - and diffuse
Comparison very uncertain

Plate AC 389 taken Aug. 9, 1899
v n.s. Probably lost in elongated image of a
11.83 0 = .2 v < 12.0
Omitted from Ledger.

Continued page 139

Reduced Oct 3, '16
S.S.

September 16, 1902

Estimates of the brightness of R Cassiopeiae
continued from page 79

Plate I 21729 taken Nov. 2, 1898
10.90 g 3 v 11.20 11.65 11.42 22 23
11.65 v 2 s 11.85 See note R:134.

Plate I 23802 taken Oct. 14, 1899
10.32 0 2 v 10.32 10.61 10.56 04 05
10.61 v 1 0 10.51

Plate I 25642 taken Aug. 9, 1900
7.97 k 3 v 8.27 8.78 8.52 25 26
8.78 v 1 k 8.88
Very doubtful. Image of v diffuse and elongated; h, g, k, l, square and intense

Extreme edge of plate doubtful

Plate I 27375 taken Aug. 20, 1901
9.34 n 4 v 9.74 8.54 9.64 10 19
9.54 v 1 n 9.64

Plate I 15756 taken Sept. 1, 1896
Useless - Nothing on plate in this region

Plate I 27976 taken Nov. 20, 1901
v 0 l 2 8.84 v=8.88?
Too distant for good comparison. Images shaped differently.

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Reduced Oct 3, '16
S.R.

September 16, 1902
R Cassiopeiae cont.

Plate I 21567 taken Oct. 31, 1898
10.90 q 1 v 11.00 11.35 11.16 10.97
11.35 v 5 s 11.85 Rejected. See R3:134

Plate I 28069 taken Dec. 11, 1901
v 0 k 7.97 = v ?
Comp. difficult because of distance and diff. in quality of images

Plate I 18003 taken April 22, 1897
v 0 n 9.34 = v

Plate I 17548 taken March 13, 1897
7.97 k 2 v 8.17 8.78 8.48 31 30
8.78 v 1 L 888

Plate I 16749 taken Dec. 13, 1896
v 0 f 9.10 = v ?
Image of v rather small interval, though smaller. Many be brighter than f by one or two grades

Plate I 18308 taken July 1, 1897 good plate
v 0 q 10.90 = v

Plate I 27289 taken Aug. 4, 1901
10.51 0 3 v 10.81 10.80 10.80 01 00
10.80 v 1 q 10.90

Reduced Oct 3, '16
S.R.

September 16, 1902
R Cassiopeiae cont.

Plate I 23524 taken Sept. 15, 1899
9.64 n' 3 v 9.94 9.92 9.93 01 01
9.92 v 4 0 10.32

Plate I 21751 taken Nov. 23, 1898
10.90 q 1 v 11.00 11.55 11.28 28 27
11.55 v 3 s 11.85 Rejected See R3:134
v not separated from v

Plate I 18703 taken Sept. 6, 1897
10.90 q 2 v 11.10 11.55 11.32 23 23
11.55 v 3 s 11.85

Plate I 16234 taken Oct. 22, 1896
v 0 0 10.32 v = 10.32

Plate I 27846 taken Oct. 24, 1901
7.28 g 2 v 7.48 7.77 7.62 14 15
7.77 v 2 k 7.97

Plate I 21443 taken Oct. 17, 1898
v 0 n 9.34 = v

Plate I 27381 taken Aug. 28, 1901
9.64 n' 1 v 9.74 9.62 9.68 06 06
9.62 v 7 0 10.32

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Reduced Oct 3'16 S.T.

September 17, 1902

R Cassiopeiae cont.

good plate

Plate I 24180 taken Dec. 6, 1899
11.86 S 4 v 12.25 11.89 12.07 18 18
11.89 v 2 t 12.09

Plate I 16807 taken Dec. 19, 1896
v 2 h ? 6.96 v = 6.76 ?
e not on plate, nor any bright comp. star.

Plate I 23855 taken Oct. 19, 1899
v 0 q 10.90 = v

Plate I 21352 taken Oct. 6, 1898
v n. s.
9.64 n = .2 v < 9.84
10.32 o n.s.

good plate

Plate I 18438 taken Aug. 5, 1897
v 0 s 11.85 = v

Plate I 18149 taken May 25, 1897
useless

Plate I 27653 taken Sept. 30, 1901
7.97 k 1 v 8.07 8.68 8.38 31 30
8.68 v 2 l 8.88

Reduced Oct 3'16 S.T.

September 17, 1902

R Cassiopeiae cont.

Plate I 25635 taken Aug. 9, 1900
v 0 l 8.88 = v

Plate I 18568 taken Aug. 17, 1897
12.09 t 1 v 12.19 12.69 12.44 26 25
12.69 v 1 u 12.79

Plate I 16223 taken Oct. 22, 1896
10.51 0 1 v 10.61 10.12 10.36 25 24
10.12 v 2 0 10.32

Plate I 28104 taken Dec. 21, 1901
8.88 l 2 v 9.08 9.24 9.16 08 08
9.24 v 1 n 9.34

Plate I 25641 taken Aug. 9, 1900
7.97 k 3 v 8.27 8.78 8.52 25 26
8.78 v 1 l 8.88

Plate I 23966 taken Nov. 2, 1899
v 0 r ? 11.00 = v ?
Images on the verge of invisibility

Plate I 21524 taken Oct. 28, 1898
v n. s.
12.79 u = .1 v < 12.89 Rejd. ~~See P 3:134~~
18 n.s.

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Reduced Oct 3,16
S.R.

September 17 1902
R Classifiers out

Plate I 18632 taken Sept. 2, 1897
12.09 t 2 v 12.29 12.69 12.49 20 20
12.69 v 1 x 12.79

Plate I 21528 taken Oct. 28, 1898
v m. s,
10.90 q=.1 v< 11.00

Plate I 19253 taken Oct. 13, 1897
v o t ? 12.09 = v ?
Images much blurred. r faintly blended with v

Plate I 17299 taken Feb. 10, 1897
v o q 7.28 = v.

Plate I 15951 taken Sept. 15, 1896
11.00 r 4 v 11.40 11.75 11.58 18 17
11.75 v 1 s 11.85

Plate I 19104 taken Sept. 30, 1897
11.85 s 3 v 12.15 11.99 12:07 08 08
11.99 v 1 t 12.09

Plate I 17055 taken Jan. 12, 1897
6.96 h 4 v 7.36 7.18 7.27 09 09
7.18 v 1 q 7.28

Reduced Oct 3,16
S.R.

September 17, 1902
R Classifiers out,

from plate

Plate I 18340 taken July 14, 1897
v m. s.
8.88 l = .2 v< 8.90
n n.s.

Plate I 27455 taken Sept. 7, 1901
7.97 k 4 v 8.37 8.78 8.58 21 20
8.78 v 1 l 8.88
Images double

Plate I 23546 taken Sept. 16, 1899
9.64 n' 1 v 9.74 9.92 9.83 09 09
9.92 v 4 o' 10.32

Eyepiece
Once off plate

Plate I 16625 taken Dec. 1, 1896
? 6.86 v 1 h 6.96
e not on plate

Plate I 18563 taken Aug. 17, 1897
11.85 s 1 v 11.95 11.69 11.82 13 13
11.69 v 4 t 12.09

Plate I 17863 taken April 16, 1897
8.88 l 1 v 8.98 ?
n n. s.
Von the verge of invisibility - Identified with difficulty, but certainly

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Reduced Oct 3/16 S.R.

September 17, 1902
R Cassiopeiae cont.

Plate I 16522 taken Nov. 14, 1896
7.97 K 3 V 8.27 8.78 8.52 25 26
8.78 V 1 L 8.88

Plate I 15895 taken Sept. 4, 1896
V 0 S 11.80

N.B. All magnitudes on AC plates are corrected by means of the formula in Vol. XXVIII for the combined light of two or more stars.

Reduced Oct 3/16 S.R.

September 23, 1902
R Cassiopeiae cont.

AC Plates. On these plates the image of V is not separated from the faint Comparison star 2. Comparisons will be made, therefore only when V is as bright as 9, or brighter.

Too near neighbor to be used in Comparison

Plate AC 1167 taken Jan. 22, 1901
V 0 9 2 10.90 = V ?

Plate AC 638 taken Dec. 30, 1899
V < 9 10.90 V ∫ 10.90

Plate AC 960 taken Aug. 11, 1900
7.97 K 4 V 8.37 8.48 8.42 05 06
8.48 V 4 L 8.88

Plate AC 1579 taken June 28, 1901
V < 9 10.90 V ∫ 10.90

Plate AC 1727 taken Sept. 7, 1901
7.97 K 8 V 8.77 8.78 8.78 01 00
8.78 V 1 L 8.88

Plate AC 1154 taken Jan. 18, 1901
V 0 9 2 10.90 = V ?

manual been corrected in the Institute

Plate AC 1052 taken Dec. 11, 1900
10.32 0 1 V 10.42 10.21 10.32 10 11
10.21 ~~1 30~~ V 30 10.51

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Reduced Oct 3, 16 S.W.

September 23, 1902

R Cassiopeiae cont,

Extreme edge of plate Images of K and L bad

Plate AC 384 taken Aug. 8, 1899
7.99 K 8 V 8.77 8.78 8.78 01 00
8.78 V 1 L 8.88

Plate AC 1690 taken Aug. 28, 1901
9.14 n' 3 V 9.94 9.82 9.88 06 06
9.82 V 5 0' 10.32

L is too close to K for good comparison

Plate AC 919 taken July 9, 1900
V 0 L 8.88 = v

Plate AC 1222 taken Feb. 8, 1901
V 0 0 10.51 = v

or may it be p²

Images faint

Plate AC 862 taken May 21, 1900
10.32 0' 2 V 10.52 10.21 10.73 36 16 15
10.21 V 3 0 10.51
10.51 0 = .1

Plate AC 1119 taken Jan. 2, 1901
V 0 q² 10.90 = v?

Plate AC 1696 taken Aug. 29, 1901
V 0 n' 9.64 = v

Extreme edge of poor plate

Plate AC 493 taken Oct. 24, 1899
V n. s.
7.97 k = .1 v < 8.07
n n. s.

September 23, 1902

R Cassiopeiae cont,

Images faint

Plate AC 996 taken Sept. 7, 1900
8.88 L 3 V 9.18 9.14 9.16 02 02
9.14 V 2 n 9.34

Plate AC 69 taken Oct. 20, 1898

Poor plate

V n. s.
8.88 L = .2 v < 9.08

Two images curiously near the positions of v and n prove on careful examination to be defects in the plate.

Plate AC 1770 taken Sept. 22, 1901
7.28 q 3 V 7.58 7.62 7.60 03 02
7.67 V 3 K 7.97

Plate AC 656 taken Jan. 4, 1900
V 0 q² 10.90 = v?

n is it v?

Very poor plate

Plate AC 957 taken Aug. 9, 1900
9.34 n 1 V 9.44 ?
n' n. s.

Identification extremely difficult. n is unmistakable though faint. V appears in an elusive way when the plate is superposed on a good one

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Reduced Oct 3, 16
S.P.

September 23, 1902

R Cassiopeiae cont.

Plate AC 482 taken Oct. 16, 1899
V O g? 10.90 = v?
This may be v instead of V

Plate AC 1181 taken Jan. 29, 1901
V < g 10.90 v < 10.90

Plate AC 1765 taken Sept. 21, 1901
7.28 g 5 V 7.78 7.77 7.78 00 01
7.77 v 2 K 7.97

Plate AC 1094 taken Dec. 27, 1900
V < g 10.90 v < 10.90

Plate AC 1662 taken Aug. 16, 1901
V O O 10.32 = v

Plate AC 950 taken Aug. 1, 1900
7.97 K 5 V 8.47 8.68 8.57 10 11
8.68 V 2 b 8.88

Plate AC 1009 taken Sept. 21, 1900
Useless - can find nothing on plate

Images much elongated

Plate AC 1792 taken Sept. 26, 1901
7.28 g 3 V 7.58 7.57 7.58 00 01
7.57 v 4 K 7.97

Reduced Oct 3, 16
S.P.

September 23, 1902

R Cassiopeiae cont.

Plate AC 1800 taken Sept. 27, 1901
7.28 g 4 V 7.68 7.67 7.68 00 01
7.67 v 3 K 7.97

Plate AC 954 taken Aug. 4, 1900
V O d 8.88 = v

Plate AC 1640 taken Aug. 4, 1901
V n.s.
7.28 g = .2 v < 7.48
7.97 K n.s.
A defect in the plate almost precisely in position of v might hide it, possibly

Plate AC 103 taken Dec. 7, 1898
V < g 10.90 v < 10.90

Plate AC 134 taken Dec. 19, 1898
V < g 10.90 v < 10.90

Plate AC 157 taken Jan. 17, 1899
V < g 10.90 v < 10.90

Plate AC 427 taken Sept. 13, 1899
9.34 n 3 V 9.64 9.44 9.54 10 19
9.44 v 2 n 9.64

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Reduced Oct 3.'16 S.T.

September 23, 1902

R Cassiopeiae cont.

Images muddy elongated

Plate AC 373 taken July 30, 1899
7.97 K 3 V 8.27 8.48 8.38 11 10
8.48 V 4 L 8.88

Plate AC 2650 taken June 27, 1902
V < g 10.90 V 5 10.90

Plate AC 2342 taken Feb. 19, 1902
10.32 0 1 V 10.42 10.21 10.32 10 11
10.21 V 3 0 10.51

Plate AC 2280 taken Feb 6, 1902
9.64 n 3 V 9.94 10.22 10.08 14 14
10.22 V 1 0 10.32

Plate AC 1833 taken Oct. 5, 1901
7.28 g H V 7.68 7.77 7.72 04 05
7.77 V 2 K 7.97

Plate AC 1977 taken Nov. 10, 1901
V 0 K 7.97 = V

Images intense. Comparison not easy

Plate AC 2037 taken Dec. 2, 1901
7.97 K 2 V 8.17 8.68 8.42 25 26
8.68 V 2 L 8.88

Reduced Oct 3.'16 S.T.

September 23, 1902

R Cassiopeiae cont.

Plate AC 396 taken Aug. 15, 1899
7.97 K 4 V 8.37 8.78 8.58 21 20
8.78 V 1 L 8.88

Plate AC 1883 taken Oct. 19, 1901
V 0 K 7.97 = V

Plate AC 1912 taken Oct. 26, 1901
V 0 K 7.97 = V

Plate AC 2241 taken Jan. 25, 1901
V 0 n 7.64 = V

Plate AC 2077 taken Dec. 15, 1901
V 0 L 8.88 = V

Plate AC 2153 taken Jan. 3, 1902
8.88 L 4 V 9.28 9.24 9.26 02 02
9.24 V 1 n 9.34

Plate AC 1985 taken Nov. 20, 1901
7.97 K 1 V 8.07 8.58 8.32 25 26
8.58 V 3 L 8.88

Plate AC 67 taken Oct. 20, 1898
V 0 g 2 10.90 = V ?

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Reduced Oct 3, 16
S.T.R.

September 23, 1902

R Cassiopeiae cont.

Plate A C 902 taken June 27, 1900
9.34 n 1 v 9.44 9.14 9.29 15 15
9.14 v 5 n' 9.64

Plate AC 399 taken Aug. 16, 1899
v o l 8.88 = v

Plate AC 1943 taken Nov. 2, 1901
7.28 q 4 l 7.18? 7.87 7.78 10 09
7.87 l 1 K 7.97

Plate AC 2194 taken Jan. 16, 1902
9.34 n 2 v 9.54 9.24 9.39 15 15
9.24 v 4 n' 9.64

Plate AC 1852 taken Oct. 8, 1901
7.28 q 4 v 7.68 7.87 7.78 10 09
7.87 v 1 K 7.97

Plate AC 2656 taken June 29, 1902
v n. s.
9.64 n' = .1 v 9.74

Images intense

Plate AC 2063 taken Dec. 6, 1901
7.97 K 4 v 8.37 8.78 8.58 21 20
8.78 v 1 l 8.88

Reduced Oct 3, 16
S.T.R.

September 23, 1902

R Cassiopeiae cont.

Plate AC 1884 taken Oct. 19, 1901
v o K 7.97 = v

Plate AC 1240 taken Feb. 11, 1901
10.32 0' 3 v 10.62 10.70 10.66 04 04
10.70 v 2 q 10.90

Plate AC 2134 taken Jan. 1, 1902
v o n 9.34 = v

Plate AC 1956 taken Nov. 4, 1901
v o K 7.97 = v

Plate AC 2073 taken Dec. 12, 1901
v o l 8.88 = v

Plate AC 2225 taken Jan. 23, 1902
9.34 n 3 v 9.64 9.54 8.59 05 05
9.54 v 1 n' 9.64

Plate AC 389 taken Aug. 9, 1899
7.97 K 3 v 8.27 8.78 8.52 25 26
8.78 v 1 l 8.88

Plate AC 2076 taken Dec. 15, 1901
v o l 8.88 = v

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Reduced Oct 3.16 S.T.

September 23, 1902

R Cassiopeiae cont.

Plate AC 2692 taken July 13, 1902
V < O 10.51 V ∫ 10.51
q not separated from repeated images of m - Four images of each star, with trails

Plate AC 1971 taken Nov. 9, 1901
V O K 7.97 = V

Plate AC 2141 taken Jan. 2, 1902
V O n 9.34 = V

Plate AC 77 taken Oct. 25, 1898
Useless. Nothing on plate in this region. Extreme edge of poor plate

Plate AC 2684 taken July 11, 1902
V < q 10.90 V ∫ 10.90

Plate AC 1996 taken Nov. 21, 1901
7.97 K 1 V 8.07 8.68 8.38 31 30
8.68 V 2 L 8.88

Plate AC 120 taken Dec. 15, 1898
V n. s.
1032 O' = .1 V ∫ 10.42
Extreme edge of plate - trails

Reduced Oct 3.16 S.T.

September 23, 1902

R Cassiopeiae cont.

Plate AC 2045 taken
7.97 K 1 V 8.07 8.68 8.38 31 30
8.68 V 2 L 8.88

Plate AC 1900 taken Oct. 24, 1901
V O K 7.97 = V

Plate AC 2142 taken Jan. 3, 1902
V O n 9.34 = V

Plate AC 2085 taken Dec. 18, 1901
8.88 L 1 V 8.98 9.14 9.06 08 08
9.14 V 2 n 9.34

Plate AC 2188 taken Jan. 14, 1902
V O n 9.64 = V

Plate AC 2019 taken Nov. 28, 1901
7.97 K 1 V 8.07 8.68 8.38 31 30
8.68 V 2 L 8.88

Plate AC 1792 taken Oct. 21, 1901
V O K 7.97 = V

Plate AC 1942 taken Nov. 2, 1901
V O K 7.97 = V

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Reduced 3,16

September 23, 1902

R Cassiopeiae cont.

Plate AC 570 taken Dec. 6, 1899
v n.s.
8.88 l - .2 v < 9.08

Very poor plate
Plate AC 1207 taken Feb. 6, 1901
v n.s.
9.28 q - .3 v < 9.58
K n.s.

Plate AC 487 taken Oct. 21, 1899
9.64 n' 3 v 9.94 10.12 10.03 09.07
10.12 v 20 10.32

Plate AC 2741 taken Aug. 12, 1902
v < q 10.90 v < 10.90

Plate AC 2711 taken July 30, 1902
v < q 10.90 v < 10.90

Reduced June 22, 1915

September 23, 1902

Estimates of the brightness of T Cassiopeiae
continued from page 118

Plate AC 2711 taken July 30, 1902
9.37 9.77 9.72
8.86 q 4 v 9.26 9.06 v = 9.16 .10 .10
9.72 10.22
9.06 v 5 q 9.56 v = 9.14 03 02

Plate AC 2741 taken Aug. 12, 1902
9.37 9.47 9.72
8.86 q 3 v 9.16 9.06 v = 9.11 .05 .05
9.72 10.22
9.06 v 5 q 9.56 v = 9.10 03 02

Plate AC 2718 taken July 31, 1902
v not separated (Athinuda) from
blurred image of c.

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Reduced Oct 3, 1916 S.W.

September 24 1902

R Cassiopeiae cont.

Plate A I 92 taken Jan. 25, 1901
V m.s.
9.34 n = .1 v < 9.44
n' n.s.

Plate A I 239 taken Aug. 12, 1902
V n.s.
10.32 o' n.s. v < 9.74
9.64 n' = .1

Plate A I 244 taken Aug. 13, 1902
V m.s.
9.64 n' n.s. v < 9.44
9.34 n = .1

Plate A I 79 taken Jan. 7, 1901
V n.s.
n n.s. v < 8.37
7.99 K = .4
k not separated from K

Plate A I 71 taken Jan. 3, 1901
V m.s.
9.64 n' m.s. v < 9.54
9.34 n = .2

Reduced Oct 3, 1916 S.W.

September 24, 1902

R Cassiopeiae cont.

trails

Plate A I 70 taken Jan. 3, 1901
V m.s.
9.64 n' m.s. v < 9.44
9.34 n = .1

Plate A I 105 taken Feb. 6, 1901
useless - trails of bright stars

Plate A I 86 taken Jan. 8, 1901
V m.s.
9.64 n' = .1 v < 9.74
o' m.s.

Plate A I 240 taken Aug. 12, 1902
V n.s.
7.99 K = .1 v < 8.07
n n.s.

Plate A I 104 taken Feb. 3, 1901
V m.s.
7.99 K = .2 v < 8.17
n n.s.

Plate A I 64 taken Jan. 2, 1901
Useless. Very bad focus. No stars in this region

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Reduced Oct 3, 1916 S.R.

September 24, 1902

R Cassiopeiae cont.

Plate AI 106 taken Feb. 6, 1901
V n. s.
1032 O = .1 r < 10.42
O n. s.

good measure — Plate A 849 taken Sept. 6, 1894
V O K h 6.96 = r

Edge of plate — Plate A 115 taken Dec. 26, 1893
12.09 t 3 r 12.37 12.59 12.47 12 10
12.57 r 2 u 12.79

Plate A 1651 taken Sept. 1, 1895
7.97 K 2 V 8.17 8.28 8.48 31 30
8.78 r 1 l 8.88
Comparison difficult + uncertain. K and l are much nearer edge of plate and their images are poor, while that of V is good.

Plate A 715 taken Aug. 17, 1894
V 3 h 6.96 r = 6.66
e is much too far away and its image too different from that of V, for comparison. Even h has a poor image compared with V

Reduced Oct 3, 1916 S.R.

September 24, 1902

R Cassiopeiae cont.

Plate A 86 taken Sept. 23, 1894
V O K 2 7.97 = r ?
Measurement uncertain. Images shaped differently. Also the region below about V is darker than that about K

Plate A 1020 taken Oct 10, 1894
Many region - V just off plate

Plate A 1698 taken Sept. 17, 1895
Same as above

Plate I 15505 taken July 18, 1896
Useless

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October 24 1902

Estimates by Anglenders method of the brightness of prismatic companions of comparison stars for I Cassiopeiae.

a_1 = prismatic companion of a star

Plate I 11597 taken Dec. 11, 1894

10.22
10.49 f' 2 b' 10.42 10.22 10.32 .10 .10
10.22 b 10.69 10.50 b_1 = 10.60 .09 .09
10.50 f 1 p 10.36 10.36
10.82 10.92 10.77 10.84 .08 .07
11.04 r 1 c_1 11.14 10.96 c_1 = 11.05 .09 .09
10.77 11.17
10.96 c_1 4 s' 11.36
11.17 11.17
11.36 d 0 s' 11.36 d_1 = 11.36
11.22 10.97 11.10 .12 .13
11.36 r 4 e_1 11.44 11.16 e_1 = 11.30 .14 .14
10.97 11.17
11.16 e 2 s' 11.36
11.32 11.07 11.20 .12 .13
11.04 r 5 f 11.54 11.26 f_1 = 11.40 .14 .14
11.07 11.17
11.26 f 1 s' 11.36

Continued p. 153

The interval from r to s' is too great for satisfactory estimation in grades. It seems to be nearly a magnitude

Plate I 5279 taken Dec 28, 1891

Images not comparable. Faint and intense, while the star images are diffuse - Yet I make an attempt below

f 0 f_1 10.49 f_1 = 10.49 Another time the
10.60 f 0 c_1 c_1 = 10.60 result would prob-
11.36 s' 2 d_1 11.56 d_1 = 11.56 ably be quite different
a n.s.

e 0 r 11.04 e_1 = 11.04
f_1 0 s' 11.36 f_1 = 11.36

8' very faint

October 24, 1902

I Cass. Prismatic companions cont

Plate I 81
No prismatic companions
Plate I 2058
No prismatic companions

Continued p. 153

N.B. The computation in black ink is based on mean magnitudes of comparison stars.
The computation in red ink is based on magnitudes derived from I plates.

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October 24, 1902

Prismatic Comparisons of Comparison stars
& R Cassiopeiae - Estimates of Brightness

Plate I 9121

Magnitudes from I plate

h 0 s 10.50
10.45 p 3 f 10.75 10.62 f_1 = 10.68 .07 .16
10.62 f 1 t 10.72
10.45 p 2 g 10.65 10.52 g_1 = 10.58 .07 .16
10.52 g 2 t 10.72
k 0 u 11.22
11.22 u 4 m_1 11.62 11.40 m_1 = 11.51 .11 .11
11.40 m_1 w 11.50

Plate I 118 no prismatic comparisons
Plate I 473 " "

Continued page 155
See also page 76, 200, 211

October 24, 1902

Estimates of brightness of prismatic comparisons of comparison stars for S Cassiopeiae

Plate I 13586 taken Oct. 1, 1895

10.57
10.72 p 1 d_1 10.61 10.56 10.82 10.76 d_1 = 10.79 .03 .03
10.56
a is distant 10.76 d 2 g 10.96
from field a 0 p 10.72 a_1 = 10.72
10.86
10.96 r 2 b_1 11.06 10.98 11.16 11.12 b_1 = 11.14 .02 .02
10.98
11.12 b 1 s 11.22
c 0 s 11.22 c_1 = 11.22
d 0 u 11.67 Images ruff faint, and d distant

11.98 11.58 12.08 12.02
11.62 11.67 u 1 l_1 12.02 l_1 = 12.02
11.08 11.38 11.28 11.33 .05 .05 .20 .20
11.22 s 3 f_1 11.52 11.47 11.76 f_1 = 11.50 11.62 .02 .03 .10 .10
11.78
11.72 11.47 f 2 u 11.62 11.78
11.08 11.38 11.28 11.58 .05 .05 .20 .20
11.22 s 3 g 11.62 11.72 g_1 = 11.50 11.62 .02 .03 .10 .10
11.78 11.98
11.72 11.47 g 2 u 11.67 11.92

Plate I 9779 taken Oct. 25, 1895

10.56
10.75 m 2 d_1 10.46 10.41 10.97 10.62 d_1 = 10.78 .17 .16
10.41
10.62 d_1 1 p 10.51 10.72

10.06 10.46 10.31 .15 .15
9.96 10 30 65 48 .18 .17
10.24 0 2 a_1 10.44 10.34 a_1 = 10.64 .20 .20
10.46 65 75
10.84 a_1 1 m 10.44 10.56
22 11.08 11.08 22
11.36 b 0 s 11.22 11.08 b_1 = 11.36

See note page 145

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October 24, 1902

Prismatic Comparisons S Cass. Cont.

Plate I 5075 taken December 11, 1891

10.51			10.71	10.56		10.64	.07	.03
10.72	p	2 a_1	10.92	10.76	α_1 =	10.84	.08	.38
10.56				10.76				
10.76	α_1	2 q	10.96					
			10.51					
	a	0 p	10.72		a_1 =	10.72		
			10.76			10.76		
	b_1	0 q	10.96		b_1 =	10.96		
10.86			10.96	10.98		10.97	.01	.01
10.96	n	1 c_1	11.06	11.12	c_1 =	11.09	.13	.03
10.98								
11.12	c	1 s	11.22	11.08				
				11.08				
	d_1	0 s	2 11.22		d_1 =	11.08		

distant from field

Continued f. 164

October 24, 1902

Estimates of brightness of prismatic comparisons of comp. stars for 7 to S Persei

See note f. 145

Plate I 7570 taken Nov. 2, 1892

10.76			11.16	11.04		11.10	.06	.06
10.99	m	4 δ_1	11.39	11.23	δ_1 =	11.31	.08	.08
11.04								
11.23	δ	2 m	11.24					
		Last	11.43					
11.59			11.79	11.76		11.78	.01	.12
11.70	0	2 ε_1	11.90	11.83	ε_1 =	11.86	.04	.03
11.76								
11.53	ε	1 p	11.93					
				11.86				
	b_1	0 m	11.24					
			11.43		δ_1 =	11.24		
10.99	m	2 d_1	11.19			11.43		

m not reduced

d 4 n 11.88 slit image mistaken for d_1

d_1 0 q 11.98 δ_1 = 11.88 11.98

Plate I 7773 taken Dec. 29, 1892

10.76			11.26	11.04		11.15	.11	.11
10.99	m	5 δ_1	11.39	11.23	δ_1 =	11.36	.13	.13
11.04								
11.23	δ	2 m	11.24					
			11.43					
						11.86		
	ε_1	0 p	11.86			11.93		
11.88			12.08		ε_1 =	12.08		
11.98	q	2 a_1	12.18		a_1 =	12.18		
			11.88			11.88		
	d_1	0 q	11.98		d_1 =	11.98		
11.88			12.18			12.18		
11.98	q	3 ε_1	12.28		ε_1 =	12.28		

q finished in sequence

Plate I 2853 taken Jan. 16, 1891

10.76			11.16	11.04		11.10	.06	.06
10.99	m	4 δ_1	11.39	11.23	δ_1 =	11.31	.08	.08
11.04								
11.23	δ	2 m	11.24					
			11.43					
	b_1	0 m	11.24					
			11.43		δ_1 =	11.24		
						11.43		

Continued f. 197

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October 24, 1902

Prismatic companions R Aurigae

See note page 145.

Plate I 2924 taken Jan. 26, 1891

star image first compared

~~t + a~~	9.63	9.83	9.65	9.74	.09	.09
t k 2a	9.73	9.93	9.74	a_1 = 9.84	.09	.10
~~a 2 a~~	9.65		9.75			
a 2 a	9.74		9.84			

b o o	10.65			10.65		
	10.83			b_1 = 10.83		
10.70 m 1 c	10.55	10.65	10.55	10.60	.05	.05
	10.80		10.73	c_1 = 10.76	.04	.03
10.73 c 1 o	10.55	10.65				
	10.83					
10.83 o 2 c	10.65	10.85	11.18	11.02	.17	.16
	11.03		11.22	c_1' = 11.12a	.09	.10
11.22 c 3 q	11.18	11.48				
	11.52					
11.52 q 1 d	11.48	11.58				
	11.62			d_1 = 11.62		

r n.s.

extremely faint ~~p o q~~ ?

Plate I 7864 taken Jan. 8, 1893

b o o	10.65			10.65		
	10.83			b_1 = 10.83		
10.83 o 1 c	10.65	10.75	10.88	10.82	.07	.06
	10.93		10.88	c_1' = 10.90	.03	.02

Image of b much more intense than a

compare all images this star in first Plate

10.88 c 4 t						
10.88 c 6 p	11.48					
~~d o p~~						
d o m						
9.94 l 2 a	9.71	9.97	9.95	9.96		
	10.14		10.10	a_1 = 10.05	.01	.01
9.95 a_1 1 m	10.05					
10.10	10.20					

φ n.s.

Image closely comparable

Plate I 11908 taken Nov. 15, 1894

9.73 k 1 a	9.63	9.73	9.55	9.64	.09	.10
	9.83		9.64	a_1 = 9.74		
9.64 a_1 2 h	9.55	9.75				
	9.84					

estimate embarrassed by close neighbor ? a

~~q + φ ?~~

~~φ 3 k~~

~~á o o 10.50~~

~~c' o p 11.48~~ 11.48

~~c' = 11.48~~

c_1 o m 10.55 10.70 c_1 10.55 10.70

October 24.5, 1902

Prismatic companions R Aurigae cont.

See also pp 195, 196, 199

Plate I 11908 continued

10.65 ó 6 b	11.45	11.38		b_1 = 11.42	.03	.04
11.38 b 1 p	11.48					
	11.48		11.58			
11.62 q 1 d	11.62			d_1 = 11.62		

p n.s.

~~R Lyncis~~ This is R Aurigae - Dress ruled lightly pay no heed to ruled cross.

Plate I 5481 taken Jan 31, 1892

d o q	11.48	5		5	11.48	
	11.62			d_1 = 11.62		
10.83 o 2 t	10.65	10.85	10.98	b_1 = 11.00	.07	.06
	11.03		10.98		.03	.02
10.98 b 5 p	11.48					
	11.48					
a o m	10.05			11.05		
	10.20			a_1 = 10.20		

f m s.

10.83 o 2 c	10.65	10.85	10.98	c_1 = 11.00	.07	.06
	11.03		10.98		.03	.02
10.98 c 5 p	11.48					
	11.48					
c_1 o o	10.35			10.35		
	10.50			c_1 = 10.50		

perform field

~~b + c,~~ page turned back - this is

~~R Lyncis Copy of above~~ ~~o m s.~~ ~~R Lyncis~~

d o q	11.68					
11.33 o 2 t	11.53	11.22		b_1 = 11.38	.15	.16
	11.22					
11.22 b 5 p	11.72					
a o m	11.00			a_1 = 11.00		
11.33 ó 2 c'	11.53	11.22	10			
	11.22					
11.22 c' 5 p	11.72					
c' o o	10.99					

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October 25, 1902

Prismatic Companions. R Lyncis

Plate I 10897 taken Nov. 22, 1893

10.68 N 2 a, 10.64 10.88 10.56 10.80 a, = 10.90 10.60 84 .04 .04 .04 .04
10.80 a 2 m 10.76 11.00
10.99 10.74 2 b 10.94 11.19 10.92 11.13 b, = 11.16 10.93 .01 .03 .01 .03
11.13 b, 2 0 11.12 11.33
c 0 R 11.98 12.04 c, = 12.04 11.98
11.33 b 2 d, 11.32 11.53 11.40 11.58 d, = 11.56 11.36 .04 .03 .04 .02
11.58 d, 1 q 11.50 11.68
12.04 R 1 e, 12.08 12.14 e, = 12.14 12.08
a m.s,

Continued page 159
See note page 145

October 25, 1902

Prismatic Companions of Cassiopeiae

Continued from p 145

Near edge

Plate I 16750 taken Dec. 13, 1896

a, 0 n 9.56 9.78 a = 9.78 9.56
b 0 f 10.32 10.60 b, = 10.60 10.32
11.04 10.82 R 2 c, 11.02 11.24 10.87 11.06 c, = 11.15 10.94 .08 .09 .07 .09
10.87 11.06 C, 3 ∠ 11.17 11.36
Some vagueness of visibility
11.36 a' 2 d, 11.37 11.56 11.12 11.29 d, = 11.42 11.24 .13 .14 .12 .13
11.12 11.29 d, 4 ∠ 11.52 11.69
e 0 a' 11.17 11.36 e, = 11.36 11.17
11.36 b' 3 f, 11.47 11.66 11.32 11.49 f, = 11.58 11.40 .07 .08 .08 .09
11.32 11.49 f, 2 ∠ 11.52 11.69

Plate I 17300 taken Feb. 10, 1897

a distant from field

a 0 K 9.58 9.75 a, = 9.75 9.58
b 0 0 10.48 b, = 10.48 10.24
10.92 10.64 C 1 c, 10.77 11.02 10.72 10.94 c, = 10.98 10.74 .07 .04 .03 .02
10.94 10.72 C 1 R 10.82 11.04
11.36 11.17 e d, 11.37 11.56 11.22 11.39 d, = 11.48 11.30 .08 .09 .07 .08
11.39 11.22 d, 3 ∠ 11.52 11.69
e 0 a' 11.17 11.36 a, = 11.36 11.17
11.36 b' 3 f, 11.47 11.66 11.32 11.49 f, = 11.58 11.40 .08 .09 .07 .08
11.49 11.32 f, 2 ∠ 11.52 11.69

See note page 145

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Oct 25, 1902

Prismatic Companions ζ Cass. cont.

Plate I 17550 taken March 13, 1897

b o p 10.32 10.60 — b_1 = 10.32 10.60

10.82 a 2 c 11.02 11.24 — 10.87 11.06 — c_1 = 10.94 11.15 — .08 .09 — .07 .09

10.87 c 3 e 11.17 11.36

11.17 e 2 d 11.37 11.56 — d_1 = 11.37 11.56

s n e 11.17 11.36 — e_1 = 11.17 11.36

See note page 145

Continued pp 198, 199, 206

Field of this plate and those on previous page rather near edge of plate. Comparison of b and c always difficult on account of distance, not great for comparison of bright stars, but very difficult for faint ones. Comparison of a almost impossible.

Oct 25, 1902

Prismatic Companions α Cass

Cont. from p. 146

Plate 15795 (to be measured with scale)

These magnitudes derived from I plate

h, o p 10.45

10.72 t 3 k_1 11.02 11.12 — k_1 = 11.07 — .05 .05

11.12 k 1 u 11.22

~~W 1~~

11.50 W 1 k_1 l_1? 11.60 11.53 — l_1 = 11.56 — .07 .03

11.53 k_1 3 x 11.83

11.22 u 1 g_1* 11.32 11.20 — g_1* = 11.26* — .06 .06

11.20 g_1 3 W 11.50

f o q 10.50

11.22 u 2 m_1 11.42 11.40 — m_1 = 11.41 — .01 .01

11.40 m_1 1 W 11.50

g_1 star image near mistaken for prismatic companion. For correct comparison see page 206

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October 26, 1902

Prismatic comparisons: R Ursae Majoris

See note p. 145

Plate I 14846 taken April 9, 1896

Comp. difficult from very different

	a 0 r 10.07 10.33		a_1 = 10.33				
10.89 11.02	t 3 g 11.19 11.32	11.08	g_1 = 11.07	11.20	.10	.10
10.99 11.08	g 2 w 11.28					
10.59 10.82	w 2 t 10.79 11.02	10.79	h_1 = 10.79	10.97	.00	.05
10.79 10.92	h_1 1 t 10.89 11.02					
	l 0 w 11.19 11.28		l_1 = 11.19	11.28		
	k_1 0 w 11.44 11.52		k_1 = 11.44	11.52		

All comparisons difficult and uncertain. That of k_1 is the best

Plate I 8316 taken March 29, 1893

	a 0 r 11.07 10.33		a_1 = 10.33				
	h_1 0 w 11.19 11.28		h_1 = 11.28				

Plate I 3170 taken Feb. 22, 1891

good comparison images similar

9.74 9.98	p 1 a 9.84 10.08	9.69 9.94	a_1 = 9.76	10.01	.08	.07
9.69 9.94	a 2 g 9.89 10.14					
10.59 10.82	t 1 h 10.69 10.92	10.49 10.62	h_1 = 10.59	10.77	.10	.15
10.49 10.62	h_1 4 t 10.89 11.02					

defect in plate near t

Plate I 1619

	g 0 w 11.44 11.52		g_1 = 11.44	11.52		
extremely faint	m 0 X 11.59 11.72		m_1 = 11.59	11.72 ?		
11.44 11.52	w 2 l_1 11.64 11.72	11.39 11.52	l_1 = 11.52	11.62	.12	.13 .10
11.39 11.52	l_1 2 X 11.59 11.72					
	a 0 r 10.07 10.33		a_1 = 11.07	10.33		

October 26, 1902

Prismatic comparisons R Ursae Majoris cont

Plate I 16437 taken Nov. 2, 1896

	a 0 r 10.07 10.33		a_1 = 10.07 10.33			
11.44 11.52	t 2 l_1 11.64 11.72	11.29 11.42	l_1 = 11.46 11.57	.18 .15	.17 .15
11.29 11.42	l_1 3 X 11.59 11.72					
	k 0 X 11.59 11.72		k_1 = 11.59 11.72			
Image of h_1 more intense	10.07 10.33	r 4 h_1 11.47 10.73	11.49 10.72	l_1 = 10.48 10.72	.01 .01	.01 .10
	10.49 10.72	h_1 1 2 10.59 10.82				
Image of g more intense	11.47 11.59	g 0 w 11.52		g_1 = 11.44 11.52?		
11.59 11.72	X 1 m, 11.68 11.82			m_1 = 11.67 11.82?		
	m_1 2 Z					

See also pp 194, 195, 200

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October 26, 1902

Prismatic companions. R Cancri Spark

Plate I 14764 taken March 31, 1896

Star image close to a_1

10.61 10.91 10.79 10.85 .06 .06
10.84 h 3 a 11.14 11.00 a_1 = 11.07 .07 .07
10.79 10.89
11.00 a_1 1 k 11.10

Dist. from field

9.88
B_1 0 l 9.98 B_1 = 9.98

11.29 11.49 11.29 11.49
11.40 l 4 c 11.80 11.47 C_1 = 11.64 .16 .15
11.49
11.49 C_1 2 p 11.69

Plate I 14800 taken April 2, 1896

a_1 0 k 11.10 a_1 = 11.10
C_1 0 0 11.64 C_1 = 11.64
B_1 0 l 9.98 B_1 = 9.98

Continued from p. 169

October 26, 1902

Prismatic companions. R Lyncis Cont. from p. 152

Companion difficult; images dissimilar

Plate I 16507 taken Nov. 12 1896

11.98 12.28 12.18 12.23 .05 .05
12.04 h 3 C_1 12.34 12.18 C_1 = 12.26 .08 .08
12.18 12.28
12.18 c 1 e 12.28

10.74 10.84 10.82 10.83 .01 .01
10.99 l 1 b 11.09 11.03 b_1 = 11.06 .03 .03
10.82 11.12
11.03 f 3 0 11.33

11.98
f 0 r 12.04 f_1 = 12.04

a not companion

Plate I 16596 taken Nov. 22 1896

10.36 10.76 10.64 10.70 .06 .06
10.60 m 4 a_1 11.00 10.89 a_1 = 10.94 .06 .05
10.64 10.74
10.89 a 1 0 10.99

b_1 duplicate from field a_1 dist. from field

10.74 10.94 11.02 10.98 .04 .04
10.99 b 2 b 11.19 11.23 b_1 = 11.21 .02 .02
11.02 11.12
11.23 f 1 0 11.33

11.50 11.80 11.88 11.84 .04 .04
11.68 g 3 C_1 11.98 11.97 C_1 = 11.96 .02 .02
11.88 11.98
11.94 c 1 r 12.04

11.59
d 0 g 11.68 d_1 = 11.68

11.58 11.80 11.88 11.84 .04 .04
11.68 g 3 e 11.98 11.94 e_1 = 11.96 .02 .02
11.88 11.98
11.94 e_1 1 r 12.04

See also p. 196

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October 26, 1902

Prismatic comparisons - S Bootis.

Plate I 6098 taken April 13, 1892

a	o	d	11.02		a_1 = 11.02			
11.42	m	2	b	11.62	11.52	b_1 = 11.57	.01	.01
11.52	b	2	m	11.72			.05	.05
12.04	p	1	c	12.14	12.01	c_1 = 12.08	.06	.07
12.01	c	2	g	12.21				
	d	1	g	12.21		d_1 = 12.21		

Images dissimilar

Plate I 11176 taken May 22, 1894

a	o	d	11.02		a_1 = 11.02			
11.82	o	1	b	11.92	11.84	b_1 = 11.88	.04	.04
11.84	b	2	p	12.04				
11.02	d	2	c	11.22	11.22	c_1 = 11.22	.00	.00
11.22	c	2	m	11.42				
12.04	p	2	d	12.27	12.11	d_1 = 12.18	.06	.07
12.11	d	1	g	12.21				

Plate I 10797 taken March 14 1894

10.82	k	3	a	11.12	10.92	a_1 = 11.02	.10	.10
10.92	a	1	d	11.02				
11.02	d	1	c	11.12	11.12	c_1 = 11.12	.00	.00
11.12	c	3	m	11.42				
11.82	o	2	d	12.02	11.94	d_1 = 11.98	.04	.04
11.94	d	1	p	12.04				
	b	1	m	11.72		b_1 = 11.72		

Continued next page

October 26, 1902

Prismatic comparisons - R Ursae Minoris

No comparison stars faint enough for prismatic comparisons of a and b which are the only stars bright enough to have them

Prismatic comparisons S Bootis Cont.

Plate I 16756

10.82	k	2	a	11.02	10.92	a_1 = 10.98	.04	.04
10.92	a	1	b	11.02				
11.42	m	2	b	11.62	11.62	b_1 = 11.62	.00	.00
11.62	b	1	m	11.72				

See also pp 196, 198

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October 26, 1902

Prismatic companions - β Draconis

Plate I 8141 taken Feb. 27, 1893

a image not comparable

d f 0 r 2 10.89 $d_1 = 10.89^2$

f 0 r 2 11.29 $f_1 = 11.29^2$

11.29 r 1 t 11.39 11.22 $t_1 = 11.30$ .09 .08

11.22 t 2 s 11.42

c_1 image not comparable

11.29 r 3 f 11.59 11.32 $f_1 = 11.46$ .13 .14

11.32 f_1 1 s 11.42

Plate I 3179

f_1 0 r 11.29 $f_1 = 11.29$

Other images not comparable

Continued page 167

October 26, 1902

Plate I 9463

Prismatic companions - δ Cygni Cephei

a 0 g 11.44 $a_1 = 11.44^2$

11.44 g 2 d_1 $d_1 = 11.44^2$

no finder comp. star

Plate I 11695 taken Oct. 17, 1894

a_1 0 g 11.44 $a_1 = 11.44$

a_1 and d_1 are the only companions that can be compared, as g is faintest comparison star. Therefore I cannot make independent estimates. The above two were entirely independent. On plates I 16388 and I 17573 a_1 also seemed to equal g, but my estimate may have been influenced by the former plates.

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Oct 27, 1902

Prismatic companions - δ Cassiopeiae

Plate I
17036 Jan. 11, '97

11.08		11.48	11.78	11.63	.10 .10	.15	.15	
11.22 a 4 f		11.62	11.472 f, =	11.67	.08 .07	.05	.05	
11.78		11.98						
11.72 11.47 f 2 w		11.92						
e 0 t		11.90 11.88	e, =	11.88				
b, 0 w		11.22 11.08	b, =	11.22				
11.08		11.48	11.28 11.78					
11.22 a 4 g,		11.62	11.472 g, =	11.67	.10 .10	.15	.15	
11.78 11.28					.08 .07	.05	.05	
11.72 11.47 g, 2 w		11.98						
		11.92						
9.96	10.26	10.41		10.34	.08	.07		
10.10 0 3 a,	10.40	10.62	a, =	10.51	.11	.11		
8.41								
10.62 a, 1 f	10.72	10.51						

Plate I, 17551 taken March 13, 1897

9.96	10.06	10.31		10.18	.12	.13		
10.10 0 1 a	10.20	10.52	a, =	10.36	.16	.16		
10.31								
10.52 a, 2 p	10.51	10.72						
11.08	11.48	11.68		11.33 11.58	.15 .15	.10	.10	
11.22 a 4 f,	11.62	11.27 11.62	f, =	11.58 11.62	.12 .13	.00	.00	
11.68 11.28	11.48	11.98 11.68						
11.62 11.37 f 3 w	11.47	11.92						
		11.98						
e, 0 w	11.92		e, =	11.92				
11.08	11.38	11.08 11.58		11.23 11.48	.15 .15	.10	.10	
11.22 p 3 c	11.52	11.27 11.52	c, =	11.40 11.52	.18 .13	.00	.00	
11.58 11.08								
11.52 11.27 c 4 w	11.98	11.92						
11.08	11.28	10.88		11.28	.15 .15	.10	.10	
11.22 1 b,	11.32	11.07 11.32	b, =	11.32	.12 .13	.00	.00	
9.38								
11.32 f 6 w	11.98	11.92						
11.08	11.48	11.68		11.58	.15 .15	.10	.10	
11.22 4 g,	11.62	11.37 11.62	g, =	11.62	.12 .13	.00	.00	
11.68	11.98							
11.62 11.37 g, 3 w	11.92							

Continued p.p. 193, 194

Oct 27, 1902

Prismatic companions - ζ Cephei

See note page 145

Plate I 9200 taken Aug. 13, 1893

Prism. comp. of d

	10.89			10.89			
d 0 g	10.84		d, =	10.84			
11.05		11.25	11.27	11.26	.01	.01	
11.07 r 2 e,	11.27	11.22	e, =	11.24	.03	.02	
11.27							
11.22 e 2 r	11.47	11.42					

Prism. comp. of e

11.47		11.67	11.67		11.67	.50	.50
11.42 r 2 g	11.62	11.54	g, =	11.58	.04	.04	
11.67	11.87						
11.54 g 2 e	11.74						

Prism. comp. of g

f, nuage superficiel

	11.47						
g, 0 r	11.42		g, =	11.42			
11.47	11.77	11.77		11.77	.50	.50	
11.42 r 3 h	11.72	11.64	h, =	11.68	.04	.04	
11.77	11.87						
11.64 h, 1 e	11.74						

Prism. comp. of g'

Prism. comp. of h

good plate for this comparison

Plate I 18105 taken May 18, 1897

	11.05			11.05			
d 0 r	11.07		d, =	11.07			
11.47				11.47			
e, 0 r	11.42		e, =	11.42			
11.47	11.87	11.77		11.82	.05	.05	
11.42 r 4 h,	11.82	11.64	h, =	11.73	.09	.09	
11.87							
11.64 h, 1 e	11.74						

Prism. comp. of g'

11.47		11.67	11.67		11.67	.50	.50
11.42 r 2 g',	11.62	11.54	g', =	11.58	.04	.04	
11.67	11.87						
11.54 g' 2 e	11.74						

g' has slight nuage to close

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Octbr 27, 1902

Prismatic Companions - 7 Cipher continued.

Plate I 9332 taken Aug. 29, 1893

d 0 r 11.07 — d_1 = 11.07

g 3 g 11.72 11.64 — g_1 = 11.68 .04 .04

g 1 r 11.74

e 1 r 11.17 11.22 — e_1 = 11.20 .03 .02

e 2 r 11.42

g 3 h 11.72 11.64 — h_1 = 11.68 .04 .04

h 1 r 11.74

t 1 h_1 11.96 — h'_1 = 11.96

Plate I 18253 taken June 21, 1897

g 1 d 10.94 10.87 — d_1 = 10.90 .04 .03

d 2 r 11.07

e_1 0 r 11.42 — e_1 = 11.42

g has star image too close

h 0 r 11.74 — h_1 = 11.74

t 2 h_1 12.06 — h'_1 = 12.06

The four plates which Shian used for this star are all exceptionally good for this kind of comparison.

See also pp 192, 193, 197

Octber 27, 1902

Prismatic comparisons. R ~~Comparisons~~ Drawings

See note page 145

Continued from p. 162

Plate I 8141 taken Feb. 27, 1893

g 1 d 11.08 11.09 — d_1 = 11.08 .00 .01

d 0 r 11.29

g 2 b_1 11.18 11.19 — b_1 = 11.18 .00 .01

b_1 1 r 11.29

a, c images not measurable

e_1 0 r 11.21 — e_1 = 11.21 ?

poor plate - Too poor, omit

Plate I 17539 taken March 12, 1897

g 1 a 11.08 11.09 — a_1 = 11.08 .00 .01

a 2 r 11.29

c 0 r 11.29 — c_1 = 11.29

d 2 d_1 11.18 11.19 — d_1 = 11.18 .00 .01

d_1 1 r 11.29

b 0 r 11.29 — b_1 = 11.29

t 1 e 11.52 11.62 — e_1 = 11.62

no faint comparison star

Plate I 17032 taken Jan. 10, 1897

a 0 g 10.98 — a_1 = 10.98

c 0 r 11.29 — c_1 = 11.29

r 1 b 11.39 11.32 — b_1 = 11.36 .03 .04

b 1 s 11.42

d 0 g 10.98 — d_1 = 10.98

s 1 e 11.52 11.52 — e_1 = 11.52 .00 .00

e 1 t 11.62

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October 31, 1902

Prismatic companions R Draconis continued

Plate I 17452 taken Feb. 28, 1897

10.98 g 2 a, 11.18 11.19 — a, = 11.18 — .00 — .01
11.19 a 1 r 11.29
10.98 g 2 c, 11.18 11.19 — c, = 11.18 — .00 — .01
11.19 c, 1 r, 11.29
11.47 11.62 t 2 g, 11.82 — g, = 11.82
g, 1 w
11.47 11.62 t 2 h, 11.82 — h, = 11.82
h, 1 w
b 0 a 11.42 — b, = 11.42
11.47 11.62 t 3 f, 11.92 — f, = 11.92
w 1 f,
11.47 11.62 t 1 e, 11.72 — e, = 11.72
e, 1 w
d, 0 a 11.42 — d, = 11.42

An excellent plate. Companion much better than on most plates.

W not measured in sequence. Too faint on plates that were measured.

See also pp 192, 193, 194

dist from field damage very poor

October 31, 1902

Prismatic companion R Camelopardali

See ante page 145

Continued from p. 168

Plate I ~~17538~~ 18120 taken May 19, ~~March 12~~, 1897

11.29 11.40 l 1 a, 11.39 11.50 11.12 11.22 — a, = 11.36 — .14 — .14
11.12 a, 1 m 11.32
9.76 9.82 f 2 β, 9.96 10.02 9.88 10.13 — β, = 9.92 10.08 — .04 .06 — .04 .06
9.88 β, 4 g 10.28 10.53
11.49 11.69 p 1 b, 11.59 11.79 11.39 11.59 — b, = 11.49 11.69 — .10 — .10
11.39 11.59 b, 3 g 11.69 11.89
c, 0 0 11.49 11.64 — c, = 11.64

Plate I 17538 taken March 12 1897

9.76 9.82 f 4 β 10.06 10.22 9.98 10.23 — β, = 10.02 10.22 — .04 .00 — .04 .01
9.98 β 3 g 10.28 10.53
11.10 p 3 a, 11.19 11.40 11.12 11.22 — a, = 11.16 11.31 — .03 .09 — .03 .09
11.12 a 1 m 11.22 11.32
11.49 11.69 p 2 c, 11.69 11.89 11.59 11.79 — c, = 11.64 11.84 — .05 .05 — .05 .05
11.59 11.79 c, 1 g 11.69 11.89
b, n. s.

See also pp 192, 199, 200

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October 31, 1902

Prismatic comparisons R Draconis continued

Plate I 17452 taken Feb. 28, 1897

10.98 g 2 a, 11.18 11.07 11.19 a, = 11.18 .05 .00 .05 .01
11.19 a 1 r 11.29
10.98 g 2 c, 11.78 11.07 11.19 c, = 11.18 .05 .00 .05 .01
11.19 a, 1 r, 11.29
11.62 t 2 g, 11.82 11.67 g, = 11.82
g, w
11.62 t 2 l, 11.82 11.67 l, = 11.82
l, w
b 0 s 11.42 11.32 b, = 11.42
11.62 t 3 f, 11.92 11.77 f, = 11.92
w 1 f,
11.62 t 1 e, 11.72 11.57 e, = 11.72
e, w
d, 0 s 11.42 11.32 d, = 11.42

An excellent plate. Comparison much better than on most plates.

W not measured in sequence. Too faint on plates that were measured.

See also pp 192, 193, 194

dist from field Image very poor

October 31, 1902

Prismatic comparison. R Canis Majoris

See next page 145

Continued from p. 168

18120

Plate I 17538 taken May 12, 1897

11.29 11.40 l 1 a, 11.39 11.50 11.12 11.22 a, = 11.36 .14 .14
11.12 11.32 a 1 m 11.32
9.76 9.82 f 2 β, 9.96 10.02 9.88 10.13 β, = 9.92 10.08 .04 .06 .04 .05
9.88 10.13 β 4 g 10.28 10.53
11.49 11.69 p 1 b, 11.59 11.79 11.39 11.59 b, = 11.49 11.69 .10 .10
11.39 11.59 b 3 q 11.69 11.89
c, 0 0 11.49 11.64 c, = 11.49 11.64

Plate I 17538 taken March 12, 1897

9.76 9.82 f 4 β 10.06 10.22 9.98 10.23 β, = 10.02 10.22 .04 .04 .01
9.98 10.23 β 3 q 10.28 10.53
10.89 11.10 k 3 a, 11.19 11.40 11.12 11.22 a, = 11.16 11.31 .03 .09 .03 .09
11.12 11.22 a 1 m 11.22 11.32
11.49 11.69 p 2 c, 11.69 11.89 11.59 11.79 c, = 11.64 11.84 .05 .05 .05
11.59 11.79 c, 1 q 11.69 11.89
b, n. s.

See also pp 192, 199, 200

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October 31, 1902

Prismatic companions. δ Cygni

See note page 145.

Plate I 17425 taken Feb 24, 1897

11.87 11.72 11.97 11.80 11.88 .09 .28
1.57 r 1 a, 11.82 11.62 a, = 11.71 .11 .11
11.80
11.60 a, 3 c 11.90 12.10
12.70 12.30 13.00 13.10 13.05 .05 .05
11.90 t 3 b, 12.60 12.70 b, = 12.65 .05 .05
13.10
12.70 t, 1 u 12.80 13.20
c, o t 12.70 12.30 12.70 c, = 12.30
12.10
11.90 o 2 c, 12.30 12.50 12.40 .10 .10
12.10 12.10 c, = 12.10 .00 .00
12.50 12.70
12.10 c, 2 t 12.30

d, has star image too close

Plate I 17296 taken Feb 10, 1897

a, o r 11.72 a, = 11.72

no further prism. images

Plate I 18233 taken June 16, 1897

11.40 11.60 11.67 11.44 .04 .03
11.32 p e a, 11.52 11.52 a, = 11.52 ? .00 .00
11.67
11.52 a, 2 r 11.87 11.72
12.10
c, o r 11.90 12.10 c, = 11.90 ?

Plate I 17077 taken June 12, 1897

a, o r 11.72 a, = 11.72

no more seen

Ident. doubtful star images near

Star image very near embossed edge

This is a faint variable and it is difficult to find plate showing prismatic images

See also pp 192, 194

November 3/7, 1902

Measures of position of comparison star L' for δ Cassiopeiae

Superseded.

	x	Diff	y	Diff	
Plate C 6368					A mistake in identification due to a change made in 1896. This L' was superseded by another. See charts Vol. II pp. 13, 22
L'	7.8		28.4		
q	16.9	+9.1	31.7	+3.3	
Dm1	0.4	-7.4	22.9	-5.5	
Dm2	8.2	+0.4	38.2	+9.8	

Plate C 7144 taken Oct. 20, 1894

	x	y
L'	8.9	31.4
q	18.0 +9.1	34.7 +3.3
Dm1	1.45 -7.45	25.95 -5.45
Dm2	9.20 +0.3	41.25 +9.85

1855 positions

q = Dm +71° 59′ 1ʰ 3ᵐ 46ˢ +71° 43′ 7″
Dm1 = Dm +71° 55′ 1ʰ 0ᵐ 36ˢ +71° 50′ 1″ 3.5 4.7
Dm2 = Dm +71° 58′ 1ʰ 3ᵐ 15ˢ +71° 22′ 5″ 3.9 8.4

Scale = 526.5 mm.

Reduction for declination.

	y difference	res.	diff × 526			Declination 1855
q	+3.30	.00 .00	+173.58	= +2′	53.6 -2.9	+71° 46′ 6
Dm1	-5.48	.02 .03	-288.25	= -4	48.2 +4.8	+71° 45′ 3
Dm2	+9.82	.02 .03	+516.53	= +8	36.5 -8.6	+71° 46′ 5

Reduction for R.A.

$\frac{526}{1540} = \frac{3.51}{\cos\delta}$

$\cos\delta = 0.313$

$\frac{3.51}{\cos\delta} = 11.2$

	x difference	res.	diff × 11.ˢ2		Right Ascension 1855
			+10 1.9		
q	+7.10	.10 .00	+10.2 -83.1	= 1ᵐ 42ˢ	1ʰ 2ᵐ 4ˢ
Dm1	-7.42	.02 .03	-73.3	= -1 23	1 1 59
Dm2	+0.35	.05 .05	+3.9	= +0 4	1 2 10

RA 1855 = 1ʰ 2ᵐ 4ˢ res. 0 5 6 — whole seconds of time
Dec 1855 = +71° 46′ 1″ res. 5 8 4 — minutes, tenths of seconds of arc

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Nov. 3, 1902

Measures of position of Comparison star s' for γ Cassiopeiae

Plate C 6367

s'	8.85 11.50	495 24.10
e	11.65 +0.15	30.20 +6.10
f	8.85 -2.65	1.95 -22.15
g	2.00 -9.50	15.10 -9.00
V	13.15 +1.65	29.55 +5.45

This plate was oriented by means of Comparison stars s and m, which are in nearly the same meridian. Light was waning and orientation may not have been perfect.

e = 2M+ 54° 49 RA. 1900 = 0h 18m 13s.3 +55° 14'.6

f =	+54 58	0 18 17	+54 50.2
g =	+54 52	0 18 57	+55 2.1
V		0 17 49	+55 14.3
m		0 17 57	+55 23.4

November 4 1902

Measures of position of Comparison star s' for γ Cassiopeiae - Continued

Plate C 7974 taken July 11, 1895

s'	-11.25	24.8
e	-11.30 ±0.05	30.10 +6.10
f	-8.25 +3.00	1.90 -22.10
g	-1.70 +9.55	15.15 -8.85
V	-12.95 ±1.70	29.35 +5.35
m	-12.10 ±0.75	39.85 +15.85

Plate oriented as on previous page

Plate C 6367 taken Dec. 20, 1893

s'	-14.35	26.80
e	-14.45 ±0.10	32.85 +6.05
f	-11.45 +2.90	4.70 -22.10
g	-4.85 +9.50	17.90 -8.90
V	-16.05 ±2.70	32.15 +5.35
m	-15.05 ±0.70	42.60 +15.80

This additional measurement taken because m was omitted on previous page, and also on account of uncertainty as to orientation.

For reduction see page 186

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November 4, 1902

Measures of positions of comparison stars θL' θ' L' θ' K K' for 30 Persei

Plate C 4474 taken Feb. 18, 1892

		X	Y
L'	θ	19.85	24.35
θ	K	11.15 -8.70	24.30 -0.05
θ'	K	4.35 -15.50	8.75 -15.60
K'	K	4.95 -14.90	11.60 -12.75
Persei	1'	θ k1 k2 k1 6.50 -13.35 -4.65 +2.15 +1.55	θ k1 k2 k1 19.40 -4.95 -4.90 +10.65 +7.80
DM	1	12.25 -7.60 +1.10 +7.80 +7.30	11.85 -12.50 -12.45 +3.10 +0.25
DM	3	3.25 -16.60 -7.90 -1.10 -1.70	3.10 -21.25 -21.20 -5.65 -8.50
	ε	23.10 +3.25 +11.95 +18.75 +18.15	-0.35 -24.70 -24.65 -9.10 -11.95

For reduction of these 4 stars see pp. 187-189

Oriented by comparison with Hagen's Chart

Plate C 6103 taken Oct. 16, 1893

L'	θ	28.50	33.60
θ	K	19.90 -8.70	33.60 0.00
θ'	K	12.95 -15.55	18.10 -15.50
K'	K	13.55 -14.95	20.90 -12.70
	1'	θ k1 k2 k1 15.20 -13.30 -4.70 +2.15 +1.65	θ k1 k2 k1 28.70 -4.90 -4.90 +10.60 +7.80
DM	1	20.85 -7.65 +0.95 +7.90 +7.30	21.15 -12.45 -12.45 +3.05 +0.25
DM	3	11.85 -16.65 -8.05 -1.10 -1.70	12.40 -21.20 -21.20 -5.70 -8.50
	ε	31.70 +3.20 +11.80 +18.75 +18.15	8.90 -24.70 -24.90 -9.20 -12.00

ε = DM	+58°	450	2h 10m 49.9s	+58°	34.8		
DM 1 = DM	+58°	443	2h 9m 36.7	+58°	23.8	mean 9.5	
DM 3 = DM	+58°	438	2h 8m 36.7	+58°	31.2	9.0	
		439	2h 8m 59.9		16.7		

November 4, 1902

Measures of positions & comparison stars u' for R Ursae Majoris

Plate C 6224 taken Nov. 16, 1893

	X	Y	
u'	11.75	9.20	
u	RA 1900 10h 36m 40s 13.40 +1.65	11.60 +2.40	Dec 1900 +69° 15' 1
r	10 37 42 7.25 -4.50	18.70 +9.50	+69 21.3
s	10 36 57 11.80 +0.05	14.10 +4.90	+69 17.3
V	10 37 34 8.10 -3.65	14.90 +5.70	+69 18.0
t	10 37 35 7.90 -3.85	11.15 +1.95	+69 14.7

Plate C 5377 taken Feb. 15, 1892

u'	14.95	6.25
u	16.65 +1.70	8.60 +2.35
r	10.50 -4.50	15.70 +9.45
s	15.0 +0.05	11.10 +4.85
V	11.30 -3.65	11.90 +5.65
t	11.10 -3.85	8.20 +1.95

	Declination	y difference	res	diff x 52.6	Declination 1900
	u	+2.38	.02 .03	125.19 = +2' 5.2"	+69° 13.0
	s	+7.88	.02 .03	256.69 = +4' 31.7"	+69° 13.0
	V	+5.68	.02 .03	298.77 = +4' 58.8	+69° 13.0

	RA	x difference	res	diff x 9.91	RA 1900
5.26/16.60 = 351/1000	u	+1.68	.03 .02	+16.6	10h 36m 57s
351/49.5 = 9.91	e	+0.05	.00 .00	+0.5	10 36 58
	V	-3.65	.00 .00	-36.2	10 36 58

RA 1900 = 10h 36m 58s 1 0 0 whole seconds time

Dec 1900 = +69° 13.0 0 0 0 tenths of minute of arc

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November 4, 1902

Measures of position of γ' for 7 Ursae Majoris

Plate C 3502 taken Feb. 22, 1891

	x	y
γ'	9.55	19.25
γ		
V	R.A. 1900 12h 31m 50s 9.20 +35	19.80 +0.55 Dec. 1900 +49 60 2.3
t	12 32 2 7.35 -2.20	17.25 -2.00 +60 0.0
q	12 31 17 13.85 +4.30	22.0 +2.75 +60 +2

Plate C 3502 taken Feb. 22, 1891

	x	y
γ'	8.40	17.90
V	8.05 -0.35	18.40 +0.50
t	6.20 -2.20	15.85 -2.05
q	12.75 +4.35	20.60 +2.70

This plate repeated because it is hard to find plates on which γ' appears. Tried to measure position of γ. But it is so extremely faint that I could not identify it certainly.

Decided by Hagen's chart

Reduced page 186

November 4, 1902

Measures of position & Comparison star ζ' for β Ursae Minoris

Plate C 4723

	x	y
ζ'	14.15	8.20
V	31.60	2.65
Dm1	2.45	7.75
Dm2	9.95	11.95
Dm3	13.20	

Position destroyed here.

ζ'	16.00	7.75
V	33.30 +17.30	2.05 -5.70
Dm1	4.25 -11.75	7.40 -0.35
Dm2	11.80 -4.20	11.60 +3.85
Dm3	15.00 -1.00	17.55 +9.80

Plate C 8805

ζ'	14.40	15.70
V	31.95	10.40
Dm1	2.75	15.00
Dm2	10.15	19.40
Dm3	13.25	25.40

On looking at plate before lifting scale, I find that it slipped before I began my measures. I therefore measure again, next page

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November 4, 1902

Measures of position & comparison stars
ó' for R Ursae Minoris (Cont. from prev. page)

Plate C 8805 Taken Jan. 30, 1896

	x	y
ó'	14.40	26.45
V	31.85 +17.45	16.80 -5.65
Dm 1	2.75 -11.65	22.05 -0.40
Dm 2	10.20 -4.20	26.25 +3.80
Dm 3	13.40 -1.00	32.25 +9.80

Positns. 1855 Dm 1 = Dm +72° 730 16h 26m 13s +72° 30'.9
Dm 2 = Dm +72° 731 16 27 46 27.0
Dm 3 = Dm +72° 732 16 28 23 21.2

V

Reduction for declination

	y difference	cos	diff × 52".6		Declination 1855
Dm 1	-0.38	.03	.02	-20.0 = -0'.3	+72° 30'.6
Dm 2	+3.82	.03	.02	+250.9 = +3.4	+72° 30'.4
Dm 3	+9.80	.00	.00	+516.5 = +8.6	+72° 29.8

Reduction for Right Ascension

	x difference	cos	diff × 11s.7		R.A. 1855
					16h 28m 32s
Dm 1	-11.70	.05	.05	-136.9 = -2m 17s	16 28 35
Dm 2	-4.20	.00	.00	-49.1 = -0.49	16 28 35
Dm 3	-1.00	.00	.00	-11.7 = -0.12	16 28 35

526s / 15 cos δ = 35s.1 / cos δ
cos δ = 0.301
35s.1 / 60s = 11.7

R.A. 1855 = 16h 28m 34s — 2 1 1 whole seconds time
Dec. 1855 = +72° 30'.3 — 3 1 5 tenths of minutes arc

November 5, 1902

Measures of positns of comparison stars
ó', q', r' for 7 Cephei

Plate C 7407 Plate C 5898

	x	y	x	y
ó'	23.50	10.40	24.05	9.60
q	15.30 -8.20	21.25 +10.85	15.90 -8.15	20.45 +10.85
Dm 2	32.40 +8.90	10.30 -0.10	32.90 +8.85	9.40 -0.20
Dm 3	0.95 -22.55	2.40 -8.00	1.40 -22.65	1.60 -8.00
q'	23.65	46.35	24.20	45.40
m	26.60 +2.95	38.80 -7.55	27.15 +2.95	37.90 -7.50
V	39.05 +15.40	44.40 -1.95	39.65 +15.45	43.55 -1.85
Dm 1	11.35 -12.30	46.25 -0.10	11.95 -12.25	45.40 0.00
r'	35.00	57.95	35.60	57.05
n	33.05 -1.95	46.95 -5.00	33.65 -1.95	46.05 -5.00
q	42.50 +7.50	52.45 +0.50	43.15 +7.55	51.50 +5.45
p	44.90 +1.90	45.45 -6.30	45.55 +2.95	44.65 -6.40
V	39.65 -5.25	44.40 -7.55	39.65 -5.90	43.55 -7.50

Dm 1 = +67° 12.96 — 21h 11m 50s — +67° 57'.9
Dm 2 = +67° 1293 — 21 8 34 — 24.5
Dm 3 = +67° 1297 — 21 13 19 — 16.2
q = +67° 1295 — R.A. 1855 — 21h 11m 12s — +67° 33'.3
n = +67° 1294 — 21 9 25 — 49.5
p = +67° 1290 — 21 6 42 — 55.9
n = +67° 1292 — 21 8 31 — 56.9
V = +67° 1291 — 21 7 33 — 54.4

For reduction see pp 190, 191

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November 5, 1902

Designations & Comparison stars for asteroid near Saturn, − 22° for fronting

a	BD − 22° 5218	19h	45m 50.5s	−22° 8.4	Magn 9.6	
b	BD − 22° 5258	19	43 15.2	−22 5.8	9.6	
c	BD − 22° 5253	19	42 33.5	−22 16.4	9.5	
d	BD − 22° 5251	19	42 28.0	−22 29.0	9.8	
e	BD − 22° 5247	19	41 37.9	−22 35.4	9.1	
f	BD − 22° 5263	19	44 3.0	−22 34.8	8.9	
g	BD − 22° 5259	19	43 44.0	−22 34.8	9.3	
h	BD − 22° 5257	19	43 4.6	−22 30.6	9.4	
k	BD − 22° 5255	19	42 54.6	−22 33.9	9.4	
l	BD − 22° 5254	19	42 53.2	−22 45.1	9.0	
m	BD − 22° 5252	19	42 32.2	−22 47.5	9.8	
n	BD − 22° 5249	19	42 3.1	−22 50.0	9.5	
a	C.P.D. −22° 7585	19h	46m 17.2s	−22° 5.2	9.6	
b	−22° 7580	19	44 26.4	−22 2.6	9.6	
c	−22° 7576	19	43 45.7	−22 12.9	9.5	
d						
e	−22° 7572	19	42 50.2	−22 32.0	9.1	
f	−22° 7583	19	45 14.7	−22 31.8	8.9	
g	~~−22° 7581~~	~~19~~	~~44 55.2~~	~~−22 38.9~~		
h	−22° 7579	19	44 15.7	−22 27.6	9.4	
K	−22° 7578	19	44 5.7	−22 31.0	9.4	
l	−22° 7577	19	44 5.2	−22 41.8	9.0	
m						
n	−22° 7574	19	43 13.7	−22 46.6	9.5	

November 5, 1902

Measures of position of asteroid near Saturn.

Plate A 5998 taken June 30, 1902

	x	y	x	y
a	1.20	28.30	1.45	29.25
b	26.95	30.55	27.25	31.60
f	15.60	1.15	15.90	2.15
ast α	12.50	18.75	12.80	19.75
ast β	11.60	19.55	11.95	20.50

	diff α	diff β	diff α	diff β	diff α	diff β	diff α	diff β
a	~~−11.40~~ 11.30	−10.40	+9.55	+8.75	−11.35	−10.50	+9.45	+8.75
b	+14.45	+15.35	+11.80	+11.60	+14.45	+15.30	+11.85	+11.10
f	+3.10	+4.00	−17.60	−18.40	+3.10	+3.95	−17.60	−18.35

Reduction for declination. y was measured from north to south, hence signs to be changed

	diff x	res	declination α		diff β	res		declination β	
a	+9.58	.05	−22°	~~17.7~~ 14.7	+8.75	.00	.00	−22°	~~17.2~~ 14.0
b	+11.82	.03	−22°	~~17.8~~ 14.1	+11.05	.05	.05	−22	~~17.3~~ 13.6
f	−17.60	.00	−22°	~~17.2~~ 14.3	−18.38	.02	.03	−22	~~16.4~~ 13.4
1875	declination α =		−22°	~~17.5~~ 14.4	res	.3	.0		2/4
1875	" β =		−22°	~~16.8~~ 13.7	"	3/4	1/0		3/4

H / Cos δ = 4s.33

Reduction for right ascension

	diff α	res	diff × 4s.33		R.A. α			diff β	res	diff × 4s.33		R.A. β		
					h	m	s					h	m	s
a	−11.32	.02	.03	−49.0	19	45	28.2	−10.45	.05	.05	−45.2	19	46	32.0
b	+14.45	.00	.00	+62.6		45	29.0	+15.32	.03	.02	+66.3		45	32.7
f	+3.10	.00	.00	+13.4		45	28.1	+3.98	.02	.03	+17.2		45	31.9

R.A. 1875 α = 19h 45m 28s.4 2 6 3

β = 19 45 32.2 2 5 3

Scale of A plates = 60″ to the millimetre.

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November 5, 1902

Measures to determine position of Asteroid near Salmon

Plate A 6003 taken July 2, 1902 * Solution Vertex B ast α

	x	y	x	y
d	8.95	17.45	10.15	18.05
h	0.40	15.50	1.70	16.05
k	2.90	~~4.95~~	4.10	12.60
l	3.00	0.95	4.25	1.65
ast α	4.~~70~~ 65	10.85	5.95	11.45
ast β	3.90	11.50	5.00	12.10

Reduction for declination. y meas. from north to south. Signs to be changed

	diff α	res		declination α		diff β	res		declination β	
d	+6.60	.00	.00	-22°	~~35.6~~ 32.1	+5.95	.00	.00	-22°	~~35.0~~ 31.4
h	+4.62	.03	.02	-22	~~35.2~~ 32.2	+3.98	.02	.03	-22	~~34.6~~ 31.6
k	+1.12	.02	.03	-22	~~35.0~~ 32.1	+0.48	.03	.02	-22	~~34.4~~ 31.5
l	-9.85	.05	.05	-22	32.0 35.3	-10.50	.05	.05	-22	~~34.6~~ 31.3

1875 declination α = -22° ~~35.3~~ 32.1 res. 3 1 1 0

" β = -22° ~~34.6~~ 31.4 2 1 1 0

4/cos = 4.33

Reduction for right ascension

	diff α	res	diff x 4.33	RA, α			diff β	res	diff x 4.33	RA, β		
h	-4.25	.00	.00	-18.4	19h	43m	57.3s	-3.40	.10	.10	-14.7	19h 44m 1.0s
k	-1.80	.05	.05	-7.8		43	57.9	-0.95	.05	.05	-4.1	44 1.6
l	-1.68	.03	.02	-7.3		43	57.9	-0.82	.08	.07	-3.6	44 1.6

R.A. 1875 α = 19h 43m 57.7s 4 2 2

β = 19 44 1.4 4 2 2

November 5, 1902

Measures continued -

Plate A 6000 taken July 1, 1900

	x	y	x	y
b	11.75	35.60	12.25	30.20
f	0.65	6.10	1.00	0.70
g	5.05	6.65	5.40	1.20
h	14.10	10.45	14.60	5.00
ast α	7.75	14.80	8.20	9.40
ast β	6.80	15.50	7.25	10.10

Reduction for declination. y meas. from north to south.

	diff α	res		declination α		diff β	res		declination β	
b	+20.80	.00	.00	-22°	~~26.6~~ 23.4	+20.10	.00	.00	-22°	~~25.4~~ 22.7
f	-~~7~~ 8.70	.02	.00	-22	27.1 ~~33.1~~	-9.40	.00	.00	-22	~~25.4~~ 22.4
g	-8.18	.03	.02	-22	~~26.6~~ 23.6	-~~8~~ 9.98	.03	.02	-22	~~25.9~~ 22.5
h	-4.38	.03	.02	-22	~~26.2~~ 23.2	-6.08	.03	.02	-22	~~25.5~~ 22.5

Declination α = -22° ~~26.7~~ 23.2 res. 2 1 0 2 2

" β = -22 ~~25.6~~ 22.6 1 2 1 2 2

Reduction for right ascension

	diff α	res	diff x 4.33	RA α			diff β	res	diff x 4.33	RA β		
b	+4.02	.02	.03	+17.4	19h	44m	~~47.8~~ 48.3s	+4.98	.03	.02	+21.6	19h 44m 48.0s
f	-7.15	.05	.05	-31.0		44	43.7	-6.20	.05	.05	-26.9	44 47.8
h	+6.38	.03	.02	+27.6		44	43.3	+7.32	.02	.03	+31.7	44 47.4

R.A. 1875 α = 19h 44m 43.6s 2 1 3

β = 19 44 47.7 3 1 3

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November 5, 1902

Measures continued

Plate A 6006 taken July 3, 1902

	x	y	x	y
e	17.75	15.30	19.25	15.60
l	0.30	5.40	1.70	5.75
m	5.00	3.20	6.40	3.60
n	12.00	0.70	13.40	1.00
ast α	13.05	6.00	14.50	~~7.10~~ 6.70
ast β	12.15	6.50	13.60	7.10

Reduction for declination - y measured from north to south

	diff α	res		declination α		diff β	res		declination β	
e	+9.25	.05	.05	-23°	~~44.6~~ 41.2	+8.50	.00	.00	-22°	~~43.9~~ 40.5
l	-0.62	.02	.03	-22	~~44.5~~ 41.2	-1.38	.02	.03	-22	~~43.7~~ 40.4
m	-2.80	.00	.00	~~-22~~	~~44.7~~	-3.55	.05	.05	~~-22~~	~~43.9~~
n	-5.35	.05	.05	-22	~~44.6~~ 41.2	-6.10	.00	.00	-22	~~43.9~~ 40.5

Declination α = -22° ~~44.6~~ 41.2 (0 0 0)

" β = -22 ~~43.8~~ 40.5 (0 1 0)

Reduction for R.A.

$\frac{1}{\cos \delta} = 4^s.33$

	diff α	res		diff × 4.33	R.A. α	diff β	res		diff × 4.33	R.A. β
e	+4.72	.02	.03	+20.4	19h 43m 10.6s	+5.62	.02	.03	+24.3	19h 43m 14.5s
l	-12.78	.03	.02	-55.3	43 9.9	-11.88	.03	.02	-51.4	43 13.8
n	-1.08	.03	.02	-4.7	43 9.0	-0.18	.03	.12	-0.8	43 12.9

R.A. 1875 α = 19h 43m 9.8s (8 1 8)

β = 19 43 13.7 (8 1 8)

The measures of position on Forges 171-184 were made with the glass plate described in Volume XXVI p. 228. The four A plates were oriented by placing the ruled lines parallel to the edges of the plates. The C plates were oriented usually by comparison with Hagen's charts, since the direction of the meridians differs noticeably on different plates of the same region.

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November 8, 1902

Reduction of measurements to determine position of Companion star "g" for ν Cassiopeiae measures page 173

Reduction for declination

	y difference	res.	diff × 52.6		Declination 1900
e	+6.08	.02 .03	+319.8	= +15.3	+55° 9.3
V	+5.35	.00 .01	+281.4	= +14.7	+55° 9.6
g	-8.88	.03 .02	-467.1	= -7.8	+55° 9.9

$\frac{526}{15 \cos \delta} = \frac{s}{\cos \delta} \frac{3.51}{}$ $\cos \delta = 0.571$ $\frac{351}{\cos \delta} = 6.15$

Reduction for right ascension

	x difference	res	diff × 6.15		RA. 1900
e	+0.08	.03 .02	+0.492	= +0m 5s	0h 18m 14s
V	+1.70	.00 .00	+10.46	= +1m 45s	0 17 59
g	+9.52	.03 .02	+58.55	= +9m 59s	0 17 58

RA. 1900 = 0h 17m 58s res 2 0 1 (tenths of seconds time)
Dec. 1900 = +55° 9′.6 3 0 3 (tenths of minutes arc)

Reduction for comp. star "f", ν Ursae Majoris measures p. 176

	y difference	res.	diff × 52.6		Declination 1900
V	+0.52	.03 .02	+27.4	= +0.5	+60° 1′.8
t	-2.02	.02 .03	-106.2	= -1.8	+60° 1.8

$\cos \delta = 0.5$ $\frac{351}{\cos \delta} = 7.02$

Reduction for Right Ascension

	x difference	res	diff × 7.0		RA. 1900
V	-0.35	.00	-2s.45		12h 31m 48s
t	-2.20	.00	-15s.4		12 31 47

RA 1900 = 12h 31m 48s 0 1
Dec. 1900 = +60° 1′.8 0 0

November 8, 1902

Reduction of measurements to determine position of Comp. star "k" for ν Persei - measures p. 177

Reduction for Declination

		y diff	res.	diff × 52.6		Declination 1855
$\cos \delta = 0.525$	γ	-8.22	.03 .02	-430.6	= -11.7	+58° 12′.4
0.524	Dm1	-7.62	.02 .03	-400.8	= -10.9	+58° 12.9
0.522	Dm3	-16.62	.03 .02	-874.2	= -14.6	+58° 12.6
0.521	ε	+3.22	.02 .02	+169.4	= +2.8	+58° 13.2

$\cos \delta = 0.527$ $\frac{3.51}{\cos \delta} = 6.66$ $\frac{351}{\cos \delta} = 6.69$ γ; $= 6.70$ Dm1; $= 6.72$ Dm3; $= 6.74$ ε

Reduction for Right ascension

	x difference	res	diff × 6.66		RA. 1855
γ	-13.32	.08 .02	-88.7	= -1m 28s.1	2h 10m 28s.6
Dm1	-7.62	.02 .03	-50.7	= -0 51.0	2 10 27.7
Dm3	-16.62	.02 .03	-110.7	= -1 51.7	2 10 27.4
ε	+3.22	.08 .02	+21.7	= +0 21.4	2 10 28.2

θ = RA 1855 = 2h 10m 28s.1 res 4 3 1 6 6 5 (tenths of seconds time)
Dec 1855 = +58° 12′.3 0 2 3 4 1 2 3 (tenths of minutes arc)

k, θ

Reduction for declination

	y difference	res.	diff × 52.6		Declination 1855
γ	-4.90	.00 .00	-257.7	= -4.3	+58° 12′.7
Dm1	-12.45	.00 .00	-654.9	= -10.9	+58° 12.9
Dm3	-21.20	.00 .00	-1115.1	= -18.6	+58° 12.6
ε	-24.68	.03 .02	-1298.2	= -21.6	+58° 13.2

Reduction for right ascension

	x diff.	res	diff × 6.66		RA. 1855
γ	-4.68	.03 .02	-31.2	= -0m 31s.3	2h 9m 31s.3
Dm1	+1.02	.08 .07	+6.79	= +0 7.9	2 9 28.9
Dm3	-7.98	.07 .07	-53.2	= -0 53.6	2 9 26.9
ε	+11.88	.07 .08	+79.1	= +1 19.1	2 9 30.8

θ k, RA. 1855 2h 9m 29s.7 res 1 4 0 1 3 2 (tenths of seconds time)
Dec 1855 +58° 12′.8 0 3 3 4 (tenths of minutes arc)

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November 8, 1902

Reduction of measurements to determine position of comparison stars for T of Persei (continued)

Reduction for declination measures p 174

	y difference	res	diff ×52.6		Declination 1855	
y	+10.62	.03 .02	+558.6	= +9′.3	~~+58° 26′.0~~	
DM1	+3.08	.02 .03	+162.0	= +2′.7	+58°	26′.5
DM3	-5.68	.03 .02	-298.8	= -4′.9	+58°	26′.2
ε	-9.15	.05 .05	-481.3	= -8.0	+58°	26′.8

Reduction for Right Ascension

$\frac{357}{\cos\delta} = -6^s.66$

	x difference	res	diff ×6.66 $\frac{357}{\cos\delta}$		RA 1855	
6.69 y	+2.15	.10 .10	+14.4 ~~+14.3~~	= +0m 14s.344	2h ~~8m~~	~~14s.5~~
6.70 DM1	+7.85	.05 .05	+52.6 ~~+52.3~~	= +0m 52s.26	2	8 44s.4 44.1
6.72 DM3	-1.10	.00 .10	-7.4 ~~-7.3~~	= -0m 7s.4	2	8 44.0 44.1
6.74 ε	+18.75	.10 .00	+124.9 ~~+126.4~~	= +2m 4s.96.4	2	8 45.0 43.5

θ′ h_2 RA. 1855 2h 8m 43s.3 ~~44s.8~~ res ~~+2 2 2 8~~ 8 4 8 2 (tenths of a second of time)

Dec 1855 +58° 26′.4 ~~26′.5~~ ~~0 2 3~~ 4 1 2 7 (tenths of a minute of arc)

The position derived from γ Persei invariably gives a very large residual. It would seem that the DM. position may be inaccurate. Accordingly γ is omitted in taking the means of positions of the four stars, θ, h_1, h_2, k.

November 10, 1902

Reduction of measurements to determine position of Comparison star K for T of Persei

Measurements recorded page 174

Reduction for declination

	y difference	res	diff ×52.6		declination 1855	
γ	+7.80	.00 .00	+410.28	= +6″.8	~~+58° 23′.5~~	
DM1	+0.25	.00 .00	+13.15	= +0″.2	+58°	24′.0
DM2	-8.50	.03 .00	-447.10	= -7″.4	+58°	23′.8
ε	-11.98	.23 .02	-630.15	= -10″.5	+58°	24′.3

Reduction for right ascension

$\frac{357}{\cos\delta} = -6^s.66$

	x difference	res	diff ×6.66 $\frac{357}{\cos\delta}$		RA 1855	
6.69 γ	+1.60	.25 .05	+10.8 ±0m 10s.8		2h ~~8m~~	~~49s.1~~
6.70 DM1	+7.30	.00 .00	+48.9 +0m 48s.9		2	8 48′.8
6.72 DM3	-1.70	.00 .00	-11.4 = -0m 11s.4		2	8 48′.1
6.74 ε	+18.15	.00 .10	+122.3 = +2m 2s.3		2	8 47.6

RA 1855 = 2h 8m ~~47s.8~~ 47s.8 res ~~0 3 2~~ 9 4 1 6 (tenths of a second of time)

Dec 1855 = +58° ~~23′.9~~ 24′.0 ~~0 2 3~~ 4 1 1 4 (tenths of a minute of arc)

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0′

Reduction of position of comparison star 1 for Keeler Mess. p. 179

Reduction for declination

		y difference	res	diff × 52.6	Declination 1855
cos δ = 0.381	q	+10.85	.00 .00	+570.7 = +9.5	+67° 23′.8
0.384	DM2	−0.15	.05 .05	− 7.9 = −0.1	+67 24.6
0.386	DM3	−8.00	.00 .00	−420.8 = − 7.0	+67 23.2

Reduction for right ascension

		x difference	res	diff × 351/cos δ	RA. 1855
351/cos δ = 9.24	q	−8.15	.02 .03	− 75.6 = −1m 15s.6	21h 9m 56s
9.11	DM2	+8.88	.02 .03	+ 80.9 = +1 20.9	21 9 55
9.09	DM3	−22.60	.05 .05	−205.4 = −3 25.4	21 9 54

0′ RA 1855 = 21h 9m 55s res +0 0 2 tenths of a second. Whole

Dec. 1855 = +67° 23′.9 res 1 7 7

9′

Reduction for declination

		y difference	res.	diff. × 52.6	Declination 1855
cos δ = 0.378	m	−7.52	.03 .02	− 395.6 = −6.6	+67° 56′.1
		−1.90		− 99.9 = −1.7	
0.376	V	+15.42	.02 .03	+ 811.1 = +13.5	+67° 56′.1
		−0.05	.05 .05	− 2.6 = −0.04	
0.376	DM1	−12.28	.02 .03	− 645.9 = −10.8	+67° 55′.3

Reduction for right ascension

		x difference	res	diff × 351/cos δ	R.A. 1855
351/cos δ = 9.29	m	+2.95	.00 .00	+27.4 = +0m 27.s4	21h 9m 52.s4
9.34	V	+15.42	.02 .03	+144.0 = +2 24.0	21 9 57.0
9.34	DM1	−12.28	.02 .03	− 114.7 = −1 54.7	21 9 55.3

9′ RA 1855 = 21h 9m 55s.8 3 2 0 whole seconds of time

Dec. 1855 = +67° 55′.8 7 4 4 8

2 3 5

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Reduction of position of comparison star 2 for Keeler Measurements p. 178 179

Reduction for declination

		y difference	res	diff × 52.6	Declination 1855
cos δ = 0.376	m	−5.00	.10 .00	− 263.0 = − 4.4	+68° 1′.3
	p	−6.35	.05 .05	− 334.0 = − 5.6	+68° 1′.6
	V	−7.52	.03 .02	− 395.6 = −6.6	+68° 1′.0

Reduction for right ascension

		x difference	res	diff × 351/cos δ	RA 1855
351/cos δ = 9.34	m	−1.95	.00 .00	− 18.2 = −0m 1.s8	21h 8m 13s
	p	+9.92	.02 .03	+ 92.6 = +1 33	21 8 15
	V	+4.05	.00 .00	+ 37.8 = +0 38	21 8 11

2′ R.A. 1855 = 21h 8m 13s res 0 2 2 (absolute seconds, minutes line)

Dec 1855 = +68° 1′3 0 3 3 tenths of minutes are

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Estimates of brightness of certain Comparison Stars in Circumpolar Variable-Prismatic Comparisons

R Draconis. Plate I 17539

b o a 11.42 11.32 b_1 = 11.37
b 3 t 11.62
g 3 c 11.28 11.29 c_1 = 11.28
c, o r 11.29

R Camelopardali Plate I 18120

c o o 11.64 11.59 c_1 = 11.62
c, p 11.69

S Cygni Plate I 17425

o 4 c 11.30 11.32 11.32 c_1 = 11.31
c, o p 11.25
c, 4 g 11.55

γ Cephei Plate I 18105

d, o g 11.04 11.24 11.12 d_1 = 11.14
g 4 d, 11.24
d, 2 k 11.42

e, o r 11.42 11.34 e_1 = 11.38
g 3 e, 11.34

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Prismatic Comparisons continued

γ Cephei Plate I 18253

g 2 e 11.24 11.42 11.34 e_1 = 11.33
4 e, o r 11.42
e, 4 a 11.74

e, o a 11.74 11.76 e_1 = 11.75
e, t 11.86

R Draconis I 17539

2 b 3 b 11.59 11.32 f_1 = 11.46
b, t 11.42
c, o r 11.29
g 4 c 11.38 11.12 11.29 c_1 = 11.26
c, 3 f 11.42

S Cassiopeiae I 17551

e, o a 11.67 e_1 = 11.92
not other stars available

S Cassiopeiae I 9779

2 a 2 b, 11.42 b_1 = 11.42
a, ns

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Prismatic Companions Cont

S Cassiopeiae Plate I 5075

faint-uncertain

10.96 r 2 d 11.16 11.22 d_1 = 11.19 .03 .03
d, 0 2 11.22

a_1 0 f 10.72 a_1 = 10.72
no plate comparable image

b 0 g 10.96 11.06 b_1 = 11.01 .05 .05
b, 1 2 10.96

S Cygni Plate I 17077

difficult

11.32 f 1 a, 11.42 11.62 a_1 = 11.52 .10 .10
11.62 a_1 1 2 11.72

systematically faint

Plate I 17077 (S Cygni

11.72 r 1 a, 11.82 11.80 a_1 = 11.81 .01 .01
11.80 a_1 1 2 11.90

R Draconis Plate I 17033

c_1 0 2 11.29 11.22 c_1 = 11.26 .03 .04
11.22 c_1 e 2 11.42

R Ursae Majoris Plate I 16437

10.14 g 4 a, 10.54 10.23 a_1 = 10.38 .16 .15
10.23 a_1 1 2 10.33

11.28 2 g, 11.48 11.42 g_1 = 11.45 .03 .03
11.42 g, 1 m, 11.52
11.52 m, 5 m_1 12.02 11.72 m_1 = 11.87 .15 .15
11.72 m, D X 11.72 11.59

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Prismatic Companions continued

R Ursae Majoris Plate I 14846

10.33 r 1 a, 10.43 10.32 a_1 = 10.38 .05 .06
10.32 a 5 2 10.82

l 0 u 11.28 11.22 l_1 = 11.25 .03 .03
11.22 l 2 w, 11.52

11.52 w 3 k, 11.58 11.52 k_1 = 11.55 .03 .03
k, 0 w 11.52

Images on this plate dissimilar - Comparison difficult

R Ursae Majoris - Plate I 16437

10.14 g 2 a, 10.34 10.33 a_1 = 10.34 .00 .01
a 0 2 10.33

10.33 2 5 g, 10.88 10.72 g_1 = 10.80 .08 .08
10.72 g, 1 2 10.82

Comparison difficult

R Aurigae Plate I 2974

10.50 0 4 b, 10.90 10.83 b_1 = 10.86 .04 .03
10.83 b_1 0 0 10.83

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Prismatic Comparisons Continued

R Lyncis Plate I 16507

12.04 11.98 R 2 f, 12.18 12.24 f_1 = 12.24

o n. s.

Doubtless star mags nearly may have been identified wrongly before

R Lyncis Plate I 16596

Very faint

11.72 11.60 β 2 d, 11.80 11.92 11.50 11.68 d_1 = 11.80 .15 .15 .12 .12

11.50 b_1 o q 11.68

Plate I 10897 (R Lyncis)

11.68 11.50 q 2 c, 11.70 11.88 11.88 11.94 c_1 = 11.91 .09 .09 .03 .03

11.94 11.88 c_1 1 r 11.98 12.04

R Aurigae Plate I 7864

10.50 10.35 o 4 b, 10.75 10.90 10.65 10.83 b_1 = 10.86 .04 .03

10.65 b_1 o o 10.83

S Bootis Plate I 6098

11.02 10.63 l o a, 10.63 11.02 10.73 11.02 a_1 = 11.02 .00 .00

10.73 11.02 a_1 o m 11.13 11.42

12.04 11.84 p a d, 12.04 12.24 11.89 12.11 d_1 = 12.18 .06 .07

11.87 12.11 d_1 o q 11.99 12.21

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Prismatic Comparisons Continued

J Cephei I 9250

10.46 10.41 o 1 d, 10.51 10.56 10.63 10.66 d_1 = 10.57 .06 .06 .05 .05

10.63 10.66 d_1 4 p 11.03 11.06

11.42 11.47 R o q, 11.47 11.42 11.67 11.54 q_1 = 11.48 .10 .10 .06 .06

11.67 11.54 q_1 2 d 11.87 11.74

S Cephei I 9463

a, o q

no other comparable

~~R Ursae Majoris I 7316~~

~~Tot Persei I 7773~~

11.98 11.88 q 1 a, 10.08 a_1 = 11.98 10.08

~~q is faintest Comp star~~

11.43 11.24 m 3 ε, 11.54 11.73 11.59 11.70 $ε_1$ = 11.56 11.72 .02 .01 .03 .02

11.59 11.70 ε o 3 d 11.88 12.06 11.98 d_1 = 11.88 11.99 .01 .01 .00 .01

11.98 11.88

J + S Persei I 7570

11.29 11.24 t o m 11.43 11.29 11.40 b_1 = 11.26 11.42 .02 .01 .03 .02

11.40 11.29 t 3 o 11.59 11.70

11.93 11.86 p 2 d, 12.06 12.13 11.88 11.98 d_1 = 11.97 12.06 .09 .07 .09 .08

11.88 d_1 o q 11.98

J + S Persei I 2853

11.50 11.39 b o m 11.24 11.43 11.39 11.50 b_1 = 11.32 11.46 .09 .03 .07 .04

11.39 b_1 o 2 o 11.59 11.70

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Prismatic Comparisons Continued

S Bortles I 10797

11.03 11.03
10.63 11.02 l 4 b, 11.42 11.32 l_1 = 11.37 .05 .05
11.03
11.32 b_1 m 11.42

S Bortles I 11146

10.63 10.73
a_1 k 11.02 11.02 a_1 = 11.02 .05 .05 .00
10.73 11.13
11.02 a_1 4 m 11.42

J Cassiopeiae I 17300

10.82 11.32 11.17 11.22
11.04 h 4 e, 11.44 11.36 11.39 e_1 = 11.40 .04 .04 .01
11.17
e_1 o d 11.36
11.22 11.52
11.39 e_1 3 t 11.69

10.27 10.32 10.32 10.27 10.30 .02 .02 .03
10.49 p 1 b 10.59 10.60 10.52 b_1 = 10.57 .02 .03 .05
10.32
b_1 o p 10.60
10.27 10.67
10.52 b_1 4 g 10.92

to dist. from field

9.58 9.46
a_1 o k 9.75 9.68 a_1 = 9.72 .06 .06
9.46 9.56
9.68 a_1 m 9.78

J Cassiopeiae I 11577

10.82 11.32 11.07
11.04 h 5 d, 11.54 11.26 d_1 = 11.40 .14 .14
11.07 11.17
11.26 d_1 e 11.36

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Prismatic Comparisons Continued

J Cassiopeiae I 14~~780~~ 16750

10.27 10.32 10.32
10.49 p 1 b 10.59 10.60 b_1 = 10.60 .01 .00
10.32
b_1 o p 10.66

10.82 11.32 11.17 11.24 .08 .07
11.04 h 5 e_1 11.54 11.36 e_1 = 11.45 .09 .08
11.17
11.36 e_1 o d 11.36

9.58 9.76 9.52 .06 .06
a_1 o k 9.75 9.68 a_1 = 9.72 .03 .07
9.76 9.56
9.68 a_1 m 9.78

R Camelopardali I 14764

9.88 9.98 9.93 9.96 .02 .03
9.98 l 1 B 10.08 10.08 β_1 = 10.08 .00 .00
10.13 10.23
10.08 β_1 1 f 10.18

R Aurigae ~~R Aurigae~~ I 5~~48~~1 ~~Rbynes I 5481~~

9.77 9.97 10.05 10.01 .04 .04
9.94 l 2 a, 10.14 10.20 a_1 = 10.17 .03 .03
10.05
a_1 o n 10.20

10.65 11.25 11.48 11.36 .11 .12
10.83 O 6 d_1 11.43 11.52 d_1 = 11.48 .05 .04
11.48
d_1 o g 11.52

10.55 10.55 10.55 10.55 .00 .00 .00
c_1 o m 10.70 10.70 10.73 c_1 = 10.71 .01 .00 .02
10.55
10.35 10.50 o 2 c_1 10.70
10.55 10.65
10.73 c_1 1 o 10.83

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Prismatic Comparisons, continued

R Cassiopeiae Plate I 9121

9.95 q 5 h, 10.45 10.45 10.42 h_1 = 10.44 .01 .01 .02
h, 0 p 10.45
10.42 h_1 3 t 10.72

11.22 n 1 k, 11.32 11.20 k_1 = 11.26 .06 .06
11.20 k_1 3 w 11.50

R Camelopardali I 14800

9.88 9.98 10.03 10.00 .02 .03
9.98 e 1 β 10.08 10.18 β_1 = 10.13 .05 .05
10.03
β_1 0 f 10.18

11.29 11.79 11.49 11.64 .15 .15
11.40 k_1 5 c_1 11.90 11.64 c_1 = 11.77 .13 .13
11.49
c_1 0 O 11.64

estimately 2 faint

10.89 10.79 10.85 .05 .05
a_1 0 K K 11.10 10.90 a_1 = 11.00 .10 .10
10.79
10.90 a_1 4 m 11.19 11.30

R Ursae Majoris I 7316

9.89 10.19 9.97 10.08 .11 .11
10.14 q 3 a_1 10.44 10.23 a_1 = 11.34 .10 .11
9.97
10.23 a_1 1 2 10.07 10.33

11.19 11.29 11.34 11.32 .03
11.28 e 1 b_1 11.38 11.42 b_1 = 11.40 .02 .02
11.34
11.42 b_1 1 w 11.44 11.52

November 12, 1902

Prismatic Comparisons

~~F of Persei I 285-3~~

11.43 n 1 b 11.53 11.40 b_1 = 11.46 .07 .06
11.40 b_1 3 6 11.70

Images dissimilar - Comparison difficult

T Ursae Majoris I 5925

10.50 10.60 10.65 10.62 .02 .03
10.76 n 1 a 10.56 10.90 a_1 = 10.88 .02 .02
10.65 10.85
10.90 a_1 2 0 11.10

10.95 11.05 11.03 11.04 .01 .01
11.20 p 1 e 11.30 11.14 e_1 = 11.22 .08 .08
11.03 11.23
11.14 e, 2 q 11.34

11.90 12.10 11.95 12.02 .08 .07
11.94 w 2 f, 12.14 12.10 f, = 12.07 .07 .07
11.95
f, 0 W 12.00

11.90 12.20 12.05 12.15 12.13 .07 .08 .02
11.94 k 3 g, 12.24 12.10 12.20 g_1 = 12.18 .06 .08 .02
11.95 12.05
12.00 W 1 g, 12.10
12.15
g, 0 K 12.20

N.B. See note page 145

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Prismatic Comparisons Continued

S Ursae Majoris I 5925

10.14 10.24 10.26
10.30 p 2 a, 10.40 10.30 a_1 = 10.35 .01 .01
10.26 10.26 10.36
10.30 a, 5 q 10.80 10.25 .05 .05

10.14 10.64 10.66
10.30 p 5 b_1 10.80 10.70 b_1 = 10.75 .01 .01
10.66 10.76
10.70 b_1 1 q 10.80 10.65 .05 .05

10.76 10.66
c_1 0 q 10.80 10.67 c_1 = 10.74 .05 .05
10.66 10.86
10.67 c_1 2 r 10.87 10.71 .06 .07

10.86 11.06 11.41
10.87 r 2 d_1 11.07 11.20 d_1 = 11.14 .18 .17
11.41 11.51
11.20 d_1 1 s 11.30 11.24 .07 .06

10.86 11.16 11.41
10.87 r 3 f_1 11.17 11.20 f_1 = 11.18 .12 .13
11.41 11.51
11.20 f_1 1 s 11.30 11.28 .01 .02

11.51 11.61
11.30 p 1 g_1 11.40 g_1 = 11.40 11.61
no faintr star

November 12, 1902

Prismatic Comparisons Continued

J Ursae Majoris Plate I 5723

10.50 10.60 10.65
10.76 n 1 a_1 10.86 10.90 a_1 = 10.88 .02 .03
10.65 10.85
10.90 a, 2 o 11.10 10.62 .02 .02

11.28 11.38 11.28
11.42 n 1 e_1 11.52 11.40 e_1 = 11.46 .05 .05
11.28 11.48
11.40 e_1 2 s 11.60 11.33 .06 .06

11.90 12.20 11.95
11.94 u 3 g_1 12.24 12.50 g_1 = 12.12 .12 .13
11.95
g_1 0 w 12.50 12.08

f_1 has star image too close

S Ursae Majoris I 5723

10.14 10.36
a_1 0 p 10.30 10.40 a_1 = 10.35 .05 .05
10.36 10.76
10.40 a_1 4 q 10.80 10.25 .11 .11

10.14 10.44 10.66
10.30 p 3 b_1 10.60 10.70 b_1 = 10.65 .05 .05
10.66 10.76
10.70 b_1 1 q 10.80 10.55 .11 .11

10.76 10.86 10.86
10.80 q 1 c_1 10.90 10.87 c_1 = 10.88 .02 .01
10.86 10.86 10.86 .00 .00
c 0 r 10.87

10.86 11.16 11.41
10.87 r 3 d_1 11.17 11.20 d_1 = 11.18 .01 .02
11.41 11.51
11.20 d_1 1 s 11.30 11.28 .12 .13

10.86 10.87 r 3 f_1 11.16 11.41 11.17 11.20 f_1 = 11.18 .01 .02
11.41 11.51
11.20 f_1 1 s 11.30 11.28 .12 .13

10.86 10.87 r 3 g_1 11.16 11.41 11.17 11.20 g_1 = 11.18 .01 .02
11.41 11.51
11.20 g_1 1 s 11.30

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Prismatic Companions Continued

ζ Ursae Majoris I 5835

a image not complete

10.50
10.76 m 1 e, 10.86 10.75 11.00 e_1 = 10.93 .08 .07 .07
10.75
11.80 e 1 o 11.10
10.85
11.48
11.60 e 2 f 11.68 11.80 11.80 11.84 f_1 = 11.82 .06 .06 .02 .02
11.80
11.84 f, 1 t 11.90 11.94
11.28 11.58 11.90
11.42 r 3 g, 11.72 11.94 g_1 = 11.83 .16 .16 .13 .13
11.90
g, 0 u 11.94

ξ Ursae Majoris I 5835

9.96 9.96 9.96
9.86 m 3 a 10.16 10.16 a_1 = 9.96 10.16 .00 .00 .00 .00
9.96
10.16 a 1 o 10.06 10.26
10.76
b, f, 0 g 10.80 10.76 10.77 f_1 = 10.76 10.78 .00 .02 .00 .01
10.76
10.77 b, f, 1 r 10.86 10.87
b 0 0 10.06 10.26 10.14 10.30 10.36 10.40 b_1 = 10.19 10.32 .13 .06 .05 .02 .17 .08
b, 0 p 10.14 10.30
10.36
10.40 b, 4 q 10.76 10.80
10.14
10.30 p 2 c, 10.34 10.50 10.56 10.60 c_1 = 10.45 10.55 .11 .05 .11 .05
10.56
10.60 c, 2 q 10.76 10.80
10.34
10.30 p 3 d, 10.44 10.60 10.66 10.70 d_1 = 10.55 10.65 .11 .05 .11 .05
10.66
10.70 d, 1 q 10.76 10.80

images dissimilar - Compare on duplicate

poor plate - bad focus

November 12, 1902

Prismatic Companions Continued

ζ Ursae Majoris I 5529

10.30 10.50 10.50 10.55 10.52 .02 .02 .03
10.46 m 2 a, 10.66 10.76 10.80 a_1 = 10.74 .08 .02 .06
10.50
a 0 n 10.76
10.55
10.80 a 3 0 10.85 11.10
11.28
11.42 r 2 e, 11.48 11.38 e_1 = 11.43 .05 .05
11.38 11.48
11.50 e 1 s 11.60 11.62 11.50 11.56 .06 .06
11.48
11.60 & 2 f, 11.68 11.80 11.80 11.84 f_1 = 11.74 11.82 .06 .06 .02 .02
11.80 11.90
11.84 f, 1 t 11.94

ξ Ursae Majoris I 5529

faint

10.14 10.66 10.66 10.55
10.30 p 3 b, 10.60 10.70 b_1 = 10.65 .11 .05 .11 .05
10.66 10.76
10.70 f 1 q 10.80
10.14 10.54 10.76
10.30 p 4 c, 10.70 10.80 c_1 = 10.75 .11 .05 .11 .05
10.76
10.80 c 0 q 10.80

extremely faint

10.14 10.64 10.76 10.70
10.30 p 5 d, 10.86 10.80 d_1 = 10.80 .06 .00 .06 .00
10.76
d 0 q 10.88
9.96 9.96 9.96
9.86 m 3 a 10.16 10.16 a_1 = 9.96 10.16 .00 .00 .00 .00
9.94 10.06
10.76 a, 1 o 10.26

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Prismatic Comparisons Continued

S Cassiopeiae Plate I 5279

10.92 q 3 e,
e 0 r 11.04
Images on this plate not
comparable - omit from table

S Cassiopeiae Plate I 17550

11.04 r 4 e, 11.22 11.07 11.14 .08 .07
11.26 q 1 s 11.17 11.44 11.26 e, = 11.35 .09 .09
11.36

10.60 p 3 b, 10.62 10.57 10.60 .02 .03
10.82 b, 1 q 10.67 10.90 10.82 b, = 10.86 .04 .04
10.92

Nov. 25, 1902 R Cassiopeiae Plate I 15895
See note 10.45 p 2 q, 10.65 10.62 q, = 10.64 .01 .02
frag. 155 10.62 q, 1 t 10.72

November 17, 1902

Prismatic Comparisons Continued

S Cassiopeiae Plate I 17036

10.86
10.96 r 1 b, 10.96 11.08 11.02 .06 .06
11.06 11.22 b, = 11.14 .08 .08
11.08
b, 0 s 11.22
b, 3 t

12.08
11.98 11.88
11.92 11.96 2 e, 11.87 11.90 11.98 .10 .12
11.88 11.88 .01 .02
e, 0 t 11.90 11.96 .06 .06

S Cassiopeiae Plate I 13586

a, image not comparable
11.08 11.06 11.07 .01 .01
e 0 s 11.22 11.16 c, = 11.19 .03 .03
10.86
10.96 r 2 c, 11.06 11.16
c, 4 s
Poor plate - comparison difficult

R Draconis Plate I 17452

11.17
11.29 r 2 b, 11.37 11.32 11.07 11.25 .12 .07 .18
11.49 11.42 11.22 b, = 11.38 .11 .06 .16
b, 0 s 11.32
11.42
11.07
11.22 s 4 t 11.47
11.62

11.17 11.12
d, 0 r 11.29 11.22 11.14 .03 .02
11.12 11.32 d, = 11.26 .03 .04
11.22 d, 2 s 11.42

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Prismatic Companions Continued
R Aurigae Plate I 11902[8]

11.28 p, 1 b,
11.32 p, 2 q 11.48
11.52

Too distant
10.35 10.55 10.55 10.55 10.55 .00 .00 .00
10.50 o 2 c, 10.70 10.70 10.73 C, = 10.72 .12 .02 .01
10.55
c, o m 10.70
10.55 10.65
10.73 c, 1 o 10.83

c, o p
11.18 11.48
11.22 c, 3 q 11.52

T Cephei Plate I 9332
11.01 11.31 11.47
11.04 q 3 d, 11.34 11.42 d, = 11.38 .04 .04
11.47
d, o r 11.42

11.47 11.87 11.77 11.82 .05 .05
11.42 r 4 q, 11.82 11.64 g, = 11.73 .09 .09
11.87
11.64 g, 1 r 11.74

11.47 11.97 11.87 11.92 .05 .05
11.42 r 5 h, 11.92 11.74 h, = 11.83 .09 .09
11.87
h, 0 r 11.74

T Cephei Plate I 9332
11.47 11.77 11.67 11.72 .05 .05
11.42 r 3 h, 11.72 11.54 h, = 11.63 .09 .09
11.57 11.87
11.67 54 h, 2 r 11.74

11.47 11.67 11.57 11.62 .05 .05
11.42 r 2 g, 11.62 11.44 g, = 11.53 .09 .09
11.57 11.87
11.44 g, 3 r 11.74

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Prismatic Companions Continued

T Cephei Plate I 18105
11.47 11.97 11.87 11.92 .05 .05
11.42 r 5 h, 11.92 11.74 h, = 11.83 .09 .09
11.87
h, 0 r 11.74

g, has star image too close

T Cephei Plate I 18253
g, has star image too close
11.47 11.87 11.87 11.87 .00 .00
11.42 r 4 h, 11.82 11.74 h, = 11.78 .04 .04
11.87
h, 0 r 11.74

S Bootis I 6098
11.84 11.79 11.82 .02 .03
c, o p 12.01 12.01 c, = 12.02 .02 .01
11.79 11.99
12.01 c, 2 q 12.21

11.13 11.43 11.51 11.48 .04 .04
11.42 m 3 b, 11.72 11.72 b, = 11.72 .00 .00
11.51 11.61
11.72 b, 1 o 11.82

S Bootis I 16756
11.13 11.33 11.41 11.37 .04 .04
11.42 m 2 b, 11.62 11.62 b, = 11.62 .00 .00
11.41 11.61
11.62 b, 2 o 11.82

c, n.s.

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Prismatic Companions continued

S Bootis I 11446

c, has star image too close
11.13 11.53 11.61 11.57 .04 .04
11.42m 4 b, 11.82 11.82 b_1 = 11.82 .00 .00
b, 0 0 11.82
11.61

S Bootis I 10797

11.13 11.53 11.51 11.52 .01 .01
11.42 m 4 b_1 11.82 11.72 b_1 = 11.77 .05 .05
11.51
11.72 b_1 1 0 11.82
11.61

c, concealed by star image

R Canulopardali I 14764

10.61 11.01 10.79 10.90 .11 .11
10.84 k 4 a, 11.24 11.00 a_1 = 11.12 .12 .12
10.79
11.00 a_1 1 K 11.10
10.89

R Canulopardali I 18120

10.61 11.01 10.89 10.89 10.93 .08 .04 .04
10.84 k 4 a, 11.24 11.10 11.00 a_1 = 11.11 .13 .01 .11
10.89
a, 0 k 11.10
10.89 11.29
11.00 a, 4 l 11.40

R Canulopardali I 14806

Star image very close

10.61 10.99 10.89 10.99 10.93 .02 .04 .06
10.84 k 3 a, 11.14 11.10 11.10 a_1 = 11.11 .03 .01 .01
10.89
a, 0 K 11.10
10.99 11.29
11.10 a, 3 l 11.40

R Canulop I 17538

10.89 10.99 10.99 10.99 .00 .00
11.10 k 1 a, 11.20 11.10 a_1 = 11.15 .05 .05
10.89 11.29
11.10 a, 3 l 11.40
11.49 11.59 11.49
11.64 0 1 c, 11.74 11.69 11.54 .05 .05
11.49
c, 0 f 11.69

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Prismatic Companions Continued

These magnitudes derived from I plates

R Cassiopeiae I 15895

f, 0 2 10.50 10.42 f_1 = 10.46 .04 .04
10.42 f, 3 t 10.72
dist. from field
9.95 q 4 h 10.35 10.35 h_1 = 10.35 .00 .00
10.35 h_1 1 p 10.45

S Ursae Majoris I 5835

10.14 10.64 10.66 10.65 .01 .01
10.36 p 5 d, d 10.80 10.70 d_1 = 10.75 .05 .05
10.66 10.76
10.70 d 1 q 10.80

S Ursae Majoris I 5529

10.14 10.64 10.66 10.65 .01 .01
10.30 p 5 d 10.80 10.70 d_1 = 10.75 .05 .05
10.66 10.76
10.70 d 1 q 10.80

R Ursae Majoris 3170

2 1 L
h, 4 u

R Draconis 17033

10.69 10.89 10.87 10.78 .11 .10
10.89 p 2 d, 11.09 10.88 d_1 = 10.98 .11 .10
distant from field
10.47 10.74
10.88 d_1 1 q 10.98

S Ursae Majoris 5925

10.76 11.11 10.94 .18 .17
d, 0 q 10.80 10.90 d_1 = 10.85 .05 .05
11.11 11.67
10.90 d, 4 L 11.30

R Ursae Majoris 3170

p, 1 a,
a_1 1 q

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Prismatic Companions continued

R Ursae Majoris I 8316

u 1 h,

h, 1 u

Clear images very close embarrassed

S Ursae Majoris 07 23

10.86 11.06 11.41

10.84 r 2 d 11.07 11.20 d_1 = 11.14 .07 .06

11.41 11.54

11.20 d 1 s 11.20

R Ursae Majoris I 17846

h, incomparable

l, incomparable

R Ursae Majoris I 16437

h, 0 s

h, 2 t

Very uncertain - images dissimilar

γ Cephei. An examination of plates 9200, 9332, and 18105 shows that there can be no possible confusion in identifying d_1. On plate 9200 images of prismatic companions are very clear and uniform, and doublers would usually appear brighter in companion.

S Cygni I 17425

12.10 12.50 12.60 12.65 .05 .05

12.30 s 4 c, 12.70 12.70 c_1 = 12.70 .00 .00

12.80 12.70

12.00 c, 1 t 12.80

Reduced March 2, 1916 98.7 Fm. c

November 21, 1902

Estimates of the brightness of S Cassiopeiae - Continued from page 37

Plate I 15952 taken Sept. 15, 1896

10.48 l 2 V 10.68 10.94 V = 10.81? 13 13

10.94 V 4 0' 11.34 ?

Plate I 18171 taken May 31, 1897

V N. S. V < 14.2

14.10 u = .1

A defect in the plate might be taken for the variable, as faint as u. But superposition shows that there is no trace of the variable

Plate I 17551 taken March 13, 1897

12.74 s 5 V 13.24 14.00 V = 13.62 38 38

14.00 V 1 u 14.10

Plate I 18461 taken Aug. 6, 1897

V N. S. V < 13.4 ?

14.10 u N. S.

12.74 s = ? 7?

s seems so bright that it is difficult to estimate.

Plate I 16637 taken Dec. 1, 1896

10.34 h 4 V 10.74 11.24 11.68 V = 11.22 48 02 46

11.24 V 0 0 11.24

11.68 V 3 p 11.98

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Reduced March 2, 1916
28.7.m.

November 21, 1902

S Cassiopeiae Continued

Plate I 20355 / I 16637 taken Mar. 5, 1898 / Sept. 1, 1896
Plate spoiled. Another exposure on plate

Plate AC 331 taken May 25, 1899
V M. S. v < 10.3
10.21 m = .1
Extreme edge of plate

Plate AC 174 taken January 25, 1899
V M. S. v < 12.1
11.98 p = .1

Plate AC. 388 taken Aug. 8, 1899
Not measured. Extreme corner one of several on this date

Plate I 18312 taken July 5, 1897
V M. S. v < 14.3
14.10 u = .2
t n. s.

Edge of plate

Plate AC. 235 taken Feb. 25, 1899
V M. S. 10.21 m = .2 v < 10.4

Plate I 16225 taken Oct. 22, 1896
10.48 l 2 v 10.68 10.84 v = 10.76 08 08
10.84 v 40 11.24

Reduced, March 2 1916
28.7.m.

November 21, 1902

S Cassiopeiae Continued

Plate AC. 439 taken Sept. 15, 1899
V M. S. v < 12.3
11.98 p = .1
Object near position of 2 Defect in film.

Plate AC. 155 taken Jan. 12, 1899
V M. S. v < 11.3
11.24 O = .1

Edge of plate - poor focus

Plate I 21987 taken Dec. 19, 1898
12.74 2 4 V 13.14 14.00 v = 13.57 43 43
14.00 V 1 u 14.10

Plate I 17301 taken Feb. 10, 1898
12.74 2 1 V 12.84 13.70 v = 13.27 43 43
13.70 V 4 u 14.10

Plate AC. 376 taken Aug. 4, 1899
Not measured. Trails

Plate I 16765 taken Dec. 17, 1896
11.24 O 2 V 11.44 11.68 v = 11.56 12 12
11.68 V 3 p 11.98

Plate I 21991 taken Dec. 23, 1898
V O u 14.10 v = 14.10
S too bright for comparison

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Reduced, March 2, 1916
28.7.m.

November 21, 1902

S Cassiopeiae Continued

V N.S. v<11.4

11.24 p = .2
q N.S.

Defect in plate near p, which is not seen.

Plate I 27416 taken Aug. 30, 1901
V N.S. v<9.6
m N.S.
9.59 l = 0.25

Plate AC. 427 taken Sept. 13, 1899
V N.S. v<12.4
12.31 r = .1
s N.S.

Edge of plate — Plate I 19241 taken Oct. 12, 1899
V N.S. v<12.9
12.74 s = .2
u N.S.

Plate AC. 379 taken Aug. 9, 1899
V N.S. v<12.4
12.30 q = .1

Comes on plate — Plate AC. 298 taken April 22, 1899
V N.S. v<10.5
10.48 l = .1

Reduced, March 2, 1916
28.7.m.

November 21, 1902

P Cassiopeiae Continued

Plate AC 232, taken Feb. 25, 1899
V N.S.
10.48 l = .1 v < 10.6

good plate — Plate AC. 116 taken Dec. 9, 1898
V N.S. v< 14.1
12.74 a = .4
t N.S.

Plate A.C. 223 taken Feb. 24, 1899
V N.S. v< 10.5
10.34 h = .2
O N.S.

Plate I 18002 taken April 22, 1897
12.74 s 5 V 13.24 14.10 v = 13.67 43 43
14.00 V 1 u. 14.10

poor focus — Plate I 16667 taken Dec. 3, 1896
11.24 O 2 V 11.44 11.68 v = 11.56 12 12
11.68 V 3 p 11.98

Plate I 18582 taken August 29, 1897
V N.S. v< 12.8
12.74 a = .1
A faint object on film near place of variable proves not to be it, by superposition

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Reduced March 2, 1916
H.F.M.

November 21, 1902

S Cassiopeiae Continued

edge of plate from focus

Plate I 16666 taken Dec. 3, 1896

11.24 o 3 v 11.54 11.88 v = 11.71 17 17

11.88 v 1 p 11.98

Plate I 17857 taken April 15, 1897

12.74 e 6 v? 13.34 v = 13.34 ?

14.10 u n.s.

Vanishes very faint. Comparatively bright. A faint star much misled. Vanishes so faint that only superposition made it certain that it was a star image

Plate I 18358 taken July 16, 1897

v n.s. v < 12.8

12.74 e = .1

* Assumed to be intended for I 16524 as I 16854 does not cover and I 16524 agrees in magn and date.

Plate* I 16254 taken Nov. 14, 1896

10.48 l 3 v 10.78 11.14 v = 10.96 18 18

11.14 v 1 o 11.24

extreme edge of plate

Plate AC 309 taken April 28, 1899

v n.s. v < 10.4

10.21 n = .2

Plate AC 76 taken Oct. 25, 1898

v n.s. v < 12.5

12.31 n = .2

Reduced March 2, 1916
H.F.M.

November 21, 1902

S Cassiopeiae continued

Plate I 19772 taken Dec. 16, 1897

14.50 t 3 v 14.85 14.70 v = 14.78 07 08

14.60 w 1 v 14.70

x n.s.

Plate AC. 386 taken Aug. 8, 1899

Too close to edge of plate

Plate AC. 394

Too prox. repeated images from focus

Plate AC. 435 taken Sept. 14, 1899

v n.s. v < 11.3

11.24 o = .1

extremely faint

Plate I 21802 taken Nov. 28, 1895

12.74 e 3 v 13.04 14.00 v = 13.52 48 48

14.00 v 1 u 14.10

Plate AC. 387 taken Aug 8, 1899

v n.s. v < 12.1

11.98 p = .1

lower of plate

Plate AC. 202 taken Feb. 14 1899

v n.s. v < 12.4

12.31 n = .1

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S Cass

Plate I 17036

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