

1912phae.proj..987L

KG

11365

986

KG 11365.986

KG 11365.986



4

$$38 = 20 + 45$$

June 15, 1912

Pol

A 1065

Scale Reading
+ Curve ReadingScale Read
+ Curve

5 3.2 2.19

13 7.1

9.86

6 4.0 2.98

14 7.2

9.99

8 5.3 2.80

15 7.2

9.99

9 6.2 2.50

16 7.5

10.31

10 6.3 2.59

17 7.5

10.31

11 6.7 2.72

18

8.1

10.99

12 7.0 2.73

19

8.3

11.20

13 7.3 2.87

20

8.5

11.41

14 7.7 2.82

21

8.9

11.83

15 8.0 2.94

22

9.0

11.93

16 8.3 2.76

23

9.3

12.22

17 8.6 2.89

24

9.7

12.60

18 9.0 2.92

25

19 9.3 2.98

20 9.7 2.89

21 10.0 2.82

1 4.3

7.25

2 4.6

7.49

3 4.4

7.32

4 5.3

8.09

5 5.3

8.09

6 5.4

8.18

7 5.7

8.47

8 5.9

8.66

9 6.2

8.94

10 6.5

9.24

11 6.5

9.24

12 6.7

9.45

$$B_8 = 20 + 45$$

Sc "U"

June 15, 1912

P.A. 1421

5 3.2 3.19

6 4.1 2.88

8 5.3 2.80

9 6.0 2.70

10 6.2 2.69

11 6.5 2.92

12 6.9 2.83

13 7.2 2.97

14 7.5 3.02

15 7.9 3.04

16 8.2 3.06

17 8.6 2.89

18 9.0 2.92

19 9.3 2.98

20 9.5 3.09

21 9.8 3.02

22 Tot

23 F

Scale Read.
+ Curve
7.11

1 4.2

2 4.5

3 4.7

4 5.4

5 5.3

6 5.4

7 5.7

8 6.0

9 6.1

10 6.5

11 6.5

12 6.6

13 7.0

14 7.2

15 7.3

16 7.5

17 7.5

18

19

20

21

22

23

24

25

Scale Read.
+ Curve
9.31

9.42

9.86

10.08

10.20

10.42

10.42

11.08

11.29

11.50

11.81

12.02

12.33

12.74

8.1

8.3

8.5

8.8

9.0

9.3

9.7

6

B8 - 20 + 45

Sc U

June 15, 1912

ME 998

3 5.3^{0.4K}4 5.5^{0.4K}5 6.0^{0.39}6 6.6^{0.28}8 7.8^{0.30}9 8.3^{0.40}10 8.7^{0.49}11 8.7^{0.72}12 9.0^{0.73}13 9.3^{0.87}14 9.6^{0.92}15 9.9^{1.04}

16

17

18

Scale Read.
+ Curve

1 6.3

6.68

2 7.1

7.47

7.43

3 7.2

7.58

7.55

4 7.3

7.68

7.68

5 7.2

7.58

7.55

6 7.4

7.79

7.79

7 7.7

8.11

8.13

8 7.9

8.34

8.38

9 8.1

8.58

8.59

10 8.3

8.83

8.83

11 8.5

9.08

9.08

12 8.7

9.32

9.32

13 9.1

9.71

9.68

Scale Read.
+ Curve

14 9.1

9.85

9.80

15 9.2

9.99

9.92

16 9.3

10.13

.

17 9.5

10.40

10.29

18 9.7

10.67

10.53

19 6.3

6.68

20 7.3

7.68

30 8.1

8.57

40 8.5

9.07

50 9.3

12.12

60 9.7

10.66

Use magnitudes in green ink

$$B_1 = 120 + 45$$

Se'W

June 19, 1912

ME 1201

		Scale Read + Curve
3	5.3 ^{0.6x}	
4	5.3 ^{0.61}	
5	5.8 ^{0.59}	
6	6.3 ^{0.68}	
8	7.4 ^{0.70}	
9	8.0 ^{0.70}	
10	8.1 ^{0.79}	
11	8.5 ^{0.92}	
12	8.9 ^{0.83}	
13	9.3 ^{0.87}	
14	9.6 ^{0.92}	
15	10.0 ^{0.94}	
1	6.2	6.84
2	6.5	7.16
3	6.7	7.38
4	7.0	7.69
5	7.1	7.80
6	7.3	8.00
7	7.7	8.43
8	7.5	8.21
9	8.2	8.98
10	8.5	9.30
11	8.3	9.08
12	8.3	9.08
13	8.5	9.30
14	8.7	9.52
15	9.2	10.06
16	9.9	10.82

		Scale Read + Curve
1	6.2	6.84
2	7.1	7.89
3	7.8	8.53
4	8.2	8.98
5	9.0	9.83
6	9.5	10.38

8

B₃ - 6 40 + 45

June 19, 1912

Sc U		PC	
Bojaf C.	5	4.0 2.05	6.6
	6		7.7
" " "	8	4.0 4.10	7.7
" " "	9	4.7 4.00	8.4
	10	4.9 3.99	8.6
	11	5.2 4.22	9.9
	12	5.5 4.23	9.2
	13	6.0 4.17	9.7
	14	6.3 4.22	
	15	6.6 4.34	
	16	7.0 4.26	
	17	7.3 4.19	
	18	7.7 4.22	
	19	8.1 4.18	
	20	8.4 4.19	
	21	8.7 4.12	
	22	0	
	23	9.1 4.10	
	24		
	25	9.0 4.13	
	26	10.0 4.19	
	27		
Bojaf C	1	3.1 -	6.3
" " "	2	3.0 -	7.0
	3	3.1 -	7.1
	4	3.3 -	7.2
	5	3.2 -	7.3
	6	4.0 8.00 Cur	7.8 8.17
" " "	7	3.9 (7.89)	7.7 8.08
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		

$$B_3 = 6 \quad 40 + 45$$

Sc "U"

June 19 1912

P.C.

Sc2

No

Sc2

MC 996 Sc 882	P.C.		P.C.	Sc2	No	Sc2
5	48		5 30		33	88 13.92
6			6		34	92 14.41
8	6.1	Prof. f. C.	7 3.1 5.7 7.45		35	95 14.80
9 3.9 4.80	8.4, super.		8 3.2			
10 4.0 4.89	7.9		9 3.9 8.77 6.8 8.36			
11 4.4 5.02	8.2		10 4.2 9.15 7.3 8.79			
12 4.7 5.03			11 4.2 9.15 7.2 8.70			
13 5.1 5.07			12 4.3 9.27			
14 5.4 5.12			13 4.7 9.74			
15 5.8 5.14		Prof. f. C.	14 5.1 10.18			
16 6.3 4.96			15 5.1 10.18			
17 6.6 4.89			16 5.2 10.28			
18 7.0 4.92			17 5.4 10.49			
19 7.3 4.98			18 5.3 10.39			
20 7.6 4.99			19 5.4 10.49			
21 7.8 5.02			20 6.0 11.05			
~~22~~			21 6.1 11.14			
23 8.2 5.00			22 6.7 11.70			
24			23 7.1 12.09			
25 8.6 5.13			24 7.2 12.19			
26 8.9 5.29			25 7.4 12.39			
27 9.3 5.25			26 7.9 12.90			
28 9.7 5.27			27 7.9 12.90			
29 10.0			28 8.0 13.00			
Prof. f. C. 1	5.2	7.03	29 8.2 13.21	8.2		
" " " " 2	5.3	7.13	30 8.3 13.33	8.2		
" " " " 3	5.3	7.13	31 8.5 13.56	8.5		
4 B	5.5	7.28	32 8.7 13.80	8.7		

$$B_6 = 14 \ 40 + 45$$

June 20, 1912

1:35

955

5 3.1₃₂₇

6 3.1

8 5.0₃₁₀9 5.1₃₀₀10 5.8₃₀₉11 6.2₃₂₂12 6.5₃₂₃13 6.8₃₃₇14 7.1₃₄₂15 7.4₃₅₄16 7.9₃₃₆17 8 8.2₃₂₉18 8.7₃₂₂19 9.0₃₂₈20 9.2₃₃₇21 9.5₃₃₂23 9.9₃₃₀25 Scale Read.
+ Curve

1 3.1 6.37

2 3.2 6.44⁴

3 3.3 6.52

4 4.0 7.11

5 3.9 7.03

6 4.7 7.76

7 4.9 7.95

8 5.0 8.05

9 5.3 8.36

10 6.1

11 6.2

12 6.4

13 6.3

14 7.0

15 7.2

16 7.3

17 7.1

18 7.5

19 8.1

20 7.5

21 8.3

22 8.5

23 8.7

24 8.7

25 8.7

26 9.3

27 9.7

502 Scale Read.
+ Curve

9.29

9.40

9.66

9.53

10.40

10.61

10.71

10.50

10.90

11.48

11.10

11.67

11.87

12.07

12.07

12.64

13.00

$$B_6 = 14 \ 40 + 45$$

Scale 2

June 20, 1912.

M10 1150

	sc1	sc2	Scale Read + Curve	#	sc1	sc2	Scale Read + Curve
5	3.2	3.19		11	6.5		9.40
6	3.7	3.28		12	7.1		10.14
8	5.3	2.80		13	7.0		10.00
9	5.9	2.80		14	7.4		10.52
10	6.1	2.79		15	7.5		10.66
11	6.5	2.92		16	7.4		10.52
12	6.8	2.93		17	7.5		10.66
13	7.1	3.07		18		8.0	11.22
14	7.4	3.12		19		8.5	11.75
15	7.7	3.24		20		8.2	11.43
16	8.0	3.26		21		8.7	11.97
17		8.3	3.19	22		9.0	12.26
18		8.7	3.22	23		9.2	12.44
19		9.0	3.28	24		9.7	12.85
20		9.3	3.29	25		9.7	12.86
21		9.7	3.12				
23		10.1	3.10				
1	3.8		6.95				
2	4.0		7.10				
3	4.1		7.18				
4	4.3		7.33				
5	4.3		7.33				
6	5.1		7.98				
7	5.2		8.06				
8	5.8		8.61				
9	6.2		9.03				
10	6.3		9.15				

2:00

B6 14 40 + 45

Sc U

June 20, 1912

M9 9.55

Scale Read.
+ Curve

3	5.3 ^{0.44}	
4	5.5 ^{0.41}	
5	6.6 ^{0.29}	
6	6.6 ^{0.38}	
8	7.3 ^{0.80}	
9	7.8 ^{0.90}	
10	8.0 ^{0.89}	
11	8.3	83.112
12	8.6	86.113
13	8.9	89.127
14	9.2	92.132
15	9.6	97.124
1	6.2	6.53
2	6.3	6.65
3	6.3 ⁰	6.65
4	6.3	6.65
5	6.7	7.16
6	7.3	7.89
7	7.5	8.26
8	7.7	8.55
9	8.0	8.98
10	8.5	8.5 9.65
11	8.5	8.5 9.65
12	8.8	8.8 10.04
13	8.5	8.5 9.65
14	9.0	9.0 10.28
15	9.2	9.2 10.50

Sc 2

Scale Read.
+ Curve
10.50

16	9.2	
17	9.3	slan dupm. 70.60 ² Reject.
18	9.5	10.79
19	9.8	11.05
1	6.1	6.44
2	7.2	7.84
3	7.8	8.68
4	8.1	9.12
5	8.8	10.02
6	9.2	10.50
7	9.5	10.79

B6 14 40 + 45

Sc "U"

June 20, 1912

ME 1150
Se 2 Scale Read.
+ Curve3 5.2⁰⁵⁴4 5.4⁰⁵¹5 5.9⁰⁴⁹6 6.5⁰⁴⁸8 7.4⁰⁹⁰9 7.9⁰⁸⁶10 8.0⁰⁸⁷11 8.3¹¹²12 8.7¹⁰³13 9.1¹⁰⁷14 9.4¹¹²15 9.8¹¹⁴

1 6.2 6.70

2 6.1 6.59

3 6.2 6.70

4 6.3 6.80

5 6.5 7.02

6 7.3 7.98

7 7.4 8.10

8 7.8 8.61

9 8.1 9.00

10 8.4 9.38

11 8.6 9.60

12 8.7 9.73

13 8.7 9.73

14 9.3 10.40

15 9.5 10.61

16 9.5

17 ?

18 9.6 10.72

19 9.8 10.93

20 ?

10 6.1 6.59

20 7.2 7.84

30 8.0 8.88

40 8.4 9.37

50 9.2 10.29

60 9.5 10.61

Scale Read.
+ Curve
10.61

14

S₀W

$$a_1 = 4 + 75$$

June 21, 1912

91B 954		Scale Read. + Curve			Scale Read. + Curve
5	3.0	3.39	11	6.5	9.60
6	3.6	3.38	12	6.7	9.80
8	5.1	3.00	13	7.5	10.67
9	5.7	3.00	14	7.1	10.24
10	5.8	3.09	15	7.3	10.45
11	6.3	3.12	16	7.5	10.67
12	6.6	3.13	17	7.5	10.67
13	7.1	3.07	18	7.9	11.10
14	7.4	3.12	19		81 11.32
15	7.7	3.24	20		83 11.54
16	8.0	3.26	21		83 11.54
17	8.3	3.19	22		85 11.76
18	8.7	3.22	23		89 12.18
19	9.0	3.28	24		92 12.49
20	9.3	3.29	25		95 12.79
21	9.5	3.32			
23	9.9	3.30			

1	3.9	7.15
2	4.1	7.33
3		
4		
5		
6		
7	5.2	8.33
8	5.2	8.33
9	5.3	8.42
10	which star?	

Sc. U.

$$B_5 = 12 + 45$$

June 21, 1912

M 1066_{3.2}5 3.2_{3.19}6 4.0_{3.98}8 5.1_{3.00}9 5.7_{3.00}10 6.0_{2.89}11 6.5_{2.92}12 6.8_{2.93}13 7.2_{2.97}14 7.5_{3.02}15 7.9_{3.04}16 8.3_{2.96}17 8.5_{2.99}18 8.9_{3.02}19 9.2_{3.08}20 9.5_{3.09}21 9.7_{3.12}~~22~~

1 4.2 7.20

2 4.2 7.20

3 5.3 8.23

4 5.3 8.23

5 5.7 8.63

6 5.7 8.63

7 6.2 9.13

8 6.3 9.24

9 6.2 9.13

10 6.8 9.75

11 6.3 9.24

12 7.2

10.16

13 7.3

10.26

14 7.6

10.57

15 7.7

10.68

16 7.8

10.79

17 7.9

10.89

18

8.3 11.30

19

8.8 11.81

20 9.1 9.10 9.1 12.14

21 9.0 9.00 9.0 12.03

22 9.7 9.70 9.7? 12.76

23 9.8 9.80 9.8 12.87

24 10.0 10.00 10.0 13.10

25

Sc. U.

$$A_1 = 4 + 75$$

June 21, 1912

	P.C.	Scale Read + Curve		Scale Read + Curve	P.C.	Scale Read + Curve
HC 954						
5 B.	4.7	5.69	6	3.0	6.3	8.14
8 3.0	6.2	5.80	7	3.2	6.3	8.14
9 3.6	6.9	5.80	8	3.1	6.6	8.46
10 3.8	7.1	5.79	9	3.3	6.4	8.25
11 4.2	7.5	5.92	10			
12 4.6	8.0	5.73	11	4.2	9.35	7.3
13 5.0	8.3	5.87	12	4.3	9.45	
14 5.3			13	4.6	9.76	
15 5.7			14	5.1	10.29	
16 6.0			15	5.1	10.29	
17 6.3			16	5.3	10.50	
18 6.7			17	5.4	10.60	
19 7.0			18	5.7	10.91	
20 7.3			19	5.8	11.01	
21 7.5			20	6.0	11.22	
22			21	6.2	11.42	
23 7.9			22	6.9	12.19	
25 8.3	5.43		23	6.9	12.19	
26 8.7	5.49		24	7.2	12.50	
27 8.9	5.65		25	7.7	13.05	
28 9.3	5.67		26	7.7	13.05	
29 9.8	5.72		27		8.1	13.57
30			28		8.7	14.23
1 B.	5.2	6.95	29	9.3	14.93	
2 B.	5.3	7.07	30	9.8	15.52	mag i
too far from centre 3	5.3	7.07	31			
4 B.	5.2	6.95				
too far from centre 5	6.3	8.14				

$$A1 = 4 + 75$$

Scale 2

June 21, 1912

mc1202

2:20

Scale Read
+ Curve

SC1

Scale Read
+ CurveScale
Read
+ Curve

P.C.

P.C.

5 B.	6.0 ⁰³⁹	8 3.2	8.0	8.10
6 3.2	6.5 ⁰⁴⁸	9 3.1	8.2	8.27
7 4.0	7.1 ⁰⁰⁰	10		
8 4.1 ⁴⁷⁹	8.0 ⁰¹¹	11 4.1	9.72	
9 4.4 ⁵⁰²	9.4 ⁰⁰²	12 4.9	9.94	
10 4.7 ⁵⁰³	9.8 ⁰⁰⁷	13 5.0	10.05	
11 5.1 ⁵⁰⁷		14 5.3	10.35	
12 5.4 ⁵¹²		15 5.2	10.25	
13 5.8 ⁵¹⁴		16 5.8	10.87	
14 6.1 ⁵¹⁶		17 6.2	11.26	
15 6.5 ⁴⁹⁹		18 6.3	11.35	
16 6.9 ⁵⁰²		19 6.3	11.35	
17 7.3 ⁴⁹⁸		20 6.7	11.73	
18 7.1 ⁴⁸⁹		21 6.7	11.73	
19 7.9 ⁴⁹²		22 7.3	12.29	
20 8.3 ⁴⁹⁰		23 7.3	12.29	
21 8.8 ⁴⁹³		24	8.1 13.03	
22 9.1 ⁵⁰⁹		25	8.3 13.23	
23 9.5 ⁵⁰⁵		26	8.4 13.33	
24 9.9 ⁵⁰⁷		27	8.7 13.62	
1 B.	6.3 6.75	28	9.0 13.95	
2 B.	6.6 7.25	29	9.1 14.06	
too far from centre 3 B.	6.3 6.98	30.	4.	
4 3.0	6.3 6.75			
too far from centre 5 3.8	8.1 7.25			
6 3.8	7.3 7.53			
7 3.9	def.			

$$\alpha_1 = 4 + 75^\circ$$

June 21, 1912.

M101202

	Scale Read. + Curve		Scale Read. + Curve.
Sci		12	7.2
5	3.3 ₃₀₉	13	8.2
6		14	7.7
8	5.3 _{2.80}	15	7.8
9	6.0 ₂₇₀	16	8.2
10	6.2 ₂₆₉	17	8.3
11	6.5 ₂₉₂	18	8.3
12	6.9 ₂₈₆	19	8.5
13	7.4 ₂₇₇	20	8.5
14	7.7 ₂₈₂	21	8.7
15	8.0 ₂₉₄	22	9.1
16	8.4 ₂₈₆	23	9.8
17	8.7 ₂₇₉	24	9.5
18	9.1 ₂₈₂		
19	9.5 ₂₇₈		
20	9.9 ₂₆₉		
1	4.3		7.25
2	4.6		7.51
3	4.7		7.60
4	5.0		7.89
5	5.7		8.53
6	6.0		8.82
7	6.1		8.92
8	5.9		8.72
9	6.3		9.11
10			
11	6.9		9.72

Examined Aug. 30, 1913 Reject
Evidently wrong. Submit? H.S.L.

$$a_2 = 12^h + 75$$

June 25, 1912

11:25

m 20.195

Sc 1.

5 3.2^{3.19}

12 7.1

10.05

6 4.1^{2.88}

13 7.2

10.15

8 5.3^{2.80}

14 7.4

10.36

9 5.9^{2.80}

15 7.8

10.76

10 6.1^{2.79}

16 7.8

10.76

11 6.5^{2.92}

17 8.3

8.3 11.21

12 6.9^{2.83}

18 8.7

8.8 11.68

13 7.2^{2.97}

19

9.0 11.82

14 7.5^{3.02}

20

8.9 11.73

15 8.0^{2.94}

21

9.2 12.00

16 8.3

8.3^{2.96}

22

9.5 12.29

17 8.5

8.6^{2.87}

18

9.1^{2.82}

19

9.5^{2.78}

20

9.8^{2.79}

1 4.0

6.94

2 4.2

7.10

too far from centre 3 4.9

(7.72)

" " " 4 5.0

(7.82)

" " " 5 5.3

(8.11)

" " " 6 5.4

(8.21)

7 6.2

9.07

8 6.3

9.18

9 6.0

8.85

10 6.3

9.18

too far from centre 11 7.1

(10.05)

$$a^2 = 12 + 15$$

June 25, 1912.

meq58

			502	
3	52.054	15	8.7	9.94
4	53.061	16	9.3	10.54
5	54.069	17	9.2	10.44
6	62.078	18		
8	71.100	12	5.3	8.38
9	76.110	22	6.3	9.29
10	77.119	32	7.3	10.31
11	81.132	42	7.7	10.77
12	85.123	52	8.7	11.92
13	90.117	62	9.0	12.27
14	93.122			
15	97.124			
16	99.136			
1	6.1 6.88			
2	6.0 6.75			
3	6.1 6.88			
4	6.2 6.99			
5	6.7 7.62			
6	6.9 7.87			
7	7.3 8.38			
8	7.3 8.38			
9	7.7 8.87			
10	8.1 9.32			
11	8.5 9.74			
12	8.4 9.63			
13	8.3 9.53			
14	8.7 9.94			

$$B_2 = H + 45$$

Si "U"

June 25, 1912

99 B 1231

5 3.2^{3.19}6 3.8^{3.18}8 5.2^{2.90}9 6.0^{2.70}10 6.1^{2.77}11 6.5^{2.92}12 6.8^{2.93}13 7.3^{2.87}14 7.7^{2.82}15 8.0^{2.74}16 8.3^{2.96}17 8.5^{2.89}18 9.0^{2.92}19 9.3^{2.98}20 9.5^{2.99}21 9.9^{2.92}~~22~~

1 4.1 7.15

2 4.3 7.34

3 4.3 7.34

4 5.1 8.00

5 5.1 8.00

6 5.3 8.19

7 5.4 8.28

8 5.7 8.55

9 6.0 8.83

10 6.3 9.12

11 8.15 2.95

12 6.3

9.12

13 6.7

9.02

14 6.4

9.22

15 6.8

9.63

16 7.1

9.94

17 7.5

10.35

18 7.5

10.35

19 7.9

10.78

20

8.2 11.10

21

8.3 11.20

22

8.4 11.31

23

8.3 11.20

24

8.5 11.42

25

9.0 11.96

26

9.2 12.18

27

9.5 12.50

$$B_5 = 12 + 45$$

Sc "u"

June 25, 1912

MC 944

5 B.	PC 4.9	Prof. C	7.37	9.15	PC 7.3	9.19
8 3.0	6.1		8 4.1	9.35		
9 3.6 ₅₇₀	6.9		9 4.1	9.35		
10 3.7 ₅₁₉	7.1		10 4.3	9.55		
11 4.2 ₅₂₂		" " " "	11 4.1	9.35		
12 4.5 ₅₂₃			12 5.0	10.26		
13 4.9 ₅₂₇			13 5.1	10.36		
14 5.2 ₅₃₂			14 5.3	10.57		
15 5.5 ₅₄₄			15 5.1	10.36		
16 5.9 ₅₃₆			16 5.2	10.47		
17 6.2 ₅₂₉			17 5.3	10.57		
18 6.6 ₅₃₂			17 5.3	11.20		
			18 6.1	12.31		
				11.40		
19 7.0 ₅₂₈			19 6.7	11.50		
20 7.3 ₅₂₉			20 6.4	11.70		
21 7.5 ₅₃₂			21 6.8	12.11		
~~22~~			22 7.1	12.41		
23 7.9 ₅₃₀			23 7.1	12.41		
~~24~~			24 7.2	12.51		
25 8.3 ₅₄₃			25 7.3	12.61		
26 8.7 ₅₄₉			26 7.3	12.61		
27 9.1 ₅₄₅			27 7.4	12.71		
28 9.5 ₅₄₇			28 7.9	7.9	13.25	
29 9.9 ₅₆₂						
1 B.	6.0	7.73	29	9.3	13.69	
2 B.	5.0	6.58	30	9.0	14.46	
3 3.1 (8.34)	6.0	7.73	31	9.3	14.80	
4 3.1 8.34	6.3	8.07				
5 3.2 8.44	6.7	8.52				
6 3.3 (9.05)	7.0	8.86				

$$B5 = 12^h + 45^\circ$$

Scale 11.

June 26, 1912

11.02	mc 1066.	P.C.		P.C.
5 B	5.0	4.5 far from centre. 76	3.7	
8 3.2	6.9	" " " " 7	4.0 (8.61)	t. fu.
9 4.1 ⁴⁶⁰	t. p.	8	3.9	
10 4.2 ⁴⁶⁹		9	4.0 8.61	
11 4.6 ⁴⁸²		10	4.3 9.02	
12 4.9 ⁴⁸³		11	4.2 (8.90)	
13 5.3 ⁴⁸⁷		12	4.9 9.77	
14 5.5 ⁵⁰²		13	4.9 9.77	
15 5.8 ⁵¹⁴		14	5.2 10.12	
16 6.0 ⁵²⁶		15	5.2 10.12	
17 6.3 ⁵¹⁹		16	5.1 10.91	
18 6.7 ⁵²²		17	5.3 10.25	
19 7.3 ⁴⁹⁸		17	5.3 } 10.25	
20 7.5 ⁵⁰⁹		18	6.1 11.19	
21 7.7 ⁵¹²		19	6.3 11.40	
22		20	6.9 12.03	
23 8.0 ⁵²⁰		21	6.7 11.82	
24 8.3		22	6.9 12.03	
25 8.5 ⁵²³		23	7.5 12.65	
26 8.9 ⁵²⁹		24	7.6 12.75	
27 9.3 ⁵²⁵		25	7.7 12.86	
28 9.7 ⁵²⁷		26	7.7 12.86	
29 far from centre. 1 B	4.9	27	7.6 12.75	
2 B.	5.2	28	8.7 13.91	
3 3.1	6.2	29	8.9 14.12	
4 3.2	6.7			
5 3.2				

Right Magn. from P.C.
also from other stars

$$B5 = 12^h + 45$$

Scale. u.

June 26, 1912

m 10944

Polar. 5 3.1₃₃₉6 3.7₃₂₈8 4.7₃₄₀9 5.3₃₄₀10 5.5₃₃₉11 6.0₃₄₂12 6.3₃₄₃13 6.7₃₄₅14 7.0₃₅₂15 7.4₃₅₄16 7.7₃₅₆17 8.0₃₄₉18 8.3₃₆₂19 8.7₃₅₈20 8.9₃₆₉21 9.1₃₇₂23 9.5₃₇₀24 9.9₃₈₃

too far from centre

9 6.1

9.52

10 6.3

9.73

11 6.4

9.73

12 7.0

10.49

13 7.2

10.70

14 7.2

10.70

15 7.3

10.81

16 7.3

10.81

17a 7.1

10.60

17b 7.2

10.70

18 8.0

12.36

19

8.2 11.80

20

8.5 12.14

21

8.3 11.91

22

8.5 12.14

23

8.7 12.36

24

8.9 12.59

25

8.7 12.36

26

9.1 12.81

27

9.1 12.81

28

9.4 13.15

too far from centre.

1 4.1 (7.49)

2 3.7 7.62

3 4.9 8.27

4 5.0 8.38

5 5.1 8.48

6 5.3 8.69

7 5.9 9.30

8 6.0 9.41

$$B5 = 12^h + 45^-$$

June 26, 1912

me 1066

Sc 2

3	5.3 ^{0.44}
4	5.5 ^{0.41}
5	6.0 ^{0.39}
6	~~5.5~~
8	7.5 ^{0.60}
9	8.1 ^{0.60}
10	8.2 ^{0.59}
11	8.5 ^{0.92}
12	8.8 ^{0.93}
13	9.1 ^{1.07}
14	9.5 ^{1.02}
15	9.9 ^{1.04}

1	7.6.9	7.41
2	7.1	7.65
3	7.3	7.89
4	7.4	8.00
5	7.7	8.36
6	7.8	8.48
7		8.28.95
8		8.28.95
9		8.39.08
10		8.49.20
11	8	8.9 ⁵ 9.31
12		8.79.55
13		9.110.05
14		9.210.17

15	9.1	10.05
16	9.2	10.17
17a	9.3	10.30
17b	9.3	10.30
18	9.7	10.79
19		
20		
21	~~9.5~~	
1N	6.3	6.73
2N	7.3	7.89
3N	8.1	8.83
4N	8.4	9.19
5N	9.2	10.15
6N	9.5	10.53

component n.s.

$$B5 = 12 + 45$$

Scale u.

June 26, 1912 -

me 944

Polar

3 5.2^{0.54}4 5.5^{0.44}5 6.1^{0.29}8 7.3^{0.80}9 7.9^{0.80}10 8.0^{0.89}11 8.4^{1.02}12 8.7^{1.03}13 9.1^{1.07}14 9.3^{1.22}15 9.6^{1.34}16 9.9^{1.36}

17 6.2 6.68

2N 7.2 7.88

3N 7.8 8.63

4N 8.2 9.15

5N 9.1 10.26

6N 9.5 10.77

1 6.2 6.68

2 6.8 7.39

3 7.1 7.76

4 7.3 8.01

5 7.5 8.28

6 7.7 8.51

7 8.1 9.00

8 7.8 8.65

9 8.2 9.13

10 8.3 9.26

11 8.3 9.26

12 8.5 9.50

13 8.7 9.75

14 8.7 9.75

15 8.7 9.75

16 9.0 10.13

17a 9.0 10.13

17b 9.5 10.76 comp. n. seen.

18 9.8 11.16

$$a_3 = 20 + 75$$

Se. "U"

June 26, 1912

P.C. 998

5 B

6 B

8 3.2

9 3.8

10 4.0 ^{5.89}11 4.4 ^{5.02}12 4.7 ^{5.03}13 5.0 ^{5.17}14 5.4 ^{5.12}15 5.7 ^{5.24}16 6.0 ^{5.26}17 6.3 ^{5.19}18 6.7 ^{5.22}19 7.0 ^{5.28}20 7.3 ^{5.29}21 7.5 ^{5.32}23 7.9 ^{5.30}25 8.3 ^{5.43}26 8.7 ^{5.49}27 9.0 ^{5.55}28 9.3 ^{5.67}29 9.7 ^{5.82}

1 B

2 B

3 B

P.C. 999

4 3.0

5 3.2

6 3.7

7 4.0

8 4.1

8.60

8.99

9.09

P.C. 999

S₀₁

9 4.1

10 3.8

11 4.2

12 4.3

13 4.3

14 5.0

15 5.2

16 5.3

17 5.4

18 5.7

19 6.0

20 6.0

21 6.2

22 6.3

23 6.5

24 6.8

25 7.0

26 7.2

27 7.8

28 8.0

29 8.1

30 8.2

31 8.8

32 8.9

33 8.9

34 9.3

35 9.5

S₀₂

9.09

(8.72) i

9.20

9.30

9.30

10.07

10.30

10.41

10.51

10.85

11.17

11.17

11.39

11.50

11.70

12.02

12.24

12.47

13.12

13.35

13.46

13.58

14.25

14.45

14.70

14.97

15.25

$$b = 11 + 15$$

Se "W"

June 27, 1912

PNC 1841		P.C.		Too far f. C. 8.37	
5 B	51	51		9.42	8.18
6 B.	5.7	5.7		10.42	8.18
8 4.0	7.1	7.1		11.4.9	9.05
9 4.6 _{4.0}	8.1	8.1		12.5.1	9.30
10 4.8 _{4.09}	8.6	8.6		13.5.2	9.42
11 5.2 _{4.22}				14.5.2	9.42
12 5.5 _{4.23}				15.5.0	9.17
13 5.8 _{4.37}				16.5.6	9.90
14 6.1 _{4.42}				17.5.9	10.26
15 6.4 _{4.54}				18.6.2	10.60
16 6.8 _{4.46}				19.6.0	10.37
17 7.1 _{4.39}				20.6.3	10.72
18 7.5 _{4.42}				21.6.5	10.95
19 7.8 _{4.48}				22.6.9	11.40
20 8.0 _{4.59}				23.6.9	11.40
21 8.2 _{4.62}				24.7.3	11.84
22 8.5 ₆				25.7.9	12.50
23 8.9 _{4.66}				26	8.1 12.72
24 9.3				27	8.3 12.95
25 9.0 _{4.73}				28	8.7 13.38
26 9.4 _{4.79}				29	
27 9.9 _{4.75}				30	
Too far f. C. 1 B	5.3	6.58		31	
On edge of pl. 2					
Too far f. C. 3 B	6.4	7.55			
4 B	6.3	7.46			
" " " " 5 B.	6.5	7.62			
" " " " 6 4.1	7.2	8.16			
Too far f. C. 7 3.9	7.7	8.48			

10:26

66 = 11 + 15

Sc. W

June 27, 1912

M 10 1841.

Sol. Sec.

5	4.2 ²³⁹	
8	6.1 ²⁰⁰	
9	6.6 ²¹⁰	
10	6.7 ²¹⁹	
11	7.1 ²²²	
12	7.5 ²²³	
13	7.9 ²²⁷	
14		8.2 ²³²
15		8.5 ²⁴⁴
16		8.8 ²⁴⁶
17		9.0 ²⁴⁹
18		9.5 ²⁴²
19		9.9 ²²⁸

1	4.2	6.27
2	4.6	6.67
3	5.2	7.25
4	5.2 ²¹	7.15
5	5.1	7.25
6	5.3	7.35
7	6.2	8.27
8	6.2 ²	8.27
9	6.2	8.27
10	6.2	8.27
11	7.1	9.29
12	6.6	8.71
13	7.2	9.40
14	7.3	9.50

15	7.2	9.40
16	7.9	10.19
17	8.1	10.42
18		8.5 10.90
19		8.1 10.42
20		8.3 10.67
21		8.5 10.90
22		8.7 11.14
23		8.9 11.25
24		9.2 11.66
25		9.5 ³ 11.75
26		9.7 12.13

30.

$$b^h = 11 + 15^\circ$$

Scale 2

June 27, 1912.

MN 1427

S₀₁ S₀₂5 3.7³¹⁹6 3.7³²⁸8 5.3²⁸⁰9 6.0²⁷⁰10 6.2²⁶⁹11 6.7²⁷²12 7.0²⁷³13 7.3²⁸⁷14 7.7²⁸²15 8.0²⁷⁴16 8.3²⁹⁶17 8.6²⁸⁹18 8.9³⁰²19 9.2³⁰⁸20 9.5³⁰⁹21 9.8³⁰²

12 6.3

13 6.8

14 7.2

15 7.1

16 7.7

17 8.0

18 8.1

19 8.0

20

21

22

23

24

25

26

27

28

9.00

9.52

9.98

9.86

10.55

10.90

11.00

10.90

8.2 11.11

8.4 11.34

8.7 11.70

8.7 11.70

9.1 12.14

9.1 12.14

9.3 12.36

9.8 12.89

4.

W. far from centre 1 3.8

" " " 2 4.0

" " " 3 5.0

" " " 4 4.9

" " " 5 5.1

" " " 6 5.3

" " " 7 6.2

" " " 8 5.8

" " " 9 5.9

" " " 10 6.2

" " " 11 6.9

8.08

8.91

8.53

8.63

8.91

9.42

$$66 = 11 + 15^\circ$$

Scale u.

June 27, 1912

me 1427

sc2.

3 5.2^{0.5x}4 5.4^{0.51}5 5.7^{0.59}8 7.2^{0.90}9 7.8^{0.90}10 7.9^{0.99}11 8.3^{1.12}12 8.6^{1.13}13 9.0^{1.17}14 9.3^{1.22}15 9.6^{1.34}16 9.9^{1.36}

1 6.0 6.67

2 6.0 6.67

3 6.3 7.02

4 6.5 7.26

5 7.0 7.85

6 7.2 8.09

7 7.7 8.68

8 7.6 8.56

9 7.4 8.31

10 7.8 8.79

11 8.2 9.25

12 8.3 9.38

13 8.5 9.61

14 8.9 10.07

15 8.7 9.85

sc2

16 9.8³ 10.53

17 9.5 10.78

18 9.8 11.14

19 10.0 11.37

12 6.2

22 7.2

32 7.7

42 8.0

52 8.7

62 9.1

$$bb = 11 + 15^\circ$$

Scale 21

June 27, 1912

ME 987

So. 2

3 5.3^{0.44}4 5.5^{0.41}5 6.1^{0.29}8 7.1^{0.40}9 8.2^{0.50}10 8.4^{0.49}11 8.8^{0.62}12 9.1^{0.63}13 9.5^{0.67}14 9.9^{0.62}

15.

16 9.0 9.62

17 9.2 9.84

18 9.5 10.16

19 9.5 10.16

12 6.3

22 7.4

32 8.1

42 8.3

52 9.1

62 9.4

1 6.2 6.57

2 6.4 6.77

3 7.1 7.49

4 7.0 7.39

5 7.0 7.39

6 7.1 7.49

7 7.8 8.16

8 7.3 7.70

9 7.5 7.91

10 8.1 8.60

11 8.4 8.94

12 8.5 9.06

13 8.3 8.82

14 8.7 9.29

15 8.9 9.51

B3 = 6 - 40 + 45

Se "u"

June 27, 1912

M 996

5	3.1 ³²⁹	12	6.5	9.50
6	3.7 ³²⁸	13	6.9	9.90
8	5.1 ³⁰⁸	14	7.1	10.10
9	5.7 ³⁰⁰	15	7.2	10.20
10	5.9 ²⁹⁹	16	7.2	10.20
11	6.4 ³⁰²	17	7.3	10.30
12	6.7 ³⁰³	18	7.4	10.40
13	7.2 ²⁹⁷	19	7.7	10.70
14	7.5 ³⁰²	20	7.8	10.80
15	7.9 ³⁰⁴	21	8.0	11.00
16	8.2 ³⁰⁶	22	8.3	11.31
17	8.5 ²⁹⁹	23	8.7	11.74
18	8.9 ³⁰²	24	8.9	11.95
19	9.2 ³⁰⁸	25	9.3	12.40
20	9.5 ³⁰⁹	26	9.5	12.61
21	9.7 ³¹²	27	9.7	12.82
23	-	28	9.9	13.05
1	4.2	7.36		
2	4.2	7.36		
3	4.3	7.45		
4	4.6	7.71		
5	4.7	7.80		
6	4.8	7.90		
7	4.9	7.98		
8	5.1	8.71		
9	5.9	8.90		
10	6.3	9.30		
11	6.3	9.30		

$$B_3 = 6 \quad 40 + 45$$

Scale u.

June 27, 1912.

1:40

m. 996

802.

3 5.3⁰⁴⁴4 6.0 5.5⁰⁴⁴5 6.5 6.0⁰³⁷8 7.5⁰⁶⁰9 8.1⁰⁶⁰10 8.2⁰⁶⁹11 8.6⁰⁸²12 8.9⁰⁸³13 9.2⁰⁹⁷14 9.5¹⁰²15 9.9¹⁰⁴

1 6.1 6.54

2 6.2 6.64

3 6.6 7.09

4 7.2 7.74

5 7.0 7.51

6 7.4 7.97

7 7.8 7.85

8 7.9 8.54

9 8.0 8.65

10 8.2 8.90

11 8.3 9.00

12 8.1 8.77

13 8.7 9.50

14 8.9 9.50

15 8.9 9.74

16 9.0 9.85

802

17 9.3 10.23

18 9.5 10.49

19 6.2 6.63

20 7.1 7.64

30 7.8 8.43

40 8.1 8.87

50 9.0 9.85

60 9.3 10.23

$$a_3 = 20'' + 75^\circ$$

Scale "u"

June 27, 1912

m 993

5	3.1 ^{3.27}		12	6.2	9.20
6	3.7 ^{3.28}		13	6.1	9.10
8	5.0 ^{3.10}		14	6.5	9.50
9	5.7 ^{3.00}		15	6.9	9.91
10	5.9 ^{2.97}		16	7.0	10.02
11	6.2 ^{3.02}		17	7.3	10.35
12	6.7 ^{3.03}		18	7.4	10.45
13	7.2 ^{2.97}		19	7.7	10.79
14	7.5 ^{3.02}		20	7.9	11.01
15	7.8 ^{3.14}		21		8.2 11.36
16	8.1 ^{3.16}		22		8.1 11.25
17	8.3 ^{3.09}		23		8.3 11.49
18	8.7 ^{3.22}		24		8.5 11.71
19	8.9 ^{3.38}		25	*	8.7 11.95
20	9.2 ^{3.39}		26		8.7 11.95
21	9.5 ^{3.32}				
22	9.7 ^{3.30}				
13	4.0	7.22			
24	4.0	7.22			
35	4.1	7.30			
46	4.3	7.50			
57	4.9	8.00			
68	5.3	8.35			
79	5.2	8.26			
8	5.3	8.35			
9	5.8	8.80			
10	5.8	8.80			
11	6.0	9.00			

$$\alpha 3 = 20 + 75^\circ$$

Se. W.

June 29, 1912 -

M101026

Polar

5	3.2 ₃₁₉	11	6.3	9.10
6	3.8 ₃₁₈	12	6.3	9.10
8	5.2 ₂₉₀	13	6.7	9.50
9	5.9 ₂₈₀	14	7.0	9.81
10	6.1 ₂₇₉	15	7.2	10.02
11	6.6 ₂₈₂	16	7.2	10.02
12	7.0 ₂₇₃	17	7.8	10.70
13	7.3 ₂₈₇	18	8.2	11.15
14	7.7 ₂₈₂	19	8.2	11.15
15	8.0 ₂₇₄	20	also supposed on 20.	
16	8.3 ₂₇₆	21	8.3	11.26
17	8.5 ₂₇₉	22	8.3	11.26
18	8.9 ₃₀₂	23	8.5	11.49
19	9.1 ₃₁₈	24	8.7	11.71
20	9.4 ₃₁₉	25	8.9	11.95
21	9.7 ₃₁₂	26	9.3	12.41
22	10.0 ₃₂₀			

too far from centre

1	4.0	(7.09)
2	4.1	(7.17)
3	4.2	7.25
4	4.3	(7.34)
5	5.1	8.01
6	5.9	8.72
7	5.7	8.53
8	6.1	8.91
9	6.0	8.81
10	6.1	8.91

$$Q_3 = 20 + 75$$

Sc. W.

June 27, 1912

From
right margin from 12
to 100 at 10 in 100
then extrapolated.

MC	1026	PO	ScI	QC	Sc2
5	8.1	4.7	8 4.0 8.92		30 8.2
6			9 4.1 9.05		31 8.6
8			10 3.3 (.) 6.7 (8.67)		32 8.9
9			11 4.2 9.17 8.0 9.90		33 9.1
10	4.0 4.89	6.9	12 4.3 9.29 8.2 10.08		34 9.4
11	4.4 5.02	7.5	13 4.2 9.17 8.3 10.17		35 9.7
12	4.7 5.13	7.9	14 4.3 9.29 8.3 10.17		
13	5.0 5.17		15 4.8 9.89		
14	5.3 5.22		16 5.2 10.33		
15	5.7 5.24		17 5.2 10.33		
16	6.0 5.26		18 5.3 10.45		
17	6.3 5.19		19 5.3 10.45		
18	6.7 5.22		20 5.7 10.88		
19	7.0 5.28		21 6.1 11.30		
20	7.3 5.29		22 6.3 11.52		
21	7.5 5.32		23 6.7 11.94		
22	7.9 5.30		24 6.9 12.16		
25	8.3 5.43		25 7.1 12.38		
26	8.7 5.49		26 7.2 12.49		
27	9.2 5.30		27 7.9 13.25		
28	9.5 5.47		28 8.0 8.00 8.0 13.35		
29	9.9 5.62		29 8.1 8.15 8.2 13.52		
30			30 8.2 8.20 8.2 13.58		
31			31 8.6 8.55 8.5 13.96		
32			32 8.9 8.90 8.9 14.36		
33			33 9.1 9.10 9.1 14.59		
34			34 9.4 9.35 9.3 14.85		
35			35 9.7 9.70 9.7 15.25		
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100					

$$a_3 = 20^h + 75^\circ$$

Scale U

June 28, 1912.

9:40

Me 993.

	301	Adopt. Ptg. - Scale Read.	SC 1	SC 2	
3	5.3	2.24	18	9.2	9.98
4	5.6	0.31	1N	6.2	6.50
5	6.1	0.29	2N	7.3	7.40
8	7.7	0.40	3N	8.1	8.62
9	8.2	0.50	4N	8.4	8.99
10	8.3	0.59	5N	9.1	9.87
11	8.7	0.72	6N	.	
12	9.0	0.73			
13	9.3	0.87			
14	9.7	0.82			
1	6.7	7.04			
2	6.8	7.15			
3	7.2	7.59			
4	7.0	7.37			
5	7.2	7.59			
6	7.8	8.27			
7	7.3	7.70			
8	8.1	8.62			
9	8.1	8.62			
10	8.0	8.50			
11	8.1	8.62			
12	8.5	9.11			
13	8.4	8.99			
14	8.7	9.37			
15	8.5	9.11			
16	8.9	9.61			
17	8.9	9.61			

mor.

$$a_3 = 20^h + 75^\circ$$

Scale 11.

June 28, 1912.

9.49

m 1026

 Adapt.
 Sec 1 Pto Sec 2.
 Scale
 Read

3 5.3 0.44

4 5.5 0.41

5 6.1 0.29

6 6.7 0.28

8 7.6 0.50

9 8.2 0.50

10 8.3 0.59

11 8.7 0.72

12 8.9 0.83

13 9.2 0.97

14 9.5 1.02

15 9.8 1.14

16 6.4

20 7.3

30 8.0

40 8.3

50 8.7

60 9.1

1 7.0

2 7.1

3 7.2

4 7.1

5 7.3

6 8.1

7 7.8

8 8.2

9 8.2

10 8.1

676

768

852

891

942

995

7.32

7.44

7.55

7.44

7.68

8.66

8.29

8.78

8.78

8.66

1

11

12

13

14

15

16

17

Sec.

8.2 8.78

8.2 8.78

8.5 9.17

8.7 9.43

8.7 9.43

9.3 10.24

9.0 9.82

Throng image. Reject. L. 9.12.23.

B4: 9 20 + 45°

Scale 2

June 28, 1912.

Mc 14 75

SC1	SC2	Adapt. Ptg. - Scale Read.	Adapt. Ptg. - Scale Read.	SC1	SC2
-----	-----	---------------------------	---------------------------	-----	-----

5	B.	5.2	1.19	6	
---	----	-----	------	---	--

8	B.	7.2	0.90	7	4.1
---	----	-----	------	---	-----

9	5.0	3.70	1.7	8	4.6 ³
---	-----	------	-----	---	------------------

10	5.2	3.69	1.1	9	4.2 ⁸
----	-----	------	-----	---	------------------

11	5.7	3.72		10	5.0 8.64
----	-----	------	--	----	----------

12	6.0	3.73		11	5.1 8.77
----	-----	------	--	----	----------

13	6.2	3.97		12	5.1 8.77
----	-----	------	--	----	----------

14	6.5	4.02		13	5.3 9.00
----	-----	------	--	----	----------

15	6.8	4.14		14	5.3 9.00
----	-----	------	--	----	----------

16	7.0	4.26		15	5.9 9.74
----	-----	------	--	----	----------

17	7.3	4.19		16	5.7 9.50
----	-----	------	--	----	----------

18	7.7	4.22		17	6.2 10.12
----	-----	------	--	----	-----------

19	7.9	4.38		18	5.9 9.74
----	-----	------	--	----	----------

20		8.1 4.49		19	6.3 10.25
----	--	----------	--	----	-----------

21		8.3 4.52		20	7.0 11.13
----	--	----------	--	----	-----------

22				21	6.2 10.12
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23		8.7 4.50		22	7.2 11.39
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24				23	7.3 11.51
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25		9.1 4.63		24	7.5 11.78
----	--	----------	--	----	-----------

26		9.3 4.89		25	7.3 11.51
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27		9.3 4.25		26	7.8 12.15
----	--	----------	--	----	-----------

28		9.7 5.27		27	8.1 12.55
----	--	----------	--	----	-----------

1	B.			28	8.0 12.41
---	----	--	--	----	-----------

2	B.	6.3	7.85	29	8.1 12.55
---	----	-----	------	----	-----------

3	3.7	6.2	7.27	30	8.7 13.35
---	-----	-----	------	----	-----------

4	3.9	6.9	7.90	31	8.9 13.65
---	-----	-----	------	----	-----------

5				32	9.7 14.10
---	--	--	--	----	-----------

				33	9.7 14.85
--	--	--	--	----	-----------

P.C. not comparable with scale.

 too near edge.
 P.C. 7.00
 far from centre.

 Adapt. P.C. magn.
 and few stars of 14th mag.

 too far from centre.
 too near edge of plate

$$B4 = 9 \ 20 + 45$$

Scale 4.

June 28, 1912.

mc 1829

Reject for Stan. Magn. Centers too far apart.

	sc 1	P.C.		sc 2	P.C.	
	5 13.	5.1		1 B	7.1	too far from centre.
	6 13.	5.7		8 4.1	7.2	
	8 B.	6.2		9 4.1	7.7	too far from centre
	9 3.9	7.1		10 4.2	8.0	
	10 4.1	7.7		11 4.3	8.3	
	11 4.4	8.7		12 4.9		
	12 4.7	9.0		13 4.8		
	13 5.1	t.f.		14 5.1		
	14 5.5			15 5.2		
	15 5.9			16 5.3		
	16 6.2			17 6.1		
	17 6.5			18 5.9		
	18 7.2			19 6.2		
	19 7.5			20 6.9		
	20 7.7			21 6.1	t.f.	
	21 7.9			22 6.7		
	23 8.3			23 7.1		
	25 8.7			24 7.2		
	26 9.1			25 7.2		
	27 9.5			26 7.3		
	28 9.8			27 7.9		
	1 B	5.9		28 8.2		
too near edge	2			29 8.3		
	3 B	6.0		30 8.3		
too far from centre	4 B.	6.8		31 8.7		
too near edge.	5			32 9.5		
too near edge	6	6.9		33 9.7		
				34 10.0		

$$B_4 = 9 \ 20 + 45$$

Scale 21

June 28, 1912.

M101829

~~Centers too far apart - Reject for Stan. Magn.~~

sc1	sc2	Adapt. Ptg. - Scale Red.	sc2	
5 3.3		3.09	13	7.2 9.88
6 4.1		2.88	14	7.2 9.88
8 5.2		2.90	15	7.7 10.38
9 6.1		2.60	16	7.9 10.59
10 6.2		2.69	17	8.2 10.89
11 6.7		2.72	18	8.0 10.69
12 7.1		2.63	19	8.3 10.98
13 7.5		2.67	20	8.9 11.59
14 7.9		2.62	21	8.2 10.89
15	8.2	2.74	22	8.7 11.39
16	8.5	2.76	23	9.1 11.80
17	8.9	2.59	24	9.2 11.90
18	9.2	2.72	25	9.3 12.00
19	9.5	2.38	26	9.7 12.41
20	9.9	2.69		
1 4.2		7.15		
too far from center 2 4.7		(7.58)		
3	4.9	7.75		
" " " 4	5.1	(7.92)		
too far " 5	5.3	(8.10)		
6	5.2	8.01		
" " " 7	6.0	(8.73)		
8	6.1	8.82		
9	6.2	8.91		
10	6.4	9.10		
11	7.0	9.69		
12	7.2	9.88		

$$B_4 = 9 \quad 20 + 45^\circ$$

Scale 2.

June 28, 1912

MN 1475

	sc1	sc2	Adapt. P. Scale Red.		sc1	sc2
5	3.2		3.19	13	7.2	9.64
6	3.7		3.28	14	7.3	9.74
8	5.2		2.90	15	7.8	10.27
9	6.1		2.60	16	7.9	10.38
10	6.5		2.39	17		8.2 10.71
11	7.0		2.42	18	8.0	10.50
12	7.3		2.43	19		8.1 10.60
13	7.7		2.47	20		9.0 10.65
14	8.0		2.52	21		8.3 10.83
15		8.3	2.64	22		9.0 10.65
16		8.7	2.56	23		9.1 11.77
17		8.9	2.59	24		9.1 11.77
18		9.2	2.72	25		9.3 12.00
19		9.5	2.78	26		9.5 12.24
20		9.8	2.79	27		9.9 12.72
21		10.0	2.82			
1	5.0		7.71			
2	4.9		7.84			
3	5.1		7.98			
4	5.3		8.12			
5	5.1		8.40			
6	5.1		8.40			
7	6.2		8.87			
8	6.3		8.84			
9	6.1		8.69			
10	6.8		9.26			
11	7.0		9.45			
12	7.2		9.64			

$$B4 = 9 \quad 20 + 45$$

Scale 21

June 28, 1912

ME 1829

~~Centers too far apart - Reject for Stan Magn.~~

	sc 1	sc 2	Adapt. Ptg. - Scale Red.	sc 2	
3	5.2 ⁷		0.04	15	9.1 10.29
4	5.9		0.01	16	9.3 10.52
5	6.2		0.19	17	9.1 10.29
8	7.3		0.80	18	8.9 10.05
9	7.9		0.80	19	9.1 10.29
10		8.1	0.79	1N	6.1
11		8.4	1.02	2N	7.1
12		8.7	1.03	3N	7.8
13		9.0	1.17	4N	8.1
14		9.3	1.22	5N	8.9
15		9.7	1.24	6N	9.2
16		10.0	1.26	7N	9.7
17					
1		7.0	7.55		
2		6.5	6.85		
3		6.9	7.41		
4		7.1	7.69		
5		7.7	7.82		
6		7.2	7.82		
7		7.3	7.95		
8		7.9	8.75		
9		8.0	8.88		
10		7.5 ¹	9.01		
11		8.5 ²	9.15		
12		8.3	9.29		
13		8.7	9.79		
14		8.7	9.79		

$$B_4 = 9 \ 20 + 45.$$

Scale II.

June 28, 1912.

Mc 1475
Adapt. Ptg.
Sec 2 - ~~Sec 2~~
Scale Read.

3	4.9	0.84
4	5.1	0.81
5	5.6	0.79
6	6.8	1.30
9	7.7	1.00
10	7.9	0.99
11	8.2	0.82
12	8.5	1.23
13	8.9	1.27
14	9.2	1.32
15	9.5	1.44
1	6.1	6.95
2	6.3	7.06
3	6.2	7.18
4	6.7	7.06
5	7.0	7.61
6	7.0	7.95
7	7.2	7.95
8	7.7	8.17
9	7.8 ⁵	8.74
10	7.9	8.50
11	8.3	8.97
12	8.7	9.44
13	9.1	8.92
14	8.9	10.41
15	9.0	10.17
16	9.1	10.29
		10.41

Sec 2.

17	9.5	10.90
18	9.7	11.17
Right. Extrapolated L.		
1N	5.8	6.62
2N	6.8	7.72
3N	7.6	8.62
4N	7.9	8.97
5N	8.7	9.92
6N	9.0	10.28

Right. Wrong inv. probably means L. Sept. 29, 1913

Schwarzschild's τ

a	5.7
b	6.1
c	7.0
d	7.4 ⁵
e	7.8
f	8.1
g	8.3

Lee
53221

*Nothing but the stars
for 500 miles by sea*

North Polar Sequence.

Des.	Magn.	Des.	
B 1	4.47	248 21	12.82
C 2	5.24	292 22	13.05 (mild)
D 3	5.74	K' 23	13.20
E 4	5.91	279 24	13.50 (mild)
a' 5	6.39	K ³ 25	13.73
a ³ 6	6.98	K ⁵ 26	14.19
a ⁴ 7	7.18	m 27	14.55
b' 8	8.10	o 28	14.97
b ² 9	8.70	f _u 29	15.52
c' 10	8.89	j 30	15.90
c ² 11	9.42	k 31	16.08
c ³ 12	9.73	t 32	16.48
d 13	10.17	33	16.82
386 14	10.52	34	17.11
197 15	10.94	35	17.36
408 16	11.26	36	17.61
g ² 17	11.49	37	17.80
f ³ 18	11.92	38	18.2
g 19	12.28	39	18.5
h 20	12.59	40	18.9
		41	19.1
		42	19.5
		43	20.1
		44	20.3
		45	20.6
		46	21.0

1912phae.proj..987L