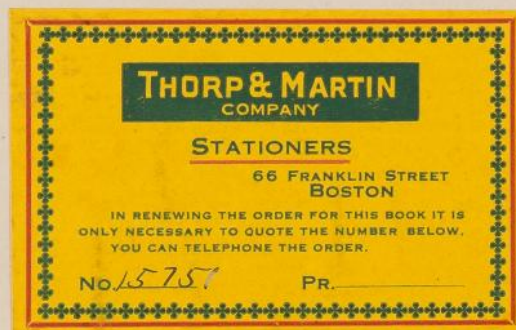


KG

11366

v.223



G. Moullet

I

J. Maulbetsch?
I

Spectrophotometry

Schilt measures-

8

Mar 3 '30

J 88 76

K₂ 889

Sh 8.0

2.00

ll

R.

C

I 86 334

16.4

12.3

12.4 16.3

4.25

8.35

to p. 28

10.3

16.5

10.5

2.4

8.50

11.7

11.7 16.5

3.7

8.5

16.2

13.3

13.4 16.3

5.35

8.25

14.2

16.5

16.3

14.1

6.15

8.40

Red D.

52.1

1.7168

28.2

1.4562

43.5

1.6385

64.8

1.8116

73.2

1.8645

✓ 88 105 9.08 R₀

sk 8.1

C R C

	13.3	16.3	16.0	12.5	4.8	8.05
16.4	11.4		11.3	16.4	3.25	8.3
	12.2	16.4	16.2	12.1	4.05	8.2
16.3	13.1		13.2	16.2	5.05	8.15
	14.7	16.2	16.4	14.7	6.60	8.20

59.6 1.7752

39.2 1.5933

49.5 1.6946

62.0 1.7924

80.6 1.9063

I 26334

88° 114

Sh 8.0

Inter angl.

14°

9.23

Sh 8.2

Def.

cl

16.0 12.8

12.6 16.4

4.60

8.1

11.3 16.0

16.3 11.6

3.35

8.05

16.0 12.6

12.1 16.5

4.25

8.15

13.7 16.0

13.7 16.3

5.60

8.05

15.7 15.0

16.2 15.4 16.2

7.10

7.85

56.8 1.7540

41.6 1.6191

52.1 1.7168

69.6 1.8426

90.5 1.9566

✓ 87 187

K₂ 9.19 dk 3.0

				dif	
16.5	13.1	12.6	16.2	4.85	8.35
	11.1 16.3	16.2	11.0	3.05	8.25
16.3	12.7	11.5	16.1	4.10	8.20
	13.8 16.4	16.2	13.7	5.75	8.30
16.2	14.2	14.3	16.1	6.25	8.15

58.1	1.7642
37.0	1.5682
50.0	1.6990
69.3	1.8407
76.7	1.8848

12

2

36354

88° 90

9.81

K.

Sk

8.0

See p. 24

C

R

C

2

J.

14.3

15.9

6.3

7.9

16.0

13.3

5.3

8.0

13.9

16.2

5.9

8.2

16.0

14.2

6.2

8.0

14.6

16.1

6.6

8.1

79.7

1.9015

66.2

1.8209

71.9

1.8567

77.5

1.8893

81.5

1.9112

86.17 7.17 15.0 *sh. 7.9* *meas again* *also 18*
 C R C
 10.5- 16.0 16.1 10.0 2.35 8.15
 16.3 8.3 8.3 16.3 .40 8.40
 8.3 16.4 16.5- 8.3 .40 8.55
 16.5 8.8 8.8 16.5- .90 8.60
 9.3 16.2 16.3 9.2 1.35 8.30

28.80 1.4594
 4.76 0.6776
 4.68 0.6702
 10.48 1.0204
 16.30 1.2122

14

30334

✓

86.21

8.93

60

Sh 8.0

13.5

16.4

16.9

13.3

5.4

8.65

16.5

11.5

11.6

16.8

3.55

8.65

12.1

16.5

16.6

12.5

4.30

8.55

16.5

12.7

16.6

12.9

16.8

4.80

8.65

13.2

16.4

16.6

13.2

5.20

8.50

62.5

1.7959

41.0

1.6128

50.4

1.7024

55.5

1.7443

61.2

1.7867

✓ 86° 126	9.26	K ₀	Dk 8.1		
14.5	16.5	16.3	13.6	5.95	8.3
16.4	12.4		12.5 16.3	4.35	8.25
13.6	16.4	16.2	13.9	5.65	8.20
16.6	15.0		14.9 16.4	6.85	8.4
15.4	16.4	16.2	15.4	7.30	8.2

71.7	1.8555
52.6	1.7210
69.0	1.8388
81.5	1.9112
89.0	1.9494

16

I 56334

√86 154

8.47

G.

Ph. 7.9

C

R

C

14.0

16.2

16.2 13.7

5.95

8.30

16.3

12.1

12.2 16.2

4.25

8.35

12.4

16.3

16.2 12.5

4.55

8.35

16.3

12.7

12.6 16.2

4.75

8.35

13.8

16.2

16.2 12.5

5.65

8.30

71.7

1.8555 B

57.0

1.7076

54.5

1.7364 Y

56.8

1.7543 J

68.0

1.8325 Z

18

Mar 4 '31 186' 17 7.17 K₀ Sk. 8.4 See also p 13

3.00

1, 36327

10.9 16.6

16.8 9.0

8.9 16.7

16.8 9.4

9.8 16.6

do not use

✓ 10.0 16.4 B 16.3 9.8

16.8 8.8 8.7 16.6

9.2 16.6 8 16.4 9.1

16.7 9.8 5 9.8 16.5

10.1 16.6 red of HE 16.3 10.1

✓ 85 384 K₀ Sk. 8.1 7.9

11.3 16.7 8 16.8 10.8

16.8 10.2 5 9.8 16.5

9.3 16.6 8 16.6 9.0

16.6 8.8 8.9 16.6

10.2 16.7 B(?) 16.9 10.3

✓ 85 19 K₀ 5.41 Sk. 7.9 Sk. 7.8

8.4 16.1 8 16.3 8.20

16.3 8.1 5 8.00 16.1

7.95 16.2 8 16.2 7.90

16.5 8.00 7.90 16.0

7.90 16.3 B 16.2 7.95

Def. - Δk

1.5	7.95	18.9	1.276
.35	8.30	4.22	0.626
.75	8.10	9.25	.966
1.40	8.20	17.10	1.232
1.70	8.05	21.10	1.306

ϵ	3.05	8.75	28.61	1.456
δ	2.00	8.55	22.40	1.369
γ	1.15	8.50	13.55	1.132
	.75	8.50	8.82	0.946
β	2.15	8.70	24.70	1.393

ϵ	0.50	8.35	5.99	0.777
δ	0.20	8.35	2.39	0.378
γ	0.07	8.35	8.84	9.924
	0.10	8.40	1.19	0.076
β	0.07	8.40	0.83	9.919

5 26334

✓ 86	27.5	14.0	8.69	She 7.8
	13.7	16.0	16.0	
14.0	10.1			
	10.7	16.0		
16.1	12.1			
	12.8	16.1		

5.85	7.05	75.80	1.879
4.05	7.05	57.50	1.760
4.15	7.05	58.90	1.770
4.85	7.10	68.30	1.824
5.35	7.15	74.90	1.874

3.85	8.15	47.20	1.674
1.40	8.30	16.85	1.226
1.70	8.3	20.50	1.312
2.95	8.2	36.00	1.556
3.80	8.2	46.80	1.666

6.9	8.7	79.4	1.900
4.3		49.4	1.694
5.0		57.5	1.760
6.2		71.4	1.854
6.6		76.0	1.881

5.9	8.2	72.0	1.857
2.3		28.1	1.448
2.9		35.4	1.548
4.8		52.4	1.719
5.0		61.0	1.785

22

✓ 36334 ✓ 86 325 K₀ 10.26 ~ double
 13.7 16.2 16.4

16.4 11.5

12.1 16.4

15.8 13.0

13.6 16.1

✓ 85 222 G₀ 7.66 Ok 7.6
 11.9 16.1 16.16

16.2 9.7

9.9 16.2

16.2 10.0

11.4 16.1

✓ 85 347 G₅ 9.26 Ok 7.6
 13.7 16.3 16.4

16.4 11.9

12.7 16.5

16.4 13.3

14.0 16.3

✓ 86 14 G₅ 9.38 Ok 7.5

13.7 15.7 15.6

15.5 11.8

12.7 15.3

15.8 13.2

14.0 15.7

6.0	8.7	69.0	1.839 β
3.8		43.7	1.641
4.4		50.5	1.702 γ
5.3		61.0	1.786 δ
5.9		69.0	1.839

4.3	8.56	50.25	1.701 β
2.1		24.53	1.389
2.3		26.8	1.428 γ
2.4		28.0	1.447 δ
3.8		44.4	1.647

6.1	8.8	69.4	1.841 β
4.3		48.8	1.688
5.1		58.0	1.763 γ
5.7		64.8	1.812 δ
6.4		72.8	1.862

6.2	8.1	76.6	1.884
4.3		53.1	1.725
5.2		64.2	1.840
5.7		70.4	1.847
6.5		80.4	1.905

24

\checkmark 26354 \times 1 88° 90 K₀ 9.81 Sk 7.6
 12.9 15.1 13.4 14.9 15.0
 15.0 12.7 15.0 12.3
 13.3 14.9 12.8 15.1
 15.1 13.8 15.0 13.6
 15.0 14.2 15.00

1 87 83 G₅ 8.73 Sk 7.6
 11.3 15.5 15.5
 15.7 9.9
 10.6 15.5
 15.4 11.7
 12.4 15.5

\checkmark 87° 99 G₅ 8.89 Sk 7.6
 12.7 15.4 15.6
 15.7 11.5
 12.1 15.6
 15.8 12.4
 13.6 15.5

\checkmark 86 65 G₅ 8.93 Sk 7.6
 12.7 15.7 15.7
 15.9 11.0
 12.1 15.6
 15.6 12.5
 13.7 15.6

Mean Mars-3 (p12-24)

5.8	7.4	78.4	1.894	1.90 ρ
4.7		63.5	1.802	1.81
5.2		70.4	1.848	1.86 δ
6.0		81.1	1.909	1.90 δ
6.6		89.2	1.950	1.93

3.7	7.9	46.8	1.670 ρ
2.3		29.1	1.464
3.0		38.0	1.580 δ
4.1		52.0	1.716 δ
4.2		60.7	1.784 δ

5.1	8.0	63.8	1.840 ρ
3.9		48.7	1.689
4.5		56.3	1.750 δ
4.8		60.0	1.778
6.0		75.0	1.874

5.1	8.1	63.0	1.799
3.7		45.7	1.660
4.5		53.5	1.742
4.9		60.5	1.782
6.1		75.4	1.877

26

26334 X ✓ 86 67 6 9.30 Sk 7.5-

13.1 15.3 15.44

15.3 12.6

12.8 15.5

15.7 13.6

14.4 15.4

✓ 86 79 6_s- 7.68 Sk 7.5-

9.4 15.5 15.1

14.2 8.1

8.6 15.6

14.5 9.7

10.0 15.6

X ✓ 86 96 6_s- 9.18 Sk 7.5-

12.8 15.5 15.54

15.6 12.4

12.5 15.6

15.4 13.2

14.1 15.6

✓ 86 103 6_o 8.34 Sk 7.5-

15.1 10.8 15.5

9.8 15.6

15.5 10.4

10.5 15.7

15.5 11.3

5.6	7.94	70.6	1.848 β
5.1		64.2	1.808
5.3		66.8	1.824 δ
6.1		76.9	1.886 δ
6.9		86.9	1.938

1.9	7.6	25.0	1.398 β
.6		7.9	0.898
1.1		14.5	1.162 δ
2.2		29.0	1.462
2.5		32.9	1.517

5.3	8.04	66.0	1.820 β
4.9		61.0	1.786
5.1		63.4	1.802 δ
5.7		70.9	1.850
6.6		82.1	1.914

3.3	8.0	41.2	1.614
2.3		28.8	1.460
2.9		36.2	1.558
3.0		37.6	1.575
3.8		47.5	1.676

28

I 36334 ✓ 86 113

65-

1.22

Sh 7.5

11.2

15.6

15.54

15.6 9.5

10.5 15.5

15.4 11.6

12.7 15.6

Mar 5 '31 ²¹⁰⁰ A. Stars for red. curves of I 36341 See p. 36-40
 I 36341

not used

89° 13

A.

7.16

Sh 8.0

cl

R

cl

(4) \square_{21} 14.0 8.9 14.6 13.5 8.6 \square_{22} 14.0 9.1 8.7 14.1(10) β 8.9 14.3 13.8 9.0

14.1 8.1 8.0 14.1

 γ 8.12 14.2 14.0 8.0 δ 14.2 8.1 8.0 14.1 ϵ 8.1 14.2 13.8 8.1

87 2.7

A.

8.96

Sh 7.7

cl

R

cl

12.5 14.0

14.1 12.6

14.2 12.4

12.6 13.9

12.0 14.1

14.0 12.2

14.2 9.5

9.3 14.1

9.5 14.1

red γ 13.9 9.4

14.0 9.7

9.7 14.1

10.3 13.6

14.0 10.3

3.7	8.04	46.0	1.663
2.0		24.8	1.394
3.0		37.4	1.573
4.1		50.0	1.699
5.2		64.7	1.811

.75	6.05	12.40	1.093
.90	6.15	14.60	1.164
.95	6.05	15.70	1.195 B
.05	6.10	8.20	0.914
.06	6.10	9.85	0.992 x
.05	6.15	8.14	0.910
.10	6.00	16.67	1.221

4.85	6.35	76.40	1.882
4.80	6.35	75.60	1.878
B 4.40	6.35	69.30	1.890
1.70	6.45	26.28	1.419
x 1.75	6.30	27.80	1.444 x
2.00	6.35	31.50	1.980
2.60	6.10	42.60	1.629

56341

86° 188 A.

2.72

Dr 7.5

	12.8	14.3	14.3	12.2
14.4	12.8		12.8	14.2
B	11.4	14.1	14.2	11.0
14.3	9.6		9.3	14.1
	9.4	14.2	14.2	8.9
14.4	9.3		9.0	14.3
	10.3	14.1	14.3	10.3

86° 146

A.

9.22

Dr 7.4

	12.9	14.1	13.8	12.9
14.0	12.8		12.1	13.9
B	12.7	14.0	13.9	11.7
13.9	10.5		10.3	13.9
8	10.1	13.8	13.9	10.1
5	13.9	10.2	10.3	14.0
E	11.3	13.8	13.8	11.1

86° 244

A.

Dr 7.2

	11.2	13.5	13.3	10.9
13.3	11.1		11.2	13.5
B	11.1	13.5	13.3	10.9
13.4	9.7		9.8	13.5
	10.1	13.5	13.3	10.1
13.4	10.8		10.7	13.1
	11.3	13.4	13.3	11.3

4.7	6.8	69.2	1.840
5.3	6.8	78.0	1.891
3.7	6.7	55.3	1.742 β
1.95	6.7	29.1	1.463
1.65	6.7	24.6	1.390 γ
1.65	6.85	24.1	1.391
2.80	6.7	41.8	1.620

5.5	6.55	84.0	1.924
5.05	6.55	77.2	1.887
4.30	6.55	65.6	1.816 β
3.00	6.50	46.2	1.664
2.70	6.45	41.8	1.620 γ
2.85	6.55	43.5	1.638
3.80	6.40	59.4	1.773

3.85	6.2	62.1	1.792
3.95	6.2	63.7	1.840
2.80	6.2	45.2	1.655 β
2.55	6.25	40.2	1.604
2.90	6.2	46.8	1.670 γ
3.55	6.05	58.7	1.768
4.10	6.15	66.7	1.824

32

I 26341

86 269

A₀

4.40

Sk 7.2

	7.7	12.9
	7.2	12.7
B	7.3	12.5
	7.3	12.3
Y	7.3	12.1
J	7.3	11.9
E	7.3	12.3

86 335

A₀

3.06

Sk 7.3

	12.5	13.7	13.6	12.4
	73.6	12.5		12.2 13.8
B	11.8	13.5	13.5	12.1
	13.7	9.9		9.9 13.6
Y	10.0	13.6	13.5	9.9
J	13.5	10.1		10.2 13.6
E	11.0	13.7	13.6	11.0

mian

85 383

A₀

5.10

Sk 7.2

	7.3	14.0
13.0	7.3	
B	7.3	13.8
13.7	7.3	
	7.2	13.7
12.5	7.2	
	7.2	13.5

Sk 7.2

.5	5.7	8.7	0.938
.0	5.5	0	0.0
.1	5.3	1.89	0.276 β
.1	5.1	1.96	0.291
.1	4.9	2.04	0.309 δ
.1	4.7	2.13	0.328
.1	5.1	1.96	0.292

5.15	6.35	81.10	1.909
5.05	6.40	78.90	1.896
4.65	6.20	75.00	1.874 β
2.60	6.35	41.00	1.620
2.65	6.25	42.40	1.626 δ
2.85	6.25	45.60	1.659
3.70	6.35	58.30	1.765

.0

.0

.0

.0

.0

.0

.0

34

I 36341

85 409

A₀ 6.62

Sk 7.2

mean

cl R

cl
not measurable
etc. of

14.1 7.7

14.1 8.1

β 14.0 7.7

B 7.3

B

14.0 7.3

7.3

γ 14.2 7.3

γ 7.3

δ 14.1 7.3

14.0 7.3

ε 7.4 12.9

14.0 7.4

88 105

K₀

9.08

Sk 7.2

cl R cl

10.3 13.0

13.1 9.8

13.0 10.3

10.8 13.1

A 10.2 13.2

13.1 10.0

13.0 8.8

8.8 12.9

γ 9.2 13.1

13.0 9.4

δ 13.0 9.5

9.5 12.9

ε 10.8 12.9

12.9 10.9

88 114

K₀

9.23

Sk 7.3

10.2 13.2

13.1

13.1 10.2

β 10.2 13.0

13.1 8.9

γ 9.7 13.2

δ 13.2 10.2

11.2 13.1

.5	6.9	7.25	0.860	2
.9	6.9	13.05	1.115	
.5	6.8	7.36	0.867	β
.1	6.8	1.47	0.167	
.1	7.0	1.42	0.155	δ
.1	6.85	1.46	0.164	δ
.2	6.75	2.96	0.471	

2.85	5.85	48.70	1.687	
3.35	5.85	57.30	1.758	
2.90	5.95	48.70	1.686	β
1.60	5.75	27.80	1.443	
2.10	5.85	35.90	1.554	δ
2.30	5.75	40.00	1.602	
3.65	5.70	64.00	1.806	

2.9	5.8	50.00	1.698	
3.0		50.90	1.706	
2.9		50.00	1.698	β
1.6		27.60	1.440	
2.4		41.40	1.616	δ
2.9		50.00	1.698	δ
4.0		69.00	1.838	ϵ

36

Mar 6 '31

Red Curve for I 36 341

A. stars -

I 36 341

9:00

89° 13

A.

7.16

Sk. 8.0

E

8.1

13.4

not used
see p. 46

13.1

8.00

S

13.4

8.1

8.00

13.15

r

8.15

13.4

13.2

8.00

7.9

13.3

8.20

8.15

13.4

B

10.05

13.4

13.1

9.9

12.9

8.40

8.35

13.3

J

87

217

A.

8.96

Sk. 7.8

Sk. 7.7

11.3

13.1

13.2

11.1

B

13.3

11.3

11.4

13.2

9.6

13.2

13.2

9.4

mid r

13.3

9.6

9.5

13.2

J

9.4

13.1

13.0

9.4

E

13.0

9.9

9.9

13.1

J

86°

102

A.

8.72

Sk. 7.8

7.6

11.1

13.5

13.4

11.2

B

13.6

11.1

11.3

13.5

9.2

13.6

13.5

9.2

r

13.6

9.3

9.1

13.4

J

9.3

13.6

13.6

9.2

13.5

9.7

13.5

9.7

13.5

ϵ	.10	5.30	1.89	0.276
δ	.10	5.30	1.89	0.276
	.12	5.35	2.24	0.350
	.17	5.65	3.18	0.502
ρ	1.97	5.25	3.75 ¹⁷	0.574 ⁵⁰
	.37	5.10	7.25	0.860

3.45	5.40	63.8	1.804	
3.60	5.50	65.5	1.816	
1.75	5.45	32.2	1.509	
1.80	5.55	32.4	1.510	δ
1.65	5.20	31.1	1.492	δ
2.15	5.80	40.6	1.609	

3.45	5.75	60.0	1.778	
3.50	5.85	59.8	1.776	ρ
1.55	5.85	26.5	1.423	
1.50	5.80	25.9	1.413	δ
1.55	5.80	26.7	1.426	δ
2.00	5.70	35.1	1.545	

38

56341 ✓ 86° 146 A₀ 9.22 Sh 2.6

		11.7	13.4	13.4	11.7
β	13.3	12.2		12.3	13.3
		10.4	13.2	13.2	10.4
δ	13.2	10.25		10.3	13.3
δ		10.20	13.00	13.3	10.2
	13.3	10.3		10.4	13.1

86 269 A₀ 4.40 Sh - 7.55

β	7.60	12.2	
	7.60	11.9	
	7.60	11.65	
	7.60	11.20	
	7.50	11.70	Sh. 0

✓	86	335	A ₀	8.86	Sh 7.4
		9.1	13.0	12.8	9.2
β	13.0	8.8			9.0 13.0
		7.9	13.0	13.0	8.0
δ	12.9	8.0			8.1 13.1
δ		8.0	12.9	13.0	8.1
ε	13.0	8.1			8.3 13.0

4.10	5.80	70.7	1.850	
4.65	5.80	80.0	1.920	13
2.80	5.65	49.6	1.695	
2.67	5.65	47.3	1.674	8
2.60	5.55	46.8	1.670	8
2.75	5.60	49.1	1.691	8

1.75	5.5	31.8	1.502
1.50	5.6	26.8	1.428
.55	5.6	9.8	0.991
.65	5.6	11.6	1.064
.65	5.55	11.5	1.061
.80	5.60	14.3	1.155

40

J 26341 ✓ 85 383 A₀ 5.10 Sk 7.5-

7.5- 12.9
12.6 7.5- 0

J 85 409 A₀ 6.62 Sk 7.4

7.6 ^{sp,} 12.7 13.3 7.6
B 13.0 7.7 7.9
7.6 13.3 7.6
8 13.3 7.5 7.55-
5 7.5 13.3 7.6
13.3 7.6 7.6

J 88 80 A₀ 9.12 Sk 7.4

10.8 12.4 12.3 11.0
12.4 11.1 11.2 12.5
9.5 12.7 12.5 9.6
12.6 9.5 9.4 12.6
9.2 12.6 12.6 9.2
12.7 9.7 9.6 12.6

D

.2	5.9	3.39	0.530	
.4	5.6	7.15	0.854	B
.2	5.9	3.39	0.520	
.17	5.9	2.88	0.459	8
.15	5.9	2.54	0.404	
.20	5.9	3.39	0.530	

3.50	4.95	70.6	1.849	
3.75	5.05	74.4	1.871	B
2.15	5.20	41.4	1.660	
2.05	5.20	39.4	1.595	8
1.80	5.20	34.6	1.538	5
2.25	5.25	43.0	1.633	E

42

136341 X 88 2 K₀ 8.94 Ok 7.4

		9.0	12.2	12.2	8.9	
B	12.4	9.6			9.5	12.2
		8.6	12.3	13.4	8.6	
	12.4	9.1			9.0	12.3
		9.1	12.2	12.3	9.1	
	12.3	10.6			10.6	12.4

✓ 88° 76 K₂ 8.89 C_{yr} Ok 7.6

		8.0	12.5
B	12.6	9.6	
		8.3	12.4
	12.4	9.3	
		9.9	12.5
	12.6	11.2	

✓ 88 105 K₀ 9.08 Ok 7.6

		9.3	12.4
B	12.4	9.4	
		8.8	12.4
X	12.4	9.2	
I		9.5	12.3
S	12.1	10.6	

1.55	4.85	3.20	0.525
2.15	4.95	4.35	0.638 β
1.20	4.95	2.42	0.384
1.65	4.95	3.34	0.524 γ
1.70	4.85	3.50	0.544 δ
3.20	4.95	6.47	0.811 ϵ

β	.4	4.9	8.16	0.912
	2.0	5.0	40.00	1.602
	.7	4.8	14.60	1.164
δ	1.7	4.8	25.40	1.548
ϵ	2.3	4.9	47.00	1.672
	3.6	5.0	72.00	1.858

1.7	4.8	35.4	1.549	mean mag. 6 24-42
1.8	4.8	37.5	1.574 β	1.630
1.2	4.8	25.0	1.398	1.420
1.6	4.8	33.4	1.524 γ	1.539
1.9	4.7	40.5	1.608	1.605
3.0	4.5	66.6	1.824	1.815

44

3 6 3 4 1

✓ 98 114

K₀

9.23

Sk. 7.6

9.2

12.6

β 12.3 10.3

9.0

12.4

12.6 9.6

10.0

12.4

12.3 10.6

✓ 87 85

K₀

9.22

Sk. 7.6

9.5

12.8

12.7 10.5

9.2

12.8

12.8 9.7

10.0

12.8

12.8 11.3

✓ 87 99

G₅

8.89

Sk. 7.7

9.6

12.8

β 12.8 10.5

9.2

12.8

12.8 9.5

9.5

12.9

12.8 10.8

1.6	5.0	32.0	1.505
2.7	4.7	57.4	1.759 β
1.4	4.8	29.2	1.650
2.0	5.0	40.0	1.602
2.4	5.8	41.4	1.616
3.0	5.7	52.6	1.721

1.9	5.2	36.6	1.564
2.9	5.1	57.0	1.756 β
1.6	5.2	30.8	1.488
2.1	5.2	40.4	1.606 γ
2.4	5.2	46.1	1.664
3.7	5.2	71.1	1.852

1.9	5.1	37.2	1.570
2.8	5.1	55.0	1.740 β
1.5	5.1	29.4	1.468
1.8	5.1	35.4	1.548
1.8	5.2	34.6	1.539
3.1	5.1	60.8	1.784

46

36341

✓ 89 13 A_0 7.16 Sh 8.2
 x 12.9 8.6 13.1
 (3) 8.5 13.1 13.1 8.5
 13.2 8.3 8.4 13.0
 8.4 13.1 13.0 8.4
 13.2 8.4 8.5 13.2
 8.6 13.2 12.9 8.6

Mar 9 '21

36341

✓ 88 11 G_0 8.94 Sh 8.2

m.f.a.

12.1 13.2 13.34
 13.2 9.8
 9.7 13.4
 13.3 9.8
 10.1 13.3

✓ 88 117 G_5 9.02 Sh 8.2 see also p 56

m.f.a.
834

11.7 13.0
 12.9 9.5
 9.7 13.0
 12.8 9.6
 10.7 12.3

✓ 87 12 K_2 9.03 Sh 8.0
 11.5 12.9
 13.0 9.0
 9.5 13.0
 12.8 10.4
 11.3 13.0

	.3	4.80	6.25	0.795
β	.3	4.90	6.12	0.786
	.15	4.90	3.06	0.485
γ	.20	4.85	4.12	0.614
	.25	5.00	5.00	0.698
	.40	4.85	8.25	0.916

	3.9	5.0	78.0	1.892
	1.6	5.0	32.0	1.505 β
	1.5	5.2	28.8	1.459
	1.6	5.1	31.4	1.497 γ
	1.9	5.1	37.3	1.720 δ

	3.5	4.8	73.0	1.864
	1.3	4.7	27.6	1.441
	1.5	4.8	31.2	1.494
	1.4	4.6	30.4	1.484
	2.5	4.1	61.0	1.786

	3.5	4.9	71.5	1.854
	1.0	5.0	20.0	1.301
	1.5	5.0	30.0	1.477
	2.4	4.8	50.0	1.699
	3.3	5.0	66.0	1.819

48

J 06341 ✓ 87 16 G₀ 894 Sh 7.9

11.0 12.8
 12.8 9.6
 9.8 12.8
 12.8 9.7
 10.9 12.7

J 87 23 150 9.45 alt. 7.8

11.2 12.6
 12.7 9.6
 10.3 12.6
 12.6 10.6
 11.7 12.8

J 87 41 K₀ 10.06 for faint alt. 7.8

11.9 13.1
 13.0 10.4
 11.2 13.1
 13.1 12.0
 12.7 13.0

J 87 46 G₅ 9.21 alt. (9.8)²

11.3 12.9
 12.4 9.5
 9.7 12.9
 12.8 10.3
 11.3 12.8

3.1	4.9	63.2	1.801
1.7	4.9	34.7	1.540
1.9	4.9	38.8	1.588
1.8	4.9	37.8	1.577
3.0	4.8	62.5	1.796

3.4	4.8	70.8	1.850
1.8	4.9	36.8	1.566
2.5	4.8	52.0	1.716
2.8	4.8	58.2	1.766
3.9	5.0	78.0	1.892

4.1	5.3	77.3	1.888
2.6	5.2	50.0	1.699
3.4	5.3	64.0	1.806
4.2	5.3	79.2	1.899
4.9	5.2	94.3	1.974

4.5	5.1	88.2	1.946
1.7	4.6	37.0	1.568
1.9	5.1	37.3	1.572
2.5	5.0	50.0	1.699
3.5	5.0	70.0	1.845

50

I 36341 J 87 79 K₀ Absorp % Sh 7.8

~~Aug 22~~

11.8 12.8
12.8 9.8
9.7 12.7
12.7 10.6
11.1 12.8

J 87 80 K₀ 9.72 Sh 7.6

At faint

11.5 12.7
12.6 10.1
10.7 12.6
12.7 11.0
12.0 12.7

✓ 87 83 G₅ Absorp 9.73 Sh 7.6

~~Aug 22~~

11.1 12.6
12.7 8.7
8.7 12.7
12.6 9.2
9.5 12.7

J 87 85 K₀ 9.22 Sh 7.6

11.3 12.7
12.5 9.2
9.4 12.7
12.5 9.8
10.3 12.7

4.0	5.0	40.0	1.903
2.0	5.0	40.0	1.602
1.9	4.9	38.8	1.588
2.8	4.9	57.1	1.756
3.3	5.0	66.0	1.819

3.9	5.1	76.5	1.884
2.5	5.0	50.0	1.699
3.1	5.0	62.0	1.792
3.4	5.1	66.7	1.824
4.4	5.1	86.4	1.936

3.5	5.0	70.0	1.845
1.1	5.1	21.6	1.334
1.1	5.1	21.6	1.334
1.6	5.0	32.0	1.505
1.9	5.1	37.2	1.571

3.7	5.1	72.6	1.861 p
1.6	4.9	32.7	1.514
1.8	5.1	35.4	1.549 x
2.2	4.9	45.0	1.653
2.7	5.1	53.0	1.724

52

I 36341 ✓ 87 99 G_5 8.89 $St - 7.5$

Sep 44

not measured
good

11.3 12.6
12.6 9.0
9.5 12.7
12.6 9.3
10.6 12.7

✓ 87 104 K_5 9.11 $alt - 7.6$

11.0 12.4
12.3 9.1
9.4 12.4
12.3 9.9
10.5 12.3

✓ 87 143 K_0 8.25 $St 7.6$

9.6 12.2
11.8 8.0
8.0 12.2
11.9 8.7
9.1 12.1

✓ 87 187 K_2 9.19 $St 7.6$

10.8 11.9
12.1 8.8
9.0 12.1
12.1 9.4
9.9 12.1

3.8	5.1	74.5	1.872 β
1.5	5.1	29.4	1.468
2.0	5.2	38.5	1.585 \times
1.8	5.1	55.2	1.546 δ
3.1	5.2	59.6	1.775

3.4	4.8	70.8	1.850
1.5	4.7	31.9	1.503
1.8	4.8	37.5	1.574
2.3	4.7	49.0	1.690
2.9	4.7	60.4	1.780

2.0	4.6	43.6	1.639
0.4	4.2	9.5	0.978
0.4	4.6	8.7	0.940
1.1	4.3	25.6	1.408
1.5	4.5	33.4	1.523

3.2	4.3	74.5	1.872
1.2	4.5	26.7	1.426
1.4	4.5	31.1	1.493
1.8	4.5	40.0	1.602
2.3	4.5	51.2	1.709

54

✓ 36341 86 17 K₀ 7.17 also p.57 Sk. 7.5-

~~Atmos~~
 13.0 8.6 12.8
 7.6
 7.6 12.8
 12.8 7.7
 7.7 12.7

✓ 86 21 G₀ Sk 7.5-

11.3 12.8
 12.7 8.9
 9.1 12.8
 12.5 9.1
 10.3 12.7

✓ 86 65 G₅ 8.93 also p.66 Sk 7.4

mean in
341

11.5 12.9
 12.8 9.0
 9.3 12.8
 12.6 9.2
 9.8 12.6

~~not used~~

✓ 86 67 G 9.30 p.66 Sk 7.6

mean in
341

11.7 12.8
 12.7 10.2
 10.0 12.8
 12.7 9.8
 10.5 12.7

not used

1.1	5.3	20.7	1.316
0.1	5.5	1.8	0.255
1.1	5.3	1.9	0.278
1.2	5.3	3.8	0.579
1.2	5.2	3.8	0.579

3.7	5.3	70.0	1.845
1.4	5.2	26.9	1.429
1.6	5.3	30.2	1.480
1.6	5.0	52.0	1.505
2.8	5.2	53.8	1.731

4.1	5.5	74.6	1.873
1.6	5.4	29.6	1.471
1.9	5.4	35.2	1.547
1.8	5.2	34.6	1.529
2.4	5.2	46.1	1.664

4.1	5.2	78.7	1.896
2.6	5.1	51.0	1.708
2.4	5.2	46.2	1.665
2.2	5.1	43.1	1.634
2.9	5.1	56.8	1.754

56

I 36341

88 2

K₀

Sk 2.4

10.2

11.9

11.90

8.6

8.7

11.9

12.0

9.2

9.9

12.1

Mar 10 '31

I 36341

88 117

G₅

9.02

~~Sk 9.2~~

also p. 46

9.2

8.8

p. 66

13.4

15.2

14.2 12.3

10.2

10.8

10.3 14.3

mean on
I 36334

11.2

15.0

14.4 10.5

14.8

11.1

10.7 14.5

12.1

14.6

14.4 11.9

✓

87 79

K₀

also p. 50

Sk 8.6

13.3

14.4

14.55

14.4

11.2

10.9

14.4

14.2

11.4

11.6

14.2

↓

87 83

G₅

also p. 50

Sk 8.4

12.3

14.0

14.04

14.1

9.6

9.6

14.1

14.0

10.2

10.9

14.0

2.8	4.5	62.2	1.794
1.2	4.5	26.7	1.426
1.3	4.5	28.9	1.460
1.8	4.6	39.2	1.593
2.5	4.7	53.2	1.725

3.85	5.70	67.5	1.829
1.55	5.75	26.9	1.429
1.85	5.70	22.5	1.511
1.90	5.65	33.6	1.526
3.00	5.50	54.5	1.736

4.7	5.95	79.0	1.897
2.6		43.7	1.640
2.3		38.7	1.587
2.8		47.0	1.672
3.0		50.4	1.702

3.9	5.64	69.2	1.840
1.2		21.3	1.328
1.2		21.3	1.328
1.8		31.9	1.504
2.5		44.4	1.646

58

36341 ✓ 86 17 K. Also p. 54 Sk 8.2

9.2 14.3 14.20
14.3 8.3
8.2 14.4
13.9 8.3
8.3 14.1

✓ 86 7 14. 9.21 p. 66 Sk - P. 1

miss -
12.9 13.8 13.80
13.9 10.6
10.2 13.9
13.7 10.1
10.7 13.8

✓ 86 14 G₅- 9.38 Sk 8.0

12.3 13.7 13.90
14.0 10.3
10.9 13.8
14.1 10.7
12.1 13.9

✓ 86 79 G₅- 7.68 Sk 7.9

10.3 13.6 13.70
13.9 8.4
8.2 13.8
13.8 8.6
8.8 13.5

1.0	6.00	16.70	1.222	to height
0.1		1.67	0.222	
.0		0	0.0	
.1		1.67	0.222	
.1		1.67	0.222	

4.8	5.70	84.2	1.925
2.5		43.9	1.642
2.1		36.8	1.565
2.0		35.1	1.544
2.6		45.6	1.659

4.3	5.90	73.0	1.863
2.3		39.0	1.590
2.9		49.2	1.692
2.7		45.8	1.601
4.1		69.5	1.842

2.4	5.80	41.4	1.616
0.5		8.6	0.934
0.3		5.2	0.715
0.7		12.1	1.082
0.9		15.5	1.190

60

I 26341

✓

86 96

G₅

9.18

Sk. 7.9

miles

12.9

13.9

13.8

10.8

10.5

13.9

14.0

10.5

11.21

13.9

✓

86

103

G₀

1.32

Sk. 7.9

←

10.9

13.8

13.8

8.9

13.9

8.9

13.8

8.9

13.9

9.7

2
th li.

✓

86

113

G₅

Sk. 7.9

11.3

14.0

13.9

13.7

8.7

8.8

14.0

13.9

9.1

10.21

13.9

✓

86

126

120

9.26

Sep 20

Sk. 7.8

miles

12.3

13.7

13.7

13.8

10.4

10.5

13.7

not used

13.7

11.4

12.6

13.7

5.0	6.0	83.4	1.9200
2.9		48.3	1.684
2.6		43.4	1.6378
2.6		43.4	1.627
3.3		55.0	1.740

3.0	5.9	50.9	1.706
1.0		17.0	1.230
1.0		17.0	1.230
1.0		17.0	1.230
1.8		30.5	1.484

3.4	6.0	56.7	1.754
0.8		13.3	1.124
0.9		15.0	1.175
1.2		20.0	1.301
2.3		38.4	1.584

4.5	5.9	76.4	1.882
2.6		44.0	1.643
2.5		42.4	1.626
3.6		61.0	1.785
4.8		81.4	1.910

62

I 36341

86 154 out of focus
 86 172 " "

✓ 86 217 K₀ 7.96 Sk. 7.6

10.4 13.2 13.2
 13.1 8.0
 8.4 13.2
 13.0 8.6
 9.5 13.2

✓ 86 256 G₅ 9.23 Sk. 7.6

11.7 12.90 12.9
 12.9 9.5
 9.6 13.00
 12.9 9.9
 10.8 12.90

✓ 86 275 K₀ 8.69 Sk. 7.7

not used
 n.p. per 68

map -
 m 26551
 11.0 12.8
 12.8 8.9
 8.5 12.9
 12.8 9.1
 9.6 12.8

85 249 out of focus

2.8	5.6	50.0	1.699
0.4		7.2	0.857
0.8		14.3	1.155
1.0		17.9	1.252
1.9		33.9	1.530

4.1	5.3	77.3	1.888
1.9		35.8	1.554
2.0		37.8	1.577
2.3		43.4	1.637
3.2		60.4	1.780

3.3	5.1	64.8	1.811
1.2		23.5	1.371
0.8		15.7	1.196
1.4		27.5	1.439
1.9		37.2	1.570

64

✓ 85 341

85 347

G₅ 9.26

Sh - 7.6

11.2

13.1

13.16

13.0 9.6

10.1

13.2

13.2 10.2

11.7

13.3

✓ 85 524 K₀ 7.62

Sh - 7.6

9.3

13.1

13.1

13.2 7.8

7.9

13.1

13.1 8.2

8.4

13.1

✓ 85 222 out of focus

✓ 85 19 out of focus

✓ 85 9 K₀ 8.53

Sh 7.6

11.9

14.0

14.0

14.1 8.8

9.0

14.0

13.9 9.1

9.4

14.0

meas m
34188 98 K₀

Sh

can't find it

3.6	5.56	64.6	1.810
2.0		35.9	1.555
2.5		45.0	1.653
2.6		46.6	1.668
4.1		73.6	1.876

1.7	5.5	30.9	1.490
0.2		3.6	0.556
0.3		5.5	0.740
0.6		10.9	1.038
0.8		14.5	1.161

4.3	6.4	67.1	1.827
1.2		18.8	1.274
1.4		21.9	1.340
1.5		23.5	1.370
1.8		28.1	1.448

66

Mar 11 '31

26 381

11.20

✓ 86 65 6.5 8.93

also p. 54

Sk. 8.5

11.1

14.0

13.9

14.0 10.0

10.2 13.8

13.8 10.3

11.7 13.8

✓ 86 67

see also p. 54

Sk. 8.3

12.1

13.6

13.5 10.7

13.46

10.7 13.5

13.6 10.8

11.8 13.6

✓ 88 117

also p. 56-46

Sk. 8.0

11.3

12.8

12.6

12.6 9.3

9.6 12.60

12.5 9.6

10.6 12.4

✓ 86 7

also p. 58

Sk. 7.9

11.8

12.8

12.9

13.0 9.7

9.7

12.9

12.9 9.8

10.3 12.8

2.6	5.4	48.21	1.683
1.5		27.8	1.444
1.8		33.4	1.523
1.8		33.4	1.523
3.2		59.21	1.772

3.8	5.16	73.5	1.866
2.4		46.5	1.677
2.4		46.5	1.677
2.5		48.5	1.885
3.5		67.8	1.831

3.3	4.6	71.7	1.855
1.3		28.3	1.451
1.6		34.8	1.541
1.6		34.8	1.541
2.6		56.5	1.752

3.9	5.0	78.0	1.892
1.8		36.0	1.556
1.8		36.0	1.556
1.9		38.0	1.579
2.4		48.0	1.681

✓ 86 96

Sh. 7.8

7.8

7.7

	11.7	13.0	11.0	12.9
13.1	10.2		12.8	10.0
	10.1	13.1	9.9	12.9
13.0	10.1		12.8	10.0
	10.9	13.0	11.3	12.9

✓ 86 103

Sh. 7.7

	11.0	12.9
12.9	8.4	
	8.5	12.9
12.9	8.6	
	9.8	12.9

✓ 86 275

f 62 not used

Sh. 7.7

	10.0	12.0	12.1
12.2	8.3		
	8.7	12.2	
12.1	9.1		
	10.0	12.0	

✓ 85 9

Sh. 7.5

	10.9	13.2	13.04
13.1	8.5		
	8.9	13.1	
12.9	8.9		
	9.9	12.9	

3.60	5.2	69.3	1.840
2.35	5.2	45.2	1.654
2.25	5.25	42.8	1.631
2.20	5.15	44.6	1.649
3.25	5.20	64.4	1.808

3.3	5.2	63.5	1.804
0.7		13.4	1.126
0.8		15.4	1.187
0.9		17.3	1.239
2.1		40.4	1.606

2.3	4.4	52.3	1.718
0.6		13.6	1.132
1.0		22.8	1.357
1.4		31.8	1.502
2.3		52.2	1.718

3.4	5.54	61.4	1.787
1.0		18.1	1.257
1.4		25.8	1.412
1.4		25.8	1.412
2.4		43.4	1.637

70

✓ 88 90

sk. 7.5

	11.2	12.2
12.1	9.9	
	10.4	12.2
12.2	10.5	
	11.4	12.2

✓ 86 126

sk. 7.6

	11.3	12.7
12.8	9.5	
	10.1	12.7
12.8	10.9	
	11.6	12.7

✓ 86 325

sk. 7.4

	10.8	12.3
12.3	9.1	12.3
	9.6	12.4
12.2	9.6	
	10.6	12.4

✓ 87 16

sk. 7.5

	10.5	12.3
12.2	9.2	12.3
	9.5	12.3
12.4	9.6	
	10.5	12.4

3.7	4.7	78.7	1.896
2.4		51.0	1.707
2.9		61.7	1.789
3.0		64.0	1.806
3.9		83.1	1.919

3.7	5.1	72.5	1.850
1.9		37.2	1.570
2.5		49.0	1.689
3.3		64.8	1.811
4.0		78.5	1.894

3.4	4.9	69.5	1.842
1.7		34.8	1.541
2.2		44.8	1.651
2.2		44.8	1.651
3.2		65.4	1.815

3.0	4.8	62.5	1.796
1.7		35.5	1.520
2.0		41.7	1.620
2.1		43.7	1.640
3.0		62.5	1.796

✓ 88 11

Dk 7.7

10.7 12.1 12.2
 12.2 8.8
 9.0 12.3
 12.2 9.1
 10.0 12.1

I 86 324 ✓ 88 117

Dk 7.7

12.3 14.3
 14.3 10.5
 11.3 14.3
 14.2 11.4
 12.6 14.3

✓ 87 46

Dk 8.0

11.5 14.4 14.4
 14.4 10.8
 11.9 14.6
 14.3 12.5
 13.5 14.4

✓ 87 83

Dk 7.9

11.9 14.2 14.3
 14.3 10.2
 11.0 14.3
 14.3 11.6
 12.6 14.4

3.0	4.5	66.7	1.824
1.1		24.4	1.387
1.3		28.9	1.460
1.4		31.1	1.462
2.3		51.0	1.707

4.6	6.6	69.7	1.843
2.8		42.5	1.628
3.6		54.5	1.736
3.7		56.1	1.749
4.9		74.3	1.870

3.5	6.4	54.6	1.737
2.8		43.8	1.641
3.9		61.0	1.785
4.5		70.3	1.846
5.5		86.0	1.934

4.0	6.4	62.5	1.796
2.9		35.9	1.554
3.1		48.4	1.684
3.7		57.8	1.762
4.7		73.5	1.863

74

Mar 13 31

86 96 ✓ I 34334
 88 11 ✓
 86 14 ✓
 87 13 ✓

On some other plate: 87 82 ~~86 14~~ 86 1786 67 ~~86 126~~ 86 96 86 154 86 172 85 19 85 222

I 34334 ✓ 86 96

Sk 8.9

	13.4	15.1	15.0
14.9	12.7		
	12.8	15.1	
15.0	12.9		
	13.7	15.1	

✓ 88 11

Sk 9.0

	13.1	14.3	22.5 14.4
14.4	11.3		
	11.6	14.5	
14.6	12.0		
	13.0	14.4	

✓ 86 14

Sk 9.0

	13.1	14.9	14.8
14.8	12.2		
	13.0	14.7	
14.9	13.1		
	13.6	14.9	

4.5	6.1	73.8	1.868
3.8		62.4	1.794
3.9		64.0	1.806
4.0		65.6	1.817
4.8		78.7	1.896

3.1	5.44	57.0	1.755
2.3		42.3	1.626
2.6		47.8	1.679
3.0		55.2	1.742
4.0		73.5	1.866

4.1	5.8	70.7	1.849
3.2		55.2	1.742
4.0		69.0	1.838
4.1		70.7	1.849
4.6		79.4	1.899

76

✓ 87 83 Sk - 8.9

	12.3	14.6
14.6	10.9	
	11.6	14.7
14.7	12.2	
	13.1	14.6

I 38341 ✓ 87 85 Sk 7.7

	11.0	13.2
13.1	9.6	
	9.9	13.2
13.1	10.2	
	11.1	13.2

Mar 15 '31 89 13 A0 not used Sk 8.21
I 38586 Nicks out of order

	13.7	15.5
14.9	10.0	
	9.1	15.0
14.9	9.3	
	9.7	14.7

87 217 A0 Sk 8.4

	14.4	14.9	15.0	^{3.9} 14.0
15.4	13.9		12.8	14.5
	13.2	15.2	14.9	12.8
14.5	12.9		13.3	15.2
	13.5	15.3		

my

3.4	5.7	59.6	1.775
2.0		35.1	1.545
2.7		47.4	1.675
3.3		57.8	1.762
4.2		73.6	1.866

3.3	5.5	60.0	1.779
1.9		34.6	1.529
2.2		40.0	1.602
2.5		45.5	1.658
3.4		61.8	1.790

78

not used

86 102

A₀

Dk 8.0

	13.7	15.4
15.21	11.5	
15.0	12.3	
15.3	12.5	
15.4	13.2	

86 146 A₀

Very faint

Dk 8.0

	13.9	14.9
	13.21	
14.9	14.0	
	13.21	14.6
14.7	13.8	
	13.4	14.5

86 269 A₀

Dk 7.9

	8.1	14.0
14.0	7.9	
	7.9	14.0

Mar 17 '31

I 36343

89 13

A₀

7.16

Dk 8.5

	12.2	14.9	15.0	3.7	6.5
15.1	9.0			.5	
	8.8	15.0		.3	
15.1	8.7			.2	
	9.0	14.9		.5	

57.0	1.756
7.7	0.886
4.6	0.663
3.1	0.492
9.7	0.886

87 217 R_0 8.96 $Sk.$ 8.6
 14.3 15.0 5.7 6.4
 15.0 11.6 3.0
 11.4 15.0 2.8
 15.0 11.0 2.4
 11.8 15.0 3.2

86 102 R_0 8.72 $Sk.$ 8.5
 14.21 15.3 5.7 6.7
 11.7 15.3 3.2
 11.1 15.21 2.6
 10.6 15.2 2.1
 11.4 15.21 2.9

86 146 R_0 9.22 $Sk.$ 8.1
 14.6 15.1 6.5 7.0
 15.1 12.4 4.3
 12.1 15.1 4.0
 15.21 12.0 3.9
 12.7 15.1 4.6

86 269 R_0 $Sk.$ 8.2

8.2 14.3 0

0

89.0	1.949
46.8	1.670
43.8	1.642
37.5	1.574
50.0	1.699

85.1	1.930
47.8	1.680
38.8	1.589
31.4	1.497
43.5	1.637

92.8	1.968
61.5	1.789
57.2	1.758
55.6	1.746
65.7	1.818

82

86 335

A₀ 9.06 Sk. 8.0

	13.2	14.5	5.2	6.5
14.9	9.5		1.5	
	9.3	14.6	1.3	
14.5	9.1		1.1	
	9.6	14.6	1.6	

85 383

A₀ 5.1 Sk 8.1

	8.3	14.5		
14.3	8.1			
	0			

85 409

A₀ 6.62 Sk 8.1

	10.7	15.0	2.6	6.7
14.8	8.2		0.1	
	8.2	14.9	.1	
14.7	8.2		.1	
	8.2	14.9	.1	

✓ 87 83

G₅

Sk. 8.0

	13.5	14.7	5.5	6.6
14.6	10.6		2.6	
	10.4	14.6	2.4	
14.7	11.0		3.0	
	11.8	14.6	3.8	

80.0	1.903
23.1	1.364
20.0	1.301
16.9	1.228
24.6	1.391

38.8	1.588
1.5	0.176
1.5	0.176
1.5	0.176
1.5	0.176

23.5	1.922
39.4	1.596
36.4	1.601
45.5	1.658
57.5	1.760

84

✓ 86 14

sk. 8.1

not found

	14.3	14.9	6.2	6.7
14.8	12.2		4.1	
	12.0	14.7	3.9	
14.4	12.3		4.2	
	12.6	14.7	4.5	

✓ 86 17

sk. 8.0

	10.6	15.0	3.6	6.9
15.0	8.4		.4	
	8.3	14.8	.3	
14.8	8.6		.6	
	8.8	14.8	.8	

✓ 86 67

sk. 8.0

	14.7	15.0	6.7	7.0
15.0	12.5		4.5	
	12.3	14.9	4.3	
15.0	12.2		4.2	
	13.3	15.0	5.3	

✓ 86 96

sk. 8.1

	14.3	14.7	6.2	6.8
14.9	12.2		4.1	
	11.9	14.9	3.8	
14.9	11.9		3.8	
	13.0	14.9	4.9	

9.250	1.966
61.2	1.787
58.2	1.765
62.6	1.786
67.1	1.827

37.7	1.576
58.0	0.763
43.5	0.638
8.69	0.938
11.60	1.064

95.6	1.980
64.4	1.809
61.4	1.788
60.0	1.778
75.6	1.879

91.4	1.960
60.4	1.781
55.9	1.747
55.9	1.747
72.0	1.858

86

mean

86 154

13.9 14.9

14.8 10.9

10.3 14.8

14.8 10.2

10.7 14.8

Ok. 8.1

5.8 6.7

2.8

2.2

2.1

2.6

✓ 86 172

14.0 14.8

14.8 11.7

11.2 14.9

14.7 11.3

11.7 14.8

Ok. 8.1

5.9 6.7

3.6

3.1

3.2

3.6

✓ 85 19

8.1 15.1

14.8 8.1

8.1 14.8

14.7 8.1

○

Ok. 8.1

85 222

can't measure it

Ok.

Mar 18 '31

J 36342

✓ 86 14

Ok. 8.7

13.4 14.6

14.8 12.1

12.5 14.6

14.7 12.4

13.2 14.7

12.9

12.1

12.4

12.2

see m
J 26541

86.5	1.937
41.8	1.621
32.8	1.516
31.4	1.497
38.8	1.589

88.0	1.944
53.8	1.731
46.3	1.666
47.8	1.679
53.7	1.730

4.45	5.9	75.5	1.878
3.40	6.1	55.8	1.746
3.65	5.9	62.0	1.793
3.60	6.0	60.0	1.778
4.50	6.0	75.0	1.875

✓ 86 154

Sk. 8.7

	13.8	14.9	5.1	6.2
14.9	10.8		2.1	
	10.7	14.9	2.0	
14.8	10.6		1.9	
	11.9	14.8	3.2	

I 36334

✓ 89 3

Ar

Sk 8.5

	14.8	15.8	6.3	7.3
16.0	12.4		3.9	7.5
	12.7	15.7	4.2	7.2
15.9	12.9		4.4	7.4
	13.8	15.3	5.3	6.8

✓ 88 4

Ar

Sk 8.5

	10.4	15.0	1.9	6.5
15.3	8.6		0.1	6.8
	8.6	15.5	0.1	7.0
15.3	8.6		0.1	6.8
	8.7	15.1	0.2	6.6

✓ 88 9

F₀

8.4

	13.5	15.9	15.8	5.1	7.4
15.5	10.3			1.9	
	10.7	15.8		2.3	
15.9	10.8			2.4	
	11.8	15.8		3.4	

82.4	1.916
33.8	1.529
32.8	1.516
31.6	1.500
51.6	1.713

86.4	1.936
52.0	1.716
58.4	1.766
59.4	1.774
78.0	1.892

29.2	1.465
1.47	0.168
1.43	0.155
1.47	0.167
3.03	0.482

69.0	1.839
25.8	1.412
31.1	1.493
32.4	1.510
46.0	1.663

✓ 88 12 H dk 8.4

13.6 15.8 15.76
 15.7 11.6
 12.2 15.9
 15.6 12.8
 13.8 15.8

✓ 88 64 B₂ dk 8.4

15.6 10.0
 9.0 15.0 8.9
 15.6 9.0 9.0
 15.7 8.8 9.0
 15.7 9.2

✓ 88 77 F₂ 8.2

12.9 15.8 15.7
 15.7 11.4
 11.8 15.8
 15.9 12.1
 13.4 16.2

✓ 88 86 B₉ 8.2

13.5 15.8 15.6
 15.9 11.8
 17.8 17.7
 15.8 12.1
 12.8 16.0

5.2	7.36	70.6	1.850
3.2		43.5	1.638
3.8		51.6	1.713
4.4		59.8	1.777
5.4		72.4	1.866

1.60	7.25	22.1	1.344
0.55		7.6	0.881
0.60		8.2	0.919
0.50		6.9	0.839
0.80		11.0	1.041

4.7	7.5	62.6	1.796
3.2		42.6	1.629
3.6		48.0	1.681
3.9		52.0	1.716
5.2		69.4	1.841

5.3	7.4	71.6	1.856
3.4		46.0	1.663
3.3		44.6	1.649
3.9		52.8	1.722
4.6		62.1	1.794

92

✓ 88 104 F₅- 8.7

12.0 18.0
 16.1 10.7
 10.9 16.0
 16.0 11.1
 11.9 16.0

✓ 88 110 8.8

14.4 15.8 15.9
 15.8 12.7
 12.7 16.0
 15.7 13.1
 13.9 16.1

✓ 88 112 MB 8.7

10.5 15.3 15.3
 15.4 9.2
 9.3 15.2
 15.2 10.3
 11.3 15.2

✓ 88 115 A₂ 8.6

13.6 15.6 15.6
 12.2 15.7
 15.6 12.4
 13.0 15.6
 15.5 13.9

3.3	7.3	45.2	1.655
2.0		27.4	1.438
2.2		30.1	1.479
2.3		31.5	1.498
3.2		43.9	1.642

5.6	7.1	79.0	1.898
3.9		55.0	1.740
3.9		55.0	1.740
4.3		60.6	1.782
5.1		71.8	1.856

1.8	6.6	27.3	1.436
.5		7.6	0.881
.6		9.1	0.959
1.6		24.2	1.384
2.6		39.4	1.596

5.0	7.0	71.5	1.854
3.6		51.5	1.712
3.8		54.3	1.735
4.4		62.8	1.798
5.3		75.8	1.880

✓ 88 130 F P.5
 14.8 15.7
 15.7 12.8
 13.0 15.7
 15.7 13.2
 14.0 15.5

✓ 88 131 A₅ P.4
 13.3 15.5
 15.4 11.7
 12.0 15.5
 15.5 12.1
 13.3 15.5

✓ 87 1 A P.3
 13.0 15.8 15.6
 15.6 11.9
 12.8 15.7
 15.4 13.0
 13.3 15.5

✓ 87 9 F₅ P.3
 13.3 15.4 15.5
 15.4 11.5
 12.2 15.5
 15.6 12.2
 13.6 15.6

6.3	7.2	87.5	1.942
4.3		59.7	1.776
4.5		62.5	1.796
4.7		65.4	1.816
5.5		76.4	1.883

4.9	7.1	69.0	1.839
3.3		46.5	1.668
3.6		50.7	1.705
3.7		52.1	1.717
4.9		69.0	1.839

4.7	7.3	64.4	1.809
3.6		49.4	1.693
4.5		61.6	1.790
4.7		64.4	1.809
5.0		68.5	1.836

5.0	7.2	69.5	1.842
3.2		44.5	1.648
3.9		54.2	1.734
3.9		54.2	1.734
5.3		73.6	1.867

✓ 87 15 A_3 8.21

15.3 11.0 15.2
 9.8 15.3
 15.2 10.1
 10.1 15.0
 15.0 18.4

✓ 87 26 8.21

13.3 15.3
 15.4 11.8 15.4
 12.4 15.3
 15.4 12.7
 13.7 15.5

✓ 87 33 F_2 8.21

12.7 15.5
 15.1 10.9
 11.5 15.4
 15.5 11.8
 12.8 15.3

✓ 87.57 M_2 8.2

10.4 15.5 15.4
 15.0 8.4
 8.3 15.5
 15.4 8.6
 9.1 15.4

2.8	7.0	40.0	1.602
1.6		22.9	1.360
1.9		27.2	1.435
1.9		27.2	1.435
3.2		45.7	1.660

5.1	7.2	70.8	1.850
3.6		50.0	1.699
4.2		58.4	1.766
5.5		76.5	1.884
5.5		76.5	1.884

4.5	7.2	62.5	1.796
2.7		37.5	1.574
3.3		45.8	1.661
3.6		50.0	1.699
4.6		63.8	1.804

2.2	7.2	30.6	1.486
.2		2.8	0.447
.1		1.4	0.146
.4		5.6	0.747
.9		12.5	1.096

98

Mar 20 '31

89° 3

A₅

9.16

Sh 8.5-

T 86341

12.8

13.7

13.8

4.3

5.3

early type

13.9

10.8

2.3

10.4

13.8

1.9

13.7

10.5

1.8

10.8

13.7

2.3

J 89 21 F

8.6

12.9

13.6

13.5

4.3

4.9

13.6

11.1

2.5

10.8

13.5

2.2

13.5

10.8

2.2

11.1

13.5

2.5

88 4

A₂

8.5

9.2

13.4

13.2

8.5

13.3

8.5

○

Mean on
T 86341J 88 9 F₀

8.5

11.6

13.4

3.1

4.8

13.3

9.2

0.7

9.1

13.4

0.6

13.2

9.1

0.6

9.3

13.3

0.8

J 88 13 A

8.3

12.2

13.5

13.4

3.9

5.1

13.3

10.0

1.7

9.9

13.6

1.6

13.2

9.7

1.4

10.5

13.4

2.2

81.1	1.909
43.4	1.637
35.8	1.554
34.0	1.532
43.4	1.638

87.8	1.943
51.0	1.707
44.9	1.652
44.9	1.652
51.1	1.709

64.5	1.801
14.6	1.164
12.5	1.097
12.5	1.097
16.7	1.222

76.5	1.884
33.4	1.524
31.4	1.497
27.5	1.440
43.1	1.634

100

↓ 88 64	B _g	P. 2
10.7 13.4	12.5	2.5 5.3
13.6 8.5		0.3
8.45 13.7		0.25
13.2 8.4		0.2
8.5 13.5		0.3

88 71	F	P. 2
8.9 13.3	13.2	0.7 5.0
13.2 8.3		0.1
8.2 13.1		.0
13.3 8.2.5		.05
8.2 13.3		.0

↓ 88 77	F _e	P. 1
12.0 13.1		3.9 5.0
13.0 9.8		1.7
9.5 13.2		1.4
13.0 9.5		1.4
10.2 13.2		2.1

↓ 88 86	B _g	P. 2
12.1 13.2		3.9 4.9
13.3 9.8		1.6
9.6 13.1		1.4
13.1 9.6		1.4
10.1 13.0		1.9

47.2	1.674
-5.7	0.756
4.7	0.672
3.8	0.580
5.7	0.756

14.0	1.146
2.0	0.301
0	-0.0
1.0	0
0	-∞

78.1	1.893
34.0	1.531
28.0	1.447
28.0	1.447
42.0	1.623

79.5	1.900
32.6	1.513
28.6	1.456
28.6	1.456
38.8	1.589

102

J 88 109

FJ-

7.9

	10.9	12.8	12.9	3.0	5.0
12.8	8.9			1.0	
	8.8	13.0		.9	
13.0	8.9			1.0	
	9.5	13.0		1.6	

J 88 110

FJ-

8.2

	12.1	13.1		3.9	4.9
13.0	10.4			2.2	
	10.0	13.1		1.8	
13.1	10.1			1.9	
	10.6	13.1		2.4	

J 88 112

Mt

8.2

	9.6	13.2		1.4	4.9
13.1	8.4			0.2	
	8.5	13.0		.3	
13.2	9.1			.9	
	9.6	13.2		1.4	

J 88 115

8.3

	12.2	13.2		3.9	4.7
13.0	10.2			1.9	
	10.2	13.1		1.9	
13.0	10.2			1.9	
	10.5	13.0		2.2	

60.0	1.778
20.0	1.301
18.0	1.256
20.0	1.301
32.0	1.505

79.6	1.901
45.0	1.653
36.6	1.564
38.8	1.588
49.0	1.690

28.6	1.456
4.1	0.613
6.1	0.785
18.3	1.262
28.6	1.456

83.0	1.919
40.5	1.608
40.5	1.608
40.5	1.608
46.8	1.671

104

↓ 88 130 F 8.2
 12.4 13.3 12.5 4.2 5.3
 13.3 10.6 2.4
 10.6 13.2 2.4
 13.2 10.6 2.4
 11.5 13.4 3.3

↓ 88 131 8.3
 11.90 13.3 12.5 3.6 5.0
 13.30 9.80 1.5
 9.70 13.2 1.4
 13.30 9.70 1.4
 9.80 13.20 1.5

↓ 87 1 A 8.3
 11.90 13.5 12.5 3.6 5.2
 13.3 10.10 1.8
 10.00 13.8 1.7
 13.4 10.10 1.8
 11.00 13.5 2.7

↓ 87 9 F₅- 8.4
 12.7 13.5 13.6 4.3 5.2
 13.6 10.0 1.6
 10.1 13.6 1.7
 10.2 13.7 1.8
 13.5 11.1 2.7

79.2	1.898
45.3	1.656
45.3	1.656
45.3	1.656
62.2	1.794

72.0	1.858
30.0	1.477
28.0	1.447
28.0	1.447
30.0	1.477

69.2	1.840
34.6	1.539
32.6	1.514
34.6	1.539
52.0	1.716

82.8	1.918
30.8	1.488
32.8	1.516
34.6	1.539
52.0	1.716

✓ 87 15

A₃

8.3

		12.0	13.4	^{2.15} 13.4	3.7	5.1
×	13.4	9.1			0.8	
		9.0	13.6		.7	
	13.4	9.0			.7	
87 26		9.4	13.3		1.1	

✓ 87 33

F₂

8.2

		12.3	13.6	^{13.5}	4.1	5.3
×	13.5	9.7			1.5	
		9.5	13.7		1.3	
	13.4	9.5			1.3	
		9.8	13.5		1.6	

✓ 87 51

Ma

8.2

		8.4	13.7	^{13.5}	.2	5.3
	13.5	8.3			.1	
		8.5	13.6		.3	
	13.3	8.5			.3	
		8.7	13.7		.5	

87 78

8.3

		12.0	13.7	^{13.6}	3.7	5.3
×	13.7	9.5			1.2	
		9.2	13.6		0.9	
	13.4	9.1			0.8	
		9.8	13.5		1.5	

72.7 — 1.862

15.7 1.196

13.7 1.136

13.7 1.136

21.6 1.334

77.5 1.889

28.4 1.453

24.6 1.391

24.6 1.391

30.21 1.480

3.78 0.578

1.89 0.298

5.66 0.753

5.66 0.753

9.40 0.973

69.8 1.844

22.6 1.354

17.0 1.320

15.1 1.179

28.3 1.452

108

Mar 21 31

$\sqrt{86} 14$ on 26 3 34
 $\sqrt{86} 65$ 26 3 34
 $\sqrt{86} 79$ 26 3 34
 $\sqrt{86} 96$ 26 3 43

J 26 3 34

J 86 14

8.7

	14.2	16.1	15.9	5.6	7.4
15.9	12.7			4.0	
	13.2	15.7		4.5	
16.1	13.6			4.9	
	14.3	16.1		5.6	

J 86 65

8.9

	13.8	16.1		4.9	7.2
16.2	12.4			3.5	
	12.7	16.1		3.8	
16.1	13.5			4.6	
	13.8	16.1		4.9	

J 86 79

8.8

Dec 26 3 47

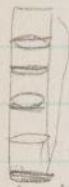
	11.0	16.1	16.2	2.2	7.3
16.1	9.4			.6	
	9.8	16.2		1.0	
16.2	10.6			1.8	
	11.4	10.5		2.6	

75.6	1.878
54.1	1.732
60.9	1.784
66.4	1.822
75.7	1.879

68.0	1.832
48.6	1.687
52.8	1.722
63.9	1.804
68.0	1.832

30.1	1.478
8.2	0.914
13.7	1.136
24.6	1.391
35.6	1.552

✓ 86 96			8.7	
	14.8	16.5	6.1	7.4
15.9	13.3		4.6	
	13.8	16.8	5.1	
16.2	14.0		5.3	
	15.0	16.6	6.3	



✓ 89 3		A ₁	8.7	
	13.9	15.7	5.2	7.0
15.9	13.3		3.6	
	12.7	15.6	4.0	
15.9	13.0		4.3	
	13.8	15.5	5.1	

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36 334

✓ 88 4		A ₂	8.4	
	9.7	15.5	1.3	7.0
15.4	8.6		0.2	
	8.5	15.6	0.1	
15.7	8.5		0.2	7.4
	8.5	15.6	0.2	

✓ 88 9		F ₀	8.3	
	12.4	15.5	4.1	7.0
15.2	10.3		2.0	
	10.2	15.3	1.9	
15.3	10.5		2.2	
	11.7	15.1	3.4	

82.5	1.916
62.1	1.793
69.0	1.838
71.6	1.855
85.1	1.930

74.4	1.871
51.5	1.712
57.1	1.756
61.5	1.789
92.9.	1.862

18.6	1.269
2.9	0.462
1.4	0.146
2.9	0.462
2.9	0.462

58.6	1.768
28.6	1.456
27.2	1.434
31.4	1.496
48.6	1.687

112

✓ 88 12 A 8.1
 13.6 15.1 5.5 7.1
 15.1 11.2 3.1
 11.7 15.2 3.6
 15.2 12.3 4.2
 13.0 15.2 4.9

✓ 88 77 F₂ 8.0
 12.4 15.5 15.7 4.4 7.3
 15.2 11.0 3.0
 11.4 15.2 3.4
 15.1 11.9 3.9
 13.0 15.6 5.0

✓ 88 104 F₅ 7.9
 11.1 15.5 15.1 3.2 7.5
 15.4 9.9 2.0
 10.3 15.5 2.4
 15.3 10.6 2.7
 11.9 15.3 3.0

✓ 88 115 7.8
 12.6 14.9 4.8 6.9
 11.4 14.7 3.6
 14.7 11.6 3.8
 11.6 14.6 3.8
 14.6 13.2 4.4

77.5	1.889
43.6	1.639
50.6	1.704
59.1	1.772
69.1	1.840

60.4	1.781
41.1	1.614
46.6	1.668
53.5	1.728
68.5	1.836

42.7	1.630
26.6	1.424
32.0	1.505
36.0	1.556
40.0	1.602

69.5	1.842
52.2	1.717
55.1	1.741
55.1	1.741
63.8	1.804

114

✓ 98 130

F

7.9

	12.9	14.6	14.6	5.0	6.7
14.6	12.0			4.1	
	12.2	14.7		4.3	
14.6	12.4			4.5	
	13.1	14.5		5.2	

✓ 88 131

7.8

	12.9	14.6	14.7	5.1	6.9
14.7	11.1			3.3	
	11.2	14.8		3.4	
14.8	11.7			3.9	
	12.3	14.8		4.5	

✓ 87 1

A

7.8

	12.6	14.9	14.1	4.8	6.0
14.7	11.3			3.5	
	11.3	14.8		3.5	
14.6	12.4			4.4	
	13.0	14.8		5.2	

✓ 87 15

A₃

7.8

	10.6	14.5	2.8	6.6
14.5	9.8		2.0	
	9.9	14.4	2.1	
14.4	9.9		2.1	
	11.0	14.4	3.2	

74.6	1.872
61.2	1.786
64.2	1.808
67.2	1.827
77.5	1.889

74.0	1.869
47.8	1.679
49.4	1.693
56.5	1.752
65.2	1.814

80.0	1.903
58.4	1.766
58.4	1.766
73.4	1.867
86.6	1.938

42.4	1.627
30.3	1.482
31.8	1.502
31.8	1.502
48.5	1.686

116

✓ 87 26

7.7

	12.7	14.6	5.0	7.1
14.6	11.4		3.7	
	11.9	14.6	3.2	
14.6	12.2		4.5	
	13.2	14.6	5.5	

✓ 87 33

F₂

7.2

	11.5	14.7	3.7	7.0
14.8	10.3		2.5	
	11.1	14.8	3.2	
14.8	11.2		3.4	
	12.3	14.7	4.5	

✓ 87 78

8.21 F₅

7.9

	11.9	14.9	4.0	7.0
14.9	10.1		2.2	
	10.4	14.9	2.5	
14.8	10.4		2.5	
	11.4	14.8	3.5	

transit

✓ 87 115

F₈

7.7

	13.7	15.1	15.5	6.0	7.2
15.7	11.4			3.7	
	11.8	15.2		3.1	
15.3	12.0			4.3	
	13.4	15.0		5.7	

70.5	1.848
52.1	1.717
45.0	1.653
63.4	1.802
77.5	1.889

52.8	1.722
35.8	1.554
47.1	1.673
48.6	1.686
64.4	1.808

57.2	1.757
31.4	1.496
35.8	1.554
35.8	1.574
50.0	1.70

77.0	1.886
47.5	1.676
39.8	1.600
55.2	1.742
73.1	1.864

J 87 122 Fv 7.9

	12.5	14.6	4.6	6.8
14.7	10.6		2.7	
	10.7	14.8	2.8	
14.7	11.1		3.2	
	12.0	14.7	4.1	

J 87 147 Fg 7.8

	12.2	15.1	4.4	7.5
15.3	10.1		2.3	
	10.8	15.2	3.0	
15.3	11.1		3.3	
	12.8	15.5	5.0	

J 87 151 Fg 8.0

	13.9	15.4	5.9	7.0
15.6	12.5		4.5	
	12.9	15.4	4.9	
15.5	13.0		5.0	
	13.9	15.3	5.9	

J 87 180 As- 8.1

	12.0	15.6	3.9	7.4
15.5	10.5		2.4	
	11.0	15.5	2.9	
15.5	11.1		3.0	
	12.0	15.5	3.9	

67.6	1.830
39.7	1.598
41.2	1.614
47.0	1.672
60.4	1.781

58.6	1.768
30.7	1.487
40.0	1.602
44.0	1.644
66.6	1.824

84.2	1.925
64.3	1.808
70.0	1.845
71.5	1.854
84.4	1.926

52.7	1.722
32.4	1.510
39.2	1.593
40.5	1.608
52.7	1.721

120

✓ 87 181

8.2

	13.1	15.4	15.5	4.9	7.3
15.6	10.6			2.4	
	11.3	15.5		3.1	
15.5	11.7			3.5	
	12.5	15.5		4.3	

✓ 87 201

F₅-

8.3

	11.9	15.3	3.6	7.0
15.3	10.2		1.9	
	10.8	15.3	2.5	
15.4	11.0		2.7	
	11.9	15.4	3.6	

✓ 87 205

A₂

8.2

	10.4	15.3	15.5	2.2	7.3
15.2	8.8			.6	
	9.2	15.1		1.0	
15.5	9.0			.8	
	9.3	15.4		1.1	

✓ 86 38

A₅-

8.3

	13.5	15.4	15.5	5.2	7.2
15.4	12.8			4.5	
	13.3	15.4		5.0	
15.3	13.4			5.1	
	13.6	15.2		5.3	

67.1	1.827
32.9	1.517
42.5	1.628
48.0	1.681
58.8	1.769

51.5	1.712
27.2	1.434
35.7	1.552
38.6	1.586
51.4	1.710

30.1	1.478
8.2	0.914
13.7	1.136
10.9	1.038
15.1	1.178

72.0	1.859
62.5	1.796
69.5	1.844
70.9	1.850
73.6	1.866

122

✓ 86	39	F_0	8.2
	10.6	15.2	2.4
	10.2	15.3	2.0
14.7	10.5		2.3
	10.7	15.2	2.5
	10.9	15.3	2.7

✓ 86	57	F_0	8.3
	9.4	15.3	1.1
15.1	8.6		0.3
	8.7	15.2	.4
15.3	8.5		.3
	8.6	15.4	.3

✓ 86	54	F_0	8.2
	13.7	15.2	5.5
15.1	12.0		3.8
	12.3	15.2	4.1
15.2	12.7		4.5
	13.6	15.1	5.4

✓ 86	66	7.90	B_9	8.2
	11.9	15.6		3.7
15.6	9.7			1.5
	10.4	15.8		2.2
15.6	10.4			2.2
	10.9	15.6		2.7

33.9	1.528
------	-------

28.2	1.450
------	-------

32.4	1.510
------	-------

35.2	1.546
------	-------

38.0	1.580
------	-------

15.7	1.196
------	-------

4.3	0.633
-----	-------

5.7	0.756
-----	-------

4.3	0.633
-----	-------

4.2	0.633
-----	-------

78.5	1.894
------	-------

54.4	1.736
------	-------

58.6	1.768
------	-------

64.4	1.808
------	-------

77.2	1.888
------	-------

50.0	1.699
------	-------

20.2	1.308
------	-------

29.8	1.474
------	-------

29.8	1.474
------	-------

36.6	1.564
------	-------

124

Mar 24 '31 ✓ 89 3

A₅

8.2

86343

	13.2	13.9	4.4	5.2
14.0	11.6		2.8	
	11.6	14.0	2.8	
14.1	11.5		2.7	
	12.0	14.1	3.2	

✓ 88 4

A₂

8.9

	9.7	14.0	.2	5.1
14.0	8.9		.0	
	9.0	14.1	.1	
14.0	8.9		.0	
	9.0	13.9	.1	

✓ 88 9

F₀

8.2

	11.7	14.0	2.9	5.2
13.8	10.2		1.4	
	10.2	14.1	1.4	
13.9	10.2		1.4	
	11.0	14.1	2.2	

86334

✓ 86 143

8.6

	13.0	15.2	4.4	6.8
15.5	11.4	15.4	2.8	
	11.5	15.4	2.9	
15.3	11.7		3.1	
	12.6	15.6	4.0	

84.5	1.927
53.8	1.730
53.8	1.730
52.0	1.716
61.5	1.789

15.7	1.196	extr. out of range
0	—	
9.3	0.968	
0	—	
9.3	0.968	

55.7	1.746
26.9	1.430
26.9	1.430
26.9	1.420
42.4	1.627

64.7	1.811
41.2	1.615
42.6	1.630
45.6	1.666
58.8	1.769

86 159

A₃

8.6

		13.2	15.5		13.2
15.6	11.7			11.5	11.6
	12.0	15.7		11.7	11.9
15.7	11.8			11.7	11.7
		15.5		12.3	12.3

J 36342

8871

Mar 26, 1931 1 87 107

8.6

J 36341

	9.2	13.5	13.4	0.6	4.8
J 36342	13.3	8.7		.1	
	8.7	13.5		.1	
13.3	8.8			.2	
	8.9	13.5		.3	

J 87 115

F₈

8.7

	11.9	13.4	13.4	3.2	4.7
13.5	10.4			1.7	
	10.5	13.5		1.8	
13.3	10.5			1.8	
	10.9	13.5		2.2	

J 87 122

F₂

8.7

	11.2	13.3	13.4	2.5	4.7
13.5	9.8			1.1	
	9.7	13.3		1.0	
13.5	9.9			1.2	
	10.8	13.3		2.1	

4.6	7.0	65.8	1.818
3.0		42.8	1.631
3.5		47.1	1.673
3.1		44.3	1.647
3.7		52.8	1.723

12.50	1.096
2.08	0.318
2.08	0.318
4.17	0.620
6.25	0.796

68.1	1.833
36.2	1.558
38.3	1.583
38.3	1.583
46.8	1.670

53.2	1.726
23.4	1.379
21.3	1.328
25.6	1.408
44.7	1.650

✓ 87 147 8.46 F_D 8.6

11.1 13.3 13.4 2.5 4.9
 13.4 9.5 .9
 9.6 13.6 1.0
 13.4 9.7 1.1
 10.8 13.5 2.2

✓ 87 151 8.6

36343

11.9 13.4 3.3 4.7
 13.3 10.7 2.1
 10.7 13.3 2.1
 13.3 10.9 2.3
 11.8 13.4 3.2

✓ 87 169 8.6

36331

11.1 13.2 13.5 2.5 4.9
 13.1 9.4 0.8
 9.4 13.5 .8
 13.3 9.5 .9
 10.1 13.4 1.5

✓ 87 180 8.6

36343

11.1 13.4 2.5 4.8
 13.4 9.3 .7
 9.4 13.5 .8
 13.3 9.5 .9
 10.3 13.4 1.7

51.1	1.708
18.4	1.264
20.4	1.309
22.5	1.352
44.9	1.652

70.2	1.846
44.8	1.652
44.8	1.652
49.0	1.690
68.1	1.833

51.1	1.708
16.3	1.212
16.3	1.212
18.4	1.264
30.6	1.486

52.1	1.716
14.6	1.164
16.7	1.212
18.7	1.272
35.4	1.548

130

36343

✓ 87 181		8.68	A ₃	8.5
	10.9	13.3		2.4
13.3	9.4	13.2		4.7
	9.6			.9
	13.2			1.1
13.1	9.7			1.2
	10.1	13.1		1.6

36342

✓ 87 201				8.5
	10.9	13.9		2.4
14.0	9.5			5.5
	9.5	14.0		1.0
				1.0
14.0	9.9			1.4
	10.8	14.1		2.3

✓ 87 205				8.5
	10.9	13.9		2.4
13.9	8.7			5.2
	8.7	14.0		.2
				.2
13.8	8.6			.1
	8.8	13.7		.3

✓ 87 217		8.96	A ₀	8.5
	12.3	13.8	14.0	3.8
				5.5
14.2	10.2			1.7
	10.4	14.2		1.9
14.1	10.4			1.9
	10.9	13.8		2.4

51.0	1.708
19.3	1.285
23.4	1.369
25.6	1.408
34.0	1.532

43.7	1.640
18.2	1.260
11.2	1.260
25.4	1.404
41.8	1.621

46.2	1.664
3.8	0.580
3.8	0.580
1.9	0.278
5.8	0.764

69.2	1.840	meas. check curves
30.9	1.490	
34.6	1.539	
34.6	1.539	
43.6	1.64	

132

↓ 86 38 9.21 A_5^- 8.5-

36343
 13.3 14.7 4.8 6.1
 14.6 10.7 2.2
 11.0 14.6 2.5
 14.6 11.1 2.6

↓ 86 39 7.96 F_0 8.4

11.6 14.6 14.5 3.2 6.0
 14.6 8.9 .5
 9.0 14.5 .6
 14.2 9.0 .6
 9.5 14.2 1.1

↓ 86 57 6.11 F_5 8.4

36343
 9.0 14.4 14.5 .6 6.1
 14.5 8.4 .0
 8.5 14.6 .1
 14.4 8.5 .1
 8.5 14.4 .1

86 54 8.69 F_6 can't find it
 ↓ 86 66 7.90 R_9 8.3

36343
 11.4 14.4 14.5 3.1 6.2
 14.4 9.0 .7
 9.0 14.6 .7
 14.7 9.0 .7
 9.2 14.4 .9

look at sp.

78.6 1.896

36.1 1.558

41.0 1.613

42.7 1.63

53.3 1.726

8.3 0.919

10.0 1.000

10.0 1.000

18.3 1.262

9.84 0.993

0 —

1.64 0.214

1.6 0.204

1.6 0.204

50.0 1.699

11.3 1.053

11.3 1.053

11.3 1.053

14.5 1.161

J 86 143

8.5-

86 243

	12.1	14.4	14.6	3.6	6.1
14.7	9.6			1.1	
	9.6	14.6		1.1	
14.7	9.6			1.1	
	10.3	14.5		1.8	

J 86 159

A₃

8.4

	11.8	14.5	14.7	3.4	6.0
14.3	9.8			1.4	
	9.7	14.3		1.3	
14.4	9.7			1.3	
	10.5	14.3		2.1	

J 86 161

A₂

8.5-

	10.8	14.3	14.2	2.3	5.7
14.2	8.7			.2	
	8.6	14.0		.1	
14.2	8.7			.2	
	8.9	14.2		.4	

Mar 27, '31

J 86 342

J 88 71

6.52

F₀

8.5-

	10.0	14.0		1.5	5.5
13.9	8.7			.2	
	8.7	14.0		.2	
14.0	8.7			.2	
	8.8	14.1		.2	

59.0	1.77
18.1	1.26
18.1	1.26
18.1	1.26
29.6	1.47

56.7	1.75
23.4	1.37
21.7	1.34
21.7	1.34
35.0	1.54

40.4	1.61
35.1	1.545
19.6	1.25
35.1	1.55
70.1	1.85

27.3	0.436
36.4	0.561
36.4	0.561
36.4	0.561
54.6	0.739

136

✓ 87 107 8.7

	10.1	14.3	1.4	5.5
14.2	8.8		.1	
	8.8	14.3	.1	
14.2	8.7		.0	
	8.9	14.2	.2	

✓ 87 151 8.6

	13.0	14.1	4.4	5.5
14.1	11.9		3.3	
	11.9	14.1	3.3	
14.1	12.2		3.6	
	12.8	14.2	4.2	

✓ 87 180 8.7

	12.3	14.0	3.6	5.3
14.1	10.3		1.6	
	10.2	14.1	1.5	
14.0	10.3		1.6	
	11.1	14.0	2.4	

✓ 87 181 8.7

	12.0	14.0	3.3	5.3
14.0	10.5		1.8	
	10.6	13.9	1.9	
14.0	10.6		1.9	
	11.3	13.9	2.6	

25.4	1.404
1.8, 2	0.206
1.8, 2	0.206
0	—
3.6	0.556

80.0	1.902
60.0	1.778
60.0	1.778
65.4	1.816
76.4	1.883

68.0	1.832
90.2	1.484
28.4	1.454
30.2	1.482
45.3	1.656

62.3	1.794
34.0	1.532
35.8	1.554
35.8	1.554
49.1	1.691

✓ 87 201

8.7

	12.9	13.8	2.8	4.2	5.1
14.0	10.4			1.7	
	10.5	13.8		1.8	
13.7	10.4			1.7	
	11.5	13.8		2.8	

✓ 86 38

8.6

	13.0	14.2	14.2	4.4	5.6
14.3	11.9			3.3	
	11.9	14.3		3.3	
14.2	11.5			2.9	
	11.8	14.1		3.2	

✓ 86 57

8.6

	9.1	14.4	4.5	.5	5.9
14.3	8.5			.0	
	8.6	14.4		.0	
14.4	8.7			.1	
	8.7	14.1		.1	

✓ 86 66

8.6

	11.9	14.3	14.5	3.3	5.9
14.5	9.6			1.0	
	9.5	14.3		.9	
14.5	9.4			.8	
	9.7	14.7		1.1	

82.5	1.916
33.4	1.524
35.3	1.548
33.4	1.524
55.0	1.740

78.5	1.894
59.0	1.771
59.0	1.771
51.8	1.714
57.1	1.757

8.5	0.929
—	—
—	—
1.7	0.230
1.7	0.230

56.0	1.748
17.0	1.230
15.0	1.176
15.0	1.176
19.0	1.279

140

✓ 86 143

8.6

	12.4	14.2	3.8	5.6
14.1	10.3		1.7	
	10.0	14.2	1.4	
14.1	10.1		1.5	
	10.8	14.2	2.2	

I 86334

✓ 87 169

9.44 F₀

8.5-

	11.8	15.1	3.3	6.5
15.1	10.5		2.0	
	10.7	15.0	2.2	
15.0	11.0		2.5	
	11.9	14.9	3.4	

✓ 86 161

7.39 A₂

8.5-

	11.7	15.1	15.2	3.2	6.7
15.3	9.6			1.1	
	9.7	15.2		1.2	
15.3	9.7			1.2	
	10.0	15.3		1.5	

✓ 86 170

7.57 F₀

8.5-

	12.7	15.3	15.2	4.2	6.7
15.1	10.0			1.5	
	10.0	15.4		1.5	
15.1	10.0			1.5	
	10.4	15.3		1.9	

67.8	1.832
30.4	1.483
25.0	1.398
26.8	1.428
39.2	1.593

50.8	1.706
30.8	1.488
33.8	1.529
38.5	1.586
52.4	1.719

47.8	1.680
16.4	1.214
17.9	1.253
17.9	1.253
22.4	1.350

62.6	1.796
22.4	1.350
22.4	1.350
22.4	1.350
28.4	1.453

✓ 86 176 6.64 F₅ 8.6
 10.7 15.6 15.6 2.1 7.0
 15.5 9.1 .5
 9.1 15.7 .5
 15.6 9.1 .5
 9.3 15.5 .7

✓ 86 182 8.6
 12.4 15.4 3.8 6.8
 15.4 9.4 .8
 9.3 15.4 .7
 15.4 9.4 .8
 9.7 15.5 1.1

✓ 86 187 8.6
 12.0 15.4 15.5 3.4 6.9
 15.5 10.4 1.8
 10.5 15.5 1.9
 15.6 10.7 2.1
 11.9 15.6 3.3

✓ 86 201 8.6
 12.1 15.6 3.5 7.0
 15.6 9.7 1.1
 9.8 15.6 1.2
 15.7 9.9 1.3
 10.7 15.6 2.1

30.0	1.477
7.1	0.851
7.1	0.851
7.1	0.851
10.0	1.070

55.9	1.747
11.8	1.072
10.3	1.060
11.8	1.072
16.2	1.210

49.2	1.692
26.0	1.415
28.0	1.447
30.0	1.478
47.8	1.680

50.0	1.699
14.3	1.155
17.2	1.235
18.6	1.270
30.0	1.476

144

Mar 28 '21 ✓ 86 170

8.6

86 341

	11.1	14.1	2.5	5.5
14.1	9.0		.4	
	9.1	14.2	.5	
14.1	9.1		.5	
	9.4	14.2	.8	

✓ 86 176

F5 6.64

8.6

	9.2	14.1	.6	5.5
14.1	8.8		.2	
	8.8	14.0	.2	
14.1	8.8		.2	
	8.9	14.1	.2	

✓ 86 182

8.7

	10.3	14.2	1.6	5.4
14.1	9.0		.3	
	8.9	14.1	.2	
14.1	8.9		.2	
	9.1	13.9	.3	

✓ 86 187

F8

8.7

	11.7	14.2	3.0	5.5
14.2	9.4		0.7	
	9.5	14.2	.8	
14.2	9.5		.8	
	10.0	14.2	1.3	

45.5	1.658
7.3	0.863
9.1	0.958
9.1	0.958
14.5	1.161

10.9	1.037
3.6	0.556
3.6	0.532
3.6	0.532
5.5	0.740

29.6	1.471
5.6	0.748
3.7	0.568
3.7	0.568
5.6	0.748

54.6	1.737
12.7	1.103
14.5	1.161
14.5	1.161
23.6	1.373

146

1 86 201

 F_0 7.55

8.7

	11.0	14.0	2.3	5.2
13.8	9.1		.4	
	9.0	14.1	.3	
14.1	9.0		.3	
	9.2	13.8	.5	

↓ 86 221

 F_8

8.7

	11.4	14.4	2.7	5.6
14.3	9.3		.6	
	9.5	14.3	.8	
14.3	9.5		.8	
	10.2	14.3	1.5	

↓ 86 264

 F_v 8.13

8.7

	10.8	13.7	2.1	5.0
13.7	9.3		.6	
	9.4	13.7	.7	
13.8	9.5		.8	
	10.0	13.8	1.3	

↓ 86 272

5.62

 A_2

8.8

	8.8	10.6	0
13.4	0		

44.3 1.646

7.7 0.886

5.8 0.763

5.8 0.763

9.6 0.982

48.3 1.684

10.7 1.029

14.3 1.156

14.3 1.156

26.8 1.428

42.0 1.623

12.0 1.079

14.0 1.146

16.0 1.204

26.0 1.415

148

✓ 86 282 7.93 Ma 8.7
 10.5 12.5 1.8 4.8
 13.5 9.1 .4
 9.3 13.5 .6
 13.4 10.1 1.4
 10.9 13.5 2.2

✓ 86 319 A₃ 8.8
 10.1 13.4 12.7 1.3 4.9
 13.8 9.0 .2
 9.0 13.9 .2
 13.7 9.0 .2
 9.1 13.7 .3

Handwritten signature/initials

✓ 86 318 fainter one 8.8
 11.9 13.9 12.7 3.1 4.9
 13.5 8.9 1.0
 10.0 13.8 1.1
 13.5 10.0 1.2
 10.6 13.7 1.8

✓ 86 324 8.32 A₂ 8.8
 11.6 14.0 2.8 5.2
 14.0 9.7 .9
 9.8 14.1 1.0
 14.0 9.9 1.1
 10.5 14.2 1.7

86 325²
 above 86 324

37.6	1.575
8.3	0.918
12.5	1.097
29.2	1.465
45.8	1.661

26.6	1.424
4.1	0.613
4.1	0.613
4.1	0.613
6.1	0.785

P.9

63.0	1.799
20.4	1.31
24.6	1.39
24.6	1.39
36.8	1.57

11.2

89.9

10.0

10.1

10.8

53.8	1.73
17.3	1.24
19.3	1.285
21.2	1.326
32.4	1.513

150

J 86 332

 F_2

8.9

	12.5	13.9	3.6	5.2
14.1	11.1		2.2	
	11.0	14.1	2.1	
14.1	11.2		2.4	
	12.0	14.0	3.1	

J 86 344

drum out

J 86 347

 F_0

8.8

	10.7	14.4	14.5	1.9	5.7
14.3	9.3			.5	
	9.3	14.4		.5	
14.0	9.3			.5	
	9.5	14.2		.7	

85 62 not on 86 341

65

J 85 74

6.66 F_5

8.7

14.2	9.2	.2	5.5
14.2	8.8	.1	
14.2	8.8	.1	
14.2	8.8	.1	
14.2	8.8	.1	

69.2	1.840
42.4	1.628
40.4	1.606
46.2	1.664
59.6	1.775

33.4	1.523
8.8	0.944
8.8	0.944
8.8	0.944
12.3	0.090

36.4	0.560
18.2	0.26
18.2	0.26
18.2	0.26
18.2	0.26

152

Mar 30 '31

86 334

J 86 221

 F_2

9.1

13.5

15.5

15.5

4.4

6.4

15.4

11.0

1.9

10.9

15.4

1.8

15.6

11.2

2.1

12.5

15.5

3.4

J 86 264

 F_2

9.1

13.1

15.5

15.5

4.0

6.1

15.2

10.9

1.8

11.5

15.2

2.4

16.1

11.7

2.6

12.5

15.3

3.4

86 272

 A_2

9.0

 β ~~9.1~~

10.5

15.0

1.5

6.0

 ϵ

9.1

.1

J 86 282

 M_2

9.0

12.4

15.2

15.2

3.4

6.2

15.3

9.7

.7

10.0

15.1

1.0

15.1

11.3

2.3

12.5

15.2

3.5

J 86 318

 F_2

9.9

13.5

15.1

4.6

6.2

10.9

15.2

2.0

15.1

11.4

2.5

11.4

15.1

2.5

15.1

12.2

3.3

68.7	1.837
29.6	1.471
28.2	1.450
32.8	1.516
53.1	1.725

65.6	1.817
29.6	1.471
39.4	1.597
42.7	1.630
55.8	1.747

25.0	1.398
1.7	0.230

54.8	1.738
11.3	1.052
16.1	1.206
37.1	1.569
56.5	1.752

74.2	1.870
32.2	1.507
40.4	1.606
40.4	1.606
53.5	1.727

\downarrow 86 319 A_3 8.8
 10.7 14.4 11.9 1.9 6.1
 15.2 9.3 .5
 9.3 14.8 .5
 15.2 9.3 .5
 9.4 14.9 .6

\downarrow 86 324 8.8
 12.7 15.1 15.1 3.9 6.3
 15.1 10.5 1.7
 10.8 15.2 2.0
 15.0 10.7 1.9
 11.3 15.2 2.5

\downarrow 86 332 F_2 8.8
 13.0 14.8 4.2 6.0
 14.8 12.3 3.5
 12.5 14.8 3.7
 14.7 12.7 3.9
 13.1 14.9 4.3

86 344 5.81 F_0 8.8
 14.7 9.6
 14.9 8.9
 0

\downarrow 86 347 F_0 8.8
 11.9 15.0 4.7 3.1 6.1
 15.0 9.9 10.9 1.1
 9.8 14.9 1.0
 15.0 9.9 1.1
 10.1 14.8 1.3

51.2 1.494

8.2 0.914

8.2 0.914

8.2 0.914

9.8 0.991

61.9 1.791

27.0 1.432

31.8 1.502

30.2 1.480

39.8 1.600

70.0 1.845

58.4 1.766

61.6 1.790

65.0 1.813

71.6 1.855

50.8 1.706

18.0 1.255

16.4 1.214

18.0 1.254

21.3 1.328

156

J 85 74		As		8.8	
	10.6	13.8	4.9 14.0	1.8	5.2
14.2	9.1			.3	
	8.9	13.8		.1	
14.0	9.2			.4	
	9.3	14.1		.5	

J 85 128		F ₂		8.8	
	12.0	14.4	14.1	3.2	5.6
14.3	10.4			1.6	
	10.6	14.5		1.2	
14.1	10.6			1.3	
	11.4	14.5		2.6	

J 85 294		7-71		Fo		8.8	
14.6	11.1		3.0 10.7		2.3	5.9	
	9.8	14.6			1.0		
14.7	10.0				1.2		
	10.2	14.7			1.5		
15.1	10.8				2.0		

J 85 359		Fo		8.9	
	12.7	15.5	15.5	3.8	6.6
15.7	11.4			2.5	
	11.5	15.4		2.6	
15.5	11.3		X	2.4	
	12.0	15.5		3.1	

34.6	1.539
------	-------

5.8	0.764
-----	-------

1.9	0.278
-----	-------

7.7	0.886
-----	-------

9.6	0.982
-----	-------

57.2	1.758
------	-------

28.6	1.456
------	-------

32.2	1.508
------	-------

32.2	1.508
------	-------

46.5	1.668
------	-------

39.0	1.592
------	-------

16.9	1.23
------	------

20.4	1.31
------	------

25.4	1.40
------	------

33.9	1.53
------	------

57.6	1.76
------	------

37.9	1.58
------	------

39.4	1.59
------	------

36.4	1.56
------	------

47.0	1.67
------	------

158

✓ 85-367

		A	8.8
	13.2 14.7 ^{4.8} 14.9	4.4	6.1
15.3	11.4	2.6	
	12.2 14.8	3.4	
15.1	11.7	2.9	
	12.3 14.9	3.5	

✓ 85-376

		F ₀	8.8
	13.5 15.1 15.2	4.7	6.4
	12.0 15.1	3.2	
	12.3 15.0	3.5	
	12.2 15.2	3.4	
	13.0 15.6	4.2	6.8

✓ 85-399

		F ₀	8.8
	10.3 15.5 ^{36.5} 36.9	1.5	6.9
15.6	9.1	.2	
	9.0 15.8	.2	
15.8	9.1	.3	
	9.1 15.9	.3	

✓ 85-401

		F ₀	8.8
	10.9 15.6	2.1	6.9
15.7	9.5	.7	
	9.5 15.7	.7	
15.7	9.6	.8	
	9.8 15.8	1.0	

72.2 1.86

42.6 1.63

55.7 1.75

47.5 1.68

57.3 1.76

73.5 1.87

50.0 1.70

54.7 1.74

53.1 1.72

6 ^{1.8}_{~~5.6~~} 1.79

21.8 1.34

2.9 0.46

2.9 0.46

4.3 0.63

4.3 0.63

30.4 1.48

10.2 1.01

10.2 1.01

11.6 1.064

14.5 1.16

160

↓ 85 403

P5

8.8

47

	11.2	15.8	2.4	6.1
16.0	9.6		.8	
	9.4	16.0	.6	
16.0	9.3		.5	
	9.3	15.9	.5	

↓ 88 39

F0

9.0

	13.9	15.1	4.9	6.1
15.9	12.3		3.3	
	12.8	15.1	3.8	
15.1	13.0		4.0	
	13.6	15.2	4.6	

Mar 31 '31

↓ 86 341

↓ 86 325

10.26

140

8.2

14.1	11.4	14.2	3.1	5.9
	10.4	14.1	2.1	
14.2	11.0		2.7	
	10.9	14.3	2.6	
14.2	11.8		3.5	

↓ 85 128

7.76

F2

8.4

	9.2	14.9	.8	6.5
14.9	9.1		.7	
	9.0	14.8	.6	
14.8	9.1		.7	
	9.9	15.0	1.5	

39.4	1.60
------	------

13.1	1.12
------	------

9.8	0.99
-----	------

8.2	0.91
-----	------

8.2	0.91
-----	------

80.4	1.91
------	------

54.0	1.73
------	------

62.4	1.80
------	------

65.5	1.82
------	------

75.4	1.88
------	------

52.6	1.721
------	-------

35.6	1.552
------	-------

45.8	1.662
------	-------

44.1	1.644
------	-------

59.4	1.774
------	-------

12.3	1.09
------	------

10.8	1.03
------	------

9.2	0.96
-----	------

10.8	1.03
------	------

23.1	1.36
------	------

162

\checkmark 85 359 F_0 8.46 8.3
 11.1 14.6 14.5 2.8 6.2
 14.5 9.6 1.3
 9.6 14.4 1.3
 14.4 9.6 1.3
 10.1 14.4 1.8

\checkmark 85 367 8.86 F_1 8.5
 13.0 14.6 14.8 4.5 6.3
 14.9 10.5 2.0
 10.6 14.9 2.1
 15.0 10.4 1.9
 11.1 14.7 2.6

\checkmark 85 376 F_0 8.6
 15.2 12.1 15.1 3.5 6.5
 12.8 15.1 4.2
 15.1 10.9 2.3
 10.8 15.0 2.2
 15.0 10.9 2.3

85 399 F_0 8.6
 9.4 15.0
 15.1 8.6
 0

15-294

45.1 1.654

21.0 1.322

21.0 1.322

21.0 1.322

29.0 1.462

71.5 1.854

31.8 1.502

33.4 1.524

30.2 1.480

41.3 1.616

53.8 1.730

35.9 1.520

64.6 1.810

35.4 1.548

33.8 1.528

35.4 1.548

164

✓ 85 401		7.49	F5		8.6
	10.6	15.3	15.1	2.0	6.5
15.1	8.8			.2	
	8.8	15.0		.2	
14.9	8.7			.1	
	8.9	15.0		.3	

✓ 85 402		7.09	A5		8.5
	9.7	15.1	15.2	1.2	6.7
15.2	8.6			.1	
	8.7	15.2		.2	
15.4	8.6			.1	
	8.7	15.3		.2	

✓ 86 9			A3		8.5
15.1	11.5	15.4	15.1	3.0	6.6
14.9	9.9			1.4	
	10.1	15.3		1.6	
14.9	9.8			1.3	
	10.5	15.0		2.0	

✓ 88 90		9.81	A0		8.4
	12.8	14.5	14.3	4.4	6.8
14.1	11.4			3.0	
	11.9	14.5		3.5	
14.2	12.1			3.7	
	13.1	14.4		4.7	

85-399

30.8 1.488

3.1 0.491

3.1 0.491

1.5 0.176

4.6 0.662

17.9 1.253

1.5 0.176

3.0 0.477

1.5 0.176

3.0 0.478

45.5 1.658

21.2 1.326

24.3 1.386

19.7 1.294

30.3 1.482

72.2 1.858

49.2 1.692

57.5 1.760

60.6 1.782

77.1 1.887

166

Tr meas on J 26334 85 294
85 399

April 1 1951 ✓

85 399

8.7

J 26343

	9.7	14.1	1.0	5.6	19.2	1.283
14.2	8.9		.2		3.6	0.556
	8.9	14.4	.2		3.6	0.556
14.4	8.8		.1		1.8	0.254
	9.0	14.6	.3		5.4	0.732

✓ 85 401

8.8

	11.4	14.4	2.6	5.7	45.6	1.659
14.4	9.5		.7		12.3	1.089
	9.4	14.7	.6		10.5	1.021
14.4	9.4		.6		10.5	1.021
	9.6	14.4	.8		14.0	1.146

J 85 403

85 7.09

8.9

	10.6	14.8	1.7	5.9	28.8	1.459
14.6	9.2		.3		5.1	0.709
	9.2	14.8	.3		5.1	0.709
14.8	9.0		.1		1.7	0.230
	9.1	14.8	.2		3.4	0.531

J 86 57

F₁ 6.11

8.8

	9.0	14.3
14.4	8.8	
	0	

✓ 86 170

8.8

10.5	14.4	1.7	5.6	20.4	1.482
14.5	9.5	.7		12.5	1.097
	9.4	14.0	.6	10.7	1.030
14.5	9.4	.6		10.7	1.020
9.8	14.4	1.0		17.9	1.252

✓ 86 176

F₅ 6.64

8.7

	9.4	14.6	.7	6.0	11.7	1.068
14.6	8.9		.2		3.3	0.518
	8.9	14.7	.2		3.3	0.578
14.7	8.9		.2		3.3	0.578
	9.1	14.7	.4		6.7	0.826

✓ 86 182

8.7

	10.2	14.9	1.5	6.2	24.2	1.384
15.0	9.3		.6		9.7	0.986
	9.3	14.9	.6		9.7	0.986
14.9	9.2		.5		8.1	0.908
	9.5	14.7	.8		12.9	1.110

✓ 86 201

8.8

	11.4	14.8	2.6	5.9	44.1	1.644
14.8	9.6		.8		13.5	1.120
	9.6	14.6	.8		13.5	1.120
14.7	9.5		.7		11.9	1.075
	9.9	14.8	1.1		18.7	1.272

168

April 21 '31

86 343

✓ 86	221	F_8	8.07	rounded out of focus			8.8
		12.1	15.6 ^{15.7}	3.3	6.9	47.8	1.680
	15.7	10.8		2.0		29.0	1.462
		10.8	15.8	2.0		29.0	1.462
	15.7	10.9		2.1		30.4	1.483
		11.9	15.8	3.1		45.0	1.653

✓ 86 264 F_8 8.13 8.9

		12.4	15.8 ^{15.6}	3.3	6.7	49.3	1.692
	15.4	10.6		1.7		25.4	1.405
		10.5	15.5	1.6		23.9	1.378
	15.6	10.5		1.6		23.9	1.378
		11.5	15.8	2.6		38.8	1.589

✓ 86 324 A_8 8.32 8.9

		12.8	15.5	3.9	6.7	58.2	1.765
	15.6	10.8		1.9		28.4	1.454
		10.6	15.6	1.7		25.4	1.405
	15.5	10.7		1.8		26.9	1.430
		11.5	15.6	2.6		28.8	1.459

✓ 87 1 A 9.10 8.9

		13.3	15.2	4.4	6.3	69.8	1.844
	15.3	12.2		3.3		52.4	1.718
		12.3	15.3	3.4		54.0	1.732
	15.3	12.2		3.3		52.4	1.719
		12.6	15.1	3.7		58.7	1.768

✓ 87 9

 F_5 9.02

8.9

	13.4	15.4	15.5	4.5	6.6	68.2	1.834
15.3	11.9			3.0		45.5	1.658
	12.0	15.4		3.1		47.0	1.672
15.3	11.9			3.0		45.5	1.658
	12.7	15.2		3.8		57.5	1.760

✓ 87 15

 A_5 8.15

8.8

	12.4	15.3	15.3	3.6	6.5	55.4	1.743
15.3	10.3			1.5		23.1	1.364
	10.2	15.4		1.4		21.6	1.334
15.4	10.3			1.5		23.1	1.363
	10.9	15.1		2.1		32.4	1.510

✓ 87 26

 \sim 9.10

8.8

	14.1	15.4		5.3	6.7	79.0	1.898
15.5	12.2			3.4		50.8	1.706
	12.3	15.5		3.5		52.2	1.718
15.4	12.2			3.4		50.8	1.706
	13.3	15.5		4.5		67.2	1.828

✓ 87 33

 F_2

8.8

	12.6	15.3	15.4	3.8	6.6	57.5	1.760
15.4	11.3			2.5		37.9	1.578
	11.4	15.4		2.6		39.4	1.595
15.3	11.4			2.6		39.4	1.595
	12.2	15.5		3.4		51.5	1.712

170

✓ 87 78 F_0 8.42 8.9

	12.6	15.4	3.7	6.5	57.0	1.756
15.4	10.7		1.8		27.7	1.442
	10.6	15.4	1.7		26.2	1.418
15.3	10.7		1.8		27.7	1.442
	11.6	15.3	2.7		41.5	1.618

✓ 87 169 F_0 8.44 8.8

	13.4	15.7	4.6	6.9	66.6	1.824
15.6	11.0		2.2		31.9	1.504
	10.8	15.7	2.0		29.0	1.462
15.7	10.9		2.1		30.4	1.483
	11.7	15.7	2.9		42.1	1.624

✓ 88 13 A 8.94 8.8

	13.6	15.2	4.8	6.4	75.0	1.875
15.2	11.7		2.9		45.4	1.667
	11.8	15.2	3.0		47.0	1.672
15.2	11.8		3.0		47.0	1.672
	12.7	15.2	3.9		61.0	1.785

✓ 88 64 B_0 7.27 8.9

	11.3	15.4	2.4	6.4	37.6	1.574
15.2	9.3		.4		6.3	0.800
	9.3	15.4	.4		6.3	0.800
15.4	9.2		.3		4.7	0.672
	9.4	15.2	.5		7.8	0.892

✓ 88 77

8.9

	13.2	15.4 ^{15.5}	4.3	6.6	65.1	1.814
15.5	11.7		2.8		42.4	1.627
	11.7	15.6	2.8		42.4	1.627
15.5	11.7		2.8		42.4	1.627
12.8	15.5		3.9		59.1	1.772

✓ 88 86

B₉ 8.82

9.0

	13.5	15.5 ^{15.4}	4.5	6.4	70.4	1.848
15.5	11.8		2.8		43.8	1.642
	11.6	15.4	2.6		40.7	1.610
15.4	11.6		2.6		40.7	1.610
12.1	15.4		3.1		48.5	1.686

✓ 88 104 F₅ 8.42

8.9

	12.4	15.4	3.5	6.5	54.0	1.732
15.4	10.7		1.8		27.7	1.442
	10.7	15.4	1.8		27.7	1.442
15.4	10.8		1.9		29.2	1.466
11.9	15.5		3.0		46.1	1.664

✓ 88 115

A₂

8.9

	14.0	15.3	5.1	6.6	77.4	1.888
15.2	12.1		3.2		48.5	1.686
	12.2	15.1	3.3		50.0	1.699
15.2	12.3		3.4		51.5	1.712
13.0	15.3		4.1		62.1	1.794

172

✓ 88 130 F 9.51 8.9

	13.4	15.1	4.5	6.2	72.6	1.862
15.1	12.6		3.7		59.7	1.772
	12.6	15.2	3.7		59.7	1.772
15.1	12.7		3.8		61.4	1.788
	13.5	15.1	4.6		74.2	1.870

✓ 88 131 A₅ 8.95 8.9

	13.2	15.2	4.3	6.3	68.4	1.835
15.2	11.7		2.8		44.5	1.648
	11.7	15.2	2.8		44.5	1.648
15.1	11.8		2.9		46.0	1.662
	12.3	15.1	3.4		54.0	1.732

✓ 86 341 ✓ 85 399 F₀ 6.68 F₀ 8.8

	9.2	14.9	5.0	4	6.2	6.5	0.812
14.90	8.9			.1		1.6	0.204
	8.9	15.0		.1		1.6	0.204
15.0	8.9			.1		1.6	0.204
	9.0	15.2		.2		3.2	0.505

✓ 85 403 A₅ 7.09 8.9

	10.0	15.2	15.5	1.1	6.6	1.67	1.222
15.2	9.0			.1		1.5	0.176
	9.1	15.2		.2		3.0	0.478
15.2	9.1			.2		3.0	0.478
	9.2	15.3		.3		4.5	0.654

✓ 86 9	A_3	1.67					8.9
	12.2	15.2	3.3	6.2	53.2	1.726	
15.1	10.4		1.5		24.2	1.384	
	10.4	15.2	1.5		24.2	1.384	
15.0	10.3		1.4		22.6	1.354	
	11.0	15.2	2.1		33.9	1.530	

✓ 86 38	A_3	9.21					8.8
	13.3	15.1	4.5	6.3	71.5	1.854	β
15.1	17.4		2.6		41.4	1.617	
	11.6	15.1	2.8		44.5	1.648	γ
15.2	11.4		2.7		42.9	1.632	δ

✓ 87 107	F_2	6.60			Not G.		8.8
	9.5	14.8	.7	6.0	11.6	1.065	
14.7	8.9		.1		1.7	0.230	
	8.9	14.9	.1		1.7	0.230	
14.8	8.9		.1		1.7	0.230	
	9.0	14.8	.2		3.3	0.578	

✓ 88 9	F_0	8.33					8.9
	11.1	14.3	2.2	5.4	40.8	1.611	
14.3	9.7		.8		14.8	1.170	
	9.7	14.4	.8		14.8	1.170	
14.2	9.7		.8		14.8	1.170	
10.4	14.2	1.5			27.8	1.444	

174

↓ 88 29 F_0 9.29 8.8

	12.9	14.9	4.1	6.1	67.3	1.828
15.0	11.5		2.7		44.2	1.646
	11.4	14.9	2.6		42.6	1.630
15.0	11.7		2.9		47.5	1.676
	12.4	14.8	3.6		59.0	1.770

↓ 88 71 F_0 6.52 8.9

	9.2	14.5
14.3	8.9	
	0	

I 36 334

↓ 86 57 F_5 6.11 8.9

	10.7	17.4	1.9	8.6	22.1	1.544
17.4	9.1		.3		34.9	0.543
	9.0	17.4	.2		23.3	0.368
17.4	9.1		.3		34.9	0.543
	9.2	17.4	.4		46.5	0.668

↓ 87 201 F_5 8.63 8.9

	13.2	16.8	4.3	8.0	53.7	1.730
16.8	11.8		2.9		36.3	1.560
	11.7	17.0	2.8		35.0	1.544
17.0	12.0		3.1		38.8	1.588
	12.5	16.7	3.6		45.0	1.653

April 3 '31 ✓ 85-399 F_0 6.68

8.8

I 36334

	12.0	17.5 ⁷⁷	3.2	8.9	36.0	1.556
17.4	9.4		.6		6.7	0.826
	9.2	17.8	.4		4.5	0.653
17.8	9.4		.6		6.7	0.826
	9.4	17.8	.6		6.7	0.826

✓ 85 401 F_5 7.49

8.9

	14.7	17.8	5.8	8.9	65.2	1.814
17.9	10.0		1.1		12.4	1.092
	9.9	17.8	1.0		11.2	1.048
17.7	10.0		1.1		12.4	1.093
	10.2	17.8	1.3		14.6	1.164

✓ 86 170

 F_0

8.9

	12.4	18.4 ¹⁸⁴	4.5	9.5	47.4	1.676
18.1	11.1		2.2		23.2	1.366
	10.9	18.5	1.0		10.5	1.022
18.5	10.9		1.0		10.5	1.022
	11.7	18.4	2.8		29.5	1.470

✓ 86 176

 F_5

8.9

	12.3	18.5	4.4	9.7	45.4	1.657
18.6	9.5		.6		6.2	0.792
	9.6	18.6	.7		7.2	0.857
18.6	9.7		.8		8.2	0.913
	10.0	18.6	1.1		11.2	1.050

✓ 87 78 $F_5 - 8.43$ 8.9

13.7 17.5^{17.9} 4.8 8.9 54.0 1.732
 17.9 11.8 2.9 32.6 1.513
 12.1 17.9 3.2 36.0 1.556
 17.9 12.3 3.4 38.2 1.582
 13.6 17.9 4.7 52.8 1.722

✓ 87 107 F_2 8.9

11.2 18.2³ 2.3 9.4 24.5 1.390
 18.4 9.4 .5 5.3 0.724
 9.3 18.5 .4 4.3 0.634
 18.3 9.4 .5 5.3 0.724
 9.5 18.2 .6 6.9 0.806

✓ 87 181 A_3 9.0

15.5 17.8^{17.9} 6.5 8.7 74.6 1.872
 17.9 12.0 3.0 34.4 1.536
 12.1 17.6 3.1 35.7 1.552
 18.0 12.3 3.3 37.9 1.578
 13.3 17.5 4.3 49.5 1.694

✓ 87 201 9.0

13.7 17.4^{17.5} 4.7 8.5 55.2 1.742
 17.4 11.7 2.7 21.8 1.502
 12.0 17.5 3.0 35.4 1.548
 17.6 12.2 3.2 37.6 1.574
 12.8 17.4 3.8 44.7 1.650

I

✓ 88 71

8.9

11.1	18.2	3.2	9.2	23.9	1.378
9.4	18.1	.5		5.4	0.732
18.3	9.2	.5		3.3	0.518
	9.2	17.9	.2	3.3	0.518
18.2	9.4	.5		5.4	0.732

[36341] ✓ 85 376 F_0 8.95 9.0

13.4	15.5	4.4	6.7	65.6	1.816
11.4	15.5	2.4		35.8	1.554
15.8	11.3	2.2		34.4	1.536
	11.2	15.7	2.2	32.9	1.517
15.7	11.6	2.6		38.8	1.588

✓ 86 54 F_0 9.0

13.9	15.5	4.9	6.6	74.4	1.870
15.7	11.1	3.1		31.8	1.502
15.0	15.7	2.0		30.3	1.481
15.6	11.6	2.6		39.4	1.595
12.2	15.6	3.3		50.0	1.699

✓ 87 33 F_2 9.0

12.1	15.3	3.1	6.3	49.2	1.692
15.4	10.5	1.5		23.8	1.376
10.7	15.3	1.7		27.0	1.430
15.5	10.8	1.8		28.6	1.456
11.7	15.2	2.7		42.8	1.631

178

✓	87	78	F ₈				9.1
		12.1	15.7	3.0	6.5	46.2	1.664
	15.7	10.3		1.2		18.5	1.266
		10.2	15.5	1.1		16.9	1.228
	15.5	10.3		1.2		18.5	1.266
		10.9	15.6	1.8		27.7	1.442

✓	88	13	A	8.94			9.0
		12.7	15.1	3.7	6.0	61.6	1.79
	15.0	10.8		1.8		30.0	1.476
		10.8	15.1	1.8		30.0	1.476
	14.9	11.3		2.3		38.4	1.584
		12.5	14.9	3.5		58.4	1.766

✓	88	64	B ₂				9.1
		9.9	15.4	1.8	6.2	12.9	1.110
	15.1	9.25		1.5		2.4	0.380
		9.25	15.3	1.5		2.4	0.380
	15.1	9.30		1.20		3.2	0.505
		9.40	15.4	1.30		4.8	0.687

[3634]

✓	88	86	B ₂				9.0
		13.6	15.9	4.6	6.9	66.6	1.824
	15.8	12.0		3.0		43.5	1.638
		12.0	15.9	3.0		43.5	1.638
	16.1	11.9		2.9		42.0	1.623
		12.2	15.9	3.2		46.4	1.666

✓ 88 115

A₂

9.0

13.7 15.9^{15.7} 4.7 6.7 70.2 1.846
 15.7 12.6 3.6 53.7 1.73
 12.4 15.6 3.4 50.8 1.706
 15.6 12.5 3.5 52.2 1.718
 13.5 15.8 4.5 67.2 1.827

85 19 36334

8864 86 57 85 19 85403

April 10, 1931

I 86334 ✓ 85 19

8.9

9.7 17.7 .8 8.9 9.00 0.954
 17.8 9.0 .1 1.12 0.050
 8.95 17.7 .05 0.56 0.748
 18.1 8.9 .0 0.0
 9.1 17.8 .2 2.25 0.352

✓ 88 64

P₈ 7.27

8.9

17.8 12.9 4.0 8.9 45.00 1.654
 17.8 10.2 1.3 14.60 1.164
 17.8 9.7 .8 9.00 0.954
 17.8 9.7 .8 9.00 0.954
 18.1 10.1 1.2 12.50 1.130

✓ 86 57

F₅ 6.412

8.9

11.1 18.0 2.2 8.9 24.70 1.393
 17.9 9.1 .2 2.25 0.352
 9.1 17.7 .2 2.25 0.352
 17.8 9.2 .3 3.37 0.375
 9.2 17.8 .3 3.37 0.375

✓ 85 19

8.8

	9.5	17.9	.7	9.1	7.70	0.886
17.9	8.9		.1		1.10	0.042
	8.9	18.0	.1		1.10	.042
18.0	8.9		.1		1.10	.042
	9.0	17.9	.2		2.20	0.342

↓ 85 403

8.9

	13.3	18.2	4.4	9.3	47.3	1.675
18.2	9.7		.8		8.6	0.934
	9.5	18.2	.6		6.4	0.806
18.2	9.5		.6		6.4	0.806
	9.5	18.1	.6		6.4	0.806

I 86 341

85 19 *burnt*

✓ 88 64

8.7

	10.6	15.0	1.9	6.4	29.7	1.473
15.0	8.9		.2		3.13	0.496
	9.0	15.0	.3		4.69	0.671
14.9	8.9		.2		3.12	0.494
	9.1	15.2	.4		6.25	0.796

86 51 *burnt*

✓ 85 403

8.7

	9.6	15.7	.9	6.9	13.1	1.118
15.6	8.9		.2		2.9	0.462
	8.9	15.6	.2		2.9	0.462
15.4	8.9		.2		2.9	0.462
	9.0	15.7	.3		4.3	0.634

April 24 '21 88 11 on 86341

8.7

	11.0	12.8	2.3	4.3	53.5	1.728
13.0	10.0		1.3		30.2	1.480
	10.0	13.0	1.3		30.2	1.480
12.9	10.4		1.7		39.6	1.598
	11.2	12.9	2.5		58.2	1.765

I 14243

83 20

R of E 5 v of 2

8.7

Aox for
char. curves

	13.2	14.9	4.5	6.5	69.3	1.840
15.2	11.3		2.6		40.0	1.602
	11.8	15.2	3.1		47.7	1.678
15.3	11.8		3.1		47.7	1.678
	12.5	15.1	3.8		58.5	1.767

83 54

8.8

	11.1	15.4	15.5	2.3	6.7	34.3	1.535
15.6	9.5		.7			10.5	1.021
	9.7	15.3	.9			13.4	1.128
15.5	9.6		.8			11.9	1.075
	10.7	15.5	1.9			38.4	1.453

82 743

bump

748 bump

81 30

8.7

	9.9	14.1	1.2	5.3	22.6	1.354
14.1	9.1		.4		7.5	0.874
	9.1	14.1	.4		7.5	0.874
14.0	9.1		.4		7.5	0.874
	9.5	13.8	.8		15.1	1.179

18.

80 10

8.7

	10.5	14.2	1.8	13.9	5.2	34.6	1.539
13.8	9.3		.6			11.5	1.060
	9.3	14.1	.6			11.5	1.060
13.2	9.5		.8			15.4	1.188
	10.3	14.2	1.6			30.8	1.488

80 36 burnt 50 55

80 57

8.6

	9.1	14.2	.5	5.9	8.5	0.929
14.4	8.7		.1		1.7	0.230
	8.7	14.2	.1		1.7	0.230
14.4	8.8		.2		3.4	0.531
	9.1	14.2	.5		8.5	0.929

64 burnt

a. verified

80 70

8.6

	9.8	15.0	1.2	6.3	19.1	1.281
15.0	8.9		.3		4.8	0.681
	9.0	15.0	.4		6.3	0.799
14.9	9.0		.4		6.3	0.799
	9.1	14.7	.5		7.9	0.898

April 27 '31
14 2 43

80 752

not very good

8.4

14.5	12.9	14.5	4.5	6.1	73.8	1.868
14.4	10.6		2.2		36.1	1.558
	10.7	14.5	2.3		37.7	1.576
14.6	10.8		2.4		39.4	1.596
	11.3	14.4	2.9		47.5	1.676

80 770

8.5

39	12.5	14.2	4.0	5.5	72.8	1.862
60	14.0	9.5	1.0		18.2	1.260
60	9.4	14.0	.9		16.3	1.212
88	14.2	9.5	1.0		18.2	1.260
88	9.8	13.7	1.3		23.6	1.373

80 780

8.4

	10.6	13.9	2.2	5.5	40.0	1.602
	13.8	8.7	.3		5.5	0.740
	8.7	14.0	.3		5.5	0.740
	13.9	8.7	.3		5.5	0.740
	8.9	13.9	.5		9.1	0.959

80 793

8.4

	12.6	13.6	4.2	5.3	79.3	1.899
13.7	10.8		2.4		45.4	1.657
	10.8	13.7	2.4		45.4	1.657
13.7	10.7		2.3		43.5	1.638
	11.0	13.8	2.6		49.0	1.690

79 19

8.4

	12.4	13.7	4.0	5.4	74.1	1.870
13.8	8.7		.3		5.6	0.748
	8.8	13.7	.4		7.4	0.869
13.8	8.7		.3		5.6	0.748
	8.8	13.8	.4		7.4	0.869

79	39					8.4	
		11.9	13.8	3.5	5.5	63.6	1.804
	14.0	8.9		.5		9.1	0.959
		8.9	14.0	.5		9.1	0.959
	13.9	8.9		.5		9.1	0.959
		9.1	14.0	.7		12.7	1.104

79	55					8.4	
		13.0	14.4	12.5			
	14.4	10.7		2.3	6.0	38.4	1.584
		10.4	14.4	2.0		33.4	1.524
	14.5	10.6		2.2		36.7	1.564
		10.7	14.5	2.3		38.4	1.584

April 28 '31	80	57					8.5	Mean
			11.9	14.5	3.4	6.0	56.6	1.753
	14.2	8.7			.2		3.8	0.518 .374
		8.7	14.6		.2		3.3	0.518 .374
	14.6	8.8			.3		3.3	0.518 .525
		8.0	14.7		.5		8.3	0.919 .924

79	69						8.6	
		14.2	15.7	5.5	5.6	6.9	81.2	1.910
15.4	10.0				1.4		20.3	1.308
	10.2	15.4			1.5		21.8	1.338
15.4	10.0				1.4		20.3	1.308
	10.1	15.8			1.5		21.8	1.338

79 792

8.6

	13.0	14.6	4.4	5.9	74.5	1.872
14.5	9.8		1.1		18.7	1.272
	9.9	14.5	1.3		22.0	1.342
14.5	9.8		1.2		20.4	1.310
	10.1	14.5	1.5		25.4	1.405

78 34 *brub*

78 49

8.7

15.0	12.0	3.3	6.3	52.4	1.719
15.0	10.5	1.8		28.6	1.456
15.0	10.7	2.0		31.8	1.502
	10.5	15.0	1.8	28.6	1.456
14.9	10.9	2.2		34.9	1.543

77 41 *out of the uniform - not used*

8.7

14.5	15.6	5.8	6.8	25.4	1.932
15.5	11.5	2.5		36.8	1.566
11.5	15.3	2.5		36.8	1.566
15.5	11.2	2.5		36.8	1.566
11.3	15.4	2.6		38.2	1.582

end of A0

76 944

out of focus β omity 83 1

F5

8.6

9.7	14.6	1.1	5.9	18.7	1.272
14.6	9.9	1.3		22.0	1.342
	9.9	14.5	1.3	22.0	1.342
14.3	10.3	1.7		28.8	1.459

✓ 83 9	F_D	8.6
8.8 14.7	.2 6.0 3.3	0.518
14.6 8.8	.2 3.3	0.518
8.8 14.6	.2 3.3	0.518
14.6 8.9	.3 5.0	0.699

✓ 83 10 - 83 11 overlap

✓ 83 20			F_3-p	<u>tr h.</u>	8.6	
	8.7	14.6	.1	5.9	1.7	0.230
14.4	8.7		.1		1.7	0.230
	8.7	14.4	.1		1.7	0.230
	8.7	14.6	.1		1.7	0.230

✓ 83 52	A_2	tr faint	8.6		
11.9	14.7	3.3	6.2	53.2	1.726
14.9	12.0	3.4		54.9	1.739
12.1	14.6	3.5		56.5	1.752
14.9	13.0	4.4		71.0	1.852

✓ 83 56	K_0	8.6
8.8 14.5	.2 5.9 3.4	0.532
14.6 9.0	.4 6.8	0.832
10.0 14.6	1.4 23.8	1.376
14.5 10.8	2.2 37.3	1.572

✓ 83 79	G	8.6
10.4 15.2	1.8 6.6 27.3	1.436
15.0 10.8	2.2 33.4	1.524
12.1 15.3	2.5 37.9	1.578
15.1 12.7	4.1 62.1	1.793

✓ 82	14	A_v				8.7
	8.9	14.1	.2	5.3	3.8	0.580
	13.9	9.0	.3		5.7	0.756
	9.2	14.2	.5		9.4	0.974
	13.9	9.4	.7		13.2	1.120

✓ 82	20	bump				
✓ 82	23	F_2				8.7
	9.2	14.0	.5	5.3	9.4	0.973
	14.0	9.4	.7		13.2	1.120
	9.5	14.1	.8		15.1	1.179
	14.1	10.0	1.3		24.5	1.389

✓ 82	30	A_2				8.7
	10.0	14.2	1.3	5.6	23.2	1.366
	14.3	10.0	1.3		23.2	1.366
	10.2	14.3	1.5		26.8	1.428
	14.2	10.5	1.8		32.2	1.508

✓ 82	51	K_0	F_0	$br.$		8.7
	10.8	15.0	2.1	6.2	33.9	1.520
	14.8	8.75	.05		.8	9.940
	8.50	14.9	.10		1.6	0.204
	14.8	8.90	.20		3.2	0.505
	9.00	14.9	.30		4.8	0.682

✓ 82	55	F_5				8.7
	12.2	14.8	3.6	6.2	58.1	1.764
	14.9	10.0	1.2		21.0	1.322
	10.3	14.9	1.6		25.8	1.412
	14.9	10.5	1.8		29.0	1.462
	10.9	14.8	2.2		35.5	1.550

188

April 29 '31 82 59

F₈

8.5

I 14243

10.4	14.4	1.9	5.9	32.2	1.508
14.2	10.8	2.3		39.0	1.591
11.1	14.5	2.6		44.1	1.644
14.6	11.5	3.0		50.9	1.706

J 82 76

G₅

8.6

B

13.1 14.9

14.9	8.9		.3	6.4	4.6	0.662
	9.1	14.9	.5		7.8	0.892
15.0	9.6		1.0		15.6	1.193
	9.8	15.0	1.2		18.8	1.274

J 82 82

K₀

8.5

	9.7	15.0	1.2	6.5	18.5	1.267
15.1	10.5		2.0		30.8	1.488
	12.6	15.0	4.1		63.1	1.800
15.0	13.3		4.8		74.0	1.869

J 82 629

G₅

at the near edge

8.4

	11.6	14.7	3.2	6.2	51.6	1.713
14.7	11.9		3.5		56.5	1.752
	12.1	14.6	3.8		61.4	1.788
14.6	12.7		5.3		85.5	1.932

J 82 700

B₈

8.4

	8.6	14.4	.2	6.0	3.3	0.518
14.5	8.6		.2		3.3	
	8.6	14.4	.2		3.3	
14.4	8.9		.5		8.3	0.919

82 703 *Bruck*✓ 82 704 K_2

8.3

	9.0	14.0	.7	6.0	11.7	1.068
14.2	9.3		1.0		16.7	1.222
	10.0	14.3	1.7		28.4	1.453
14.4	10.5		2.2		36.7	1.564

✓ 82 707 K_0

8.3

 β 12.9 14.1

14.1	10.4		2.1	5.8	36.2	1.558
	11.1	14.1	2.8		48.3	1.684
14.1	12.1		3.8		65.5	1.816
	12.5	14.3	4.2		72.5	1.860

✓ 82 720 F_5

8.3

	11.1	14.0	2.8	6.7	41.8	1.622
14.1	11.2		2.9		43.4	1.636
	11.2	14.1	2.9		43.4	1.636
14.0	11.8		3.5		52.3	1.718

✓ 82 728 K_0

8.3

	8.9	14.0	.6	5.6	10.7	1.029
13.9	9.2		.9		16.1	1.206
	10.2	13.9	1.9		34.0	1.531
13.9	10.6		2.3		41.2	1.614

✓ 82 738 G_5

8.2

	9.1	13.7	.9	5.5	16.3	1.212
13.7	9.7		1.5		27.3	1.486
	10.3	13.7	2.1		38.2	1.582
13.8	11.0		2.8		51.0	1.707

✓	82	736	A ₂				8.2
		9.5	13.6	1.2	5.4	22.2	1.346
	13.7	9.7		1.4		25.9	1.414
		9.8	13.7	1.5		27.8	1.444
	13.8	10.1		1.8		33.4	1.524

	81	13	band				
✓	81	18	G ₅		g ²		8.3
		8.8	13.4	.5	5.1	9.8	0.991
		9.1		.8		15.7	1.196
		9.9	13.4	1.6		31.4	1.496
		10.2	13.2	1.9		37.2	1.570

1	81	23	H ₀				8.3
		9.8	13.5	1.5	5.1	29.4	1.468
	13.3	10.7		2.4		47.0	1.672
		10.8	13.4	2.5		49.0	1.690
	13.3	11.3		3.0		58.8	1.770

✓	81	27	G				8.2
		9.4	13.0	1.2	4.9	24.5	1.389
	13.2	9.7		1.5		30.6	1.486
		10.0	13.1	1.8		36.8	1.566
		10.7	13.1	2.5		51.0	1.708

✓	81	29	F ₂				8.3
		9.7	13.5	1.4	5.0	28.0	1.447
	13.3	10.4		2.1		42.0	1.623
		10.5	13.3	2.2		44.0	1.644
	13.2	11.0		2.7		56.0	1.748

✓	81	34	G ₅				8.3
		10.5	13.5	2.2	5.1	43.2	1.636
	13.4	11.1		2.8		54.9	1.740
		12.0	13.4	3.7		72.5	1.860
	13.3	12.3		4.0		78.5	1.895

✓	81	51	A ₂				8.3
		9.3	13.9	1.0	5.4	18.5	1.267
	13.7	9.5		1.2		22.2	1.346
		9.7	13.7	1.4		25.9	1.414
	13.7	10.3		2.0		37.1	1.569

✓	81	61	1 ₂ 5				8.3
		8.7	13.7	.4	5.5	7.28	0.862
	13.8	9.4		1.1		20.0	1.300
		11.1	13.8	2.8		51.0	1.707
	13.8	12.0		3.7		67.4	1.828

✓	81	67	H _α				8.4
		10.6	13.9	2.2	5.5	40.0	1.602
	13.9	11.9		3.5		63.6	1.803
		12.8	14.0	4.4		80.0	1.904
	13.9	13.3		4.9		88.1	1.945

✓	81	88	F ₈				8.4
		11.4		3.0	6.1	49.2	1.692
	14.6	11.8		3.4		55.8	1.746
	14.4	12.0		3.6		59.0	1.770
	14.4	12.5		4.1		67.3	1.828

81 90 K_2 f 8.5

	10.8	14.3	2.3	5.9	39.0	1.591
14.4	12.1		3.6		61.1	1.786
	13.2	14.4	4.7		79.8	1.902
14.4	13.5		5.0		85.0	1.930

81 95 F_8 8.5

	9.9	14.5	1.4	6.0	23.4	1.369
14.4	10.0		1.5		25.0	1.398
	10.2	14.5	1.7		28.4	1.455
14.6	10.7		2.2		36.7	1.564

81 96 G_5 8.4

	10.8	14.5	2.4	6.2	38.8	1.588
14.6	11.5		3.1		50.0	1.699
	12.5	14.7	4.1		66.2	1.821
14.6	12.8		4.4		71.0	1.851

81 810 K_2 8.4

	9.2	14.2	.8	5.8	18.8	1.140
14.2	9.8		1.4		24.2	1.384
	10.8	14.2	2.4		41.4	1.616
14.2	11.2		3.8		48.4	1.684

81 814 G_0 8.4

	8.8	14.1	.4	5.6	7.1	0.851
14.0	9.1		.7		12.5	1.096
	9.3	14.0	.9		16.1	1.206
14.0	9.7		1.2		21.4	1.330

April 30 '31 J 81 812 F_2 8.46 8.7

14.1	9.9		1.2	5.5	21.8	1.338
	10.0	14.2	1.3		23.6	1.373
14.2	10.2		1.5		27.3	1.436
	10.5	14.1	1.8		32.8	1.516

✓ 81 816 K_0 8.6

	9.3	14.1	.7	5.6	12.5	1.097
14.2	9.6		1.0		17.8	1.250
	10.5	14.2	1.9		33.9	1.530
14.2	10.9		3.3		41.1	1.614

✓ 81 838 A_2 8.5

	9.8	13.7 ¹³⁶	1.3	5.1	25.5	1.406
13.8	10.0		1.5		29.4	1.478
	10.0	13.6	1.5		29.4	1.478
13.5	10.3		1.8		35.3	1.548

✓ 803 R_0 8.4

	10.6	13.4	2.2	5.0	44.0	1.644
12.4	11.3		2.9		58.0	1.764
	11.5	10.5	3.1		62.0	1.792
13.5	12.0		3.6		72.0	1.858

✓ 804 F_2 8.3

	11.0	13.3	2.7	5.0	54.0	1.732
12.2	11.1		2.8		56.	1.748
	11.0 ²	13.2	2.9		58	1.764
13.5	11.4		3.1		62	1.792

J	80	16	F_8				8.3
		10.1	13.0	1.8	4.9	36.8	1.566
	13.1	10.4		2.1		42.8	1.632
		10.5	13.3	2.2		44.8	1.652
2	13.1	10.5		2.2		44.8	1.652

J	80	19	G_5	ht f			8.2
		10.5	13.4	2.3	5.1	45.2	1.655
	13.3	10.7		2.5		49.0	1.690
		11.3	13.0	3.1		60.8	1.784
	13.3	11.8		3.6		70.6	1.850

J	80	20	A_2	ht f			8.2
		10.8	13.2	2.6	5.0	52	1.716
	13.1	10.8		2.6		52	1.716
		10.9	13.2	2.7		54	1.732
	13.1	11.1		2.9		58	1.764

J	80	21	A_2	ht f			8.2
		10.3	13.0	2.1	4.8	43.7	1.640
	13.1	10.5		2.3		47.8	1.680
		11.0	13.1	2.8		58.4	1.766
	13.0	11.8		3.6		75.0	1.875

J	80	26	F_8				8.2
		9.5	13.3	1.3	5.0	26	1.416
	13.3	9.8		1.6		32	1.506
		10.0	13.2	1.8		36	1.556
	13.2	10.6		2.4		48	1.682

✓ 80 58 K_0 8.1

	8.6	13.7	.5	5.5	9.1	0.959
13.7	9.0		.9		16.4	1.215
	10.0	13.6	1.9		34.6	1.54
13.6	10.5		2.4		43.7	1.64

✓ 80 61 A 8.1

	10.2	13.7	2.1	5.5	38.2	1.58
13.7	10.0		1.9		34.6	1.54
	10.1	13.6	2.0		36.4	1.56
13.6	10.4		2.3		41.8	1.62

✓ 80 65 A_2 Bunt

✓ 80 80 K_5 8.1

	10.7	14.1	2.6	5.9	44.1	1.64
13.9	11.0		2.9		49.2	1.69
	12.9	14.2	4.8		81.5	1.91
14.0	12.5		5.4		91.5	1.96

✓ 80 86 K_0 Bunt -

✓ 80 754 A_2 8.2

	10.6	14.0	2.4	5.8	41.4	1.62
14.0	10.7		2.5		43.2	1.64
	10.8	13.9	2.6		44.8	1.65
14.1	11.4		3.2		55.2	1.74

✓ 80 755 A_2 8.2

	10.0	13.8	1.8	5.5	32.8	1.52
13.7	10.2		2.0		36.4	1.56
	10.1	13.8	1.9		34.6	1.54
12.6	10.6		2.4		43.6	1.64

✓ 80 766	G_5	For f				8.1
11.0	13.6	2.9	5.5	52.6	1.72	
13.5	11.0	2.9		52.6	1.72	
11.2	13.6	3.1		56.4	1.75	
13.5	11.8	3.7		67.3	1.83	

✓ 80 773	For f	774	For f			
✓ 80 776	F_2					8.1
10.0	13.2	1.9	5.2	36.6	1.56	
13.5	9.9	1.8		34.6	1.54	
10.0	13.2	1.9		36.6	1.56	
13.2	10.9	2.8		53.9	1.73	

✓ 80 778	K_0	9.64	For f			8.1
10.6	13.3	2.5	5.3	47.2	1.67	
13.5	11.0	2.9		54.7	1.74	
11.9	13.4	3.8		71.8	1.86	
13.5	12.1	4.0		75.5	1.88	

✓ 80 784	A_5					8.1
8.6	13.3	.5	5.2	9.6	0.98	
13.2	8.7	.6		11.5	1.06	
8.8	13.3	.7		13.5	1.13	
13.3	9.3	1.2		23.2	1.37	

✓ 80 791	K_0	For b				8.1
10.2	13.2	2.1	5.0	42	1.62	
13.1	10.7	2.6		52	1.72	
11.3	13.1	3.2		64	1.81	
13.1	11.7	3.6		72	1.86	

✓ 79 10 Bg bunk

✓ 79 24 F₂

8.0

8.1	13.3	.1	5.2	1.92	0.28
13.2	8.2	.2		3.8	0.58
8.2	13.1	.2		3.8	0.58
13.2	8.2	.2		3.8	0.58

✓ 79 29 K₀

8.1

8.2	13.4	.1	5.2	1.9	0.28
13.4	8.2	.1		1.9	0.28
8.3	13.3	.2		3.8	0.58
12.9	8.4	.2		5.8	0.76

✓ 79 36 F₂ bunk

8.1

8.1 13.5

✓ 79 57 K₅ *new p.*

8.1

9.7	13.7	1.6	5.6	28.6	1.46
13.7	10.8	2.7		48.4	1.68
12.0	13.7	3.9		69.7	1.84
13.7	12.7	4.6		82.3	1.92

✓ 79 61 A₂

8.1

8.4	13.8	.3	5.8	5.2	0.72
13.9	8.5	.4		6.9	0.84
8.3	14.0	.2		3.4	0.53
14.0	8.4	.3		5.2	0.72

✓ 79 68 F₀

8.1

9.1	14.1	1.0	6.0	16.7	1.22
14.1	9.1	1.0		16.7	1.22
9.0	14.2	.9		15.0	1.18
14.0	9.2	1.1		18.3	1.26

198

May 1 '81 80 16 E

11.0	13.1	E	2.6	4.8	54.2	1.733
10.7	13.3	J	2.3		48.0	1.681

79	75	G ₅				8.4
14.2	9.4		1.0	6.0	16.7	1.222
9.7	14.4		1.3		21.6	1.334
14.4	10.4		2.0		33.4	1.524
10.8	14.5		2.4		40.0	1.602

79	777	A ₂	not 8.1	mean edge		8.4
8.5	14.5		.1	6.2	1.61	0.206
8.6	14.7		.2		3.23	0.509
8.6	14.6		.2		3.23	0.509
8.8	14.5		.4		6.46	0.810

79	790	B ₉				8.3
8.9	13.5		.6	5.2	11.5	1.060
13.6	9.1		.8		15.4	1.187
9.1	13.5		.8		15.4	1.187
13.5	9.6		1.3		25.0	1.392

79	796	A ₅				8.3
9.1	13.5		.8	5.1	15.7	1.196
13.4	9.3		1.0		19.6	1.283
9.4	13.3		1.1		21.6	1.334
13.3	9.8		1.5		28.4	1.453

✓	79	799	F_2				8.3
		8.7	13.2	.4	5.0	.8.0	0.903
	13.2	8.7		.4		8.0	0.903
		8.8	13.4	.5		10.0	1.000
	13.3	9.0		.7		14.0	1.196

1	78	21	K_0	middle			8.2
		10.0	13.5	1.8	5.2	34.6	1.539
	13.4	10.7		2.5		48.1	1.682
		11.5	13.4	3.3		63.5	1.802
	13.3	12.1		3.9		75.0	1.875

✓	78	28	A_2				8.2
		9.4	13.3	1.2	5.2	23.1	1.364
	13.5	9.5		1.3		25.0	1.398
		9.4	13.4	1.2		23.1	1.364
	13.4	10.1		1.9		36.6	1.563

✓	78	36	K_0	δ^2			8.2
		9.1	13.6	.9	5.4	16.7	1.222
	13.7	9.5		1.3		24.1	1.382
2		11.1	13.6	2.9		53.6	1.729
	13.7	11.1		2.9		53.6	1.729

✓	78	40	G_0				8.2
		10.1	13.8	1.9	5.5	34.6	1.538
	13.7	10.4		2.2		40.1	1.603
		10.5	13.6	2.3		41.8	1.621
	13.9	11.0		2.8		51.0	1.708

✓	78	45	G ₂				8.2
		10.5	14.2	2.3	6.0	38.4	1.584
	14.1	10.5		2.3		38.4	1.584
		10.9	14.2	2.7		45.0	1.653
	14.1	11.2		3.0		50.0	1.698

✓	78	52	G ₅	14.1			8.2
	13.9	10.7		2.5	5.5	45.5	1.658
		10.8	13.7	2.6		47.4	1.675
	13.7	11.2		3.0		54.6	1.737
		11.6	13.7	3.4		61.8	1.790

✓	78	62	G ₅				8.1
		9.8	13.8	1.7	5.7	29.8	1.474
	13.9	10.5		2.4		42.1	1.624
		11.0	13.9	2.9		50.9	1.706
	13.8	11.4		3.3		58.0	1.764

✓	78	66	F ₀				8.2
		9.5	14.2	1.3	6.0	21.6	1.334
	14.2	9.5		1.3		21.6	1.334
		9.5	14.1	1.3		21.6	1.334
	14.3	9.6		1.4		23.3	1.368

✓	78	69	F ₀				8.2
		8.4	14.1	1.2	5.9	3.4	0.531
	14.2	8.3		1.1		1.7	0.230
		8.4	14.0	1.2		3.4	0.530
	14.1	8.5		1.3		5.1	0.707

✓ 78 73	A_2					8.1
	8.3 14.2	.2	6.0	3.34	0.523	
13.9	8.3	.2		3.3	0.518	
	8.3 14.1	.2		3.3	0.518	
14.2	8.3	.2		3.3	0.518	

✓ 78 851	F_0					8.2
13.4	8.7	.5	5.1	9.8	0.990	
	8.9 13.2	.7		13.7	1.136	
13.4	8.9	.7		13.7	1.136	
	9.1 13.2	.9		17.7	1.248	

✓ 78 855	A_2					8.2
	10.0 13.3	1.8	5.1	35.4	1.548	
13.3	10.0	1.8		35.4	1.548	
	10.0 13.3	1.8		35.4	1.548	
13.4	10.4	2.2		43.2	1.625	

✓ 77 25	K_0					8.1
	8.7 13.6	.6	5.5	10.9	1.027	
13.6	8.9	.8		14.5	1.162	
	9.6 13.6	1.5		27.4	1.438	
13.7	9.8	1.7		31.0	1.490	

✓ 77 45	A_3					8.1
	10.4 13.8	2.3	5.7	40.4	1.606	
13.8	10.7	2.6		45.6	1.660	
	10.8 13.6	2.7		47.5	1.676	
13.9	11.4	3.3		58.0	1.764	

✓ 77	46	G_0				8.2
	10.9	13.7	2.7	5.6	48.3	1.684
13.8	11.0		2.8		50.0	1.699
	11.1	13.8	2.9		51.9	1.715
13.8	11.2		3.0		53.6	1.729

✓ 77	65	G_0				8.2
	8.6	14.1	.4	6.0	6.7	0.826
14.1	8.7		.5		8.3	0.920
	9.3	14.2	1.1		18.3	1.262
14.2	9.3		1.1		18.3	1.262

1 77	73	K_0				8.2
	8.4	14.2	.2	6.0	3.3	0.518
14.3	8.4		.2		3.3	0.518
	8.7	14.2	.5		8.3	0.918
14.2	8.8		.6		10.0	1.050

✓ 77	929	K_0				8.1
12.9	10.0		1.9	5.9	35.8	1.554
	10.1	13.2	2.0		37.8	1.577
13.2	11.3		3.2		60.4	1.780
	11.3	13.3	3.2		60.4	1.780

76	941	F_0				8.1
	9.9	13.0	1.8	4.9	36.8	1.566
13.0	10.2		2.1		42.8	1.632
	10.2	13.1	2.1		42.8	1.632
13.0	10.6		2.5		51.0	1.708

May 4 '31

~~30 75~~ - 777974 777 $\frac{0.8}{2}$ ~~78 21~~~~78 26~~

78 66 2

78 69 8

77 45 8

✓ 80 755

8.6

10.6	14.7	2.0	6.1	32.8	1.516
14.6	10.8	2.2		36.1	1.558
10.8	14.8	2.2		36.1	1.558
14.8	11.3	2.7		44.2	1.647

✓ 77 29 ~~hr~~

8.6

11.7	14.8	3.1	6.2	50.0	1.699
10.8	12.0	3.4		55.0	1.740
12.4	14.9	3.8		61.4	1.788
14.8	12.7	4.1		67.3	1.828

✓ 79 777

8.6

8.7	15.6	.1	7.0	1.4	0.146
15.5	8.7	.1		1.4	0.146
8.7	15.6	.1		1.4	0.146
15.6	8.8	.2		2.9	0.462

✓ 78 21 ~~hr~~

8.6

10.9	14.1	2.3	5.7	40.4	1.607
14.4	11.4	2.8		49.2	1.694
12.2	14.3	3.6		63.2	1.801
14.3	12.7	5.1		88.5	1.947

✓ 78 86 8.5
 9.6 14.6 1.1 6.2 17.7 1.248
 14.7 10.0 1.5 24.2 1.384
 11.3 14.6 2.8 29.0 1.462
 14.8 11.7 3.2 51.6 1.713

✓ 78 66 8.5
 10.1 15.2 1.6 6.7 23.9 1.379

✓ 78 69 8.6
 8.8 15.2 2.2 6.6 3.0 0.477

✓ 77 45 8.6
 15.1 11.4 6.5 2.8 43.1 1.634

81 832 8.4

~~11.1 13.8
 13.7 10.8
 10.3 14.0~~

 10.0 13.9 1.6 5.6 28.6 1.456
 14.0 10.7 2.3 41.1 1.614
 11.0 14.0 2.6 46.5 1.667
 14.0 11.1 2.7 48.3 1.684

May 5 1931

83 30

8.4

7 36 049

	10.0	11.7	1.6	3.4	47.0	1.672
11.8	10.0		1.9		55.9	1.748
	10.2	12.0	1.8		53.0	1.724
11.9	10.3		1.9		55.8	1.746

83 54

8.5

	9.2	11.8	.7	3.4	20.6	1.314
11.9	9.1		.6		17.7	1.248
	9.4	11.9	.9		26.4	1.422
11.9	10.1		1.6		47.0	1.672

82 748

8.4

9.1 12.0 β

12.0	8.6		.2	3.5	5.7	0.756
	8.6	11.9	.2		5.7	0.756
11.9	8.6		.2		5.7	0.756
	8.9	11.9	.5		14.3	1.156

81 30

8.4

	8.8	11.5	.4	3.1	12.9	1.110
11.6	8.8		.4		12.9	1.110
	8.8	11.6	.4		12.9	1.11
11.4	9.2		.8		25.8	1.412

80 10

8.4

	9.0	11.5	.6	3.0	20.0	1.305
11.2	9.1		.7		23.4	1.370
	9.1	11.5	.7		23.4	1.370
11.4	9.2		.9		30.0	1.477

206

a scint 80 50

8.4

	8.6	11.6	.2	3.1	64.5	0.81
11.5	8.5		.1		3.2	0.505
	8.55	11.5	.15		4.8	0.682
11.5	8.60		.20		6.4	0.806

80 53

8.4

	8.6	11.6	.2	3.2	6.2	0.792
11.6	8.5		.1		3.1	0.491
	8.5	11.6	.1		3.1	0.491
11.5	8.6		.2		6.2	0.792

80 57

8.4

	8.7	11.5	.3	3.1	9.7	0.986
11.6	8.6		.2		6.4	0.806
	8.7	11.5	.3		9.7	0.986
11.5	8.8		.4		12.9	1.110

80 64 Grunt

80 70

8.4

	9.0	11.7	.6	3.3	18.2	1.260
11.7	8.8		.4		12.1	1.083
	8.8	11.6	.4		12.1	1.083
11.7	9.2		.8		24.2	1.745

a
integrated plate

May 6 '31 80 752

8.5

14455

A₀

9.3	10.8	.8	2.2	36.4	1.562
9.3	10.8	.8		36.4	1.582
9.3	10.7	.8		36.4	1.582
9.5	12.6	1.0		45.5	1.659

80 770

8.5

9.0	10.5	.5	1.9	26.4	1.422
10.3	9.1	.6		31.6	1.500
9.1	10.4	.6		31.6	1.500
10.5	9.1	.6		31.6	1.500

80 780

8.5

8.8	10.3	.3	1.8	16.7	1.224
10.3	8.8	.3		16.7	1.224
8.8	10.4	.3		16.7	
10.3	8.8	.3		16.7	

80 793

8.5

9.4	10.2	.9	1.7	53.0	1.725
10.2	9.5	1.0		58.8	1.770
9.4	10.2	.9		53.0	1.726
10.2	9.5	1.0		58.8	1.770

79 19

8.5

8.8	10.4	.3	1.9	15.8	1.200
10.3	8.9	.4		21.1	1.326
8.8	10.4	.3		15.8	1.200
10.4	9.0	.5		26.4	1.422

79	39					8.5
	8.9	10.4	.4	1.9	21.1	1.326
10.4	9.0		.5		26.4	1.422
	8.9	10.4	.4		21.1	1.326
10.5	8.9		.4		21.1	1.326

79	55					8.4
	9.1	10.4	.7	2.0	35.0	1.544
10.3	9.3		.9		45.0	1.654
	9.3	10.4	.9		45.0	1.654
10.4	9.6		1.2		60.0	1.780

79	69					8.4
	9.1	10.8	.7	2.4	29.2	1.466
10.8	9.2		.8		33.4	1.525
	9.2	10.9	.8		33.4	1.525
10.8	9.4		1.0		41.7	1.620

79	793					8.5
	9.0	10.3	.5	1.8	27.8	1.446
10.3	9.1		.6		33.3	1.524
	9.0	10.4	.5		27.8	1.446
10.3	9.3		.8		44.5	1.650

78 24 *brunt*

78	49					8.4
	9.2	10.6	.8	2.2	36.4	1.562
10.6	9.2		.8		36.4	1.562
	9.3	10.6	.9		40.9	1.612
10.6	9.3		.9		40.9	1.612

83 30

8.5

9.4	10.7	.9	2.2	40.9	1.612
10.7	9.5	1.0		45.5	1.658
9.4	10.7	.9		40.9	1.612
10.7	9.5	1.0		45.5	1.658

83 54

8.4

8.8	10.7	.4	2.3	17.4	1.242
10.7	8.8	.4		17.4	1.242
8.9	10.8	.5		21.8	1.340
10.7	9.1	.7		30.4	1.484

82 748

8.4

8.6	10.2	.2	1.8	11.1	1.046
10.2	8.6	.2		11.1	1.046
8.6	10.3	.2		11.1	1.046
10.2	8.7	.3		16.7	1.224

81 30

8.4

8.7	10.1	.3	1.8	16.7	1.224
10.2	8.8	.4		22.2	1.348
8.8	10.2	.4		22.2	1.348
10.2	8.8	.4		22.2	1.348

80 10

8.5

8.8	10.1	.3	1.5	20.0	1.302
10.1	8.9	.4		26.7	1.428
8.9	9.8	.4		26.7	1.428
10.1	8.9	.4		26.7	1.428

80	50					8.5-
	8.6	10.2	.1	1.7	5.9	0.772
10.2	8.6		.1		5.9	
	8.6	10.3	.1		5.9	
10.3	8.6		.1		5.9	

80	55-					8.5-
10.4	8.6		.1	1.9	5.26	0.722
	8.6	10.4	.1		5.26	
10.5	8.6		.1		5.26	
	8.6	10.5-	.1		5.26	

80	57					8.5-
	8.7	10.4	.2	1.9	10.5	1.022
10.5	8.7		.2		10.5	
	8.7	10.5	.2		10.5	
10.4	8.7		.2		10.5	

80 64 burnt

80	70					8.5-
	8.8	10.8	.3	2.3	13.0	1.115
10.9	8.8		.3		13.0	
	8.8	10.7	.3		13.0	
end of A.	10.7	8.8	.3		13.0	

May 7 '81	80	1				8.2
	8.7	10.2	.5	2.0	25.0	1.398
10.2	8.7		.5		25.0	1.398
	8.8	10.3	.6		30.0	1.478
10.2	8.9		.7		35.0	1.544

✓ 83.9 8.3

8.5	10.4	.2	2.1	9.5	0.978
10.5	8.5	.2		9.5	0.978
8.5	10.3	.2		9.5	0.978
10.4	8.6	.3		14.4	1.158

✓ 83 20 hr h. 8.3

8.4	10.4	.1	2.2	4.5	0.654
8.4	10.5	.1			
8.4	10.5	.1			
8.4	10.5	.1			

✓ 83 52 hr 8.3

9.3	10.9	1.0	2.5	40.0	1.602
10.8	9.4	1.1		44.0	1.644
9.5	10.8	1.2		48.0	1.681
10.7	9.8	1.5		60.0	1.778

✓ 83 56 8.3

8.5	10.7	.2	2.5	8.0	0.904
10.9	8.6	.3		12.0	1.080
9.0	10.8	.7		28.0	1.447
10.7	9.1	.8		32.0	1.506

✓ 83 79 8.4

9.0	11.4	.6	2.9	20.7	1.316
11.3	9.0	.6		20.7	1.316
9.2	11.3	.8		27.6	1.441
11.2	9.4	1.0		34.5	1.558

✓ 82 14						8.3
	8.6	10.3	.3	1.9	15.8	1.198
10.0	8.7		.4		21.1	1.324
	8.7	10.3	.4		21.1	1.324
10.0	8.8		.4		21.1	1.324

✓ 82 22						8.3
	8.7	10.1	.4	1.9	21.1	1.324
10.2	8.7		.4		21.1	1.324
	8.8	10.2	.5		26.3	1.420
10.1	8.9		.6		31.6	1.500

✓ 82 30 A ₂						8.7
	8.90	10.2	.6	1.9	31.6	1.500
10.2	8.95		.65		34.2	1.534
	9.05	10.2	.75		39.5	1.597
10.1	9.05		.75		39.5	1.597

✓ 82 57 h ₂ h						8.3
	8.4	10.6	.1	2.3	4.35	0.638
10.6	8.4		.1		4.35	0.638
	8.5	10.7	.2		8.7	0.940
10.6	8.6		.3		13.1	1.117

✓ 82 55						8.3
	9.0	10.6	.7	2.3	30.5	1.484
10.7	9.1		.8		34.8	1.542
	9.1	10.6	.8		34.8	1.542
10.6	9.2		.9		39.2	1.593

82 59.2

✓ 82 76 8.2

	8.6	11.0	.3	2.9	10.4	1.017
11.1	8.6		.3		10.4	1.017
	8.8	11.3	.5		17.2	1.238
11.1	9.0		.7		24.2	1.384

✓ 82 82 out of foc. 8.2

	8.9	11.3	.6	3.0	20.0	1.302
11.3	9.2		.9		20.0	1.302
	9.4	11.3	1.4		46.7	1.670
11.3	10.0		1.7		56.7	1.754

✓ 82 689.2 Proj.

✓ 82 700 8.4

	8.5	10.9	.1	2.5	4.0	0.602
10.8	8.6		.2		8.0	0.904
	8.6	10.9	.2		8.0	0.904
10.9	8.6		.2		8.0	0.904

✓ 82 704 8.4

	8.7	10.9	.3	2.5	12.0	1.08
10.9	8.7		.3		12.0	1.08
	8.9	10.9	.5		20.0	1.30
10.9	9.0		.6		24.0	1.38

✓ 82 707 for faint 8.4

	9.1	10.7	.7	2.3	30.4	1.423
10.6	9.3	10.7	.9		39.1	1.592
	9.6		1.2		52.1	1.718
10.7	9.7		1.3		56.5	1.752

214

✓ 82 728						P. 4
	8.8	10.5	.4	2.1	19.1	1.281
10.4	8.9		.5		23.8	1.377
	9.1	10.5	.7		33.4	1.524
10.4	9.3		.9		42.8	1.632

✓ 82 735						P. 4
	8.9	10.3	.5	1.9	26.4	1.422
10.3	9.0		.6		31.6	1.500
	9.2	10.3	.8		42.2	1.625
10.3	9.3		.9		47.5	1.677

✓ 82 726						P. 4
	9.0	10.2	.6	1.8	33.4	1.524
10.2	9.1		.7		38.9	1.590
	9.1	10.2	.7		38.9	1.590
10.3	9.2		.8		44.5	1.648

81 13						P. 4
	8.5	10.0	.1	1.6	6.25	0.796
	8.5		.1			

✓ 81 18						P. 4
	8.7	10.1	.3	1.7	17.7	1.248
	8.9	10.0	.5		29.4	1.468
	9.1	10.1	.7		41.2	1.615
	9.1	10.1	.7		41.2	1.615

81	23	for					8.4
	9.0	10.0	.6	1.6	37.5	1.574	
10.0	9.2		.8		50.0	1.699	
	9.3	10.0	.9		56.3	1.750	
10.0	9.3		.9		56.0	1.750	

81	27	too faint					8.3
	9.0	10.0	.7	1.7	41.2	1.615	
10.0	9.1		.8		47.1	1.673	
	9.2	10.0	.9		53.0	1.724	
	9.2	10.0	.9		53.0	1.724	

81	29	too faint					8.3
	9.0	10.1	.7	1.8	38.9	1.590	
10.1	9.1		.8		44.5	1.648	
	9.3	10.1	1.0		55.5	1.744	
10.0	9.3		1.0		55.5	1.744	

81	31						8.4
	8.9	10.2	.5	1.8	27.8	1.444	
10.2	9.1		.7		38.9	1.590	
	9.1	10.2	.7		38.9	1.590	
10.2	9.1		.7		38.9	1.590	

81	61	too faint					8.3
	8.7	10.2	.4	1.9	21.0	1.322	
10.2	8.9		.6		31.6	1.500	
	9.3	10.2	1.0		52.7	1.722	
10.2	9.4		1.1		57.8	1.763	

216

82 720 ^{2nd} P -
~~81 27~~ - ~~81 61~~ - 83 9 -
~~82 55~~ - ~~82 59~~ - ~~82 76~~ - ~~82 100~~ -

other plate: 82 14

con 14 343

~~82 14~~ ~~82 704~~ 82 728

I 14455 ✓ 82 720 for f. 8.6

9.5	10.7	.9	2.2	40.2	1.611
10.8	9.6	1.0		45.4	1.657
9.7	10.9	1.1		50.0	1.699
10.9	9.9	1.3		59.0	1.770

✓ 81 27 8.65-

9.3	10.2	.65	1.65	39.4	1.596
10.3	9.3	.65		39.4	1.596
9.4	10.3	.75		45.4	1.657
10.3	9.5	.85		51.5	1.712

✓ 81 61 for f. 8.65-

9.0	10.6	.35	.95	3.7	4.568
10.6	9.1	.45		4.7	4.672
9.4	10.5	.75		7.9	0.898
10.5	9.7	1.05		11.1	2.045

✓ 83.9 8.6

8.7	10.9	.1	2.2	4.5	0.653
10.8	8.8	.2		9.1	0.959
8.9	10.8	.3		13.6	1.134
10.8	8.9	.4		18.4	1.264

✓ 82 55 8.7

9.2	10.9	.6	2.3	26.1	1.416
11.0	9.4	.7		30.5	1.484
9.5	11.0	.8		34.8	1.542
11.0	9.7	1.0		43.5	1.638

✓ 82 59

8.6

	9.4	11.2	.8	2.6	3.1, 0	1.491
11.1	9.6		1.0		3.8, 0	1.580
	9.7	11.2	1.1		4.2, 4	1.627
11.1	9.9		1.3		5.0, 0	1.699

✓ 82 76

8.6

	8.9	11.4	.3	2.8	10.7	1.029
11.4	9.1		.5		17.8	1.250
	9.2	11.6	.7		25.0	1.398
11.3	9.4		.8		35.8	1.554

✓ 82 700

8.6

	8.8	11.1	.2	2.6	7.7	0.886
11.1	8.8		.2		7.7	0.886
	8.8	11.2	.2		7.7	0.886
11.2	8.9		.3		11.5	1.060

I 14243 ✓ 82 14

8.65

	8.9	13.9	.25	5.15	4.85	0.686
13.6	8.9		.25	.	4.85	0.686
	9.0	14.0	.35		6.8	0.832
13.6	9.1		.45		8.75	0.942

✓ 82 704

8.6

	9.3	14.7	.7	6.2	11.3	1.054
14.8	10.1		1.5		24.2	1.384
	10.4	14.7	1.8		29.0	1.462
14.8	10.7		2.1		33.9	1.530

218

✓ 82 728						8.7
9.3 14.2	.7	5.4	13.0	1.114		
14.1 9.8	1.1		20.4	1.310		
10.8 14.2	2.1		38.9	1.590		
14.1 11.0	2.3		42.5	1.628		

²⁴³
 when plate ~~827~~ ²⁴³ ~~8276~~ ²⁴³ ~~82700~~ ⁴⁵⁵ ~~82718~~ ²⁴³ ~~8195~~ ⁴⁵⁵ ~~81832~~

May 8 1931 ✓ 81 95⁻ 8.7

14453 ⁻	9.3	11.2	.6	2.5	24.0	1.380
11.2	9.4		.7		28.0	1.448
	9.5 ⁻	11.2	.8		32.0	1.506
11.2	9.8		1.1		44.0	1.644

✓ 81 810						8.7
9.1 10.8	.4	2.1	19.1	1.281		
10.8 9.2	.5		23.8	1.376		
9.4 10.8	.7		33.4	1.524		
10.8 9.6	.9		42.8	1.631		

✓ 81 812						8.7
10.8 9.2	.5	2.1	23.8	1.376		
10.8 9.2	.6		28.6	1.456		
10.8 9.3	.6		28.6	1.456		
9.4 ⁵ 10.7	.8		38.1	1.581		

✓ 81 814						8.7
9.0 10.8	.3	.3	2.1	14.3	1.155	
10.8 9.1	.4	.4	19.1	1.281		
9.1 10.7	.4	.4	19.1	1.281		
10.8 9.2	.5	.5	23.8	1.376		

✓ 81 816

8.6

	9.0	10.7	.4	2.1	19.1	1.281
10.7	9.1		.5		23.8	1.376
	9.4	10.7	.8		38.1	1.582
10.6	9.5		.9		42.8	1.631

✓ 81 832

8.6

	9.2	10.5	.6	1.8	33.4	1.524
10.5	9.4		.8		44.5	1.648
	9.5	10.4	.9		50.0	1.699
10.4	9.6		1.0		55.5	1.744

✓ 81 838

8.6

	9.1	10.3	.5	1.7	29.4	1.468
10.3	9.2		.6		35.3	1.548
	9.2	10.3	.6		35.3	1.548
10.3	9.3		.7		41.2	1.615

✓ 80 16 *trf*

8.6

	9.3	10.3	.7	1.6	43.7	1.640
10.3	9.5		.9		56.2	1.750
	9.5	10.2	.9		56.2	1.750
10.2	9.6		1.0		62.5	1.796

✓ 80 26

8.6

	9.2	10.3	.6	1.7	35.3	1.548
10.3	9.4		.8		47.1	1.673
	9.4	10.3	.8		47.1	1.673
10.3	9.5		.9		53.0	1.724

220

↓ 80 58						8.6
	9.0	10.6	.4	2.0	20.0	1.301
10.6	9.1		.5		25.0	1.398
	9.4	10.6	.8		40.0	1.602
10.6	9.5		.9		45.0	1.653

↓ 80 61						8.6
	9.5	10.6	.9	2.0	45.0	1.653
10.6	9.5		.9		45.0	1.653
	9.5	10.6	.9		45.0	1.653
10.5	9.7		1.1		55.0	1.740

80 65	brunt					8.6
	8.7	10.7	.1	2.1	4.8	0.681
10.7	8.7		.1		4.8	0.681
10.7	8.7		.1		4.8	0.681
10.6	8.8		.2		9.5	0.978

80 754	for famr					8.6
	9.4	10.6	.8	2.0	40.0	1.602
10.7	9.5		.9		45.0	1.652
	9.6	10.7	1.0		50.0	1.698
10.6	9.6		1.0		50.0	1.698

↓ 80 755						8.6
	9.3	10.6	.7	2.0	35.0	1.544
10.6	9.4		.8		40.0	1.602
	9.5	10.7	.9		45.0	1.654
	9.7	10.7	1.1		55.0	1.740

