1853phae.proj.242

KG
11365
242

L. 4

D.

Reduction of

Zones

1853–

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

RG 11365.242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics - Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

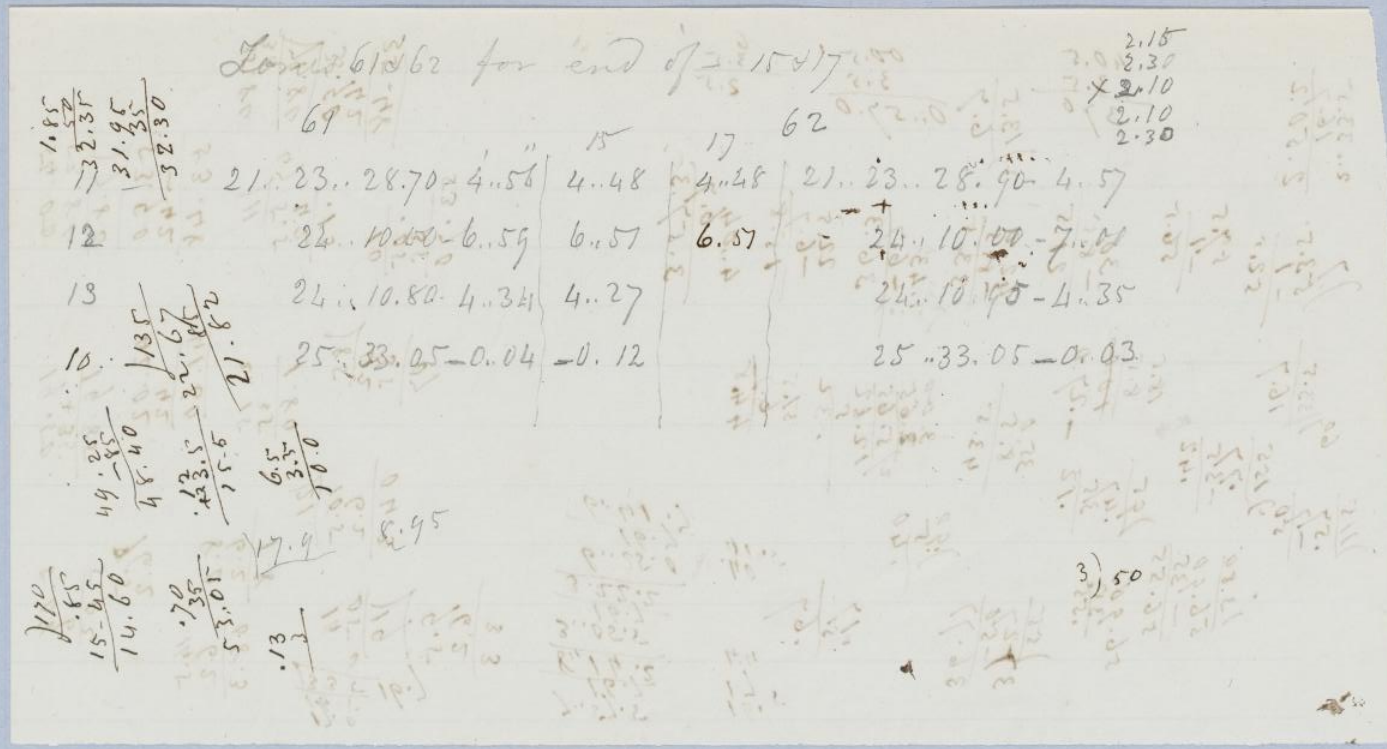
1853phae.proj .242

KG 11365.242

HARVARD
UNIVERSITY
LIBRARY
MAY 3 1956

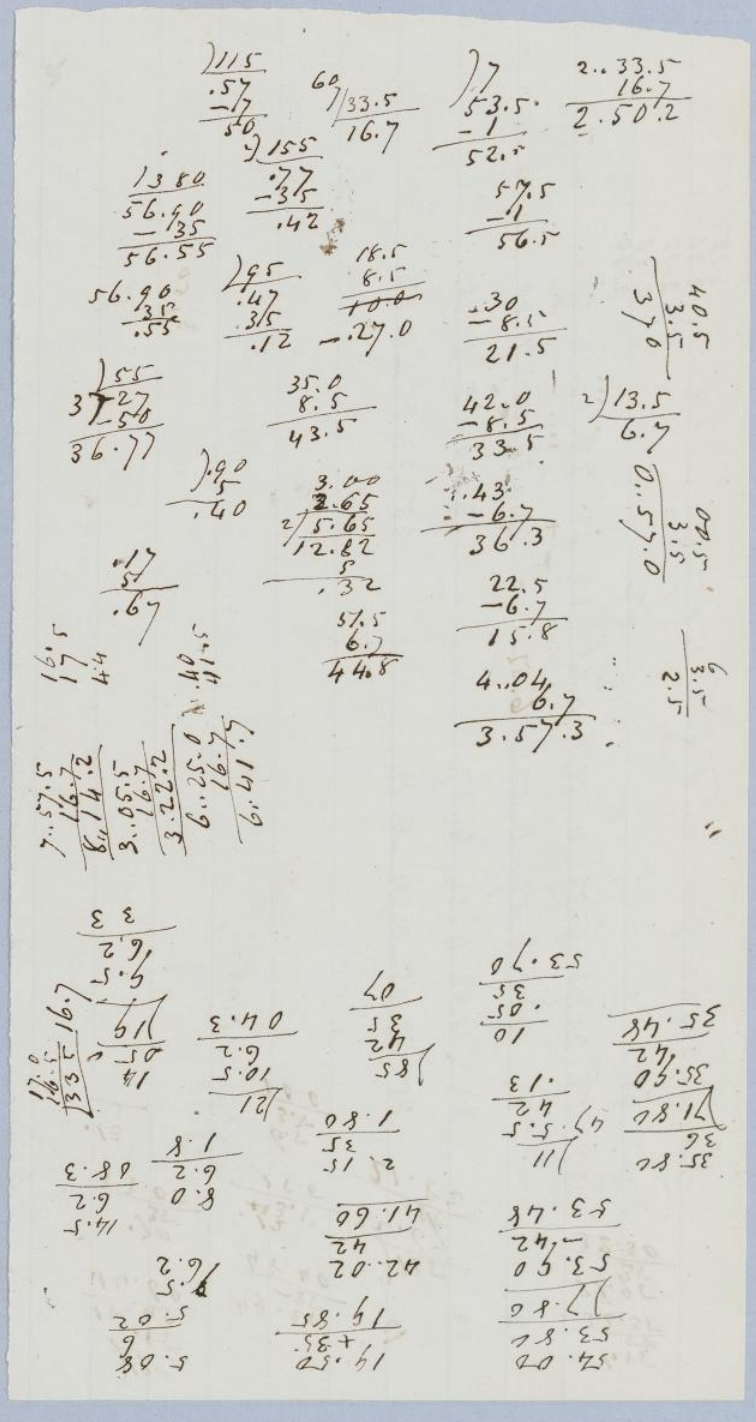
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics - Provided by the NASA Astrophysics Data System

1853phae.proj..242



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

8.9 1853·0 α 6ʰ 19ᵐ 36ˢ·96 (1) δ + 0° 13′ 11″·5

t_{40}	6ʰ 19ᵐ 36ˢ·70	s_{40}	+ 0′ 13″·10
t_{41}		s_{41}	13″·10
$\alpha - t_{40}$	+ 0ˢ·26	$\delta - s_{40}$	+ 1″·5
$\alpha - t_{41}$		$\delta - s_{41}$	+ 1″·5
		d'_{40}	−0″·7
		d'_{41}	−0″·6
			+0″·8
			+0″·9

9 1853·0 α 6ʰ 31ᵐ 21ˢ·52 (1) δ + 0° 16′ 50″·0 (1)

t_{40}	6ʰ 31ᵐ 21ˢ·65	s_{40}	16′ 54″
t_{41}	31ᵐ 21ˢ·65	s_{41}	16′ 53″
$\alpha - t_{40}$	− 0ˢ·13	$\delta - s_{40}$	−″04,0
$\alpha - t_{41}$	− 0ˢ·13	$\delta - s_{41}$	− 3,0
		d'_{40}	−1″·7
		d'_{41}	−1″·7
			−2″·3
			−1″·3

9 1853·0 α 6ʰ 30ᵐ 41ˢ·57 (1) δ + 0° 12′ 59″·8

t_{40}	30ᵐ 41ˢ·90	s_{40}	13′ 03″
t_{41}	30ᵐ 41ˢ·80	s_{41}	13′ 03″
$\alpha - t_{40}$	−0ˢ·33	$\delta - s_{40}$	− 3″·2
$\alpha - t_{41}$	−0ˢ·23	$\delta - s_{41}$	− 3″·2
		d'_{40}	−0″·7
		d'_{41}	−0″·6
			−2″·5
			−2″·6

9 1853·0 α 6ʰ 35ᵐ 33ˢ·23 (1) δ + 0° 11′ 57″·6 (1)

t_{40}	35ᵐ 33ˢ·45	s_{40}	12″·02
t_{41}	35ᵐ 33ˢ·55	s_{41}	12″·02
$\alpha - t_{40}$	−0ˢ·22	$\delta - s_{40}$	− 4″·4
$\alpha - t_{41}$	−0ˢ·32	$\delta - s_{41}$	− 4″·4
		d'_{40}	−0″·5
		d'_{41}	−0″·4
			−3″·9
			−4″·0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

g 1853.0 α 6h 50m 52.83 (1) δ + 0° 10′ 27.0 (1)

t_{40}	50m 53.15s	s_{40}	10′ 29
t_{41}	50m 53.25s	s_{41}	10′ 28
$\alpha - t_{40}$	− 0.32	$\delta - s_{40}$	− 2.0
$\alpha - t_{41}$	− 0.42	$\delta - s_{41}$	− 1.0
		d'_{40}	− 2.4
		d'_{41}	− 2.1
			+0.4
			+1.1

g 1853.0 α 6h 52m 29.37 (1) δ + 0° 15′ 28.8 (1)

t_{40}	52m 29.35s	s_{40}	0′ 15′ 30
t_{41}	52m 29.55s	s_{41}	15′ 30
$\alpha - t_{40}$	+ 0.02	$\delta - s_{40}$	− 1.2
$\alpha - t_{41}$	− 0.18	$\delta - s_{41}$	− 1.2
		d'_{40}	− 1.4
		d'_{41}	− 1.1
			+0.2
			−0.1

g 1853.0 α 6h 51m 01.53 (1) δ + 0° 17′ 15.5

t_{40}	51m 01.70s	s_{40}	17′ 20
t_{41}	51m 01.80s	s_{41}	17′ 18
$\alpha - t_{40}$	− 0.17	$\delta - s_{40}$	− 4.5
$\alpha - t_{41}$	− 0.27	$\delta - s_{41}$	− 2.5
		d'_{40}	− 1.8
		d'_{41}	− 1.5
			−2.7
			−1.0

8 1853.0 α 6h 52m 41.31 (1) δ + 0° 17′ 03.7 (1)

t_{40}	52m 41.55s	s_{40}	17′ 06
t_{41}	52m 41.70s	s_{41}	17′ 05
$\alpha - t_{40}$	− 0.24	$\delta - s_{40}$	− 2.3
$\alpha - t_{41}$	− 0.39	$\delta - s_{41}$	− 2.3
		d'_{40}	− 1.7
		d'_{41}	− 1.3
			−0.6
			−0.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

9 1853·0 α 6ʰ 52ᵐ 59ˢ·02 (1) δ + 0° 18′ 49″·5 (1)

t_{40}	52ᵐ 59ˢ·25	s_{40}	18′ 52″
t_{41}	52ᵐ 59ˢ·50	s_{41}	18′ 53″
$\alpha - t_{40}$	− 0ˢ·23	$\delta - s_{40}$	− 2″·5
$\alpha - t_{41}$	− 0ˢ·48	$\delta - s_{41}$	− 3″·5
		d'_{40}	− 2″·2
		d'_{41}	− 1″·8
			− 0″·3
			− 1″·7

9 1853·0 α 6ʰ 56ᵐ 08ˢ·03 (1) δ + 0° 18′ 36″·3 (1)

t_{40}	56ᵐ 08ˢ·85	s_{40}	18′ 36″
t_{41}	56ᵐ 08ˢ·90	s_{41}	18′ 37″
$\alpha - t_{40}$	− 0ˢ·82	$\delta - s_{40}$	+ 6″·3
$\alpha - t_{41}$	− 0ˢ·87	$\delta - s_{41}$	− 0″·7
		d'_{40}	− 2″·1
		d'_{41}	− 1″·7
			+ 1″·8
			+ 1″·0

8 1853·0 α 6ʰ 53ᵐ 43ˢ·18 (1) δ + 0° 12′ 47″·2 (1)

t_{40}	53ᵐ 43ˢ·35	s_{40}	12′ 52″
t_{41}	53ᵐ 43ˢ·65	s_{41}	12′ 52″
$\alpha - t_{40}$	− 0ˢ·17	$\delta - s_{40}$	− 4″·8
$\alpha - t_{41}$	− 0ˢ·47	$\delta - s_{41}$	− 4″·8
		d'_{40}	− 0″·7
		d'_{41}	− 0″·6
			− 4″·4
			− 4″·2

8.9 1853·0 α 6ʰ 56ᵐ 35ˢ·46 (1) δ + 0° 14′ 27″·9 (1)

t_{40}	6ʰ 56ᵐ 35ˢ·70	s_{40}	0, 14′ 32″
t_{41}	56ᵐ 35ˢ·85	s_{41}	14′ 30″
$\alpha - t_{40}$	− 0ˢ·24	$\delta - s_{40}$	− 4″·1
$\alpha - t_{41}$	− 0ˢ·39	$\delta - s_{41}$	− 2″·1
		d'_{40}	− 1″·1
		d'_{41}	− 0″·9
			− 3″·0
			− 1″·2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Zones 40 & 41

9 1853·0 α 6h 58m 18·82 (1) δ +0° 12′ 27·4

t_{40}	58m 17·95ˢ	s_{40}	12″·33
t_{41}	58m 17·95ˢ	s_{41}	12″·32
$\alpha - t_{40}$	+0·87?	$\delta - s_{40}$	−5·6
$\alpha - t_{41}$	+0·87?	$\delta - s_{40}$	−4·6
		d'_{40}	−0·6
		d'_{41}	−0·5
			−5·0
			−4·1

9 1853·0 α 7h 00m 28·70 (2) δ +0° 14′ 14·2 (2)

t_{40}	0h 29·15ˢ	s_{40}	14″·16
t_{41}	0h 29·35ˢ	s_{41}	14″·16
$\alpha - t_{40}$	−0·45ˢ	$\delta - s_{40}$	−1·8
$\alpha - t_{41}$	−0·65ˢ	$\delta - s_{41}$	−1·8
		d'_{40}	−1·1
		d'_{41}	−0·8
			−0·7
			−1·0

9 1853·0 α 6h 59m 12·58 (2) δ +0° 17′ 38·0 (2)

t_{40}	59m 12·50ˢ	s_{40}	0′ 17″·42
t_{41}	59m 12·65ˢ	s_{41}	17″·42
$\alpha - t_{40}$	+0·08	$\delta - s_{40}$	−4·0
$\alpha - t_{41}$	−0·07	$\delta - s_{41}$	−4·0
		d'_{40}	−1·9
		d'_{41}	−1·5
			−2·1
			−2·5

8 1853·0 α 7h 01m 19·47 (1) δ +0° 14′ 20·7 (1)

t_{40}	1h 19·60ˢ	s_{40}	14″·25ˢ
t_{41}	1h 19·70ˢ	s_{41}	14″·25ˢ
$\alpha - t_{40}$	−0·13	$\delta - s_{40}$	−5·0
$\alpha - t_{41}$	−0·23	$\delta - s_{41}$	−5·0
		d'_{40}	−2·1
		d'_{41}	−0·9
			−3·9
			−4·1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

8 1853·0 α 7ʰ 10ᵐ 07ˢ·94 (1) δ +0° 11′ 43″·8

t_{40}	10ʰ 08ᵐ·25	s	11″·48
t_{41}	10ʰ 08ᵐ·55	s	11″·48
$\alpha - t_{40}$	−0ˢ·31	$\delta - s_{40}$	−4″·2
$\alpha - t_{41}$	−0ˢ·61	$\delta - s_{40}$	−4″·2
		d''_{40}	−0″·4
		d'_{41}	−0″·3
			−3″·8
			−3″·9

7 1853·0 α 7ʰ 11ᵐ 23ˢ·02 (1) δ +0° 20′ 45″·3 (1)

t_{40}	11ʰ 23ᵐ·15	s_{40}	20″·47
t_{41}		s_{41}	
$\alpha - t_{40}$	−0ˢ·13	$\delta - s_{40}$	−1″·7
$\alpha - t_{41}$			
		d'_{40}	−2″·7
		d'_{41}	−3″·0
			+1″·0
			---

9 1853·0 α 7ʰ 11ᵐ 05ˢ·58 (1) δ +0° 17′ 28″·6 (1)

t_{40}	11ʰ 06ᵐ·00	s_{40}	17″·34
t_{41}	11ʰ 06ᵐ·10	s_{41}	17″·34
$\alpha - t_{40}$	−0ˢ·42	$\delta - s_{40}$	−5″·4
$\alpha - t_{40}$	−0ˢ·52	$\delta - s_{41}$	−5″·4
		d'_{40}	−1″·9
		d'_{41}	−1″·5
			−3″·5
			−3″·4

9 1853·0 α 7ʰ 12ᵐ 30ˢ·36 (1) δ +0° 12′ 31″·4 (1)

t_{40}	12ʰ 30ᵐ·90	s_{40}	12″·38
t_{41}	12ʰ 30ᵐ·90	s_{41}	12″·35
$\alpha - t_{40}$	−0ˢ·54	$\delta - s_{40}$	−6″·6
$\alpha - t_{41}$	−0ˢ·54	$\delta - s_{41}$	−3″·6
		d'_{40}	−0″·6
		d'_{41}	−0″·4
			−6″·0
			−3″·2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Zones 40841

9 1853·0 α 7ʰ 12ᵐ 37ˢ·67 (1) δ + 0° 14′ 52″·5 (1)

t_{40}	12ᵐ 37ˢ·45	s_{40}	14′ 58″
t_{41}	12ᵐ 38ˢ·05	s_{41}	14′ 58″
$\alpha - t_{40}$	− 0ˢ·38	$\delta - s_{40}$	− 5″·5
$\alpha - t_{41}$	− 0ˢ·48	$\delta - s_{41}$	− 5″·5
		d'_{40}	− 1·2
		d'_{41}	− 1·0
			− 4·3
			− 4·5

9 1853·0 α 7ʰ 28ᵐ 50ˢ·63 (1) δ + 0° 13′ 47″·9 (1)

t_{40}	28ᵐ 50ˢ·90	s_{40}	13′ 51″
t_{41}	28ᵐ 51ˢ·10	s_{41}	13′ 51″
$\alpha - t_{40}$	− 0ˢ·27	$\delta - s_{40}$	− 3″·1
$\alpha - t_{41}$	− 0ˢ·47	$\delta - s_{41}$	− 3″·1
		d'_{40}	− 1·0
		d'_{41}	− 0·8
			− 2·1
			− 2·3

9 1853·0 α 7ʰ 27ᵐ 42ˢ·80 (1) δ + 0° 10′ 05″·7 (1)

t_{40}	7ʰ 27ᵐ 43ˢ·20	s_{40}	10′ 11″
t_{41}	27ᵐ 43ˢ·55	s_{41}	10′ 09″
$\alpha - t_{40}$	− 0ˢ·40	$\delta - s_{40}$	− 5″·3
$\alpha - t_{41}$	− 0ˢ·75	$\delta - s_{41}$	− 3″·3
		d'_{40}	− 2·5
		d'_{41}	− 2·0
			− 2·8
			− 1·3

9 1853·0 α 7ʰ 29ᵐ 00ˢ·52 δ + 0° 13′ 22″·7 (1)

t_{40}	29ᵐ 00ˢ·60	s_{40}	13′ 27″
t_{41}	29ᵐ 00ˢ·83	s_{41}	13′ 27″
$\alpha - t_{40}$	− 0ˢ·08	$\delta - s_{40}$	− 4″·3
$\alpha - t_{41}$	− 0ˢ·33	$\delta - s_{40}$	− 4″·3
		d'_{40}	− 0·9
		d'_{41}	− 0·7
			− 3·4
			− 3·6

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

8·9 1853·0 α 7ʰ 35ᵐ 16ˢ·34 (1) δ + 0° 13′ 37″·1 (1)

t_{40}	35ᵐ 16ˢ·15	s_{40}	0′ 13″ 44
t_{41}	35ᵐ 16ˢ·45	s_{41}	13″ 42
$\alpha - t_{40}$	− 0ˢ·81	$\delta - s_{40}$	− 6·9
$\alpha - t_{41}$	− 1ˢ·11	$\delta - s_{41}$	− 4·9
		d'_{40}	− 0·9
		d'_{41}	− 0·7
			−6·0
			−4·2

9 1853·0 α 7ʰ 45ᵐ 44ˢ·76 (1) δ + 0° 14′ 44″·0

t_{40}	7ʰ 45ᵐ 45ˢ·15	s_{40}	14′ 5″·0
t_{41}		s_{41}	
$\alpha - t_{40}$	+ 0ˢ·61	$\delta - s_{40}$	− 6·0
$\alpha - t_{41}$		$\delta - s_{41}$	−
		d'_{40}	− 1·2
		d'_{41}	
			−4·8

W two large 10 s

8·9 1853·0 α 7ʰ 35ᵐ 42ˢ·59 (1) δ + 0° 18′ 28″·3

t_{40}	35ᵐ 42ˢ·95	s_{40}	18″ 38
t_{41}	35ᵐ 43ˢ·15	s_{41}	18″ 35
$\alpha - t_{40}$	− 0ˢ·36	$\delta - s_{40}$	− 9·7
$\alpha - t_{41}$	− 0ˢ·56	$\delta - s_{41}$	− 6·7
		d'_{40}	− 2·2
		d'_{41}	− 1·7
			−7·5
			−5·0

9 1853·0 α 7ʰ 46ᵐ 09ˢ·52 (1) δ + 0° 10′ 16″·3

t_{40}	46ᵐ 09ˢ.
t_{41}	
$\alpha - t_{40}$	
$\alpha - t_{41}$	

X

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 40 & 41

9 1853·0 α 7ʰ 46ᵐ 37.06 (1) δ + 0° 16′ 43·5″

t_{40}	46ᵐ 37.50	s_{40}	16′ 49
t_{41}	46ᵐ 37.85	s_{41}	16′ 49
$\alpha - t_{40}$	− 0.44	$\delta - s_{40}$	− 5.5″
$\alpha - t_{41}$	− 0.79	$\delta - s_{41}$	− 5.5″
		α'_{40}	−1.7
		α'_{41}	−1.4
			−3.8
			−4.1

9.10 1853·0 α 7ʰ 53ᵐ 51.53 (1) δ + 0° 14′ 12·6″

t_{40}	53ᵐ 52.10	s_{40}	14′ 16
t_{41}	53ᵐ 52.55	s_{41}	14′ 18
$\alpha - t_{40}$	− 0.57	$\delta - s_{40}$	− 3.4
$\alpha - t_{41}$	− 1.02	$\delta - s_{41}$	− 5.4
		α'_{40}	−1.1
		α'_{41}	−0.9
			−2.3
			−4.5

7.8 1853·0 α 7ʰ 52ᵐ 53.01 (4) δ + 0° 19′ 58·2″

t_{40}	52ᵐ 53.35	s_{40}	20′.04
t_{41}	52ᵐ 53.70	s_{41}	20′.04
$\alpha - t_{40}$	− 0.34	$\delta - s_{40}$	− 5.8
$\alpha - t_{41}$	− 0.69	$\delta - s_{41}$	− 5.8
		α'_{40}	−2.5
		α'_{41}	−2.0
			−3.3
			−3.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons of Zones 36&37 (1853.) for the beginning of Zones 40&41 (1853.)

Mag	Zone 36	k	Zone 37	k	α 1853.
9-10	6h 17m 15s.45	−1.00	6h 17m 15s.45	−0.70	6h 17m 14s.60
12	17..49.25	−1.00	17..49.25	−0.70	17..48.40
11	18..22.80	−1.00	18..22.55	−0.70	18..21.82

Comparisons with Zones 46&47 (1853.) for the end of Zones 40&41

	Zone 46	k	Zone 47	k	α 1853.
11-12	8h 11m 31s.85	+0.50			8h 11m 32s.35
8	14..31.25	+0.50	8..14..31.70	+0.20	14..~~32.50~~ 31.82
11	14..52.60	+0.50	14..52.80	+.20	14..53.05

Beginning of Zones 40&41

α 1853 (H m s)	t 40	t 41	α−t 40	α−t 41	δ 1853 (° ′ ″)	δ 40	δ 41	δ−δ 40	δ−δ 41
6h 17m 14s.60	14s.40	+.20	+.20		+ 0° 03′ 16″.0	3′.16	3′.16	+ 00″.0	0″.0
17..48.40	48.15	+.25	+.25		08° 20′.0	8′.19	8′.19	+ 1″.0	+ 1″.0
18..21.82	21.55	+.27	+.27		10° 10′.0	10′.08	0′.08	+ 2″.0	+ 2″.0
			+.24					+ 1″.0	+ 1″.0

Mean

End of Zones 40&41

α 1853 (H m s)	t 40	t 41	α−t 40	α−t 41	δ 1853 (° ′ ″)	δ 40	δ 41	δ−δ 40	δ−δ 41
8h 11m 32s.35	32s.85	38.30	−.50	−0.95	0° 01′ 12″.0	1′.19	1′.19	− 7″.0	− 7″.0
14..31.82	32.50		−.68	− 1.20	08° 15′.5	8′.20		− 4″.5	
14..53.05	53.60		−.55	−1.07	07° 10′.0	7′.17		− 7″.0	
			−.54	−0.95				− 6″.2	− 7″.0
				−1.07					

1 mistake in getting α 1853

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons with Zones 36 & 37 for the beginning of Zones 40 & 41

Zone 36	d	Zone 37	d	δ 1853.
0° 3′ 12″	+3″.0	0° 3′ 14″	+3″.0	+0° 3′ 16″.0
8..17	+3.0	8..17	+3.0	8..20.0
10..07	+3.0	10..07	+3.0	10..10.0

Comparisons with Zones 46 & 47 for the end of Zones 40 & 41

Zone 46	Zone 47	δ 1853
0° 1′ 10″ +2″.0		+ 0° 1′ 12″.0
8..13 +2.0	8..11 +5.0	8..15.5
7..08 +2.0	7..05 +5.0	7..10.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 42 & 43

q 1853·0 α 7h 48m 23·04 (1) δ + 0° 06′ 11·4

t_{42}	48m 24·10	s_{42}	7·21
t_{43}	48m 24·20	s_{43}	7·18
$\alpha - t_{42}$	− 1·06	$\delta - s_{42}$	− 1′ 9·6
$\alpha - t_{43}$	− 1·16	$\delta - s_{43}$	− 1′ 06·6
		d'_{42}	− 1·2
		d'_{43}	− 1·2
			− 68·4
			− 65·4

q 1853·0 α 8m 03m 29·87 (1) δ + 0° 07′ 13·0

t_{42}	3m 30·95	s_{42}	8′ 22
t_{43}	3m 31·30	s_{43}	8′ 18
$\alpha - t_{42}$	− 1·08	$\delta - s_{42}$	− 1′ 09·0
$\alpha - t_{43}$	− 1·43	$\delta - s_{43}$	− 1′ 05·0
		d'_{42}	− 1·3
		d'_{43}	− 1·3
			− 67·7
			− 63·7

q 1853·0 α 7h 48m 35·70 (1) δ + 0° 02′ 26·0

t_{42}	48m 36·75	s_{42}	3′ 32
t_{43}	48m 36·85	s_{43}	3′ 29
$\alpha - t_{42}$	− 1·05	$\delta - s_{42}$	− 1′ 06·0
$\alpha - t_{43}$	− 1·15	$\delta - s_{43}$	− 1′ 03·0
		d'_{42}	− 0·6
		d'_{43}	− 0·6
			− 65·4
			− 62·4

q 1853·0 α 8m 06m 19·08 (1) δ + 0° 01′ 28·6 (1)

t_{42}	6 20·60	s_{42}	2′ 37
t_{43}	6m 20·95	s_{43}	2′ 34
$\alpha - t_{42}$	− 1·52	$\delta - s_{42}$	− 1′ 08·4
$\alpha - t_{43}$	− 1·87	$\delta - s_{43}$	− 1′ 05·4
		d'_{42}	− 0·5
		d'_{43}	− 0·4
			− 67·9
			− 65·0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 42 & 43

8 1853·0 α 8ʰ 15ᵐ 03ˢ·05 (1) δ + 0° 04′ 14″·5 (1)

t_{42}	s_{42}	~~5″·07~~
t_{43}	s_{43}	~~5″·04~~
$\alpha - t_{42}$	$\delta - s_{42}$	
$\alpha - t_{43}$	$\delta - s_{43}$	

Beyond the limits in R

X

There are the only two of Bessel's stars which are not covered by our Zones in this region.

7.8 1853·0 α 8ʰ 18ᵐ 14ˢ·65 (1) δ + 0° 03′ 5″·9

t_{42}	s_{42}
t_{43}	s_{43}
$\alpha - t_{42}$	$\delta - s_{42}$
$\alpha - t_{43}$	$\delta - s_{43}$

Beyond the Limits

X

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons with Zones 38&39 for beginning of Zones 42&43

Mag	Zone 38	K	Zone 39 − K	α 1853
10	7..47..56.00	−0.20	7..47..56.25 − 0.60	7..47..~~56.85~~ 55.72
10-11			48..23.70 − .60	48..23.10
10-11			48..36.15 − .60	48..35.55

Comparisons with Zones 44&45 for the end of Zones 42&43

Zone 44 K Zone 45 K

No connection with 44&45
owing to Dec correction being so large as 64″ There is also no connection with the zone above it 40&41—

Beginning of Zones 42&43

α 1853	t_{42}	t_{43}	α−t_{42}	α−t_{43}	δ 1853	s_{42}	s_{43}	δ−s_{42}	δ−s_{43}
h m s					° ′ ″				
7..47..55.72	56.75	56.80	−1.03	−1.08	+ 0..05..31.2	6..37	6..34	−1..05.8	−1..02.8
48..23.10	24.10	24.20	−1.00	−1.10	..06..15.0	7..21	7..18	−1..06.0	−1..03.0
48..35.55	36.75	36.85	−1.20	−1.30	02..26.0	3..32	3..29	−1..06.0	−1..03.0
			−1.08	−1.16				−1..06.	−1..03

1 mistake in taking from sheet
1 " " getting α 1853
1 " " " δ 1853

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparison with Zones 38&39 for beginning of Zones 42&43.

Zone 38	d	Zone 39	d	δ 1853
0° 6′ 37.38	−67.″5	0° 6′ 36″	−64.0	+0° 6′ 15.31.2 ~~30.8~~
		7.. 19	−64.	6 .. ~~55.0~~ 15.0
		3.. 30	−64.	2 .. 26.0

Comparisons of Zones 44&45 for the end of Zones 42&43

Zone 44	d	Zone 45	d

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 4485 45

7.8 1853·0 α 8ʰ 18ᵐ 14ˢ·65 (1) δ +0° 03′ 58″·9 (1)

t_{44}	18ᵐ 14ˢ·65	s_{44}	3″·58
t_{45}	18ᵐ 14ˢ·70	s_{45}	3″·59
$\alpha - t_{44}$	0·00	$\delta - s_{44}$	+ 0·9
$\alpha - t_{45}$	−0·05	$\delta - s_{45}$	− 0·1
		α'_{44}	−0·3
		α'_{45}	−0·6
			+1·2
			+0·5

6 1853·0 α 8ʰ 28ᵐ 20ˢ·72 (1) δ +0° 01′ 23″·7

t_{44}	28ᵐ 20ˢ·30	s_{44}	1″·22
t_{45}	28ᵐ 20ˢ·60	s_{45}	1″·23
$\alpha - t_{44}$	+ 0·42	$\delta - s_{44}$	+ 1·7
$\alpha - t_{45}$	+ 0·12	$\delta - s_{45}$	+ 0·7
		α'_{44}	−0·1
		α'_{45}	−0·2
			+1·8
			+0·9

9 1853·0 α 8ʰ 20ᵐ 51ˢ·86 (1) δ +0° 07′ 03″·2 (1)

t_{44}	20ᵐ 51ˢ·30	s_{44}	7″·05
t_{45}	20ᵐ 51ˢ·90	s_{45}	7″·05
$\alpha - t_{44}$	+ 0·56	$\delta - s_{44}$	− 1·8
$\alpha - t_{45}$	− 0·04	$\delta - s_{45}$	− 1·8
		α'_{44}	−0·6
		α'_{45}	−1·1
			−3·2
			−0·7

9 1853·0 α 8ʰ 29ᵐ 56ˢ·88 (1) δ +0° 04′ 22″·7 (1)

t_{44}	29ᵐ 56ˢ·60	s_{44}	4″·23
t_{45}		s_{45}	4″·23
$\alpha - t_{44}$	+ 0·28	$\delta - s_{44}$	− 0·3
$\alpha - t_{45}$		$\delta - s_{45}$	− 0·3
		α'_{44}	−0·3
		α'_{45}	−0·7
			0·0
			+0·4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 44 & 45

9 1853·0 α 8h 33m 00·86 (1) δ + 0° 05′ 29·4 (1)

t_{44}	33 00·75	s_{44}	5·28
t_{45}	33m 00·90	s_{45}	5·28
$\alpha - t_{44}$	+ 0·11	$\delta - s_{44}$	+ 1·4
$\alpha - t_{45}$	− 0·04	$\delta - s_{45}$	+ 1·4
		d'_{44}	− 0·4
		d'_{45}	− 0·9
			+1·8
			+2·3

9·10 1853·0 α 8h 34m 17·54 (1) δ + 0° 03′ 33·5″

t_{44}	34m 17·20	s_{44}	3·36
t_{45}	34m 17·35	s_{45}	3·35
$\alpha - t_{44}$	+ 0·34	$\delta - s_{44}$	− 2·5
$\alpha - t_{45}$	+ 0·19	$\delta - s_{45}$	− 1·5
		d'_{44}	− 0·3
		d'_{45}	− 0·5
			− 2·2
			−1·0

9 1853·0 α 8h 33m 24·00 (1) δ − 0° 00′ 20·8 (1)

t_{44}	33m 23·80	s_{44}	− 0·15
t_{45}		s_{45}	
$\alpha - t_{44}$	+ 0·20	$\delta - s_{44}$	− 5·8
$\alpha - t_{45}$		$\delta - s_{44}$	
		d'_{44}	− 0·0
		d'_{45}	—
			−5·8
			---

9 1853·0 α 8h 46m 10·12 (1) δ + 0° 00′ 35·6

t_{44}	46m 17·95	s_{44}	0·30
t_{45}	46m 17·90	s_{45}	0·30
$\alpha - t_{44}$	− 7·83	$\delta - s_{44}$	+ 5·6
$\alpha - t_{45}$	− 7·78	$\delta - s_{45}$	+ 5·6
		d'_{44}	− 0·0
		d'_{45}	− 0·1
			+5·6
			+5·7

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 448 & 45

8.9 1853.0 α 8h 46m 15.53 (5) δ + 0° 01′ 40.4 (39.9)

t_{44}		s_{44}	
t_{45}		s_{45}	
$\alpha - t_{44}$		$\delta - s_{44}$	
$\alpha - t_{45}$		$\delta - s_{45}$	

X

8 1853.0 α 8h 54m 07.33 (1) δ − 0° 00′ 28.8 (1)

t_{44}	54m 07.30	s_{44}	− 0.″28
t_{45}	54.07.60	s_{45}	− 0.28
$\alpha - t_{44}$	+ 0.03	$\delta - s_{44}$	− 0.8
$\alpha - t_{45}$	− 0.27	$\delta - s_{45}$	− 0.8
		d'_{44}	− 0.0
		d'_{45}	− 0.1
			− 0.8
			− 0.7

8 1853.0 α 8h 49m 15.61 (1) δ + 0° 08′ 45.6

t_{44}	49m 15.70	s_{44}	8.″47
t_{45}	49m 15.80	s_{45}	8.48
$\alpha - t_{44}$	− 0.09	$\delta - s_{44}$	− 1.4
$\alpha - t_{45}$	− 0.19	$\delta - s_{45}$	− 2.4
		d'_{44}	− 0.7
		d'_{45}	− 1.4
			− 0.7
			− 1.0

9 1853.0 α 8h 54m 12.29 (1) δ + 0° 03′ 04.6 (1)

t_{44}	54m 12.10	s_{44}	3.″06
t_{45}	54.12.50	s_{45}	3.06
$\alpha - t_{44}$	+ 0.19	$\delta - s_{44}$	− 0.4
$\alpha - t_{45}$	− 0.21	$\delta - s_{45}$	− 1.4
		d'_{44}	− 0.2
		d'_{45}	− 0.5
			− 0.2
			− 0.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 448 45

6 1853.0 α 8h 54m 27.39 (4) δ + 0° 05' 18.0

t_{44}	54m 26.95	s_{44}	5.20
t_{45}	54 27.75	s_{45}	5.19
$\alpha - t_{44}$	+ 0.44	$\delta - s_{44}$	− 2.0
$\alpha - t_{45}$	+ 0.14	$\delta - s_{45}$	− 1.0
		α'_{44}	− 0.4
		α'_{45}	− 0.8
			− 1.6
			− 0.2

9 1853.0 α 9h 10m 41.58 (1) δ + 0° 00' 23.9

t_{44}	10m 41.70	s_{44}	0.22
t_{45}	10 41.85	s_{45}	0.22
$\alpha - t_{44}$	− 0.12	$\delta - s_{44}$	+ 1.9
$\alpha - t_{45}$	− 0.27	$\delta - s_{45}$	+ 1.9
		α'_{44}	− 0.0
		α'_{45}	− 0.0
			+ 1.9
			+ 1.9

9 1853.0 α 8h 57m 25.38 (1) δ + 0° 08' 55.6

t_{44}	57m 25.20	s_{44}	8.59
t_{45}	57m 25.40	s_{45}	8.58
$\alpha - t_{44}$	+ 0.18	$\delta - s_{44}$	− 3.4
$\alpha - t_{45}$	− 0.02	$\delta - s_{45}$	− 2.4
		α'_{44}	− 0.7
		α'_{45}	− 1.4
			− 2.7
			− 1.0

9 1853.0 α 9h 27m 05.21 (1) δ + 0° 09' 54.9 (1)

t_{44}	27m 05.30	s_{44}	9.55
t_{45}	27 05.10	s_{45}	9.55
$\alpha - t_{44}$	− 0.09	$\delta - s_{44}$	− 0.1
$\alpha - t_{45}$	− 0.39	$\delta - s_{45}$	− 0.1
		α'_{44}	− 0.8
		α'_{45}	− 1.6
			+ 0.7
			+ 1.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 44 & 45

9 1853·0 α 9ʰ 39ᵐ 07ˢ·59 (1) δ + 0° 03′ 57″·3 (1)

t_{44}	39ᵐ 7ˢ·95	s_{44}	3″·53
t_{45}	39ᵐ 8ˢ·15	s_{45}	3″·54
$\alpha - t_{44}$	−0ˢ·36	$\delta - s_{44}$	+ 4·3
$\alpha - t_{45}$	−0ˢ·56	$\delta - s_{45}$	+ 3·3
		d'_{44}	−0·3
		d'_{45}	−0·6
			+4·6
			+3·9

9 1853·0 α 9ʰ 41ᵐ 25ˢ·40 (1) δ + 0° 06′ 10″·3

t_{44}	41ᵐ 25ˢ·55	s_{44}	6″·12
t_{45}	41ᵐ 25ˢ·90	s_{45}	6″·11
$\alpha - t_{44}$	−0ˢ·15	$\delta - s_{44}$	− 1·7
$\alpha - t_{45}$	−0ˢ·50	$\delta - s_{45}$	− 0·7
		d'_{44}	−0·5
		d'_{45}	−1·0
			−1·2
			+0·3

8 1853·0 α 9ʰ 39ᵐ 33ˢ·22 (1) δ + 0° 03′ 54″·4 (1)

t_{44}	39ᵐ 33ˢ·45	s_{44}	3″·48
t_{45}	39ᵐ 33ˢ·80	s_{45}	3″·48
$\alpha - t_{44}$	−0ˢ·23	$\delta - s_{44}$	+ 6·4
$\alpha - t_{45}$	−0ˢ·58	$\delta - s_{45}$	+ 6·4
		d'_{44}	− 0·3
		d'_{45}	− 0·6
			+6·7
			+7·0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 44 & 45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons with Zones 42 & 43 for beginning of Zones 44 & 45

Mag.	Zone 42	k	Zone 43	k

No connection
None is needed as catalogue stars are numerous.

Comparisons with Zones $\frac{1852}{2 \& 3}$ for the end of Zones $\frac{1853.}{44 \& 45}$

	Zone 2	k	Zone 3	k	α 1852.	prec.	α 1853.
7-8	10h..15m..21s.70	+0.05	10h..15m..21s.75	+.00	10h..15m..21s.74	+ 3s.07	10h..15m..24s.81
11	18h..01m..10	+.05	18h..01m..15	.00	18h..01m.14	+ 3.07	18h..04m.21

End of Zones 44 & 45

α 1853	t_{44}	t_{45}	$\alpha - t_{44}$	$\alpha - t_{45}$	δ 1853	s_{44}	s_{45}	$\delta - s_{44}$	$\delta - s_{45}$
h m s					° ′ ″				
10h..15m..24s.81	25s.30	25s.10	− .49	− .79	0°..03′..07″.5	3″..09	3″..09	− 1.5	− 1.5
18h..04m.21	4.90	4.95	− .69	− .74	02°..32′.0	2″..37	2″..36	− 3.0	− 2.0
			−.59	−.76				− 2.2	− 1.7

2 mistakes Bruce applied wrong?

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons with Zones 42 & 43 for the beginning of Zones 44 & 45

Zone 42	d	Zone 43	d

Comparisons with Zones 2 & 3 for the end of Zones 44 & 45

Zone 2	d	Zone 3	d	δ-1852	prec.	δ 1853.
0° 3′ 27″	+0″.0	0° 3′ 23″	+1″.0	0° 3′ 25″.5	−18″.0	+0° 3′ 07″.5
2 53	+0.0	2 50	+1.0	2 52.0	−18.0	+0 2 34.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 468 47

	h	m	s		°	′	″
9	1853·0	α	8	14	31·89 (1)	δ + 0	18	14·5
	t_{46}		14	31·25	s_{46}		18·13	
	t_{47}		14	31·70	s_{47}		18·11	
	α − t_{46}		+ 0·64		δ − s_{46}		+ 1·5	
	α − t_{47}		+ 0·19		δ − s_{47}		+ 3·5	
					d'_{46}		−0·9	
					d'_{47}		−0·7	
							+2·6	
							+4·2	

	h	m	s		°	′	″
9	1853·0	α	8	24	07·48 (1)	δ + 0	18	32·6
	t_{46}				s_{46}			
	t_{47}		24	07·30	s_{47}		18·27	
	α − t_{46}				δ − s_{46}			
	α − t_{47}		+ 0·18		δ − s_{47}		+ 5·6	
					d'_{46}		−	
					d'_{47}		−0·9	

							+6·5	

	h	m	s		°	′	″
7·8	1853·0	α	8	21	36·53 (2)	δ + 0	11	04·6 (1)
	t_{46}		21	36·05	s_{46}		11·03	
	t_{47}		21	36·30	s_{47}		11·00	
	α − t_{46}		+ 0·48		δ − s_{46}		+ 1·5	
	α − t_{47}		+ 0·23		δ − s_{47}		+ 4·5	
					d'_{46}		−0·1	
					d'_{47}		−0·1	
							+1·6	
							+4·6	

	h	m	s		°	′	″
8·9	1853·0	α	8	37	15·97 (1)	δ + 0	15	24·3
	t_{46}		37	15·80	s_{46}		15·23	
	t_{47}		37	16·10	s_{47}		15 19	
	α − t_{46}		+ 0·17		δ − s_{46}		+ 1·3	
	α − t_{47}		− 0·13		δ − s_{47}		+ 3·3	
					d'_{46}		−0·6	
					d'_{47}		−0·5	
							+1·9	
							+5·8	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 46 & 47

8·9 1853·0 α 8h 37m 44·06 (1) δ +0° 13′ 52·4

t_{46}	~~37m 44·15~~	s_{46}	
t_{47}	37m 44·15	s_{47}	13′ 47
$\alpha - t_{46}$		$\delta - s_{46}$	
$\alpha - t_{47}$	− 0·09	$\delta - s_{47}$	+ 5·4
		d'_{46}	
		d'_{47}	− 0·4
			+ 5·8

9 1853·0 α 8h 38m 40·79 (1) δ +0° 16′ 38·8 (1)

t_{46}	38m 40·60	s_{46}	16′ 33
t_{47}	38m 40·40	s_{47}	16′ 35
$\alpha - t_{46}$	+ 0·19	$\delta - s_{46}$	+ 5·8
$\alpha - t_{47}$	+ 0·39	$\delta - s_{47}$	+ 3·8
		d'_{46}	− 1·0
		d'_{47}	− 0·6
			+ 6·8
			+ 4·4

8·9 1853·0 α 8h 37m 52·78 (1) δ +0° 18′ 47·3

t_{46}	37m 52·50	s_{46}	18′ 44
t_{47}	37m 52·70	s_{47}	18′ 42
$\alpha - t_{46}$	+ 0·28	$\delta - s_{46}$	+ 3·3
$\alpha - t_{47}$	+ 0·08	$\delta - s_{47}$	+ 5·3
		d'_{46}	− 1·0
		d'_{47}	− 0·8
			+ 4·3
			+ 6·1

8 1853·0 α 8h 39m 14·67 (1) δ +0° 10′ 64·7 (1)

t_{46}	39m 14·10	s_{46}	10′ 49
t_{47}	39m 14·45	s_{47}	10′ 47
$\alpha - t_{46}$	+ 0·57	$\delta - s_{46}$	+ 5·7
$\alpha - t_{47}$	+ 0·22	$\delta - s_{47}$	+ 7·7
		d'_{46}	− 0·1
		d'_{47}	− 0·1
			+ 5·8
			+ 7·8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 46 & 47

8 1853·0 α 9h 01m 58·66 (1) δ +0° 12′ 12·3 (1)

t_{46}	1h 58·60	s_{46}	12′ 04
t_{47}	1h 58·90	s_{47}	12′ 01
$\alpha - t_{46}$	+ 0·06	$\delta - s_{46}$	+ 8·3
$\alpha - t_{47}$	− 0·24	$\delta - s_{47}$	+ 11·3
		α'_{46}	− 0·2
		α'_{47}	− 0·2
			+ 8·5
			+11·5

8 1853·0 α 9h 14m 39·28 (1) δ +0° 11′ 51·2

t_{46}	~~14h 39·30~~	s_{46}	~~11′ 44~~
t_{47}	14h 39·50	s_{47}	11′ 44
$\alpha - t_{46}$		$\delta - s_{46}$	
$\alpha - t_{47}$	− 0·22	$\delta - s_{47}$	+ 7·2
		α'_{46}	−
		α'_{47}	− 0·2

			+ 7·4

8 1853·0 α 9h 02m 45·30 (1) δ +0° 19′ 20·4 (1)

t_{46}	02h 45·40	s_{46}	19′ 18
t_{47}	2h 45·75	s_{47}	19′ 15
$\alpha - t_{46}$	− 0·10	$\delta - s_{46}$	+ 2·4
$\alpha - t_{47}$	− 0·45	$\delta - s_{47}$	+ 5·4
		α'_{46}	− 1·0
		α'_{47}	− 0·9
			+ 3·4
			+6·3

9 1853·0 α 9h 20m 05·06 (1) δ +0° 18′ 07·5

t_{46}		s_{46}	
t_{47}	20h 05·90	s_{47}	18′ 03
$\alpha - t_{46}$		$\delta - s_{46}$	
$\alpha - t_{47}$	− 0·84	$\delta - s_{47}$	+ 4·6
		α'_{46}	
		α'_{47}	− 0·8

			+ 5·3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 46 & 47

h m s ° ′ ″

8 1853·0 α 9ʰ 30ᵐ 23ˢ·26 (4) δ + 0° 20′ 19″·1

t_{46}		s_{46}		
t_{47}	30ᵐ 23ˢ·75	s_{47}	20′ 14″	
$\alpha - t_{46}$	~~− 0ˢ·49~~	$\delta - s_{46}$		
$\alpha - t_{47}$	− 0ˢ·49	$\delta - s_{47}$	+ 5″·1	
		α'_{46}	~~−1″·1~~	
		α'_{47}	−1″·0	
			+6″·1	

8 1853·0 α 9ʰ 37ᵐ 40ˢ·00 (1) δ + 0° 12′ 34″·2

t_{46}	~~37ᵐ 40ˢ·60~~	s_{46}	~~12′ 27″~~	
t_{47}	37ᵐ 40ˢ·60	s_{47}	12′ 27″	
$\alpha - t_{46}$		$\delta - s_{46}$		
$\alpha - t_{47}$	− 0ˢ·60	$\delta - s_{47}$	+ 7″·2	
		α'_{46}	−	
		α'_{47}	−0″·3	
			+7″·5	

9 1853·0 α 9ʰ 36ᵐ 28ˢ·98 (1) δ + 0° 15′ 49″·0 (1)

t_{46}	~~36ᵐ 29ˢ·70~~	s_{46}		
t_{47}	36ᵐ 29ˢ·80	s_{47}	15′ 41″	
$\alpha - t_{46}$	~~− 0ˢ·72~~	$\delta - s_{46}$		
$\alpha - t_{47}$	− 0ˢ·72	$\delta - s_{47}$	+ 8″·0	
		α'_{46}		
		α'_{47}	−0″·5	
			+8″·5	

8 1853·0 α 9ʰ 49ᵐ 07ˢ·75 (1) δ + 0° 14′ 04″·9 (1)

t_{46}		s_{46}		
t_{47}	9ʰ 49ᵐ 08ˢ·30	s_{47}	13′ 57″	
$\alpha - t_{46}$		$\delta - s_{46}$		
$\alpha - t_{47}$	− 0ˢ·55	$\delta - s_{47}$	+ 7″·9	
		α'_{46}		
		α'_{47}	−0″·4	
			+8″·3	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1953phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 46 & 47

9 1853·0 α 9ʰ 57ᵐ 27ˢ·81 (1) δ +0° 14′ 09″·9

t_{46}		s_{46}	
t_{47}	57ᵐ 29ˢ·00	s_{47}	14′ 03″
$\alpha - t_{46}$		$\delta - s_{46}$	
$\alpha - t_{47}$	− 1ˢ·19	$\delta - s_{47}$	+ 6″·9
		d'_{46}	~~−0″·4~~
		d'_{47}	− 0″·4
			+7″·3

7·8 1853·0 α 10ʰ 17ᵐ 27ˢ·98 (3) δ +00° 20′ 35″·7

t_{46}	~~17ᵐ 21ˢ·05~~	s_{46}	
t_{47}	17ᵐ 21ˢ·05	s_{47}	20′ 28″
$\alpha - t_{46}$		$\delta - s_{46}$	
$\alpha - t_{47}$	− 1ˢ·12	$\delta - s_{47}$	+ 7″·2
		d'_{46}	
		d'_{47}	− 0″·9
			+8″·1

4·5 1853·0 α 10ʰ 00ᵐ 24ˢ·87 (6) δ +0° 20′ 41″·3 (6)

t_{46}		s_{46}	
t_{47}	06ᵐ 25ˢ·55	s_{47}	20′ 36″
$\alpha - t_{46}$	· ~~0·68~~	$\delta - s_{46}$	
$\alpha - t_{47}$	− 0·68	$\delta - s_{47}$	+ 5″·3
		d'_{46}	
		d'_{47}	− 0″·9
			+6″·2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparison of Stars with Zones 40 & 41 for the beginning of Zones 46 & 47 1853. 1853.

Mag.	Zone 40	K	Zone 41	K	α 1853.
9 —	8h.. 08m.. 56.20s	−0.40	8h.. 08m..56.80s	−0,80	8h.. 08m..55.90s
12 —	9h.. 29.65s	−0.40	09h..30.10s	−,80	9h..29,27s
12-13	10h.. 01.65s	−0.40	10h.. 02.10s	−,80	10h..01.27s

Comparison of Stars with Zones 4 & 5 for the end of Zones 46 & 47. 1852. 1853.

	Zone 4	K	Zone 5	K	α 1852.	prec.	α 1853
9-10	10h.. 17m.. 55.60s	+0.40	10h..17m..56.00s	+,00	10h.. 17m..56.00s	3.07s	10h..17m..59.07s
10	19h..05.55s	+0.40	19h..05.95s	+,00	19h..05.95s	3.07s	19h..09.02s
9-10	20h..23.90s	+0.40	20h..24.05s	+,00	20h..24.17s	3.07s	20h..27.24s

Beginning of Zones 46 & 47.

α 1853	t_{46}	t_{47}	$\alpha - t_{46}$	$\alpha - t_{47}$	δ 1853	s_{46}	s_{47}	$\delta - s_{46}$	$\delta - s_{47}$
h m s					° ′ ″				
8h..08m..55.90s	55.20		+.70		0°..01′..05.5″	1′..02		+ 3.5	
09h..29.27s	28.55		+,72		09°..04.5	8′..58		+ 6.5	
10h..01.27s	0.70		+.57		01°..14.0	1′..09		+ 5.0	
			+.66					~~+ 5.0~~	

End of Zones 46 & 47

α 1853	t_{46}	t_{47}	$\alpha - t_{46}$	$\alpha - t_{47}$	δ 1853	s_{46}	s_{47}	$\delta - s_{46}$	$\delta - s_{47}$
h m s					° ′ ″				
10h..17m..59.07s		0.25		−1.18	+0°..02′..47.5″		2′..40	+ ~~7.5~~	+ 7.5
19h..09.02s		10.20		−1.18	01°..07.5		1′..00	+ ~~7.5~~	+ 7.5
20h..27.24s		28.50		−1.26	01°..19.5		1′..14	+ ~~8.5~~	+ 5.5
				−1.22					+ 6.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparison of Stars with Zones 40 & 41 for the beginning of Zones 46 & 47.

Zone 40	α	Zone 41	α.	δ 1853.
0h 1m 10s	−3.0	0h 1m 08s	−4.0	0° 01′ 05.5
9 08	−3.0	9 08	−4.0	9 04.5
1 18	−3.0	1 17	−4.0	1 14.0

Comparison of Stars with Zones 4 & 5 for the end of Zones 46 & 47.

Zone 4	α	Zone 5	α	δ 1852.	prec.	δ 1853.
0h 3m 07s	−1.0	0h 3m 08s	−3.0	0° 03′ 5.5	−18.00	+0° 2′ 47.5
1 27	−1.	1 28	−3	1 25.5	−18.00	1 07.5
1 38	−1.	1 41	−3.	1 37.5	−18.0	1 19.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 47848

9 1853·0 α 6ʰ 14ᵐ 31ˢ·89 (1) δ + 0° 18′ 14″·5 (1)

t_{47}	14ᵐ 31ˢ·70	s_{47}	18″·11
t_{48}	14ᵐ 31ˢ·90	s_{48}	18″·12
$\alpha - t_{47}$	+ 0ˢ·19	$\delta - s_{47}$	+ 3″·5
$\alpha - t_{48}$	− 0ˢ·01	$\delta - s_{48}$	+ 2″·5
			− 0″·7
			− 1″·2
			+ 4″·2
			+ 3″·7

9 1853·0 α 6ʰ 24ᵐ 07ˢ·48 (1) δ + 0° 18′ 32″·6 (1)

t_{47}	24ᵐ 7ˢ·38	s_{47}	18″·27
t_{48}	24ᵐ 07ˢ·55	s_{48}	18″·28
$\alpha - t_{47}$	+ 0ˢ·18	$\delta - s_{47}$	+ 5″·6
$\alpha - t_{48}$	− 0ˢ·07	$\delta - s_{48}$	+ 4″·6
			− 0″·9
			− 1″·2
			+ 6″·5
			+ 5″·8

7·8 1853·0 α 8ʰ 21ᵐ 36ˢ·53 (1) δ + 0° 11′ 04″·5 (1)

t_{47}	21ᵐ 36ˢ·30	s_{47}	11″·00
t_{48}	21ᵐ 36ˢ·35	s_{48}	11″·01
$\alpha - t_{47}$	+ 0ˢ·23	$\delta - s_{47}$	+ 4″·5
$\alpha - t_{48}$	+ 0ˢ·18	$\delta - s_{48}$	+ 3″·5
			− 0″·1
			− 0″·2
			+ 4″·6
			+ 3″·7

8·9 1853·0 α 8ʰ 37ᵐ 15ˢ·97 (1) δ + 0° 15′ 24″·3 (1)

t_{47}	37ᵐ 16ˢ·10	s_{47}	15″·19
t_{48}	37ᵐ 16ˢ·15	s_{48}	15″·21
$\alpha - t_{47}$	− 0ˢ·13	$\delta - s_{47}$	+ 5″·3
$\alpha - t_{48}$	− 0ˢ·18	$\delta - s_{48}$	+ 3″·3
			− 0″·5
			− 0″·8
			+ 5″·8
			+ 4″·1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 47848

8.9 1853.0 α 8ʰ 37ᵐ 44ˢ.06 (1) δ +0° 13′ 52″.4 (1)

t_{47}	37ᵐ 44ˢ.15	s_{47}	13″.47
t_{48}	37ᵐ 44ˢ.10	s_{48}	13″.48
$\alpha - t_{47}$	−0ˢ.09	$\delta - s_{47}$	+5″.4
$\alpha - t_{48}$	−0ˢ.04	$\delta - s_{47}$	+4″.4
			−0″.4
			−0″.5
			+5″.8
			+4″.9

9 1853.0 α 8ʰ 38ᵐ 40ˢ.79 (1) δ +0° 16′ 38″.8 (1)

t_{47}	38ᵐ 40ˢ.60	s_{47}	16″.33
t_{47}	38ᵐ 40ˢ.75	s_{48}	16″.34
$\alpha - t_{47}$	+0ˢ.19	$\delta - s_{47}$	+5″.8
$\alpha - t_{47}$	0ˢ.04	$\delta - s_{48}$	+4″.8
			−0″.6
			−1″.0
			+6″.4
			+5″.8

8.9 1853.0 α 8ʰ 37ᵐ 52ˢ.78 (1) δ +0° 18′ 47″.3 (1)

t_{47}	37ᵐ 52ˢ.70	s_{47}	18″.42
t_{48}	37ᵐ 52ˢ.90	s_{48}	18″.42
$\alpha - t_{47}$	+0ˢ.08	$\delta - s_{47}$	+5″.3
$\alpha - t_{48}$	−0ˢ.12	$\delta - s_{48}$	+5″.3
			−0″.8
			−1″.3
			+6″.1
			+6″.6

8 1853.0 α 8ʰ 39ᵐ 14ˢ.67 (4) δ +0° 10′ 54″.7 (4)

t_{47}	39ᵐ 14ˢ.45	s_{47}	10″.47
t_{48}	39ᵐ 14ˢ.45	s_{48}	10″.47
$\alpha - t_{47}$	+0ˢ.22	$\delta - s_{47}$	+7″.7
$\alpha - t_{48}$	+0ˢ.22	$\delta - s_{48}$	+7″.7
			−0″.1
			−0″.1
			~~+7″.8~~
			+7″.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 47 & 48

8 1853.0 α 9h 01m 58.66 (1) δ +0° 12′ 12.3 (1)

t_{47} 9	1m 58.90	s_{47}	12.01
t_{48}	1m 58.80	s_{48}	12.02
$\alpha - t_{47}$	− 0.24	$\delta - s_{47}$	+ 11.3
$\alpha - t_{48}$	− 0.14	$\delta - s_{48}$	+ 10.3
			− 0.2
			− 0.3
			+ 11.5
			+ 10.6

8 1853.0 α 9h 14m 39.28 (1) δ +0° 11′ 51.2 (1)

t_{47}	14m 39.50	s_{47}	11.44
t_{48}	14m 39.35	s_{48}	11.46
$\alpha - t_{47}$	− 0.22	$\delta - s_{47}$	+ 7.2
$\alpha - t_{48}$	− 0.07	$\delta - s_{48}$	+ 5.2
			− 0.2
			− 0.3
			+ 7.4
			+ 5.5

8 1853.0 α 9h 02m 45.36 (1) δ +0° 19′ 20.4 (1)

t_{47}	2m 45.75	s_{47}	19.15
t_{48}	2m 45.70	s_{48}	19.17
$\alpha - t_{47}$	− 0.39	$\delta - s_{47}$	+ 5.4
$\alpha - t_{48}$	− 0.34	$\delta - s_{48}$	+ 3.4
			− 0.9
			− 1.4
			+ 6.3
			+ 4.8

9 1853.0 α 9h 20m 05.06 (1) δ +0° 18′ 07.5 (1)

t_{47}	20m 05.90	s_{47}	18.03
t_{48}	20m 05.70	s_{48}	18.03
$\alpha - t_{47}$	− 0.84	$\delta - s_{47}$	+ 4.5
$\alpha - t_{48}$	− 0.64	$\delta - s_{48}$	+ 4.5
			− 0.7
			− 1.2
			+ 5.2
			+ 5.7

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 47 & 48

8 1853.0 α 9h 30m 23s.26 (4) δ +0° 20′ 19″.1 (4)

t_{47}	30m 23s.75	s_{47}	20″.14
t_{48}	30m 23s.55	s_{48}	20″.15
$\alpha - t_{47}$	−0s.49	$\delta - s_{47}$	+ 5″.1
$\alpha - t_{48}$	−0s.29	$\delta - s_{48}$	+ 4″.1
			− 1″.0
			− 1″.6
			+6″.1
			+5″.7

8 1853.0 α 9h 37m 40s.00 (1) δ +0° 12′ 34″.2

t_{47}	37m 40s.60	s_{47}	12′ 27″
t_{48}		s_{48}	
$\alpha - t_{47}$	−0s.60	$\delta - s_{47}$	+ 7″.2
$\alpha - t_{47}$		$\delta - s_{48}$	
			− 0″.3
			− 0″.4
			+7″.5
			---

9 1853.0 α 9h 36m 28s.98 (1) δ +0° 15′ 49″.0 (1)

t_{47}	36m 29s.70	s_{47}	15′ 41″
t_{48}		s_{48}	
$\alpha - t_{47}$	−0s.72	$\delta - s_{47}$	+ 8″.0
$\alpha - t_{48}$		$\delta - s_{48}$	
			− 0″.5
			− 0″.8
			+8″.5
			---

8 1853.0 α 9h 49m 07s.75 (1) δ +0° 14′ 04″.9 (1)

t_{48}	49m 08s.30	s_{47}	13′ 57″
t_{49}	49m 08s.30	s_{48}	13′ 59″
$\alpha - t_{47}$	−0s.55	$\delta - s_{47}$	+ 7″.9
$\alpha - t_{48}$	−0s.55	$\delta - s_{48}$	+ 5″.9
			− 0″.4
			− 0″.6
			+8″.3
			+6″.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 47 & 48

9 1853·0 α 9ʰ 57ᵐ 27ˢ·81 (1) δ + 0° 14′ 09″·9 (1)

t_{47}	57ᵐ 29ˢ·00	s_{47}	14″·03
t_{48}	57ᵐ 28ˢ·70	s_{48}	14″·05
$\alpha - t_{47}$	− 1ˢ·19	$\delta - s_{47}$	+ 6″·9
$\alpha - t_{48}$	− 0ˢ·89	$\delta - s_{48}$	+ 4″·9
			− 0″·4
			− 0″·6
			+ 7″·3
			+ 5″·5

8 1853·0 α 10ʰ 17ᵐ 19ˢ·93 (1) δ + 0° 20′ 35″·2

t_{47}	17ᵐ 21ˢ·05	s_{47}	20″·28
t_{48}	17ᵐ 20ˢ·65	s_{48}	20″·29
$\alpha - t_{47}$	− 1ˢ·12	$\delta - s_{47}$	+ 7″·2
$\alpha - t_{48}$	− 0ˢ·72	$\delta - s_{48}$	+ 6″·2
			− 0″·9
			− 1″·6
			+ 8″·1
			+ 7″·8

4·5 1853·0 α 10ʰ 00ᵐ 24ˢ·87 (7) δ + 0° 20′ 41″·3 (7)

t_{47}	00ᵐ 25ˢ·55	s_{47}	20″·36
t_{48}	0ᵐ 25ˢ·35	s_{48}	20″·36
$\alpha - t_{47}$	− 0ˢ·68	$\delta - s_{47}$	+ 5″·3
$\alpha - t_{48}$	− 0ˢ·48	$\delta - s_{48}$	+ 5″·3
			− 0″·9
			− 1″·6
			+ 6″·2
			+ 6″·9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Jones 47848

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Comparisons of Zones 40 & 41 for the beginning of Zones 47 & 48

Mag.	Zone 40 (1853)	K	Zone 41	α 1853
8-9	h 8.. m 14.. s 32.50	− 0.50		h 8.. m 14.. s 32.00
11	14.. 53.60			14.. 53.10
11	17.. 13.30			17.. 12.80
8	17.. 17.55			17.. ~~07.05~~ 17.05

Comparison of stars in Zones 484 & 485 for the end of Zones 47 & 48

	Zone 4. (1852)	K	Zone 5. (1852)	α 1853	prec.	α 1853
9-10	h 10.. m 17.. s 55.60	+ 0.50	10.. 17.. 56.00	− 0.00	h 10.. m 17.. s ~~56.05~~ 6.00	3.07	h 10.. m 17.. s ~~59.12~~ 59.07
10	19.. 05.55		19.. 05.95		19.. ~~05.90~~ 06.00	3.07	19.. 09.~~04~~ 07
9-10	20.. 23.90		20.. 24.05		20.. ~~24.10~~ 24.22	3.07	20.. 27.~~20~~ 29

Beginning of Zones 47 & 48.

α 1853	t_{47}	t_{48}	$\alpha - t_{47}$	$\alpha - t_{48}$	δ 1853	s_{47}	s_{48}	$\delta - s_{47}$	$\delta - s_{48}$
h 8.. m 14.. s 32.00	31.70	31.90	+.30	+.10	° 0.. ′ 08.. ″ 17.0	8.11	8.12	+ 6.0	+ 5.0
14.. 53.10	52.80	52.95	+.30	+.15	07.. 14.0	7.05	7.06	+ 9.0	+ 8.0
17.. 12.80	12.70	12.80	+.10	.00	03.. 09.0	3.00	3.01	+ 6.0	+ 8.0
~~7.. 09.05~~			+.23	+.08	~~10.. 17.0~~			+ 7.0	+ 7.0

End of Zones 47 & 48

α 1853	t_{47}	t_{48}	$\alpha - t_{47}$	$\alpha - t_{48}$	δ 1853	s_{47}	s_{48}	$\delta - s_{47}$	$\delta - s_{48}$
h 10.. m 17.. s ~~59.07~~ 59.12	0.25		− 1.13		° 0.. ′ 02.. ″ 26.9	2.40	2.42	+ 6.9	+ 4.9
19.. 09.~~07~~ 09	10.20		− 1.13		01.. 06.9	1.00	1.02	+ 6.9	+ 4.9
20.. 27.~~29~~ 27	25.30		− 1.24		01.. 18.9	1.14	1.14	+ 4.9	+ 4.9
			−1.16					+ 6.2	+ 4.9

1 mistake in getting α 1853
3 " " " α 1452

Corrected Plus!
for Sept 26 1853

1853phae.proj..242

Comparison of Stars with Zones 40 & 41 for the beginning of Zones 47 & 48.

Zone 40	Zone 41	δ 1853
0° 8′ 20″	−3″.0	0° 8′ 17″.0
7 17		7 14.0
3 12		3 09.0
10 20		10 17.0

Comparison of Stars in Zones 485 for the end of Zones 47 & 48

Zone 4.	d	Zone 5.	d	δ 1852.	prec.	δ 1853.
0° 03′ 0″	−2.0	0h 3′ 08″	−3.0	0° 3′ 05″.0	−18″.1	+0° 2′ 46″.9
1 27		1 28		1 25.0	−18.1	1 06.9
1 38		1 41		1 37.0	−18.1	1 18.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 49 & 60

9 1853·0 α 11ʰ 52ᵐ 52ˢ·90 (1) δ + 0° 07′ 31″·1 (1)

t_{49}	52ᵐ 52ˢ·60	s_{49}	7′ 31″
t_{50}	52ᵐ 52ˢ·20	s_{50}	7′ 29″
$\alpha - t_{49}$	+ 0ˢ·30	$\delta - s_{49}$	+ 0″·1
$\alpha - t_{50}$	+ 0ˢ·70	$\delta - s_{50}$	+ 2″·1
		d'_{49}	− 0″·7
		d'_{50}	− 0″·5
			+0″·8
			+2″·6

8 1853·0 α 12ʰ 02ᵐ 07ˢ·36 (1) δ + 0° 02′ 44″·8 (1)

t_{49}	2ᵐ 7ˢ·15	s_{49}	2′ 43″
t_{50}	2ᵐ 6ˢ·90	s_{50}	2′ 42″
$\alpha - t_{49}$	+ 0ˢ·21	$\delta - s_{49}$	+ 1″·8
$\alpha - t_{50}$	+ 0ˢ·46	$\delta - s_{50}$	+ 2″·8
		d'_{49}	− 0″·3
		d'_{50}	− 0″·2
			+2″·1
			+3″·0

7·8 1852·0 α 12ʰ 01ᵐ 54ˢ·52 (1) δ + 0° 03′ 38″·5

t_{49}	1ᵐ 54ˢ·10	s_{49}	3′ 37″
t_{50}	1ᵐ 53ˢ·85	s_{50}	3′ 34″
$\alpha - t_{49}$	+ 0ˢ·42	$\delta - s_{49}$	+ 1″·5
$\alpha - t_{50}$	+ 0ˢ·67	$\delta - s_{50}$	+ 4″·5
		d'_{49}	− 0″·4
		d'_{50}	− 0″·3
			+1″·9
			+4″·7

6 1853·0 α 12ʰ 11ᵐ 08ˢ·25 (14) δ + 0° 01′ 48″·3

t_{49}	11ᵐ 7ˢ·80	s_{49}	1′ 44″
t_{50}	11ᵐ 7ˢ·30	s_{50}	1′ 43″
$\alpha - t_{49}$	+ 0ˢ·45	$\delta - s_{49}$	+ 4″·3
$\alpha - t_{50}$	+ 0ˢ·75	$\delta - s_{50}$	+ 5″·3
		d'_{49}	− 0″·2
		d'_{50}	− 0″·1
			+4″·5
			+5″·4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Zones 498 & 50

4 1853·0 α 12ʰ 12ᵐ 23ˢ·10 (21) δ +0° 09′ 01″·7 (23)

t_{49}	12ᵐ 22ˢ·85	s_{49}	8″·58
t_{50}	12ᵐ 22ˢ·60	s_{50}	8″·57
$\alpha - t_{49}$	+ 0ˢ·25	$\delta - s_{49}$	+ 3″·7
$\alpha - t_{50}$	+ 0ˢ·50	$\delta - s_{50}$	+ 4″·7
		α'_{49}	− 0″·9
		α'_{50}	− 0″·6
			+4″·6
			+5″·3

4·9 1853·0 α 12ʰ 43ᵐ 12ˢ·00 (1) δ +0° 03′ 06″·0 (1)

t_{49}	43ᵐ 11ˢ·75	s_{49}	2″·52
t_{50}	43ᵐ 11ˢ·25	s_{50}	2″·51
$\alpha - t_{49}$	+ 0ˢ·25	$\delta - s_{49}$	+ 13″·0
$\alpha - t_{50}$	+ 0ˢ·75	$\delta - s_{50}$	+ 14″·0
		α'_{49}	− 0″·3
		α'_{50}	− 0″·2 X
			+13″·3 ?
			+14″·2 ?

8 1853·0 α 12ʰ 39ᵐ 08ˢ·75 (2) δ +0° 08′ 29″·7 (2)

t_{49}	39ᵐ 8ˢ·30	s_{49}	8″·26
t_{50}	39ᵐ 7ˢ·95	s_{50}	8″·25
$\alpha - t_{49}$	+ 0ˢ·45	$\delta - s_{49}$	+ 3″·7
$\alpha - t_{50}$	+ 0ˢ·80	$\delta - s_{50}$	+ 4″·7
		α'_{49}	−0″·8
		α'_{50}	−0″·6
			+4″·5
			+5″·3

8·9 1853·0 α 12ʰ 45ᵐ 56ˢ·04 (1) δ +0° 02′ 06″·0 (1)

t_{49}	45ᵐ 55ˢ·95	s_{49}	2″·05
t_{50}	45ᵐ 55ˢ·50	s_{50}	2″·02
$\alpha - t_{49}$	+ 0ˢ·09	$\delta - s_{49}$	+ 1″·0
$\alpha - t_{50}$	+ 0ˢ·54	$\delta - s_{50}$	+ 4″·0
		α'_{49}	− 0″·2
		α'_{50}	−0″·1
			+1″·2
			+4″·1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 49 & 50

8.9 1853.0 α 12h 55m 16.79 (7) δ − 0° 00′ 10.3″

t_{49}	55m 16.70	s_{49}	− 0″.14
t_{50}	55m 16.25	s_{50}	− 0″.11
$\alpha - t_{49}$	+ 0.09	$\delta - s_{49}$	+ 3.5
$\alpha - t_{50}$	+ 0.54	$\delta - s_{50}$	+ 6.5
		α'_{49}	− 0.0
		α'_{50}	− 0.0
			+ 3.5
			+ 6.5

7 1853.0 α 13h 09m 58.71 (4) δ + 0° 06′ 00.1″

t_{49}	9m 58.65	s_{49}	5″.58
t_{50}	9m 58.00	s_{50}	5″.56
$\alpha - t_{49}$	+ 0.06	$\delta - s_{49}$	+ 2.1
$\alpha - t_{50}$	+ 0.71	$\delta - s_{50}$	+ 4.1
		α'_{49}	− 0.6
		α'_{50}	− 0.4
			+ 1.5
			+ 3.7

9 1853.0 α 12h 58m 39.37 (2) δ + 0° 08′ 55.9 (2)

t_{49}	58m 39.10	s_{49}	8″.57
t_{50}	58m 38.70	s_{50}	8″.46
$\alpha - t_{49}$	+ 0.27	$\delta - s_{49}$	− 1.1
$\alpha - t_{50}$	+ 0.67	$\delta - s_{50}$	− 0.1
		α'_{49}	− 0.9
		α'_{50}	− 0.6
			− 0.2
			+ 0.5

9 1853.0 α 13h 16m 12.04 (1) δ + 0° 02′ 59.7″

t_{49}	16m 11.65	s_{49}	2″.59
t_{50}	16m 11.10	s_{50}	2″.58
$\alpha - t_{49}$	+ 0.39	$\delta - s_{49}$	+ 0.7
$\alpha - t_{50}$	+ 0.94	$\delta - s_{50}$	+ 1.7
		α'_{49}	− 0.3
		α'_{50}	− 0.2
			+ 1.0
			+ 1.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Jones 49650

3.4 1853.0 α 13ʰ 27ᵐ 12ˢ.41 (4) δ +0° 09′ 25″.5 (6)

t_{49}	27ᵐ 12ˢ.30	s_{49}	9″.24	
t_{60}	27ᵐ 11ˢ.90	s_{56}	9″.20	
$\alpha - t_{49}$	+ 0ˢ.11	$\delta - s_{49}$	+	1″.1
$\alpha - t_{56}$	+ 0ˢ.51	$\delta - s_{56}$	+	5″.1
		α'_{49}		−0″.9
		α'_{52}		−0″.6
				+2″.0
				+5″.7

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparisons of Stars with Zones - 283 for the beginning of Zones 49 & 50

Mag.	#	Zone 2	K	Zone 3	K	α 1852	prec.	α 1853
7-8	–	11h 52m 50.30s	−0.50	11h 52m 50.40s	−0.60	11h 52m 49.80s	3.07	11h 52m 52.87s
10		53 21.75		53 21.85		53 21.25	3.07	53 24.32
11				53 58.40		53 57.80	3.07	54 00.87

Comparison of Stars with Zones 51 1853/1852 for the end of 49 & 50 1853/1854

	Zone 51	K	Zone 52		α 1853.
12 –	13h 47m 19.80s	+0.40 +0.20			13h 47m 20.00s
12	48 17.45				48 17.65
13	50 24.55				50 24.75
13	52 06.90		13h 52m 07.70s	−0.30	52 07.40

Beginning of Zones 49 & 50

α 1853	t_{49}	t_{50}	$\alpha - t_{49}$	$\alpha - t_{50}$	δ 1853	s_{49}	s_{50}	$\delta - s_{49}$	$\delta - s_{50}$
11h 52m 52.87s	52.60	52.20	+.27	+.67	+0° 07′ 33.0″	7.31	7.29	+2.0	+4.0
53 24.32	23.80	23.50	+.52	+.80	05 10.0	5.07	5.05	+3.0	+5.0
54 00.87	0.45	0.15	+.42	+.72	08 18.0	8.17	8.14	+1.0	+4.0
			+1.20	+.73				+2.0	+4.3

End of Zones 49 & 50.

α 1853	t_{49}	t_{50}	$\alpha - t_{49}$	$\alpha - t_{50}$	δ 1853	s_{49}	s_{50}	$\delta - s_{49}$	$\delta - s_{50}$
13h 47m 20.00s	19.90	19.65	+0.10	+.35	−0° 00′ 19.0″	−0.22	−0.24	+03.0	+5.0
48 17.65	17.65	17.25	+.20.00	+.60	04 22.0	4.20	4.17	+2.0	+5.0
50 24.75	24.85	24.70	+.10 −10	+.20	02 25.0	4.23	4.20	+2.0	+5.0
52 07.15	7.35		+.05 −20		06 46.0	6.40		+6.0	
			+.15	+1.15				+3.2	+5.0
			−.05	+.25					

Mistake in getting α 1853

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Comparison of Stars with Zones 283- for the beginning of Zones. 49-50

Zone 2	d	Zone 3	d	δ 1852	prec.	δ 1853.
0° 7′ 56″	− 3″.0	0° 7′ 56″	− 3″.0	+ 0° 07′ 53″.0	− 20″.0	+ 0° 07′ 33″.0
5′ 34		5′ 32		5′ 30″.0	− 20″.0	5′ 10″.0
		8′ 41		8′ 38″.0	− 20″.0	8′ 18″.0

Comparison of Stars with Zone 51 & 52 for the end of Zone, 49 & 50

Zone 51		Zone 52		δ 1853.
− 0° 0′ 19″	0″.0			− 0° 0′ 19″.0
4′ 22	0″.0			+ 4′ 22″.0
4′ 25	0″.0			+ 4′ 25″.0
6′ 41	0″.0	6′ 40	+ 1″.0	+ 6′ 41″.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

NB Between R $12^h\,55^m$ & R $15^h\,03^m$ Treipe's reductions
of 12.2.74 give too great Zones 51 & 52 R.A. by $0^s.45$
vide Zones 53 & 54 Camb.

R 1853·0 α 13ʰ 42ᵐ 57·75ˢ (2) δ + 0° 04′ 44·4 (2)

t_{51}		s_{51}	
t_{52}		s_{52}	
$\alpha - t_{51}$		$\delta - s_{51}$	
$\alpha - t_{52}$		$\delta - s_{52}$	

x Zones begins in great R.

8 1853·0 α 14ʰ 02ᵐ 22·40ˢ (1) δ + 0° 02′ 43·0″ (1)

t_{51}	2ᵐ 21·65ˢ	s_{51}	2′ 47″
t_{52}	2ᵐ 22·30	s_{52}	2′ 45″
$\alpha - t_{51}$	+ 0·75	$\delta - s_{51}$	− 4·0
$\alpha - t_{52}$	+ 0·10	$\delta - s_{52}$	− 2·0
		α'_{51}	− 0·3
		α'_{52}	− 0·4
			− 3·7
			− 1·6

R 1853·0 α 13ʰ 55ᵐ 52·03ˢ (2) δ + 0° 04′ 53·9″ (2)

t_{51}	55ᵐ 51·90ˢ	s_{51}	4″ 53
t_{52}	55ᵐ 52·55	s_{52}	4″ 52
$\alpha - t_{51}$	+ 0·13	$\delta - s_{51}$	+ 0·9
$\alpha - t_{52}$	− 0·52	$\delta - s_{52}$	+ 1·9
		α'_{51}	− 0·4
		α'_{52}	− 0·6
			+ 1·3
			+ 2·5

7 1853·0 α 14ʰ 15ᵐ 14·86ˢ (4) δ + 0° 02′ 05·7″ (4)

t_{51}	15ᵐ 14·65ˢ	s_{51}	2′ 07″
t_{52}	15ᵐ 15·10	s_{52}	2′ 05″
$\alpha - t_{51}$	+ 0·21	$\delta - s_{51}$	− 1·3
$\alpha - t_{52}$	− 0·24	$\delta - s_{52}$	+ 0·7
		α'_{51}	− 0·2
		α'_{52}	− 0·2
			− 1·1
			+ 0·9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Zones 61 & 62

9 1853·0 α 14ʰ 26ᵐ 14ˢ·18 (1) δ + 0° 06′ 21″·2 (1)

t_{s1}	~~26ᵐ 14ˢ·40~~	s_{s1}	~~6″·23~~
t_{s2}	26ᵐ 14ˢ·40	s_{s2}	6″·23
$\alpha - t_{s1}$		$\delta - s_{s1}$	
$\alpha - t_{s2}$	− 0·22	$\delta - s_{s2}$	− 1″·8
		α'_{s1}	−
		α'_{s2}	~~− 0″·7~~
			−1″·1

8 1853·0 α 14ʰ 46ᵐ 15ˢ·16 (1) δ + 0° 10′ 37″·9 (1)

t_{s1}	46ᵐ 14ˢ·70	s_{s1}	10″·40·0
t_{s2}	46ᵐ 15ˢ·15	s_{s2}	10″·38
$\alpha - t_{s1}$	+ 0·46	$\delta - s_{s1}$	− 2″·1
$\alpha - t_{s2}$	+ 0·01	$\delta - s_{s2}$	− 0″·1
		α'_{s1}	− 1″·0
		α'_{s2}	− 1″·3
			−1″·1
			+0″·3

9 1863·0 α 14ʰ 29ᵐ 53ˢ·16 (1) δ + 0° 09′ 09″·0 (1)

t_{s1}		s_{s1}	
t_{s2}	29ᵐ 53ˢ·10	s_{s2}	9″·10
$\alpha - t_{s1}$		$\delta - s_{s1}$	~~+0~~
$\alpha - t_{s2}$	+ 0·06	$\delta - s_{s2}$	− 1″·0
		α'_{s1}	
		α'_{s2}	~~−1″·1~~
			+0″·1

R 1853·0 α 14ʰ 12ᵐ 59ˢ·09 (2) δ + 0° 00′ 36″·0

t_{s1}		s_{s1}	
t_{s2}	missing	s_{s2}	
$\alpha - t_{s1}$		$\delta - s_{s1}$	
$\alpha - t_{s2}$		$\delta - s_{s2}$	

X

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae..proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 51 & 52

9 1853·0 α 15ʰ 25ᵐ 05·20 (1) δ + 0° 09′ 01·6 (1)

t_{51}	25ᵐ 05·60	s_{51}	10″ 03
t_{52}	25ᵐ 06·00	s_{52}	10″ 02
$\alpha - t_{51}$	− 0·40	$\delta - s_{51}$	− 1″ 1·4
$\alpha - t_{52}$	− 0·80	$\delta - s_{52}$	− 1″ 01″ 4
		d'_{51}	− 0·9
		d'_{52}	− 1·2
			− 0·5
			− 0·2

8 1853·0 α 15ʰ 55ᵐ 10·93 (1) δ − 0° 00′ 00·1 (1)

t_{51}		s_{51}	
t_{52}	15ᵐ 55ᵐ 11·75ˢ	s_{52}	− 0″ 06
$\alpha - t_{51}$	− ~~0·82~~	$\delta - s_{51}$	
$\alpha - t_{52}$	− 0·82	$\delta - s_{52}$	+ 5·9
		d'_{51}	
		d'_{52}	− 0·0
			− − −
			+ 5·9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparison of Stars with Zone 49 & 50 for the beginning of Zone 57 & 52 — 1853 — 1853,

Mag.	Zone 49	k	Zone 50	k	α 1883
12	— 13h 47m 19.90	+0.10	13h 47m 19.65	+0.60	13h 47m 20.12
12	48 17.65		48 17.25		48 17.80
13	50 24.85		50 24.70		50 25.12
13	52 07.35				

Comparison of Stars with Zones 59 & 60 for the end of Zones 57 & 52 — 1853 — 1853.

	Zone 59.	k	Zone 60.	k	α 1853.
11	— 15h 57m 24.90	−0.10	15h 57m 25.00	−0.25	15h 51m 24.78
12	51 59.70		52 00.00		51 59.68
13	52 24.30		52 24.65		52 24.30
12	52 34.20		52 34.55		52 34.20
9	55 11.20		55 11.30		55 11.08

Beginning of Zones 57 & 52

α 1853	t_{51}	t_{52}	$\alpha - t_{51}$	$\alpha - t_{52}$	δ 1853	s_{51}	s_{52}	$\delta - s_{51}$	$\delta - s_{52}$
13h 47m 20.12	19.80	+.30	+.32		−0° 00′ 20.0	−0.19	~~−01.0~~	−1.0	
48 17.80	17.45	+.35	+.35		+ 04 21.5	4.22	~~00.5~~	−0.5	
50 25.12	24.55	+.57	+.57		04 24.5	4.25		−0.5	
			+.41		~~0° 00′ 0~~			−0.7	

End of Zones 57 & 52

α 1853	t_{51}	t_{52}	$\alpha - t_{51}$	$\alpha - t_{52}$	δ 1853	s_{51}	s_{52}	$\delta - s_{51}$	$\delta - s_{52}$
15h 57m 24.78		25.70		−.92	+0° 03′ 06.5	3.06	3.05	+0.5	+1.5
57 59.68		0.40		−.72	05 26.5	5.27	5.25	+0.5	+1.5
52 24.30		24.90		−.60	05 29.5	5.30	5.29	+0.5	+0.5
52 34.20		34.85		−.65	06 21.5	6.22	6.20	+0.5	+1.5
55 11.08		11.75		−.67	− 00 05.0		−0.06		+1.0
				−.71				0.5	+1.5

1 mistake in getting δ 1853

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Comparison of Stars with Zone 49 & 50 for the beginning of Zone 51 & 52

Zone 49	Zone 50	α 1853
−0° 0′ 22″	+2″.0 −0° 0′ 24″	+4″,0 −0h 00m 20s.0
+ 4 20	+ 4 17	+ 4 21.5
4 23	+ 4 20	4 24.5
6 40		6 42.0 ~~38.0~~

Comparison of Stars with Zone 59 & 60 for the end of Zones 51 & 52

Zone 59	Zone 60	δ 1853.
0° 3′ 06″	+1″.0 0° 3′ 07″	−1″.0 +0° 03′ 06.5
5 26	5 27	5 26.5
5 49	5 50	5 49.5
6 21	6 22	6 21.5
−0 06	−0 04	− 0 05.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 53 & 54

8·9 1853·0 α 13ʰ 07ᵐ 32·99 (2) δ + 0° 10′ 01·0 (2)

t_{53}	7ᵐ	s_{53}	
t_{54}		s_{54}	
$\alpha - t_{53}$		$\delta - s_{53}$	
$\alpha - t_{54}$		$\delta - s_{54}$	

×

9 1853·0 α 13ʰ 18ᵐ 13·49 (1) δ + 0° 18′ 37·9 (1)

t_{53}	18ᵐ 13·25	s_{53}	18′ 45″
t_{54}	18ᵐ 13·20	s_{54}	18′ 44″
$\alpha - t_{53}$	+ 0·24	$\delta - s_{53}$	− 7·1
$\alpha - t_{54}$	+ 0·29	$\delta - s_{54}$	− 6·1
		d'_{53}	− 0·5
		d'_{54}	− 1·1
			− 6·6
			− 5·0

8 1853·0 α 13ʰ 14ᵐ 57·35 (1) δ + 0° 11′ 27·3 (1)

t_{53}	14ᵐ 57·10	s_{53}	11′ 29″
t_{54}	14ᵐ 57·20	s_{54}	11′ 31″
$\alpha - t_{53}$	+ 0·25	$\delta - s_{54}$	− 1·7
$\alpha - t_{54}$	+ 0·15	$\delta - s_{54}$	− 3·7
		d'_{53}	− 0·1
		d'_{54}	− 0·2
			− 1·6
			− 3·5

R 1853·0 α 13ʰ 33ᵐ 43·07 (2) δ + 0° 11′ 30·5 (2)

t_{53}		s_{53}	
t_{54}	missing	s_{54}	
$\alpha - t_{53}$		$\delta - s_{53}$	
$\alpha - t_{54}$		$\delta - s_{54}$	

×

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Wones 53864 See next page

R 1853.0 α 13h 48m 37.56 (2) δ +0° 19′ 43.6 (2)

t_{53}	48m 38.05	s_{53}	19″.46
t_{54}	48 38.10	s_{54}	19.46
$\alpha - t_{53}$	− 0.49	$\delta - s_{53}$	− 2.4
$\alpha - t_{54}$	− 0.54	$\delta - s_{54}$	− 2.4

α'_{5-3} −0.6
α'_{54} −1.2
−1.8
−1.2

R 1853.0 α 13h 57m 18.89 (2) δ +0° 14′ 55.3 (2)

t_{53}	57m 19.35	s_{53}	14″.56
t_{54}	57m 19.20	s_{54}	14.55
$\alpha - t_{53}$	− 6.46	$\delta - s_{53}$	− 0.7
$\alpha - t_{54}$	− 0.31	$\delta - s_{54}$	+ 0.3

α'_{5-3} −0.3
α'_{54} −0.6
−0.4
+0.9

ζ 1853.0 α 13h 56m 30.58 (4) δ +0° 20′ 44.4 (4)

t_{53}	56m 30.65	s_{53}	20″.46
t_{54}	56m 30.85	s_{54}	20.45
$\alpha - t_{53}$	− 0.07	$\delta - s_{53}$	− 0.6
$\alpha - t_{54}$	− 0.27	$\delta - s_{54}$	− 0.6

α'_{5-3} −0.7
α'_{54} −1.3
+0.1
+0.7

9 1853.0 α 14h 34m 07.52 (1) δ +0° 11′ 47.7

t_{53}	34m 07.20	s_{53}	11″.53
t_{54}	34m 7.25	s_{54}	11.53
$\alpha - t_{53}$	+ 0.32	$\delta - s_{53}$	− 5.3
$\alpha - t_{54}$	+ 0.27	$\delta - s_{54}$	− 5.3

α'_{5-3} −0.1
α'_{54} −0.2
−5.2
−5.1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Comparison of Reduction of Bessels Zone 74

in R with the Standard Catalogue Between R

R 12.. 55.. 16.90 Dec − 0°.. 00'.. 13".

α R 15.. 03.. 16.45 + 0 .. 41.. 39.7 which also corresponds

to the limits of our zones 53 & 54 viz R 12h.. 59m

to R 15.. 02

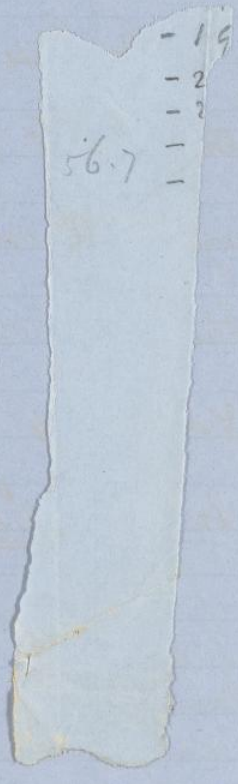
No in Weisse	W − R	wt
949	+0.12	5
327	+ .33	4
156	+ .68	3
448	+ .35	9
457	+ .42	20
896	+ .27	6
949	+ .43	3
966	+ .33	2
999	+ .60	3
3	+ .74	3
~~25~~	~~− 2 +~~	~~2~~
109	+ .95	3
225	+ .56	6
271	+ 33	3
~~287~~	~~+ 08 +~~	
308	+ 98	2
514	+ 25	2
518	+ 26	7
805	+ 05	5
818	+ 83	2
	~~+ 54~~	~~2~~
874	+ 16	2
945	+ 48	1
1019	+ 28	5
1142	+ 56	2
38	+ 70	3
	~~38~~	
23)	1089	
	+0.45	

By these comparisons it seems that all the other authorities agree in requiring all the Rs reduced from Bessels Zone 74 to be diminished by 0.45

[Note without any knowledge of the above our observations in zones 53 & 54 showed that this correction of about 0.50 was necessary.]

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 53 & 54

8 1853·0 α 14ʰ 40ᵐ 03ˢ·05 (1) δ + 0° 20′ 31″·5 (1)

t_{53}	40ᵐ 02ˢ·90	s_{53}	20″.33
t_{54}	40ᵐ 02ˢ·95	s_{54}	20″.33
$\alpha - t_{53}$	+ 0ˢ·15	$\delta - s_{53}$	− 1″.5
$\alpha - t_{54}$	+ 0ˢ·10	$\delta - s_{54}$	− 1″.5
		d'_{53}	− 0″.6
		d'_{54}	− 1″.2
			− 0″.9
			− 0″.3

7.8 1853·0 α 14ʰ 46ᵐ 17ˢ·69 (3) δ + 0° 11′ 57″·5 (3)

t_{53}	46ᵐ 18ˢ·20	s_{53}	12″.01
t_{54}	46ᵐ 18ˢ·30	s_{54}	12″.00
$\alpha - t_{53}$	− 0ˢ·51	$\delta - s_{53}$	− 3″.5
$\alpha - t_{54}$	− 0ˢ·61	$\delta - s_{54}$	− 2″.5
		d'_{53}	− 0″.1
		d'_{54}	− 0″.2
			− 3″.4
			− 2″.3

8 1853·0 α 14ʰ 46ᵐ 15ˢ·16 (1) δ + 0° 10′ 37″·9 (1)

t_{53}	46ᵐ 15ˢ·15	s_{53}	10″.41
t_{54}	46ᵐ 15ˢ·10	s_{54}	10″.41
$\alpha - t_{53}$	+ 0ˢ·01	$\delta - s_{53}$	− 3″.1
$\alpha - t_{54}$	+ 0ˢ·06	$\delta - s_{54}$	− 3″.1
		d'_{53}	− 0″.0
		d'_{54}	− 0″.1
			− 3″.1
			− 3″.0

8·9 1853·0 α 14ʰ 51ᵐ 25ˢ·03 (1) δ + 0° 14′ 53″·7 (1)

t_{53}	51ᵐ 24ˢ·95	s_{53}	14″.55
t_{54}	51ᵐ 25ˢ·00	s_{54}	14″.56
$\alpha - t_{53}$	+ 0ˢ·08	$\delta - s_{53}$	− 1″.3
$\alpha - t_{54}$	+ 0ˢ·03	$\delta - s_{54}$	− 2″.3
		d'_{53}	− 0″.3
		d'_{54}	− 0″.6
			− 1″.0
			− 1″.7

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 53 & 54

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Comparison of Stars in Zones 6 & 7 1852

Mag.	Zone 6	K	Zone 7
10	— 13h 00m 43.00	— 0.80	
9	2 30.30		
12	5 03.95		

for the beginning of Zones 53 & 54 1853

	α 1852	prec.	α 1853.
	13h 00m 42.20	3.07	13h 00m 45.27
	2 29.50	3.07	2 32.57
	5 03.15	3.07	5 06.22

Comparison of Stars in Zones 55 & 56 for the end of Zones 53 & 54. 1853.

	Zone 55	K	Zone 56	K	α 1853
12	— 15h 01m 12.40	+.10 +0.00	15h 01m 12.65	+.10 +.00	— 15h 01m 12.52 +.10
12	1 24.25	.00	1 24.55		1 24.40
13	2 08.10		2 08.35		2 08.22
13	2 23.25		2 23.40		2 23.32

Beginning of Zones 53 & 54

α 1853	t_{53}	t_{54}	$\alpha - t_{53}$	$\alpha - t_{54}$	δ 1853	s_{53}	s_{54}	$\delta - s_{53}$	$\delta - s_{54}$
13h 00m 45.27	45.60	45.25	— .33	+ .02	0° 08′ 19.6	8′.19	8′.19	+ 0.6	+ 0.6
02 32.57	32.85	32.70	— .28	+ .13	00 02.6	0.02	0.03	+ 0.6	— 0.4
05 06.22	6.60	6.45	— .38	+ .23	06 05.6	6.04	6.06	+ 1.6	— 0.4
			— .33	— .13				— .9	— 0.5
			— 139	— 13					

End of Zones 53 & 54

α 1853 +.10	t_{53}	t_{54}	$\alpha - t_{53}$ −.10	$\alpha - t_{54}$ −.10	δ 1853	s_{53}	s_{54}	$\delta - s_{53}$	$\delta - s_{54}$
15h 01m 12.52	13.90	13.70	— 1.38	— 1.18	0° 03′ 11.5″	3′.15	3′.15	— 3.5	— 3.5
01 24.40	25.75	25.70	— 1.35	— 1.30	07 17.5	7.21	7.23	— 3.5	— 3.5
02 08.22	9.50	9.65	— 1.28	— 1.28	09 05.5	9.09	9.11	— 3.5	— 3.5
02 33.32	24.60	24.55	— 1.28	— 1.23	00 19.0	0.21	0.22	— 2.0	— 3.0
			~~— 1.37~~	~~— 1.25~~				— 3.1	— 4.4
			— 1.22	— 1.15					

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Comparison of Stars in Zones 647 for the beginning of Zones 53 & 54

Zone 6.	d	Zone 7.	d	δ 1852	prec.	δ 1853.
0° 8′ 47″	−8″.0			0° 08′ 39″	−19″.4	+0° 8′ 19″.6
0 30				0 22	19.4	0 02.6
6 33				6 25	19.4	6 05.6

Comparison of Stars in Zones 55 & 56 for the end of Zones 53 & 54.

Zone 55	d	Zone 56	d	δ 1853.
0° 3′ 17″	−6″.0	0° 3′ 17″	−5.0	0° 3′ 11″.5
7 23		7 23		7 17.5
9 11		9 11		9 05.5
0 24		0 25		0 19.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 55 & 56

9 1853·0 α 15ʰ 12ᵐ 40ˢ.69 (1) δ + 0° 18′ 32″.3 (1)

t_{55}	12ᵐ 40ˢ.45	s_{55}	19″.02
t_{56}	12ᵐ 40ˢ.60	s_{56}	19″.00
$\alpha - t_{55}$	+ 0ˢ.24	$\delta - s_{55}$	− 9″.7
$\alpha - t_{56}$	+ 0ˢ.09	$\delta - s_{56}$	− 7″.7
		α'_{55}	− 0″.8
		α'_{56}	− 0″.8
			− 8″.9
			− 6″.9

8 1853·0 α 15ʰ 27ᵐ 17ˢ.89 (1) δ + 0° 20′ 53″.4 (1)

t_{55}	s_{55}
t_{56}	s_{56}
$\alpha - t_{55}$	$\delta - s_{55}$
$\alpha - t_{56}$	$\delta - s_{56}$

X

8·9 1853·0 α 15ʰ 13ᵐ 34ˢ.58 (1) δ + 0° 18′ 05″.3

t_{55}	13ᵐ 34ˢ.80	s_{55}	18″.11
t_{56}	13ᵐ 34ˢ.80	s_{56}	18″.11
$\alpha - t_{55}$	− 0ˢ.22	$\delta - s_{55}$	− 5″.7
$\alpha - t_{56}$	− 0ˢ.22	$\delta - s_{56}$	− 5″.7
		α'_{55}	− 0″.7
		α'_{56}	− 0″.7
			− 5″.0
			− 5″.0

9 1853·0 α 15ʰ 29ᵐ 16ˢ.15 (1) δ + 0° 14′ 09″.0 (1)

t_{55}	29ᵐ 16ˢ.00	s_{55}	14″.13
t_{56}	29ᵐ 16ˢ.10	s_{56}	14″.14
$\alpha - t_{55}$	+ 0ˢ.15	$\delta - s_{55}$	− 4″.0
$\alpha - t_{56}$	+ 0ˢ.05	$\delta - s_{56}$	− 5″.0
		α'_{55}	− 0″.4
		α'_{56}	− 0″.4
			− 3″.6
			− 4″.6

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj...242

Jones 55 & 56

8.9 1853.0 α 15h 29m 45.73 (1) δ +0° 19′ 30.8 (1)

t_{55}	29m 45.70	s_{55}	19″ 37
t_{56}	29m 45.90	s_{56}	19″ 37
$\alpha - t_{55}$	+ 0.03	$\delta - s_{55}$	− 6.2
$\alpha - t_{56}$	− 0.17	$\delta - s_{56}$	− 6.2
		α'_{55}	− 0.8
		α'_{56}	− 0.8
			− 5.4
			− 5.4

9 1853.0 α 15h 57m 43.63 (1) δ +0° 17′ 52.2 (1)

t_{55}	57m 43.80	s_{55}	18″ 02
t_{56}	57m 43.75	s_{56}	18″ 00
$\alpha - t_{55}$	− 0.17	$\delta - s_{55}$	− 9.8
$\alpha - t_{56}$	− 0.12	$\delta - s_{56}$	− 7.8
		α'_{55}	− 0.7
		α'_{56}	− 0.7
			− 9.1
			− 7.1

8 1853.0 α 15h 50m 09.01 (3) δ +0° 20′ 15.1 (3)

t_{55}	50m 08.75	s_{55}	20″ 18
t_{56}	50m 08.80	s_{56}	20″ 17
$\alpha - t_{55}$	+ 0.26	$\delta - s_{55}$	− 2.9
$\alpha - t_{56}$	+ 0.21	$\delta - s_{56}$	− 1.9
		α'_{55}	− 0.9
		α'_{56}	− 0.9
			− 2.0
			− 1.0

8.9 1853.0 α 15h 58m 48.81 (1) δ +0° 12′ 19.0 (1)

t_{55}	58m 48.90	s_{55}	12″ 21
t_{56}	58m 49.00	s_{56}	12″ 23
$\alpha - t_{55}$	− 0.09	$\delta - s_{55}$	− 2.0
$\alpha - t_{56}$	− 0.19	$\delta - s_{56}$	− 4.0
		α'_{55}	− 0.2
		α'_{56}	− 0.2
			− 1.8
			− 3.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

BZ 85 R may be to small by .20

-0.11	2
+.05	2
-.70	2
05	
+26	
-55	
-14	
-30	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 55 & 56

9 1853·0 α 16ʰ 04ᵐ 29ˢ·10 (4) δ + 0° 12′ 16″·8 (4)

t_{55}	4ʰ 28ᵐ·85	s_{55}	12″·22
t_{56}	4ʰ 28ᵐ·80	s_{56}	12″·21
$\alpha - t_{55}$	+ 0ˢ·25	$\delta - s_{55}$	− 5″·2
$\alpha - t_{56}$	+ 0ˢ·30	$\delta - s_{56}$	− 4″·2
		d'_{55}	− 0″·2
		d'_{56}	− 0″·2
			−5″·0
			−4″·0

8 1853·0 α 16ʰ 22ᵐ 28ˢ·15 (1) δ + 0° 12′ 03″·8 (1)

t_{55}	22ʰ 28ᵐ·35	s_{55}	12″·05
t_{56}	22ʰ 28ᵐ·40	s_{56}	12″·03
$\alpha - t_{55}$	− 0ˢ·20	$\delta - s_{55}$	− 1″·2
$\alpha - t_{56}$	− 0ˢ·25	$\delta - s_{56}$	+ 0″·8
		d'_{55}	− 0″·2
		d'_{56}	− 0″·2
			−1″·0
			+1″·0

9 1853·0 α 16ʰ 16ᵐ 33ˢ·39 (1) δ + 0° 11′ 31″·4 (1)

t_{55}	15ʰ 33ᵐ·55	s_{56}	11″·33
t_{56}	15ʰ 33ᵐ·60	s_{57}	11″·34
$\alpha - t_{55}$	− 0ˢ·16	$\delta - s_{44}$	− 1″·6
$\alpha - t_{56}$	− 0ˢ·21	$\delta - s_{56}$	− 2″·6
		d'_{55}	− 0″·9
		d'_{56}	− 0″·9
			−0″·7
			−1″·7

8.9 1853·0 α 16ʰ 23ᵐ 07ˢ·69 (1) δ + 0° 10′ 15″·2 (1)

t_{55}	23ʰ 8ᵐ·10	s_{55}	10″·15
t_{56}	23ʰ 8ᵐ·00	s_{56}	10″·15
$\alpha - t_{55}$	− 0ˢ·41	$\delta - s_{55}$	+ 0″·2
$\alpha - t_{56}$	− 0ˢ·31	$\delta - s_{56}$	+ 0″·2
		d'_{55}	−0″·0
		d'_{56}	−0″·0
			+0″·2
			+0″·2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

Zones 55 & 56

(1)

8 1853·0 α 16ʰ 24ᵐ 17ˢ·71 (1) δ + 0° 16′ 37″·9 (1)

t_{55}	24ᵐ 18ˢ·10	s_{55}	16′ 43
t_{56}	24ᵐ 18ˢ·20	s_{56}	16′ 40
$\alpha - t_{55}$	− 0ˢ·39	$\delta - s_{55}$	− 5″·1
$\alpha - t_{56}$	− 0ˢ·49	$\delta - s_{56}$	− 2″·1
		d'_{55}	−0″·6
		d'_{56}	−0″·6
			−4″·5
			−1″·5

9 1853·0 α 16ʰ 35ᵐ 06ˢ·46 (1) δ + 0° 19′ 07″·1 (1)

t_{55}	35ᵐ 6ˢ·50	s_{55}	19′ 13
t_{56}	35ᵐ 06ˢ·55	s_{56}	19′ 12
$\alpha - t_{55}$	− 0ˢ·04	$\delta - s_{55}$	− 5″·9
$\alpha - t_{56}$	− 0ˢ·09	$\delta - s_{56}$	− 4″·9
		d'_{55}	− 0″·8
		d'_{56}	− 0″·8
			− 5″·1
			− 4″·1

8 1853·0 α 16ʰ 29ᵐ 42ˢ·08 (1) δ + 0° 15′ 27″·8 (1)

t_{55}	29ᵐ 42ˢ·45	s_{55}	15′ 29
t_{56}	29ᵐ 42ˢ·55	s_{56}	15′ 29
$\alpha - t_{55}$	− 0ˢ·37	$\delta - s_{55}$	− 1″·2
$\alpha - t_{56}$	− 0ˢ·47	$\delta - s_{56}$	− 1″·2
		d'_{55}	−0″·5
		d'_{56}	−0″·5
			−0″·7
			−0″·7

9 1853·0 α 16ʰ 35ᵐ 43ˢ·34 (1) δ + 0° 12′ 23″·0 (1)

t_{55}	35ᵐ 43ˢ·20	s_{55}	12′·27
t_{56}	35ᵐ 43ˢ·30	s_{56}	12′·24
$\alpha - t_{55}$	+ 0ˢ·14	$\delta - s_{56}$	− 4″·0
$\alpha - t_{56}$	+ 0ˢ·04	$\delta - s_{56}$	− 1″·0
		d'_{55}	− 0″·2
		d'_{56}	− 0″·2
			− 3″·8
			− 0″·8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj .242

Zones 55'856

9 1853·0 α 16ʰ 41ᵐ 36·50 (1) δ + 0° 15′ 46·3

t_{55}	41ᵐ 36·90	s_{55}	15′ 48″
t_{56}	41ᵐ 36·90	s_{56}	15′ 47″
$\alpha - t_{55}$	− 0·40	$\delta - s_{55}$	− 1·7
$\alpha - t_{56}$	− 0·40	$\delta - s_{56}$	− 0·7
		d'_{55}	− 0·5
		d'_{56}	− 0·5
			− 1·2
			− 0·2

7 1853·0 α 16ʰ 45ᵐ 34·56 (4) δ + 0° 16′ 58·0 (4)

t_{55}		s_{55}	17″ 03
t_{56}	45ᵐ 34·65	s_{56}	17″ 01
$\alpha - t_{55}$	− .09	$\delta - s_{55}$	− 5·0
$\alpha - t_{56}$	+ 0·84	$\delta - s_{56}$	− 3·0
		d'_{55}	− 0·6
		d'_{56}	− 0·6
			− 4·4
			− 2·4

8 1853·0 α 16ʰ 41ᵐ 49·37 (4) δ + 0° 11′ 09·6 (4)

t_{55}	41ᵐ 49·25	s_{55}	11′ 05″
t_{56}	41ᵐ 49·20	s_{56}	11′ 05″
$\alpha - t_{55}$	+ 0·12	$\delta - s_{55}$	+ 4·6
$\alpha - t_{56}$	+ 0·17	$\delta - s_{56}$	+ 4·6
		d'_{55}	− 0·1
		d'_{56}	− 0·1
			+ 4·7
			+ 4·7

8·9 1853·0 α 16ʰ 47ᵐ 53·34 (1) δ + 0° 20′ 04·7 (1)

t_{55}	47ᵐ 54·00	s_{55}	20″ 08
t_{56}	47ᵐ 53·90	s_{56}	20″ 08
$\alpha - t_{55}$	− 0.66	$\delta - s_{55}$	− 3·3
$\alpha - t$	− 0·56	$\delta - s_{56}$	− 3·3
		d'_{55}	− 0·9
		d'_{56}	− 0·9
			− 2·4
			− 2·4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj.:242

Comparison of Stars in Zones 53 & 54 for the beginning of Zones 55 & 56 1853

Mag.	Zone 53	K	Zone 54	K	α 1853
11 –	15..01..13.90	−0.10	15..01..13.70	−0.10	15..01..13.70 −0.50
11-12	1..25.75		1..25.70		1..25.62
12-13	2..09.50		2..09.65		2..09.47

Comparison of Stars in Zones 57 & 58 for the end of Zones 55 & 56

	Zone 57	K	Zone 58	K	α 1853
11-12	16..54..40.00	−0.40	16..54..39.40	+0.20	16..54..39.60
11-12	55..04.30		55..03.90		55..04.00
13	55..25.35		55..24.80		55..24.97

Beginning of Zones 55 & 56

α 1853	t_{55}	t_{56}	$\alpha - t_{55}$	$\alpha - t_{56}$	δ 1853	S_{55}	S_{56}	$\delta - S_{55}$	$\delta - S_{56}$
h m s −0.50			−1.50	−1.50	h m s				
15..01..13.70	12.40	12.65	+1.30	+1.05	0..03..13.0	3..17	3..17	−4.0	−4.0
01..25.62	24.25	24.55	+1.37	+1.07	07..20.0	7..23	7..23	−3.0	−3.0
02..09.47	8.10	8.35	+1.37	+1.12	09..08.0	9..11	9..11	−3.0	−3.0
			+1.35	+1.07				−3.3	−4.3
			+0.85	+.58					

End of Zones 55 & 56

α 1853	t_{55}	t_{56}	$\alpha - t_{55}$	$\alpha - t_{56}$	δ 1853	S_{55}	S_{56}	$\delta - S_{55}$	$\delta - S_{56}$
h m s					h m s				
16..54..39.60	39.85	39.90	−.25	−.30	0..05..15.5	5..18	5..18	−2.5	−2.5
55..04.00	4.30	4.25	−.30	−.25	04..52.0	4..54	4..54	−2.0	−2.0
55..24.97	24.90	25.25	+.07	−.28	08..35.5	8..38	8..38	−2.5	−2.5
			−.16	−.24				−2.3	−2.3

3 mistakes in getting Ec 1853

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae_proj_0242

Comparison of Stars in Zones 53 54 for the beginning of Zones – 55 56.

Zone 53	α	Zone 54	α	δ 1853.
0° 3′ 15″	−2″.0	0° 3′ 15″	−2″.0	0° 3′ 13″.0
7.21		7.23		7.20.0
9.09		9.11		9.08.0

Comparison of Stars in Zones 57 58 for the end of Zones 55 56

Zone 57	α.	Zone 58	α	δ 1853.
0° 5′ 08″	+9″.0	0° 5′ 24″	−10″.0	0° 5′ 15″.5
4.44		5.01		4.52.0
8.27		8.45		8.35.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

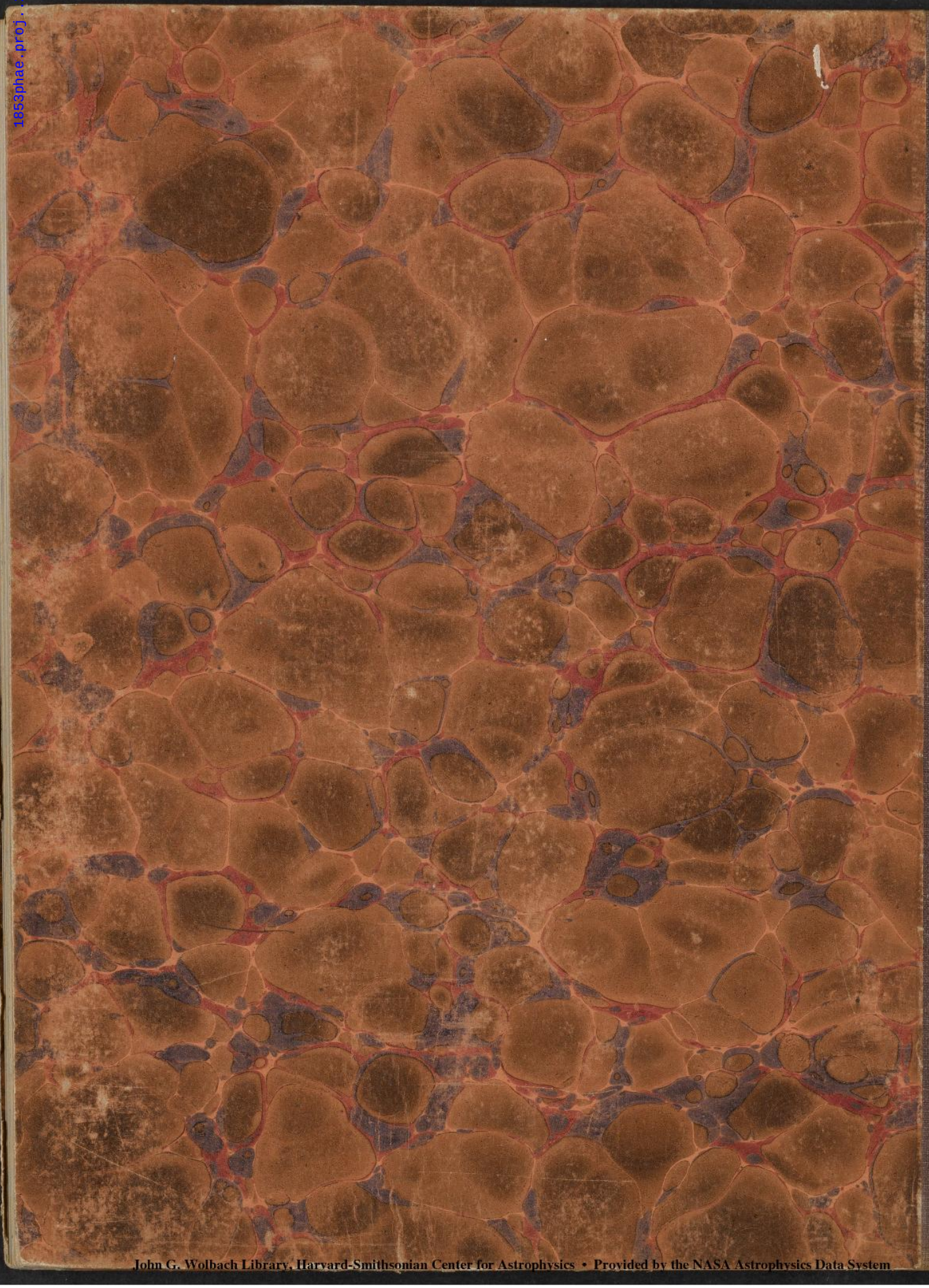
1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1853phae.proj..242



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System