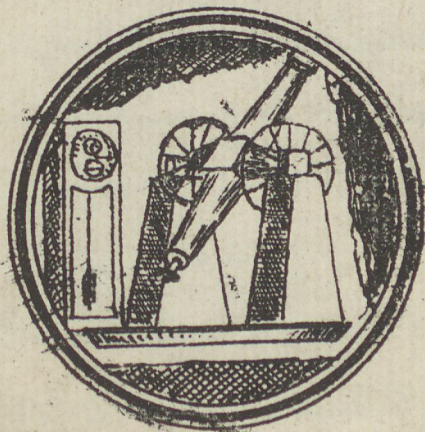


Klinkerfuesische
Neue Constanten
zur Reduction auf den scheinb. Ort

berechnet von

H. Kobold
Dr. phil.



Veröffentlicht von der Steinwarte O-Gyallse
in Ungarn
December 1880.

M. ACADEMIA
KÖNYVTÁRA



- 2 -

Es ist ein allgemein anerkannter Grundsatz, dass bei Rechnungen, welche ausserordentlich häufig durchgeführt werden müssen, selbst kleine Abkürzungen nützlich werden, weil der Zeitgewinn, der für die einzelne wenig in's Gewicht fällt, bedeutend wird durch die Menge. Aus keiner andern Rücksicht hat ja Gauss die Tafeln für Summen und Differenzalarithmen construiert, die überall Eingang gefunden haben. Ein ähnliches Streben nach Abkürzung, zugleich aber auch nach grösserer Uebersichtlichkeit der Form hat sich bei der Berechnung des scheinbaren Ortes aus dem mittleren geltend gemacht. Die grössere Uebersichtlichkeit verringert die Ermüdung und lässt Fehler leichter vermeiden.

Wie sehr diesen Grundsätzen die von Professor Blinkerfuss vorgeschlagene Methode gerecht wird, davon hatte der Unterzeichnete bei vielfachem Gebrauche der für 1880 berechneten Tafeln hinreichende Gelegenheit. Die Rechnung ist so einfach, so sicher und übersichtlich, dass er sich gern der Mühe unterzog die im folgenden enthaltenen Reduktionstafeln für 1881 zu

berechnen, in der Hoffnung durch ihre Veröffentlichung auch anderen Fachgenossen einen Dienst zu erweisen.

In den Tafeln ist sowohl hinsichtlich der Bezeichnung als auch der numerischen Werthe der „Nautical Almanac for the year 1881“ zugrunde gelegt. Die Formeln sind zunächst folgende: Unter Benützung der Substitutionen

$$\begin{aligned}
 2k \sin K &= A + D & 2l \cos L &= A - D \\
 2k \cos K &= B + 21.1537C & 2l \sin L &= B + 21.1537C
 \end{aligned}$$

ergeben sich bei Einführung der halben Polar-Distanz $\frac{1}{2}$ die Reductionen auf den scheinbaren Ort:

$$\begin{aligned}
 \Delta \alpha &= f + k \cotg \frac{1}{2} \sin(K+A) + l \operatorname{tg} \frac{1}{2} \cos(L+a) \\
 \Delta \delta \sec \delta &= i + k \cotg \frac{1}{2} \cos(K+A) + l \operatorname{tg} \frac{1}{2} \sin(L+a)
 \end{aligned}$$

Von den vollen Nutzen der Formeln zu genießen richte man die Rechnungen nach dem im folgenden Beispiele Dargelegten von Professor Ilkinkofnes vorgeschlagenen Schema ein.

Berechnung des scheinb. Ortes von Argon Dec 15 1881.

Mittlerer Ort 1881-0 $\alpha = 20^h 57^m 22.49 - 30^s 21$; $\delta = 44^{\circ} 51' 20.7$; $\operatorname{tg} \frac{1}{2} = 9.6187$.

1) $k \cotg \frac{1}{2} = 1.7328$	2) $l \operatorname{tg} \frac{1}{2} = 0.4973$	$\Delta \alpha = 56.47 - 33.81 + 1.22 - 24.68 = +1.65$	$\Delta \delta = +2.81 + 4.240 + 1.27$; $\Delta \delta = +32.32$	approx $20^h 57^m 26.14$	$\delta = 44^{\circ} 51' 53.2$
3) $\sin(K+A) = 9.7852$	4) $\cos(K+A) = 9.9899$				
5) $\cos(K+A) = 9.8986$	6) $\sin(L+a) = 9.3284$				

O Byalla, December 1881.

H. Kobold, Sr. phil.
Observer.

Date	R	L	log R	log L	S	i
January	354° 0'	249° 32'	1.1354	0.8360	16.46	16.6
2	353 19	248 2	1.1359	0.8355	16.62	1.80
3	352 39	246 32	1.1364	0.8350	16.78	1.94
4	351 58	245 2	1.1368	0.8346	16.94	2.08
5	351 18	243 21	1.1372	0.8343	17.11	2.22
6	350 37	242 0	1.1375	0.8341	17.27	-2.36
7	349 57	240 29	1.1378	0.8339	17.42	2.50
8	349 17	238 58	1.1380	0.8340	17.58	2.64
9	348 36	237 26	1.1381	0.8340	17.74	2.78
10	347 56	235 54	1.1382	0.8342	17.90	2.91
11	347 16	234 22	1.1383	0.8345	18.05	-3.05
12	346 35	232 50	1.1383	0.8349	18.21	3.18
13	345 55	231 18	1.1383	0.8355	18.36	3.31
14	345 15	229 46	1.1382	0.8362	18.51	3.44
15	344 35	228 14	1.1381	0.8370	18.67	3.57
16	343 55	226 42	1.1379	0.8379	18.82	-3.70
17	343 15	225 11	1.1377	0.8389	18.96	3.83
18	342 35	223 39	1.1374	0.8401	19.11	3.96
19	341 55	222 7	1.1371	0.8414	19.26	4.08
20	341 15	220 35	1.1368	0.8428	19.40	4.20
21	340 35	219 4	1.1364	0.8443	19.55	4.33
22	339 55	217 33	1.1359	0.8459	19.69	4.45
23	339 16	216 2	1.1354	0.8476	19.83	4.57
24	338 36	214 31	1.1349	0.8495	19.97	4.69
25	337 56	213 1	1.1343	0.8515	20.11	4.81
26	337 16	211 31	1.1337	0.8536	20.25	4.93
27	336 36	210 2	1.1330	0.8558	20.39	5.04
28	335 56	208 34	1.1323	0.8582	20.52	5.15
29	335 16	207 6	1.1315	0.8607	20.65	5.26
30	334 36	205 39	1.1307	0.8633	20.79	5.37
31	333 56	204 12	1.1298	0.8659	20.92	-5.48

Diurnum	H	I	log R	log l	l	i
Febr. 1	333° 17	202° 46	1.1289	0.8786	21.05	-5.59
2	332 37	201 21	1.1280	0.8714	21.18	5.69
3	331 37	199 56	1.1270	0.8744	21.30	5.79
4	331 17	198 31	1.1259	0.8775	21.43	5.89
5	330 37	197 8	1.1248	0.8807	21.55	5.99
6	329 37	195 45	1.1236	0.8839	21.67	-6.09
7	329 17	194 23	1.1224	0.8872	21.79	6.18
8	328 36	193 1	1.1211	0.8905	21.90	6.27
9	327 56	191 40	1.1198	0.8939	22.02	6.36
10	327 16	190 20	1.1184	0.8973	22.14	-6.45
11	326 36	189 1	1.1170	0.9008	22.25	6.54
12	325 56	187 44	1.1155	0.9044	22.36	6.62
13	325 16	186 27	1.1140	0.9081	22.48	6.70
14	324 36	185 10	1.1124	0.9118	22.59	6.78
15	323 56	183 54	1.1108	0.9156	22.69	-6.86
16	323 16	182 39	1.1091	0.9194	22.80	6.94
17	322 36	181 23	1.1074	0.9233	22.91	7.01
18	321 56	180 12	1.1057	0.9272	23.01	7.08
19	321 15	179 0	1.1039	0.9312	23.11	7.15
20	320 35	177 48	1.1020	0.9352	23.22	-7.22
21	319 55	176 37	1.1001	0.9392	23.32	-7.28
22	319 14	175 27	1.0981	0.9432	23.42	7.34
23	318 33	174 18	1.0961	0.9473	23.52	7.40
24	317 53	173 10	1.0940	0.9514	23.61	7.46
25	317 12	172 2	1.0918	0.9555	23.71	-7.52
26	316 31	170 55	1.0896	0.9597	23.81	7.57
27	315 50	169 49	1.0874	0.9638	23.90	7.62
28	315 9	168 44	1.0851	0.9680	23.99	-7.67

Datum	H	L	log. R.	log. t.	f	i
März 1	314° 29	167° 39	1.0827	0.9721	24.09	7.71
2	313 48	166 35	1.0803	0.9762	24.18	7.76
3	313 7	165 32	1.0778	0.9803	24.27	7.80
4	312 25	164 30	1.0752	0.9845	24.36	7.84
5	311 44	163 29	1.0726	0.9886	24.45	7.88
6	311 3	162 29	1.0699	0.9928	24.54	7.92
7	310 12	161 29	1.0682	0.9969	24.63	7.95
8	309 40	160 30	1.0645	1.0011	24.72	7.98
9	308 58	159 32	1.0617	1.0052	24.80	8.01
10	308 16	158 34	1.0588	1.0094	24.89	8.03
11	307 34	157 37	1.0559	1.0135	24.97	8.05
12	306 53	156 40	1.0529	1.0177	25.06	8.07
13	306 11	155 44	1.0498	1.0218	25.15	8.09
14	305 29	154 49	1.0466	1.0259	25.23	8.10
15	304 47	153 55	1.0434	1.0300	25.32	8.11
16	304 5	153 1	1.0402	1.0340	25.40	8.12
17	303 23	152 7	1.0369	1.0380	25.49	8.13
18	302 40	151 15	1.0335	1.0420	25.57	8.13
19	301 57	150 23	1.0300	1.0460	25.66	8.14
20	301 14	149 32	1.0265	1.0499	25.74	8.14
21	300 31	148 41	1.0229	1.0538	25.82	8.15
22	299 48	147 51	1.0192	1.0577	25.91	8.15
23	299 5	147 1	1.0154	1.0616	25.99	8.15
24	298 21	146 11	1.0116	1.0654	26.08	8.11
25	297 38	145 22	1.0077	1.0692	26.16	8.10
26	296 54	144 34	1.0038	1.0730	26.25	8.09
27	296 10	143 47	0.9997	1.0767	26.33	8.07
28	295 26	143 0	0.9956	1.0804	26.42	8.05
29	294 42	142 13	0.9914	1.0841	26.51	8.03
30	293 57	141 27	0.9872	1.0878	26.59	8.01
31	293 12	140 41	0.9828	1.0915	26.68	7.98

Date	H.	L.	log. R.	log. l.	l.	i		
April 1	292	27	139	56	0.9784	1.0957	26.77	-7.95
2	291	42	139	11	0.9739	1.0987	26.85	7.92
3	290	56	138	27	0.9693	1.1022	26.94	7.89
4	290	11	137	43	0.9646	1.1057	27.03	7.86
5	289	25	137	0	0.9599	1.1092	27.12	7.72
6	288	39	136	17	0.9550	1.1126	27.22	-7.77
7	287	52	135	34	0.9501	1.1160	27.31	7.73
8	287	6	134	52	0.9451	1.1194	27.40	7.69
9	286	19	134	10	0.9400	1.1227	27.50	7.64
10	285	32	133	28	0.9348	1.1260	27.59	7.59
11	284	44	132	47	0.9295	1.1292	27.69	-7.54
12	283	56	132	6	0.9241	1.1324	27.78	7.48
13	283	8	131	26	0.9186	1.1356	27.88	7.42
14	282	19	130	46	0.9129	1.1387	27.98	7.36
15	281	30	130	6	0.9072	1.1418	28.08	7.30
16	280	41	129	26	0.9014	1.1449	28.18	-7.24
17	279	51	128	47	0.8955	1.1479	28.28	7.18
18	279	1	128	8	0.8895	1.1509	28.38	7.11
19	278	10	127	30	0.8834	1.1539	28.49	7.04
20	277	18	126	52	0.8771	1.1568	28.59	6.97
21	276	26	126	14	0.8707	1.1597	28.70	-6.90
22	275	33	125	36	0.8642	1.1626	28.80	6.83
23	274	40	124	59	0.8575	1.1654	28.91	6.75
24	273	46	124	22	0.8507	1.1682	29.02	6.67
25	272	52	123	45	0.8438	1.1709	29.13	6.59
26	271	57	123	8	0.8368	1.1736	29.25	-6.51
27	271	2	122	22	0.8296	1.1763	29.36	6.43
28	270	5	121	56	0.8223	1.1589	29.48	6.35
29	269	8	121	20	0.8148	1.1815	29.69	6.26
30	268	10	120	44	0.8172	1.1840	29.71	-6.17

Date	H	L	log R	log l	$\frac{L}{R}$	i
Mai 1	267° 12	120° 9'	0.7994	1.1865	29.83	-6.08
2	266 12	119 34	0.7916	1.1890	29.95	5.99
3	265 11	118 59	0.7834	1.1914	30.07	5.90
4	264 9	118 24	0.7751	1.1938	30.19	5.80
5	263 5	117 50	0.7667	1.1961	30.32	5.70
6	262 1	117 15	0.7581	1.1984	30.44	-5.60
7	260 56	116 41	0.7493	1.2007	30.57	-5.50
8	259 49	116 7	0.7403	1.2030	30.70	5.40
9	258 40	115 34	0.7312	1.2052	30.83	5.30
10	257 30	115 0	0.7219	1.2074	30.96	5.20
11	256 19	114 27	0.7124	1.2095	31.09	5.09
12	255 6	112 54	0.7027	1.2116	31.22	-4.98
13	253 50	113 21	0.6929	1.2136	31.36	4.87
14	252 33	112 48	0.6828	1.2156	31.49	4.76
15	251 14	112 15	0.6724	1.2176	31.62	4.65
16	250 52	111 42	0.6619	1.2195	31.76	4.64
17	248 27	111 10	0.6512	1.2214	31.90	-4.54
18	246 58	110 38	0.6404	1.2233	32.04	4.31
19	245 25	110 6	0.6294	1.2251	32.19	4.19
20	243 57	119 34	0.6182	1.2269	32.32	4.07
21	242 15	109 3	0.6067	1.2286	32.46	3.95
22	240 36	108 31	0.5950	1.2303	32.61	-3.83
23	238 54	108 0	0.5829	1.2320	32.76	3.71
24	237 8	107 28	0.5707	1.2336	32.90	3.59
25	235 16	106 57	0.5582	1.2352	33.05	3.47
26	233 18	106 25	0.5455	1.2368	33.20	3.34
27	231 14	105 54	0.5325	1.2383	33.35	-3.21
28	229 4	105 23	0.5196	1.2398	33.50	3.09
29	226 48	104 51	0.5067	1.2412	33.65	2.96
30	224 17	104 21	0.4940	1.2426	33.80	2.83
31	222 2	103 50	0.4814	1.2440	33.96	-2.72

Date	H	L	log K.	log l.	L	i
Juni 1	219° 30'	103° 20'	0.4690	1.2454	34.71	-2.58
2	216 48	102 57	0.4568	1.2467	34.37	+2.45
3	214 1	102 21	0.4447	1.2480	34.42	2.32
4	211 8	101 57	0.4327	1.2492	34.58	2.19
5	208 1	101 21	0.4214	1.2504	34.71	2.06
6	204 49	100 57	0.4106	1.2515	34.89	-1.93
7	201 27	100 21	0.4010	1.2526	35.05	1.80
8	197 56	99 52	0.3922	1.2537	35.21	1.67
9	194 18	99 23	0.3838	1.2547	35.37	1.54
10	190 34	98 52	0.3765	1.2557	35.53	1.40
11	186 43	98 23	0.3713	1.2567	35.69	-1.26
12	182 47	97 54	0.3675	1.2576	35.85	1.13
13	178 48	97 24	0.3645	1.2785	36.01	0.99
14	174 48	96 55	0.3629	1.2593	36.17	0.86
15	170 46	96 25	0.3624	1.2601	36.33	0.72
16	166 45	95 56	0.3654	1.2609	36.50	-0.59
17	162 46	95 27	0.3688	1.2616	36.66	0.45
18	158 50	94 58	0.3737	1.2623	36.82	0.32
19	155 0	94 29	0.3802	1.2630	36.98	0.18
20	151 16	94 1	0.3879	1.2636	37.14	0.04
21	147 38	93 32	0.3967	1.2642	37.30	+0.09
22	144 6	93 3	0.4066	1.2647	37.47	0.23
23	140 44	92 34	0.4175	1.2652	37.63	0.37
24	137 31	92 6	0.4291	1.2657	37.79	0.50
25	133 57	91 37	0.4414	1.2661	37.95	0.63
26	131 28	91 8	0.4541	1.2665	38.11	+0.76
27	128 40	91 39	0.4671	1.2669	38.28	0.90
28	125 59	90 11	0.4804	1.2672	38.45	1.03
29	123 25	89 43	0.4939	1.2675	38.60	1.17
30	120 59	89 15	0.5075	1.2677	38.76	1.31

Datum	K	L	log R	log l	f	i
1	118° 41	88° 46	0.5211	1.2679	38.92	+1.44
2	116 29	88 18	0.5348	1.2681	39.09	1.57
3	114 23	87 50	0.5484	1.2683	39.23	1.70
4	112 22	87 22	0.5620	1.2684	39.39	1.83
5	110 27	86 54	0.5754	1.2685	39.55	1.96
6	108 37	86 26	0.5887	1.2684	39.71	+2.11
7	106 51	85 58	0.6018	1.2684	39.86	2.22
8	105 11	85 30	0.6147	1.2683	40.02	2.35
9	103 33	85 2	0.6274	1.2682	40.17	2.48
10	101 59	84 34	0.6399	1.2681	40.33	2.61
11	100 29	83 6	0.6522	1.2679	40.48	+2.74
12	99 2	83 38	0.6644	1.2676	40.63	2.86
13	97 38	83 10	0.6763	1.2674	40.78	2.99
14	96 17	82 42	0.6880	1.2671	40.93	3.12
15	94 59	82 14	0.6995	1.2668	41.09	3.25
16	93 43	81 47	0.7108	1.2664	41.23	+3.37
17	92 29	81 19	0.7218	1.2660	41.38	3.50
18	91 17	80 51	0.7326	1.2657	41.53	3.62
19	90 8	80 23	0.7433	1.2650	41.67	3.74
20	89 1	79 56	0.7540	1.2644	41.82	3.86
21	87 52	79 29	0.7644	1.2638	41.96	+3.93
22	86 50	79 1	0.7745	1.2632	42.11	4.09
23	85 49	78 33	0.7844	1.2626	42.25	4.21
24	84 48	78 6	0.7942	1.2619	42.39	4.32
25	83 49	77 38	0.8038	1.2611	42.53	4.44
26	82 50	77 11	0.8132	1.2603	42.67	+4.55
27	81 52	76 43	0.8225	1.2595	42.80	4.66
28	80 57	76 16	0.8316	1.2586	42.94	4.77
29	80 2	75 49	0.8405	1.2677	43.07	4.88
30	79 9	75 22	0.8493	1.2567	43.20	4.99
31	78 17	74 54	0.8580	1.2557	43.34	+5.10

Partum	H	S	log k.	log l.	$\frac{1}{l}$	$\frac{1}{k}$	
August 1	77°	26	74	27	0.8665	1.2547	43.48 +5.21
2	76	36	74	0	0.8749	1.2536	43.60 5.31
3	75	46	73	33	0.8831	1.2525	43.73 5.41
4	74	57	73	5	0.8912	1.2513	43.85 5.51
5	74	9	72	38	0.8991	1.2500	43.98 5.61
6	73.	22	72	11	0.9069	1.2487	44.11 +5.71
7	72	35	71	44	0.9147	1.2474	44.23 5.81
8	71	49	71	17	0.9223	1.2461	44.37 5.90
9	71	4	70	50	0.9297	1.2447	44.47 5.99
10	70	20	70	23	0.9370	1.2432	44.59 6.08
11	69	36	69	56	0.9443	1.2417	44.71 +6.17
12	68	52	69	29	0.9515	1.2402	44.83 6.26
13	68	9	69	2	0.9585	1.2386	44.94 6.34
14	67	27	68	35	0.9654	1.2370	45.05 6.43
15	66	45	68	9	0.9722	1.2353	45.17 6.51
16	66	4	67	42	0.9789	1.2335	45.28 +6.59
17	65	23	67	15	0.9855	1.2317	45.39 6.67
18	64	43	66	48	0.9920	1.2298	45.49 6.75
19	64	3	66	22	0.9985	1.2279	45.60 6.83
20	63	24	65	55	1.0048	1.2259	45.71 6.90
21	62	45	65	29	1.0110	1.2239	45.81 +6.97
22	62	6	65	2	1.0172	1.2219	45.92 7.04
23	61	28	64	36	1.0233	1.2198	46.02 7.10
24	60	50	64	9	1.0293	1.2177	46.12 7.17
25	60	13	63	43	1.0353	1.2155	46.22 7.24
26	59	35	63	16	1.0412	1.2132	46.32 7.30
27	58	58	62	50	1.0469	1.2108	46.42 7.36
28	58	21	62	23	1.0526	1.2084	46.51 7.42
29	57	45	61	57	1.0582	1.2059	46.61 7.48
30	57	9	61	31	1.0637	1.2034	46.70 7.53
31	56	34	61	5	1.0692	1.2009	46.80 +7.58

Date	K	L	log. k	log. l	$\frac{K}{L}$	$\frac{l}{K}$		
Septemb. 1	55	59	60	39	1.0745	1.1984	66.89	7.63
2	55	25	60	13	1.0798	1.1958	46.98	7.67
3	54	50	59	47	1.0850	1.1931	47.07	7.72
4	54	16	59	21	1.0902	1.1903	47.17	7.76
5	53	42	58	55	1.0953	1.1875	47.26	7.80
6	53	7	58	30	1.1003	1.1846	37.34	7.84
7	52	34	58	4	1.1053	1.1816	47.43	7.87
8	52	0	57	39	1.1102	1.1785	47.52	7.91
9	51	27	57	14	1.1150	1.1754	47.61	7.94
10	50	54	56	49	1.1198	1.1723	47.69	7.97
11	50	21	56	23	1.1246	1.1691	47.78	7.99
12	49	49	55	58	1.1292	1.1658	47.86	8.02
13	49	17	55	32	1.1338	1.1625	47.95	8.04
14	48	45	55	7	1.1384	1.1591	48.03	8.06
15	48	13	54	42	1.1429	1.1556	48.12	8.08
16	47	41	54	18	1.1474	1.1520	48.20	8.10
17	47	9	53	53	1.1518	1.1683	48.28	8.11
18	46	38	53	29	1.1561	1.1446	48.37	8.12
19	46	7	53	5	1.1604	1.1407	48.45	8.13
20	45	35	52	40	1.1646	1.1368	48.53	8.13
21	47	4	52	15	1.1688	1.1329	48.62	8.14
22	44	33	51	57	1.1729	1.1289	48.70	8.14
23	44	3	51	27	1.1769	1.1247	48.78	8.13
24	43	33	51	14	1.1809	1.1205	48.86	8.13
25	43	3	50	41	1.1849	1.1163	48.95	8.12
26	42	33	50	18	1.1888	1.1120	49.03	8.11
27	27	42	49	55	1.1927	1.1076	49.11	8.10
28	41	33	49	32	1.1964	1.1030	49.19	8.09
29	41	3	49	9	1.2002	1.0983	49.27	8.08
30	40	34	48	47	1.2039	1.0936	49.36	8.06

Date	H	L	log R	log l	i	i'	
October 1	40	5	48	24	1.2076	1.0888	49.44 +8.04
2	39	36	48	2	1.2112	1.0839	49.53 8.02
3	39	7	47	40	1.2148	1.0789	49.61 7.89
4	38	38	47	19	1.2183	1.0738	49.70 +7.96
5	38	9	46	58	1.2218	1.0686	49.78 7.93
6	37	40	46	37	1.2252	1.0633	49.87 7.90
7	37	41	46	16	1.2286	1.0679	49.95 7.86
8	36	42	45	38	1.2319	1.0523	50.04 7.83
9	36	15	45	35	1.2353	1.0467	50.13 7.79
10	35	47	45	15	1.2385	1.0412	50.22 7.75
11	35	19	44	56	1.2417	1.0351	50.31 +7.71
12	34	51	44	37	1.2449	1.0291	50.40 7.66
13	34	23	44	18	1.2480	1.0229	50.49 7.61
14	33	55	44	0	1.2511	1.0166	50.58 7.56
15	33	27	43	42	1.2541	1.0102	50.68 +7.51
16	32	59	43	25	1.2571	1.0036	50.77 7.45
17	32	32	42	8	1.2601	0.9969	50.87 7.39
18	32	4	42	52	1.2630	0.9902	50.96 7.33
19	31	37	42	36	1.2659	0.9833	51.06 7.27
20	31	9	42	21	1.2687	0.9763	51.16 +7.21
21	30	42	42	6	1.2715	0.9691	51.26 7.14
22	30	15	41	52	1.2742	0.9617	51.36 7.07
23	29	48	41	38	1.2769	0.9541	51.46 7.00
24	29	21	41	25	1.2796	0.9463	51.56 6.92
25	28	54	41	13	1.2822	0.9384	51.67 +6.85
26	28	28	41	13	1.2822	0.9384	51.67 6.85
27	28	1	40	52	1.2873	0.9220	51.88 6.69
28	27	34	40	43	1.2898	0.9136	51.99 6.61
29	27	7	40	35	1.2922	0.9050	52.10 6.55
30	26	41	40	28	1.2947	0.8961	52.21 6.44
31	26	14	40	22	1.2971	0.8870	52.32 +6.35

<i>Datum</i>	<i>K</i>	<i>L</i>	<i>log N.</i>	<i>log l.</i>	<i>f</i>	<i>i</i>
Novemb 1	25° 48'	40° 17'	1.2994	0.8777	52.43	6.26
2	25 21	40 14	1.8017	0.8682	52.55	6.17
3	24 55	40 11	1.3040	0.8585	52.67	6.07
4	24 29	40 10	1.3062	0.8486	52.78	5.98
5	24 3	40 10	1.3084	0.8384	52.90	5.88
6	23 37	40 12	1.3105	0.8279	53.02	+5.78
7	23 11	40 16	1.3126	0.8172	53.14	5.68
8	22 45	40 22	1.3147	0.8062	53.27	5.58
9	22 19	40 31	1.3167	0.7949	53.39	5.47
10	21 53	40 42	1.3187	0.7834	53.52	5.36
11	21 27	40 55	1.3207	0.7715	53.64	+5.25
12	21 1	41 11	1.3227	0.7594	53.77	5.14
13	20 36	41 30	1.3246	0.7469	53.90	5.03
14	20 10	41 52	1.3264	0.7342	54.04	4.92
15	19 45	42 17	1.3281	0.7211	54.17	4.80
16	19 20	42 45	1.3298	0.7078	54.30	+4.69
17	18 54	43 19	1.3315	0.6941	54.44	4.57
18	18 29	43 57	1.3332	0.6800	54.57	4.45
19	18 3	44 38	1.3349	0.6656	54.71	4.33
20	17 37	45 24	1.3365	0.6509	54.85	4.21
21	17 12	46 19	1.3381	0.6358	54.98	+4.08
22	16 46	47 19	1.3396	0.6205	55.13	3.96
23	16 21	48 25	1.3411	0.6048	55.27	3.84
24	15 55	49 39	1.3425	0.5890	55.41	3.71
25	15 30	51 3	1.3439	0.5731	55.56	3.58
26	15 5	52 36	1.3453	0.5570	55.71	+3.45
27	14 40	54 17	1.3466	0.5409	55.86	3.32
28	14 15	56 8	1.3479	0.5250	56.00	3.19
29	13 50	58 12	1.3491	0.5093	56.15	3.06
30	13 25	60 28	1.3503	0.4938	56.31	3.93

Datum	H	S	I	log. R	log. l	S	i
Decemb. 1	13°	0	62°	57	1.3515	0.4786	56.47 +2.80
2	12	35	65	38	1.3527	0.4643	56.62 266
3	12	10	68	29	1.3538	0.4514	56.78 2.52
4	11	45	71	35	1.3549	0.4400	56.93 2.38
5	11	20	74	56	1.3559	0.4303	57.08 2.24
6	10	55	78	24	1.3569	0.4223	57.23 +2.10
7	10	30	82	0	1.3578	0.4157	57.39 1.96
8	10	5	85	44	1.3587	0.4109	57.55 1.82
9	9	41	89	33	1.3596	0.4084	57.71 1.68
10	9	10	93	23	1.3604	0.4078	57.86 1.54
11	8	57	97	10	1.3612	0.4099	58.02 +1.40
12	8	26	100	52	1.3620	0.4154	58.18 1.25
13	78	2	104	27	1.3627	0.4234	58.35 1.11
14	7	37	107	54	1.3634	0.4332	58.51 0.97
15	7	13	111	13	1.3640	0.4447	58.67 0.83
16	6	48	114	19	1.3646	0.4574	58.83 0.68
17	6	24	117	6	1.3652	0.4715	58.99 0.53
18	5	59	119	41	1.3657	0.4865	59.16 0.38
19	5	35	122	7	1.3662	0.5022	59.32 0.24
20	5	11	124	22	1.3666	0.5184	59.48 0.09
21	4	46	126	24	1.3670	0.5348	59.64 -0.05
22	4	22	128	28	1.3674	0.5515	59.80 -0.19
23	3	57	129	58	1.3677	0.5681	59.97 -0.34
24	3	33	131	23	1.3680	0.5847	60.13 -0.48
25	3	9	132	39	1.3682	0.6012	60.29 0.63
26	2	44	133	47	1.3884	0.6176	60.45 0.77
27	2	20	134	50	1.3686	0.6338	60.61 0.92
28	1	56	135	52	1.3687	0.6499	60.77 1.06
29	1	31	136	52	1.3688	0.6656	60.93 1.20
30	1	7	137	47	1.3688	0.6808	61.09 1.34
31	0	43	138	38	1.3689	0.6955	61.25 -1.48

Decl.	log ₁₀ $\frac{1}{2}$	d	cos d	Decl.	log ₁₀ $\frac{1}{2}$	d	cos d	Decl.	log ₁₀ $\frac{1}{2}$	d	cos d
0.0	0.0000	12	1.0000	6 0	9.9544	12	0.9945	12 0	9.9084	13	0.9782
10	9.9987	12	1.0000	10	9.9532	13	0.9942	10	9.9071	13	0.9775
20	9.9975	13	0.9999	20	9.9519	13	0.9939	20	9.9058	13	0.9769
30	9.9962	13	0.9999	30	9.9506	13	0.9936	30	9.9045	13	0.9763
40	9.9949	12	0.9999	40	9.9494	13	0.9932	40	9.9032	13	0.9757
50	9.9937	13	0.9999	50	9.9481	13	0.9929	50	9.9019	13	0.9751
1 0	9.9924	12	0.9999	7 0	9.9468	13	0.9926	13 0	9.9006	13	0.9744
10	9.9912	13	0.9998	10	9.9455	12	0.9922	10	9.8993	13	0.9737
20	9.9899	13	0.9997	20	9.9443	13	0.9918	20	9.8980	13	0.9730
30	9.9886	12	0.9997	30	9.9430	13	0.9914	30	9.8967	13	0.9724
40	9.9874	13	0.9996	40	9.9417	13	0.9911	40	9.8954	13	0.9717
50	9.9861	13	0.9995	50	9.9404	12	0.9907	50	9.8941	13	0.9710
2 0	9.9848	12	0.9994	8 0	9.9392	13	0.9903	14 0	9.8928	13	0.9703
10	9.9836	13	0.9993	10	9.9379	13	0.9899	10	9.8915	13	0.9696
20	9.9823	13	0.9992	20	9.9366	13	0.9894	20	9.8902	13	0.9689
30	9.9810	13	0.9991	30	9.9353	12	0.9890	30	9.8889	13	0.9682
40	9.9798	13	0.9989	40	9.9341	13	0.9886	40	9.8876	13	0.9674
50	9.9785	13	0.9988	50	9.9328	13	0.9881	50	9.8863	13	0.9667
3 0	9.9772	12	0.9986	9 0	9.9315	13	0.9877	15 0	9.8850	13	0.9660
10	9.9760	13	0.9985	10	9.9302	13	0.9872	10	9.8837	13	0.9652
20	9.9747	12	0.9983	20	9.9289	12	0.9868	20	9.8824	13	0.9644
30	9.9735	13	0.9981	30	9.9277	13	0.9863	30	9.8811	14	0.9636
40	9.9722	13	0.9980	40	9.9264	13	0.9858	40	9.8797	13	0.9629
50	9.9709	12	0.9978	50	9.9251	13	0.9853	50	9.8784	13	0.9621
4 0	9.9697	13	0.9976	10 0	9.9238	13	0.9848	16 0	9.8771	13	0.9613
10	9.9684	13	0.9974	10	9.9225	13	0.9843	10	9.8758	13	0.9606
20	9.9671	12	0.9971	20	9.9212	12	0.9838	20	9.8745	13	0.9596
30	9.9658	13	0.9969	30	9.9200	13	0.9833	30	9.8732	14	0.9588
40	9.9646	13	0.9967	40	9.9187	13	0.9827	40	9.8718	13	0.9580
50	9.9633	12	0.9964	50	9.9174	13	0.9822	50	9.8705	13	0.9572
5 0	9.9621	13	0.9962	11 0	9.9161	13	0.9816	17 0	9.8692	13	0.9565
10	9.9608	13	0.9959	10	9.9148	13	0.9811	10	9.8679	13	0.9555
20	9.9595	13	0.9957	20	9.9135	13	0.9805	20	9.8666	14	0.9546
30	9.9582	12	0.9954	30	9.9122	12	0.9799	30	9.8652	13	0.9537
40	9.9570	13	0.9951	40	9.9109	13	0.9793	40	9.8639	13	0.9528
50	9.9557	12	0.9948	50	9.9097	13	0.9788	50	9.8626	13	0.9520

Decl	log ₁₀ $\frac{1}{2}$	d	cos D	Decl	log ₁₀ $\frac{1}{2}$	d	cos D	Decl	log ₁₀ $\frac{1}{2}$	d	cos D
18° 0	9.8613	14	0.9511	24 0	9.8125	14	0.9136	30 0	9.7614	14	0.8660
10	9.8599	13	0.9502	10	9.8111	14	0.9124	10	9.7600	15	0.8646
20	9.8586	13	0.9492	20	9.8097	14	0.9112	20	9.7585	15	0.8631
30	9.8573	14	0.9483	30	9.8084	14	0.9100	30	9.7571	15	0.8616
40	9.8559	13	0.9474	40	9.8070	14	0.9088	40	9.7556	15	0.8602
50	9.8546	13	0.9465	50	9.8056	14	0.9075	50	9.7541	15	0.8587
19 0	9.8533	14	0.9455	25 0	9.8042	14	0.9063	31 0	9.7526	14	0.8572
10	9.8519	13	0.9446	10	9.8028	14	0.9051	10	9.7512	15	0.8557
20	9.8506	13	0.9436	20	9.8014	14	0.9039	20	9.7497	14	0.8542
30	9.8493	13	0.9426	30	9.8000	14	0.9026	30	9.7483	16	0.8526
40	9.8479	14	0.9417	40	9.7986	14	0.9013	40	9.7467	15	0.8511
50	9.8466	14	0.9407	50	9.7972	14	0.9001	50	9.7452	14	0.8496
20 0	9.8452	13	0.9397	26 0	9.7958	14	0.8988	32 0	9.7438	15	0.8481
10	9.8439	14	0.9387	10	9.7944	14	0.8975	10	9.7423	15	0.8465
20	9.8425	13	0.9377	20	9.7930	14	0.8962	20	9.7408	15	0.8450
30	9.8412	14	0.9367	30	9.7916	14	0.8949	30	9.7393	15	0.8434
40	9.8398	13	0.9357	40	9.7902	15	0.8936	40	9.7378	15	0.8418
50	9.8385	14	0.9346	50	9.7887	14	0.8923	50	9.7363	15	0.8403
21 0	9.8371	13	0.9336	27 0	9.7873	14	0.8910	33 0	9.7348	15	0.8387
10	9.8358	14	0.9325	10	9.7859	14	0.8897	10	9.7333	16	0.8371
20	9.8344	13	0.9315	20	9.7845	14	0.8884	20	9.7317	15	0.8355
30	9.8331	14	0.9304	30	9.7831	15	0.8870	30	9.7302	15	0.8339
40	9.8317	14	0.9294	40	9.7816	14	0.8857	40	9.7287	15	0.8323
50	9.8303	13	0.9283	50	9.7802	14	0.8843	50	9.7272	15	0.8307
22 0	9.8290	14	0.9272	28 0	9.7788	15	0.8830	34 0	9.7257	16	0.8290
10	9.8276	13	0.9261	10	9.7773	14	0.8816	10	9.7241	15	0.8274
20	9.8263	14	0.9250	20	9.7759	14	0.8802	20	9.7226	15	0.8258
30	9.8249	14	0.9239	30	9.7745	15	0.8788	30	9.7211	15	0.8241
40	9.8235	13	0.9228	40	9.7730	14	0.8774	40	9.7196	16	0.8225
50	9.8222	14	0.9216	50	9.7716	15	0.8760	50	9.7180	15	0.8209
23 0	9.8208	14	0.9205	29 0	9.7701	14	0.8746	35 0	9.7165	16	0.8192
10	9.8194	14	0.9194	10	9.7687	14	0.8732	10	9.7149	15	0.8175
20	9.8180	13	0.9182	20	9.7673	15	0.8718	20	9.7134	16	0.8158
30	9.8167	14	0.9171	30	9.7658	14	0.8704	30	9.7118	15	0.8141
40	9.8153	14	0.9159	40	9.7644	15	0.8689	40	9.7103	15	0.8124
50	9.8139	14	0.9147	50	9.7629	15	0.8675	50	9.7087	16	0.8107

Decl.	log ty	d	cos c	Decl.	log ty	d	cos c	Decl.	log ty	d	cos c
36 0	9.7032	16	0.8092	42 0	9.6486	17	0.7431	48 0	9.5842	19	0.6691
10	9.7056	16	0.8073	10	9.6469	17	0.7412	10	9.5823	19	0.6670
20	9.7040	15	0.8056	20	9.6452	17	0.7392	20	9.5804	19	0.6648
30	9.7025	16	0.8039	30	9.6435	18	0.7373	30	9.5785	19	0.6626
40	9.7009	16	0.8021	40	9.6417	17	0.7353	40	9.5766	19	0.6604
50	9.6993	16	0.8004	50	9.6400	17	0.7333	50	9.5747	20	0.6583
37 0	9.6987	15	0.7986	43 0	9.6383	17	0.7314	49 0	9.5727	19	0.6561
10	9.6962	16	0.7969	10	9.6366	18	0.7294	10	9.5708	19	0.6539
20	9.6946	16	0.7951	20	9.6348	17	0.7274	20	9.5689	20	0.6517
30	9.6930	16	0.7934	30	9.6331	17	0.7254	30	9.5669	19	0.6495
40	9.6914	16	0.7916	40	9.6314	18	0.7234	40	9.5650	20	0.6472
50	9.6898	16	0.7898	50	9.6296	17	0.7214	50	9.5630	19	0.6450
38 0	9.6882	16	0.7880	44 0	9.6279	18	0.7193	51 0	9.5611	20	0.6428
10	9.6866	16	0.7862	10	9.6261	18	0.7175	10	9.5591	20	0.6406
20	9.6850	16	0.7844	20	9.6243	17	0.7155	20	9.5571	20	0.6383
30	9.6834	17	0.7826	30	9.6226	18	0.7133	30	9.5551	20	0.6361
40	9.6817	16	0.7808	40	9.6208	18	0.7112	40	9.5531	19	0.6338
50	9.6801	16	0.7790	50	9.6190	18	0.7092	50	9.5512	21	0.6316
39 0	9.6785	16	0.7772	45 0	9.6172	18	0.7071	52 0	9.5491	20	0.6293
10	9.6769	18	0.7753	10	9.6154	18	0.7051	10	9.5471	20	0.6271
20	9.6752	16	0.7735	20	9.6136	18	0.7030	20	9.5451	20	0.6248
30	9.6736	16	0.7716	30	9.6118	18	0.7009	30	9.5431	20	0.6225
40	9.6720	17	0.7700	40	9.6100	18	0.6988	40	9.5411	21	0.6202
50	9.6703	16	0.7679	50	9.6082	18	0.6968	50	9.5390	20	0.6180
40 0	9.6687	18	0.7660	46 0	9.6064	18	0.6947	52 0	9.5370	21	0.6157
10	9.6670	16	0.7642	10	9.6046	18	0.6926	10	9.5349	20	0.6134
20	9.6654	17	0.7623	20	9.6028	19	0.6905	20	9.5329	21	0.6111
30	9.6637	17	0.7604	30	9.6009	18	0.6884	30	9.5308	21	0.6088
40	9.6620	16	0.7585	40	9.5991	19	0.6862	40	9.5287	21	0.6065
50	9.6604	17	0.7566	50	9.5972	19	0.6841	50	9.5266	21	0.6041
41 0	9.6587	17	0.7547	47 0	9.5954	19	0.6820	53 0	9.5246	21	0.6018
10	9.6570	18	0.7528	10	9.5935	18	0.6799	10	9.5224	21	0.5995
20	9.6553	16	0.7509	20	9.5917	19	0.6777	20	9.5203	21	0.5972
30	9.6537	17	0.7489	30	9.5898	19	0.6756	30	9.5182	21	0.5948
40	9.6520	18	0.7470	40	9.5879	18	0.6734	40	9.5161	21	0.5925
50	9.6503	18	0.7451	50	9.5861	18	0.6713	50	9.5139	22	0.5901

Decl	log tg 1/2	d	corr	Decl	log tg 1/2	d	corr	Decl	log tg 1/2	d	corr
54	0 9.5118	22	0.5878	60	0 9.4281	26	0.5000	66	0 9.3275	31	0.4067
	10 9.5096	21	0.5854		10 9.4255	25	0.4975		10 9.3249	32	0.4041
	20 9.5075	22	0.5831		20 9.4230	26	0.4950		20 9.3212	31	0.4014
	30 9.5053	22	0.5807		30 9.4204	26	0.4924		30 9.3181	32	0.3988
	40 9.5031	22	0.5783		40 9.4178	25	0.4899		40 9.3149	32	0.3961
	50 9.5009	22	0.5760		50 9.4153	26	0.4874		50 9.3117	32	0.3934
55	0 9.4987	22	0.5736	61	0 9.4127	27	0.4848	67	0 9.3085	33	0.3907
	10 9.4965	22	0.5712		10 9.4100	26	0.4823		10 9.3052	32	0.3881
	20 9.4943	22	0.5688		20 9.4074	26	0.4797		20 9.3020	33	0.3854
	30 9.4921	23	0.5664		30 9.4048	27	0.4772		30 9.2987	34	0.3827
	40 9.4898	22	0.5640		40 9.4021	26	0.4746		40 9.2953	33	0.3800
	50 9.4876	23	0.5616		50 9.3995	27	0.4720		50 9.2920	33	0.3773
56	0 9.4853	22	0.5592	62	0 9.3968	27	0.4695	68	0 9.2887	34	0.3746
	10 9.4831	23	0.5568		10 9.3941	27	0.4669		10 9.2853	34	0.3719
	20 9.4808	23	0.5544		20 9.3914	28	0.4643		20 9.2819	35	0.3692
	30 9.4785	23	0.5520		30 9.3886	27	0.4618		30 9.2784	34	0.3665
	40 9.4762	23	0.5495		40 9.3859	28	0.4592		40 9.2750	35	0.3638
	50 9.4739	23	0.5471		50 9.3831	27	0.4566		50 9.2715	35	0.3611
57	0 9.4716	23	0.5446	63	0 9.3804	28	0.4540	69	0 9.2680	36	0.3584
	10 9.4693	24	0.5422		10 9.3776	28	0.4514		10 9.2644	35	0.3557
	20 9.4669	23	0.5397		20 9.3748	29	0.4488		20 9.2609	36	0.3529
	30 9.4646	24	0.5373		30 9.3719	28	0.4462		30 9.2573	37	0.3502
	40 9.4622	23	0.5348		40 9.3691	29	0.4436		40 9.2536	36	0.3475
	50 9.4599	24	0.5324		50 9.3662	28	0.4410		50 9.2500	37	0.3448
58	0 9.4575	24	0.5299	64	0 9.3634	29	0.4384	70	0 9.2463	37	0.3420
	10 9.4551	24	0.5275		10 9.3605	29	0.4358		10 9.2426	37	0.3393
	20 9.4527	24	0.5250		20 9.3576	30	0.4331		20 9.2389	38	0.3366
	30 9.4503	24	0.5225		30 9.3546	29	0.4305		30 9.2351	38	0.3338
	40 9.4479	25	0.5200		40 9.3517	30	0.4279		40 9.2313	38	0.3311
	50 9.4454	24	0.5175		50 9.3487	29	0.4253		50 9.2275	39	0.3283
59	0 9.4430	25	0.5150	65	0 9.3458	30	0.4226	71	0 9.2236	39	0.3256
	10 9.4405	24	0.5125		10 9.3428	31	0.4200		10 9.2197	39	0.3228
	20 9.4381	25	0.5100		20 9.3397	30	0.4173		20 9.2158	40	0.3201
	30 9.4356	25	0.5075		30 9.3367	31	0.4147		30 9.2118	40	0.3173
	40 9.4331	25	0.5050		40 9.3337	31	0.4120		40 9.2078	40	0.3145
	50 9.4306		0.5025		50 9.3306		0.4094		50 9.2038		0.3118

Decl.	logtg $\frac{1}{2}$	d	cos	Decl.	logtg $\frac{1}{2}$	d	cos	Decl.	logtg $\frac{1}{2}$	d	cos
72 0	9.1997	41	0.3090	78 0	9.0216	61	0.2079	84 0	8.7194	123	0.1045
10	9.1956	41	0.3063	10	9.0155	62	0.2051	10	8.7071	126	0.1016
20	9.1915	42	0.3035	20	9.0093	63	0.2022	20	8.6945	130	0.0987
30	9.1873	42	0.3007	30	9.0030	64	0.1994	30	8.6815	133	0.0959
40	9.1831	43	0.2979	40	8.9966	65	0.1965	40	8.6682	139	0.0930
50	9.1788	43	0.2952	50	8.9901	65	0.1937	50	8.6543	142	0.0901
73 0	9.1745	43	0.2924	79 0	8.9836	67	0.1908	85 0	8.6404	147	0.0872
10	9.1702	44	0.2896	10	8.9769	68	0.1880	10	8.6254	153	0.0843
20	9.1658	45	0.2868	20	8.9701	68	0.1851	20	8.6101	158	0.0814
30	9.1613	44	0.2840	30	8.9633	70	0.1822	30	8.5943	164	0.0785
40	9.1569	45	0.2812	40	8.9563	71	0.1794	40	8.5779	171	0.0756
50	9.1524	46	0.2784	50	8.9492	72	0.1765	50	8.5608	177	0.0727
74 0	9.1478	46	0.2756	80 0	8.9420	74	0.1738	86 0	8.5431	185	0.0698
10	9.1432	47	0.2728	10	8.9346	74	0.1708	10	8.5246	193	0.0669
20	9.1385	47	0.2700	20	8.9272	76	0.1679	20	8.5053	202	0.0640
30	9.1338	47	0.2672	30	8.9196	78	0.1650	30	8.4858	213	0.0611
40	9.1291	48	0.2644	40	8.9118	78	0.1622	40	8.4658	222	0.0581
50	9.1243	49	0.2613	50	8.9040	80	0.1593	50	8.4446	230	0.0552
75 0	9.1194	49	0.2588	81 0	8.8960	82	0.1564	87 0	8.4181	249	0.0527
10	9.1145	49	0.2560	10	8.8878	83	0.1536	10	8.3972	263	0.0494
20	9.1096	51	0.2532	20	8.8795	84	0.1507	20	8.3769	280	0.0465
30	9.1045	50	0.2504	30	8.8711	87	0.1478	30	8.3589	300	0.0436
40	9.0995	52	0.2476	40	8.8624	88	0.1449	40	8.3389	322	0.0407
50	9.0943	52	0.2447	50	8.8536	90	0.1421	50	8.2767	348	0.0378
76 0	9.0891	52	0.2419	82 0	8.8446	91	0.1392	88 0	8.2419	378	0.0349
10	9.0839	53	0.2391	10	8.8355	94	0.1363	10	8.2041	414	0.0320
20	9.0786	54	0.2363	20	8.8261	95	0.1334	20	8.1627	452	0.0291
30	9.0732	54	0.2335	30	8.8166	99	0.1305	30	8.1170	512	0.0260
40	9.0678	56	0.2306	40	8.8067	100	0.1275	40	8.0658	580	0.0233
50	9.0622	57	0.2278	50	8.7967	102	0.1248	50	8.0078	669	0.0205
77 0	9.0567	57	0.2250	83 0	8.7865	105	0.1219	89 0	7.9409	797	0.0175
10	9.0510	57	0.2221	10	8.7760	108	0.1190	10	7.8617	969	0.0145
20	9.0453	58	0.2193	20	8.7652	110	0.1161	20	7.7648	1250	0.0116
30	9.0395	59	0.2164	30	8.7542	113	0.1132	30	7.6398	1761	0.0087
40	9.0336	59	0.2136	40	8.7429	116	0.1103	40	7.4637	3010	0.0058
50	9.0277	0	0.2108	50	8.7313	0	0.1074	50	7.1627	0	0.0029

Proportional Theile

	1	2	3	4	5	6	7	8	9
13	1.3	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7
14	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6
15	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5
16	1.6	3.2	4.8	6.4	8.0	9.6	11.2	12.8	14.4
17	1.7	3.4	5.1	6.8	8.5	10.2	11.9	13.6	15.3
18	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2
19	1.9	3.8	5.7	7.6	9.5	11.4	13.3	15.2	17.1
20	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0
21	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9
22	2.2	4.4	6.6	8.8	11.0	13.2	15.4	17.6	19.8
23	2.3	4.6	6.9	9.2	11.5	13.8	16.1	18.4	20.7
24	2.4	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6
25	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5
26	2.6	5.2	7.8	10.4	13.0	15.6	18.2	20.8	23.4
27	2.7	5.4	8.1	10.8	13.5	16.2	18.9	21.6	24.3
28	2.8	5.6	8.4	11.2	14.0	16.8	19.6	22.4	25.2
29	2.9	5.8	8.7	11.6	14.5	17.4	20.3	23.2	26.1
30	3.0	6.0	9.0	12.0	15.0	18.0	21.0	24.0	27.0
31	3.1	6.2	9.3	12.4	15.5	18.6	21.7	24.8	27.9
32	3.2	6.4	9.6	12.8	16.0	19.2	22.4	25.6	28.8
33	3.3	6.6	9.9	13.2	16.5	19.8	23.1	26.4	29.7
34	3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2	30.6
35	3.5	7.0	10.5	14.0	17.5	21.0	24.5	28.0	31.5
36	3.6	7.2	10.8	14.4	18.0	21.6	25.2	28.8	32.4
37	3.7	7.4	11.1	14.8	18.5	22.2	25.9	29.6	33.3
38	3.8	7.6	11.4	15.2	19.0	22.8	26.6	30.4	34.2
39	3.9	7.8	11.7	15.6	19.5	23.4	27.3	31.2	35.1
40	4.0	8.0	12.0	16.0	20.0	24.0	28.0	32.0	36.0
41	4.1	8.2	12.3	16.4	20.5	24.6	28.7	32.8	36.9

**MTA
KIK**



