NO. 9

AMERICAN PRACTICAL NAVIGATOR

AN EPITOME OF NAVIGATION AND NAUTICAL ASTRONOMY

ORIGINALLY BY

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TABLE 18

Dip of the Sea Horizon.

Height of the Eye.	Dip of the Horizon.
Feet.	′ ″
1	0 59
2	1 23
3	1 42
4	1 58
5	2 11
6	2 24
7	2 36
8	2 46
9	2 56
10	3 06
11	3 15
12	3 24
13	3 32
14	3 40
15	3 48
16	3 55
17	4 02
18	4 09
19	4 16
20	4 23
21	4 29
22	4 36
23	4 42
24	4 48
25	4 54
26	5 00
27	5 06
28	5 11
29	5 17
30	5 22
31	5 27
32	5 33
33	5 38
34	5 43
35	5 48
36	5 53
37	5 58
38	6 02
39	6 07
40	6 12
45	6 36
50	6 56
55	7 16
60	7 35
65	7 54
70	8 12
75	8 29
80	8 46
85	9 02
90	9 18
95	9 33
100	9 48

TABLE 19.

Dip of the Sea at different Distances from the Observer.

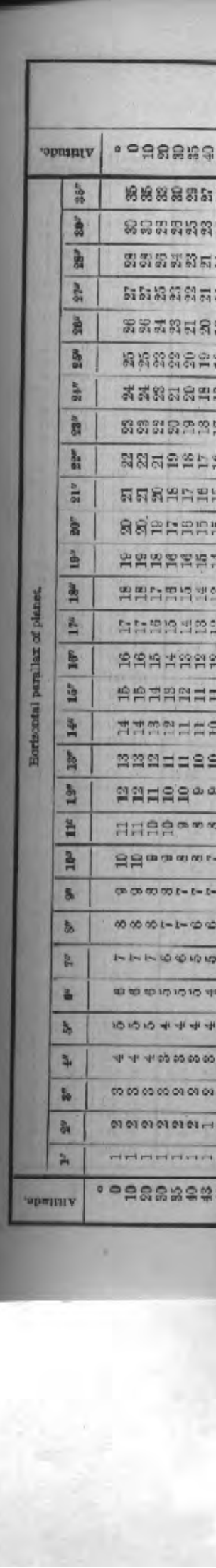
Dist. of Land in Sea Miles.	Height of the Eye above the Sea in Feet.							
	5	10	15	20	25	30	35	40
	′	′	′	′	′	′	′	′
¼	11	28	34	45	57	68	79	91
½	6	12	17	23	28	34	40	45
¾	4	8	12	15	19	23	27	30
1	3	6	9	12	15	17	20	23
1¼	3	5	7	10	12	14	16	19
1½	3	4	6	8	10	12	14	16
2	2	4	5	7	8	9	11	12
2½	2	3	4	6	7	8	9	10
3	2	3	4	5	6	7	8	9
3½	2	3	4	5	6	6	7	8
4	2	3	4	5	5	6	7	7
5	2	3	4	4	5	6	6	7
6	2	3	4	4	5	5	6	6

Note to Table 19.—The numbers of this Table below the black lines are the same as are given in Table 18, the visible horizon corresponding to those heights not being so far distant as the land.

TABLE 20.

The Sun's Parallax in Altitude.

Altitude.	Parallax.
°	″
0	9
10	9
20	8
30	8
40	7
50	6
55	5
60	4
65	4
70	3
75	2
80	2
85	1
90	0



Correction of the Sun's Apparent Altitude for Refraction and Parallax.

[Barometer, 30 inches. Fahrenheit's Thermometer, 50°.]

Apparent Altitude.	Mean Refraction and Parallax ⊙.	Apparent Altitude.	Mean Refraction and Parallax ⊙.	Apparent Altitude.	Mean Refraction and Parallax ⊙.	Apparent Altitude.	Mean Refraction and Parallax ⊙.	Apparent Altitude.	Mean Refraction and Parallax ⊙.
° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″	° ′	′ ″
		9 30	5 26	15 00	3 25	25 00	1 56	42 00	0 58
0 00	36 30	35	5 23	10	3 24	10	1 55	20	0 57
1 00	24 45	40	5 21	20	3 21	20	1 55	40	0 56
2 00	18 17	45	5 18	30	3 19	30	1 54	43 00	0 55
3 00	14 16	50	5 15	40	3 17	40	1 53	20	0 55
4 00	11 35	55	5 13	50	3 15	50	1 52	40	0 54
5 00	9 43	10 00	5 10	16 00	3 13	26 00	1 51	44 00	0 53
05	9 35	05	5 8	10	3 10	10	1 50	20	0 53
10	9 27	10	5 5	20	3 8	20	1 49	40	0 52
15	9 20	15	5 3	30	3 6	30	1 48	45 00	0 52
20	9 12	20	5 0	40	3 4	40	1 48	20	0 52
25	9 5	25	4 58	50	3 2	50	1 47	40	0 51
5 30	8 58	10 30	4 56	17 00	3 0	27 00	1 46	46 00	0 50
35	8 51	35	4 53	10	2 58	10	1 45	20	0 50
40	8 44	40	4 51	20	2 57	20	1 44	40	0 49
45	8 38	45	4 49	30	2 55	30	1 44	47 00	0 48
50	8 31	50	4 47	40	2 53	40	1 43	20	0 48
55	8 25	55	4 44	50	2 51	50	1 42	40	0 47
6 00	8 19	11 00	4 42	18 00	2 50	28 00	1 41	48 00	0 47
05	8 13	05	4 40	10	2 48	30	1 40	49 00	0 45
10	8 7	10	4 38	20	2 46	40	1 38	50 00	0 43
15	8 2	15	4 36	30	2 44	29 00	1 37	51 00	0 41
20	7 58	20	4 34	40	2 43	20	1 35	52 00	0 40
25	7 50	25	4 32	50	2 41	40	1 34	53 00	0 39
6 30	7 45	11 30	4 30	19 00	2 40	30 00	1 33	54 00	0 37
35	7 40	35	4 28	10	2 38	20	1 31	55 00	0 36
40	7 35	40	4 26	20	2 37	40	1 30	56 00	0 34
45	7 29	45	4 24	30	2 35	31 00	1 29	57 00	0 33
50	7 25	50	4 22	40	2 34	20	1 28	58 00	0 32
55	7 20	55	4 20	50	2 32	40	1 26	59 00	0 31
7 00	7 15	12 00	4 19	20 00	2 31	32 00	1 25	60 00	0 30
05	7 10	05	4 17	10	2 29	20	1 24	61 00	0 28
10	7 6	10	4 15	20	2 28	40	1 23	62 00	0 27
15	7 1	15	4 13	30	2 27	33 00	1 22	63 00	0 26
20	6 57	20	4 11	40	2 25	20	1 20	64 00	0 24
25	6 52	25	4 10	50	2 24	40	1 19	65 00	0 23
7 30	6 48	12 30	4 8	21 00	2 23	34 00	1 18	66 00	0 22
35	6 44	35	4 6	10	2 21	20	1 17	67 00	0 21
40	6 40	40	4 5	20	2 20	40	1 16	68 00	0 21
45	6 36	45	4 3	30	2 19	35 00	1 15	69 00	0 19
50	6 32	50	4 1	40	2 18	20	1 15	70 00	0 18
55	6 28	55	4 0	50	2 17	40	1 14	71 00	0 17
8 00	6 24	13 00	3 58	22 00	2 15	36 00	1 13	72 00	0 16
05	6 21	05	3 57	10	2 14	20	1 12	73 00	0 16
10	6 17	10	3 55	20	2 13	40	1 11	74 00	0 15
15	6 13	15	3 54	30	2 12	37 00	1 10	75 00	0 14
20	6 10	20	3 52	40	2 11	20	1 9	76 00	0 13
25	6 6	25	3 51	50	2 10	40	1 8	77 00	0 12
8 30	6 3	13 30	3 49	23 00	2 8	38 00	1 8	78 00	0 10
35	6 0	35	3 48	10	2 7	20	1 7	79 00	0 9
40	5 56	40	3 46	20	2 6	40	1 6	80 00	0 8
45	5 53	45	3 45	30	2 5	39 00	1 5	81 00	0 7
50	5 50	50	3 43	40	2 4	20	1 4	82 00	0 6
55	5 47	55	3 42	50	2 3	40	1 3	83 00	0 6
9 00	5 44	14 00	3 41	24 00	2 2	40 00	1 2	84 00	0 5
05	5 41	10	3 38	10	2 1	20	1 2	85 00	0 4
10	5 38	20	3 35	20	2 0	40	1 1	86 00	0 3
15	5 35	30	3 33	30	1 59	41 00	1 0	87 00	0 2
20	5 32	40	3 30	40	1 58	20	0 59	88 00	0 3
25	5 29	50	3 28	50	1 57	40	0 58	89 00	0 1
9 30	5 26	15 00	3 25	25 00	1 56	42 00	0 58	90 00	0 0

23h	For seconds	
m. s.	s.	s.
3 46.699		
3 46.863	1	0.003
3 47.027	2	.005
3 47.192	3	.008
3 47.356	4	.011
3 47.520	5	.014
3 47.685	6	.016
3 47.849	7	.019
3 48.013	8	.022
3 48.177	9	.025
3 48.342	10	.027
3 48.506	11	.030
3 48.670	12	.033
3 48.834	13	.036
3 48.999	14	.038
3 49.163	15	.041
3 49.327	16	.044
3 49.492	17	.047
3 49.656	18	.049
3 49.820	19	.052
3 49.984	20	.055
3 50.149	21	.057
3 50.313	22	.060
3 50.477	23	.063
3 50.642	24	.066
3 50.806	25	.068
3 50.970	26	.071
3 51.134	27	.074
3 51.299	28	.077
3 51.463	29	.079
3 51.627	30	.082
3 51.791	31	.085
3 51.956	32	.088
3 52.120	33	.090
3 52.284	34	.093
3 52.449	35	.096
3 52.613	36	.099
3 52.777	37	.101
3 52.941	38	.104
3 53.106	39	.107
3 53.270	40	.110
3 53.434	41	.112
3 53.598	42	.115
3 53.763	43	.118
3 53.927	44	.120
54.091	45	.123
54.256	46	.126
54.420	47	.129
54.584	48	.131
54.748	49	.134
54.913	50	.137
55.077	51	.140
55.241	52	.142
55.405	53	.145
55.570	54	.148
55.734	55	.151
55.898	56	.153
56.063	57	.156
56.227	58	.159
56.391	59	0.162

Corrections To Be Applied to the Observed Altitude of a Star or of the Sun's Lower Limb, To Find the True Altitude.

Observed Altitude.	⊙ Sun's Corr.	★ Star's Corr.
° ′	′	′
6 30	+ 8.2	−7.9
6 40	8.4	7.7
6 50	8.6	7.6
7 0	8.7	7.4
7 10	8.9	7.2
7 20	+ 9.0	−7.1
7 30	9.2	7.0
7 40	9.3	6.8
7 50	9.5	6.7
8 0	9.6	6.6
8 10	+ 9.7	−6.4
8 20	9.8	6.3
8 30	10.0	6.2
8 40	10.1	6.1
8 50	10.2	6.0
9 0	+10.3	−5.9
9 20	10.5	5.7
9 40	10.6	5.5
10 0	10.8	5.3
10 20	11.0	5.2
10 40	+11.2	−5.0
11 0	11.3	4.9
11 30	11.5	4.7
12 0	11.7	4.5
12 30	11.9	4.3
13 0	+12.0	−4.1
13 30	12.2	4.0
14 0	12.3	3.8
15 0	12.6	3.6
16 0	12.8	3.4
17 0	+13.0	−3.2
18 0	13.2	3.0
19 0	13.3	2.8
20 0	13.5	2.6
22 0	13.7	2.4
24 0	+14.0	−2.2
26 0	14.1	2.0
28 0	14.3	1.8
30 0	14.4	1.7
32 0	14.6	1.6
34 0	+14.7	−1.4
36 0	14.8	1.3
38 0	14.9	1.3
40 0	15.0	1.2
45 0	15.1	1.0
50 0	+15.3	−0.8
55 0	15.4	0.7
60 0	15.5	0.6
65 0	15.6	0.5
70 0	15.7	0.4
75 0	+15.8	−0.3
80 0	15.8	0.2
85 0	15.9	−0.1
90 0	+16.0	0.0

Date.	⊙ Additional Sun's Corr.
	′
Jan. 1	+0.8
15	+0.3
Feb. 1	+0.3
15	+0.2
Mar. 1	+0.2
15	+0.1
Apr. 1	0.0
15	0.0
May 1	−0.1
15	−0.1
June 1	−0.2
15	−0.2
July 1	−0.2
15	−0.2
Aug. 1	−0.2
15	−0.2
Sept. 1	0.1
15	0.1
Oct. 1	0.0
15	+0.1
Nov. 1	+0.2
15	+0.2
Dec. 1	+0.3
15	+0.3
31	+0.3

Correction for Height of Eye.	
Height of Eye (feet).	Corr.
	′
0	0.0
1	−1.0
2	1.4
3	1.7
4	2.0
5	−2.2
6	2.4
7	2.6
8	2.8
9	2.9
10	−3.1
11	3.2
12	3.4
13	3.5
14	3.7
15	−3.8
16	3.9
17	4.0
18	4.1
19	4.3
20	−4.4
21	4.5
22	4.6
23	4.7
24	4.8
25	4.9
26	5.0
27	5.1
28	5.2
29	5.3
30	5.4
31	5.4
32	5.5
33	5.6
34	5.7
35	5.8
37	6.0
39	6.1
41	6.3
43	6.4
45	−6.6
47	6.7
49	6.9
51	7.0
53	7.1
55	−7.3
60	7.6
65	7.9
70	8.2
75	8.5
80	−8.8
85	9.0
90	9.3
95	9.6
100	−9.8