

AFM 64-5

A I R F O R C E M A N U A L

Emergency Rescue

SURVIVAL

27 NOVEMBER 1961

DEPARTMENT OF THE AIR FORCE

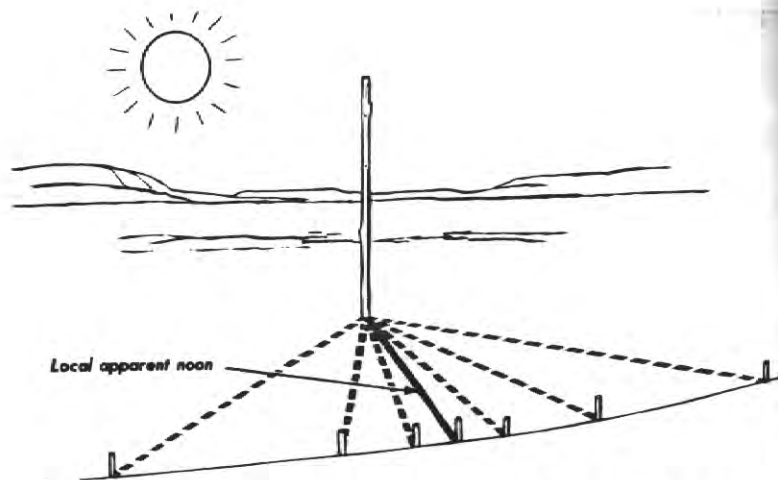
will be twice the interval from sunrise to noon or from noon to sunset. Knowing the length of day, you can find the latitude by using the nomogram attached to the center of the book.

Longitude from Local Apparent Noon

To find longitude, you must know the correct time. You should know the rate at which your watch gains or loses time. If you know this rate and the time you last set the watch, you can compute the correct time. Correct zone time on your watch to Greenwich time; for example, if your watch is on Eastern Standard Time, add five hours to get Greenwich time.

You can find longitude by timing the moment when a celestial body passes your meridian. The easiest body to use is the sun. Put up a stick or rod as nearly vertical as possible, in a level place. Check the alignment of the stick by sighting along the line of a makeshift plumb bob. (To make a plumb bob, tie any heavy object to a string and let it hang free. The line of the string indicates the vertical.) Sometime before midday, begin marking the position of the end of the stick's shadow. Note the time for each mark. Continue marking until the shadow definitely lengthens. The time of the shortest shadow is the time when the sun passed the local meridian or local apparent noon. You will probably have to estimate the position of the shortest shadow by finding a line midway between two shadows of equal length, one before noon and one after. If you get the times of sunrise and sunset accurately on a water horizon, local noon will be midway between these times.

Mark down the Greenwich time of local apparent noon. The next step is to correct this observed time of meridian passage for the equation of time — that is, the number of minutes the real sun is ahead of or



STICK AND SHADOW METHOD OF DETERMINING LOCAL APPARENT NOON

simplify the problems of measuring time. The real sun is not so considerate; it changes its angular rate of travel around the earth with the seasons.)

Table B gives the values in minutes of time to be added to or subtracted from mean (watch) time to get apparent (sun) time.

TABLE B — EQUATION OF TIME

DATE	EQ. OF TIME*	DATE	EQ. OF TIME*	DATE	EQ. OF TIME*
Jan. 1	-3.5 min.	May 2	+3.0 min.	Oct. 1	+10.0 min.
2	4.0	14	3.8	4	11.0
4	5.0	May 28	+3.0	7	12.0
7	6.0			11	13.0
9	-7.0	June 4	+2.0	15	14.0
12	8.0	9	1.0	20	15.0
14	9.0	14	0.0	Oct. 27	+16.0
17	10.0	19	-1.0		
20	11.0	23	2.0	Nov. 4	+16.4
24	12.0	June 28	-3.0	11	16.0
Jan. 28	-13.0			17	15.0
		July 3	-4.0	22	14.0
Feb. 4	-14.0	9	5.0	25	13.0
13	14.3	18	6.0	Nov. 28	+12.0
19	14.0	July 27	-6.6		
Feb. 28	-13.0			Dec. 1	+11.0
		Aug. 4	-6.0	4	10.0
Mar. 4	-12.0	12	5.0	6	9.0
8	11.0	17	4.0	9	8.0
12	10.0	22	3.0	11	7.0
16	9.0	26	2.0	13	6.0
19	8.0	Aug. 29	-1.0	15	+5.0
22	7.0			17	4.0
26	6.0	Sept. 1	0.0	19	3.0
Mar. 29	-5.0	5	+1.0	21	2.0
		8	2.0	23	+1.0
Apr. 1	-4.0	10	3.0	25	0.0
5	3.0	13	4.0	27	-1.0
8	2.0	16	+5.0	29	-2.0
12	-1.0	19	6.0	Dec. 31	-3.0
16	0.0	22	7.0		
20	+1.0	25	8.0		
Apr. 25	2.0	Sept. 28	+9.0		

*Add plus values to mean time and subtract minus values from mean time to get apparent time.

