1944, Noonan never read this book

for finding LOP, not longitude

time only to whole minute, accuracy limited to 15 NM at best

DR [illegible]nenon is where this line crosses your course line.

Solve this mathematically as follows:

GCT of 1st DR position 10:00

GCT of sunrise 10:50

GCT of 2nd L

GCT of sunr

Emergency = no sextant, Noonan had a sextant

Emergency = better than nothing

The sun rise[illegible]e (02:00) after th[illegible]

5/9 x 120 = 66.6 minutes.

Sunrise occurs at 11:07.

points and c[illegible]his is your LOP.

Example

Flying at approximately 38° N, you observe the GCT of sunrise on 1 January 1944 to be 11:01. Your altitude is 10,000 feet. The P.M. page gives the LCT of sunrise at 35° N and 40° N as 07:08 and 07:22 respectively. The correction for altitude is minus 12 minutes and minus 11 minutes, giving values of 06:56. and 07:11. Subtract these from the GCT of 11:01 to get longitudes of 4 hours and 05 minutes and 3 hours and 50 minutes or 61° 15′ W and 57° 30′ W.

LOPs by Sunrise or Sunset

In an emergency you can use the observed time of sunrise or sunset to determine a LOP with a moderate degree of accuracy. Note the GCT when the sun's upper limb becomes tangent to the visible horizon. Use the Air Almanac to determine the LCT of the phenomenon, being sure to make the additional correction for altitude of the airplane. Extract values of LCT for latitudes on either side of your position. The difference between the GCT and the LCT is the longitude in units of time which is then converted into degrees and minutes (use the table in the back of the Almanac). Knowing the longitude for positions on either side of your DR position, plot these

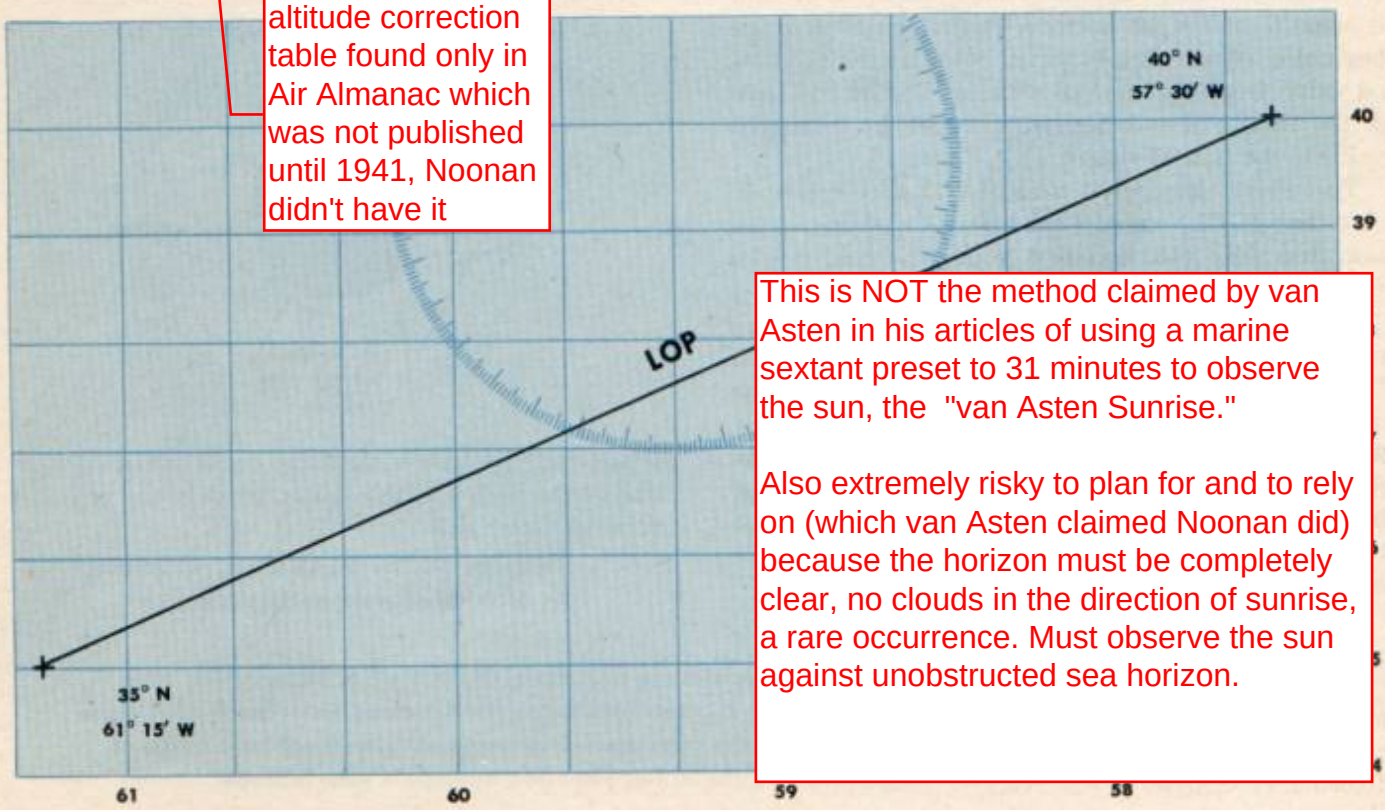
moderate accuracy = not good enough to find small island

Corrections for Semi-diameter and Dip

Many navigators have found that they obtain excellent results by using [illegible]d of the bubble horizon. Wh[illegible]zon, however, you must make [illegible]o all sextant altitudes. The Di[illegible] the back cover of the Air Almanac. It is usual practice to make the lower limb of the sun or moon tangent to the sea horizon. Add the correction for semi-diameter to th[illegible] correction is given on the A.[illegible]ets. Occasionally it is necessa[illegible]r limb of the moon. When observing the upper limb, be sure to subtract semi-diameter from your sextant altitude.

needs unobstructed sea horizon

altitude correction table found only in Air Almanac which was not published until 1941, Noonan didn't have it



This is NOT the method claimed by van Asten in his articles of using a marine sextant preset to 31 minutes to observe the sun, the "van Asten Sunrise."

Also extremely risky to plan for and to rely on (which van Asten claimed Noonan did) because the horizon must be completely clear, no clouds in the direction of sunrise, a rare occurrence. Must observe the sun against unobstructed sea horizon.