Example 2
What time is local noon in DR longitude 73°E on 1st May?

Mer Pas at Greenwich	11 h 57 m
73E E = minus	4 h 52 m
Local noon	07 h 05 m GMT

If you happen to be sailing around within a few degrees of the Date Line on the opposite side of the globe from the Greenwich Meridian, a query may arise as to which day it is. If this is so, refer to Chapter 4, page 24. If not, just remember that you have calculated the Greenwich time of noon for your approximate longitude, and read on.

TAKING THE SIGHT

Once you know the approximate time of local noon, all that remains is to get up on deck ten minutes or so early and start shooting the Sun's altitude.

It should still be rising when you begin. As it approaches its highest point you'll be 'racking it down' slower and slower until finally it stands still for a moment or two. That is the noon altitude. Whatever you do, don't start to rack the Sun up again as it begins to fall. Wait until the lower limb bites positively into the horizon without altering the sextant again, and you know you have it. Noon is past and gone for another day. Note the log; go below, read the sextant, put it away, then work out your latitude.

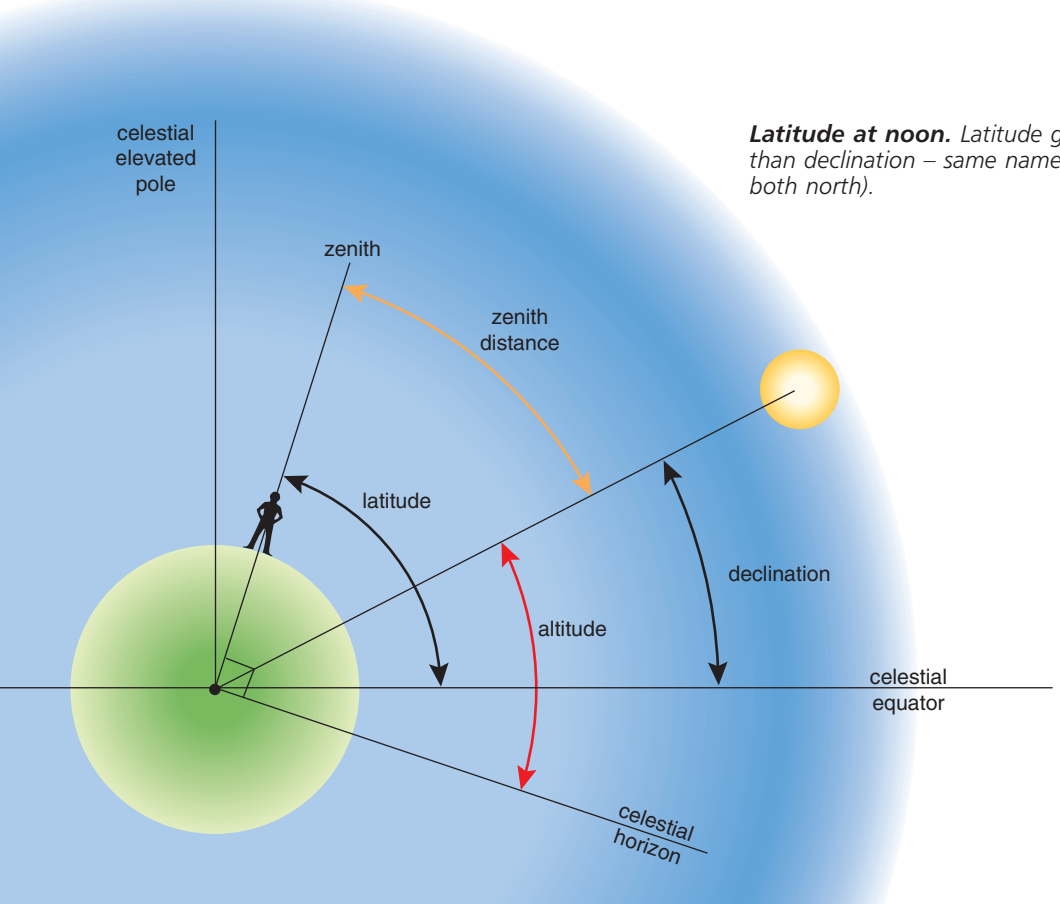
THE THEORY

The illustration on page 17 demonstrates the noon sight set-up when viewed from the celestial elevated pole.

The picture below shows it as seen from the celestial equator. Note how the celestial horizon makes a right angle with the line dropped from the observer's zenith, through his geographic position to the centre of the Earth. *Zenith Distance* (ZD) is the only new concept to grab hold of. It is, quite simply, the angular distance (measured in degrees) between the observer's zenith and the position of the Sun on the celestial sphere.

Since the line from the observer's zenith meets the celestial horizon at 90°, the zenith distance must equal 90° minus the Sun's altitude:

ZD = 90° - ALTITUDE



Latitude at noon. *Latitude greater than declination – same name (e.g. both north).*