

Time from noon when the
 greatest alt. was taken = $0^{\circ}37^{\prime}48''$ Log. rising = . 4.132610
 Nat. co-vers. sine of the greatest altitude = 411255 Log. ratio = 0.146102
 Natural number = 9694 Log. = . 3.986508

Sun's mer. z. dis. = $53^{\circ}14'30''$ S. = Nat. V. S. = 401561
 Sun's red. dec. = 9.41.34 N.

Latitude = . $43^{\circ}32'56''$ south. And, since this latitude only differs 34 seconds from the last, it may be considered as being the latitude of the ship at the time of observation of the greater altitude. The correct latitude, however, by spherical trigonometry, is $43^{\circ}29'30''$ south: hence the method by double altitudes, even after *repeating the operation*, differs from the truth by 3 minutes and 26 seconds.

Note.—The method of finding the latitude by double altitudes, being a very tedious and indirect operation, and generally a very inaccurate one, unless the limitations pointed out in the remarks (page 342) are strictly attended to, no notice, therefore, would have been taken of it in this work, were it not for the purpose of giving the most ample illustration of the general use of the Tables. And, notwithstanding what has been said in favour of double altitudes by *theoretical writers*, this method of finding the latitude at sea is evidently far from being one of the most advantageous in practical navigation: for the operation, besides being rather circuitous, requires a considerable portion of time to go through with it correctly; and, after all, it frequently happens, that although every seeming precaution has been taken, the mariner's hopes are disappointed in the result. We will now proceed to a more direct and universal method of finding the latitude, either at sea or on shore.

PROBLEM VIII.

Given the Altitudes of two known fixed Stars observed at the same instant, at any Time of the Night, to find the Latitude of the Place of Observation, independent of the Latitude by Account, the Longitude, or the Apparent Time.

In the preceding problems for finding the latitude (the two last excepted), the meridional altitudes of the celestial objects were the principal elements under consideration: however, since it frequently happens that, in conse-