| Procedure Section Number | | Sun |
|---|---|---|
| (1) | Approx. Ship's Time | 0850 |
| | D.R. Long. in Time | −0554 |
| | Approx. G.M.T. | 0256 |
| (2) | | d. h. m. s. |
| | Time by Chron. | 7 02 59 54 |
| | Correction | −3 11 |
| | G.M.T. | 7 02 56 43 |
| (3) | Sextant Alt. | 31°18′·9 |
| | I.E. | +0′·5 |
| | Obs. Alt. | 31°19′·4 |
| | Total Corr. | +9′·0 |
| | True Alt. | 31°28′·4 |
| | True Zen. Dist. ($ZX$) | 58°31′·6 |
| (4) | D.R. Lat. | 11°34′N. |
| | $PZ$ | 78°26′ |
| (5) | Dec. Sun | 22°26′·8S. |
| | $PZ$ (add 90°) | 112°26′·8 |
| | ($PZ$~$PX$) | 34°00′·8 |
| | G.H.A. for 02 hrs. | 208°29′·2 |
| | Inc. for 56m. 43s. | 14°10′·8 |
| | G.H.A. Sun | 222°40′·0 |
| (6) | nat. hav. $ZX$ | ·23895 |
| | nat. hav. ($PZ$~$PX$) | ·08554 |
| | nat. hav. $\theta$ | ·15341 |
| | log. hav. $\theta$ | 9·18586 |
| | log. cosec. $PZ$ | 0·00891 |
| | log. cosec. $PX$ | 0·03422 |
| | log. have $ZPX$ | 9·22899 |
| | $ZPX$ | 048°36′·8 |
| | | 360° |
| | L.H.A. | 311°23′·2 |
| | G.H.A. | 222°40′·0 |
| (7) | Longitude for Position Line | 88°43′·2E. |
| (8) | Table A | +·180 |
| | Table B | +·522 |
| | Table C | +·732 |
| | T. Azimuth | S54½°E or 125½° |
| | Pos. Line | N35½°E/ S35½°W |

Procedure Section Number (9)

0844 D.R. Lat. 11°34′N. Calc. Long. 88°43′·2E.
151°(T)40′ D.Lat. 35′S. D. Long. 19′·8E.

D.R. Noon for transferred P.L.: Lat. 10°59′N. Long. 89°03′·0E.
Dep. 19′·4E.

Procedure Section Number (10)

| | |
|---|---|
| L.M.T. of Sun's mer. pass. of observer's meridian | 12h. 06m. |
| Noon D.R. Long. in time | 5h. 56m. |
| G.M.T. of Sun's mer. pass. of D.R. Long. meridian | 06h. 10m. |
| Sextant Alt. of Sun's L.L. on the meridian | 56°19′·8S. |
| I.E. | +0′·5 |
| Obs. Alt. of Sun's L.L. | 56°20′·3 |
| Total Correction | +9′·9 |
| True Mer. Alt. of Sun | 56°30′·2 |
| True Zenith Distance | 33°29′·8N. |
| Sun's Declination | 22°25′·8S. |
| Obs. Lat. at Noon | 11°04′N. |

Note that the angle $ZPX$ must be subtracted from 360° in order to obtain L.H.A.

*Procedure Section Number* (11). *The Plot* Fig. 128 cover the noon positions only. Fig. 129 includes morning sight and run to noon drawn on a smaller scale.

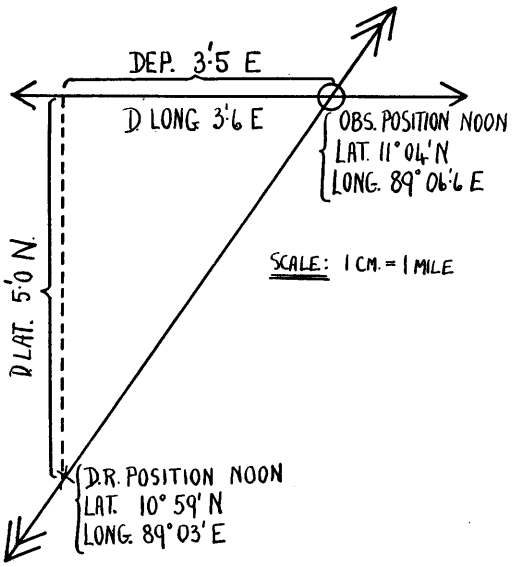


FIGURE 128

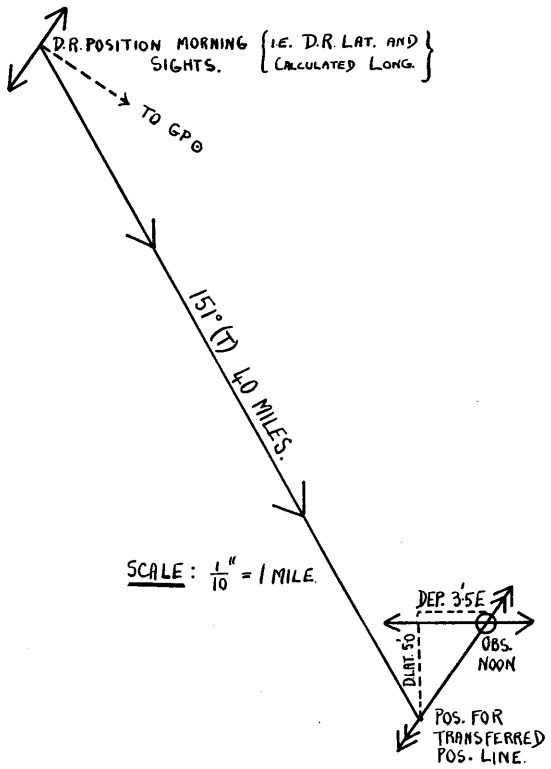


FIGURE 129

| | | | |
|---|---|---|---|
| D.R. position at noon | Lat. 10°59′N. | Long. 89°03′·0E. |
| D.Lat. | 5′N. | D.Long. | 3′·6E. |
| **Observed position at noon** | **Lat. 11°04′N.** | **Long. 89°06′·6E.** |

*Note:* (1) The task of plotting the transferred position line and noon position line and obtaining the observed noon position therefrom may be avoided in this type of problem as follows: *The D.Long. between D.R. Noon and Obs. Noon may be obtained direct by multiplying the Table C correction obtained at the morning observation by the D.Lat. between D.R. and Obs. Lat. at noon.*

In the preceding example, for instance, the Table C correction at the morning observation was ·73. The D.Lat. at noon between D.R. and Obs. Lat. was 5′. Now 5 × ·73 = 3′·6 of D.Long. as expected.

The calculation alone will not, however, give the **direction** in which to apply the D.Long. and we can only get this by visualizing or plotting the position lines roughly. In this case, we would say that since the transferred position line runs to the northeastward and the Obs. Lat. is to the northward of the D.R.Lat., then the D.Long. correction must be applied to the eastward.

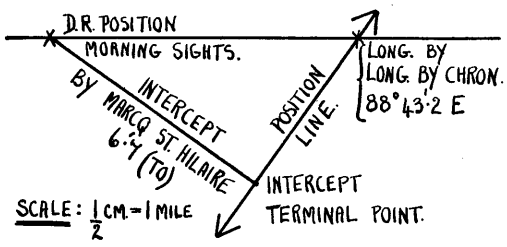


FIGURE 130

*Note:* (2) If the morning sight problem had been solved using the Marcq St. Hilaire method, then the intercept obtained would have been 6′·7 (To) as indicated by the accompanying diagram. It places the observer on the same position line as that obtained by the "longitude" method.