

measured from the sun, in preference to a star, whenever it is practicable to do so.

If a sextant is used in observation, a measure of the semi-diameter of the sun or moon should be taken every day or two for index error.

The observations are by no means to be pretermitted when lying in port, because they will help to correct the position of the port.

The observations should, if convenient, be taken so near the standard chronometer that the observer can signal the moment of observation to an assistant at the chronometer, who is to note the time. If this is not found convenient, and a comparing watch is used, the watch-time and the comparison of the watch with the chronometer should both be carefully recorded.

The observations made by the main party should be all written down in full in a continuous series of note-books, from which they may be copied in the log. Particular care should be exercised in always recording the *place, date, and limb* of sun or moon observed, and any other particulars necessary to the complete understanding of the observation.

[S. N.]

*Observations at winter quarters.*—The astronomical transit instrument will be set up in a suitable observatory. A meridian mark should be established as soon as practicable, and the instrument kept with constant care in the vertical plane passing through the mark, in order that all observations may be brought to bear on determining the deviation of that plane from the meridian of the places. The transits of circumpolar stars, on both sides of the Pole, and those of stars near the Equator, should be frequently observed.

Moon culminations, including the transits of both first and second limbs, should be observed for the determination of longitude independently of the rates of the chronometers. Twelve transits of each limb is a desirable number to obtain—more, if practicable. If any occultations of bright stars by the moon are visible, they should be likewise observed.

The observations for latitude will be made with the sextant and artificial horizon, upon stars both north and south of the zenith.

All the chronometers of the expedition should be compared daily, as nearly as practicable about the same time.