

II.—TO DETERMINE THE TRUE MERIDIAN BY OBSERVATION ON POLARIS
AT ELONGATION WITH A PLUMB-LINE AND PEEP SIGHT.

1. Attach the plumb-line to a support situated as far above the ground as practicable, such as the limb of a tree, a piece of board nailed or otherwise fastened to a telegraph pole, a house, barn, or other building affording a clear view in a north and south direction.

The plumb-bob may consist of some weighty material, such as a brick, a piece of iron or stone, weighing four to five pounds, which will hold the plumb-line straight and vertical fully as well as one of turned and finished metal.

Strongly illuminate the plumb-line just below its support by a lamp or candle, care being taken to obscure the source of light from the view of the observer by an opaque screen.

For a peep sight, cut a slot about one-sixteenth of an inch wide in a thin piece of board, or nail two strips of tin, with straight edges, to a square block of wood, so arranged that they will stand vertical when the block is placed flat on its base upon a smooth horizontal rest, which will be placed at a convenient height south of the plumb-line and firmly secured in an east and west direction, in such a position that when viewed through the peep sight, Polaris will appear about a foot below the support of the plumb-line.

The position may be practically determined by trial the night preceding that set for the observation.

About thirty minutes before the time of elongation, as given in the tables of elongation, bring the peep sight into the same line of sight with the plumb-line and Polaris.

To reach elongation the star will move off the plumb-line to the east for eastern elongation, or to the west for western elongation, therefore by moving the peep sight in the proper direction, east or west, as the case may be, keep the star on the plumb-line until it appears to remain stationary, thus indicating that it has reached its point of elongation.

The peep sight will now be secured in place by a clamp or weight, and all further operations will be deferred until the next morning.

4. By daylight place a slender rod at a distance of two or three