distributed throughout the township to be surveyed. From the places whose heights above sea level are thus determined, it is customary to work out with aneroid barometers, which give the approximate elevations with sufficient accuracy for all kinds of woods work. In determining the grades of roads which it may be desirable to build, it is found that any Abney clinometer is much lighter, quicker and almost as serviceable as a land level. Usually the land is blocked out into mile squares, and easily found marks are made every quarter of a mile. These marks serve as starting points for the examination of the interior of any given "forty" (see Estimation of Timber on Forty Acre Squares), and enable the cruisers to locate themselves quite accurately on a line by pacing. With practice, measurements by pacing can be made much more accurately than would be supposed. Steps taken to get round obstacles are not counted, and on strong slopes discount is made. On very steep ground, indeed, steps taken are not a guide to distance, and judgment has to be resorted to in order to fill in the count. The count tells us when a line is approached, and enables us to pick it up with certainty, though it may be blind. By this means location may be made with considerable accuracy along the whole line. Having traversed the lines of a lot, noted the crossings of brooks and divides, taken the heights of essential points and noted and sketched whatever topography can be seen, we may then start from the middle of one side to run a line across the lot. In doing so it is best to use a pocket compass with a needle less than 2 inches in length, because a man climbing over the debris left by cutting or shoving his way, head down, through dense thickets of young fir will lose his direction in the course of a few rods. Now if he has a compass in hand, he will stop and look at it, but he would do so less often if he had to set a staff, level a 3 inch compass with folding sights and wait for the needle to come to a stand. From what has been said it is evident that a pedometer is of little use in this kind of work. For smooth going it answers very well, and does away with the necessity of counting, but on rough land its readings are no guide for distance.

On simple ground it is generally found that pacing once across each forty acre lot gives sufficient data to map the topography with sufficient accuracy for all ordinary purposes. Elsewhere there may be roads and streams to locate and divides that should be carefully put in. Here the compass and pacing method is still used, tying to the lines as often as may be. Travel in parallel straight lines is better, however, provided it is sufficient for the immediate purpose in hand. The reasons for this are, first, that it gives more accurate results, and second, that systematic travel of this kind enables the timber land topographer to see a fair sample of all the timber on the land.