

9. It is not expected that the first survey through wooded districts, will, as a rule, be the best position for the railway ; it will, however, be the aim of the Engineer in charge to have the " Transit Line " not very far distant from a practicable railway line. The " Transit Line " on which the measurements are taken will form a base on which to project an approximate section, and the Engineer in charge, by noting the features of the country, on both sides of the line, will be able to make an approximate section as the survey proceeds.

10. In many cases it will be desirable for the Engineer in charge, while making his daily explorations, to take barometric elevations of the ground, noting by estimation the approximate position of the points of observation in relation to the " Transit line ". These elevations should be reduced afterwards to the datum of the survey, and marked upon the plan in their proper position. This, as well as the general features of the country, should be marked upon the plan every day, while the whole is fresh in the memory. The barometric elevation will answer for rough cross sections, and be useful in determining on the plan the position of the approximate location line, and also in compiling an approximate section of the same.

11. The engineer in charge must have two barometers, one to be carried by himself, the other to hang in camp ; the cook, if moderately intelligent can, in a short time be instructed to observe and record its readings, and he should do so regularly at every hour in the day. By this means the Engineer in charge, (who will note the time when his own observations are taken) will be able to correct roughly all his observations, ascertain by comparison the height of each point above the camp (this being known), and thus be enabled to reduce all to the level above the datum of the survey. Barometers will be furnished by the Government.

12. The Engineer in charge will find it of great service while exploring, to carry with him light steel climbers, made to enable him to climb a tree with facility. By this means he will frequently be enabled to obtain a good knowledge of the topography of the surrounding country, and take such general observation and bearings as may be useful in directing the survey. A pair of climbers will be furnished with the stores for each party.