

EXPERIMENT – 6

(Measuring Distance using Tacheometer)

OBJECTIVE: To determine the horizontal distance between two points on plane ground using the principles of stadia tacheometry.

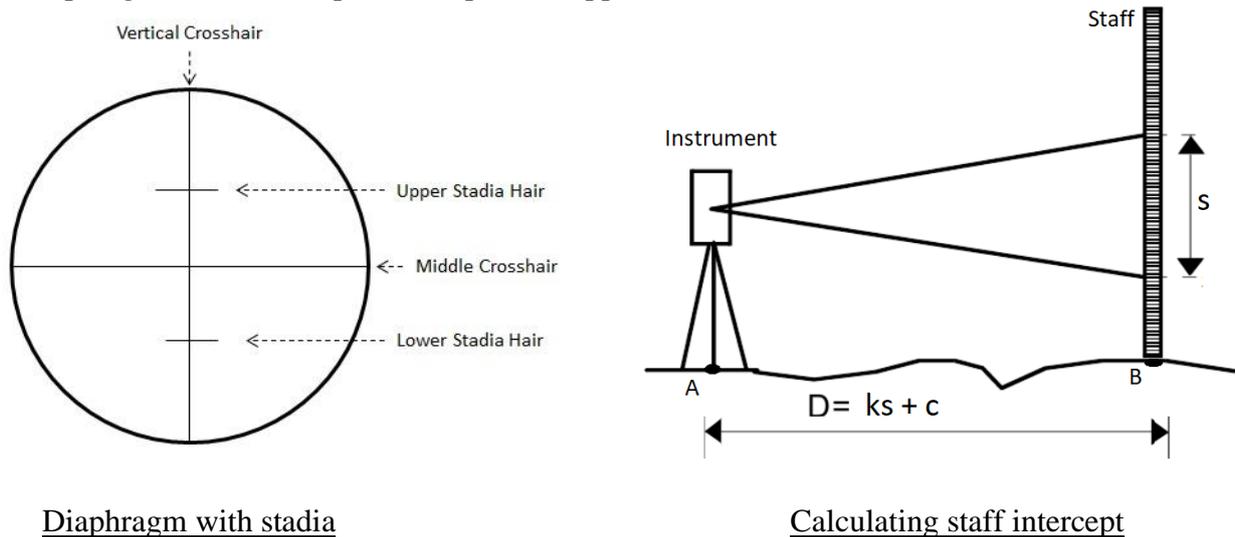
INSTRUMENTS AND ACCESORIES REQUIRED:

Tacheometer, Tripod Stand, Levelling Staff, Pegs, Arrows, etc.

Tacheometric constants: $k = 100$, $c = 0$

THEORY:

A number of commonly used optical surveying instruments can be used for the purpose of tacheometry. A theodolite is the most preferred choice though. The only requirement for a theodolite to be a tacheometer is that the diaphragm of its telescope should possess upper and lower stadia hairs.



PROCEDURE:

1. Let the two stations between which we have to find the distance be A and B.
2. Mount the theodolite on the tripod stand.
3. Then center it over station A and also level it.
4. Make the line of sight of theodolite horizontal.
5. Place a levelling staff in the vertical position on station B.
6. Through the telescope sight this staff and properly focus the image using object focusing screw. Also make the stadia clearly visible by adjusting the eyepiece.
7. Note down the readings on levelling staff corresponding to upper and lower stadia.
8. Find the staff intercept, s by finding the difference between these two readings.
9. Calculate the distance by using the tacheometric distance equation

$$D = ks + c$$

Since the constants are known to us ($k=100$, $c=0$)

$$D = 100s$$

VIDEO LINK:

https://youtu.be/cIzbyEaD_PA