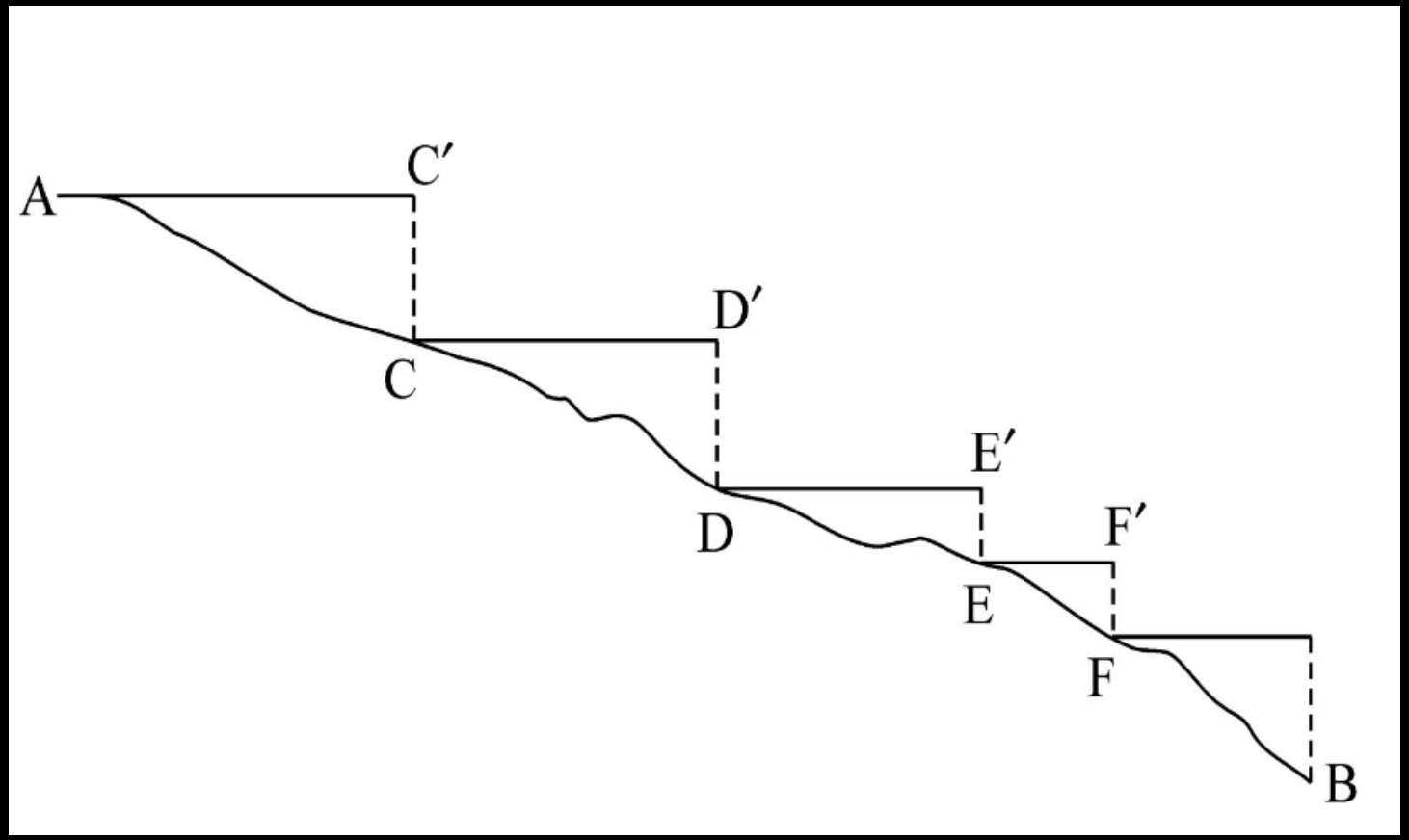
Chaining on Sloping Ground

Chaining on Sloping Ground

- If the slope of the plot is upto 3°, it is generally taken as level ground.

Direct Method (Stepping Method)

- The method consists in measuring the line in short horizontal lengths called steps.



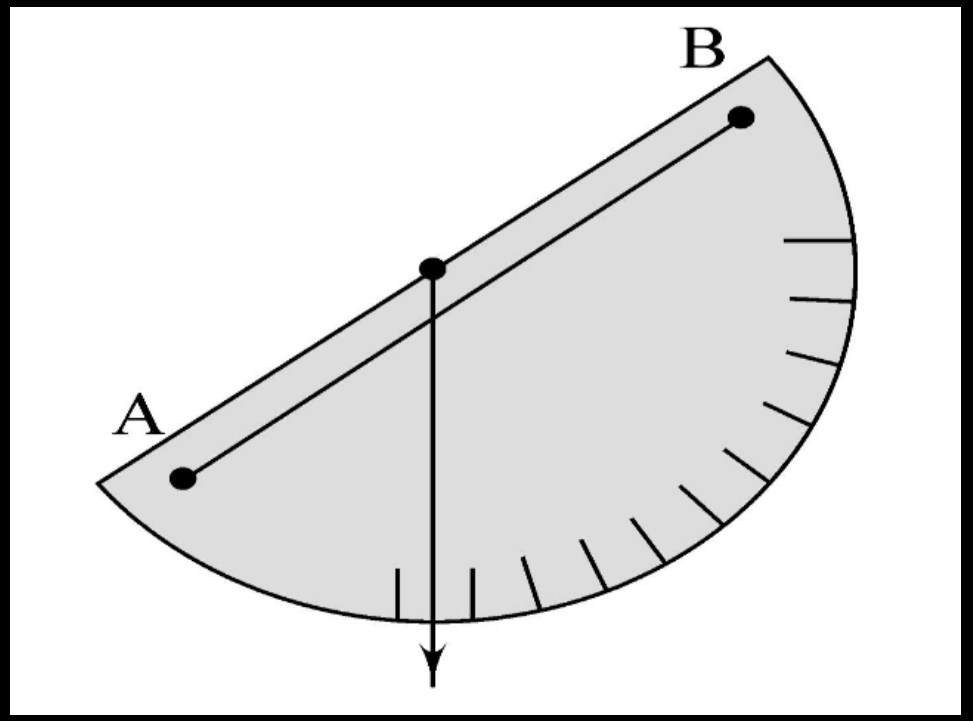
Note: The vertical distance between the end of the chain and the point vertically below it on the ground such as pP, qQ etc. should not exceed 1.8 m (man's height)

Indirect Method

- The whole length of the line →
  - divided into different sections having approximately the same slope.
- Horizontal distance → each section separately
- Total horizontal distance → summing up all the horizontal distances of different sections.

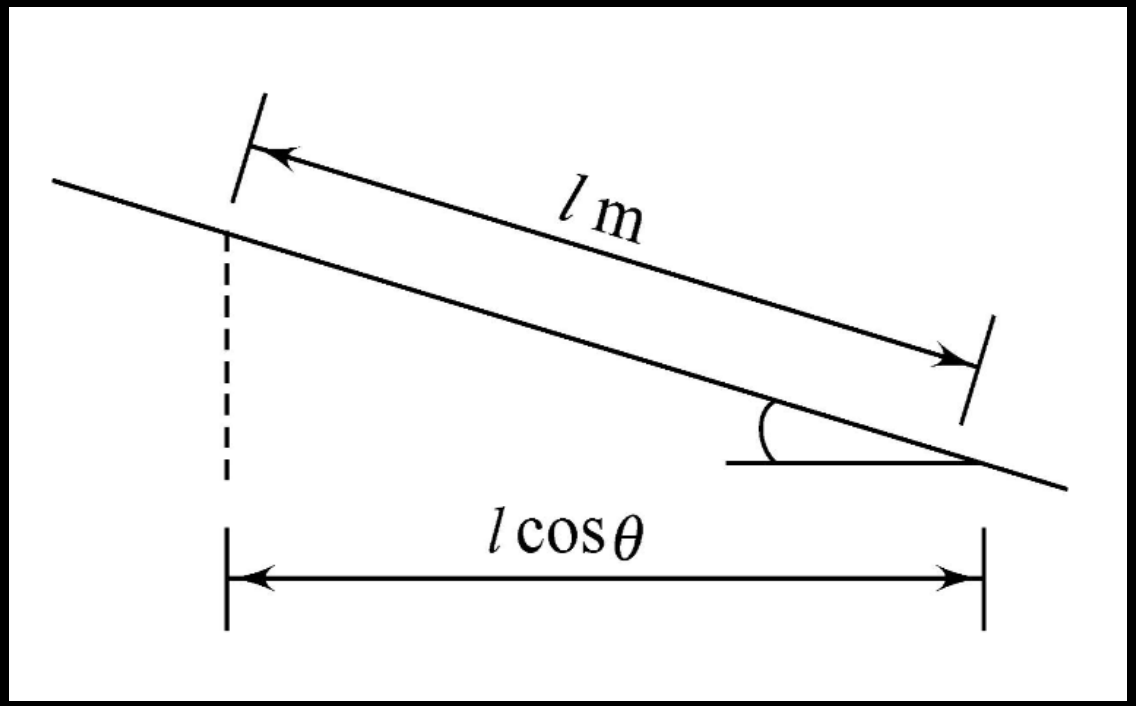
Indirect Method

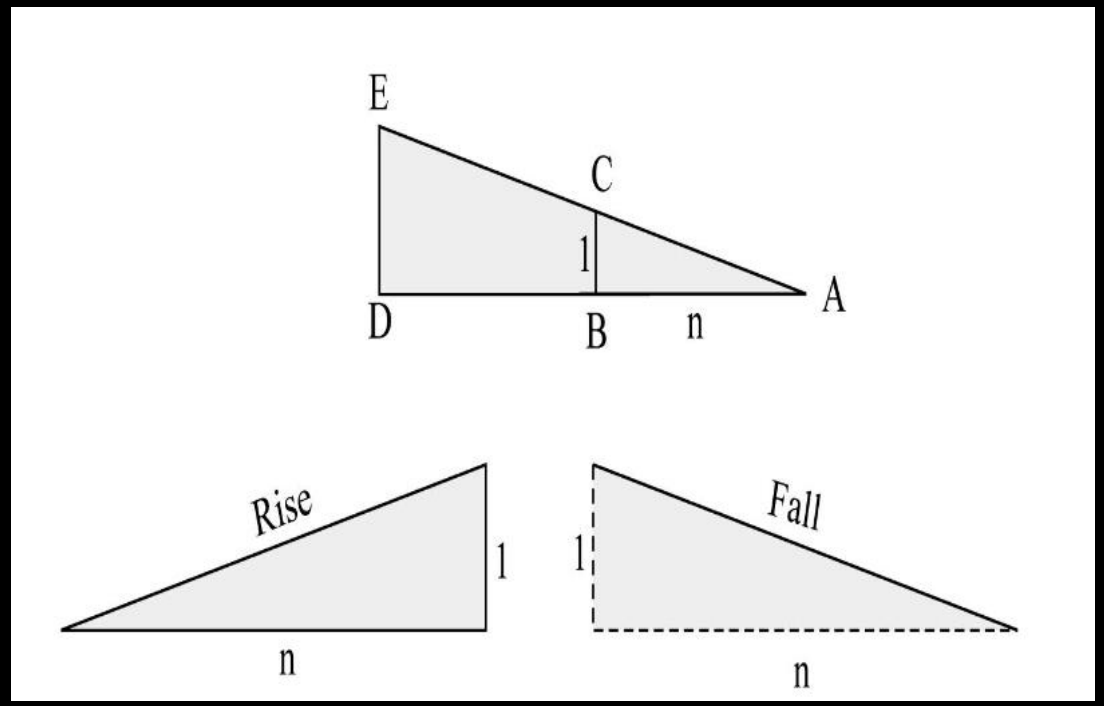
- The distance along the slope is measured and then the angle of slope i.e. angle between the sloping ground and the horizontal surface is found



Clinometer

Indirect Method

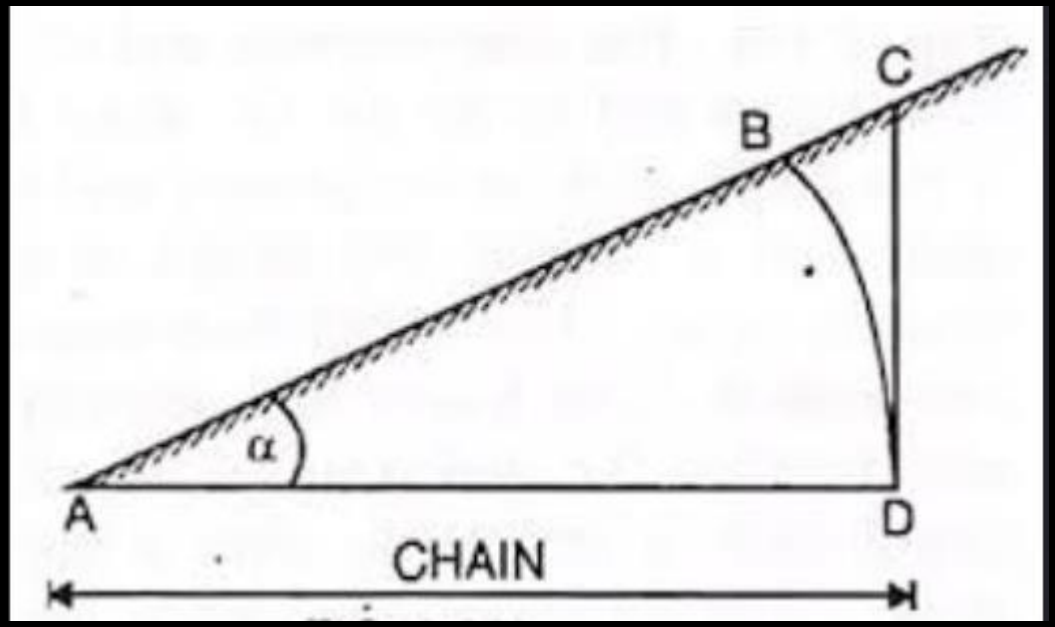




Hypotenusal allowance.

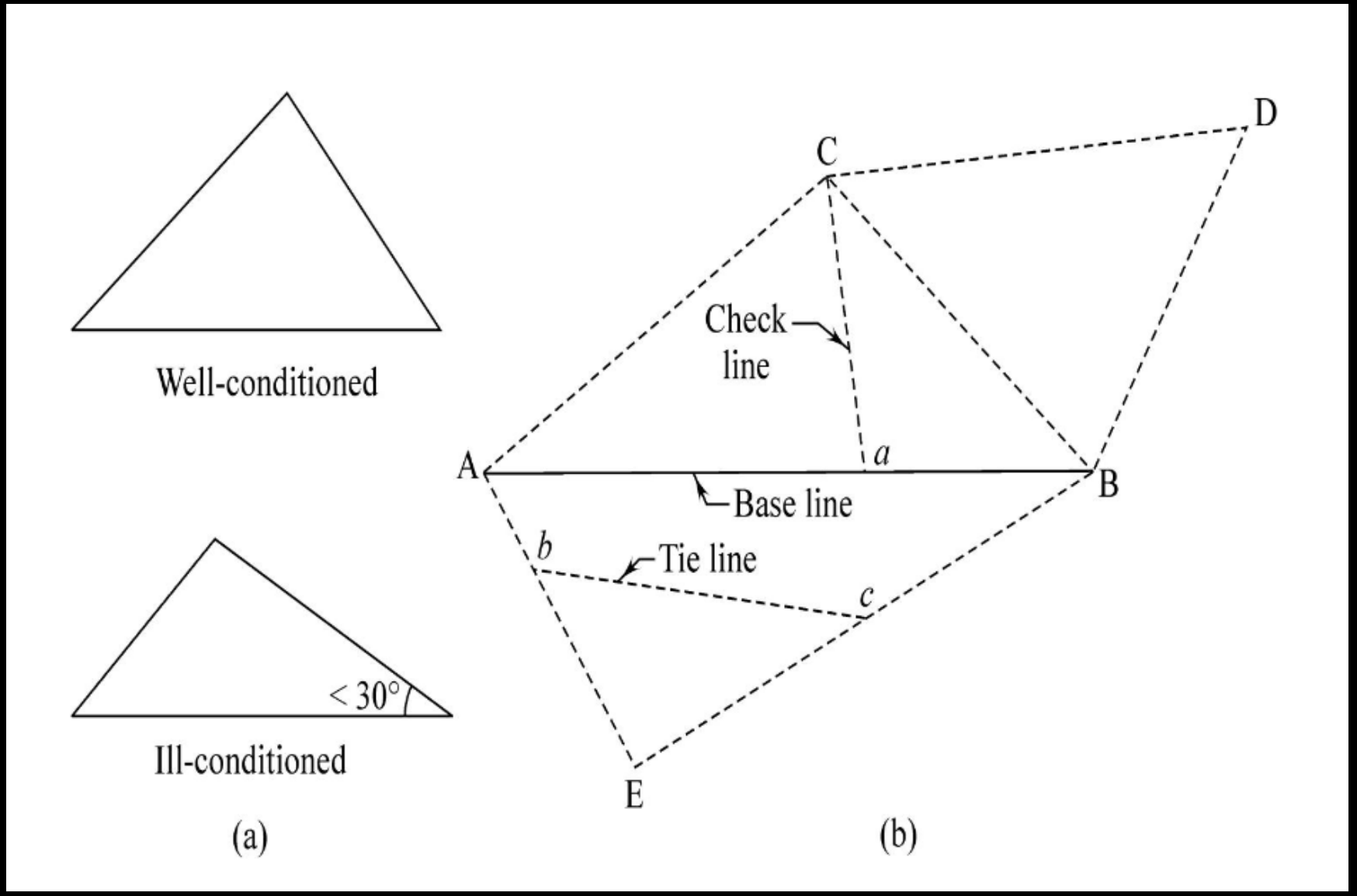
Let α = the angle of slope of the ground.

AD = AB = 1 Chain = 100 links.
Then AC = 100 sec α links and BC = AC – AB = 100 (Sec α- 1) links.



The amount 100 (sec α – 1) is known as hypotenusal allowance.

TRIANGULATION



Obstacles to chaining

- Obstacles which obstruct ranging but not chaining·
- Obstacles which obstruct chaining but not ranging·
- Obstacle which obstruct both ranging and chaining

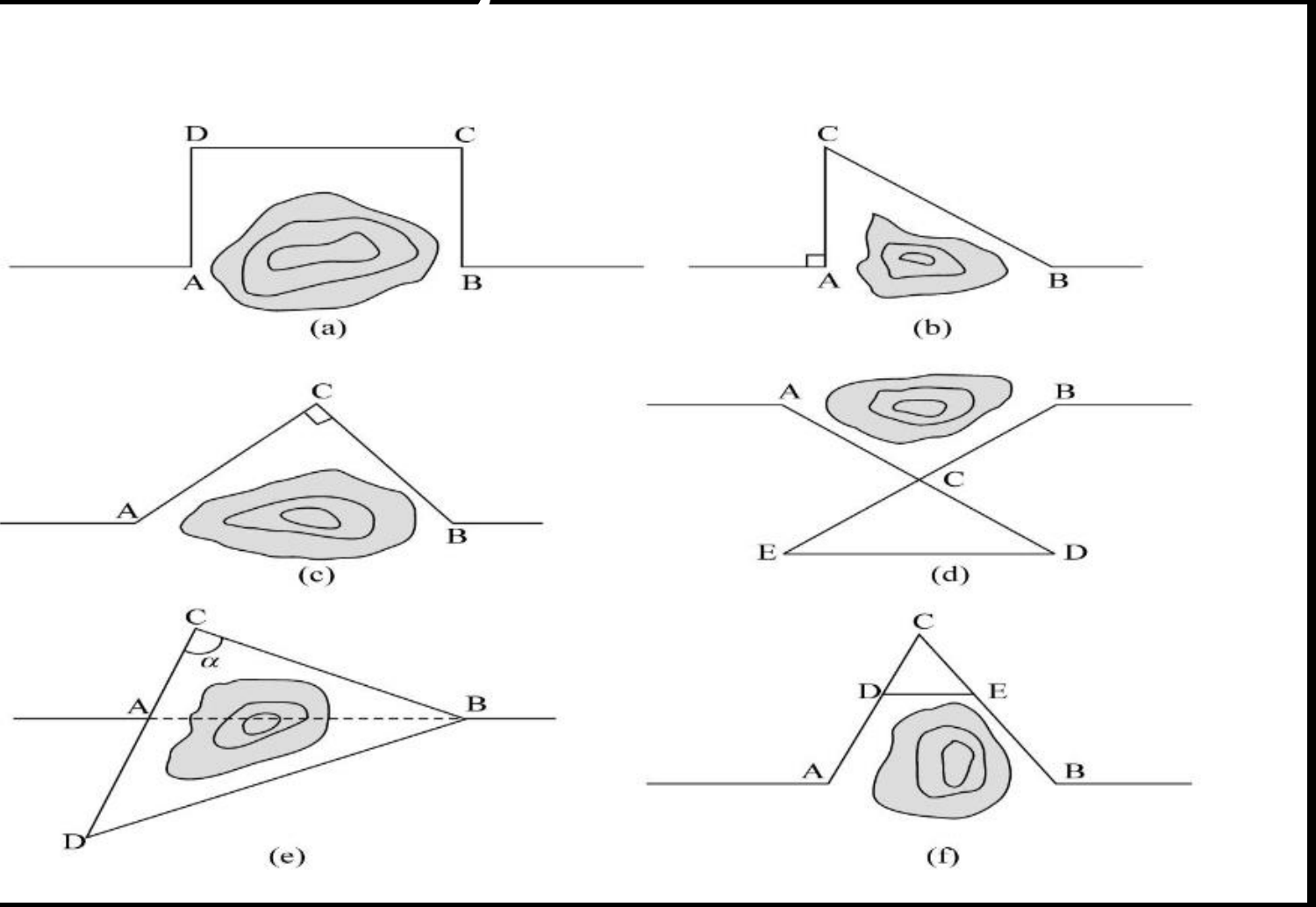
Obstacles that obstruct ranging but not chaining

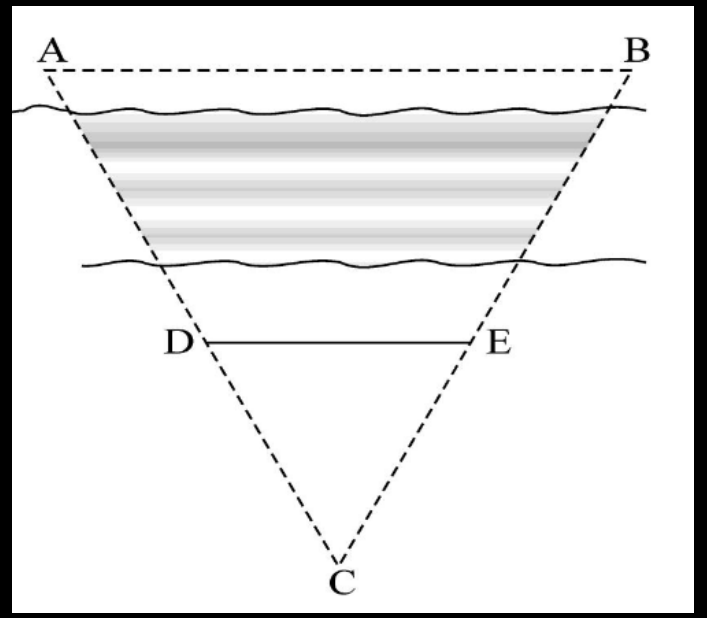
- Rising ground or a jungle area interrupts the chain line.

The end stations may be visible from some intermediate points on the rising ground.
In this case, reciprocal ranging is resorted to and the chaining is done by the stepping method.

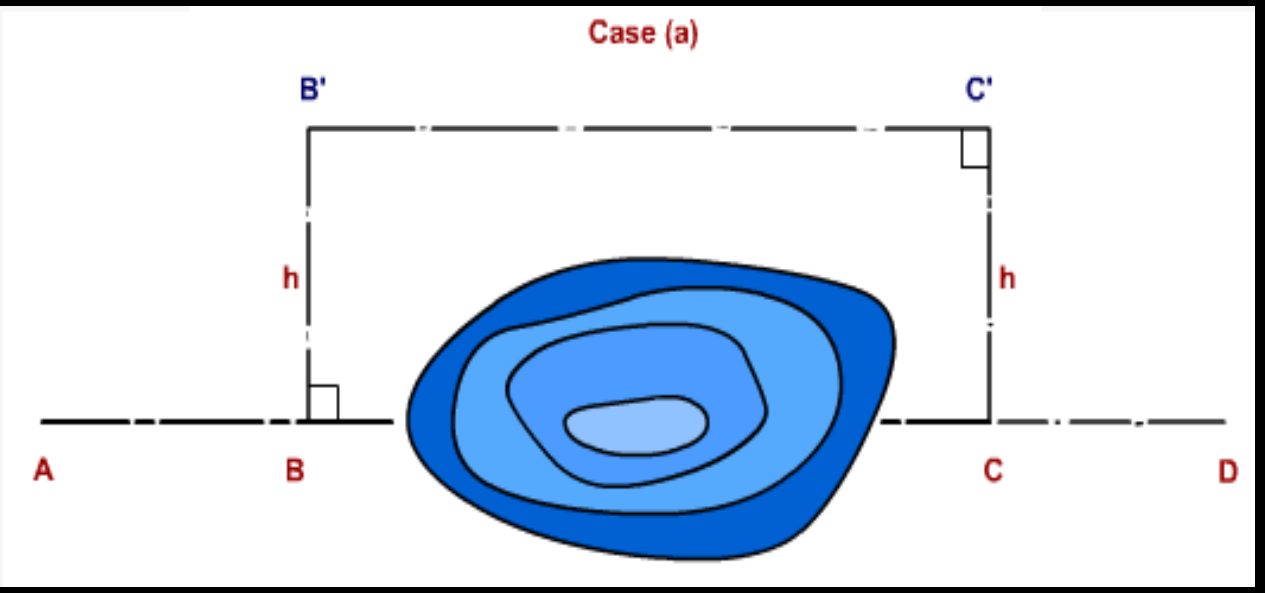
The end stations are not visible from intermediate points when a jungle area comes across the chain line.

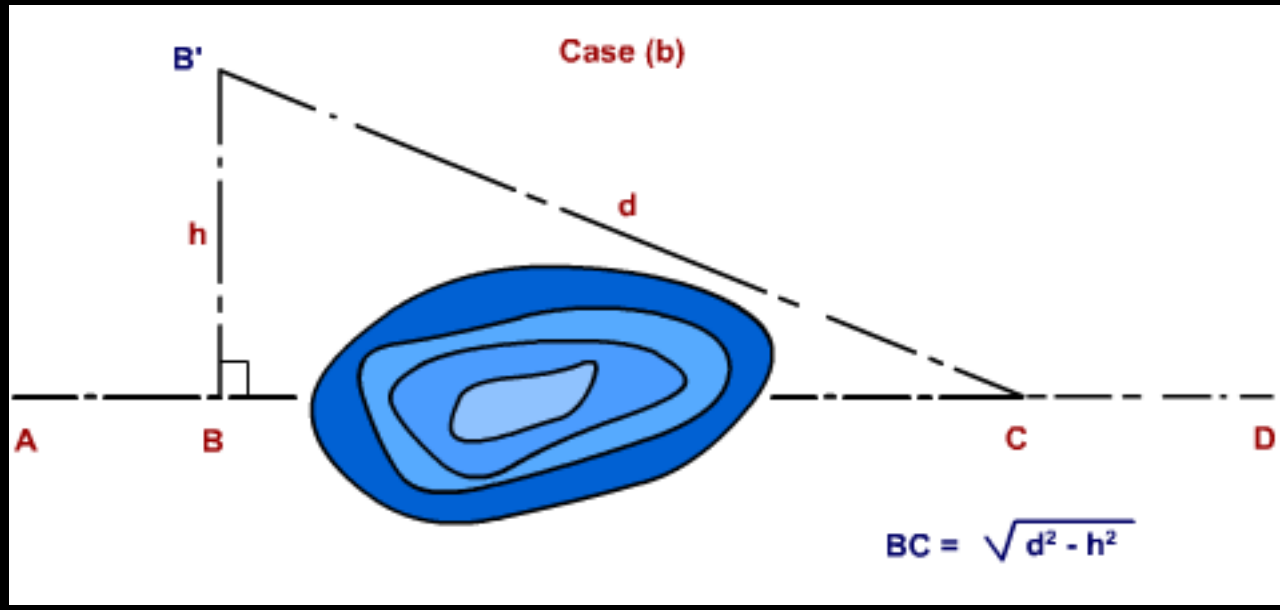
Obstacles that obstruct ranging but not chaining





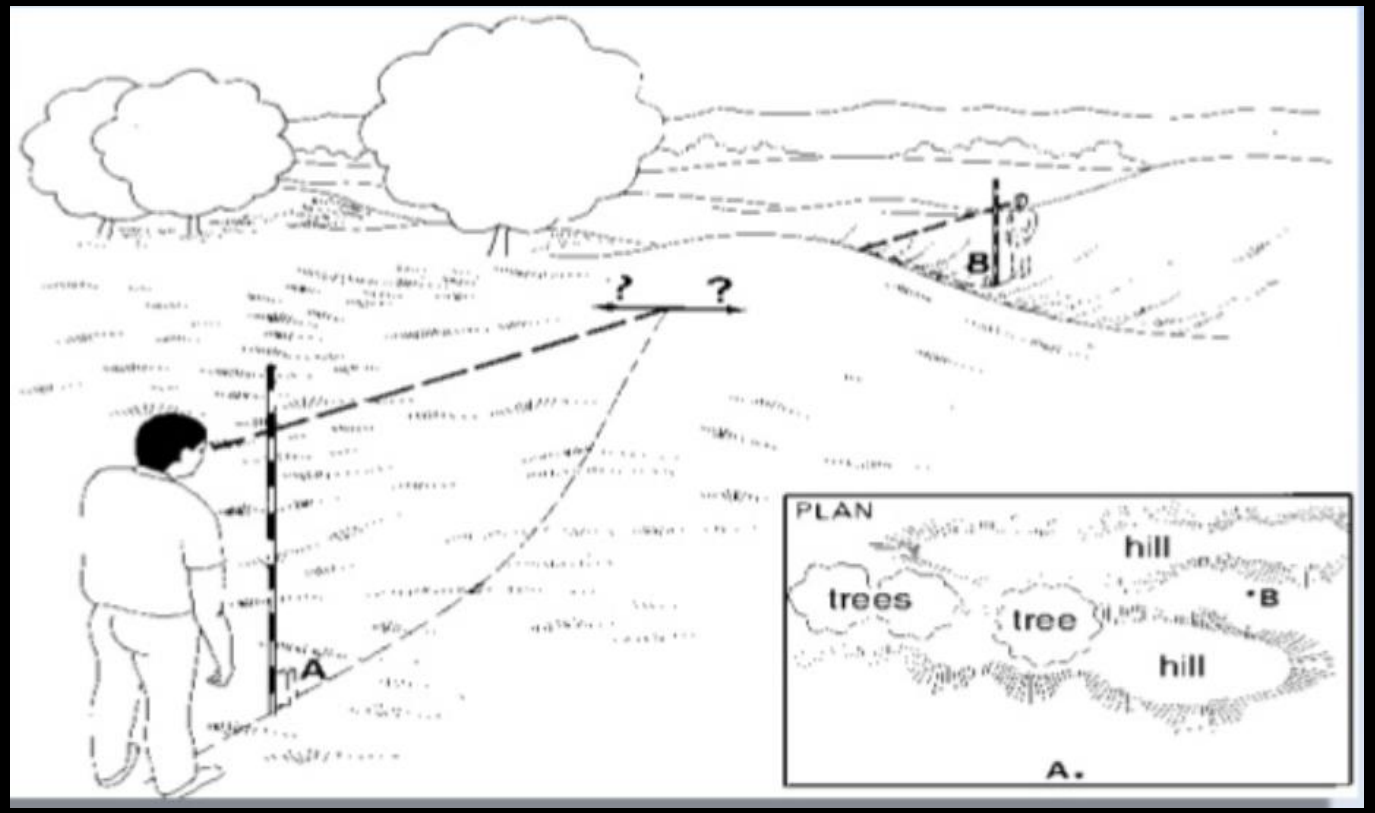
Ranging with obstacles



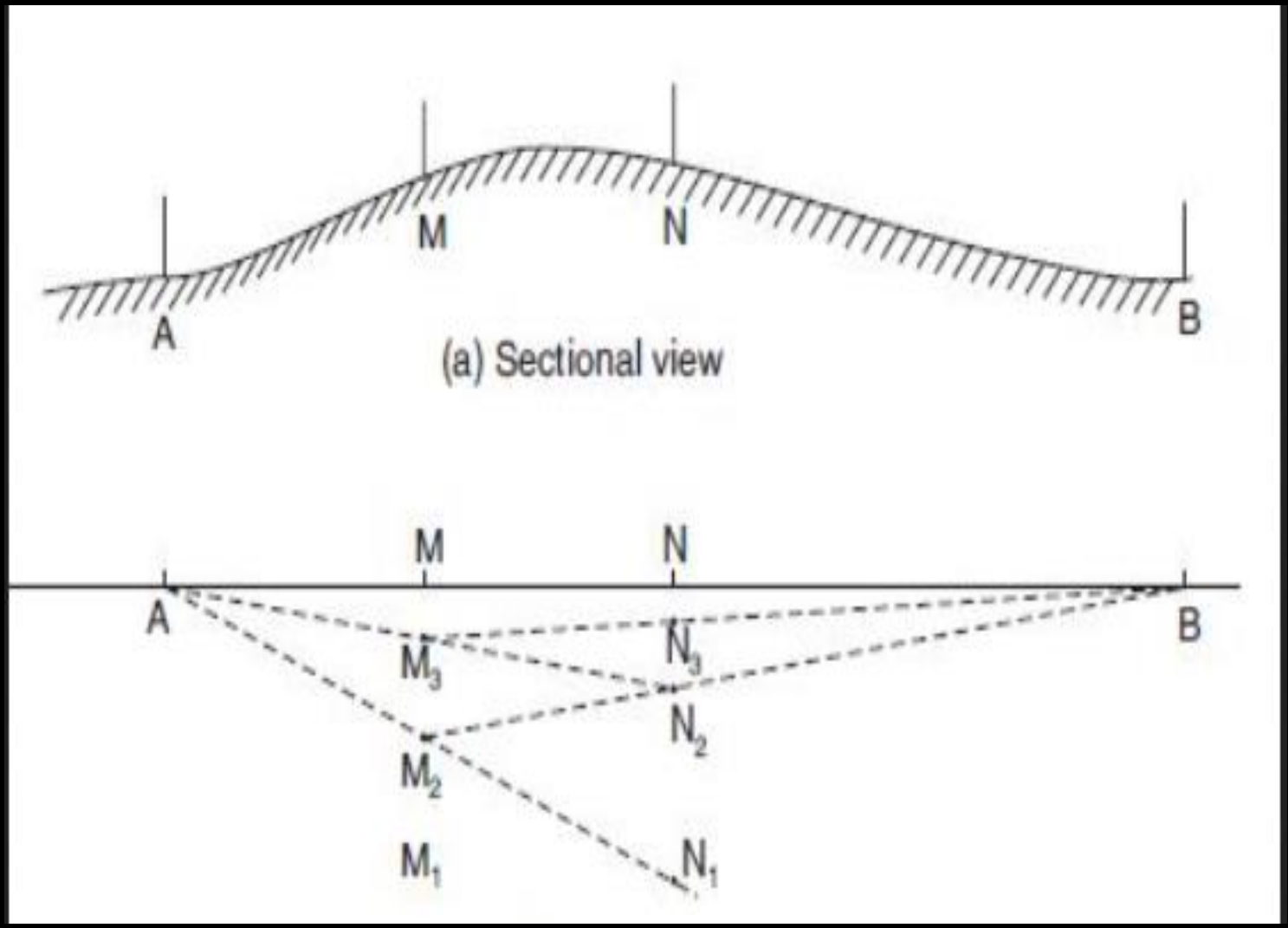


Reciprocal Ranging

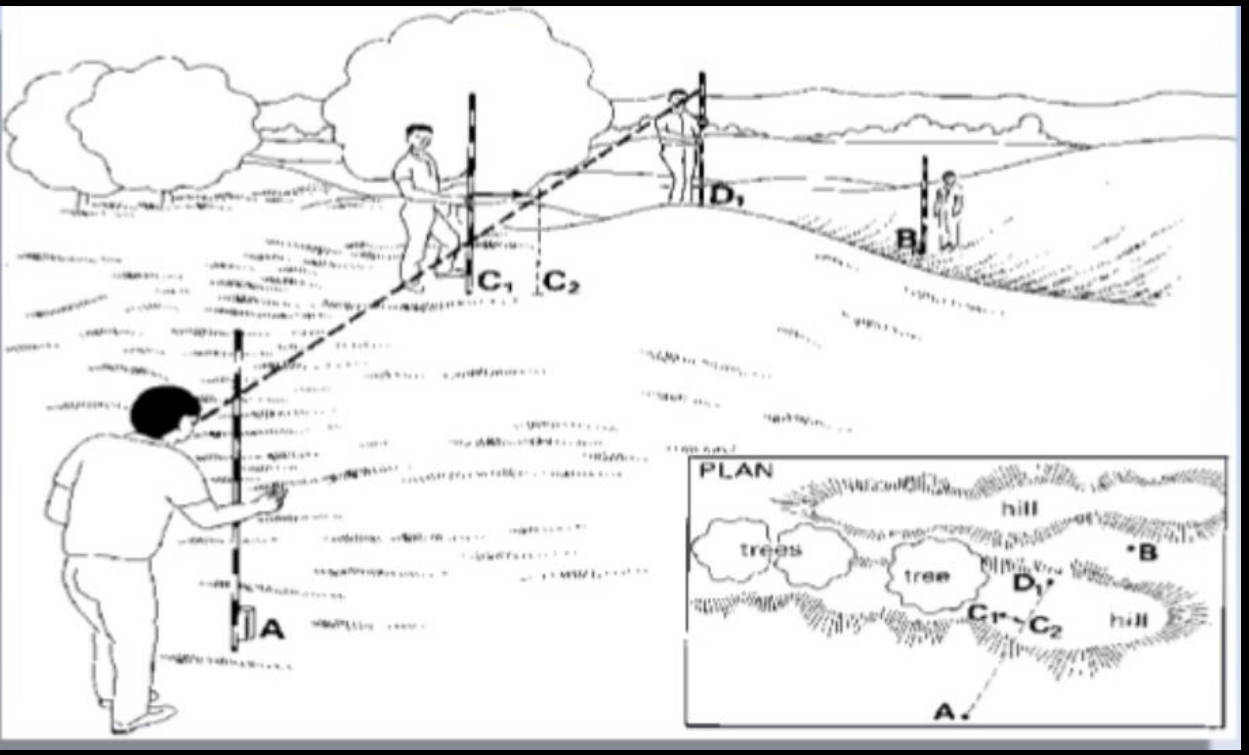
It is possible when the ends of a line are not inter-visible as in the case when a hill ground or when the distance between the stations are so large that they are not clearly inter-visible.

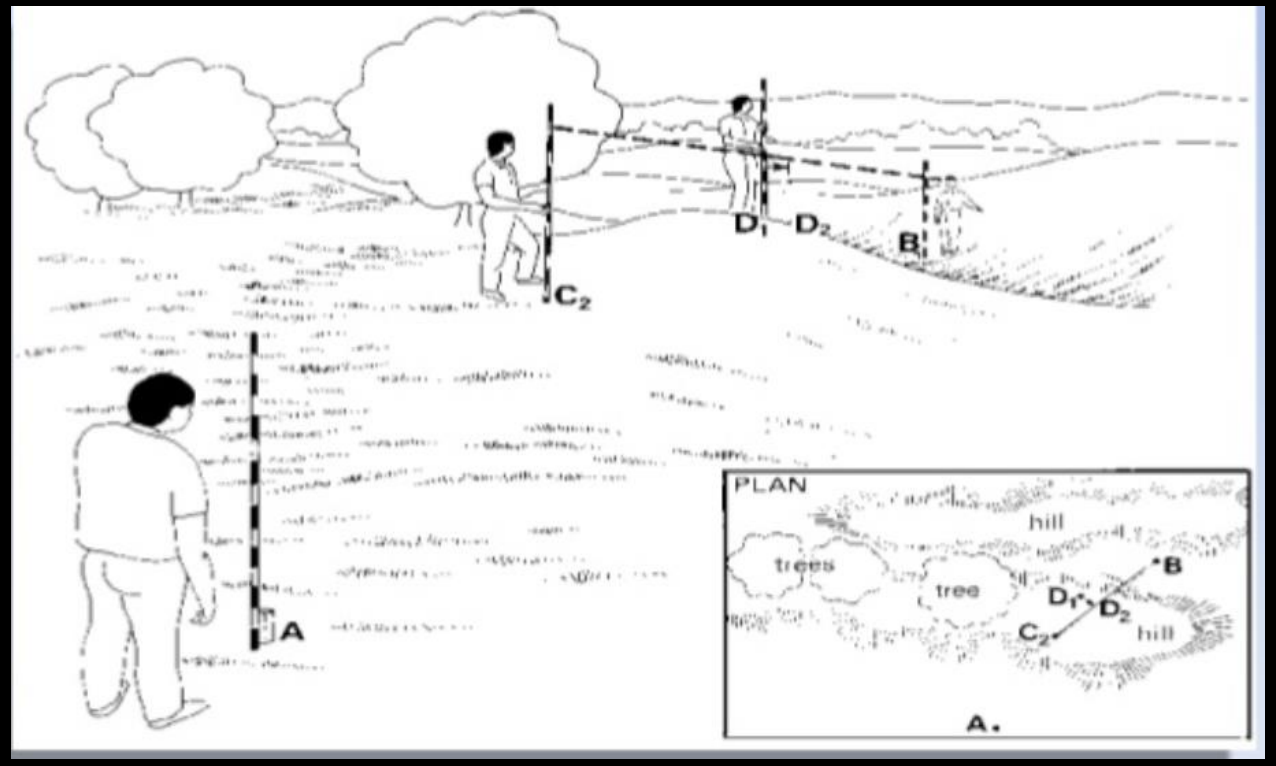


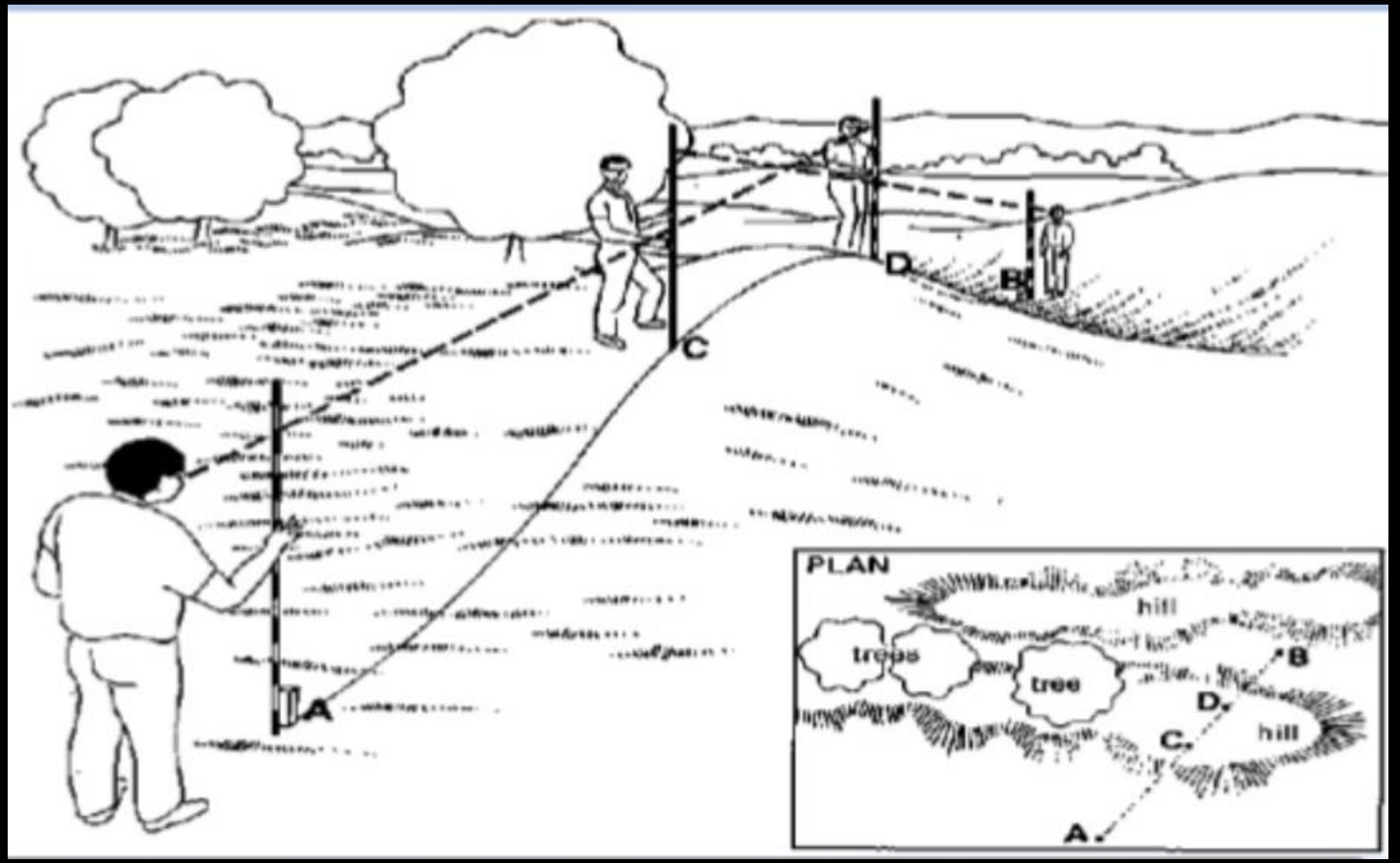
Reciprocal Ranging



Reciprocal Ranging



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