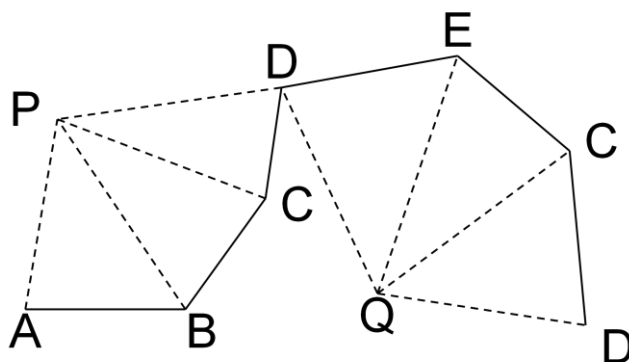
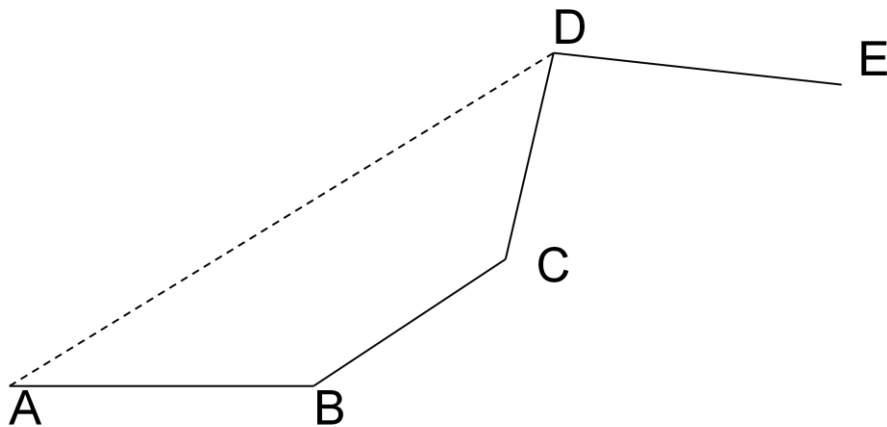


## LECTURE 24

### Checks in open traverse

- No direct check of angular measurement is available
- Indirect checks
  - ❖ Measure the bearing of line AD from A and bearing of DA from D
  - ❖ Take the bearing to prominent points P & Q from consecutive station and check in plotting.

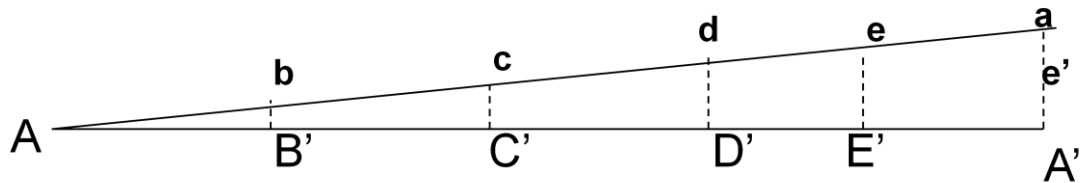
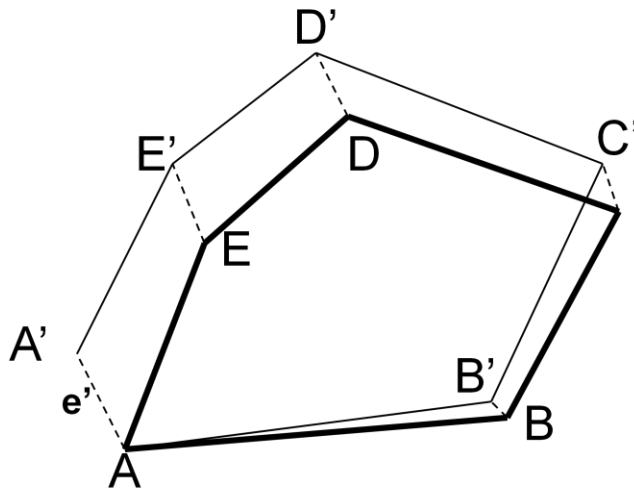


## Methods

- Compass rule(Bowditch)
  - ❖ When both angle and distance are measured with same precision
- Transit rule
  - ❖ When angle are measured precisely than the length
- Graphical method

## Graphical rule

- Used for rough survey
- Graphical version of Bowditch rule without numerical computation
- Geometric closure should be satisfied before this.



## LECTURE 25

### **PLANE TABLE SURVEYING**

#### **Principle:-**

The principle of plane tabling is parallelism, meaning that the rays drawn from stations to objects on the paper are parallel to the lines from the stations to the objects on the ground. The relative positions of the objects on the ground are represented by their plotted positions on the paper and lie on the respective rays. The table is always placed at each of the successive stations parallel to the position it occupied at the starting station. Plane tabling is a graphical method of surveying where the field work and plotting are done simultaneously and such survey does not involve the use of a field book.

Plane table survey is mainly suitable for filling interior details when traversing is done by theodolite sometimes traversing by plane table may also be done. But this survey is recommended for the work where great accuracy is not required. As the fitting and fixing arrangement of this instrument is not perfect, most accurate work cannot be expected.

#### **Accessories of Plane Table:-**

##### **1. The Plane Table:-**

The plane table is a drawing board of size 750 mm x 600 mm made of well seasoned wood like teak, pine etc. The top surface of the table is well leveled. The bottom surface consists of a threaded circular plate for fixing the table on the tripod stand by a wing nut.

The plane table is meant for fixing a drawing sheet over it. The positions of the objects are located on this sheet by drawing rays and plotting to any suitable scale.

##### **2. The Alidade:-**

There are two types of alidade.

- (i) Plain
- (ii) Telescopic.

**(a) Plain Alidade:-**

The plain alidade consists of a metal or wooden ruler of length about 50 cm. One of its edge is beveled and is known as the fiducially edge. It consists of two vanes at both ends which are hinged with the ruler. One is known as the 'object vane' and carries a horse hair, the other is called the 'sight vane' and is provided with a narrow slit.

**(b) Telescopic Alidade:-**

The telescopic alidade consists of a telescope meant for inclined sight or sighting distant objects clearly. This alidade has no vanes at the ends, but is provided with fiducially edge. The function of the alidade is to sight objects. The rays should be drawn along the fiducially ends.

**3. The Spirit Level:-**

The spirit level is a small metal tube containing a small bubble of spirit. The bubble is visible on the top along a graduated glass tube. The spirit level is meant for leveling the plane table.

**4. The Compass:-**

There are two kinds of compass.

- (a) Trough compass and
- (b) Circular box compass.

**(a) The Trough Compass:-**

The trough compass is a rectangular box made of non-magnetic metal containing a magnetic needle pivoted at the centre. This compass consists of a 'D' mark at both ends to locate the N-S direction

**(b) The Circular Box Compass:-**