



we make use of a prismatic compass. Fig. 74 shows a prismatic compass and the bearings marked in it. It is like any ordinary magnetic compass except that it has a prism, an eye vane at one end, and an object vane with a hair-line at the other.

Fig. 74. Prismatic compass



The eye vane, the centre of the compass, and the thin wire fixed in the object vane make a straight line. Both the prism and

the sight vane are hinged so that they can be folded horizontally. A magnetized needle is pivoted at the centre. One end of this magnetized needle is coloured or made distinct. The coloured end points to the magnetic north. Usually there are two rows of graduations on the disc. The inner row has its north point marked  $0^\circ$  or  $360^\circ$  and the south point  $180^\circ$ . In the outer row the  $0^\circ$  or  $360^\circ$  are marked at the south point and  $180^\circ$  at the north-point and the figures are given in reversed image. In many compasses the graduations run only from  $0^\circ$  to  $90^\circ$ . The reversed figures show up through the prism in a magnified and up-side down form (correct form) while sighting an object. The magnetized needle is fixed to the disc on the  $0^\circ$ - $180^\circ$  line. As the needle moves to point the magnetic north, the disc also moves along with it. So that when we look through the prism, we read the angles that the object sighted makes with the magnetic north.

To facilitate the sighting of luminous objects, the prism is fitted with a pair of coloured glasses which can be fixed on the line of sight. In addition to these a sliding plane mirror is also fitted to the frame of the sightvane. This mirror can be adjusted to any angle and thus the bearings of the objects which lie too far below or high up the plane of the compass can be conveniently read.

The angles read with the help of a prismatic compass are called bearings. A bearing is an angular measurement with respect to a reference direction. If the reference direction is magnetic north, the bearings are called magnetic bearings ; if it is true north, then true bearings. In the case of the prismatic compass survey, we deal with magnetic bearings only.

There are two systems of expressing bearings: (1) Whole circle system (W.C.S) and (2) Quadrantal System. The whole circle system runs from  $0^\circ$  to  $360^\circ$ . This system is the one which is used in most of the prismatic compasses and also one which has been explained earlier. In the quadrantal system the bearings run from  $0^\circ$  to  $90^\circ$  and are preceded by N or S and followed by E or W to indicate the quadrant to which they belong. The first quarter of the circle is NE. If  $50^\circ$  bearing is to be shown, it will be shown as N  $50^\circ$  E. The second is SE, the third SW and the last NW.