

Prism

Minimum Deviation

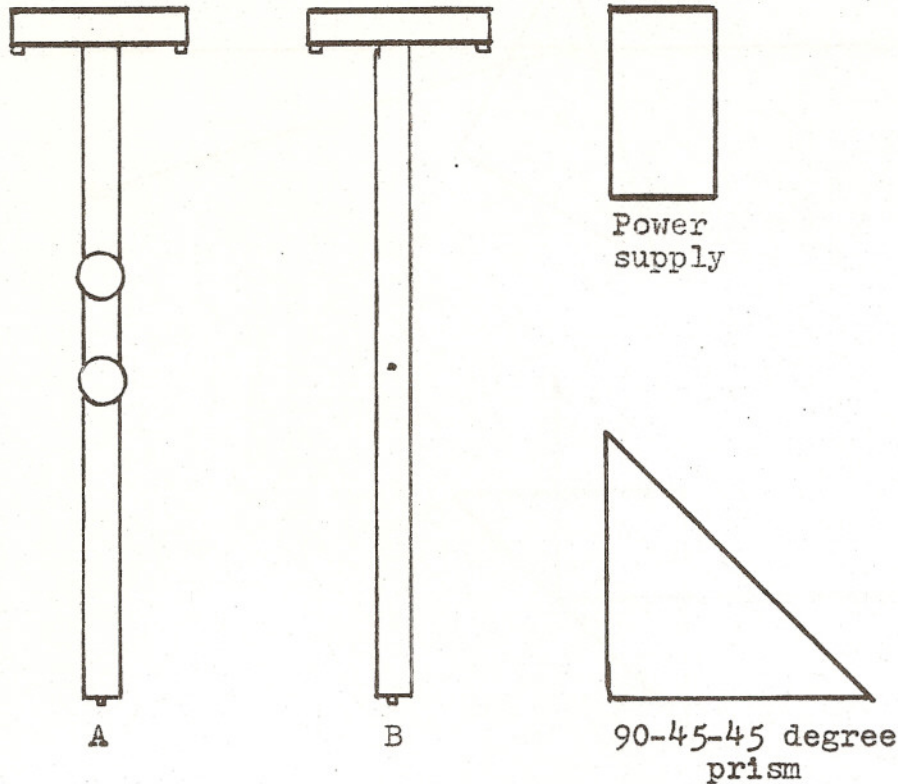
Total Reflection

Chalkboard Optics

A & B: E-6 End

All Else: I-3 S-1

1A (10-ft)



Hang power supply at extreme left end of rod below chalkboard. Hang support A from the two rods, somewhat to the right of the power supply, and support B approximately 50 cm to the right of A. Mount the 90-45-45 degree prism on support B. Darken the room as desired. (The darker the room the better the light rays show up, but some light is helpful in seeing the apparatus.)

Although the lecturer will probably wish to improvise frequently, the following basic demonstrations are suggested:-

1. Direct a single ray from source S onto one face of the prism as indicated in Fig. 1 (see back of sheet). Observe:- (a) The deviation of the ray at each face; (b) The over-all angle of deviation; (c) The minimum angle of deviation.
2. Shine a single ray on the prism as indicated in Fig. 2, and note the total internal reflection resulting in 90° deviation.
3. Shine a single ray on the prism as indicated in Fig. 3, and note the two internal reflections resulting in 180° deviation.
4. Shine two parallel rays, I and II from S_1 and S_2 , on the prism as indicated in Fig. 4. Observe the total internal reflections resulting in reversal of positions of the two parallel rays.

(over)

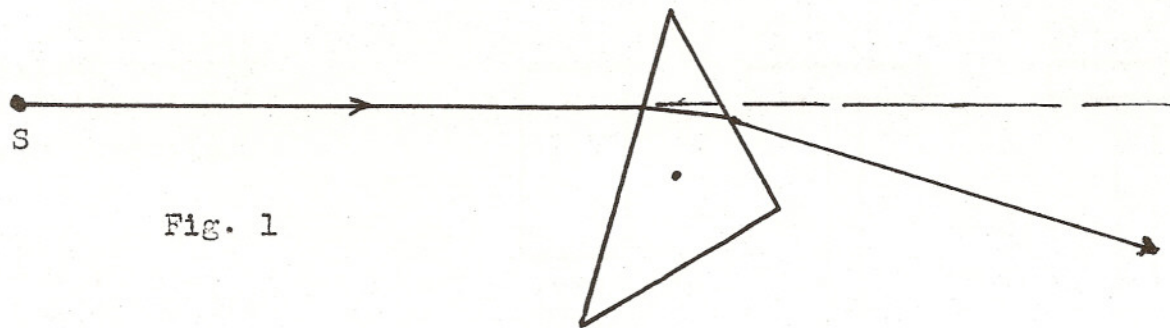


Fig. 1

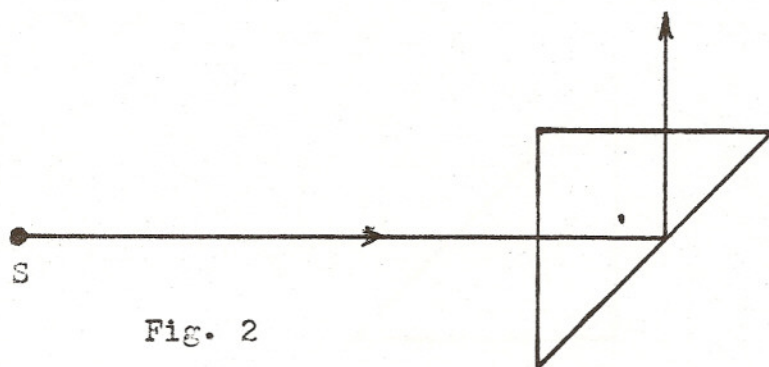


Fig. 2

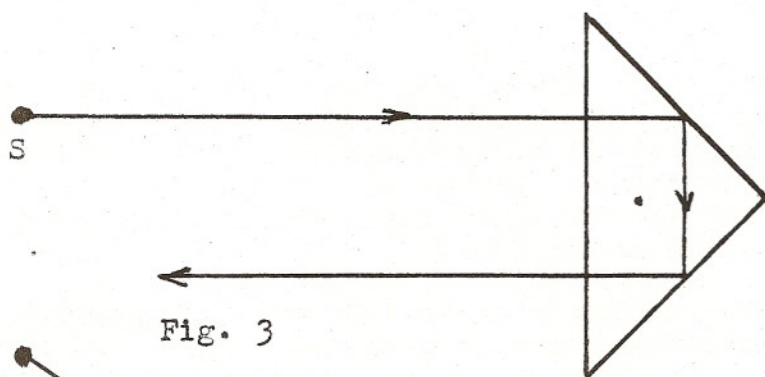


Fig. 3

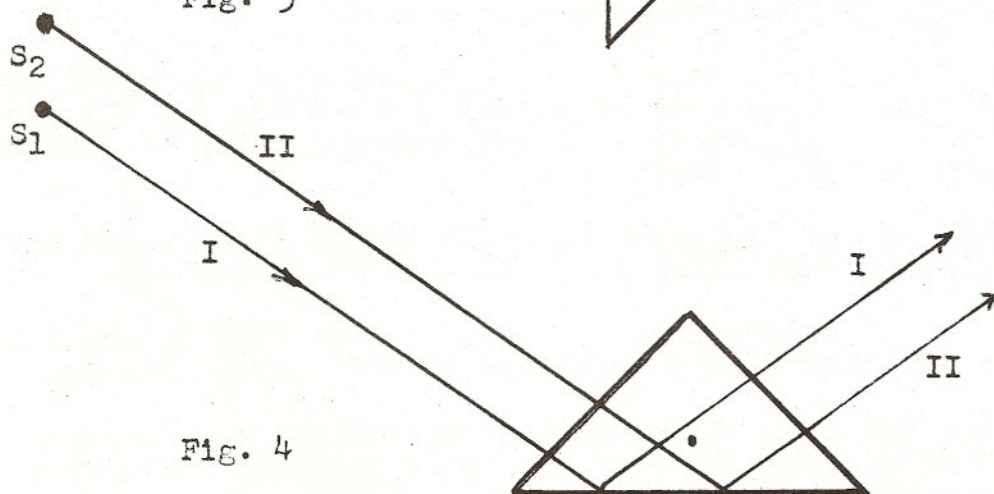


Fig. 4