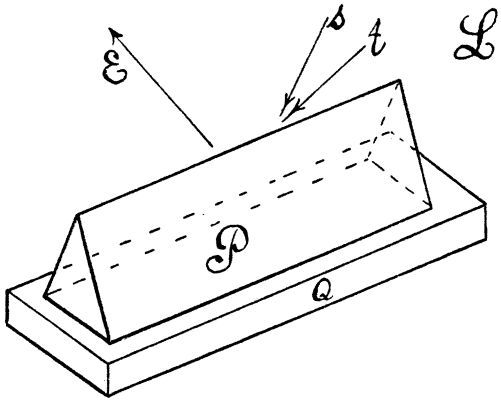
ploy strictly accurate surfaces; so that the prisms with which grandfather used to decorate his gas fixtures will, as a rule, suffice admirably. In the figure P is such a prism (truncated) on a plate of obsidian Q, the long edges being normal to a white window curtain at L near by, illuminated with sun light or day light; or any light toward the front, overhead, is good.

The rays that are wanted, s, will enter symmetrically at a mean angle of about 30° to the vertical and after reflection at the base of the prism and the plate, reach the eye in the direction E. The rays totally reflected, t, come from a greater angle to the vertical and are not wanted.



The limit of total reflection here (also easily recognized) is usually a sharp parabolic or cuspidal apex. The light seen through either face enters by the opposed face. On looking down from a steeper angle and with properly selected faces, brilliant groups of complete confocal ellipses (major axis one half to over two inches), of confocal hyperbolae may be seen in each of the roof faces. To find advantageous combinations, the three faces of each prism should be examined in succession, and it is well to rub P on Q to improve the contact. On moving the eye fore and aft or using different pressures, any type of ellipse with white or colored disc may be produced at pleasure. It is usually preferable to use a shorter plate Q than is given in the figure, about one half the length of the prism.

When well produced the ellipses may also be seen by side light, with different patterns in the two roof-faces.

The type of interference figure clearly depends on micrometric differences of the faces in contact. The ellipses are Newton's rings modified by the color dispersion of the glass. The hyperbolae, however, are about equally frequent; but their character is less easily stated. They probably originate in cylindrics. The case of the 45°–90° prism, with the right angled faces respectively horizontal (on the plate) and vertical, is also interesting; for here the ellipses are apt to be *circles* with each of the two groups seen after two reflections, one in each of the orthogonal faces. The light should enter nearly normal to the oblique face. As it leaves in the same way, one should observe through a horizontal slot in a white screen.

I may add a similar observation: If a cylindrical lens (say 1 diopter) is placed on a plate and illuminated with homogeneous light, the interference pattern consists of a succession of equidistant arrow heads along the line of contact, all pointing in its direction. Now these are the very forms observed in the interferences of reversed spectra along the line of coincidence of spectra, except that the latter are apt to be far narrower than the former. It seems therefore, as if the effect of color variation in one case and of the cylindric increase of thickness of air film, in the other, were formally capable of like treatment.

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