

Secondary Images From Spherical Mirrors

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The ordinary spherical mirrors of the physics laboratory, both concave and convex, usually have plane surfaces in front being silvered on the back curved surface. The front plane surface acting as a plane mirror reflects some of the light coming from the silvered spherical surface back to the silvered surface which in turn reflects it out once more. In this manner an image is formed not only after one reflection but also after three reflections. The secondary images so formed have much less intensity than the primary images but in a well darkened room they are of sufficient intensity that a beginning student might mistake them for primary images.

The formation of these secondary images may be worked out readily as due to a combination of a spherical mirror and a plane mirror. The effective focal length of the combination is equal to one-half the focal length of the spherical mirror alone.

The following figures which are self-explanatory show some of the possibilities of images formed after multiple reflections.



