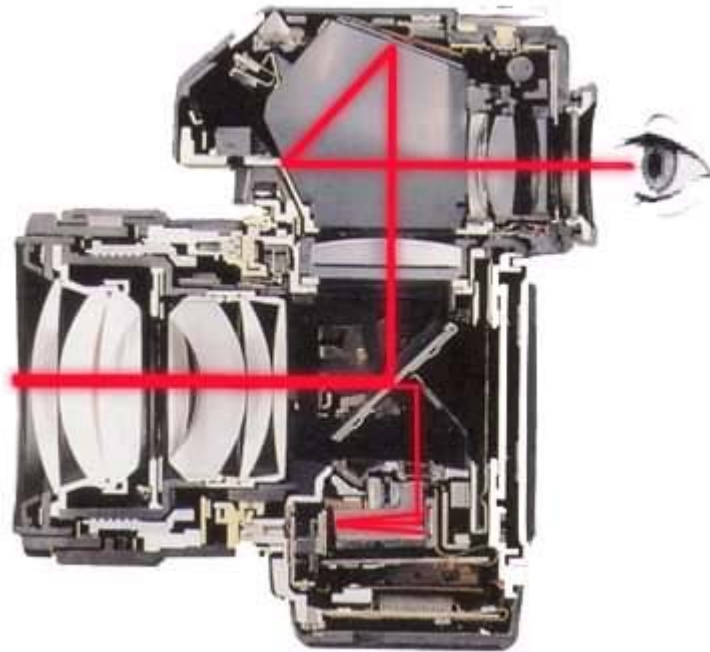
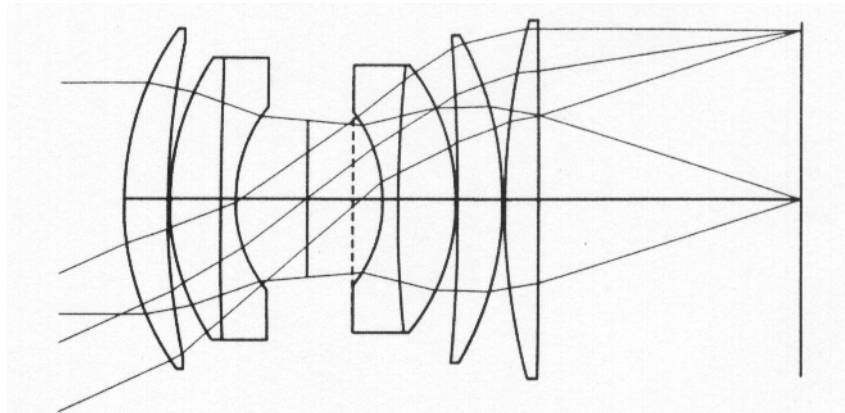


Lab 12: The Camera Lens—Opto-Mechanical



"Camera Anatomy"

(from http://www.ted.photographer.org.uk/photoscience_camera_anatomy.htm)



50mm f1.8 SLR camera lens.
(from Lens Design, Laikin)

Set the camera lens to be focused at infinity, ∞ , with a focal length of 28 mm:

- * Use the nodal slide to measure the cardinal points of the SLR camera lens. Reference your measurements from the vertices of the lens.
- * Without changing the lens, measure the distance from the rear vertex to the mounting flange.

Set the camera lens to be focused at infinity, ∞ , with a focal length of 70 mm:

- * Use the nodal slide to measure the cardinal points of the SLR camera lens. Reference your measurements from the vertices of the lens.
- * Without changing the lens, measure the distance from the rear vertex to the mounting flange.

Remove the lens and mount the camera body on the nodal slide. Use the microscope to measure:

- * the distance from the mounting flange to the film plane (flip mirror up).
- * the distance from the mounting flange to the focusing screen (flip mirror down).
- * Compare the two numbers and discuss the result.

Use your data to calculate:

- * The distance from P* to the focal plane, by adding up δ^* , the distance from V* to the mounting flange, and the distance from the mounting flange to the film plane (for the 28mm F.L. lens).
- * The distance from P* to the focal plane, by adding up δ^* , the distance from V* to the mounting flange, and the distance from the mounting flange to the film plane (for the 70mm F.L. lens).
- * Make a drawing showing the locations of P*, V*, the mounting flange, the film plane, and the focal plane for both the 28mm and the 70mm F.L. lens.
- * Does the focal plane coincide with the film plane in each case?