

Figure 4.24 Illustrating astigmatism. Meridional rays PA and PA' are imaged at P_1 , sagittal rays PB and PB' are imaged at P_2 . (After A. C. Hardy and F. H. Perrin, *Principles of Optics*, McGraw-Hill, New York, 1932; by permission of McGraw-Hill Book Company, Inc.)

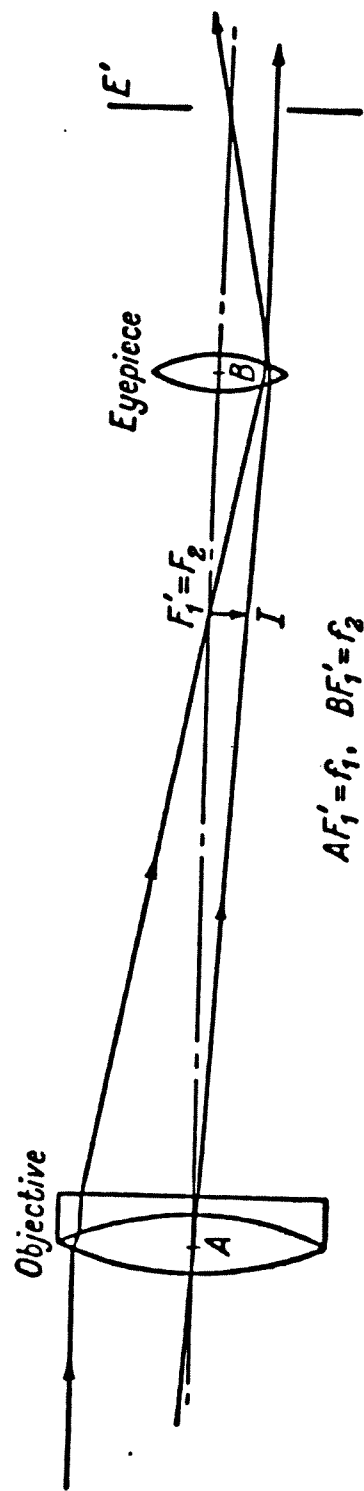


Fig. 6.7. The astronomical refracting telescope.

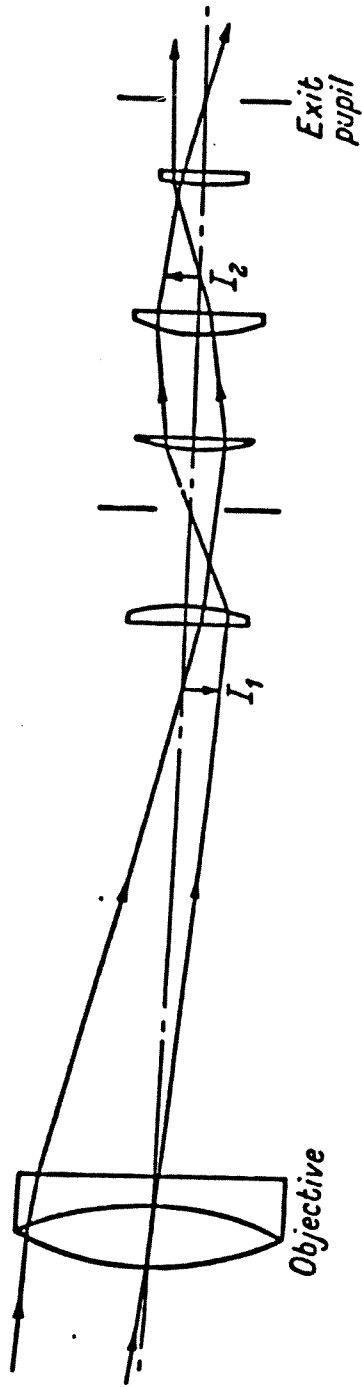


Fig. 6.11. The terrestrial telescope.

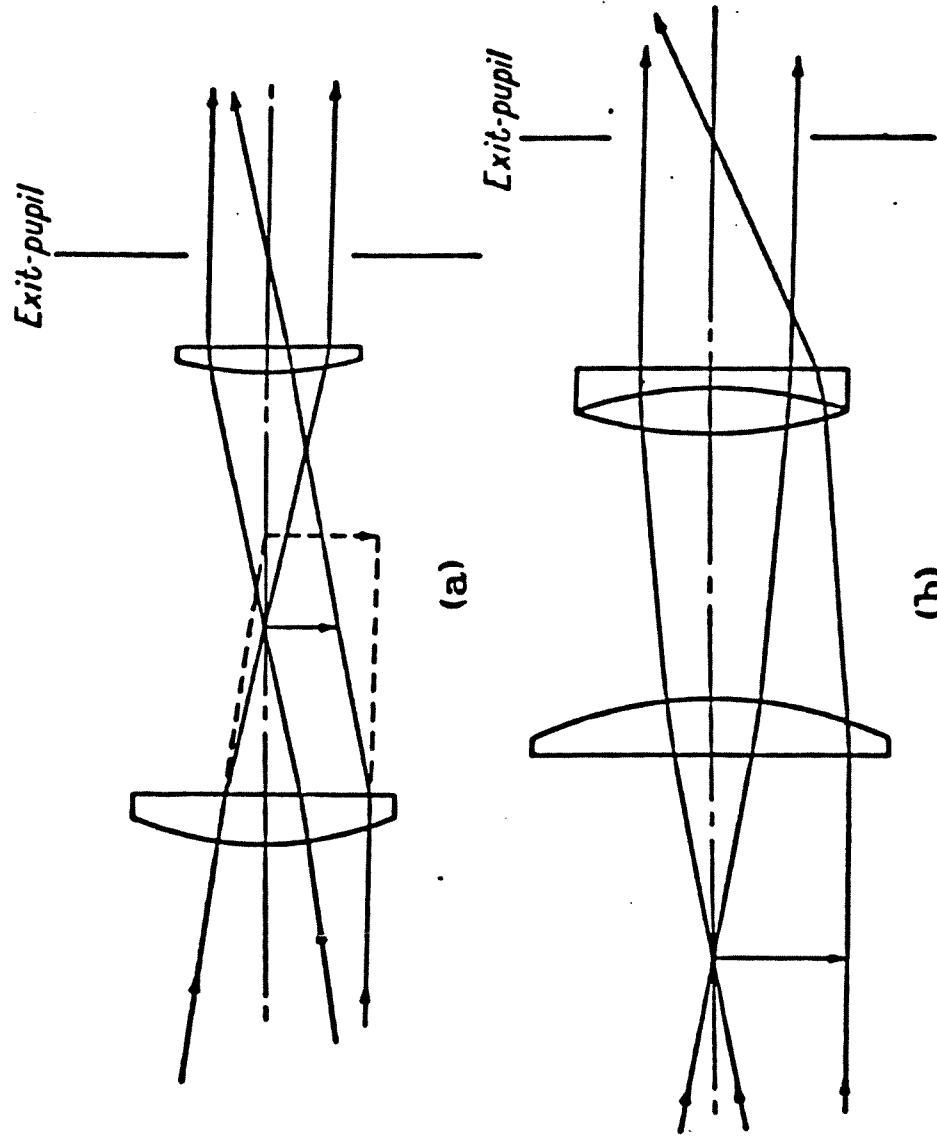
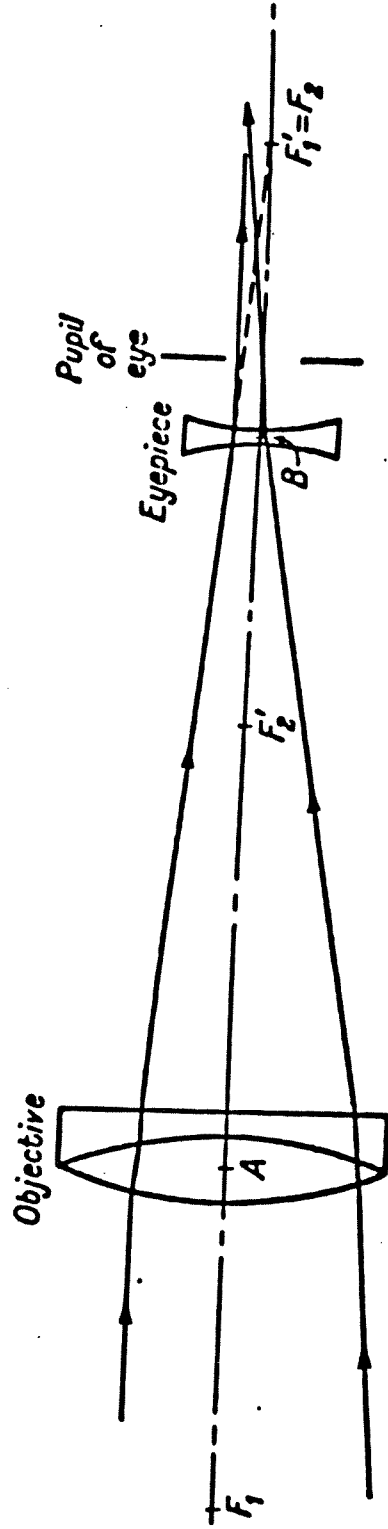


Fig. 6.14.

(a) The Huygenian eyepiece. (b) The Kellner eyepiece.



$$AF_1 = f_1, AF_2' = f_1', BF_2 = f_2, BF_2' = f_2'$$

Fig. 6.8. The Galilean telescope.

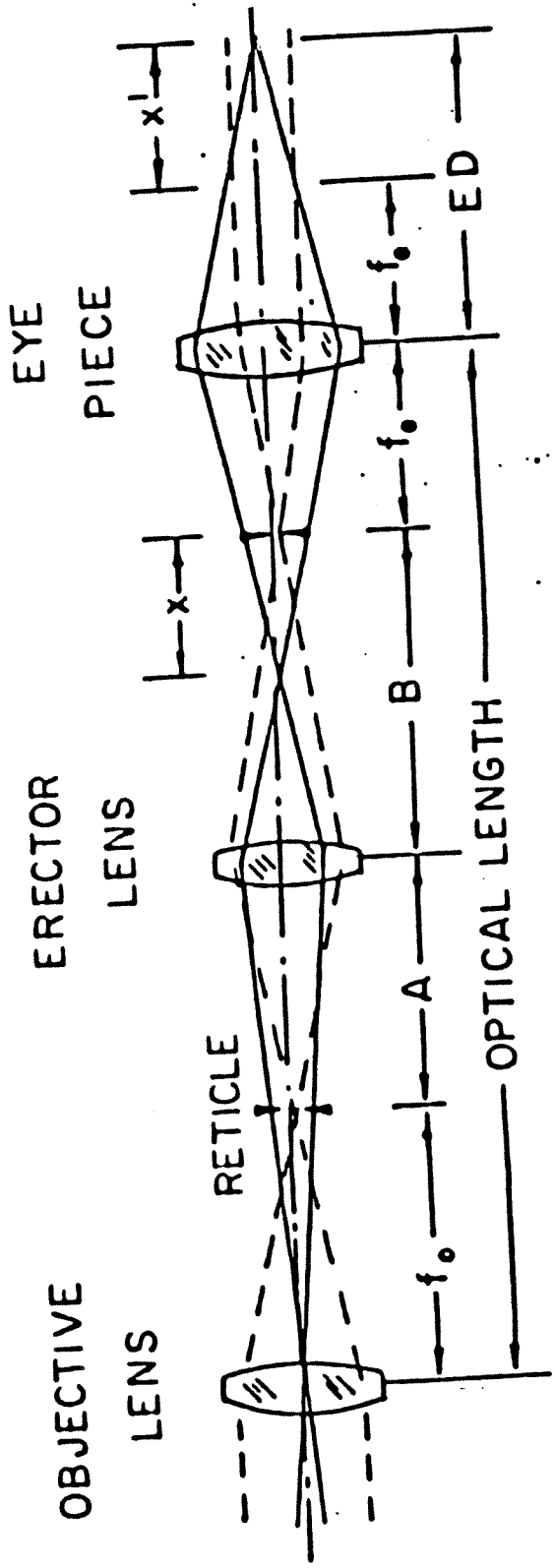
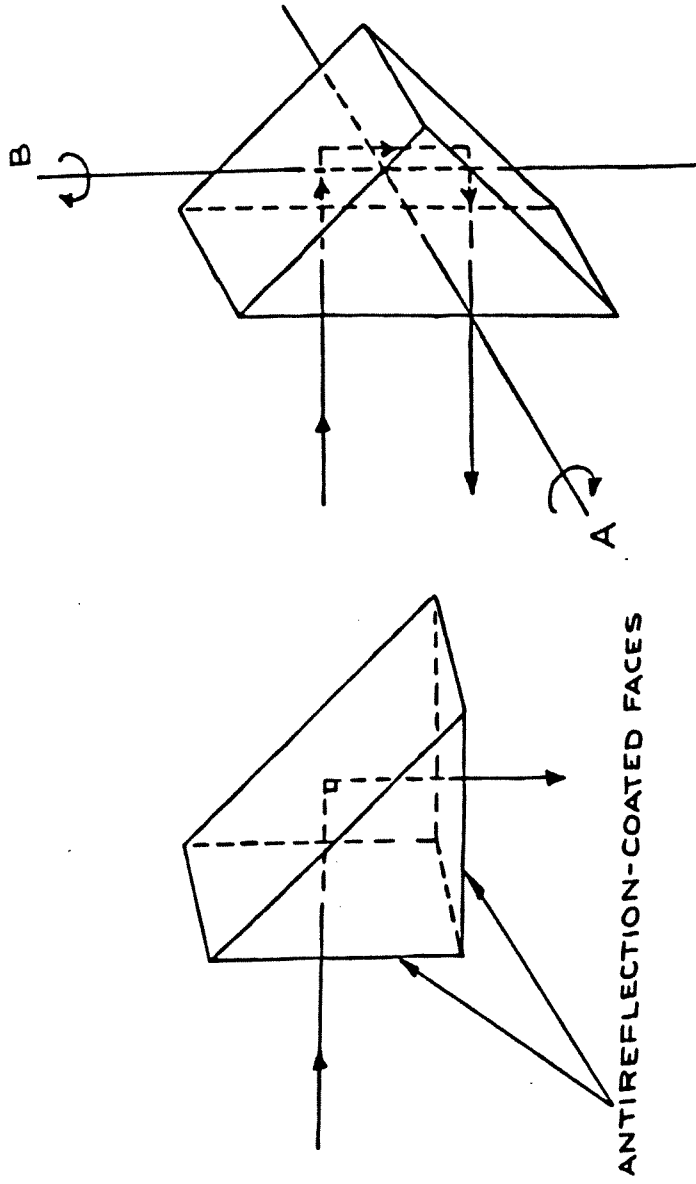


FIG. 3. Optical diagram of a rifle scope.

Figure 4.31 (a) Right-angle prism used for 90° beam deflection; (b) right-angle prism used for retroreflection. Incident and reflected ray are parallel only if the incident beam is in the plane of prism cross section; however, in this orientation, retroreflection is independent of orientation about the axis *A* within a large angular range.

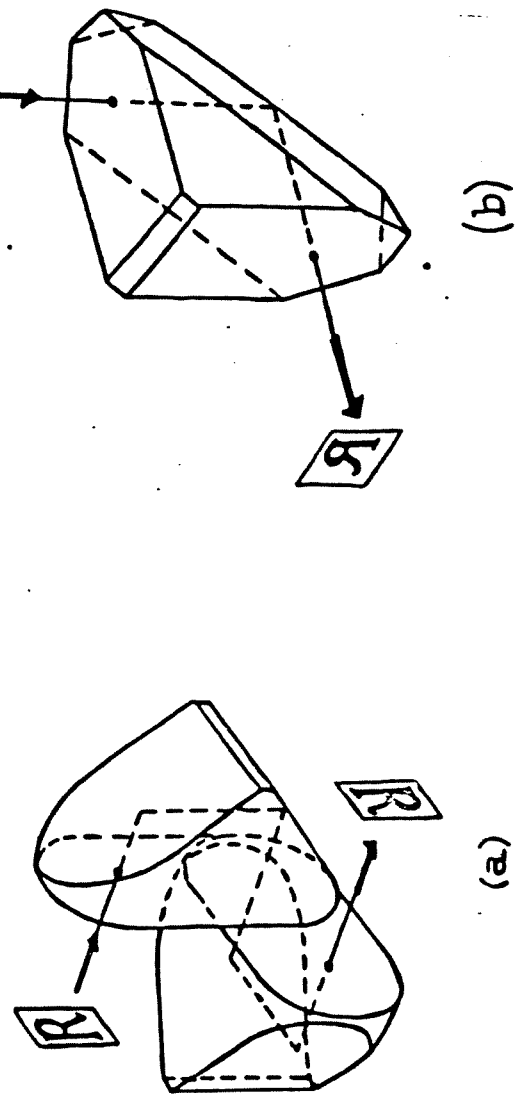


ANTIREFLECTION-COATED FACES

(a)

(b)

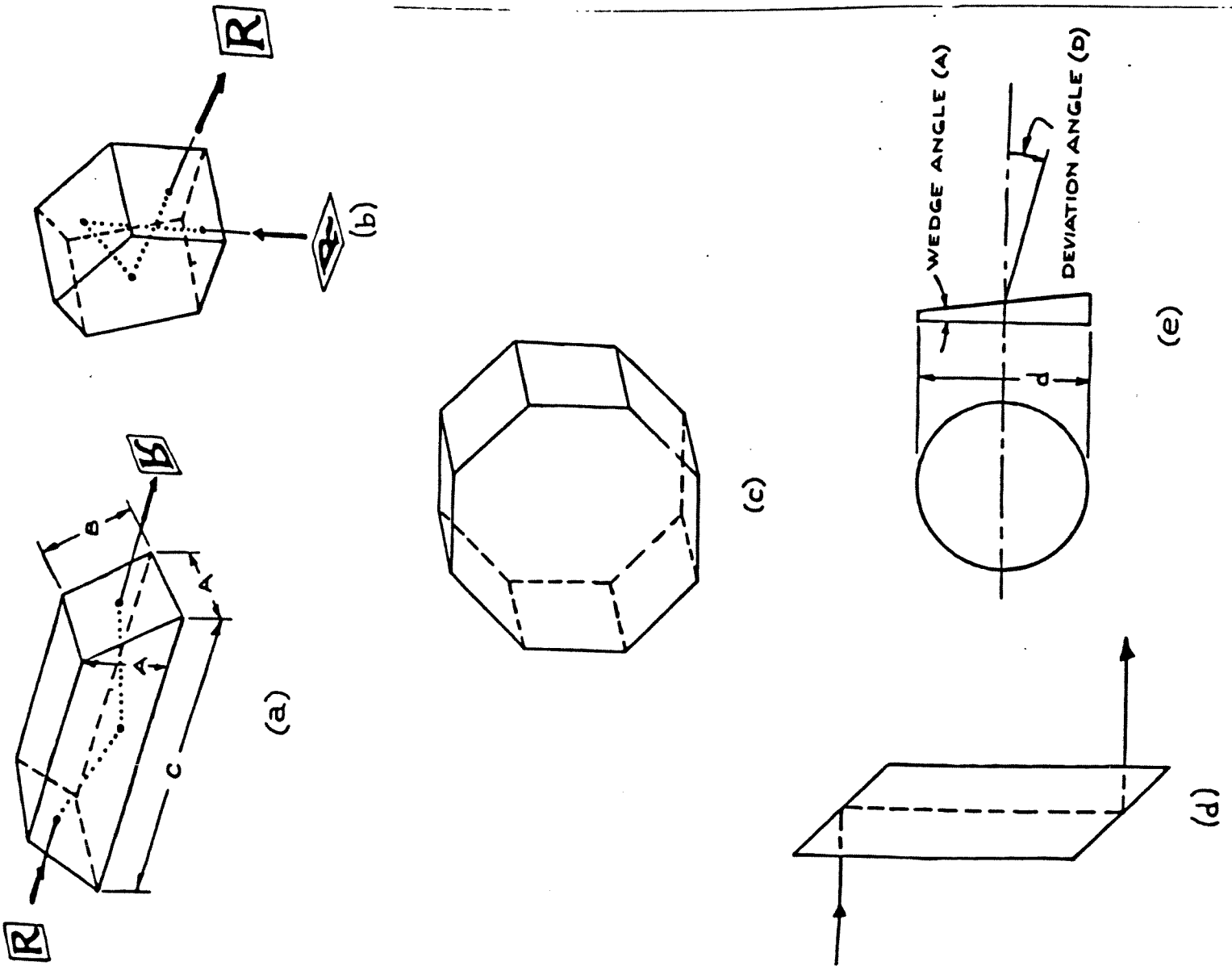
Figure 4.32 (a) Two Porro prisms used as an image-erecting element; (b) Amici prism. (Courtesy of Melles Griot, Inc.)



(a)

(b)

Figure 4.33 (a) Dove prism; (b) penta prism; (c) octagonal prism; (d) rhomboid prism; (e) wedge prism. [(a), (b), and (e) courtesy of Melles Griot, Inc.]



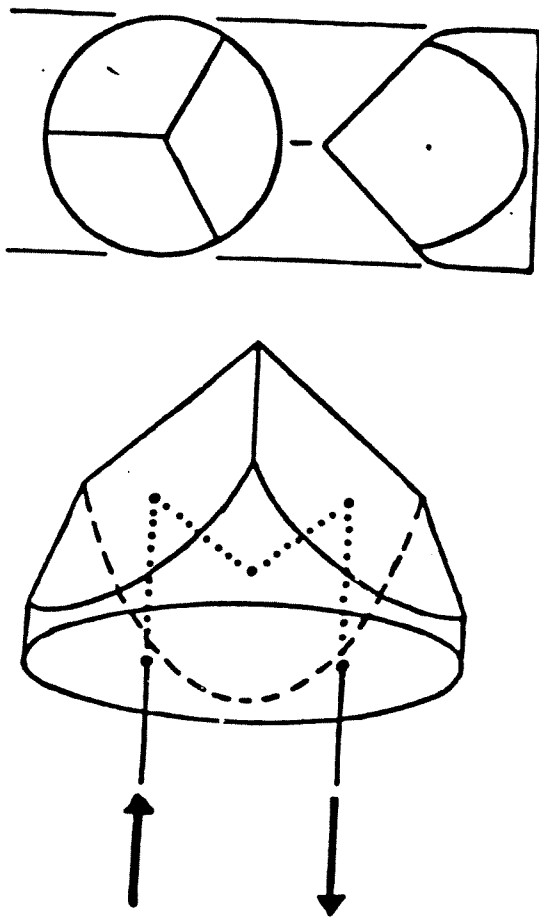


Figure 4.34 Corner-cube prism. (Courtesy of Melles Griot, Inc.)

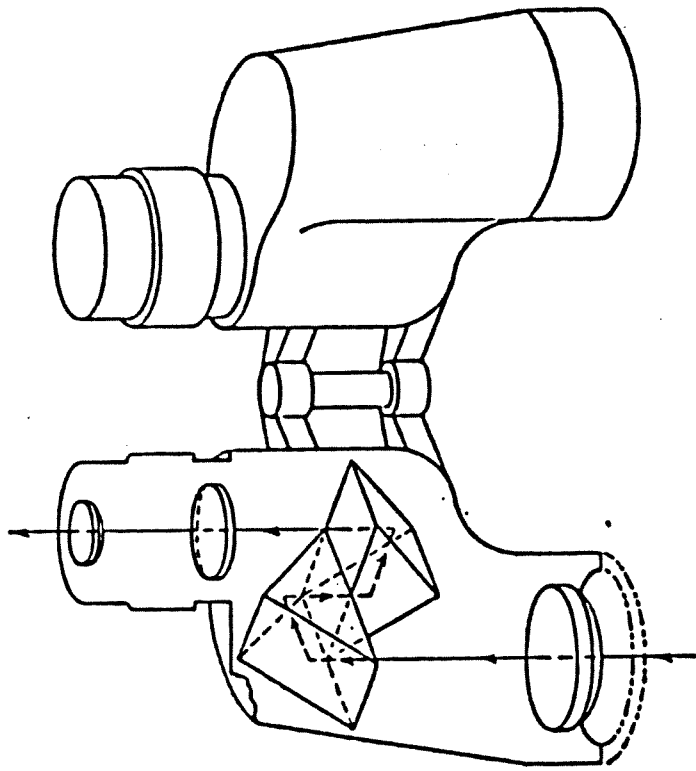


Fig. 6.9. The binocular telescope.

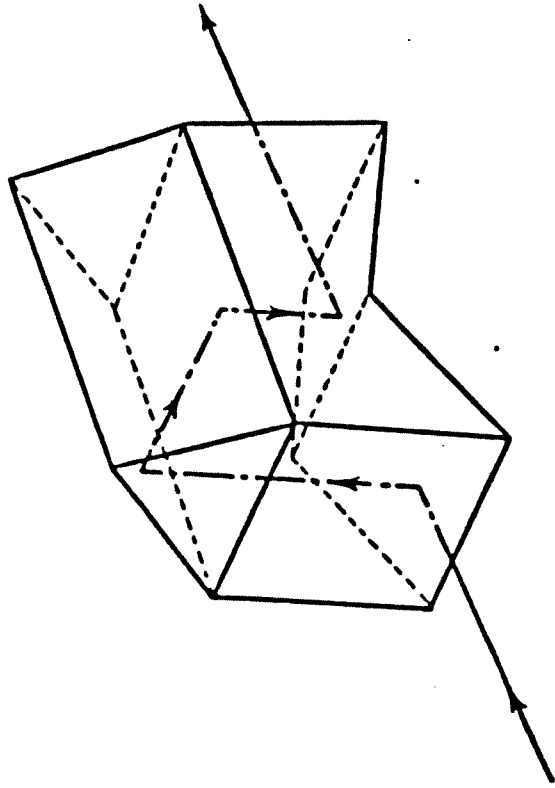


Fig. 6.10. The König erecting prism.

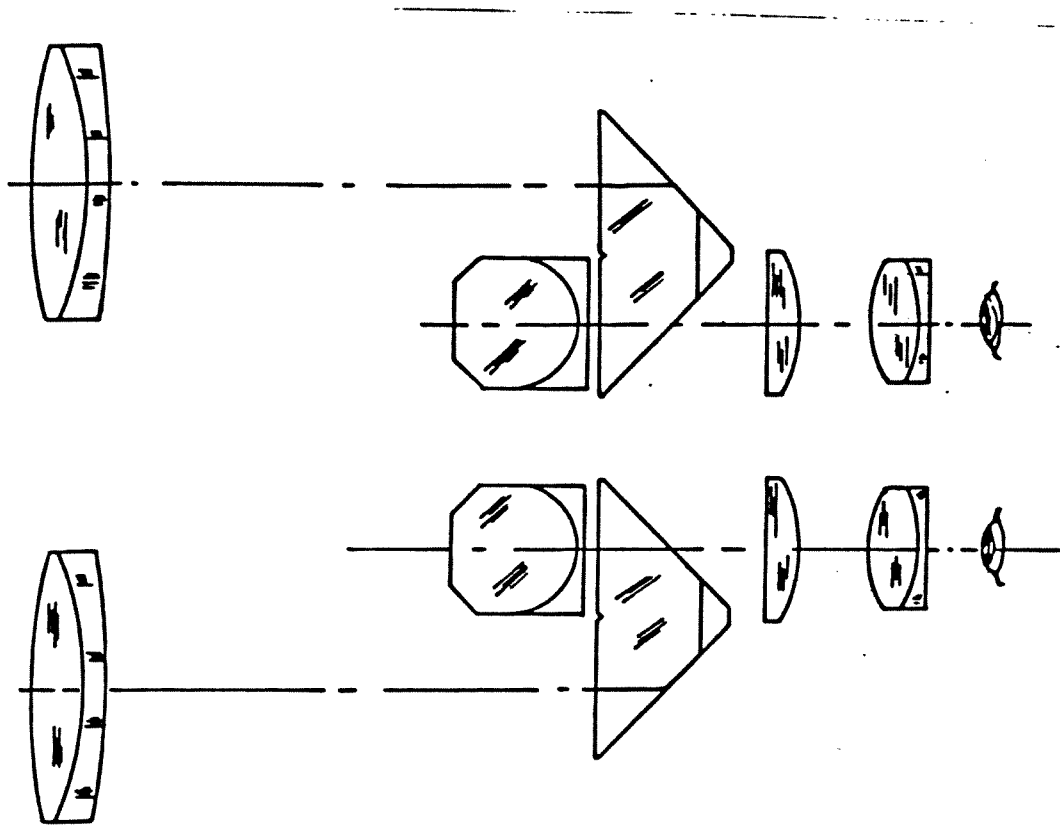


FIG. 11. Prism binocular, former type.

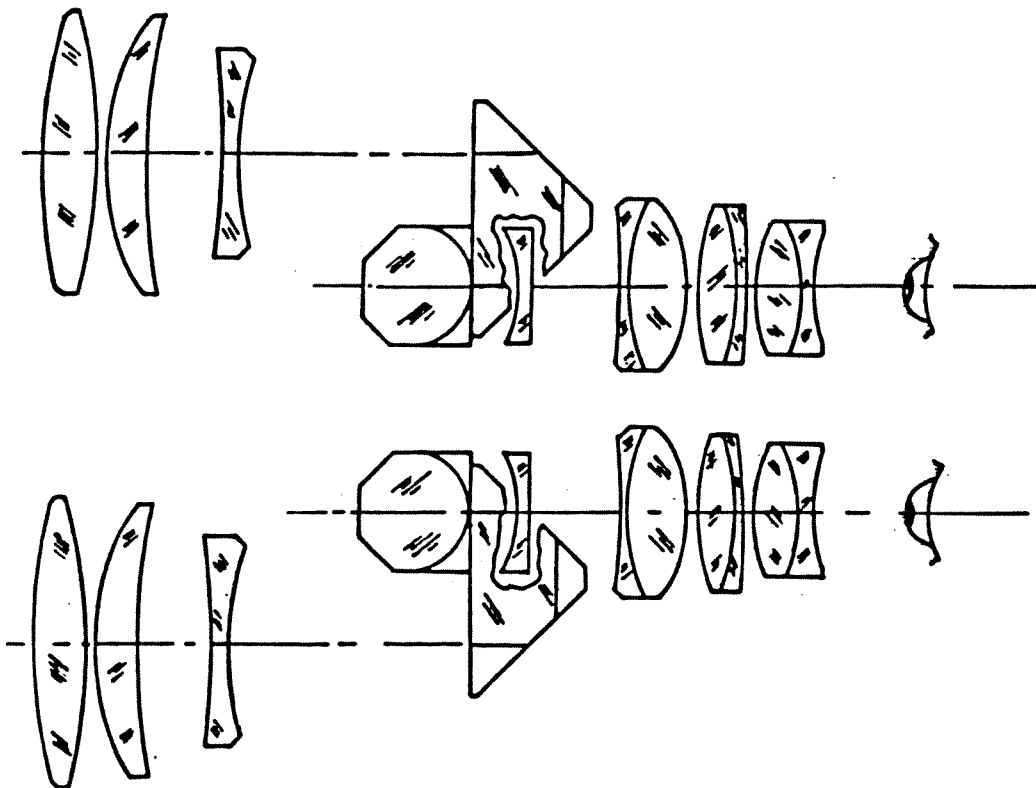


FIG. 12. Prism binocular, newer type.

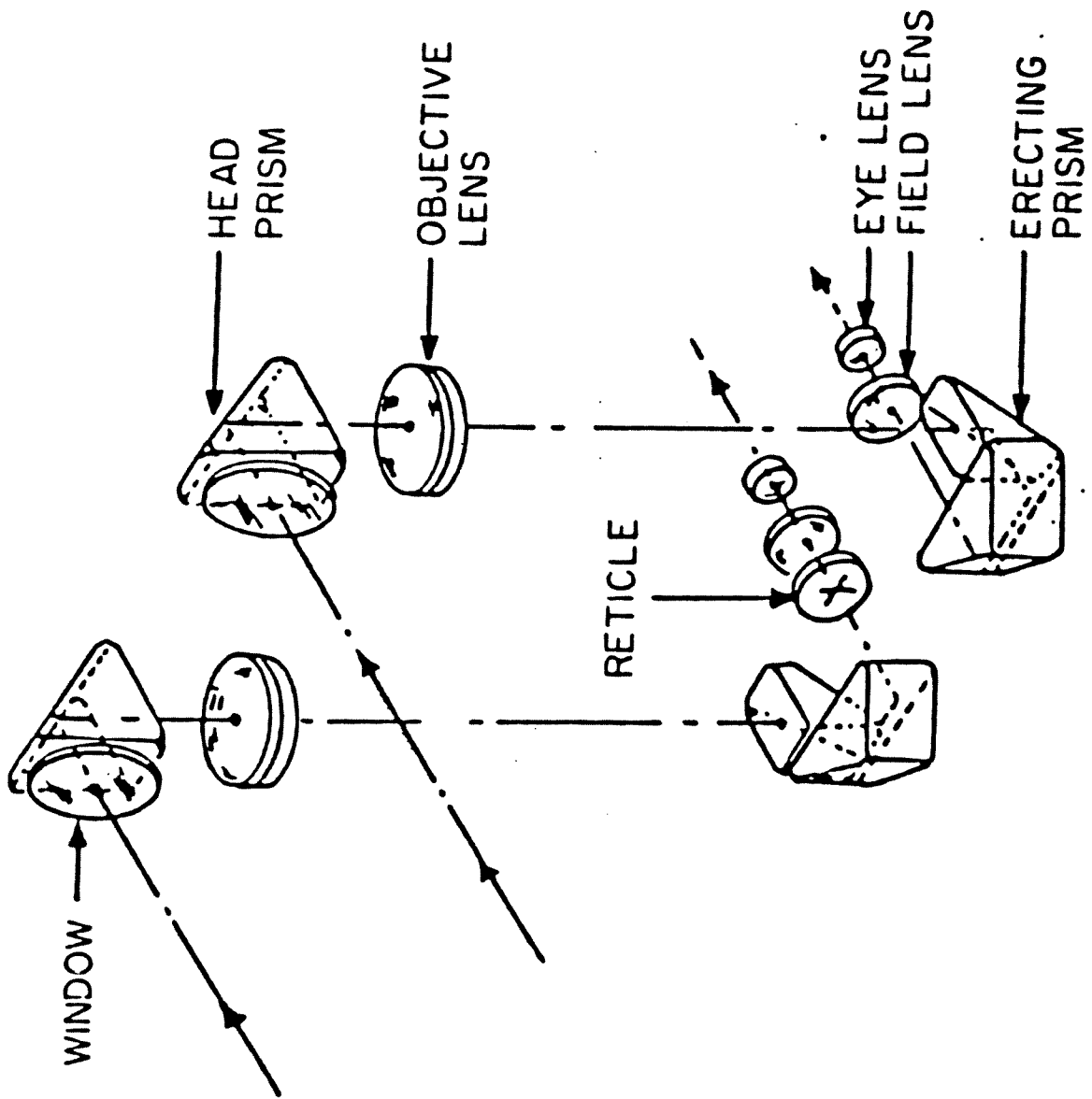


FIG. 13. Tripod-mounted binocular, former type.

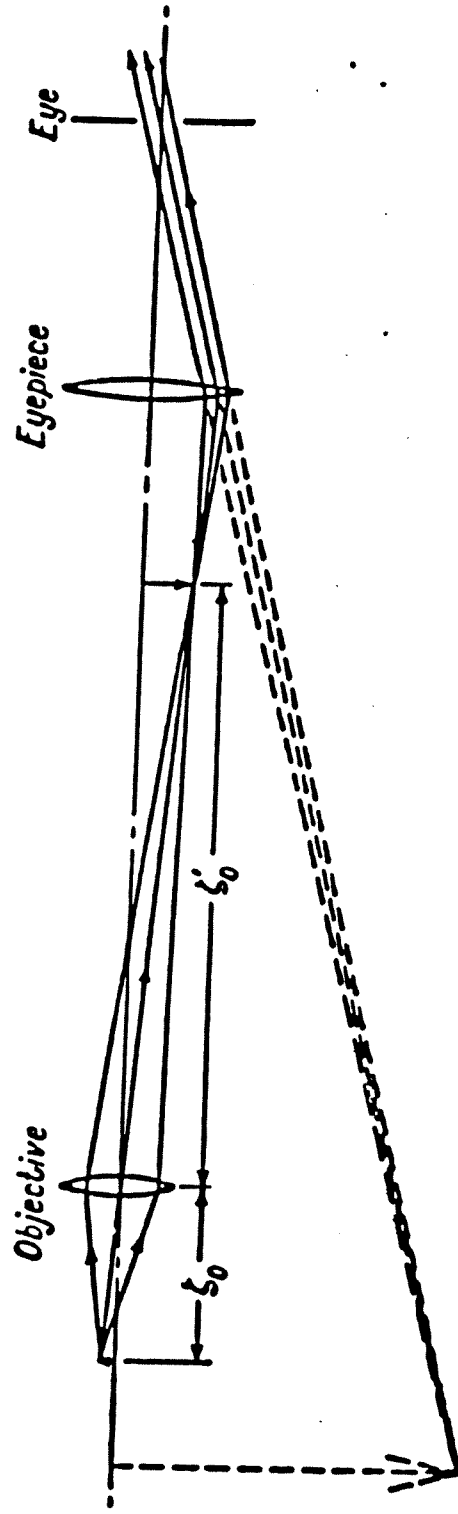
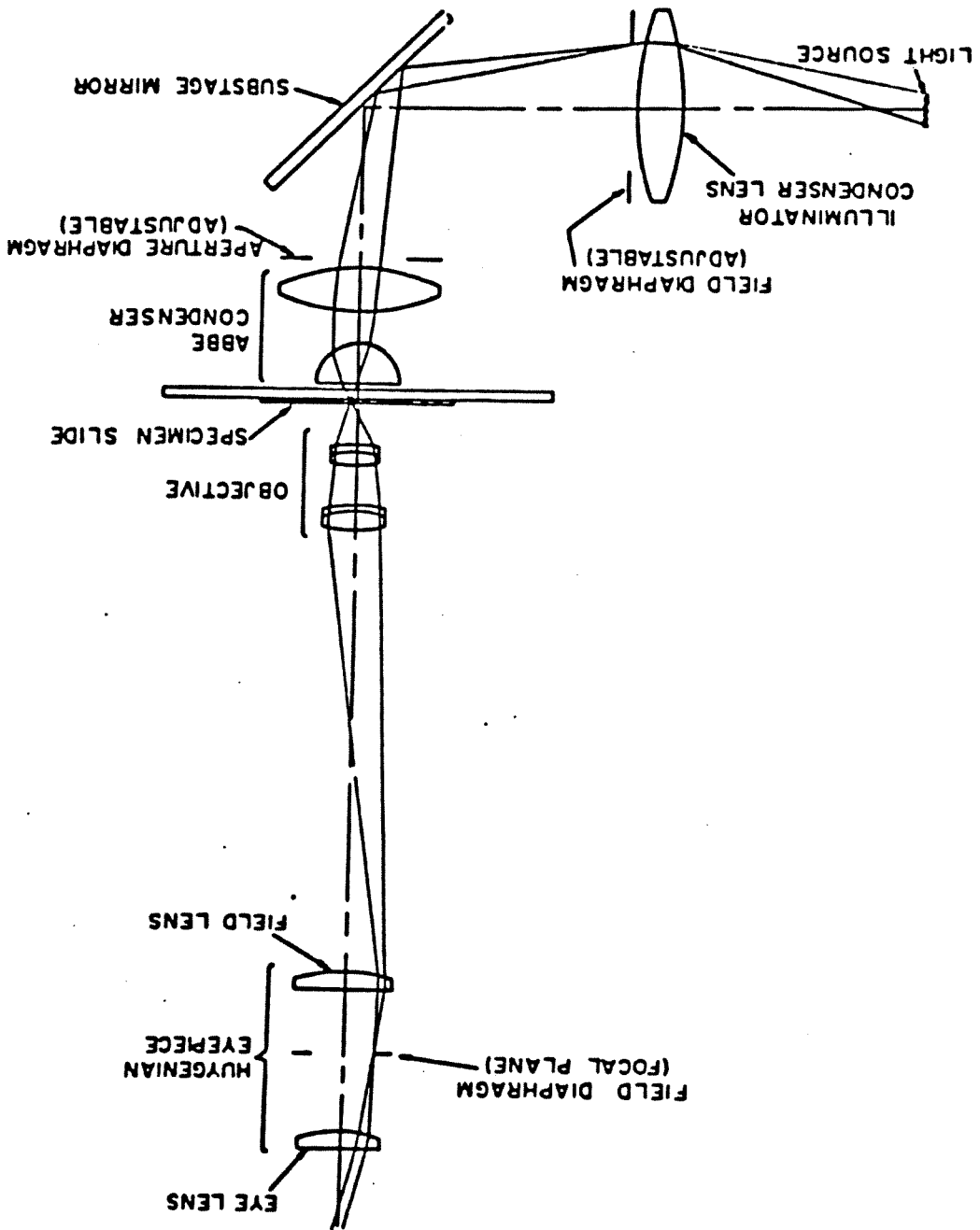


Fig. 6.27. Illustrating the principle of the microscope.



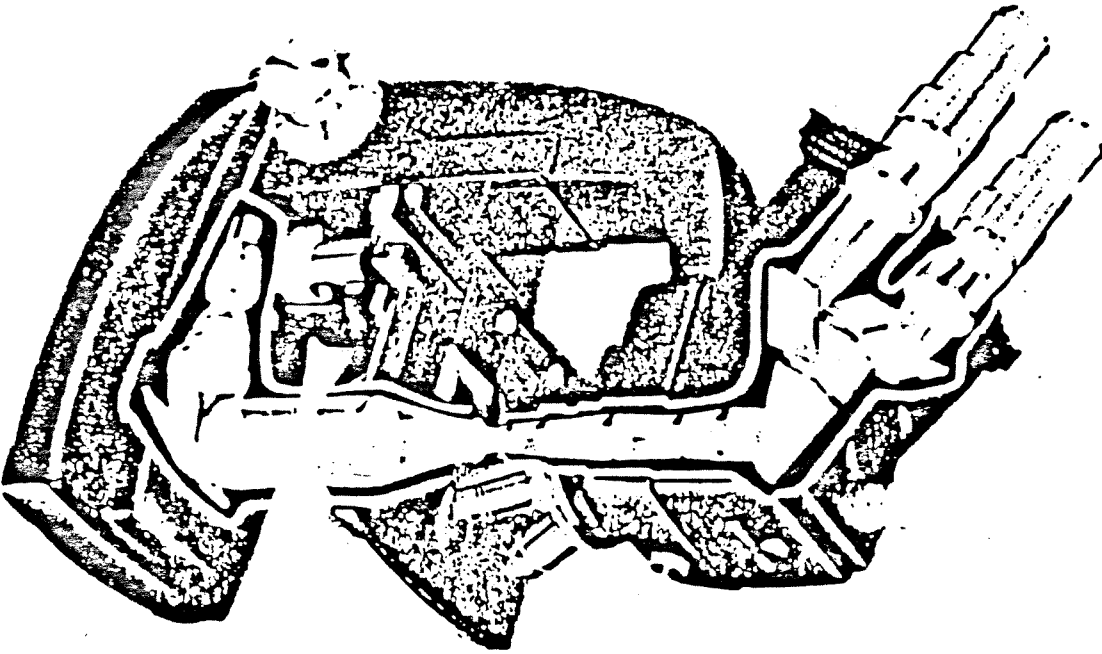
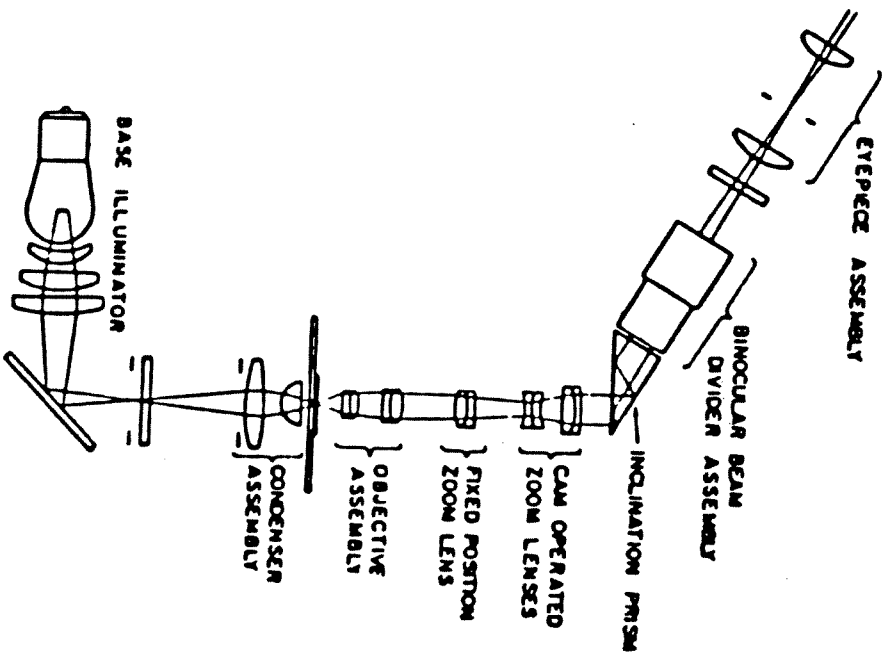
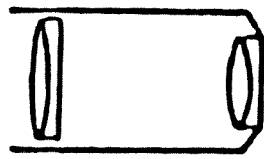
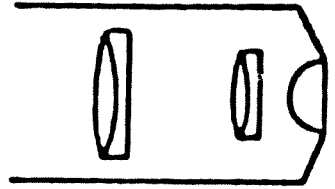


FIG. 4 THE BINOCULAR MICROSCOPE

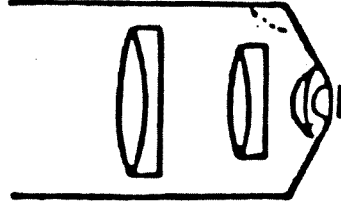




(a)



(b)



(c)

Fig. 6.29. Microscope objectives.

(a) Low power. (b) Medium power. (c) High power.

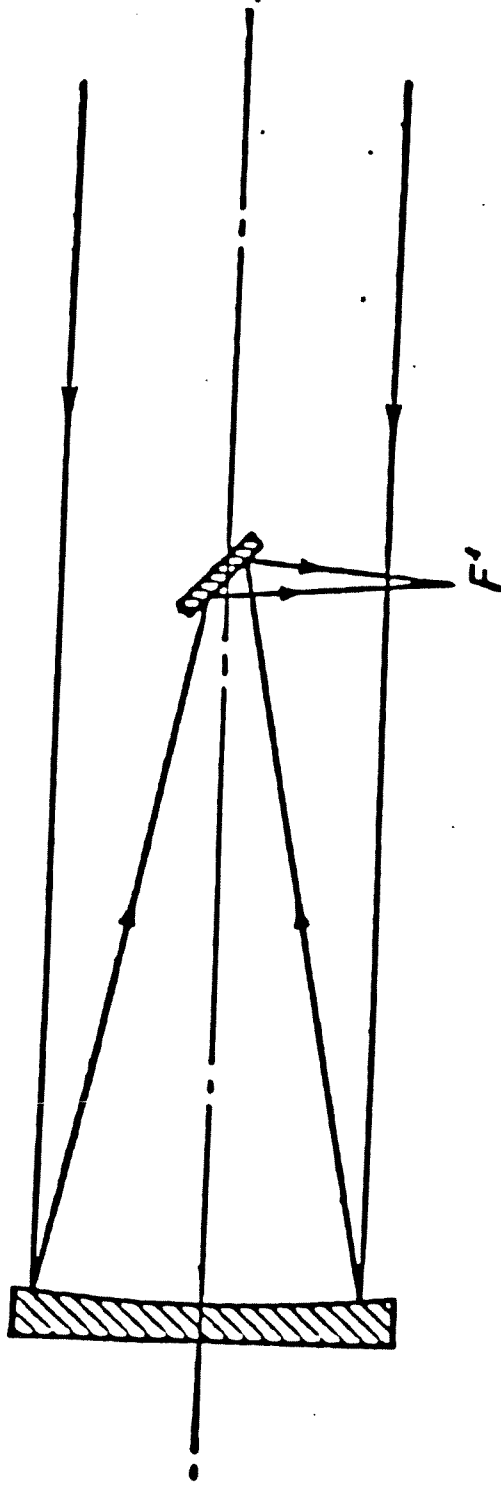


Fig. 6.18. The Newtonian telescope.

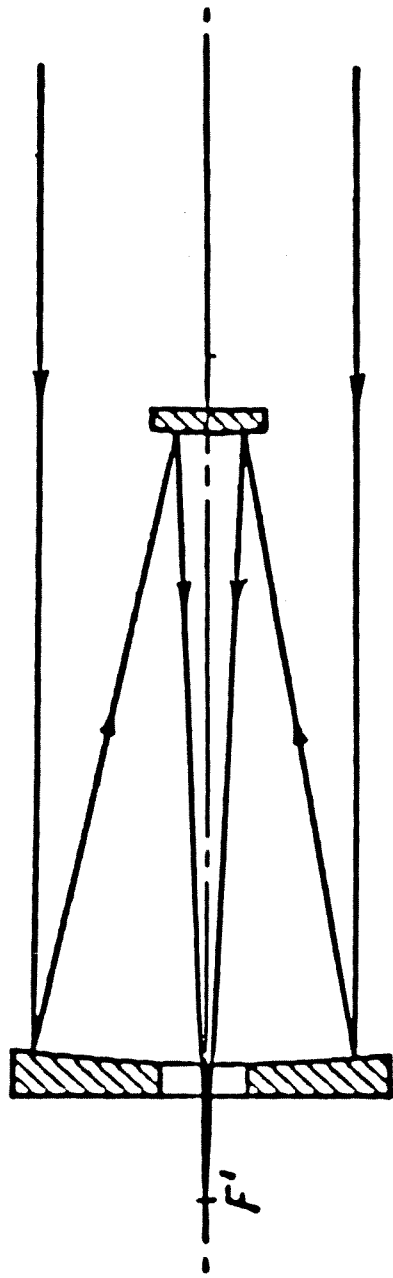


Fig. 0.19. The Cassegrain telescope.

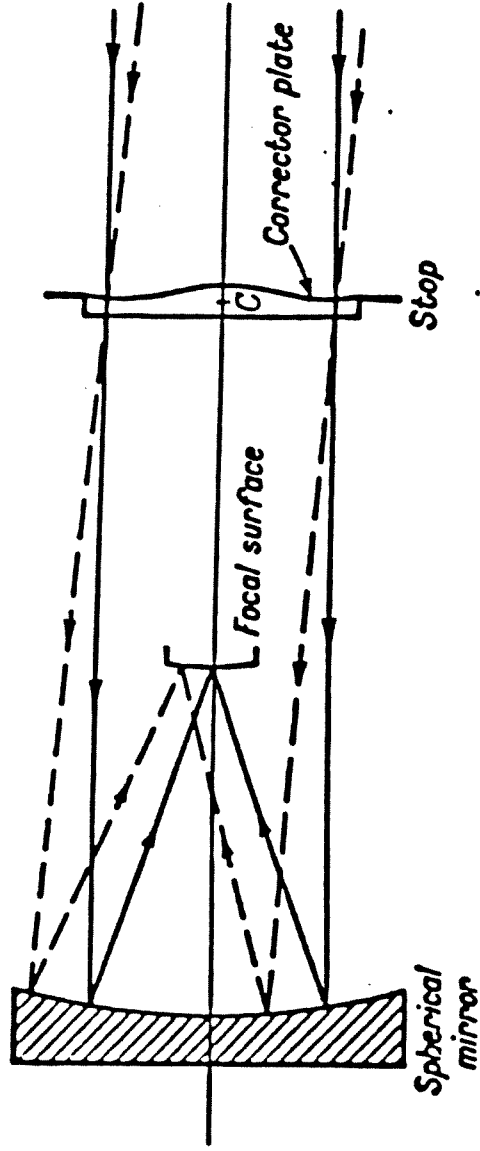


Fig. 6.20. The Schmidt camera.
(The figuring of the corrector plate is greatly exaggerated.)

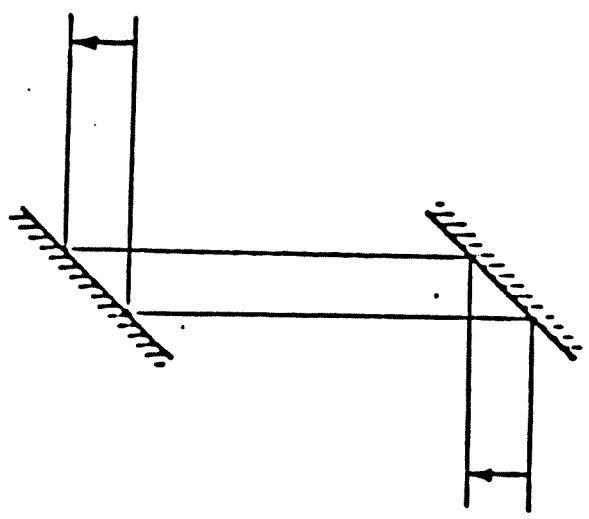
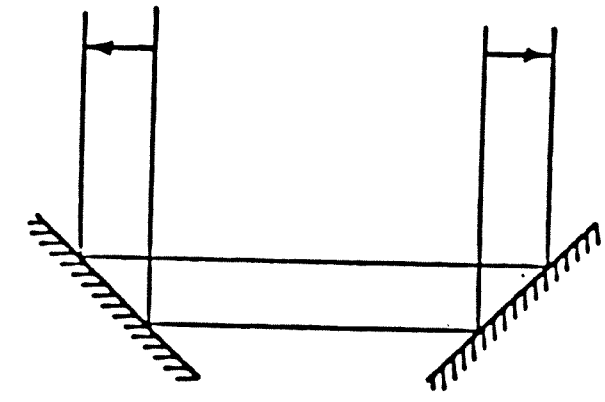


Fig. 6.15. Periscopic mirrors.

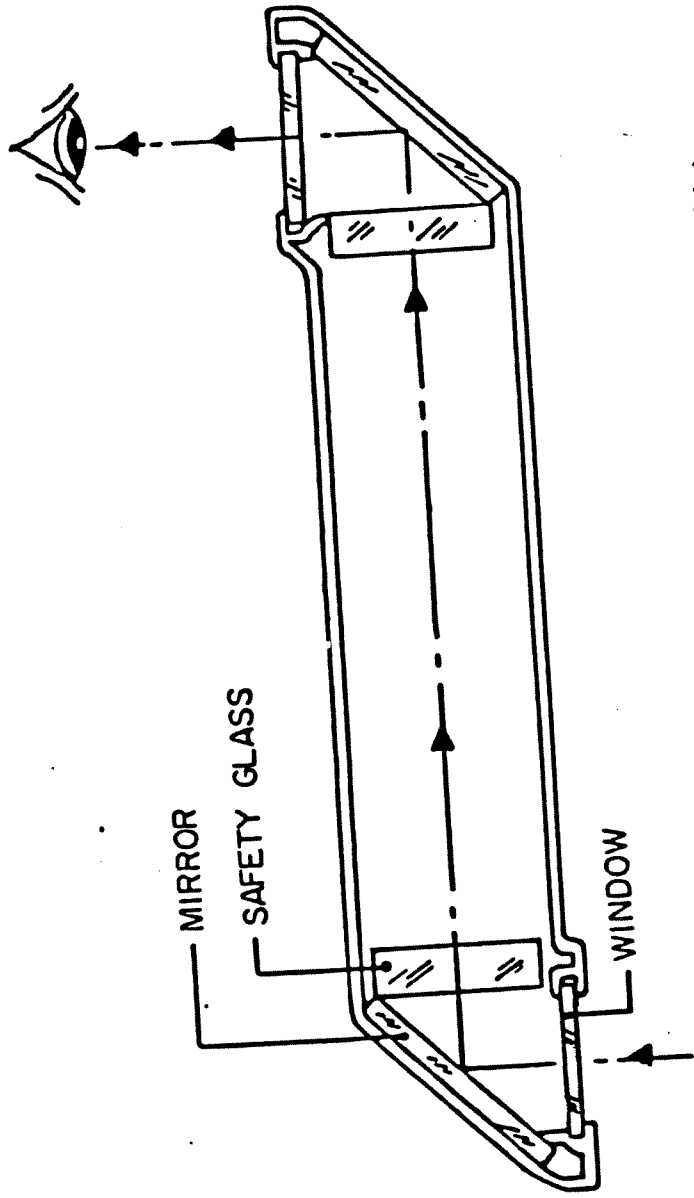


FIG. 17. Tank-driver's periscope (shown on its side).

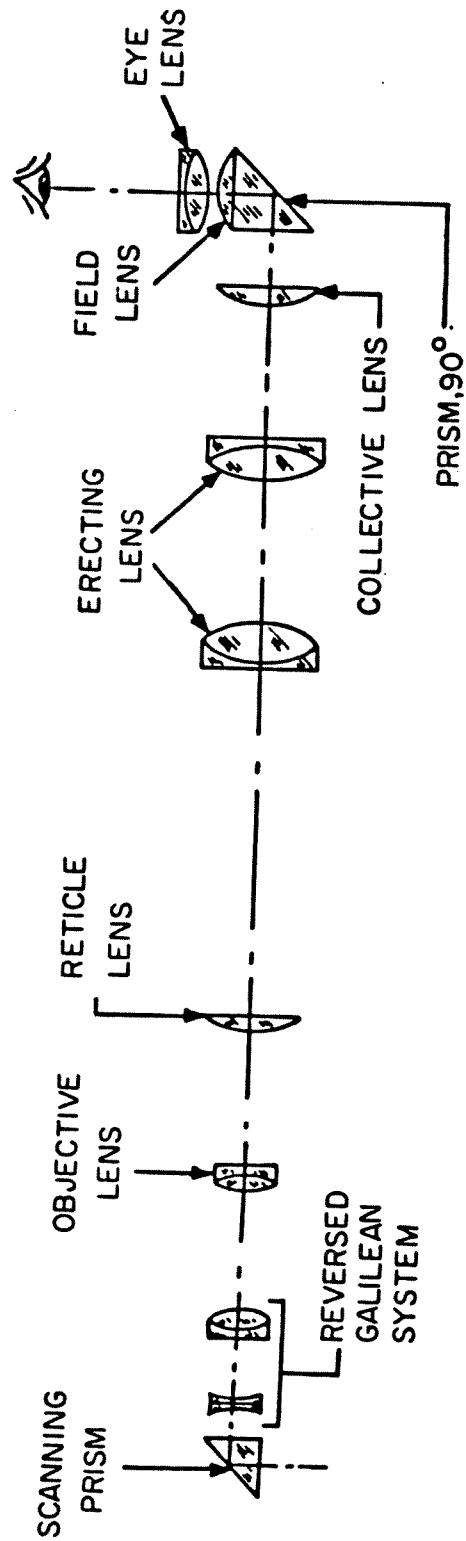


FIG. 20. Submarine periscope (shown on its side).

FIG. 18. Tank-gunner's periscope.

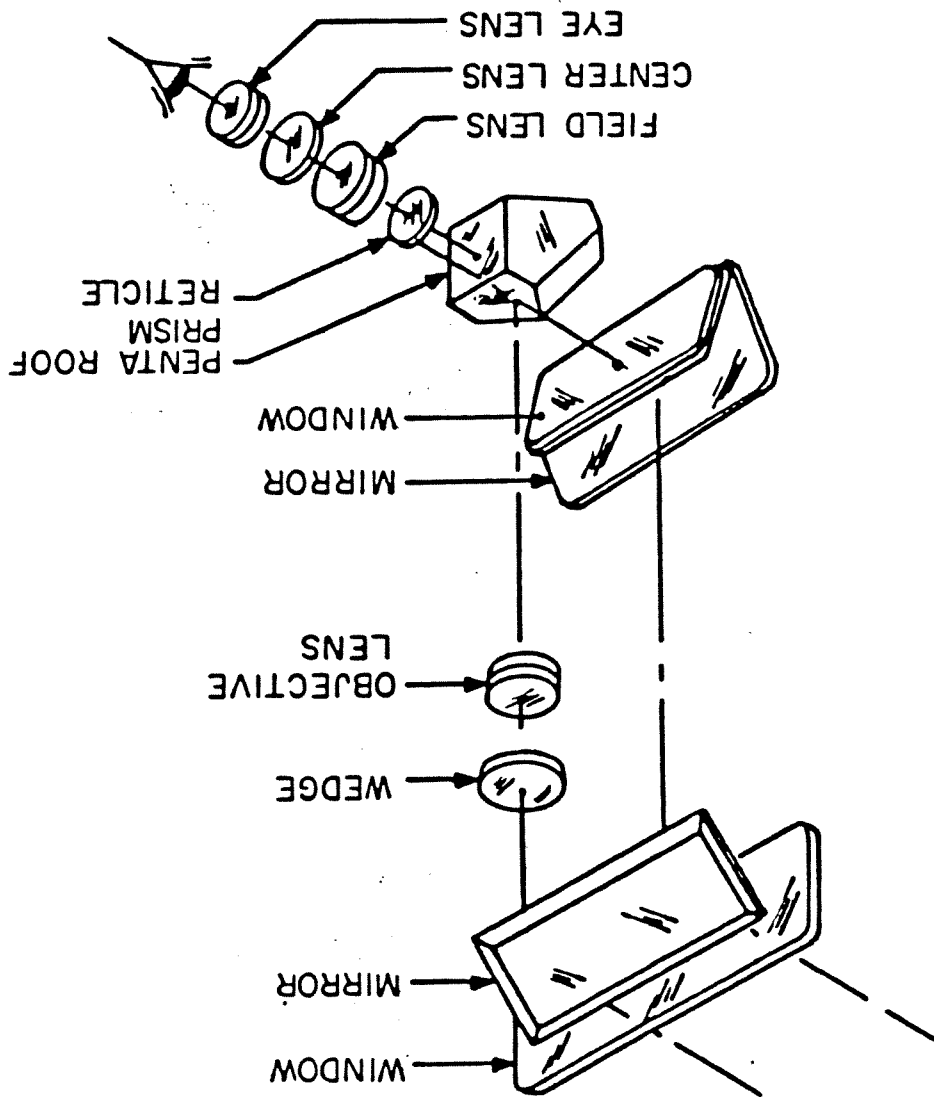
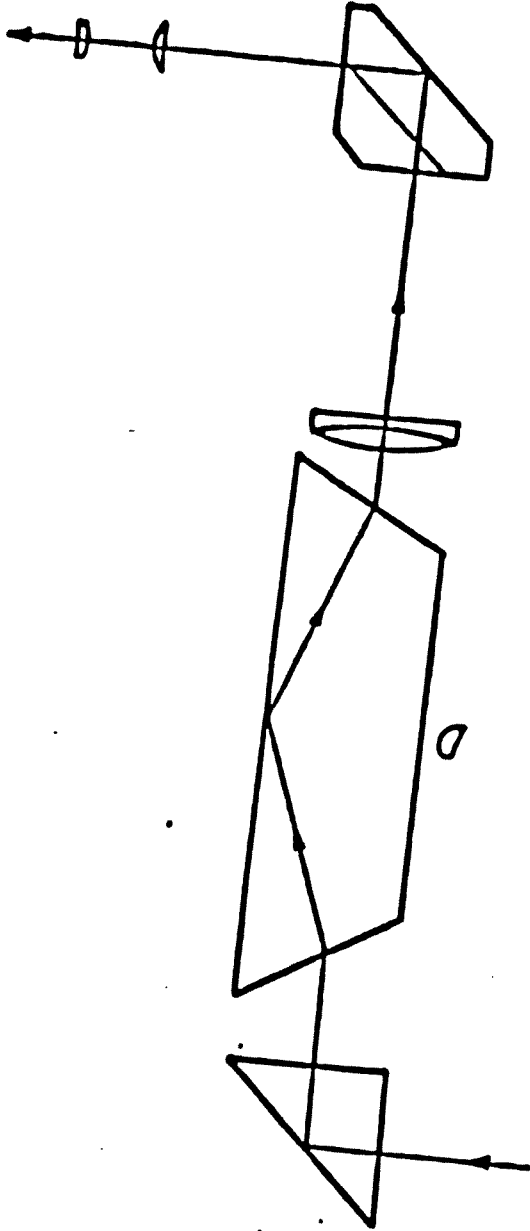
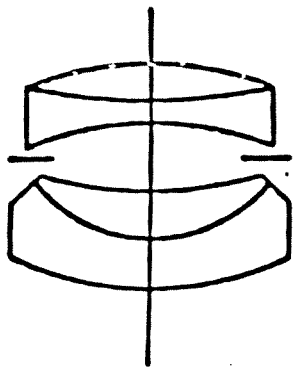
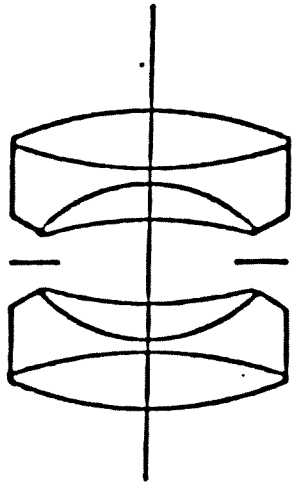


Fig. 6.16. Periscope with Dove prism.

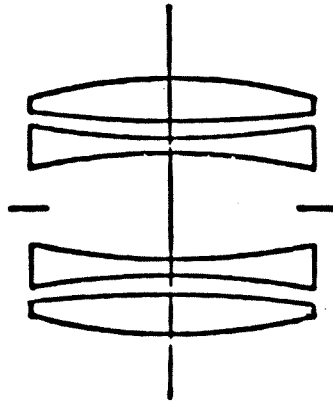




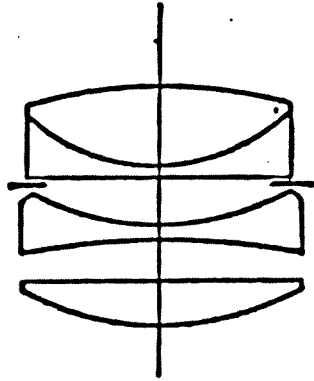
(a)



(b)



(c)



(d)

Fig. 6.4.

(a) The Protar lens.
(c) The Celor lens.

(b) The Dagor lens.
(d) The Tessar lens.

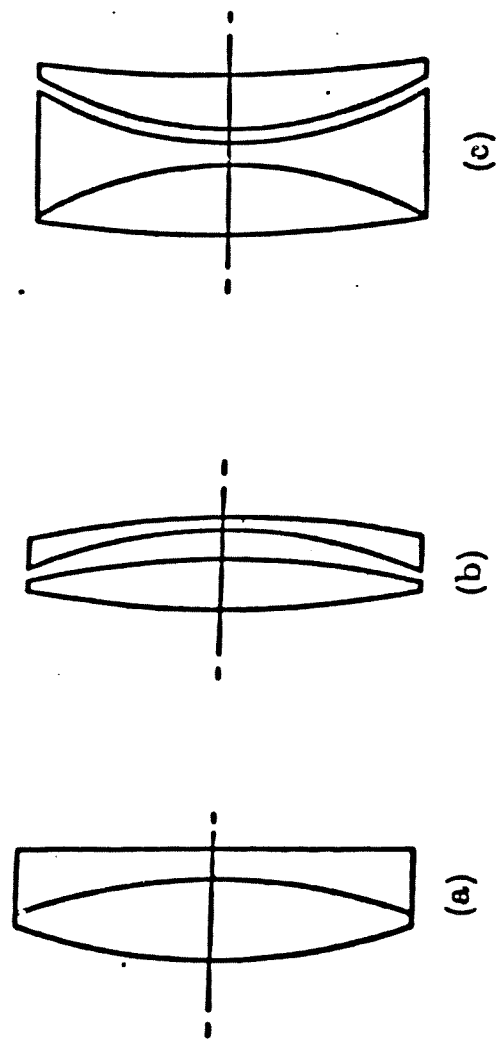


Fig. 6.12.

(a) Cemented achromat. (b) Aplanatic achromat. (c) Photo-visual objective.

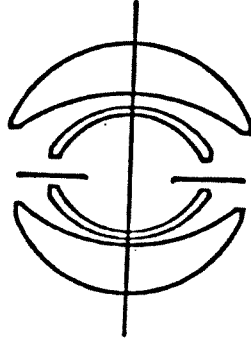
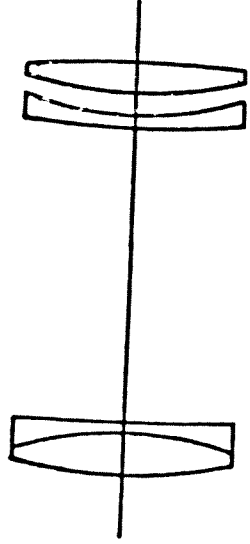
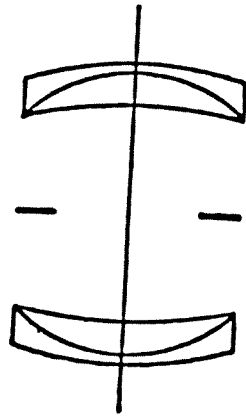
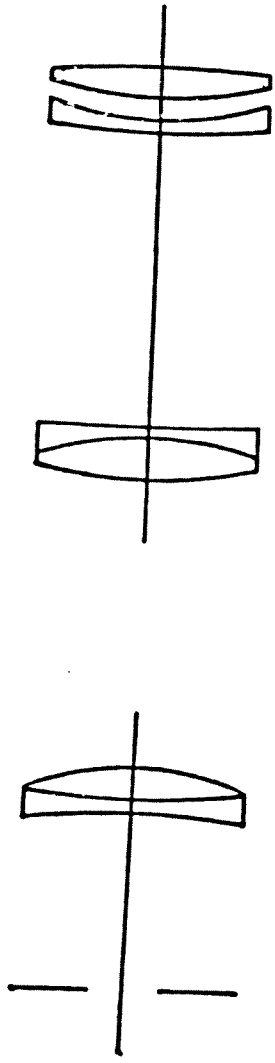


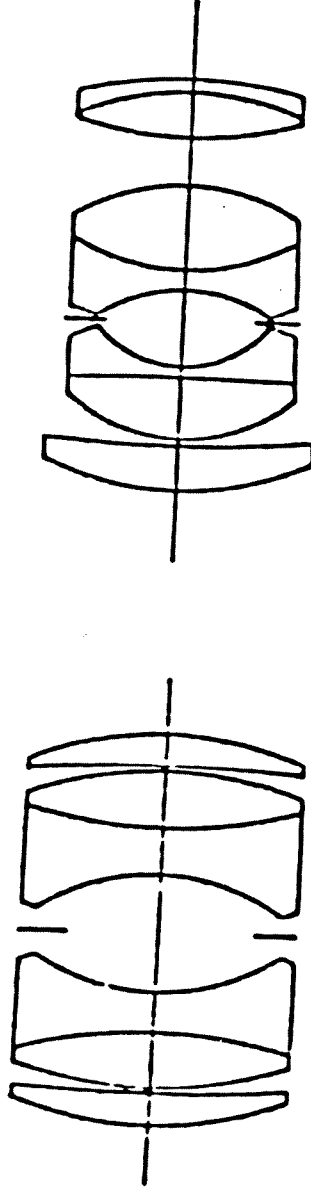
Fig. 6.3.

(a) The Chevalier lens.

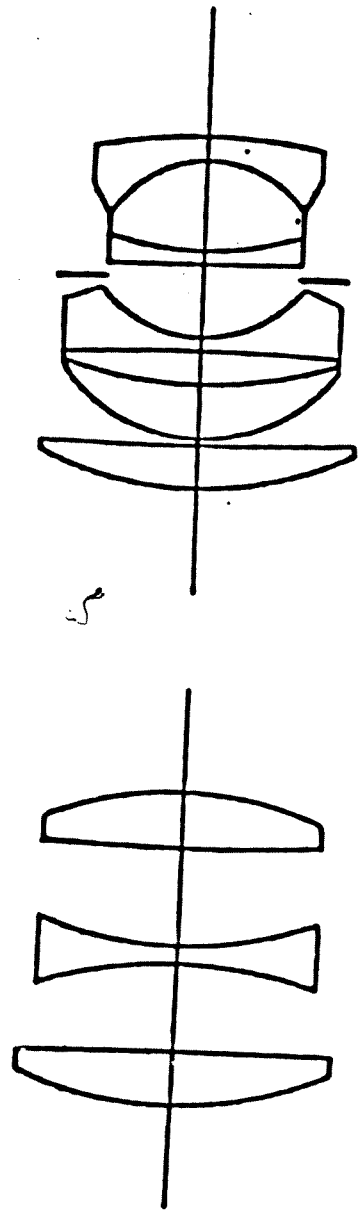
(b) The Petzval lens.

(c) The Rapid-Rectilinear lens.

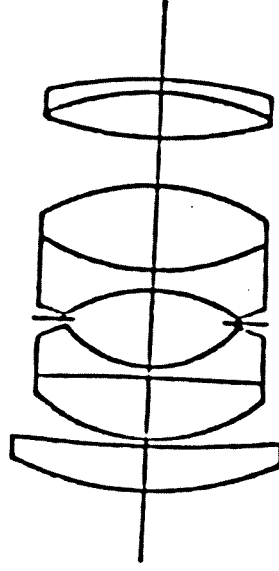
(d) The Topogon lens.



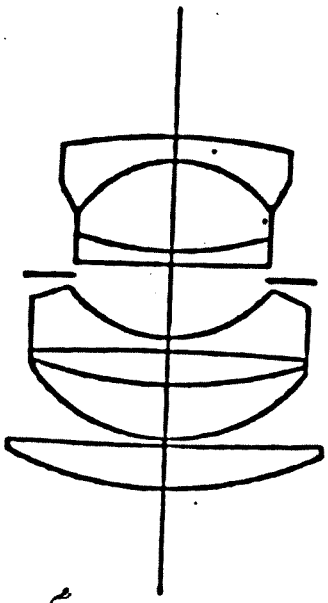
(a)



(c)



(b)



(d)

Fig. 6.5.

(a) The Planar lens.
(c) The Cooke Triplet.

(b) The Zeiss Biotar lens
(d) The Sonnar lens.