

SLIT LAMP EXAMINATION TECHNIQUES



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- Based on the position of illumination arm and viewing arm, different examination techniques



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DIFFUSE ILLUMINATION

FOCAL ILLUMINATION



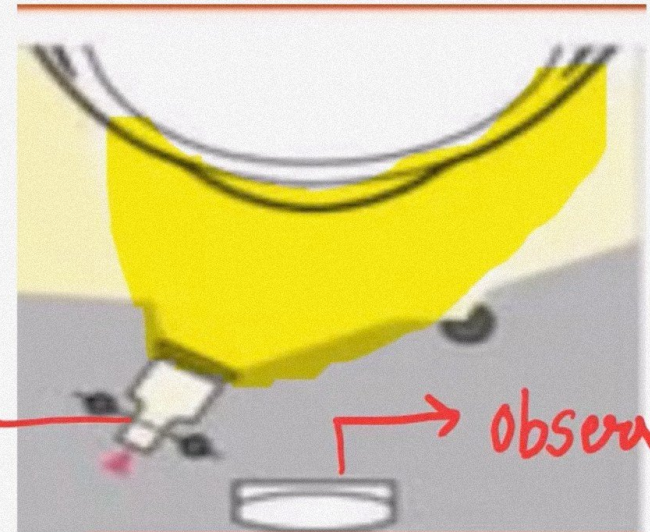
OTHER ILLUMINATION TECHNIQUES

- Diffuse illumination
- Direct focal illumination
- Indirect focal illumination
- Retroillumination
- Oscillating illumination of koeppe
- Specular reflection
- Sclerotic scatter



DIFFUSE ILLUMINATION

- An open beam is directed on the eye at 45 degrees.
- Allows overall survey of eye and adnexa
- Determination of general features, such as colour, size and relative position of structures.
- This is followed by tangential illumination.

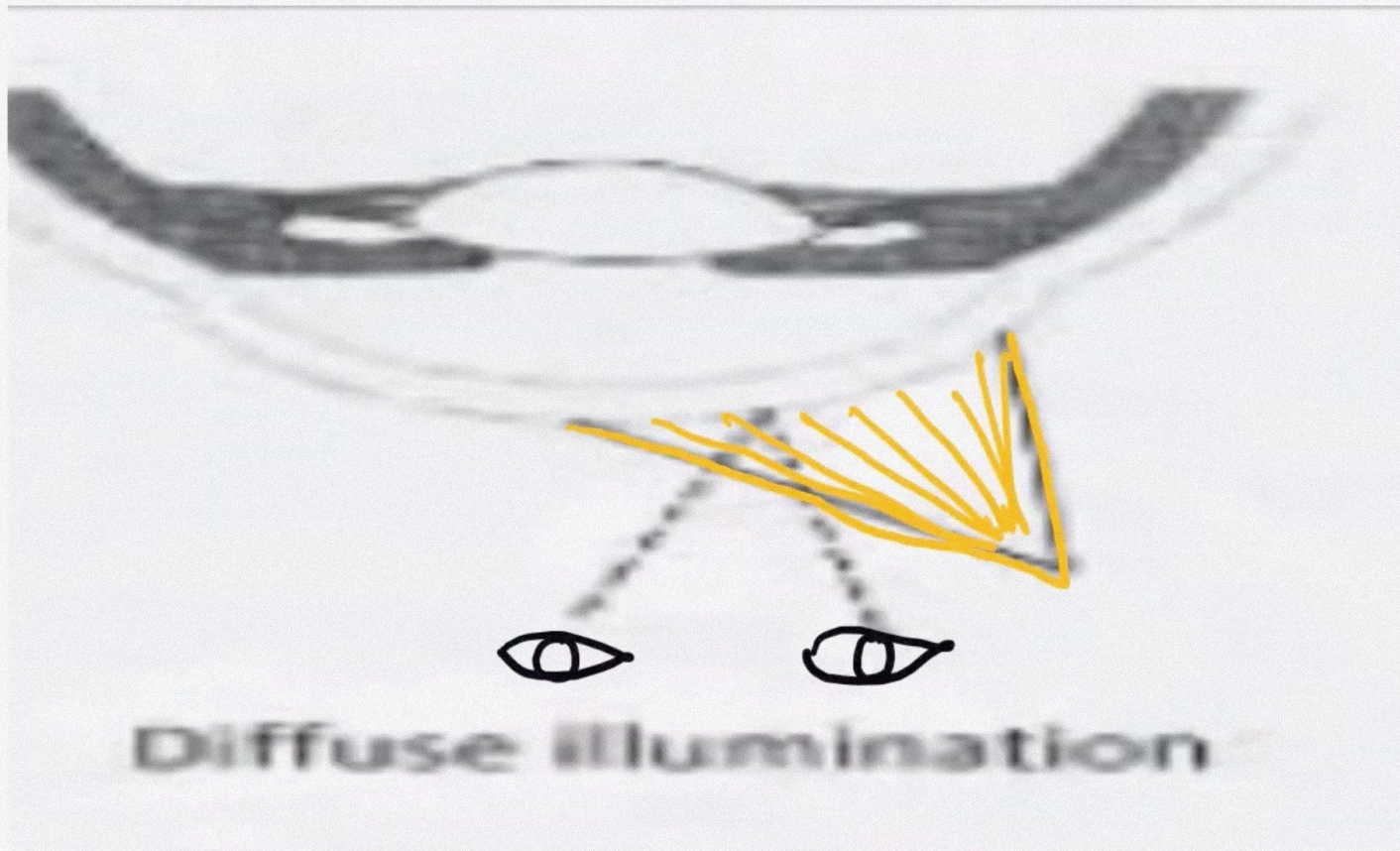


illumination system

observer

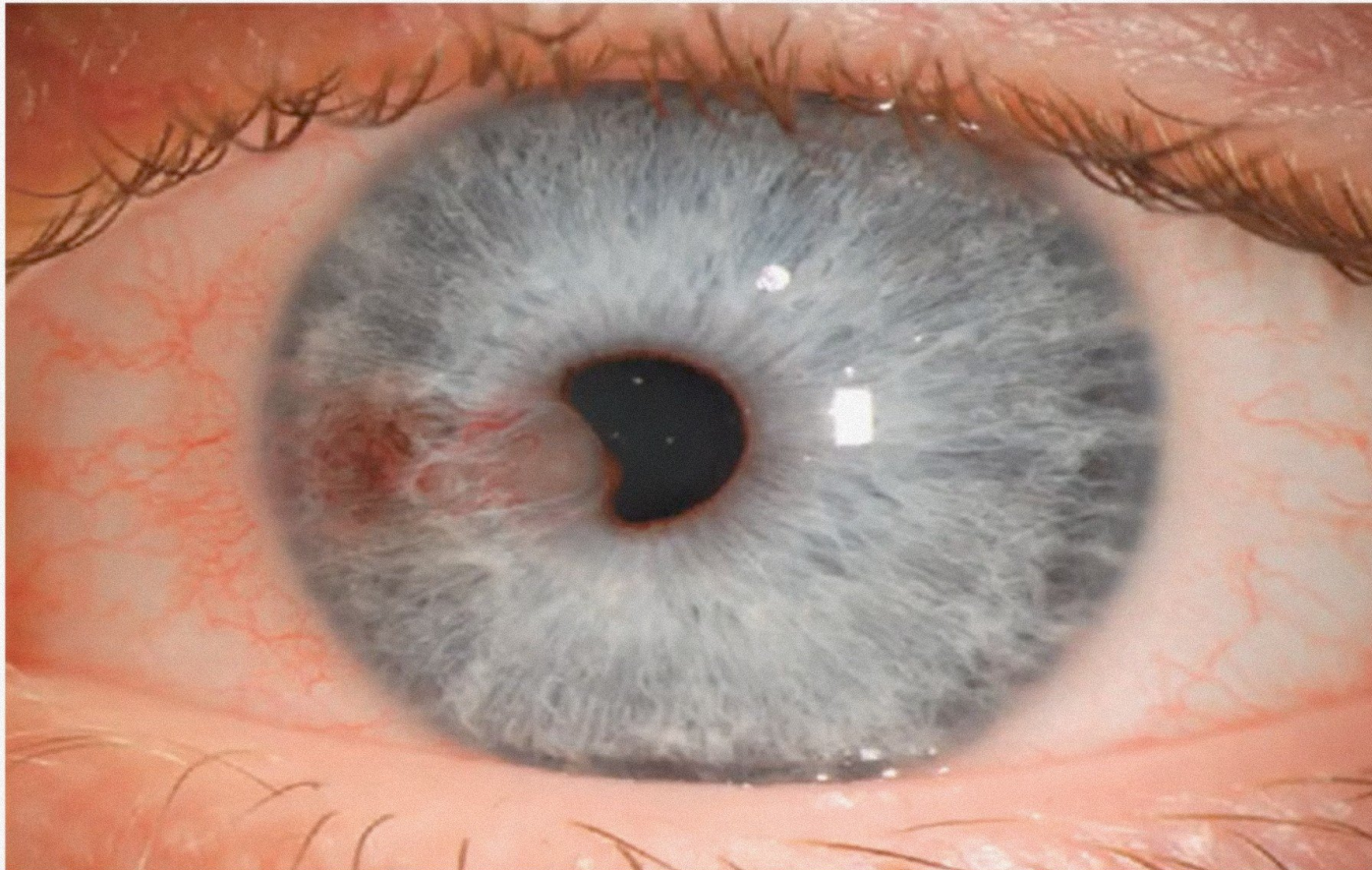
Angle : 30-45 Degrees
Use a diffuse filter
Use magnification 10 x,
16 x or 25 X



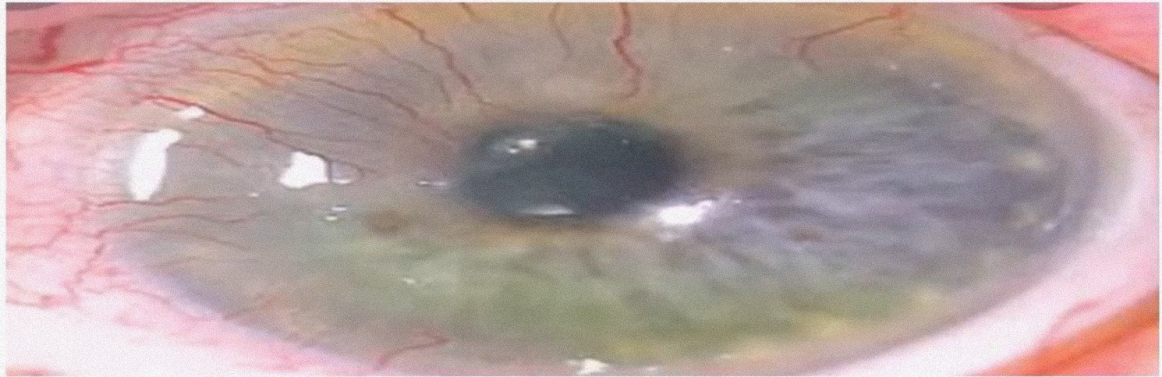


Overall survey of the eye, lids, lashes, caruncle, sclera, surface vessels and media opacities.

■



- Entire extent of lesion
- Presence of DM Folds
- Vascularisation
- Epithelial oedema (hazyness)
- Lids, lashes, periorbital swellings

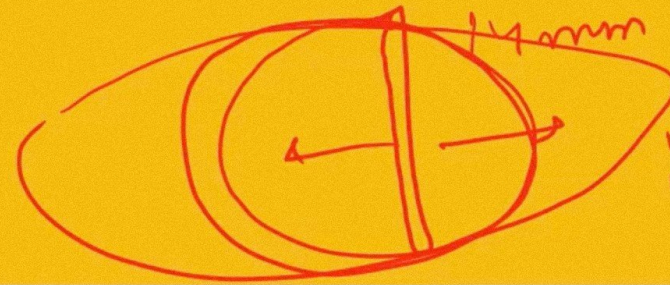


FOCAL ILLUMINATION

By narrowing the beam and shortening its height, the examiner can create a “spotlight” to permit viewing an object of interest in isolation without illuminating surrounding tissues



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DIRECT FOCAL

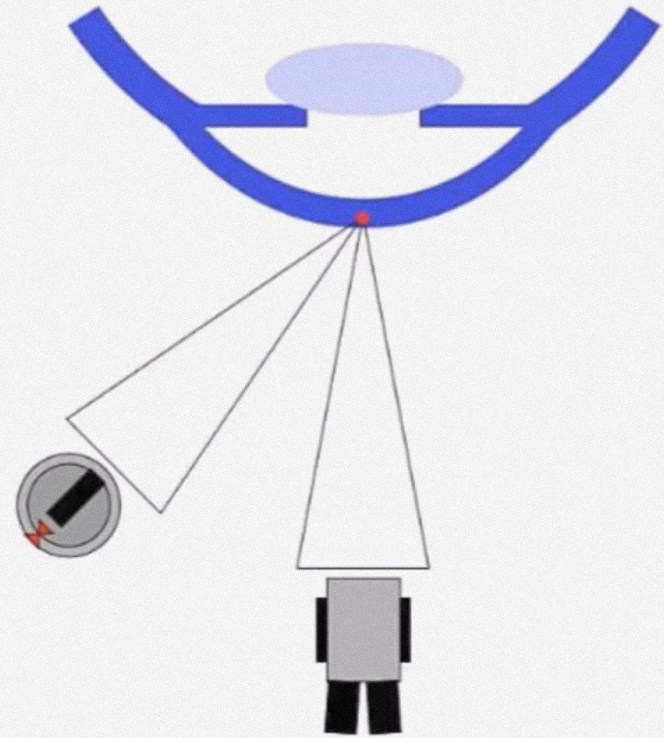
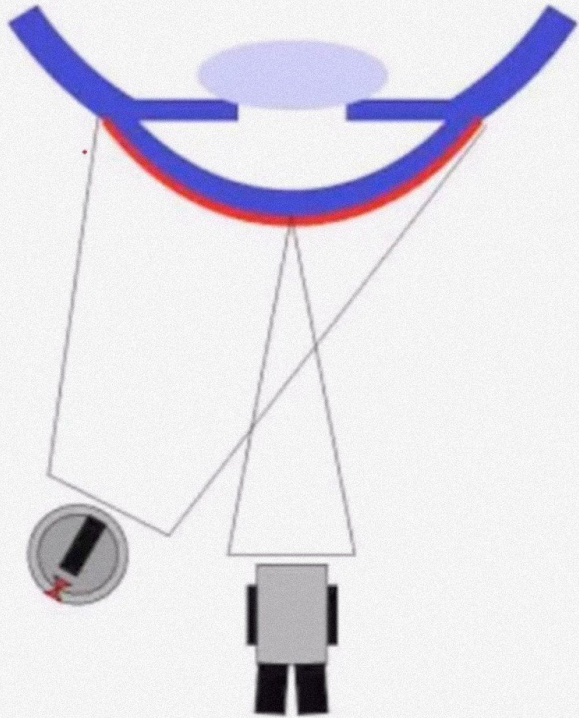
INDIRECT FOCAL



DIFFUSE

V/s

FOCAL



**TYPES OF DIRECT
FOCAL**

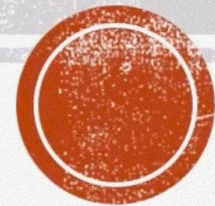
OPTICAL SECTION

PARRALEL -PIPE

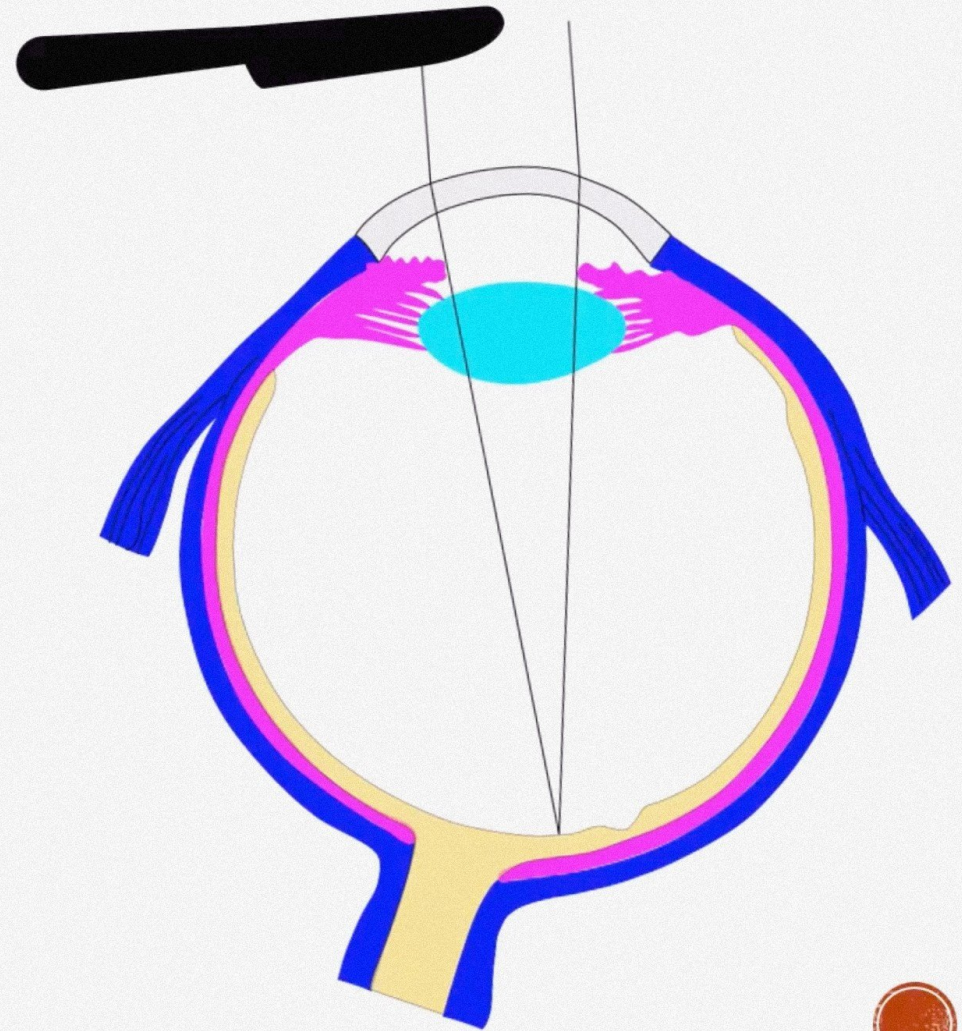
CONICAL BEAM

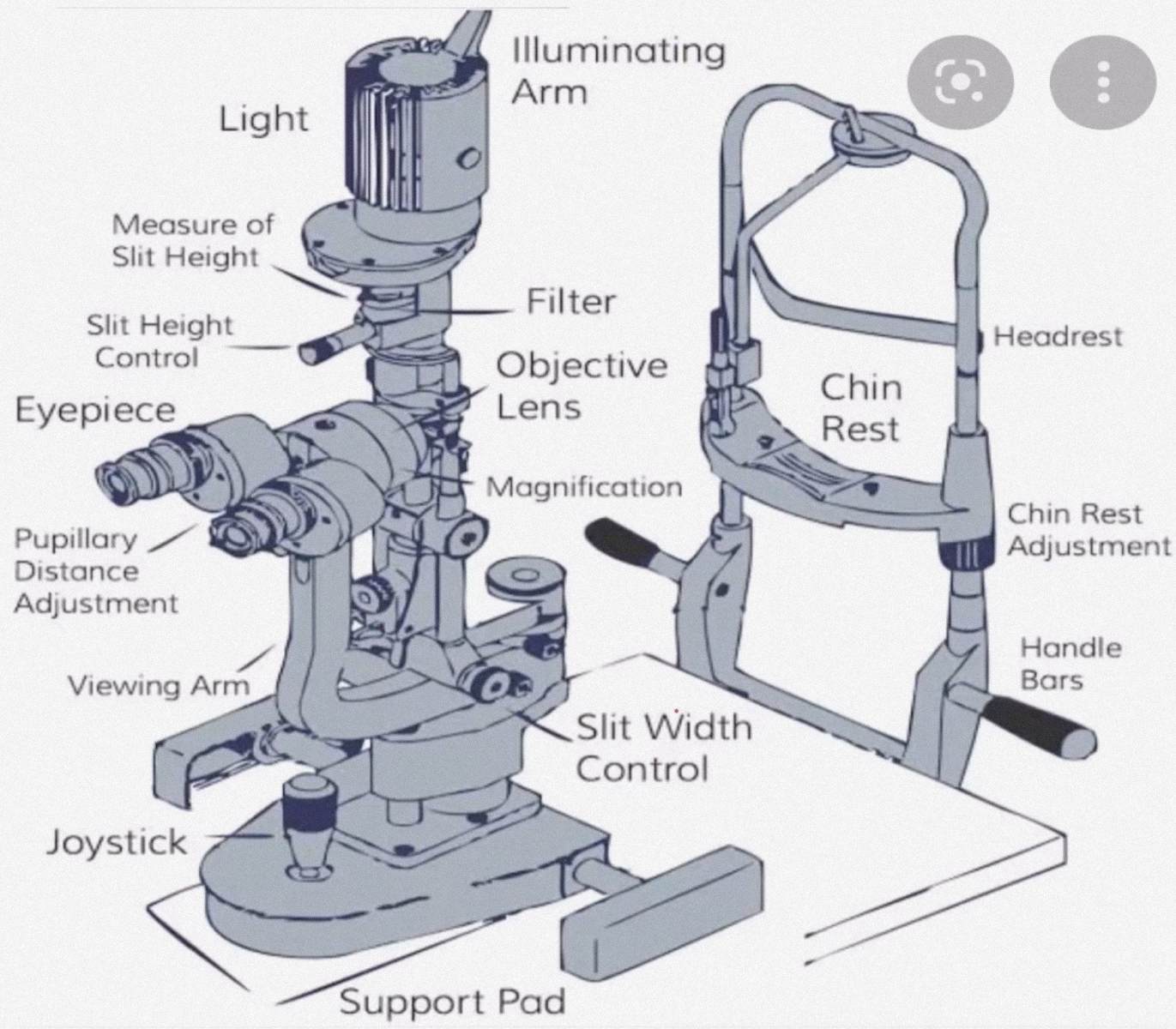


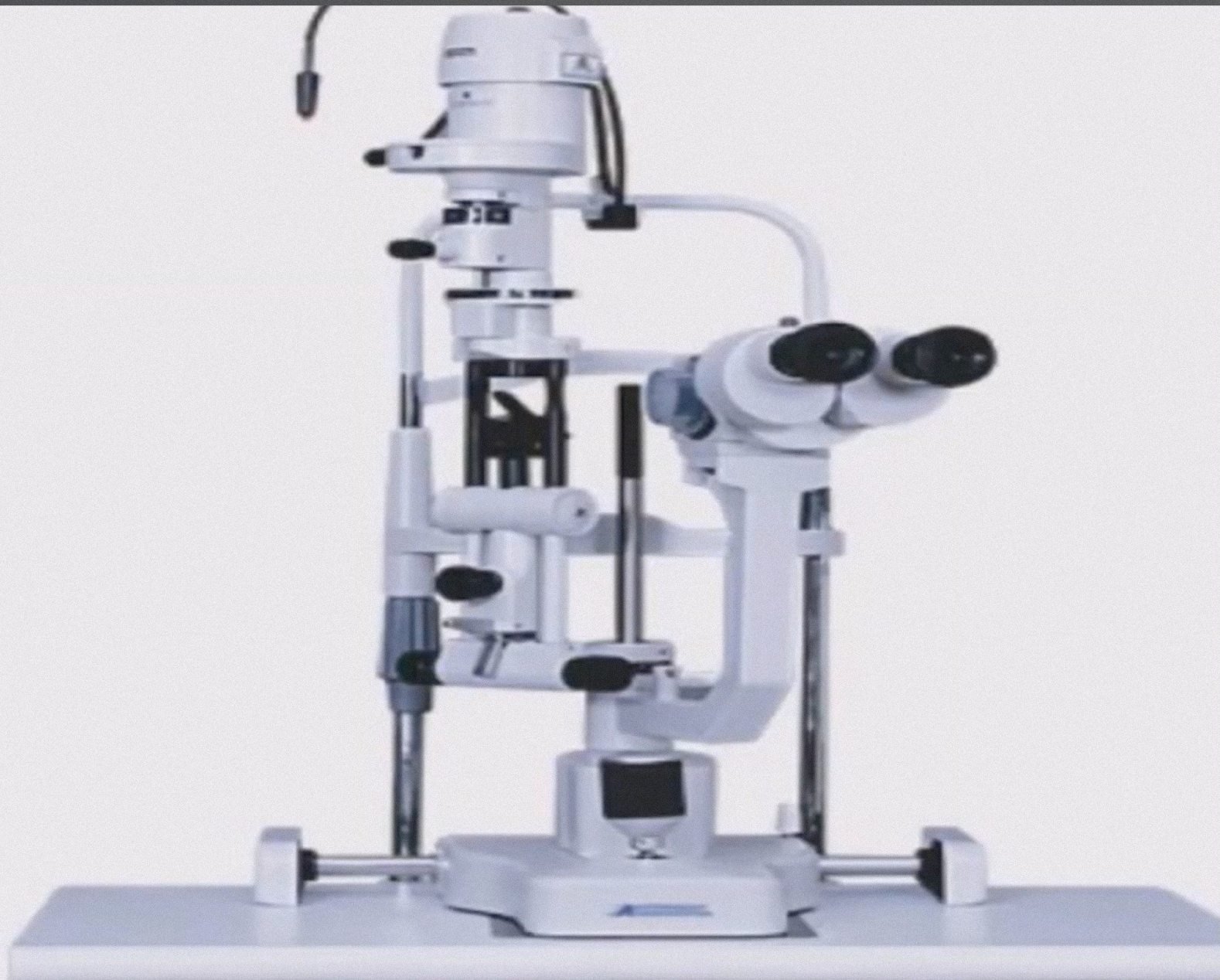
OPTICAL SECTION



- Knife like horizontal section of cornea, Lens and anterior vitreous
- Use the narrowest beam 0.1mm-0.2 mm
- Two beams will be seen; one curved beam outlining the surface of the cornea, the other a flatter, unfocused beam reflecting from the iris surface.



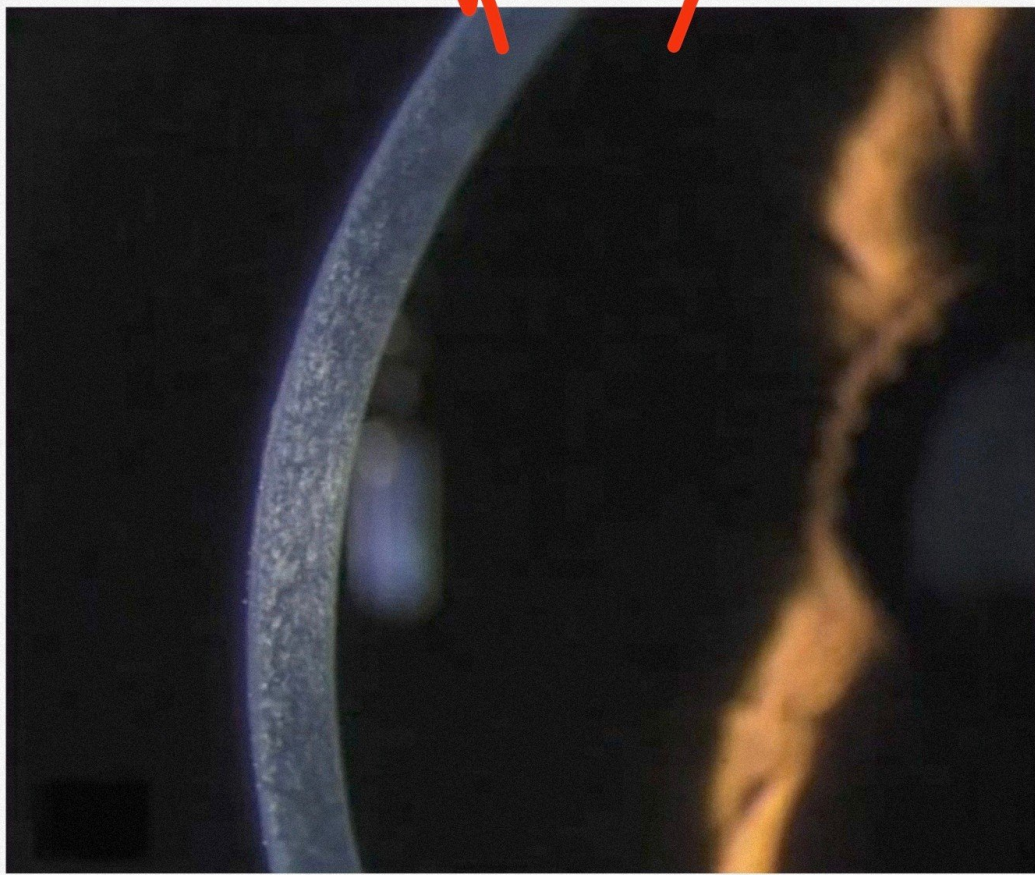




Cornea

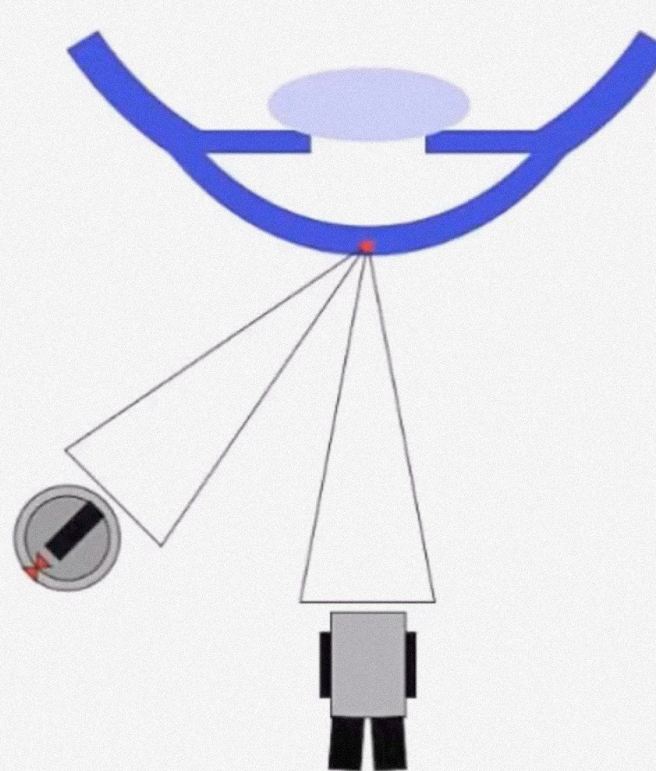
Anterior chamber

→ IRIS

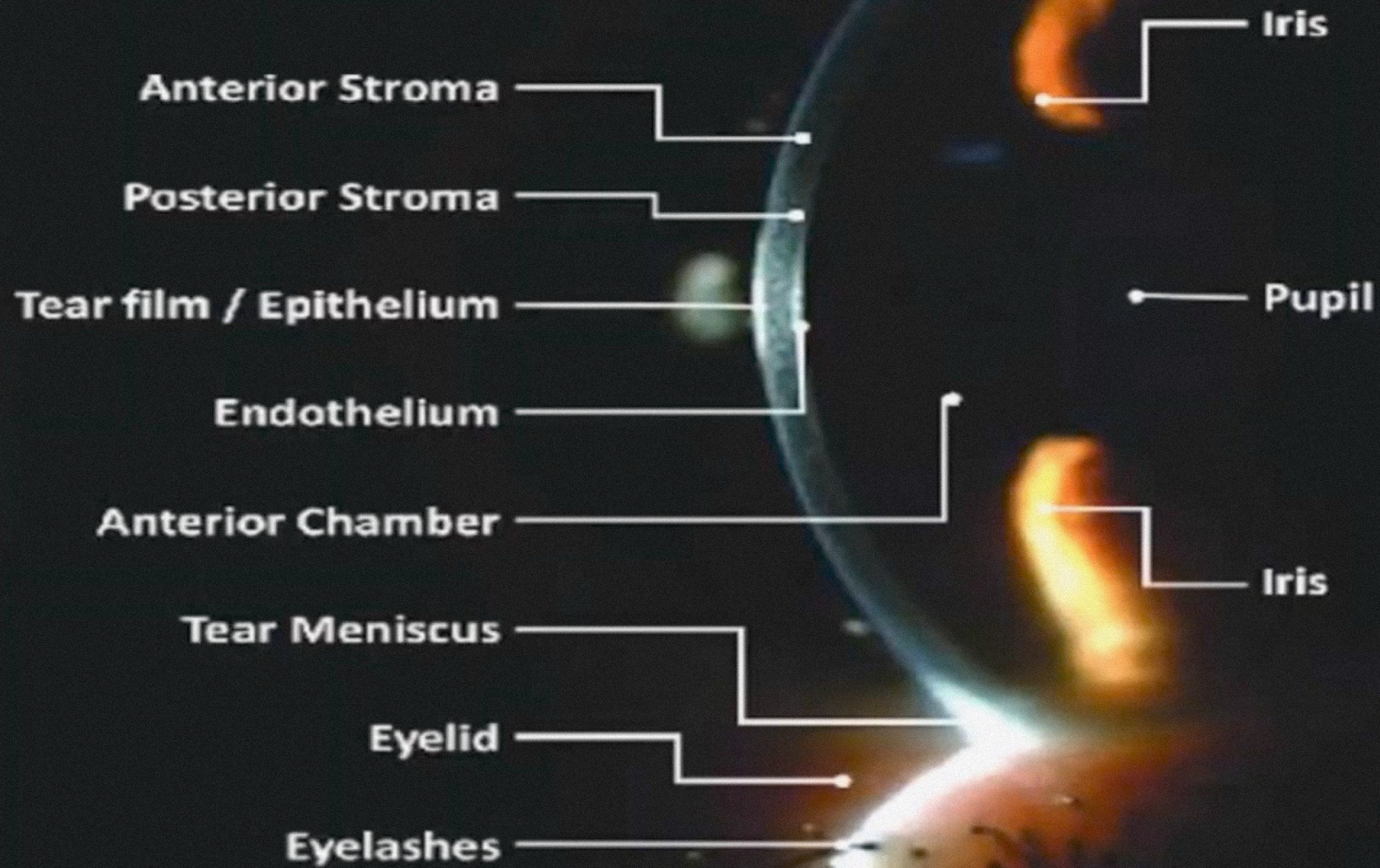


OPTICAL SECTION OF CORNEA

- To determine thickening, thinning or distortion of corneal contour

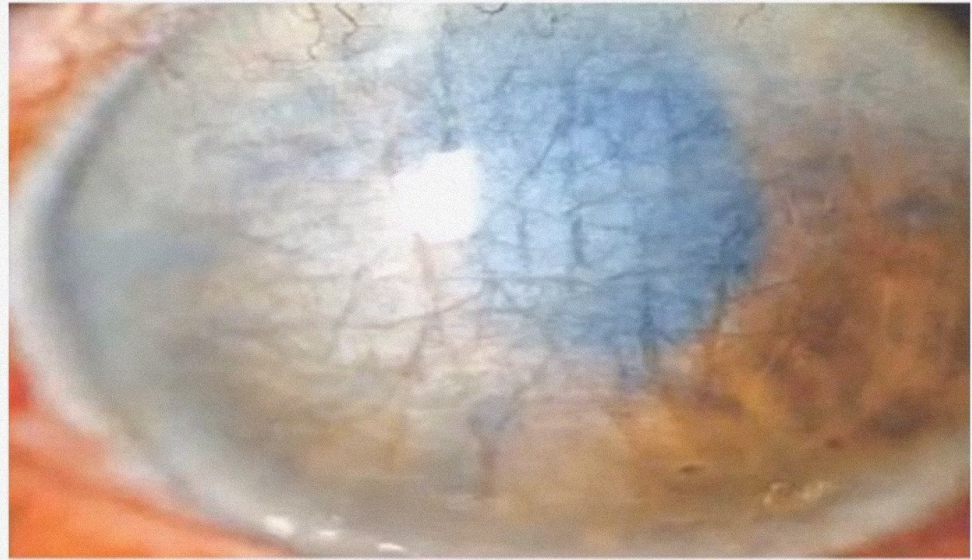
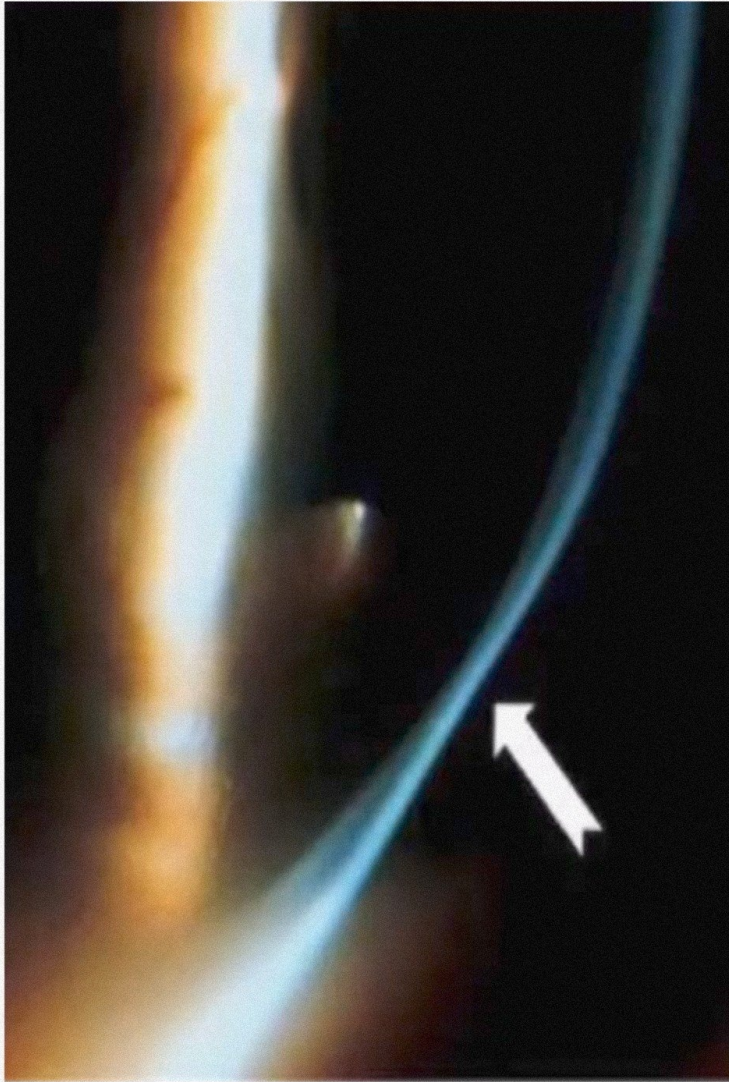


Slit Scan Image



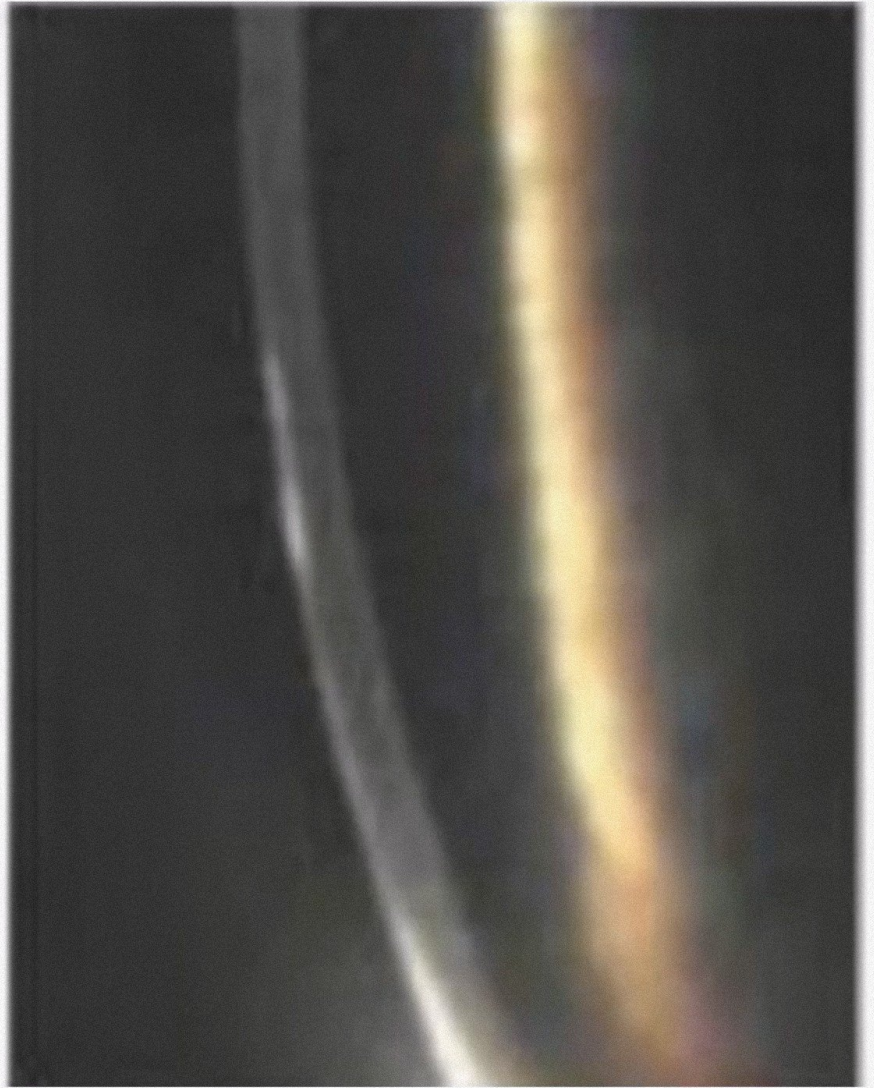
- The tear layer {and contact lens (if present) as it appears as a **bright line**}
- The epithelium {appears as a **dark line**}
- Bowman's layer {appears as a **bright line**}
- The stroma {appears as a grey, somewhat granular area under low power but shows detail like nerve fibres and infiltrates under higher power}
- The endothelial zone {appears **brighter** than stroma but not as bright as tear layer}



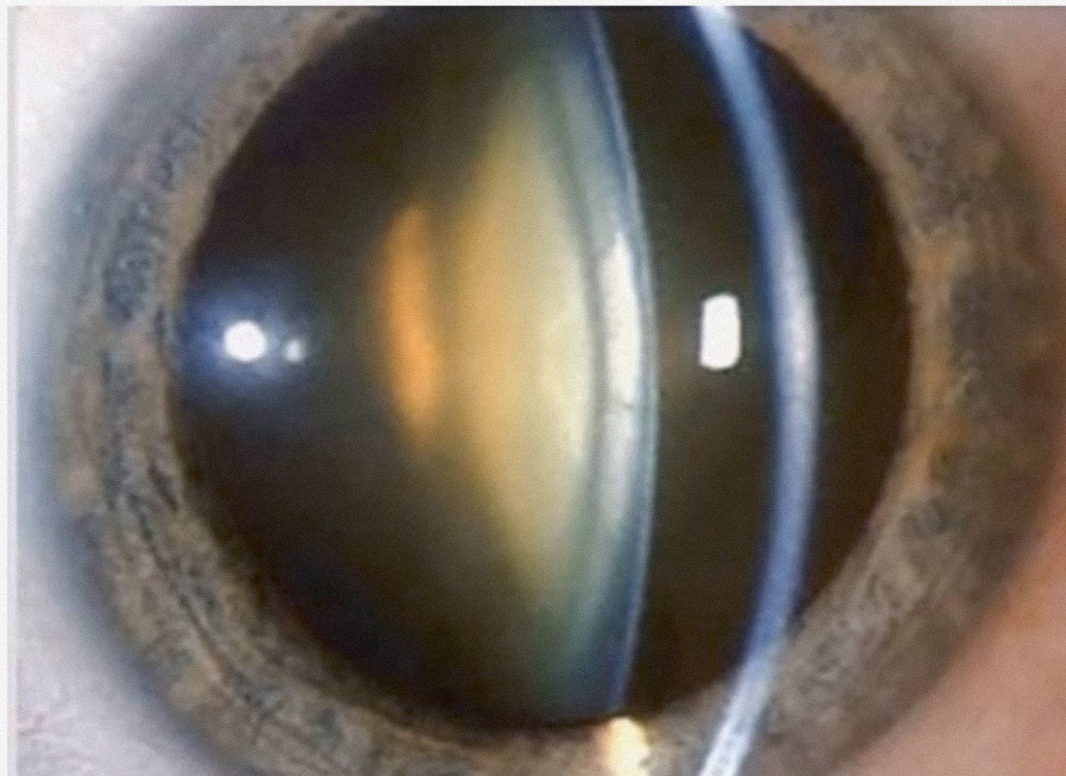
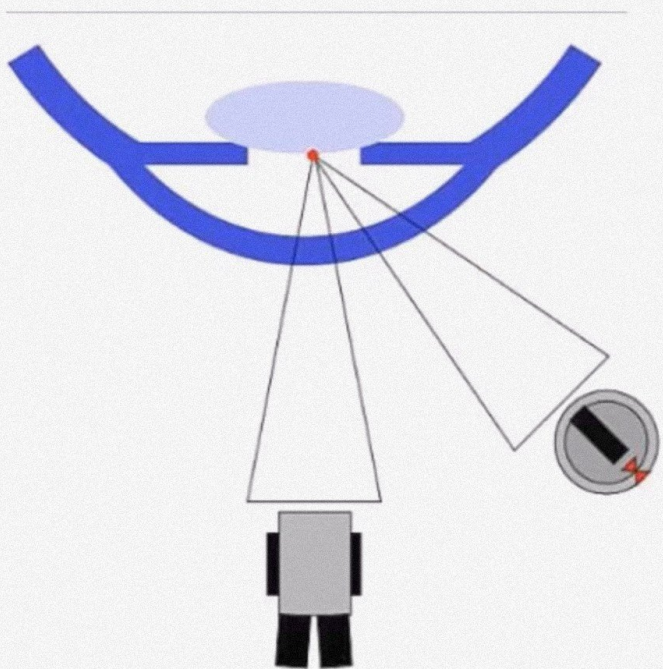


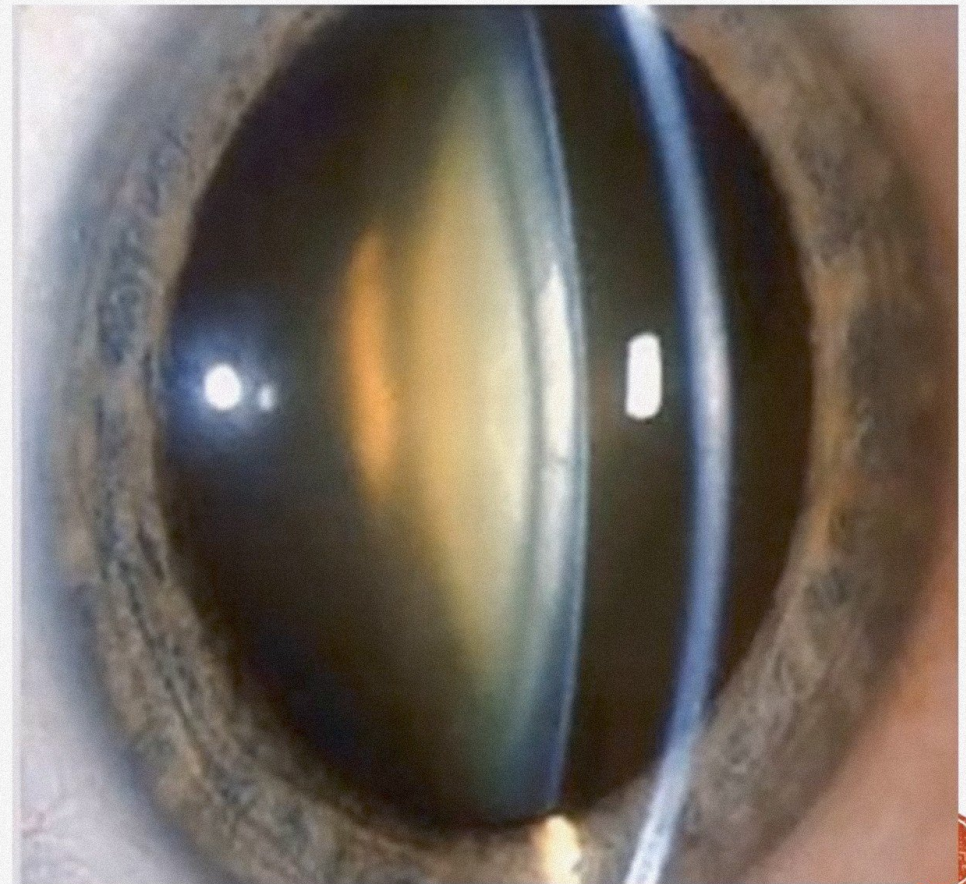
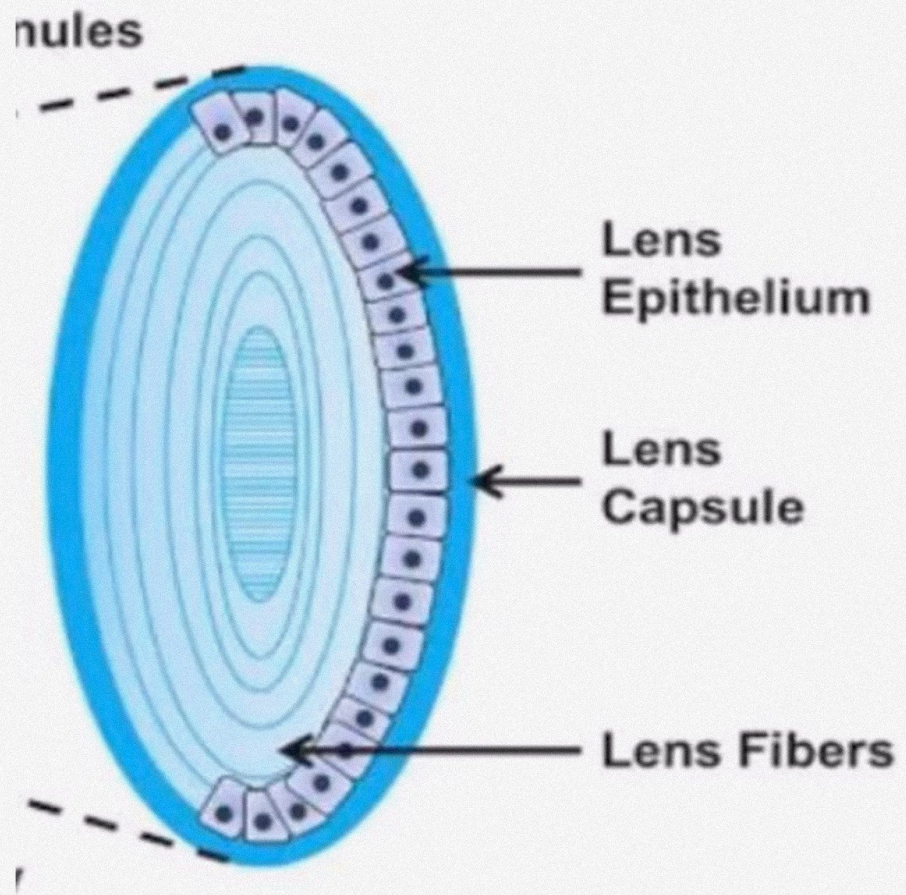
- To assess depth Of lesions
- Foreign body depth
- Depth of Opacities in cornea





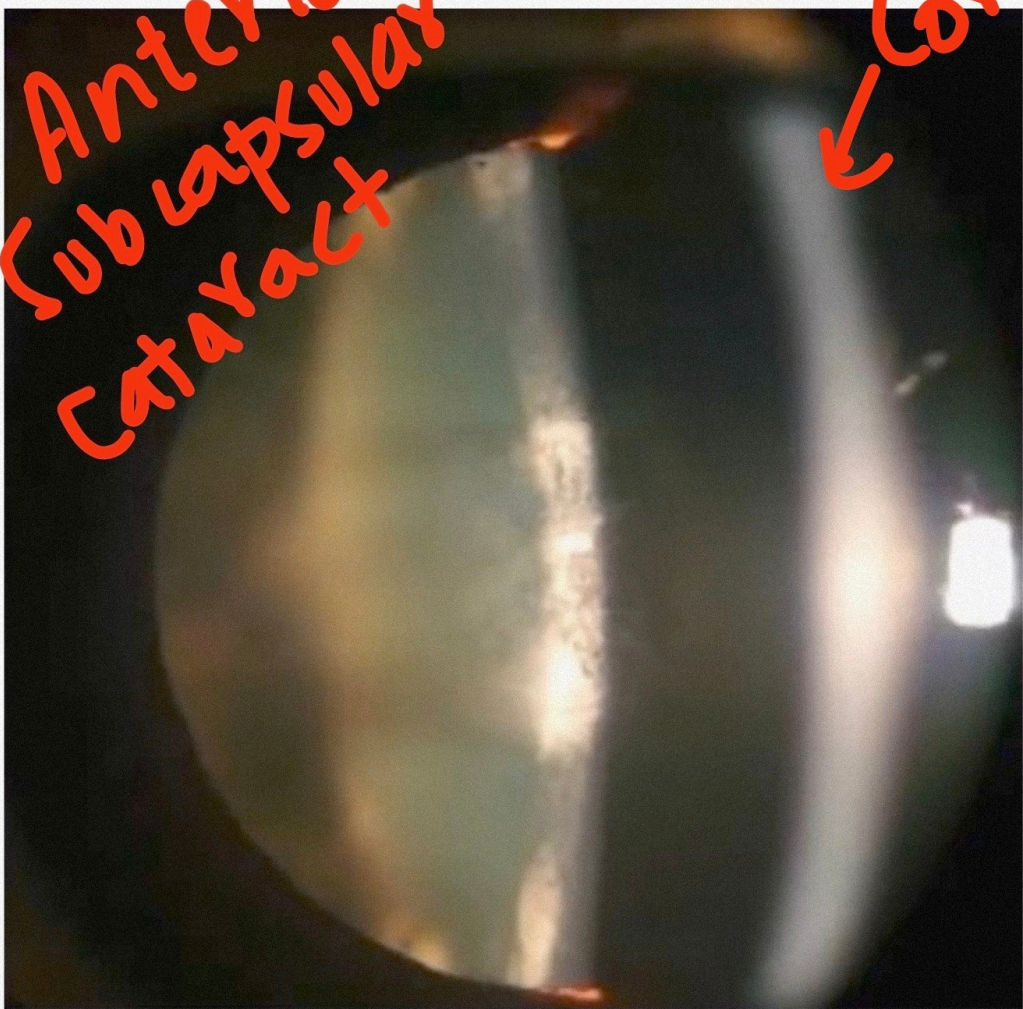
OPTICAL SECTION OF LENS





Anterior
Subcapsular
Cataract

Cornea

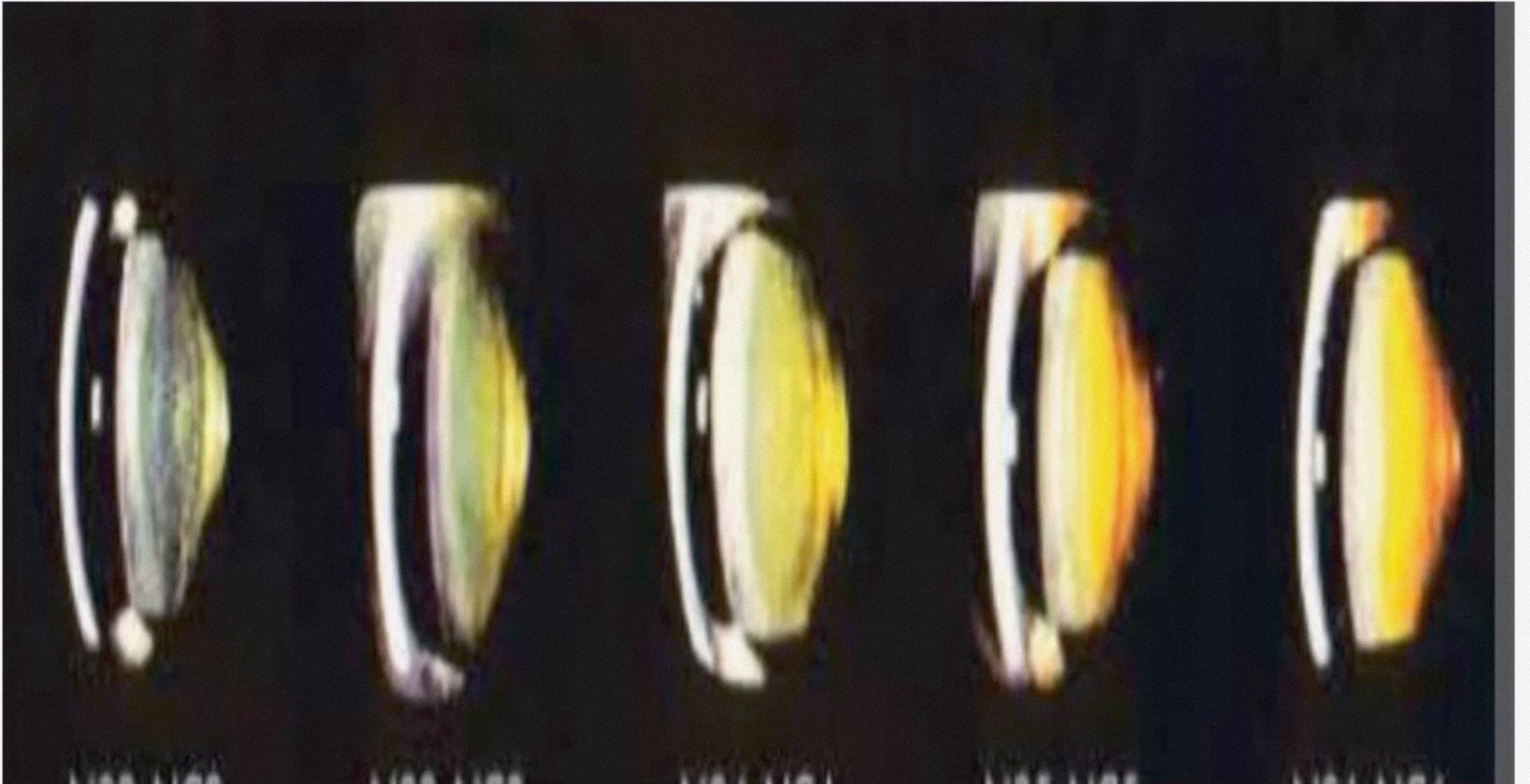


Cornea



Posterior
Subcapsular
Cataract

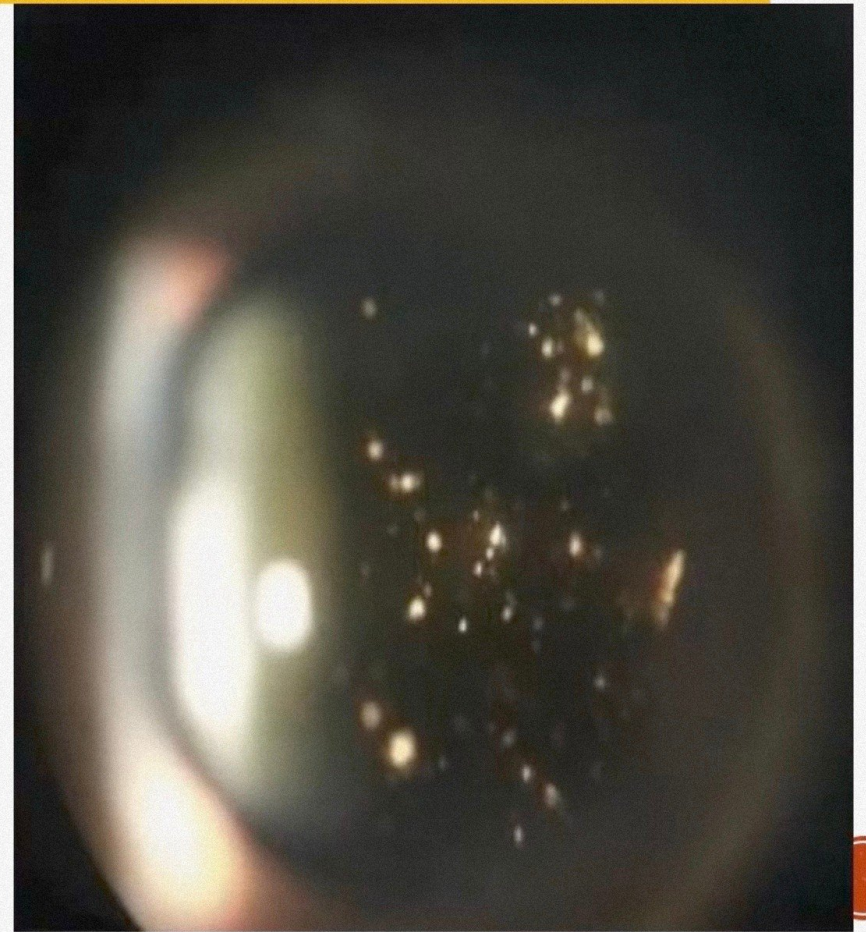




VITREOUS IN OPTIC SECTION

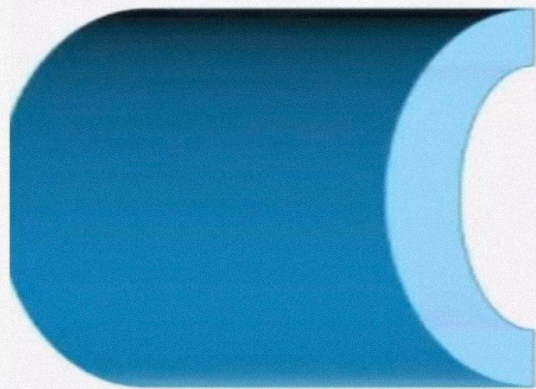


Anterior
vitreous
Lens

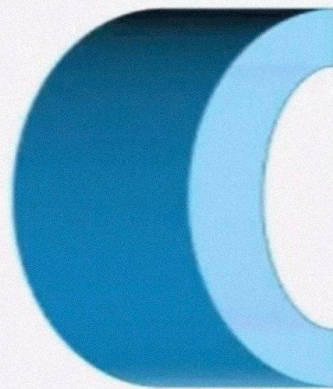


PARALLEL PIPE

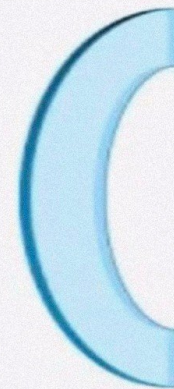
- Generally a very wide beam is used for surface study, whilst a very narrow one is used for sections (depth)
- A useful combination of the two is the parallelepiped section of the cornea, which uses a 2mm slit width enabling corneal surface as well as stroma to be studied



Wide beam: mostly surface

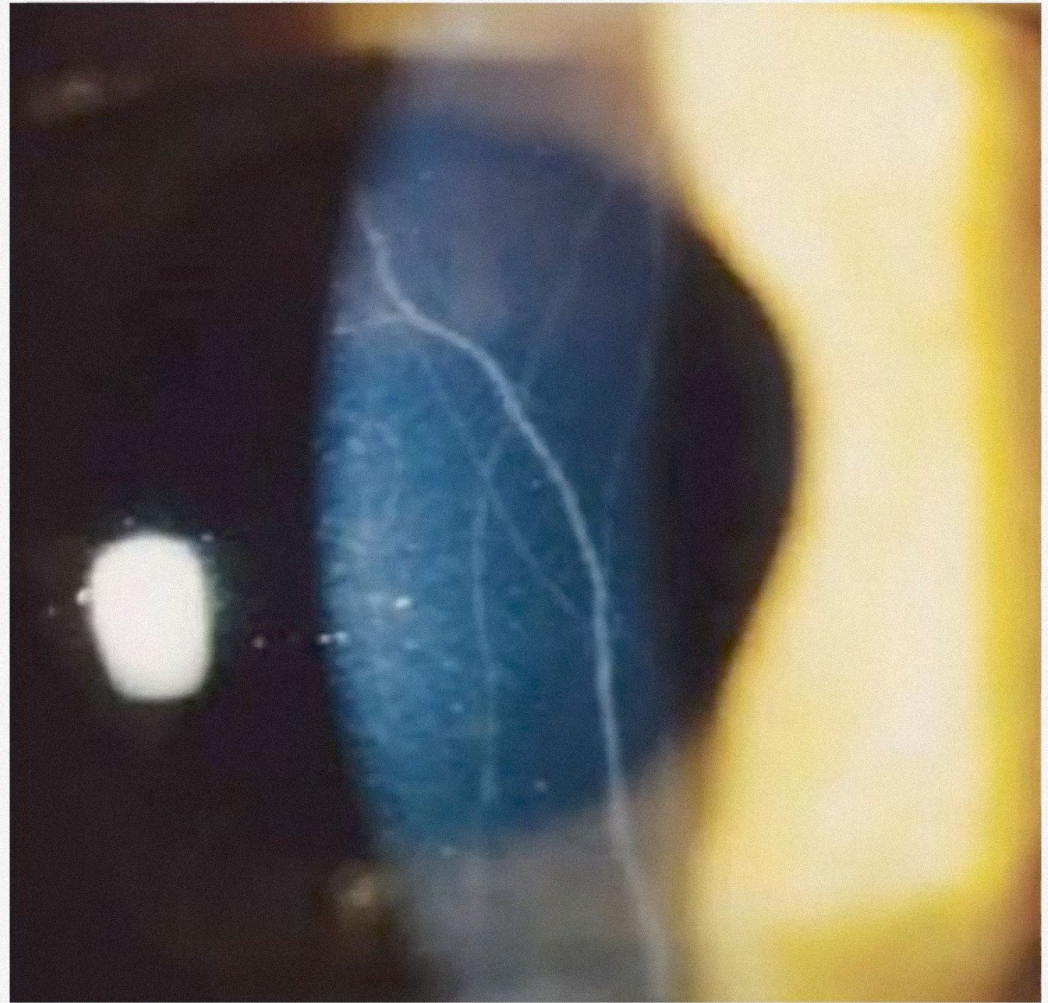
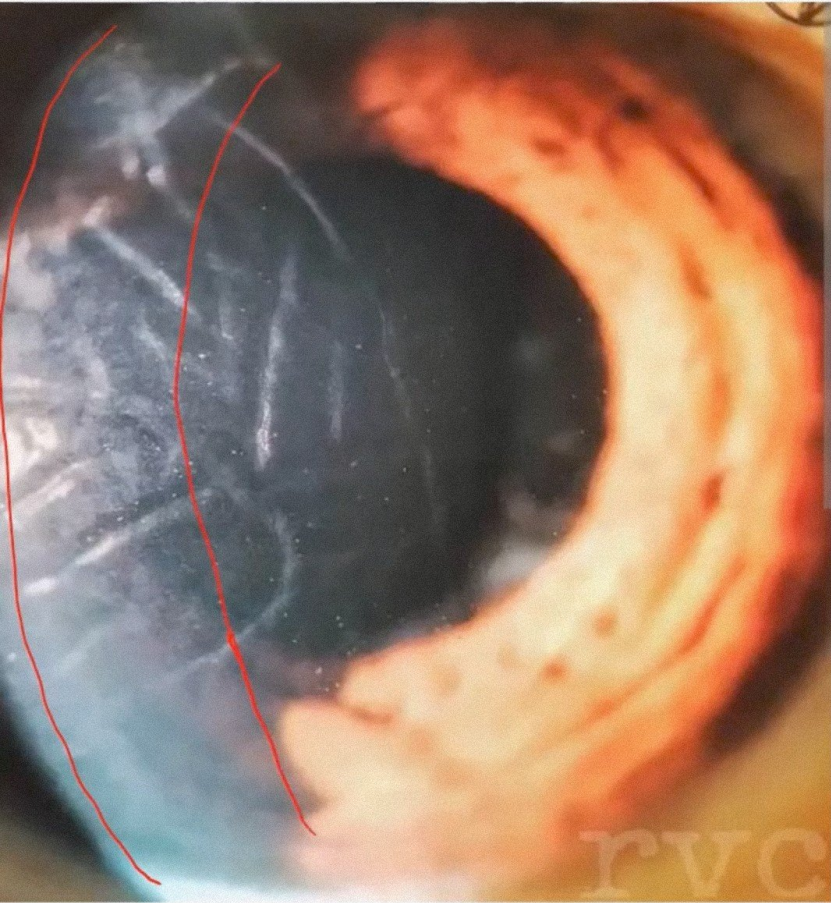


Parallelepiped: balance of surface and depth



Optical section: mostly depth





CONICAL BEAM / CIRCULAR BEAM

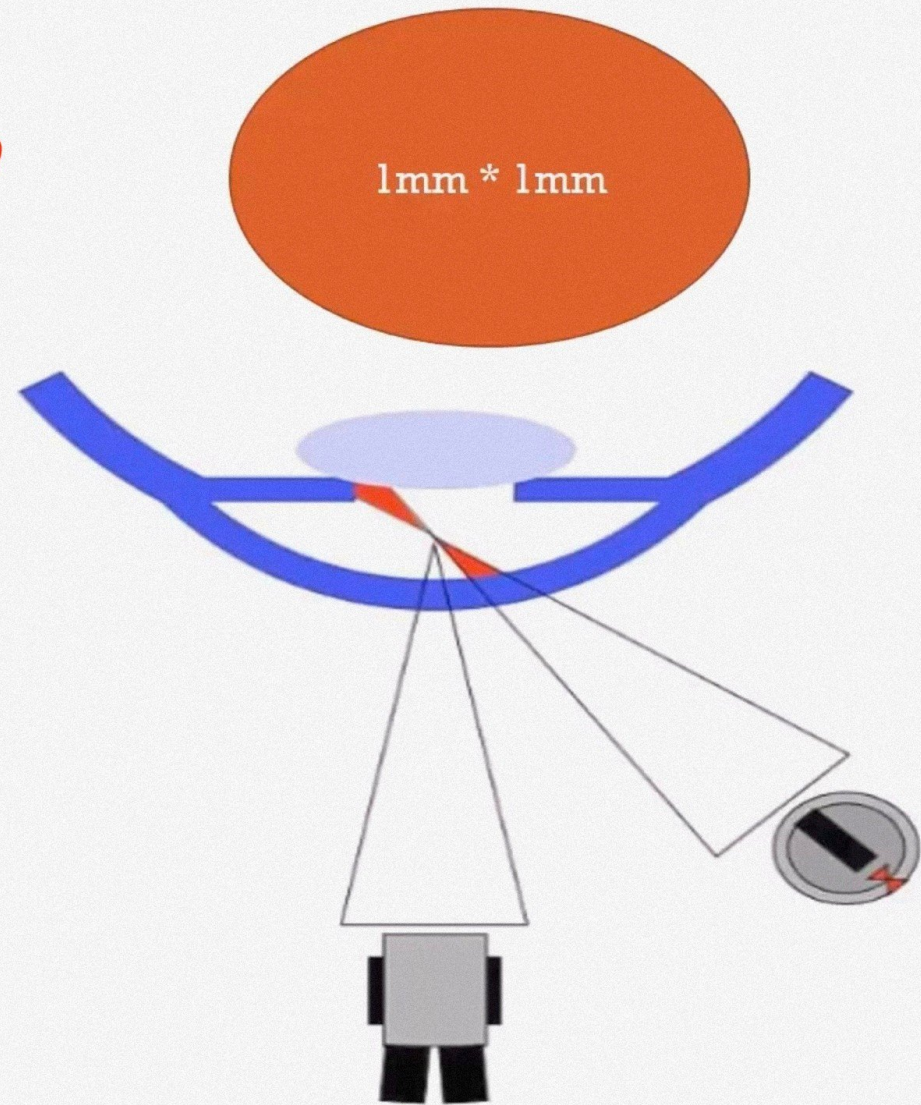
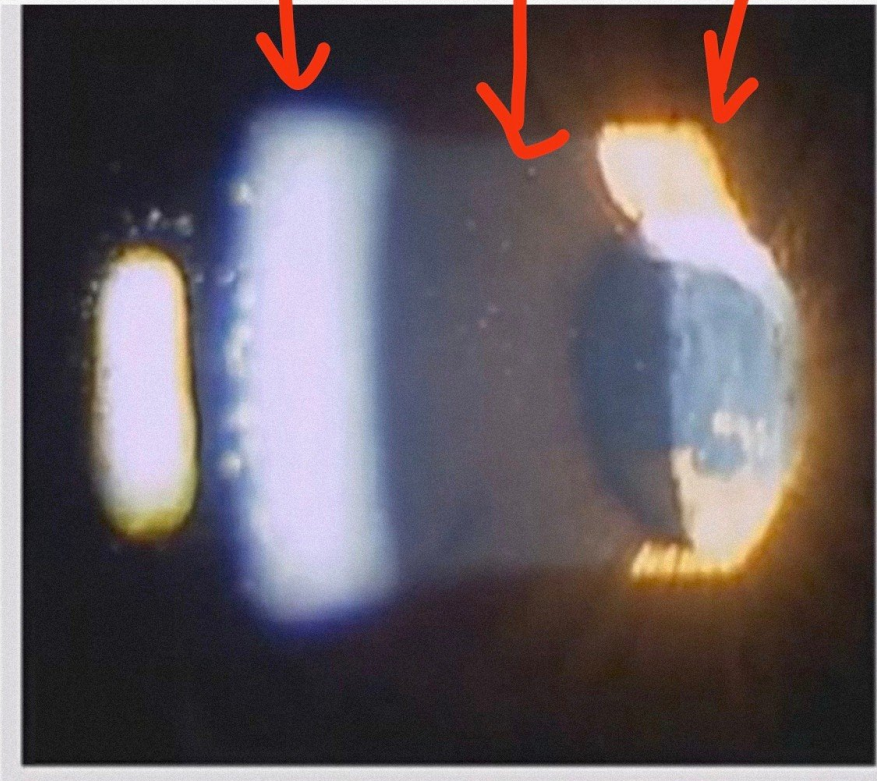
- To assess flare , cells and pigments in anterior chamber
- Aqueous flare (Tyndall phenomenon)

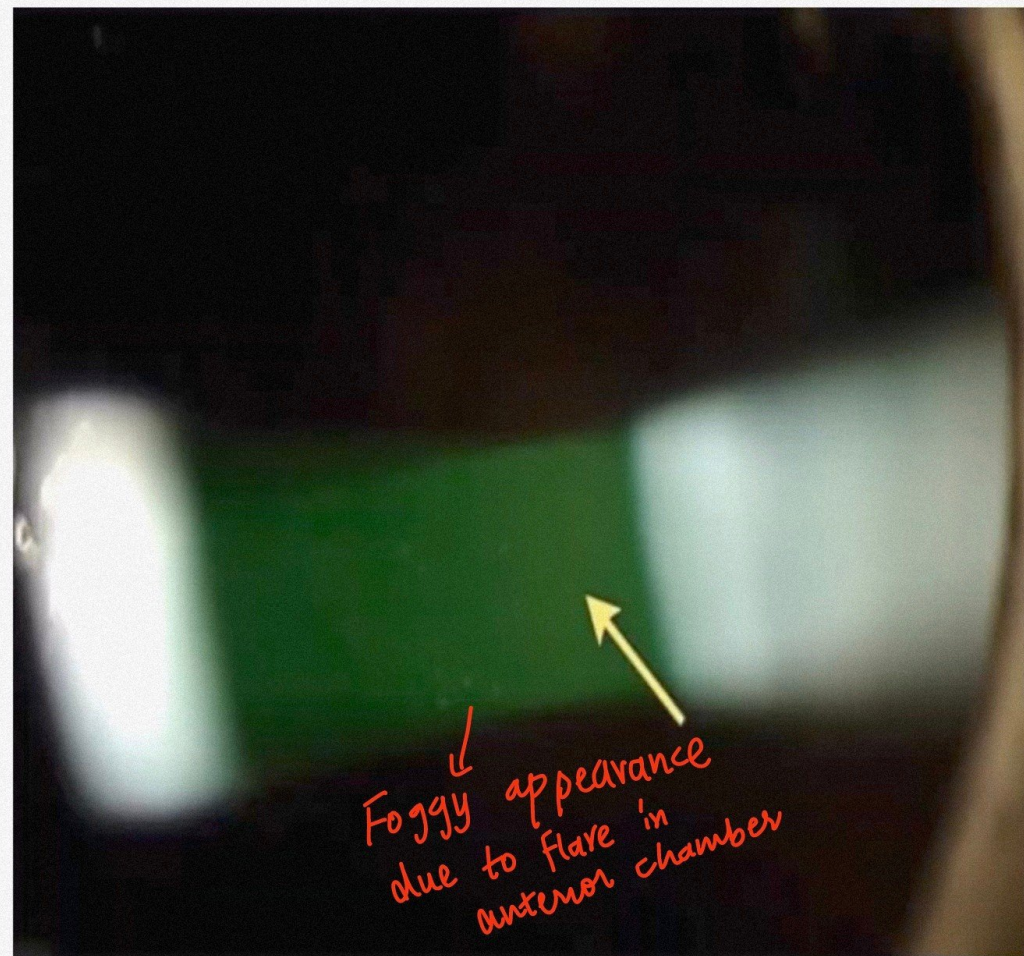
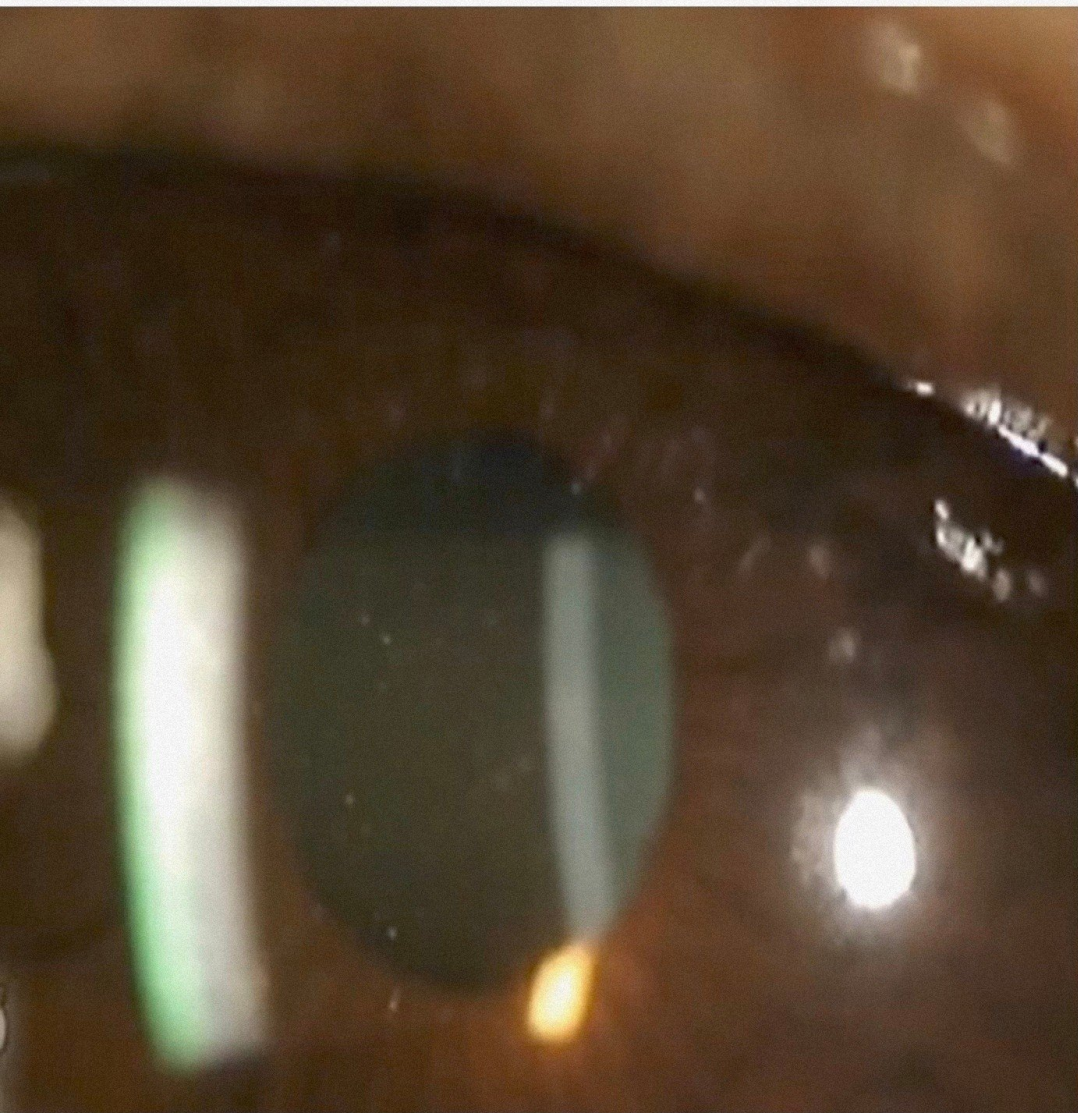
Flare cells indicate active uveitis

- Small circular beam
- Project through anterior chamber at 40-90 degrees angle
- Best reflection happens at 90 degrees



Cornea
Anterior Chamber
IRIS





TANGENTIAL ILLUMINATION

Elevated abnormalities of the iris.

- Cysts
- Tumors

