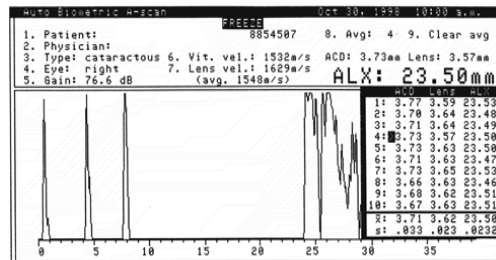


Pachymetry



A pachymeter is an ultrasound device for designed specifically to measure the thickness of the cornea. It was important in RK to determine blade depth settings and it used in laser refractive surgery to determine safe limits of tissue removal.

Ultrasound A-Scan



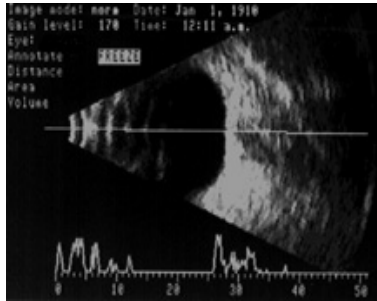
Ultrasound can also be used to determine the position of the lens within the eye and the length of the eye. This technique is routinely used for determining IOL power.

Frequencies are typically 10-20 MHz

Assumes velocities of 1532 m/s in cornea, aqueous and vitreous
1629 m/s in the lens

Resolution 50 μ m

Ultrasound B -Scan



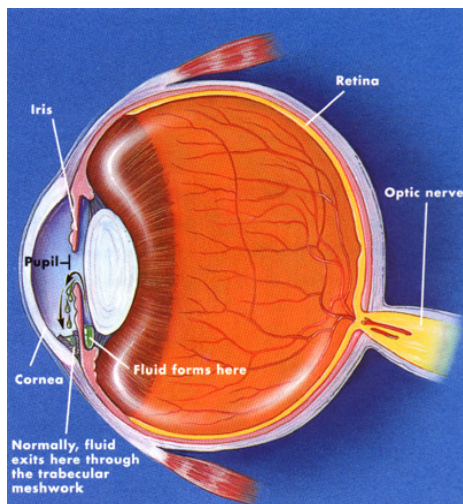
Sweeping the beam builds up an image of the structures within the eye. This is useful for detecting retinal detachments and ocular tumors

Frequencies are typically 10-20 MHz

Assumes velocities of 1532 m/s in cornea, aqueous and vitreous
1629 m/s in the lens

Resolution 75 μm

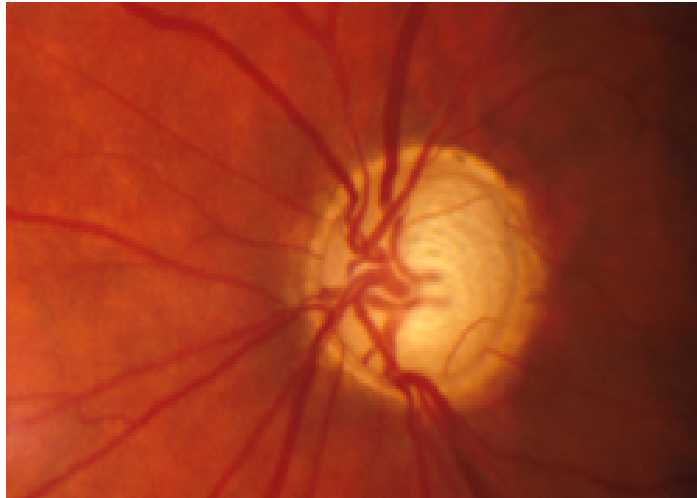
Glaucoma



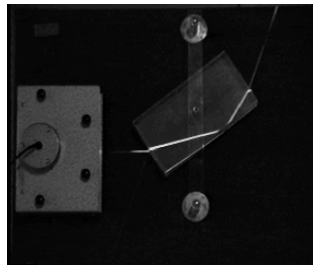
Glaucoma is an elevation in pressure of the eye due to aqueous drainage not being as fast as aqueous production.

It is useful to optically visualize the angle for the treatment of this disease.

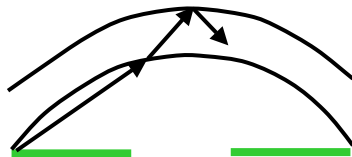
Glaucoma



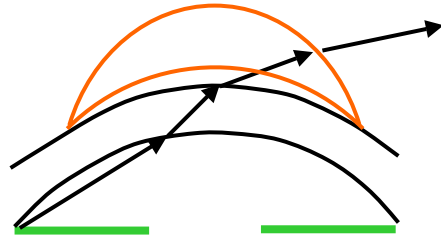
Total Internal Reflection



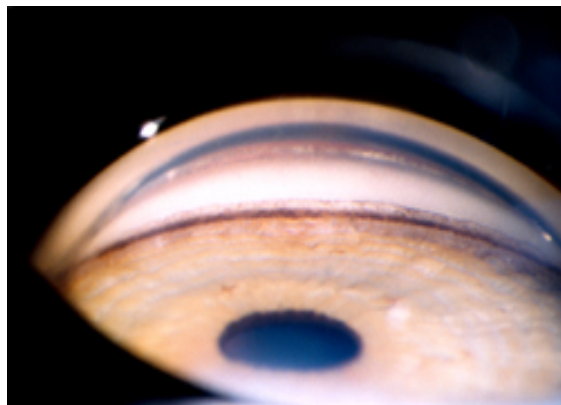
When going from a high index material to a low index material, if the angle of incidence is too great, then 100% of the light is reflected from the surface. This phenomenon prevents the light from the angle from exiting the eye.



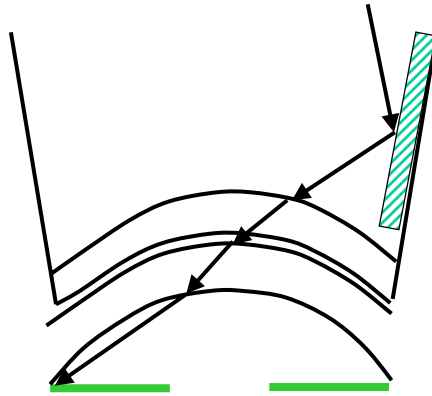
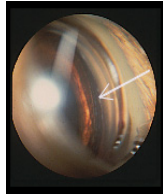
Direct Gonioscopy



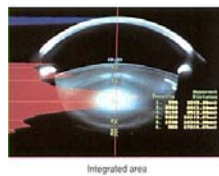
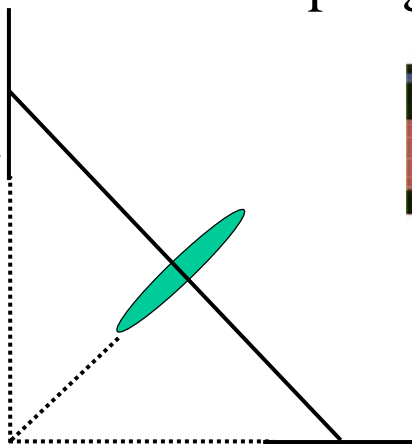
Direct Gonioscopy



Indirect Gonioscopy

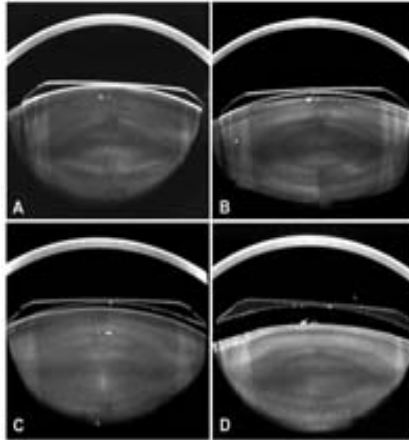


Scheimpflug Imaging

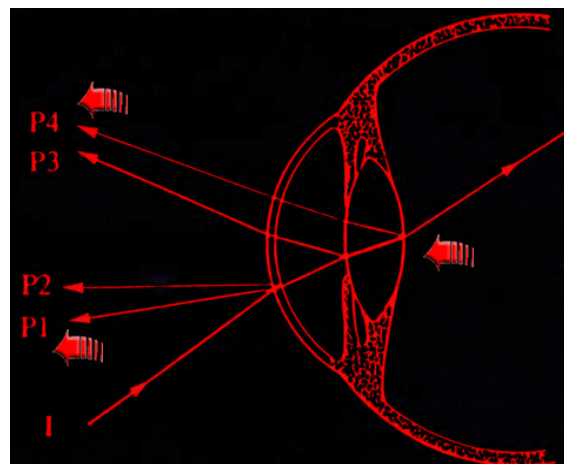


A tilted object plane can be perfectly relayed to a tilted image plane.

Scheimpflug Imaging



Purkinje Images



Purkinje Images

