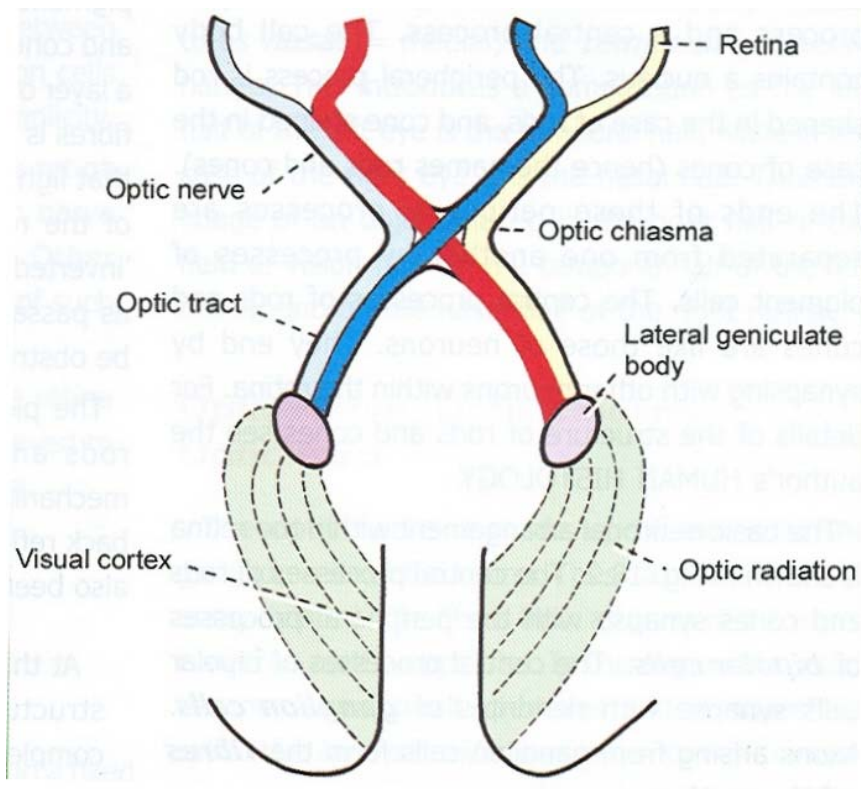


Visual pathway

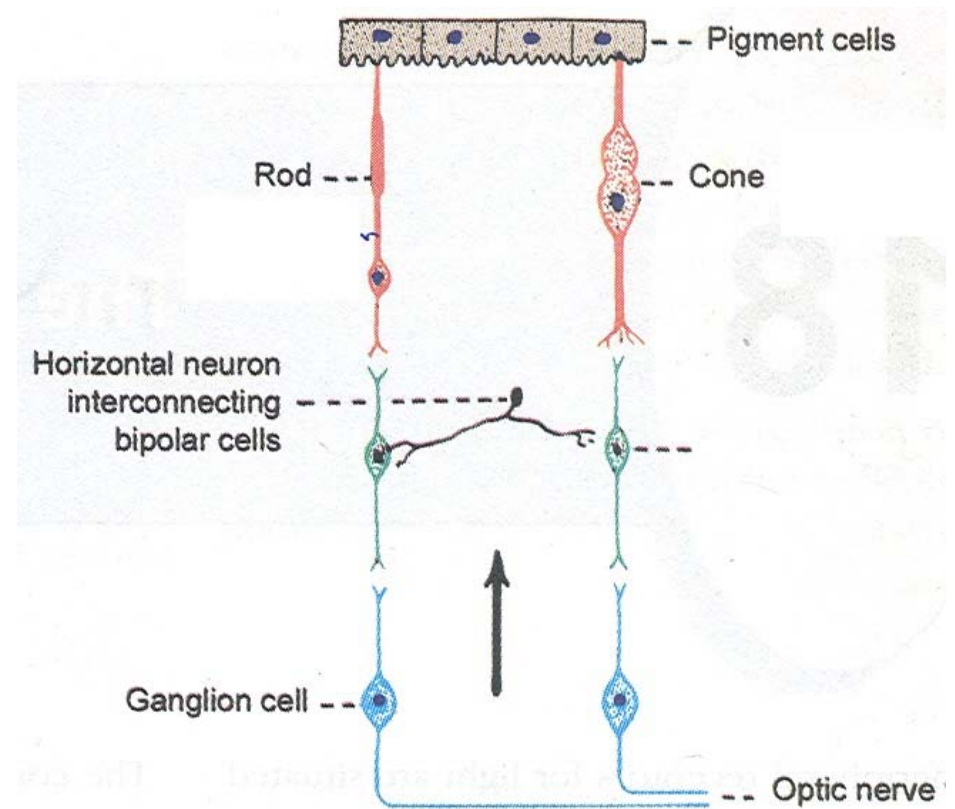
- Retina → Optic nerve → Optic chiasma

↓
Optic tract
↓
Lateral geniculate body
↓
geniculostriate tract
↓
Optic radiation
to visual sensory area
17,18&19

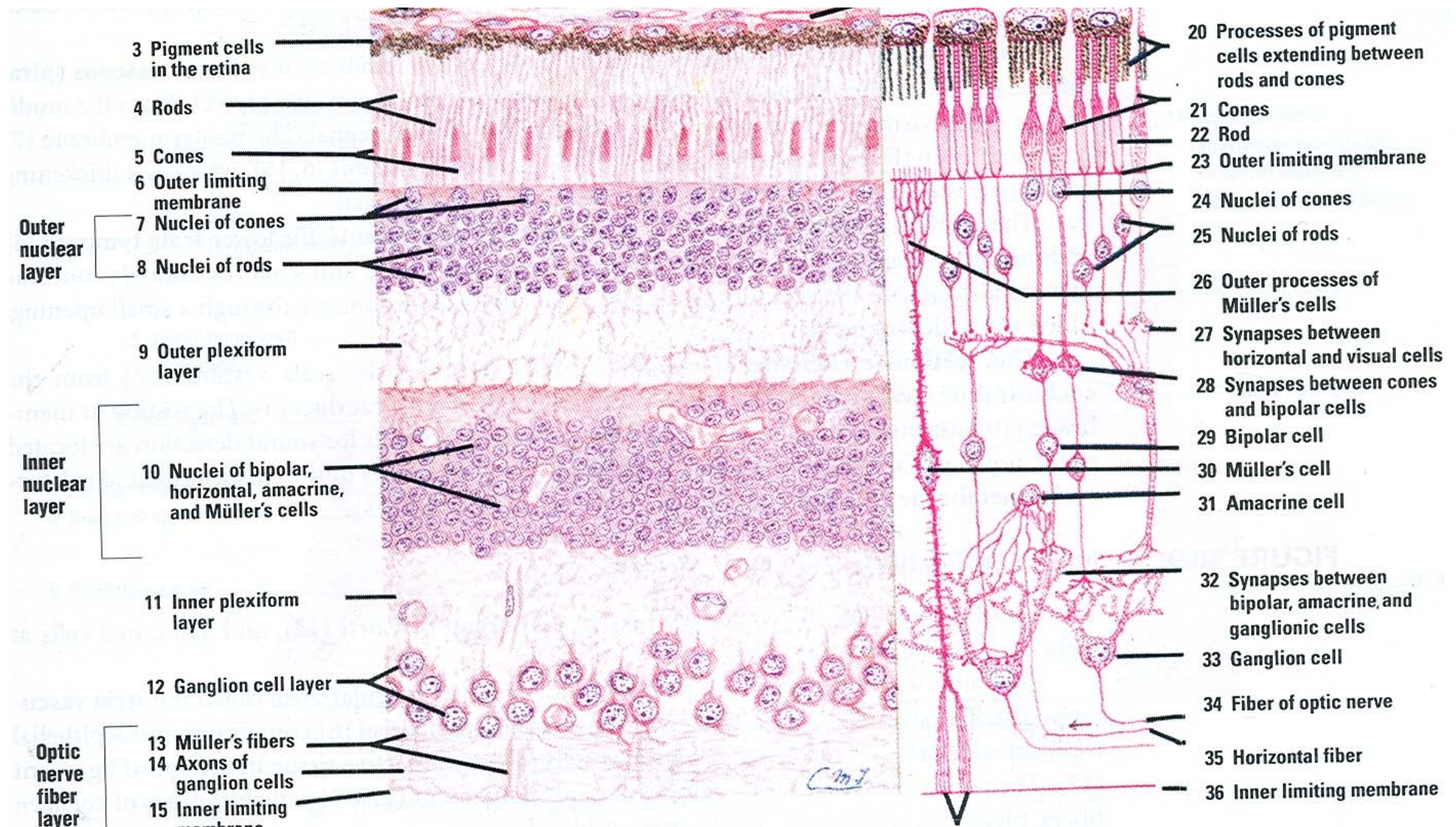


The retina

- Contains photoreceptors i.e. Rods & cones
- **Cones**- around 7millions in retina. Respond best in bright light. Responsible for sharp vision, discrimination of colour. Most numerous in Macula lutea
- Optic disc is devoid of photoreceptors
- **Rods** are more in number(100) million
- Predominate in peripheral area



Retina

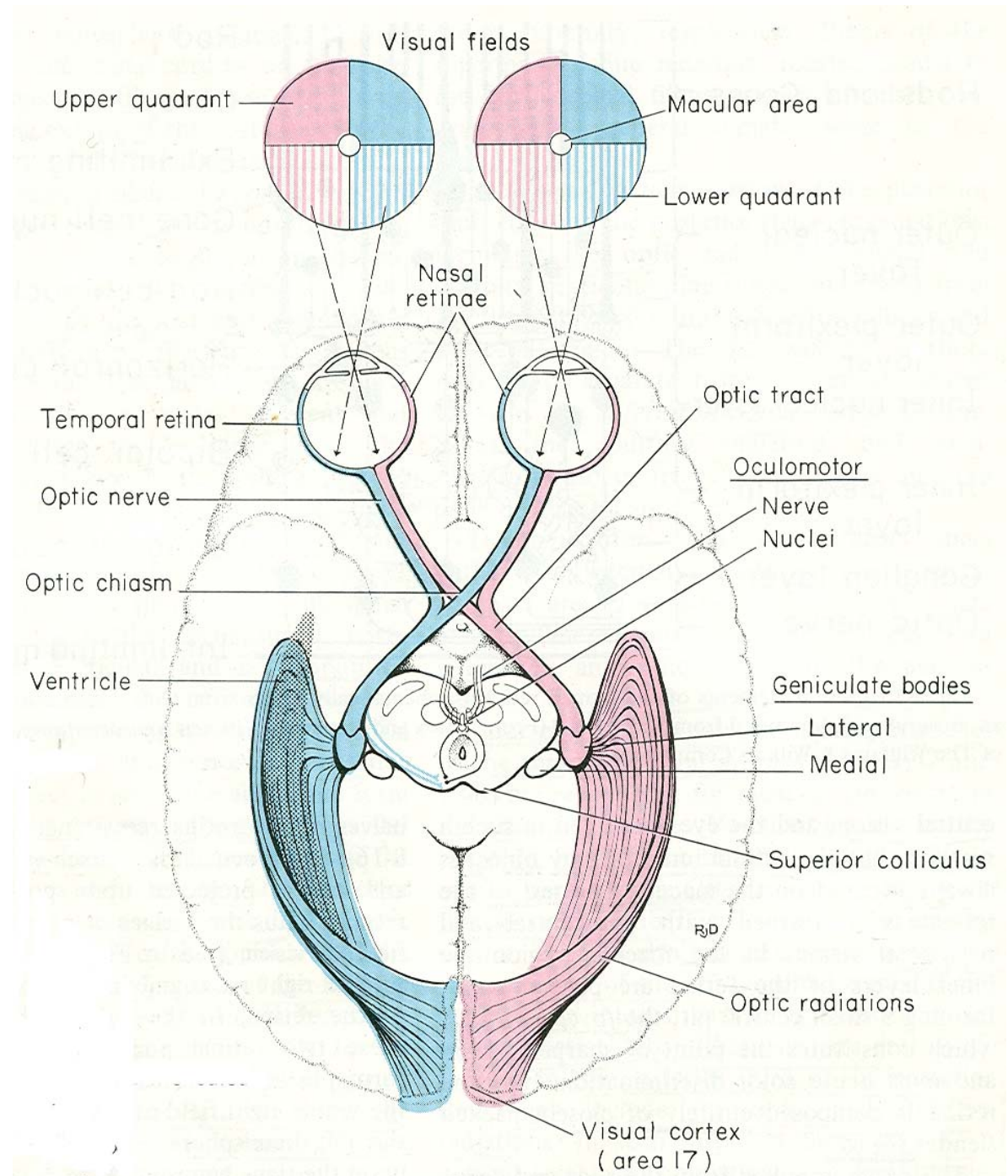


Visual field & retinal quadrant-

Head & eye are maintained in a fixed posture

- One eye is closed
- Area seen by the open eye constitute the visual field of that eye
- Visual field of the two eye overlap to a great extent
- On either side there is a small area which is seen only by eye of that side.
- For convenience visual field is divided into right & left halves

- For convenience visual field is divided into rt & lt halves
 - On retina image is inverted
 - Two halves of retina are usually referred
- As nasal & temporal halves

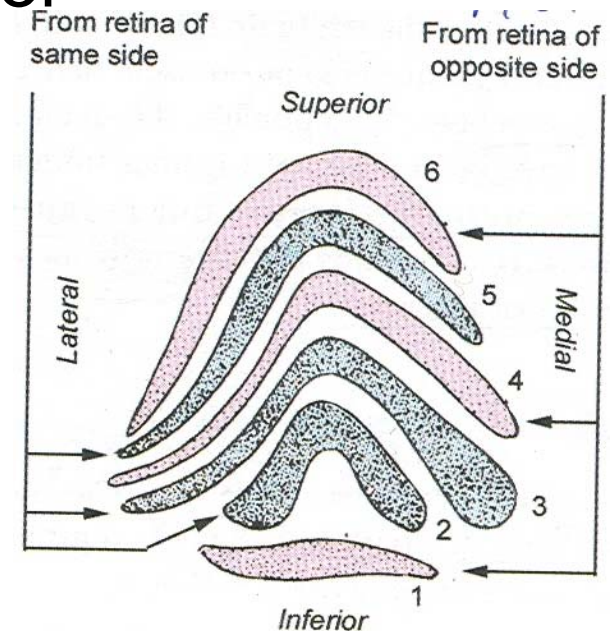
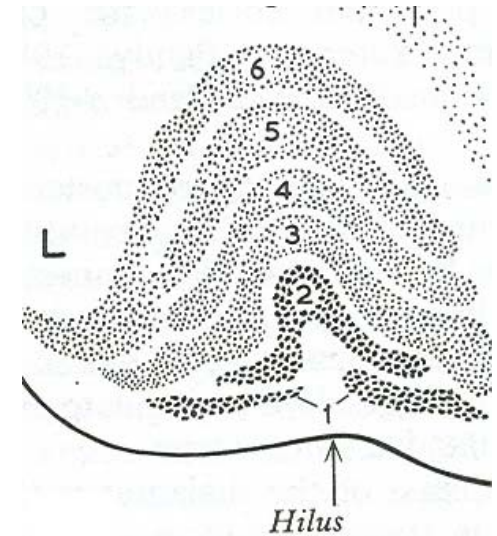


Optic nerve, optic chiasma & Optic tract

- Optic nerve is made up of axons of ganglion cells of retina
- Fibers of the nerve arising from the four quadrants of retina maintain the same relative position within the nerve
- Fibers from the macula are numerous & form papillomacular bundle
- The fibers of the nasal half of each retina enter the optic tract of the opposite side after crossing in the chiasma
- Fibers from the temporal half enter the optic tract of same side
- Optic tract carries these fibers to lateral geniculate body of the corresponding side

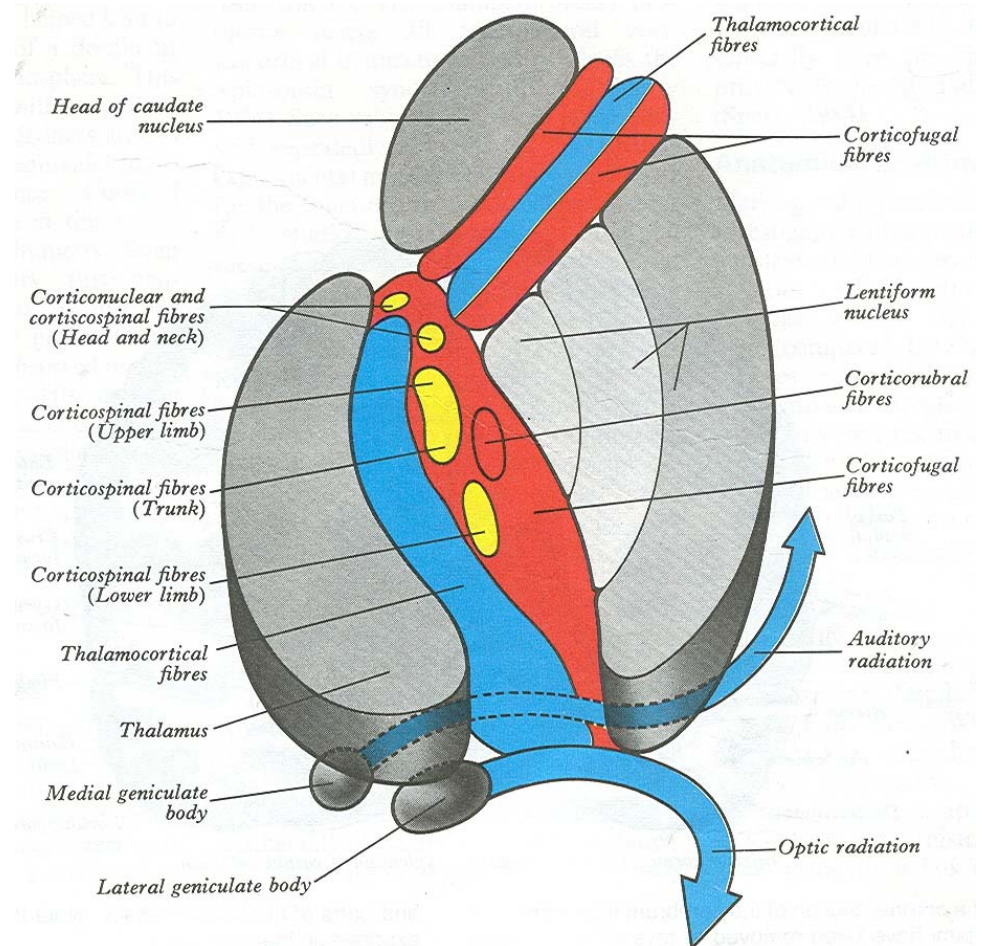
Lateral geniculate body-

- Part of metathalamus
- Grey matter is split into 6 layers
- Fibers from the same side eye end in laminae 2, 3, & 5.
- Fibers from opposite side eye end in 1, 4 & 6
- Macular fiber end in central & posterior part of body & this area is relatively large

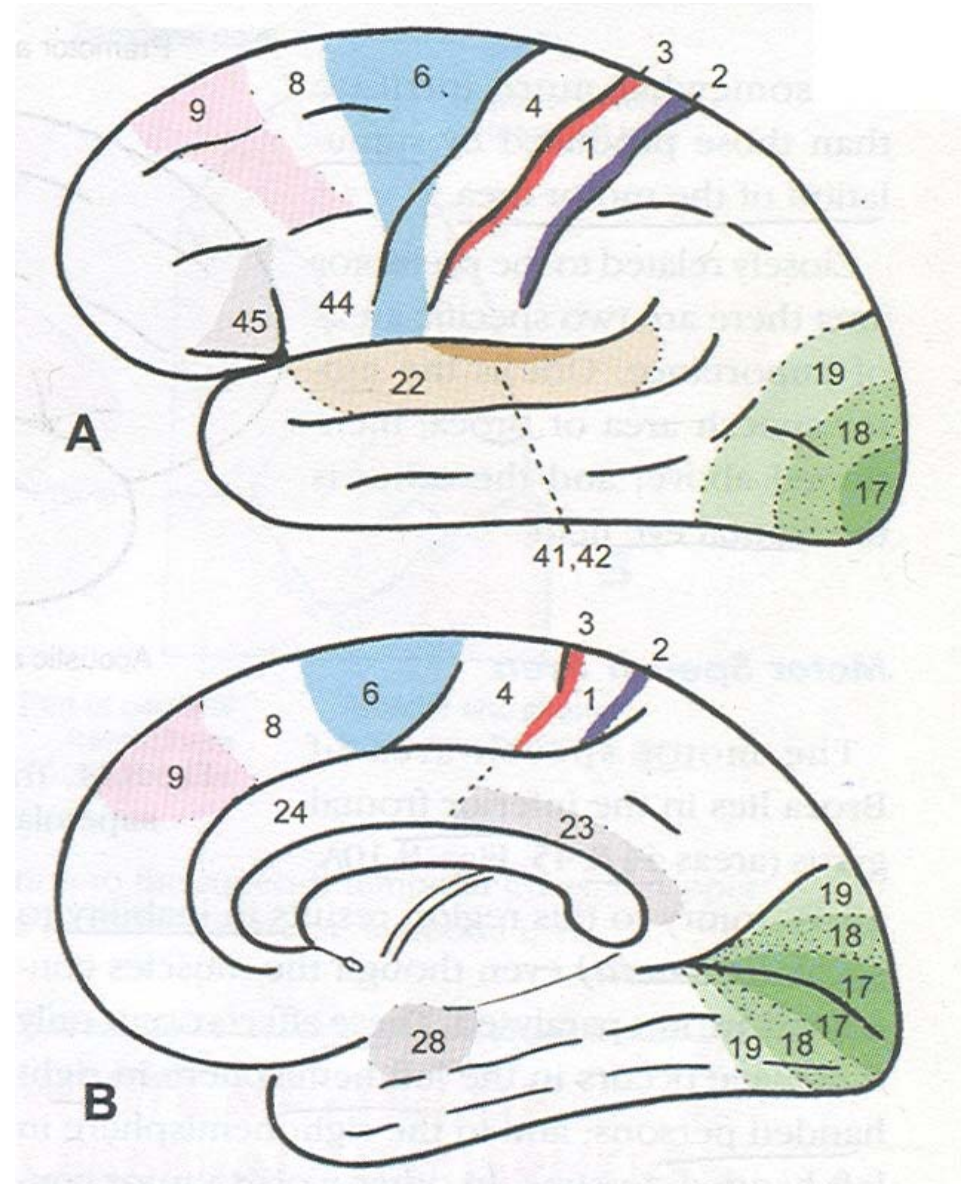


Geniculocalcarine tract & visual cortex

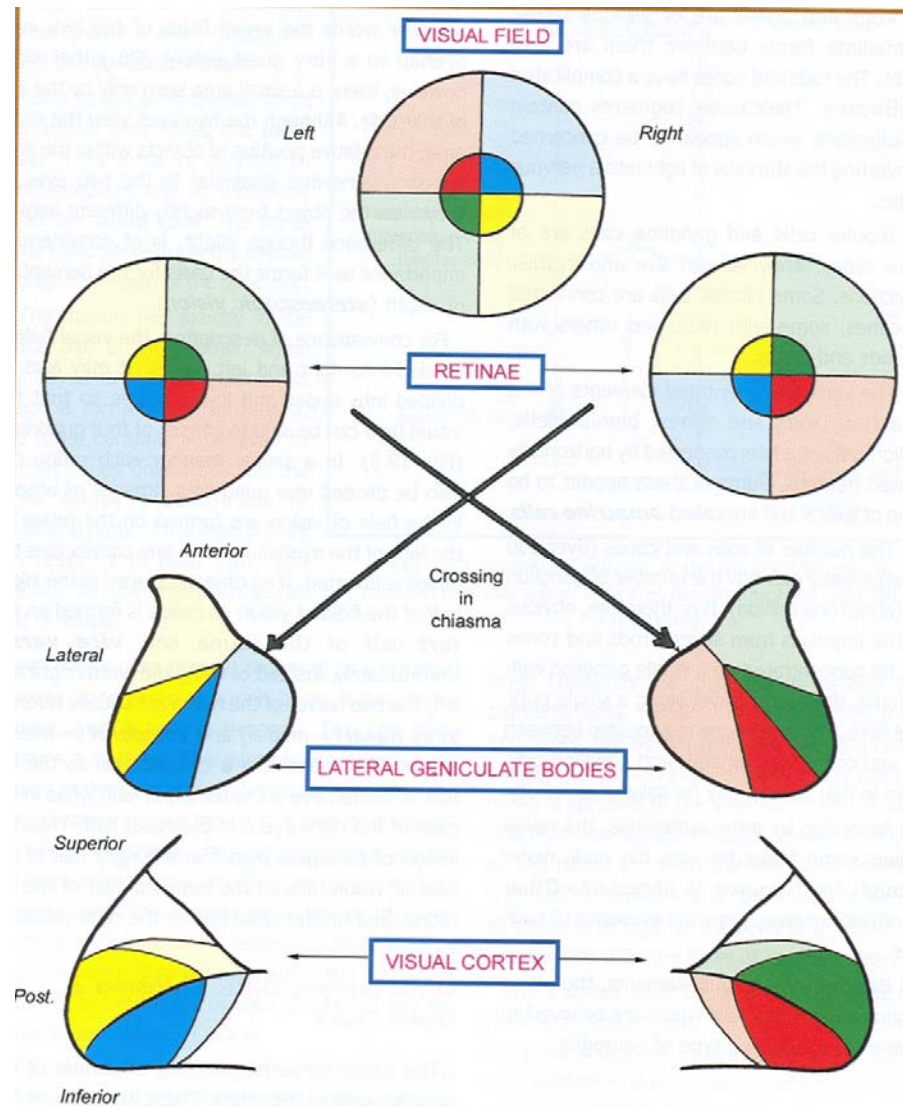
- Fibers arising from geniculate body form geniculocalcarine or optic radiation
- These fiber pass through retrolentiform part of internal capsule
- Radiation end in visual areas of cerebral cortex (Area 17, 18 & 19)
- .



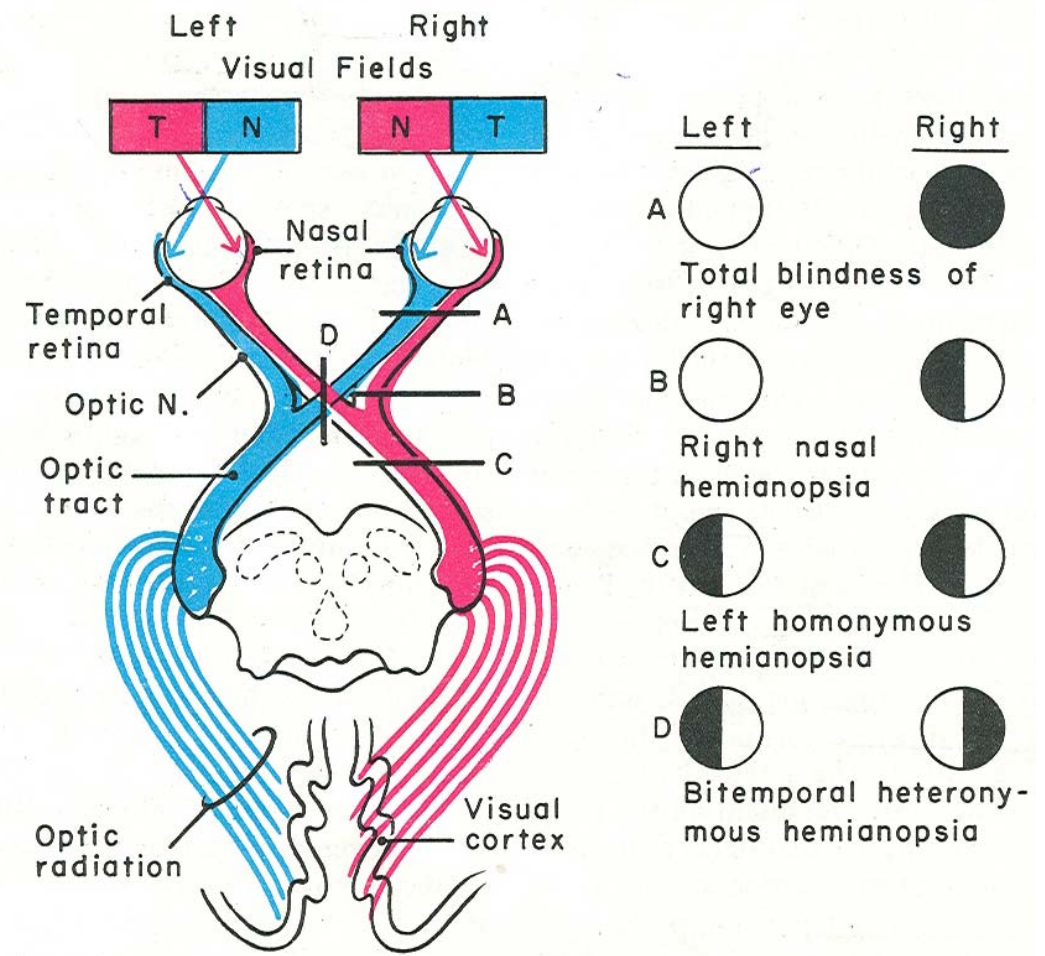
- Cortex receives impulses from retinal halves of the same side(from opposite halves of field of vision)
- The cortical area of macula is much larger than that for the peripheral area.



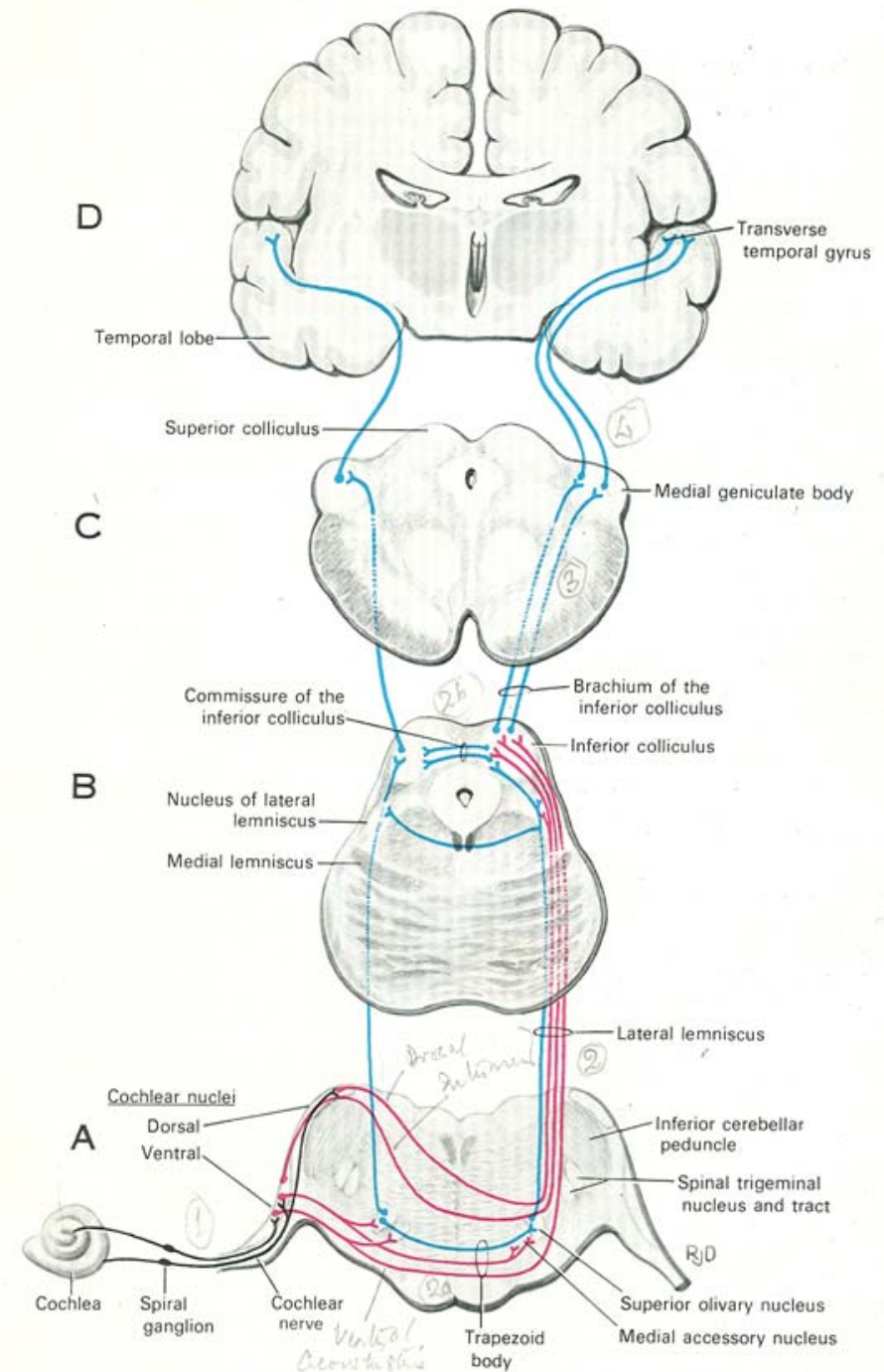
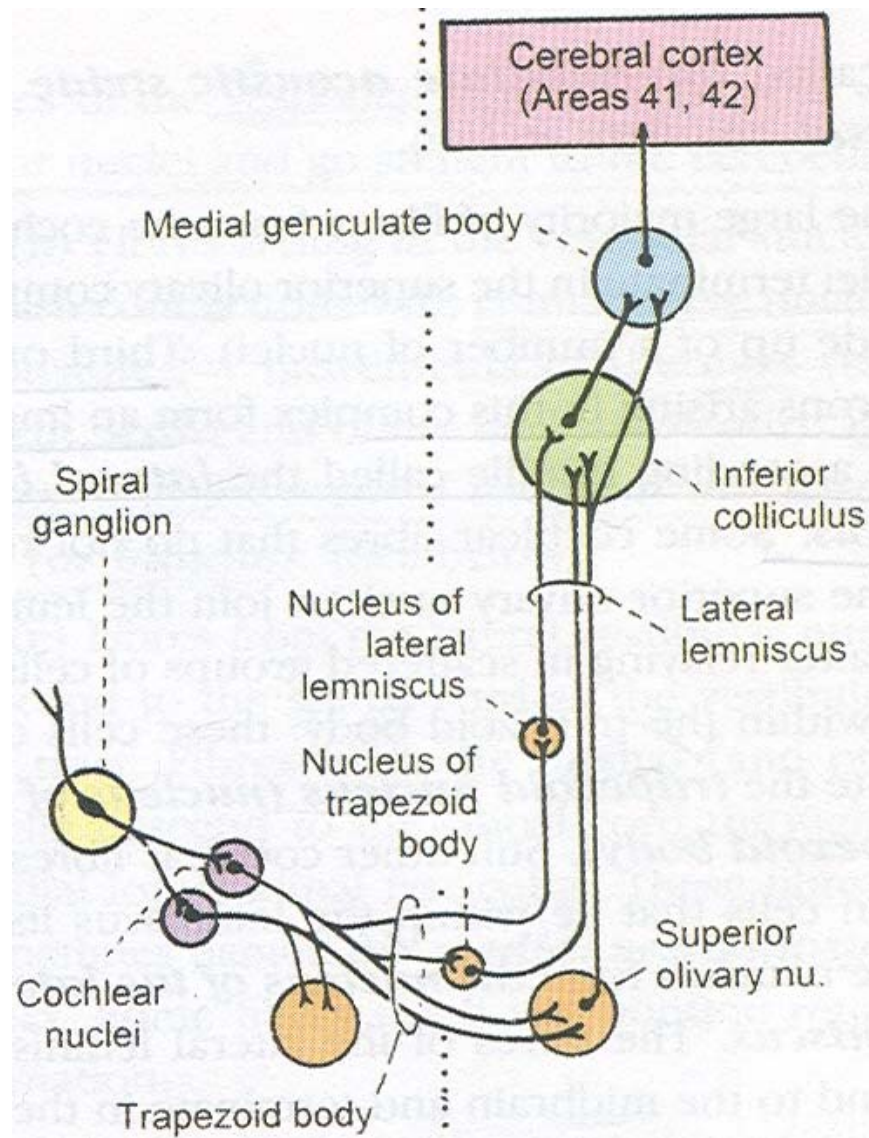
Representation of visual field in the retinae, LGB & the visual cortex



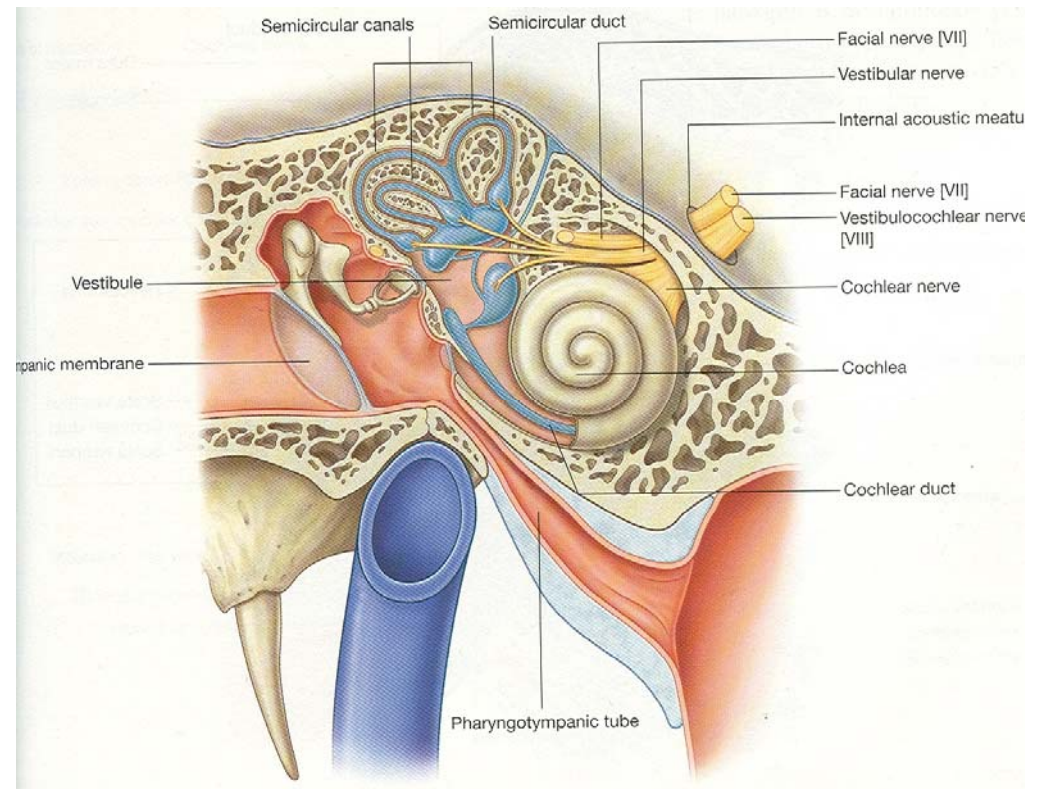
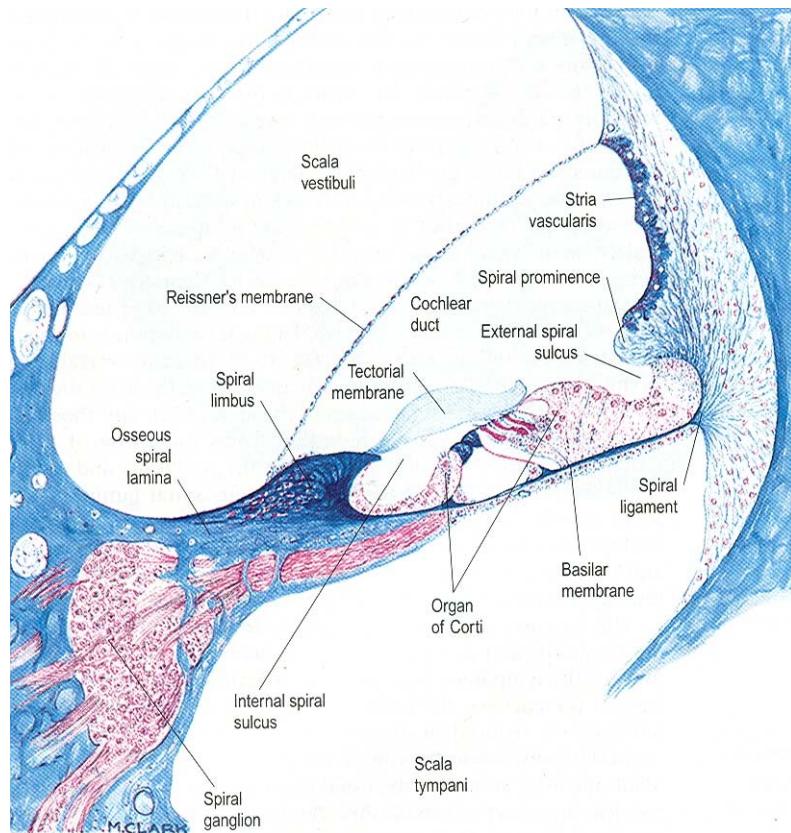
- **Applied** - Loss of vision in one half is called hemianopia
- If the same half of the visual field is lost in both eyes it is called as homonymous & if the different half are lost then it is called heteronymous.
- Hemianopia is named in relation to the visual field & not to the retina



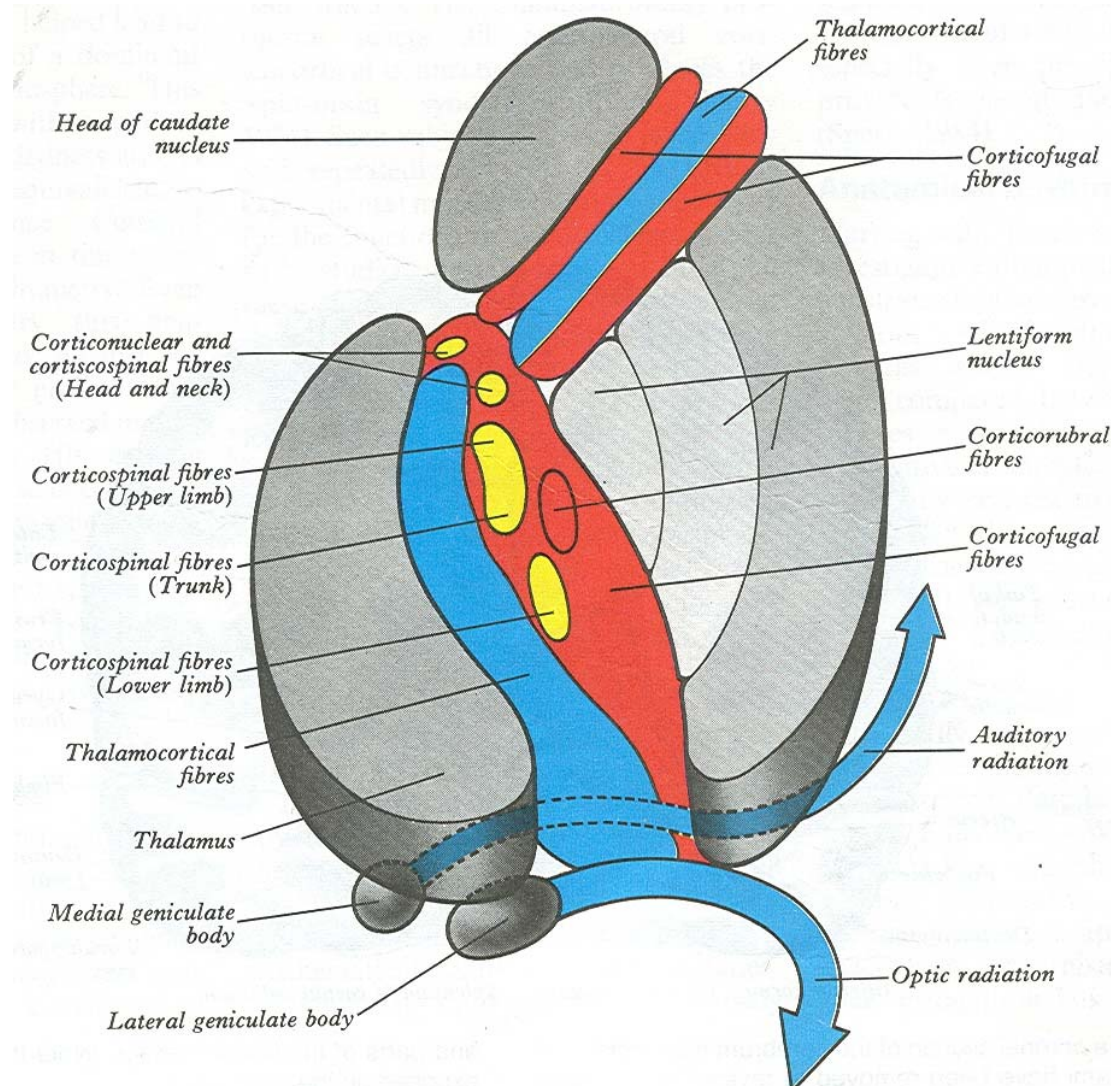
Auditory pathway



Vestibular nerve



Auditory radiation in internal capsule



Auditory area on superolateral surface of cerebral hemisphere

