BI 358 Discussion 11: Vision Lab w/Eye Dissections

I. **Announcements** Final papers due next Tuesday, March 19\textsuperscript{th}, in Pat’s box, 77 Klamath < 5 pm. Q?

II. **Anatomy & Physiology of the Eye**
- LN Dierks & RE Hammond, Carolina Biological 1980
- CC Francis & AH Martin 1975
- RMH McMinn & RT Hutchings 1977
- DA Morton, KD Peterson & KH Albertine 2007
- LS Sherwood 2006

III. **Lab Tests + Eye Dissections**
Caruncle = L. wart
Papilla = L. nipple
Sclera = L. hard/white
Limbus = L. margin/border
Eye Drops Out Nose? Why?
Eye Superior View Dissection

1. Superior oblique
2. Trochlea
3. Tendon of superior oblique
4. Levator palpebrae superioris
5. Eyeball
6. Inferior oblique
7. Lateral rectus
8. Superior rectus
9. Tendinous ring
10. Optic nerve
11. Optic canal
12. Anterior clinoid process
13. Sella turcica (pituitary fossa)
14. Posterior clinoid process
15. Ethmoidal air cells
16. Inferior rectus

Gr. pulley!
"Glass-like" canal: Fetal remnant & adjustable reservoir of mobile liquid to compensate during accommodation!

TPA Stuart, Journal of Physiology, Mar 29, 1904!
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1465472/?tool=pmcentrez
Retinal Layers

- Inner limiting membrane
- Optic nerve fiber layer
- Ganglionic cell layer
  - Amacrine cell
  - Inner nuclear layer
  - Horizontal cell
  - Outer plexiform layer
  - Outer nuclear layer
- Rod
- Cone
- Pigmented layer
- Choroid
The diagram illustrates the light absorption curves for different wavelengths. The x-axis represents the wavelength of light (nm) ranging from 400 to 700 nm. The y-axis represents the percentage of maximum light absorption.

Three curves are depicted:
- **Blue cone** curve peaks at the shortest wavelength (400 nm), representing blue light.
- **Green cone** curve peaks at a wavelength of 500 nm, representing green light.
- **Red cone** curve peaks at the longest wavelength (600 nm), representing red light.

The visible spectrum is color-coded at the bottom of the diagram, corresponding to the peak wavelengths:
- Violet
- Blue
- Green
- Yellow
- Red

This diagram helps in understanding how different wavelengths of light are absorbed by the human eye.
Intermediate Colors Are Produced When $1^0$ Colors Are Superimposed
Smooth Muscles of the Iris

Dilator  Sphincter
The Optic Cup & Optic Stalk are Evaginations of the Diencephalon

“The Eye Backs Out of the Brain”
Conjunctiva folds back on itself!
Eye & External Ear Formation

- Eye (e)
- Mandible
- 1st pharyngeal cleft
- Tragus
- Cymba conchae
- Helix
- Concha
- Antihelix
- Antitragus
Normal vs. Cataract Lens
Cataracts in Child
Detached Retina
Lab Eye Tests + Dissection Overview

1. Eye Dominance
2. Snellen Acuity
3. Astigmatism
4. Blind Spot Mapping
5. Dissection of Cow & Pig Eyes
   See pp 11-1, 11-2

eg Horizontal section, see fig p 11-2

Incision through the eyeball
Eye Dominance?
Snellen Visual Acuity Test
Blind Spot Mapping?
Tapetum Lucidum "Bright Tapestry" Illuminated Due to Flash Photography