BI 358 Discussion 11: Vision Lab w/Eye Dissections

I. **Announcements** Final papers due next Tuesday, March 18th, 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

Lacrimal gland!
Eye Drops Out Nose? Why?
Eye Muscles Superior View

- Superior rectus muscle
- Cornea
- Internal rectus muscle
- External rectus muscle
- Superior oblique muscle
- Optic nerve
- Pulley of superior oblique muscle
- Optic tract
- Optic chiasma
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
"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
The diagram illustrates the light absorption percentage of different cones in the visible spectrum. The three types of cones, blue, green, and red, have peak sensitivities at different wavelengths:

- **Blue cone** has its peak sensitivity at approximately 450 nm.
- **Green cone** has its peak sensitivity at approximately 530 nm.
- **Red cone** has its peak sensitivity at approximately 620 nm.

The graph shows the light absorption as a percentage of maximum, with wavelengths ranging from 400 nm to 700 nm. The visible spectrum is color-coded in the bottom of the diagram, with blue, green, yellow, and red representing the wavelengths where cones are most sensitive.
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!
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
Eye Dominance?
Snellen Visual Acuity Test
Astigmatism Test
Blind Spot Mapping?

# 2
Tapetum Lucidum "Bright Tapestry" Illuminated Due to Flash Photography