THE VISUAL SYSTEM: Form Vision (p.1)

1. Visual System has parallel/simultaneous processing of several aspects of visual information: **Form, Color, Motion, Depth**

2. **Basic visual input system pathways**
   retina --- optic nerve (CN II) --- thalamus (LGB) --- occipital lobe
   (LGB = lateral geniculate body/nucleus)
   this pathway carries information re. form, color, motion, depth

   retina --- optic nerve --- superior colliculus (2^{nd} pathway)
   this pathway carries information re. location of vis. stimulus

   retina --- optic nerve --- suprachiasmatic nucleus (3^{rd} pathway)
   this pathway carried information re. light/dark (sleep/wake)

3. **Lateral Inhibition**
   role in sharpening perception of edges

4. **Receptive (visual) Fields**

5. **Parvocellular** vs. **Magnocellular Systems**

fine detail	gross detail
color	black & white
of stationary stim.	of moving stimuli
cones from fovea	few cones, mostly rods (from periphery)
ventral pathway	dorsal pathway
to post. temp. lobe	to parietal lobe

THE VISUAL SYSTEM: Form Vision (p.2)

6. "**Feature Detectors**" within the Visual System

"simple" cells – found in Visual Area #1 (V1) (area 17)
- small receptive fields
- respond to bars/stripes of light
  - of a particular orientation (e.g. horizontal, vertical, 45 degrees, etc.)
- specific location (on retina, within visual field)

"complex" cells – found in V1 & V2 (area 18)
- medium receptive fields
- responds to bars/stripes of light
  - of a particular orientation
- any location (on retina, within visual field)

"hyper-complex" cells – found in V1 & V2, and post./ventral temporal lobe
- largest receptive fields
- any location
- complex shapes (e.g. full-face, profiles, "hands", etc.)

7. **Columnar Organization**
- from right eye, from left eye, or equally from R&L eyes
- respond to a line of a given orientation
- monocular vs. binocular cells

8. Clinical Example of a **Visual Agnosia**: **Prosopagnosia**