CENTRAL VISUAL SYSTEM DEFICITS

It is easier to say where than it is to explain how.

- Wilder Penfield (1965) *Brain and Conscious Experience*

I. Localization of function - history
   A. Phrenology - Gall
   B. Anti-phrenology - Flourens
   C. Localization of language - Broca & Wernicke
   D. Anti-localization - Lashley
   E. Localization of memory - Penfield
   F. Cerebral hemispheric asymmetry - Sperry

II. Association areas of cerebral cortex
   A. Occipital, extrastriate visual areas
      1. Higher visual processing
         a. V4 - color perception
         b. MT - motion perception
      B. Parietal
         1. Spatial localization and directed attention
         2. Ablation effects
            a. Dominant hemisphere
               (1) agraphia, dyslexia, constructional apraxia, poor recall for long series of digits, right-left confusion
            b. Nondominant hemisphere
               (1) hemineglect & spatial disorientation
      C. Temporal
         1. Object recognition
         2. Agnosia
            a. prosopagnosia
      D. Prefrontal
         1. dorsolateral (principal sulcus in macaque monkeys)
            a. Role in cognition and motor planning
               (1) ablation causes deficit in tasks requiring short-term spatial memory
         2. inferior prefrontal convexity
            a. role in organization of motor responses