

Exploring Neuroscience

Non Sequitur Wiley Miller


An Introduction to the Brain

Instructors

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- ✓ Lecture time
- ✓ Book(s)
- ✓ Student Learning Outcomes
- ✓ Attendance
- ✓ Classroom Etiquette
- ✓ Enrollment
- ✓ Assignments and Participation
- ✓ Grading and Student Evaluation

QUESTIONS FOR YOU!


Name: 

Why are you taking this course and how does it fit in with your academic goals?

What knowledge or skills would you like to get out of this course?

Which part or function of YOUR brain do you like the best?

Anything else you would like us to know about you?

Functional History 

- Who or what lead us to the “The Brain”?

Neurohistology

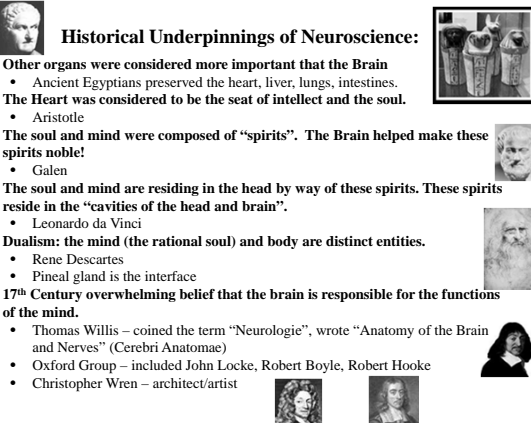
- What makes up this structure we call the “Brain”?

Overview of Neuroanatomy

- Names and places in the nervous system

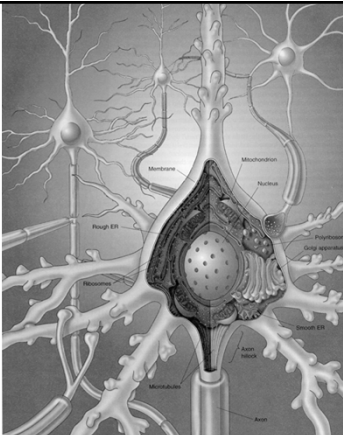
Historical Underpinnings of Neuroscience:

- **Other organs were considered more important than the Brain**
 - Ancient Egyptians preserved the heart, liver, lungs, intestines.
- **The Heart was considered to be the seat of intellect and the soul.**
 - Aristotle
- **The soul and mind were composed of "spirits". The Brain helped make these spirits noble!**
 - Galen
- **The soul and mind are residing in the head by way of these spirits. These spirits reside in the "cavities of the head and brain".**
 - Leonardo da Vinci
- **Dualism: the mind (the rational soul) and body are distinct entities.**
 - Rene Descartes
 - Pineal gland is the interface
- **17th Century overwhelming belief that the brain is responsible for the functions of the mind.**
 - Thomas Willis – coined the term "Neurologie", wrote "Anatomy of the Brain and Nerves" (Cerebri Anatomae)
 - Oxford Group – included John Locke, Robert Boyle, Robert Hooke
 - Christopher Wren – architect/artist




Physio 67

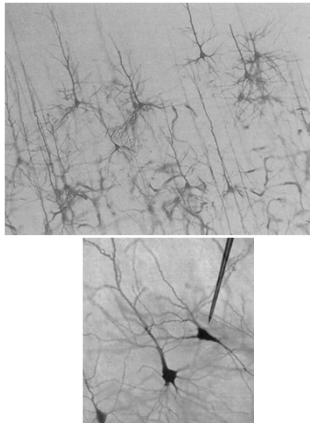
Neuroanatomical Techniques and Anatomical Organization of the Nervous System



Physio 67



Camillo Golgi
Nobel Laureate, 1906



Physio 67






Figure 2.5
Santiago Ramón y Cajal (1852–1934).
(Source: Finger, 1994, Fig. 3.26.)

Physio 67

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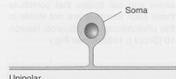
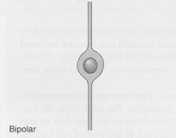
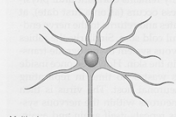
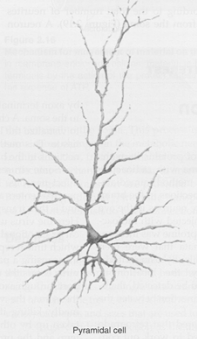
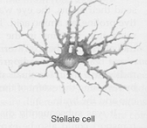
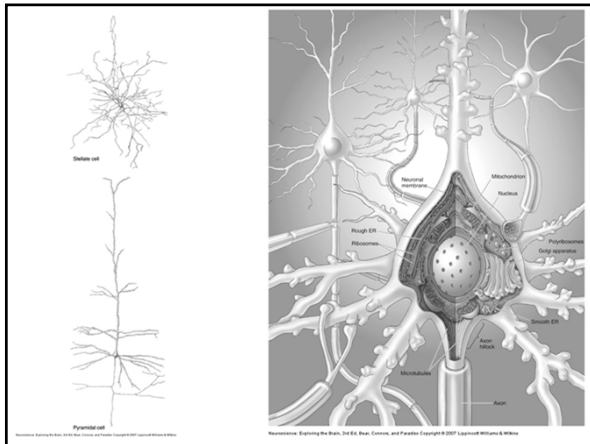
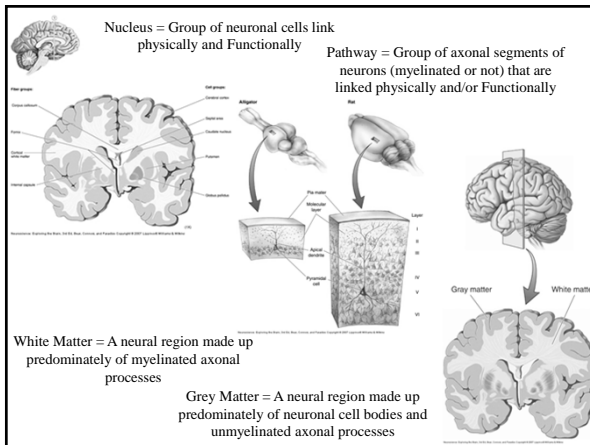







Figure 2.19
Classification of neurons based on the number of neurites.

Figure 2.20
Classification of neurons based on dendritic tree structure. Pyramidal cells and stellate cells, distinguished by the arrangement of their dendrites, are two neuronal classes found in the cerebral cortex.







1. History
2. Technology/Technique driven
3. Integration drives our understanding
4. Neuron
5. Glial
6. Cellular (Anatomical/Physiological) understanding helps drive our Functional understanding.

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Neurodevelopment

- Regional development “Encephalon”



**Nervous System
Development**
(A Readers Digest Version)

