

Chapter 1: Biological Neurons

Reticular Theory

Joseph von Gerlach proposed that the nervous system is a single continuous network as opposed to a network of many discrete cells!



1871-1873



Reticular theory

Staining Technique

Camillo Golgi discovered a chemical reaction that allowed him to examine nervous tissue in much greater detail than ever before

He was a proponent of Reticular theory.



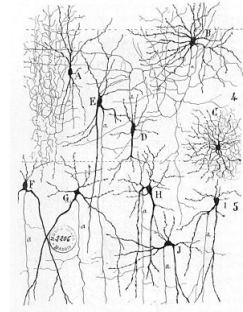
1871-1873



Reticular theory

Neuron Doctrine

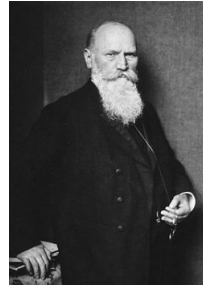
Santiago Ramón y Cajal used Golgi's technique to study the nervous system and proposed that it is actually made up of discrete individual cells forming a network (as opposed to a single continuous network)



The Term Neuron

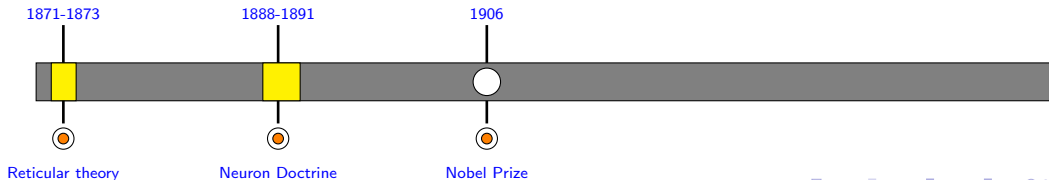
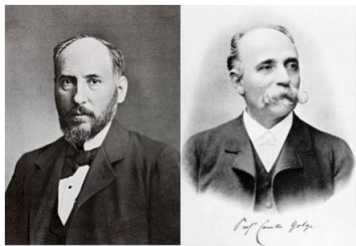
The term neuron was coined by Heinrich Wilhelm Gottfried von Waldeyer-Hartz around 1891.

He further consolidated the Neuron Doctrine.



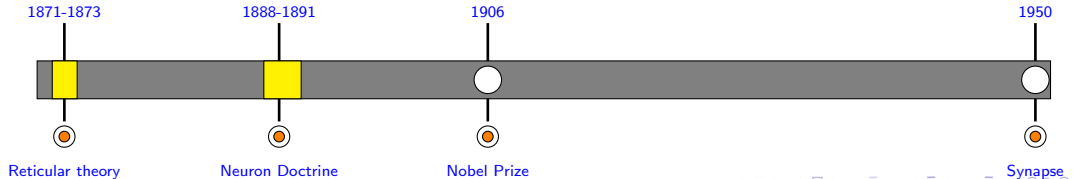
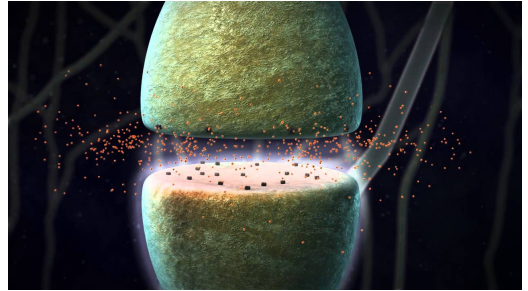
Nobel Prize

Both Golgi (reticular theory) and Cajal (neuron doctrine) were jointly awarded the 1906 Nobel Prize for Physiology or Medicine, that resulted in lasting conflicting ideas and controversies between the two scientists.



The Final Word

In 1950s electron microscopy finally confirmed the neuron doctrine by unambiguously demonstrated that nerve cells were individual cells interconnected through synapses (a network of many individual neurons).



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