



Stuff of Brains

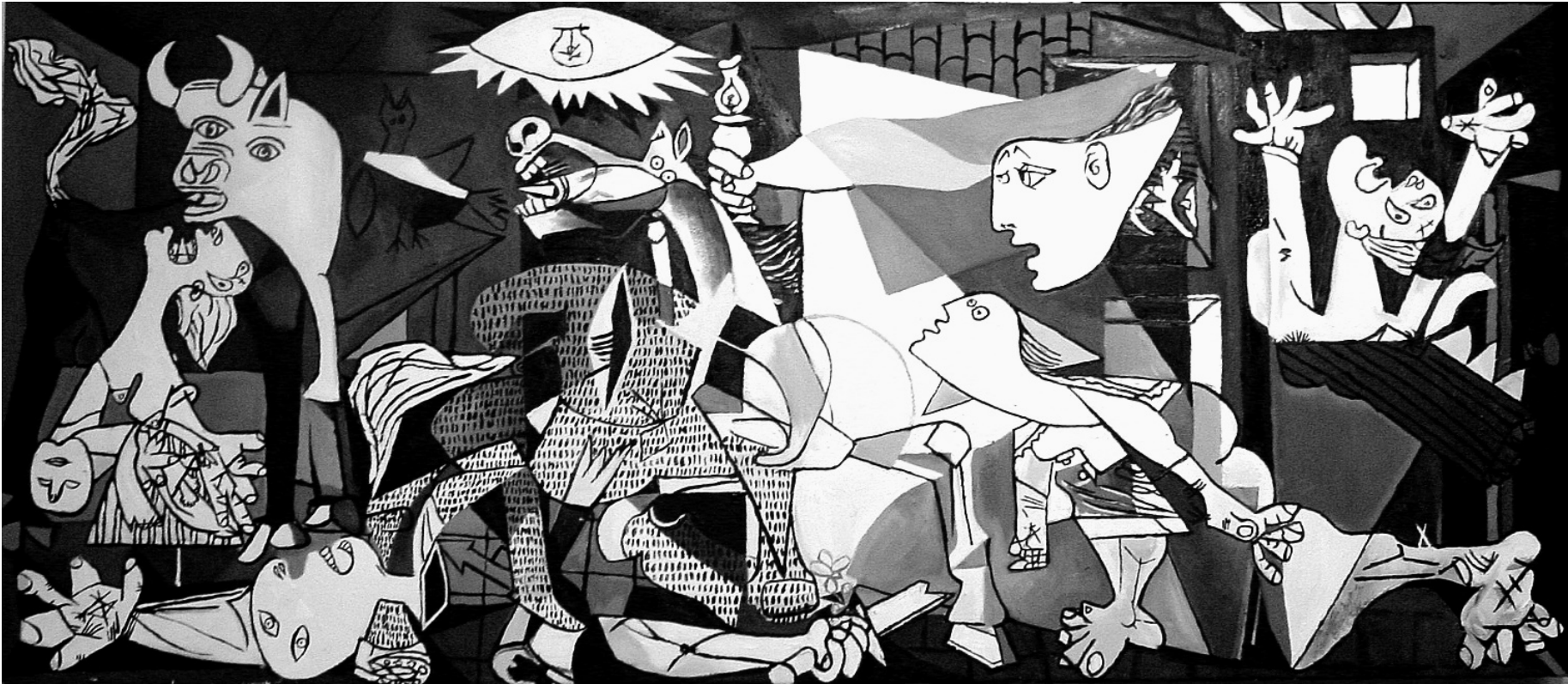
Aurnab Ghose, IISER Pune



The human brain
Photograph by Fred Hossler/Getty Images



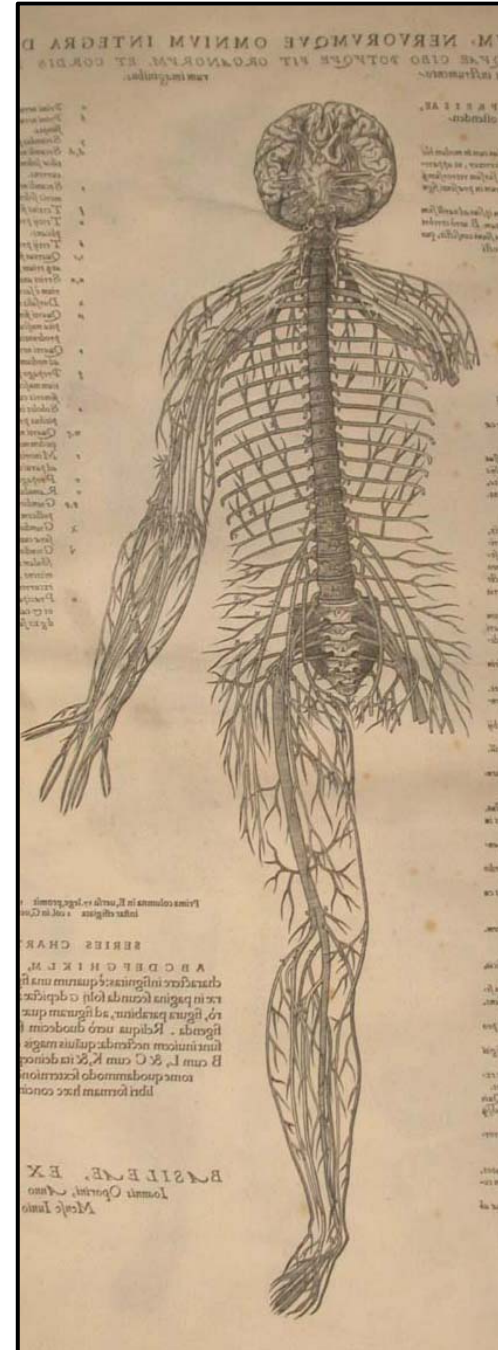
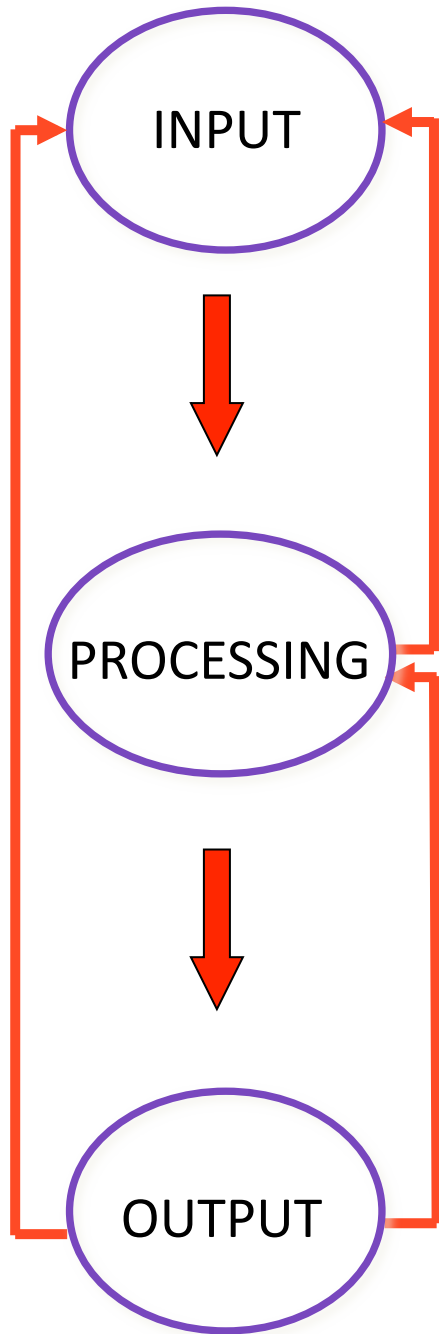
Guernica, 1937



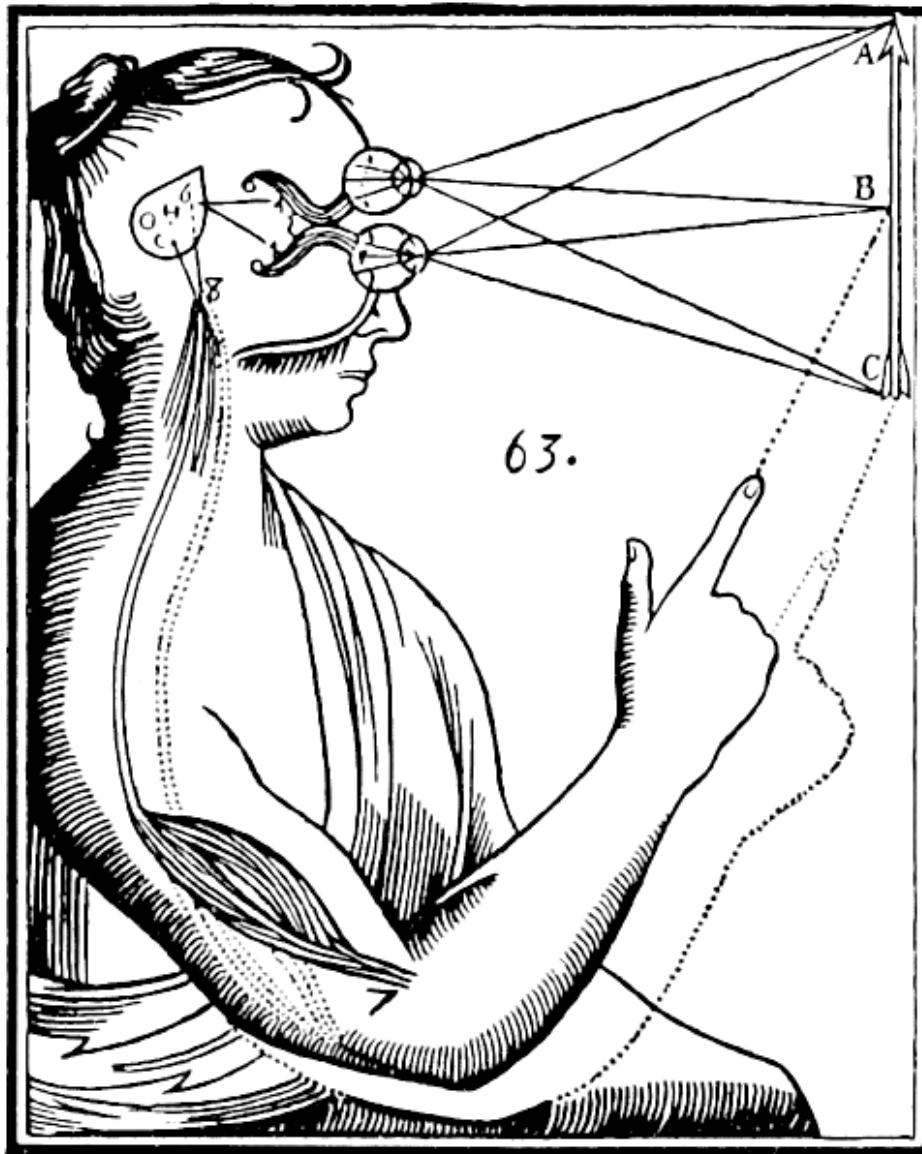
"Guernica", Picasso

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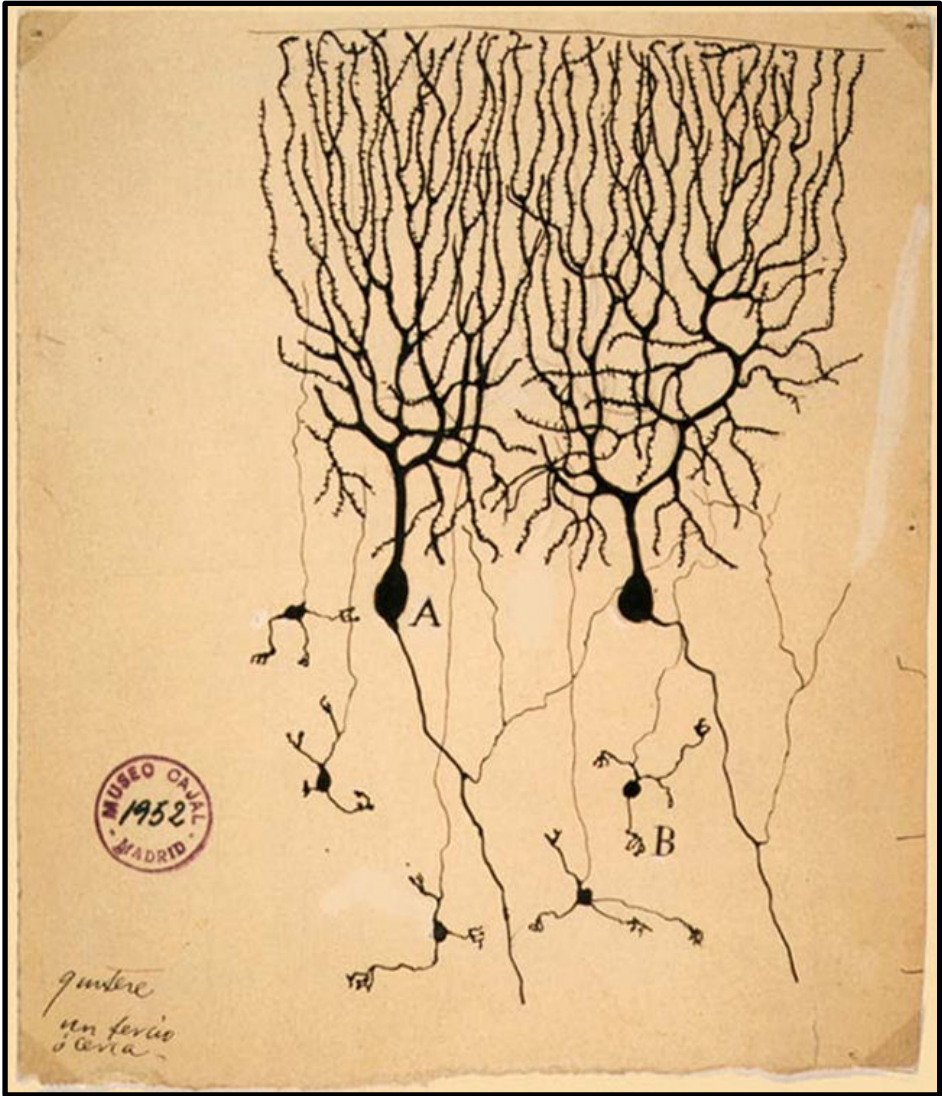
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Vesalius, ca 1540



Descartes, 1664



Ramon y Cajal, 1891

Facts about the Human Brain

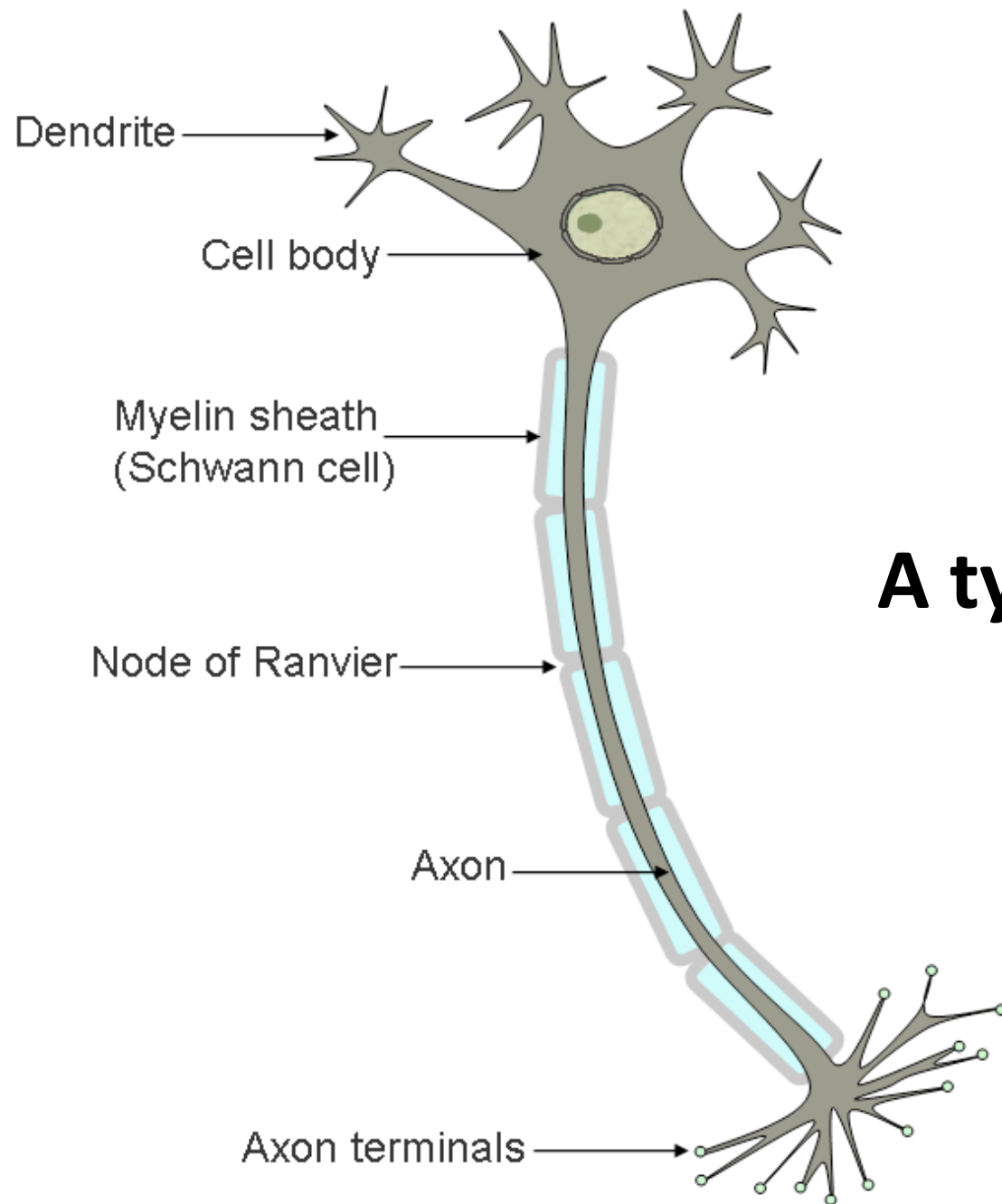
Weight: **1.4 kg**

No. of Neurons: **100 billion = 10^{11} = 100,000,000,000**

No. of connections made by each neuron: **1000 – 10,000**

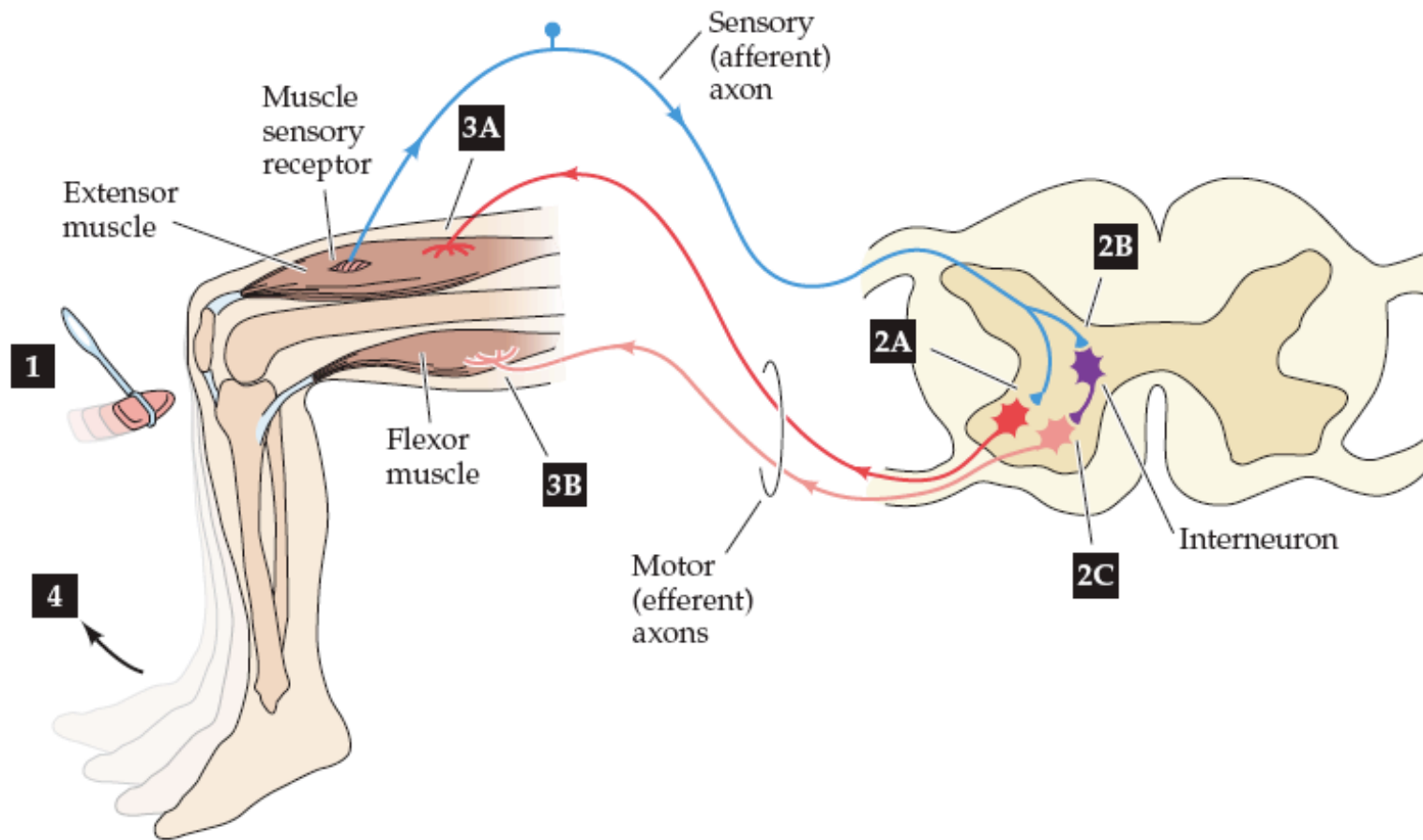
Total length of neurons: **4.8×10^6 km**

Speed of information transfer: **120 m/s**

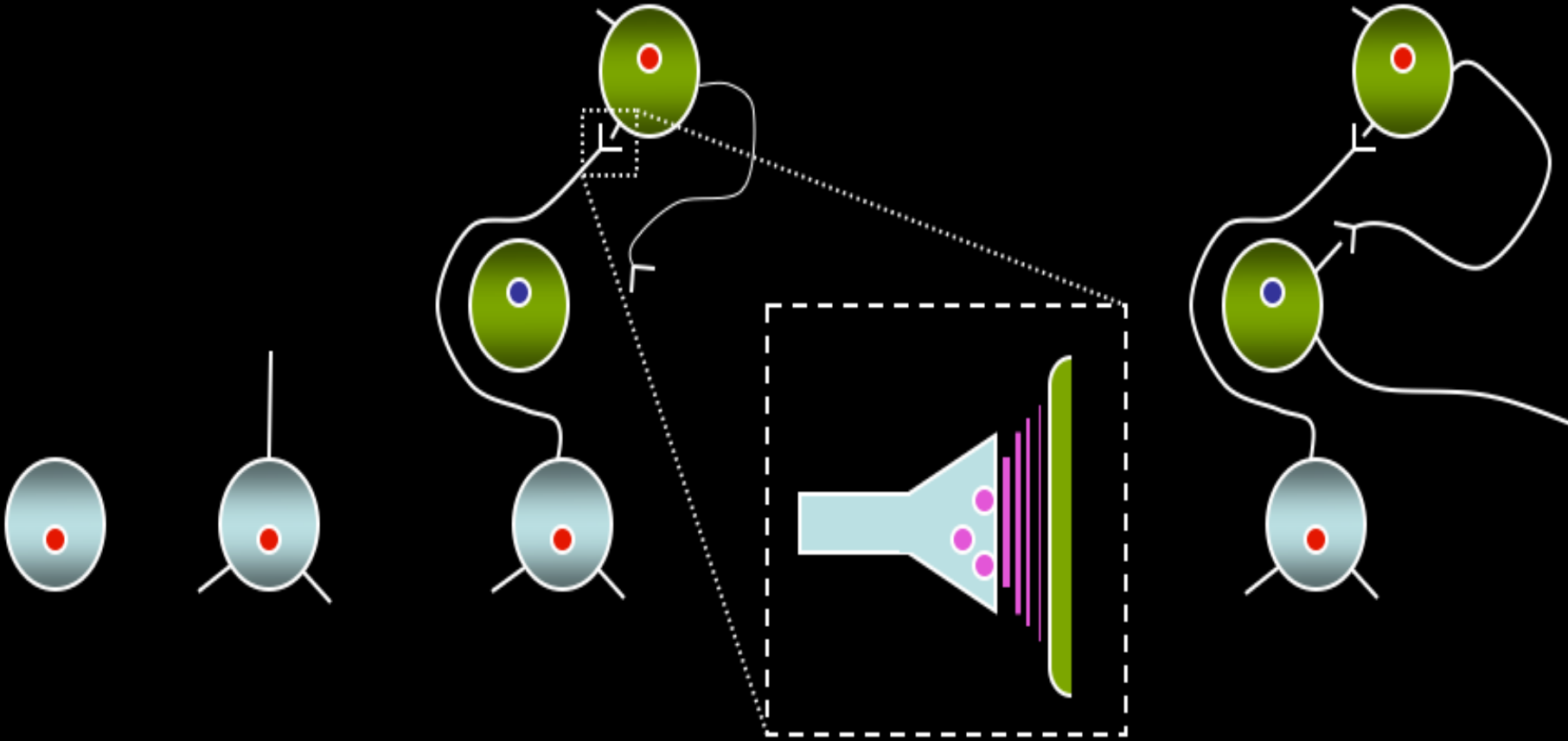


A typical Neuron

A simple Neuronal Circuit



Development of Neuronal Connectivity



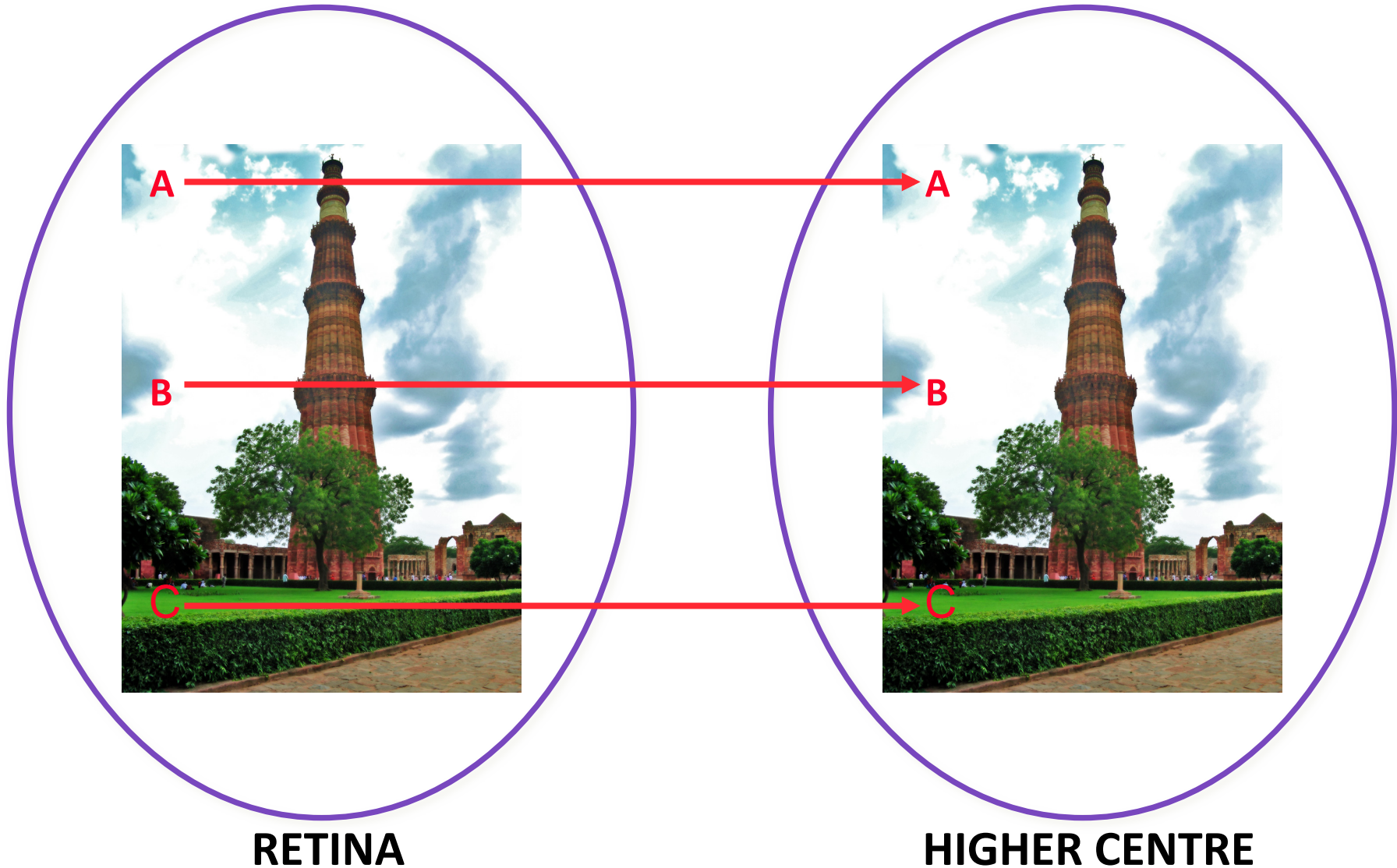
Neurite Outgrowth & Polarity

Axon Guidance

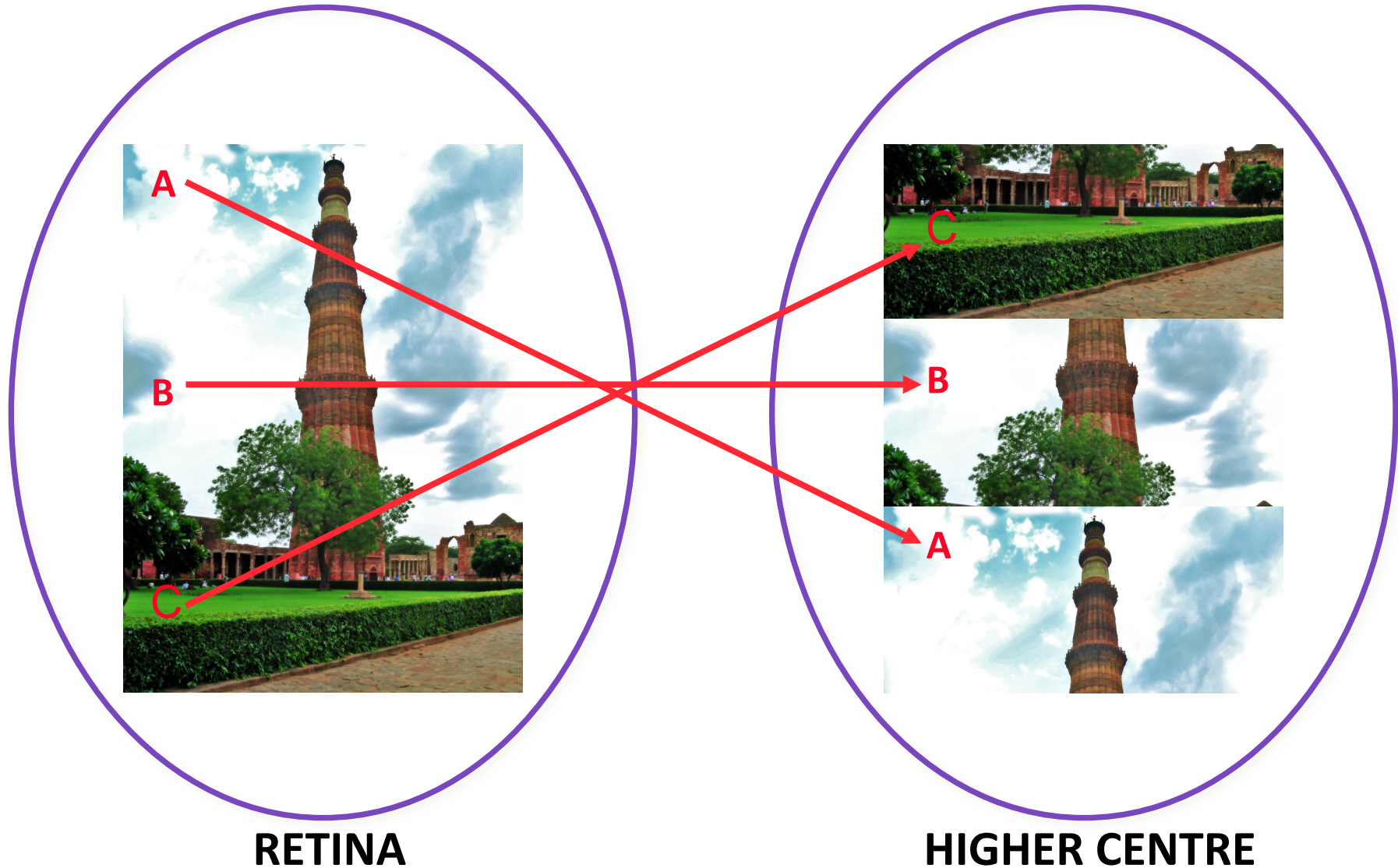
Synapse Formation

Functional Circuit

One to One mapping of Retina onto higher centre

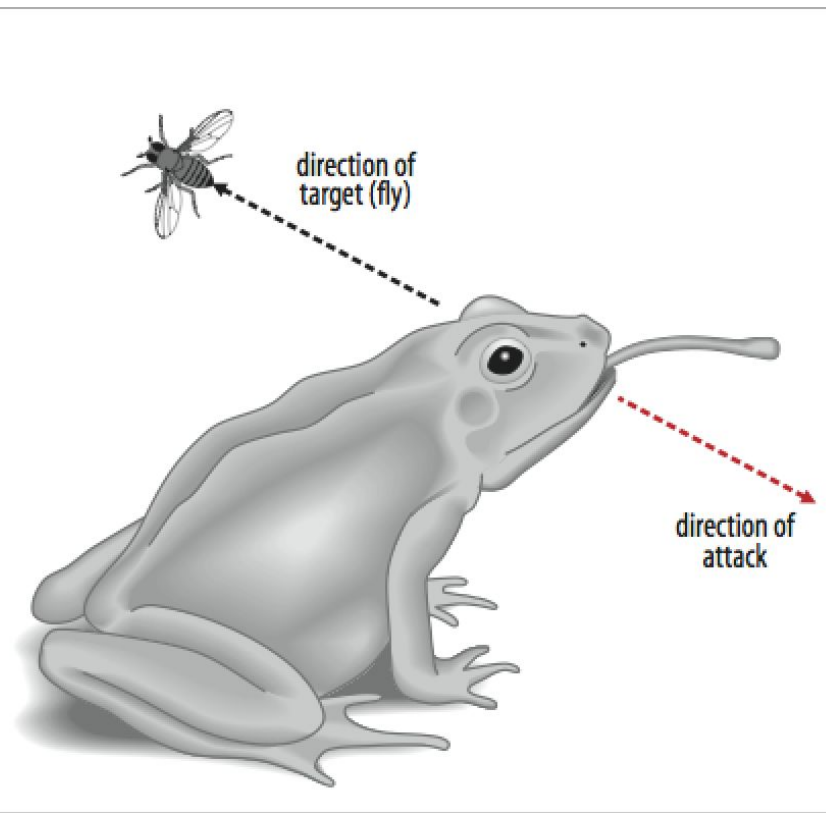
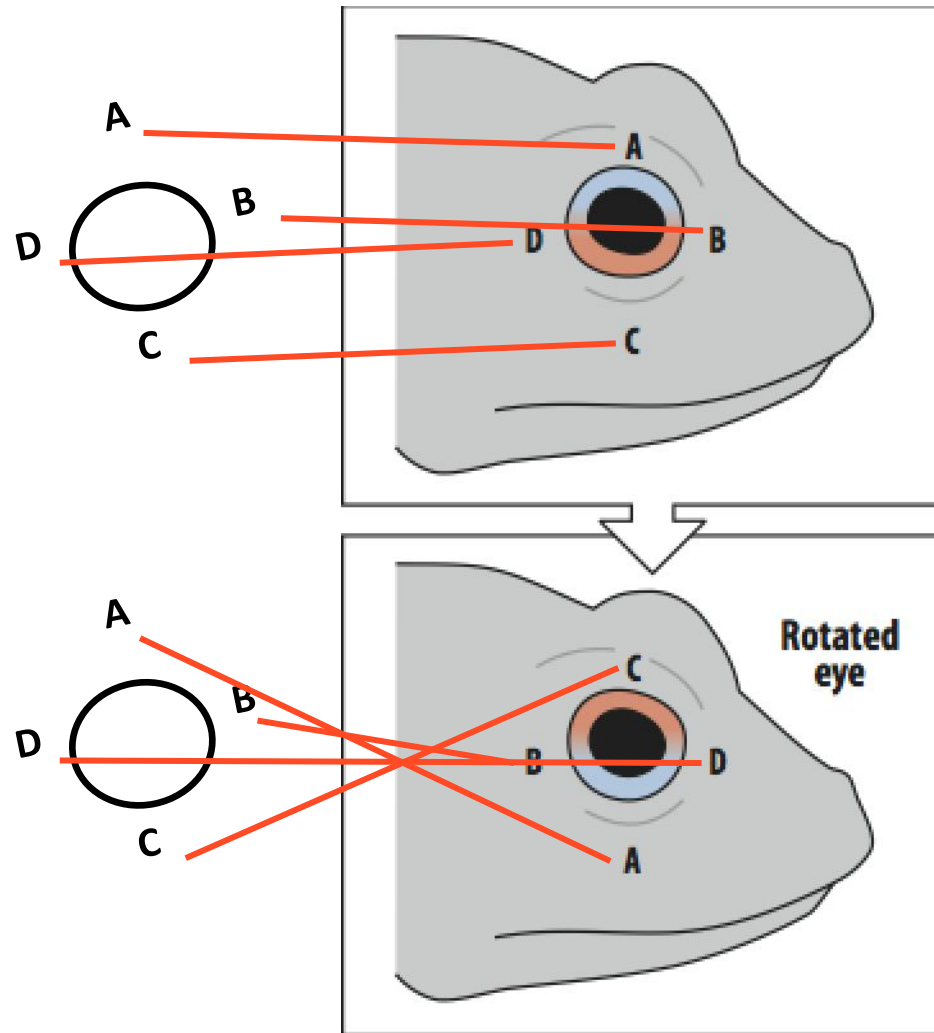


Wrong mapping of retina on higher centre

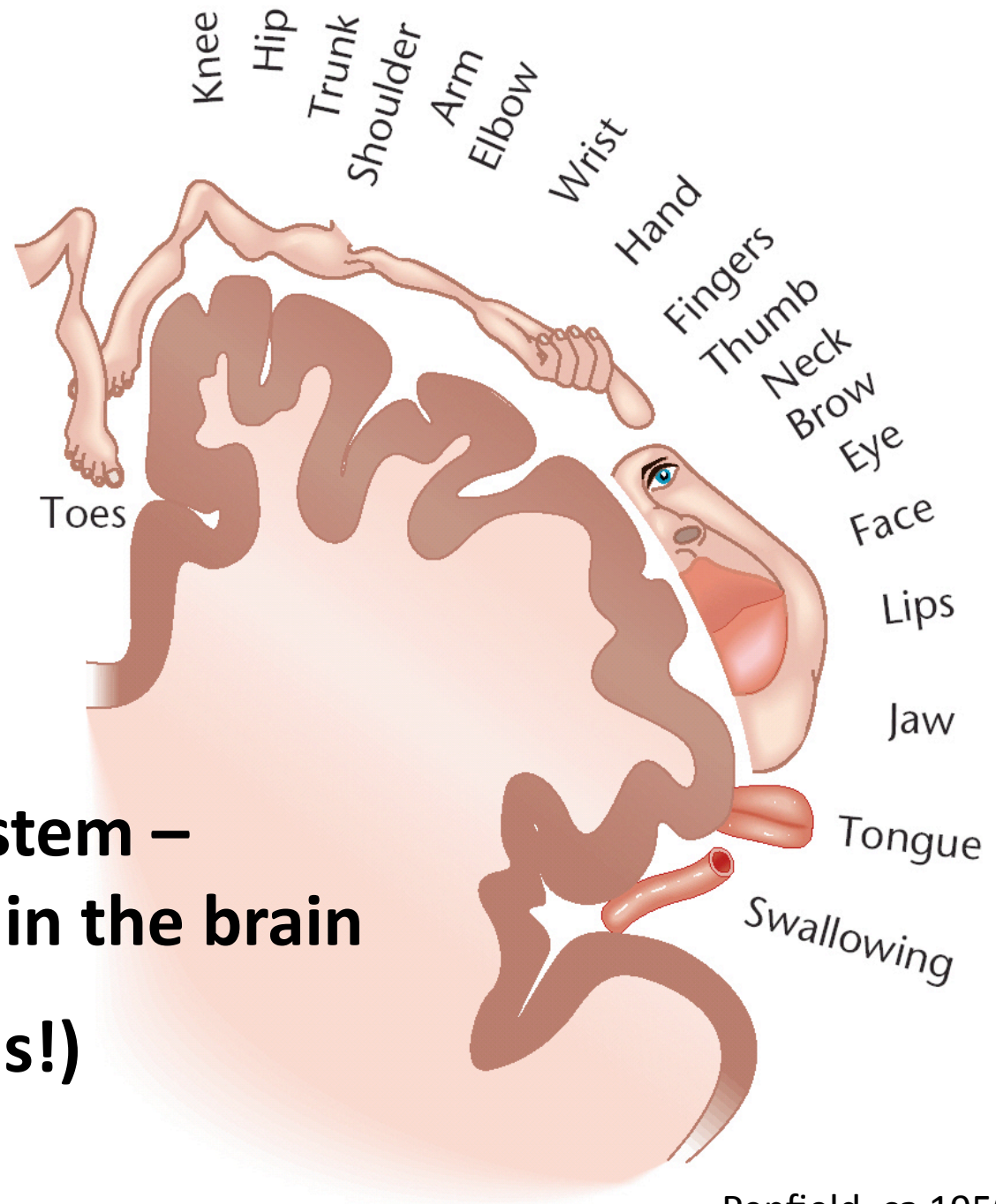


HIGHER
CENTRE

RETINA



**Somatosensory System –
a Map of the body in the brain
(and Phantoms!)**



Anton Räderscheidt (1892 – 1970)

German Realist painter

Suffered from a cerebral stroke

Continued painting as he recovered



Anton Räderscheidt (1892 – 1970)

Late 1967

→ Early 1968

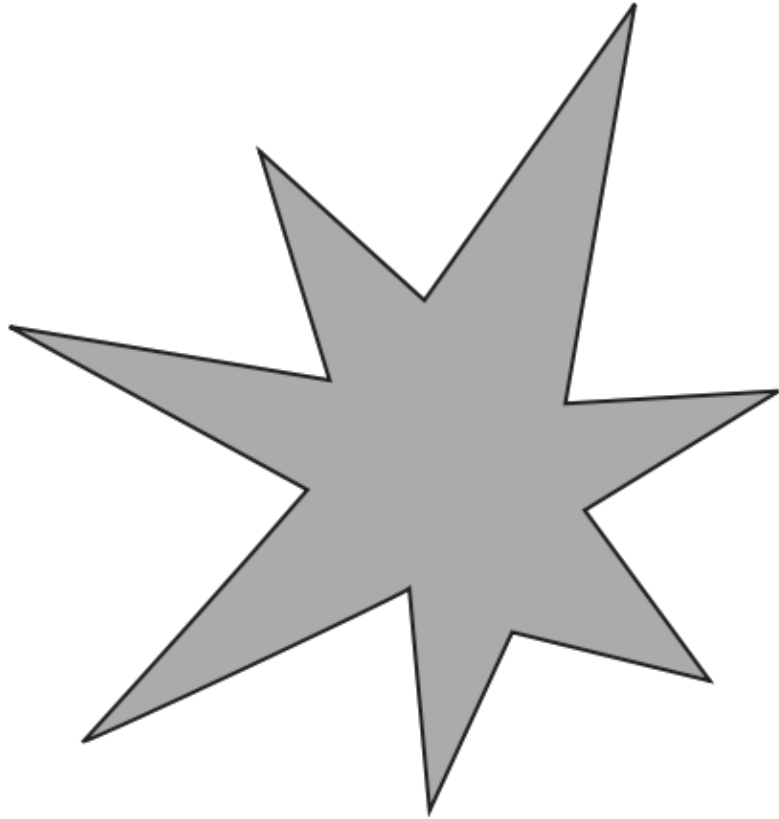


Mid 1968

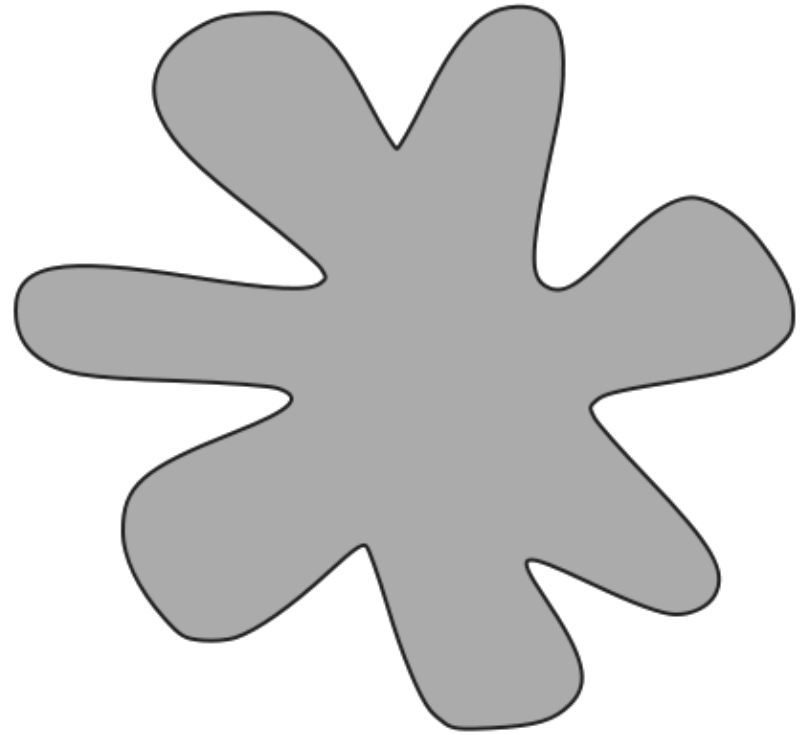
→ Late 1968

SYNESTHESIA

0123456789



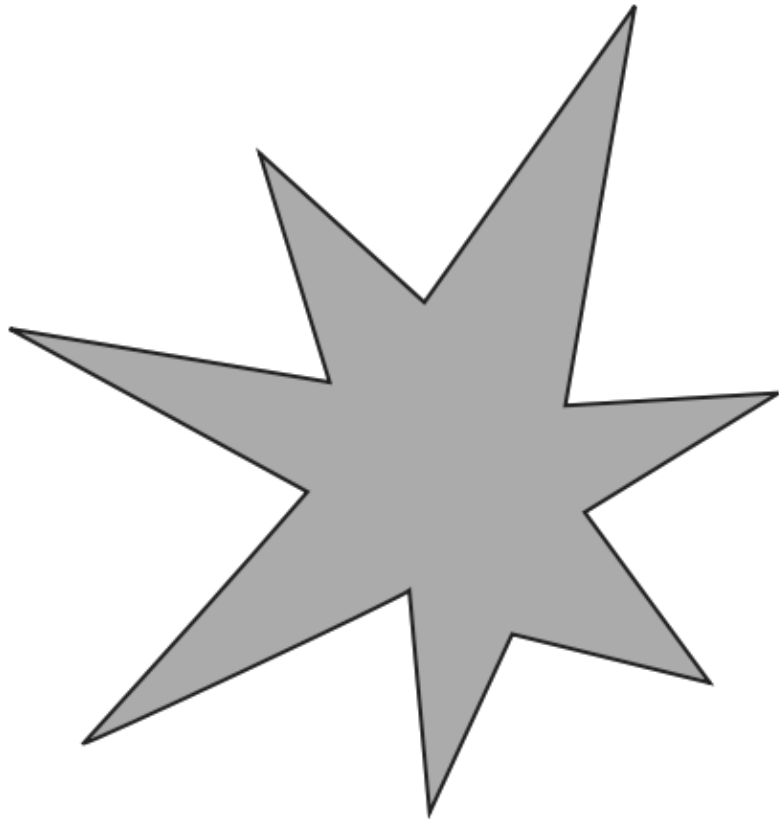
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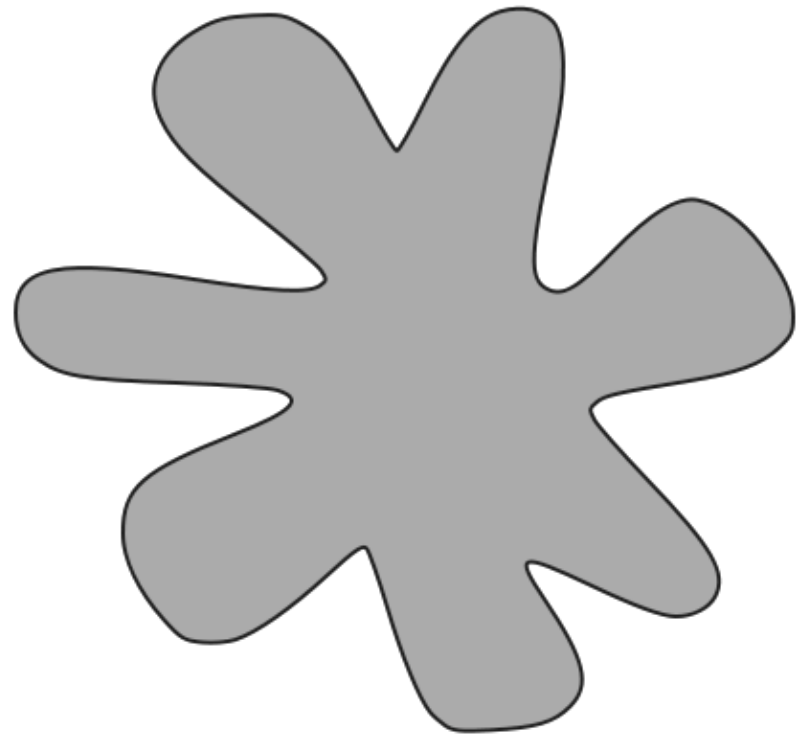
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KIKI

BOUBA



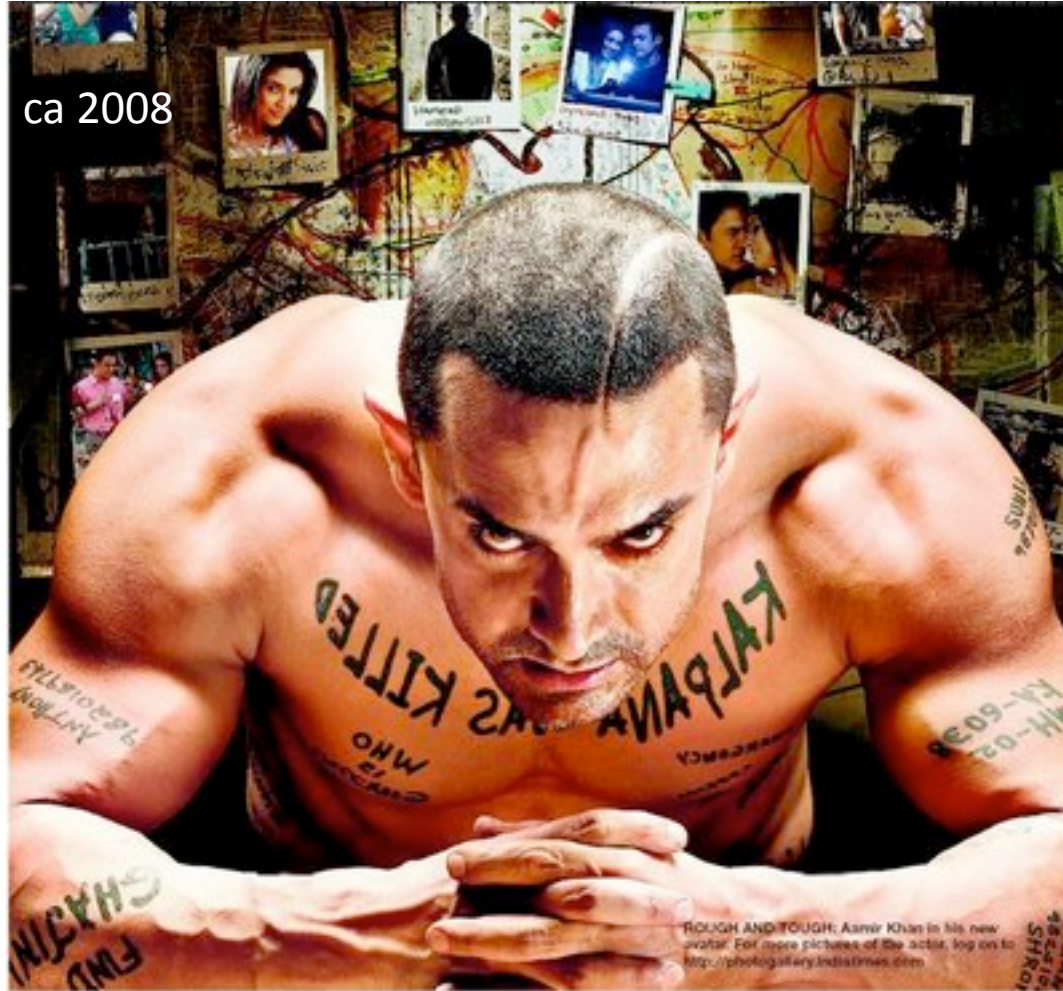
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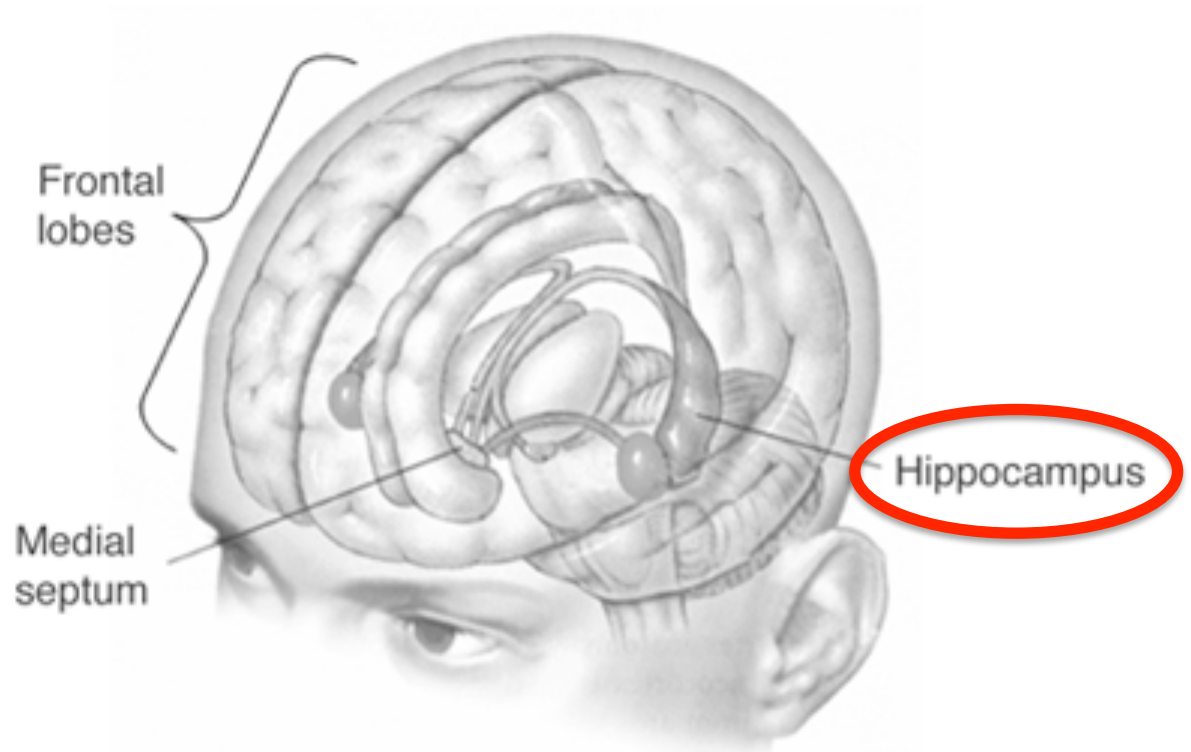
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What about Memory?

ca 2008

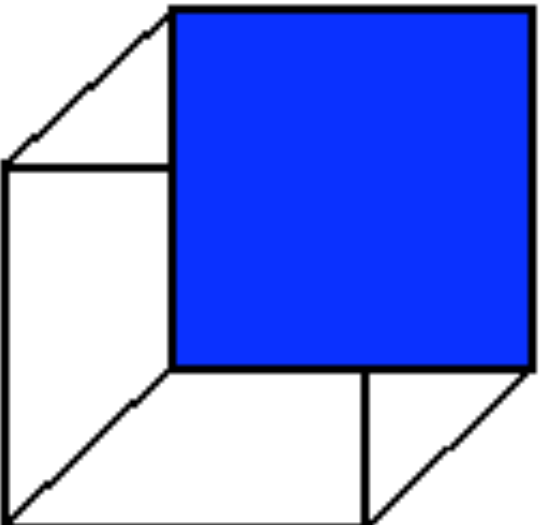
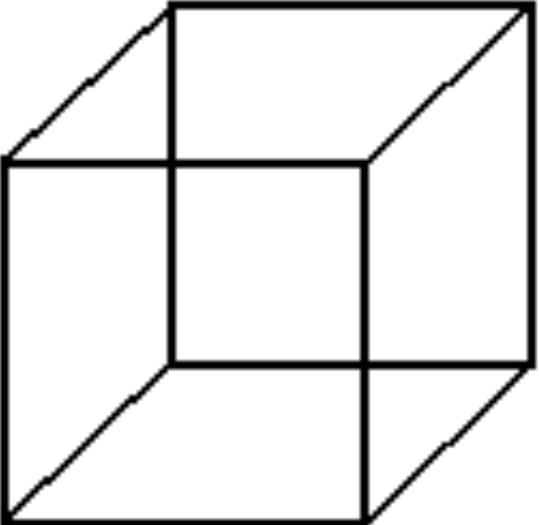
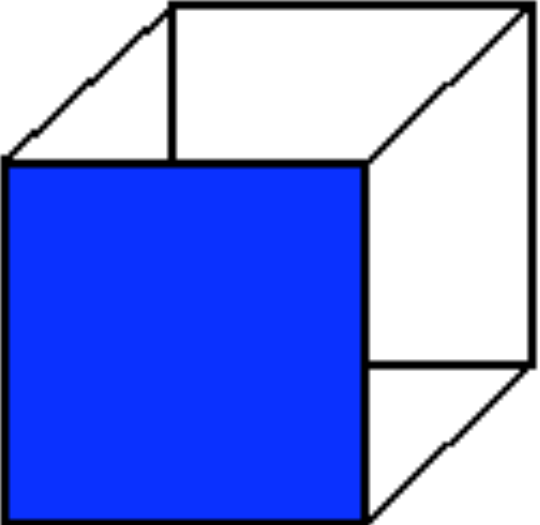


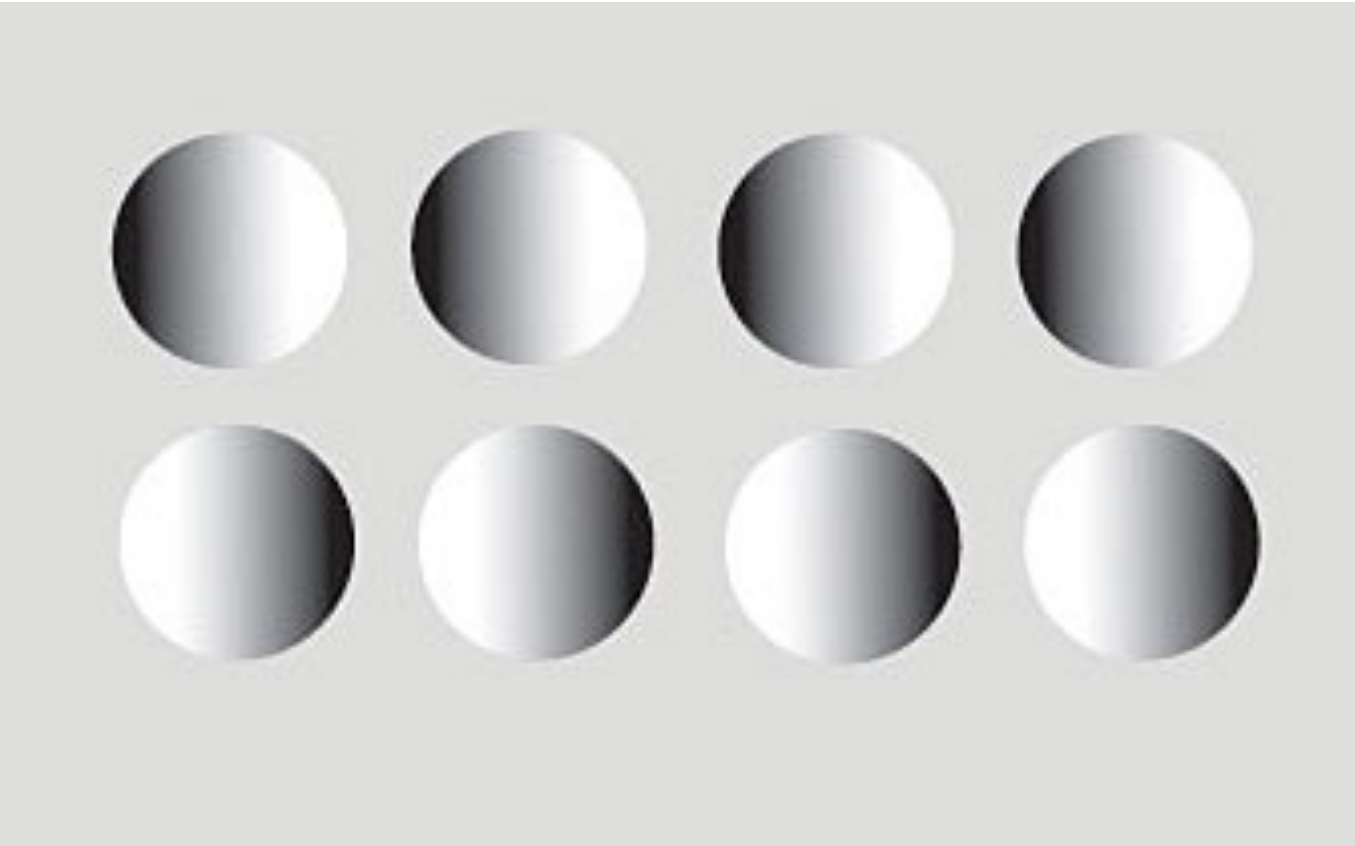
Henry Molaison or HM (1926 – 2008)

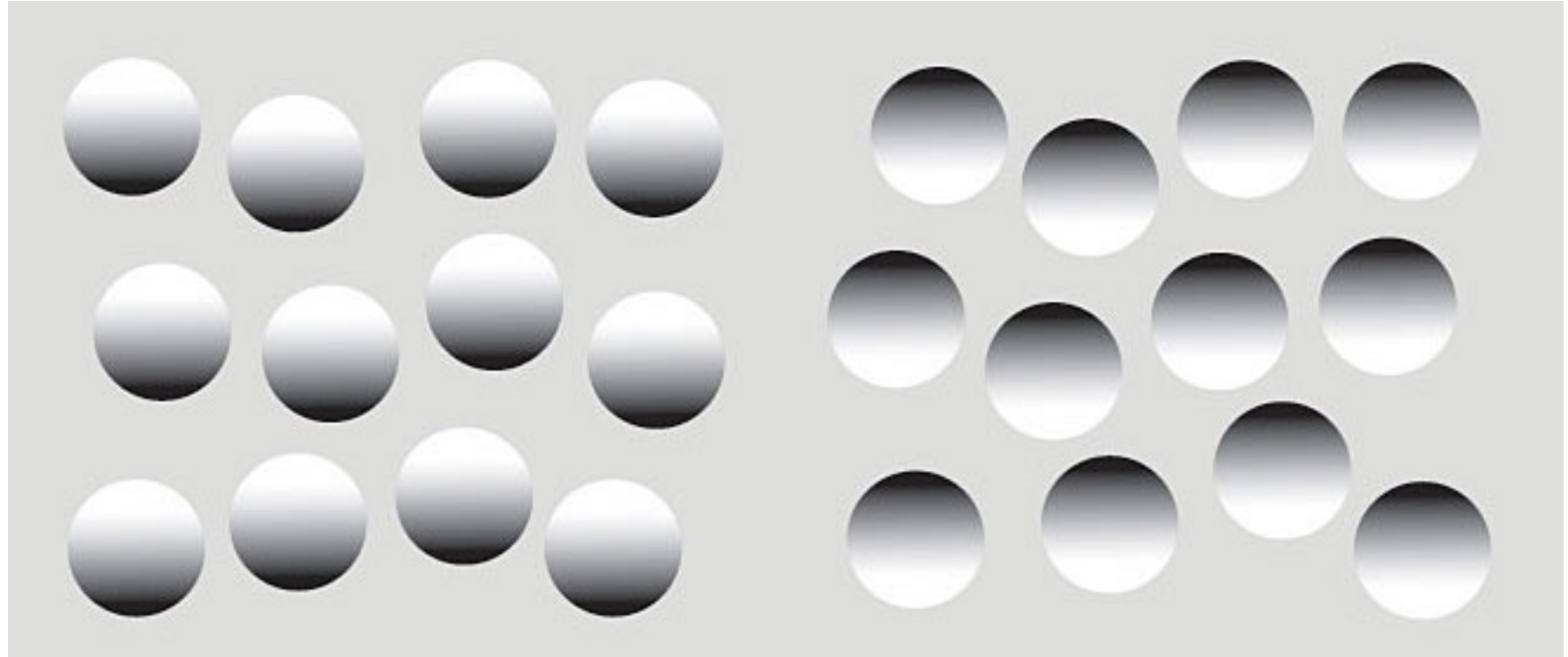


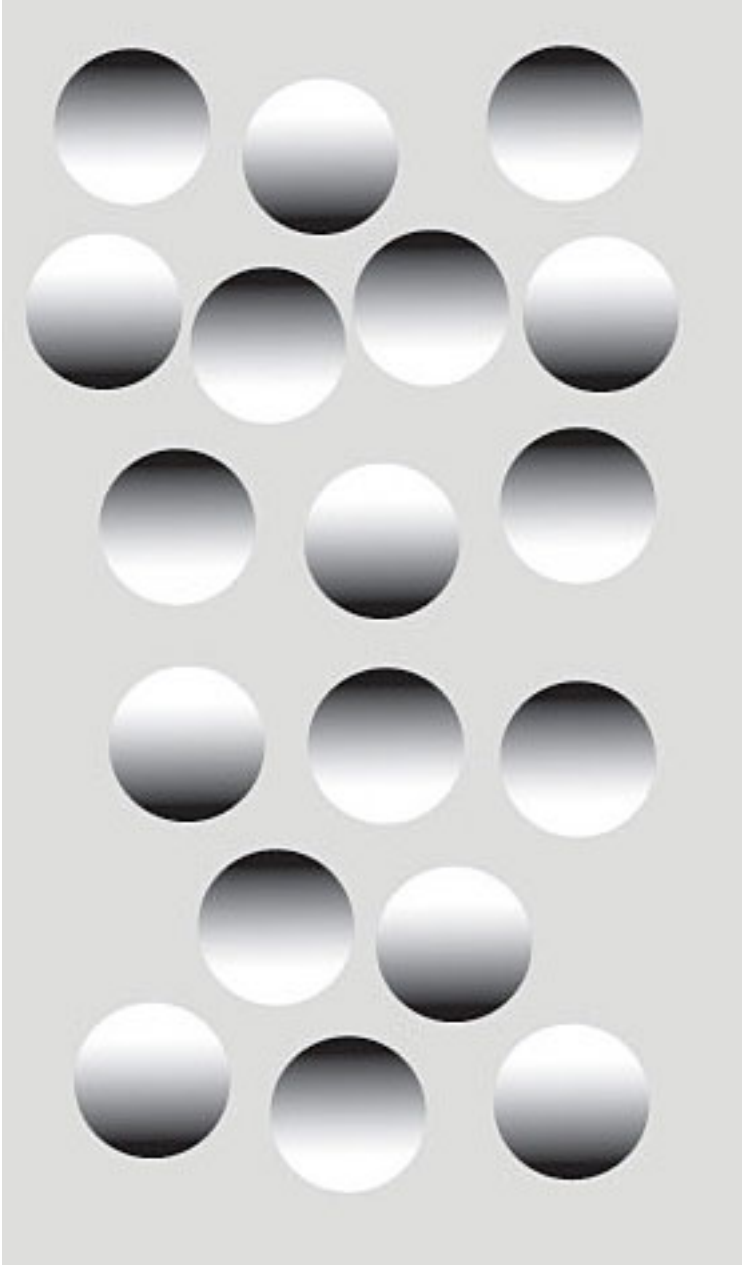
Is our world in our Brains?

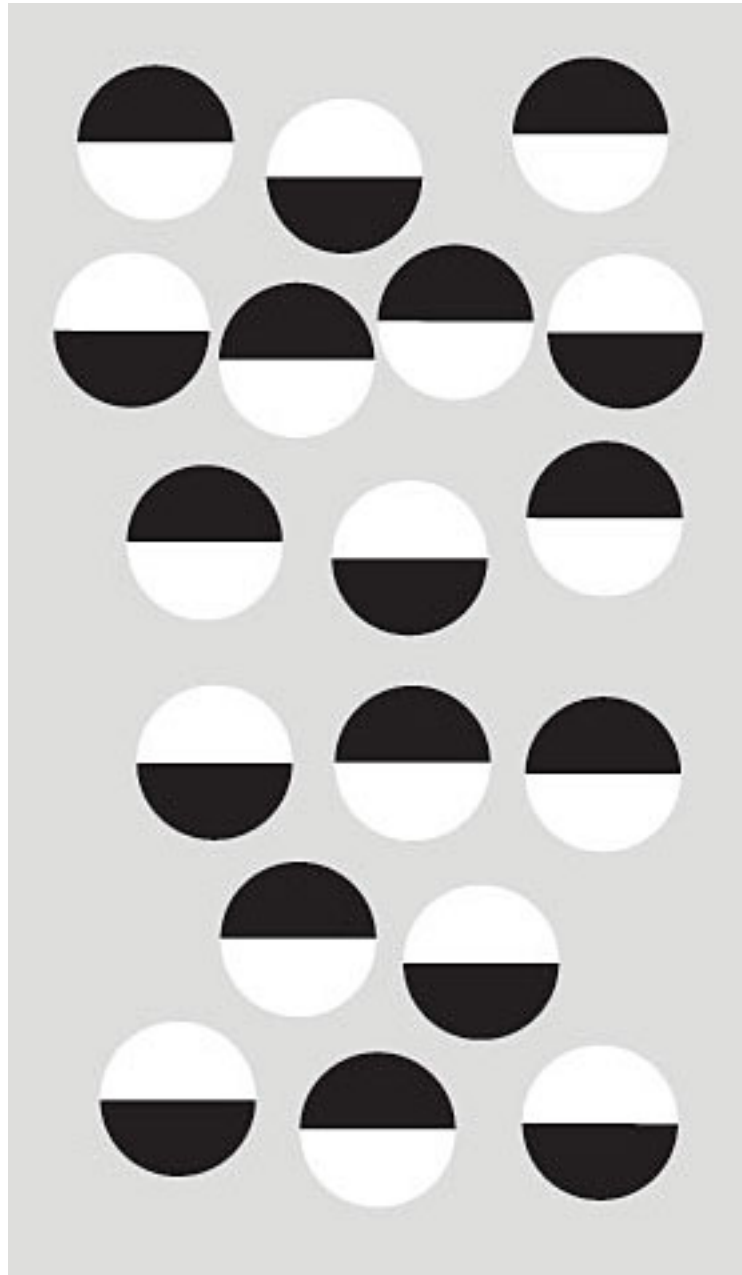
(i.e. are our perceptions of the physical world dictated by our brains?)



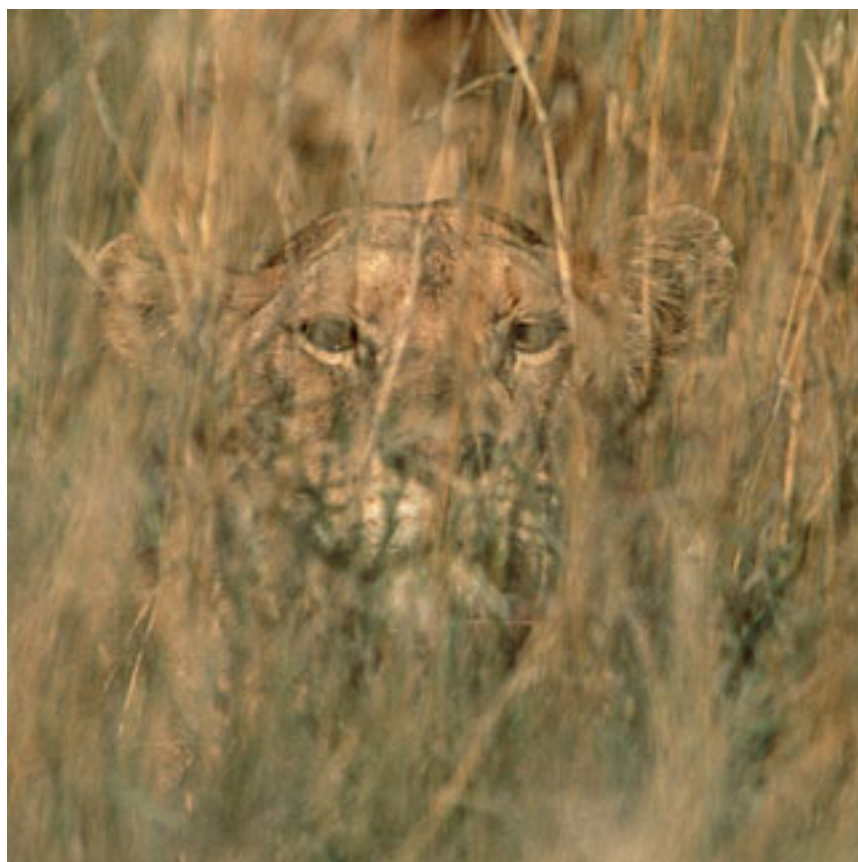






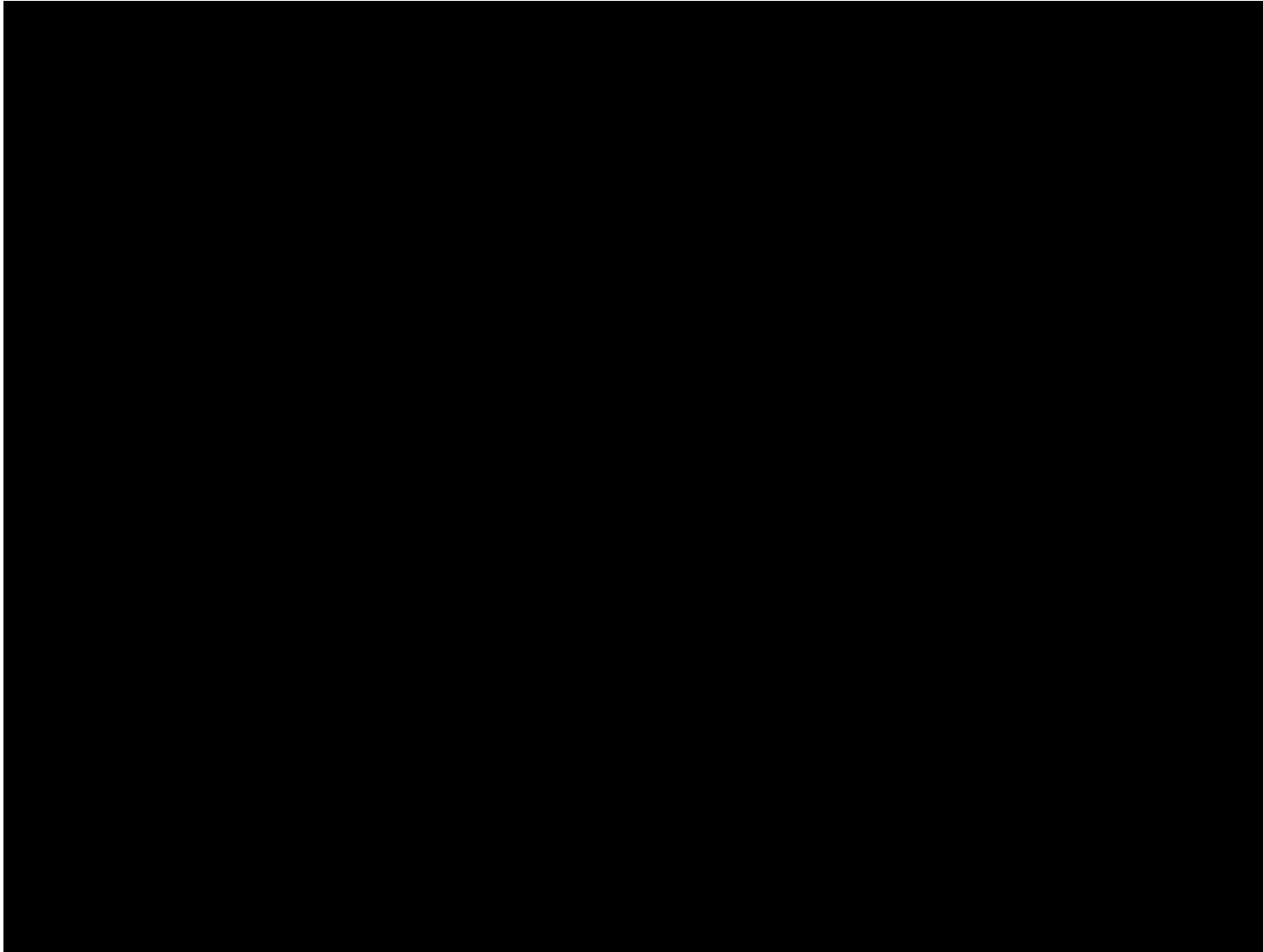


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To watch this video clip and explanation visit:
<http://www.youtube.com/watch?v=vJG698U2Mvo>

Curious Psychology #1

To watch this video clip and explanation visit:

http://www.quirkology.com/USA/Video_ColourChangingTrick.shtml



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http://www.quirkology.com/USA/Video_ColourChangingTrick.shtml



THANK YOU !
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