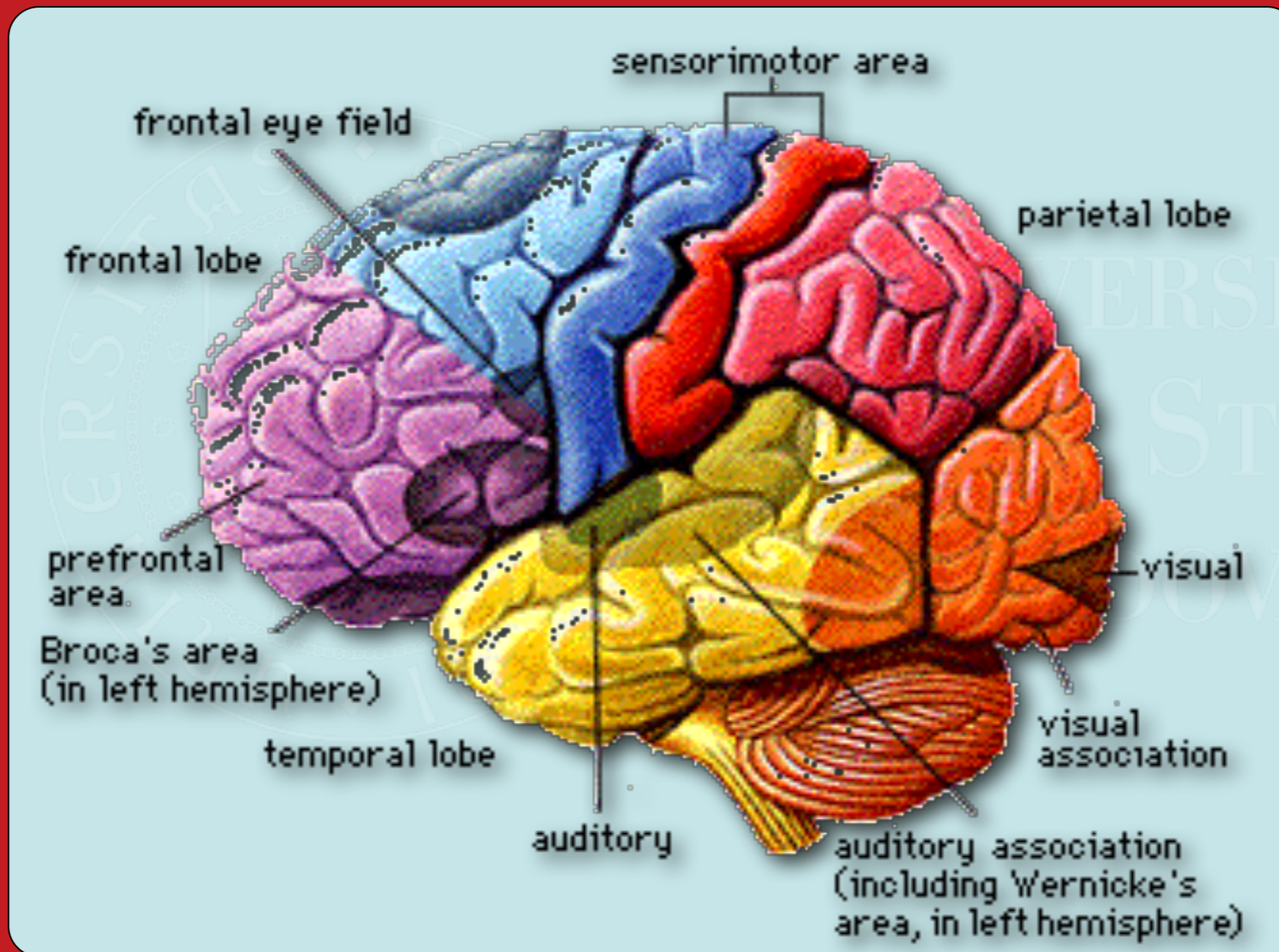


FUNZIONI E DISFUNZIONI DEL SISTEMA NERVOSO

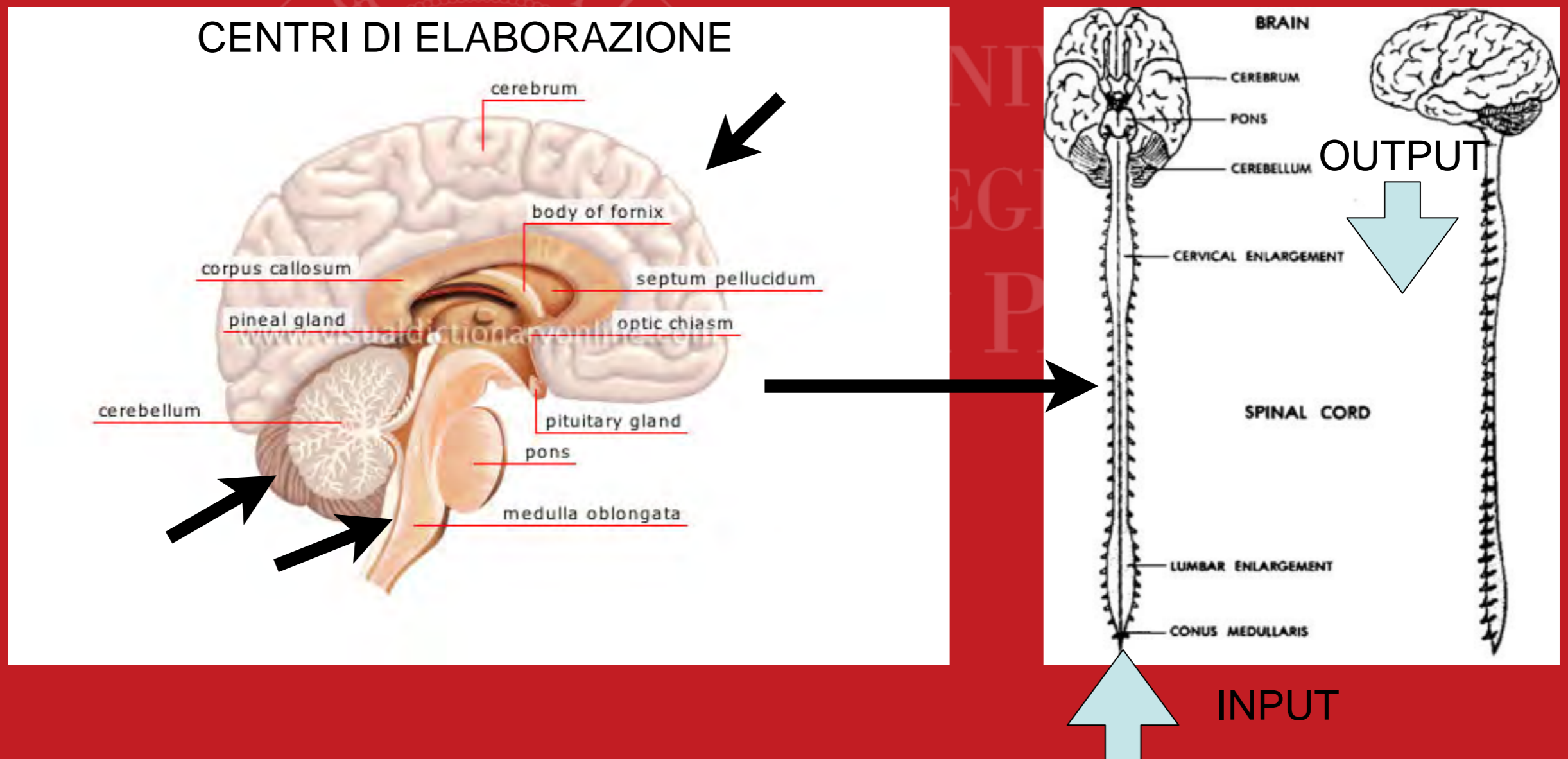


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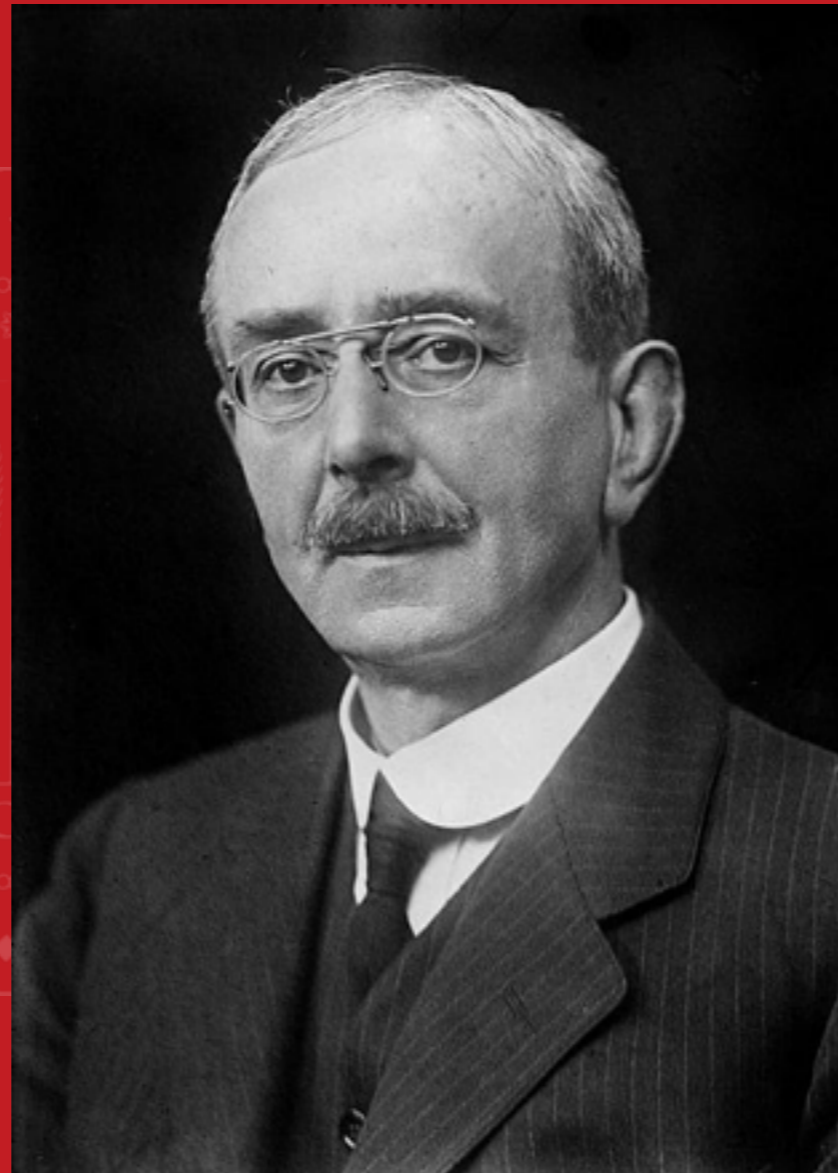
Central nervous system



Organizzazione generale

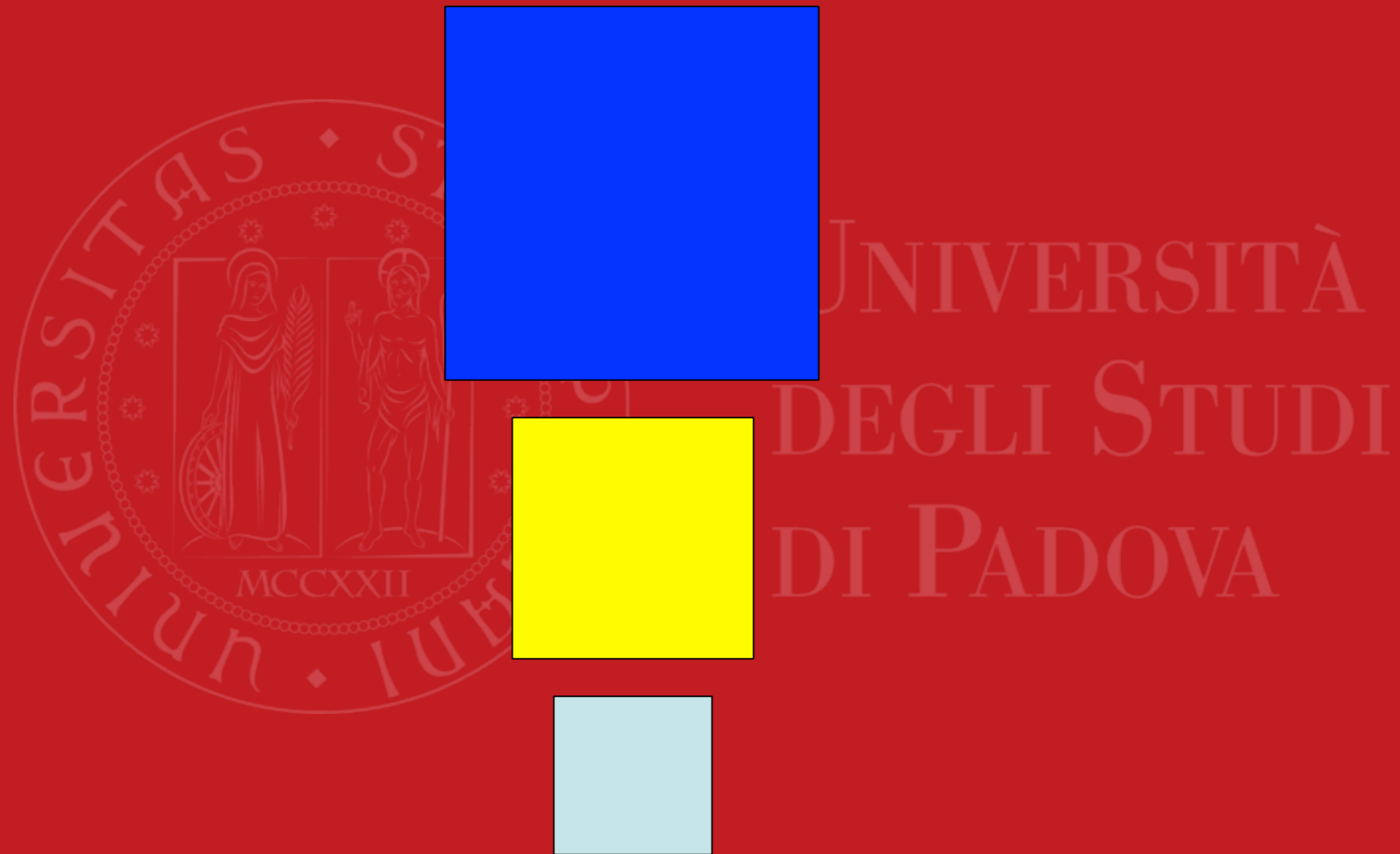


SHERRINGTON

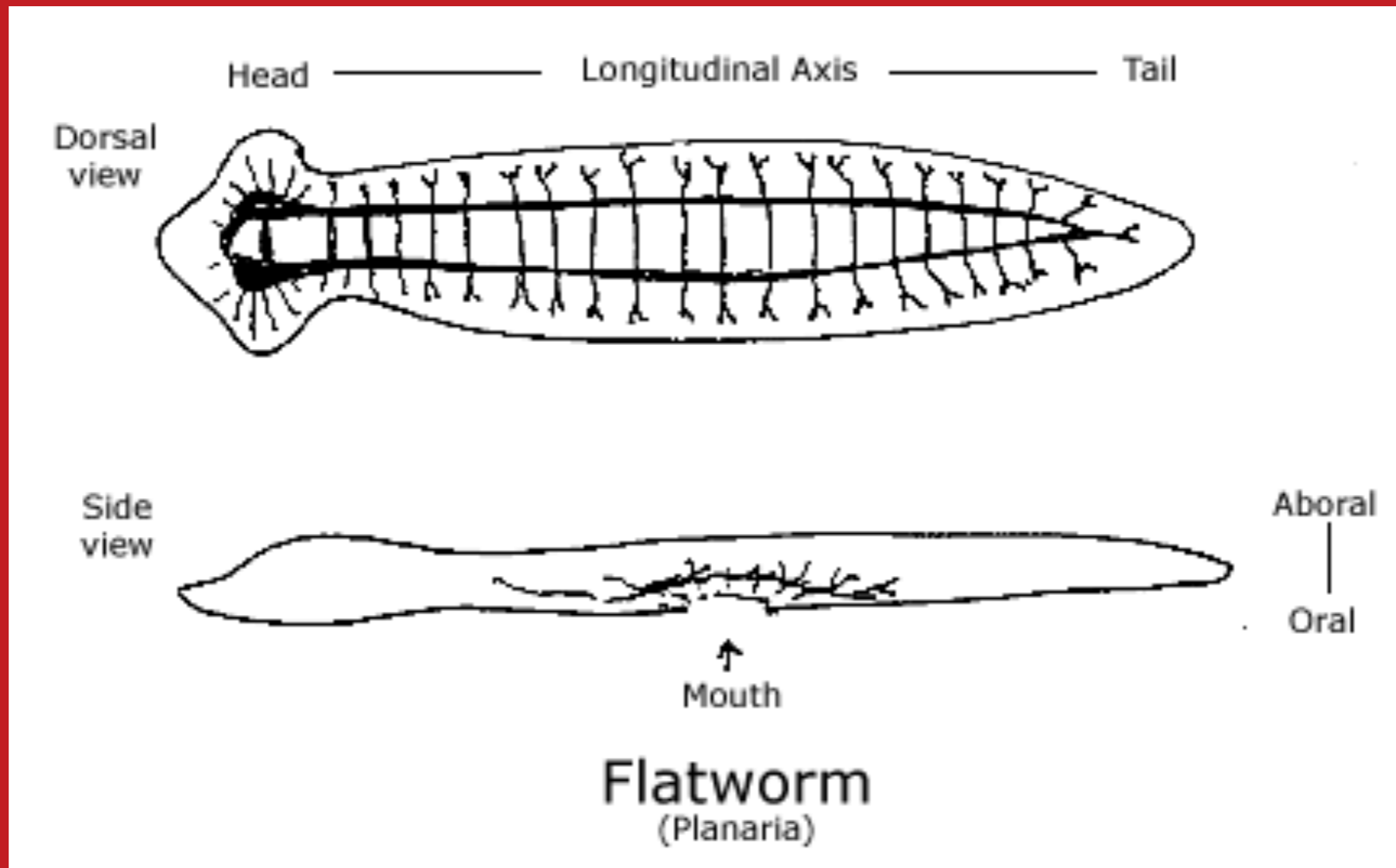


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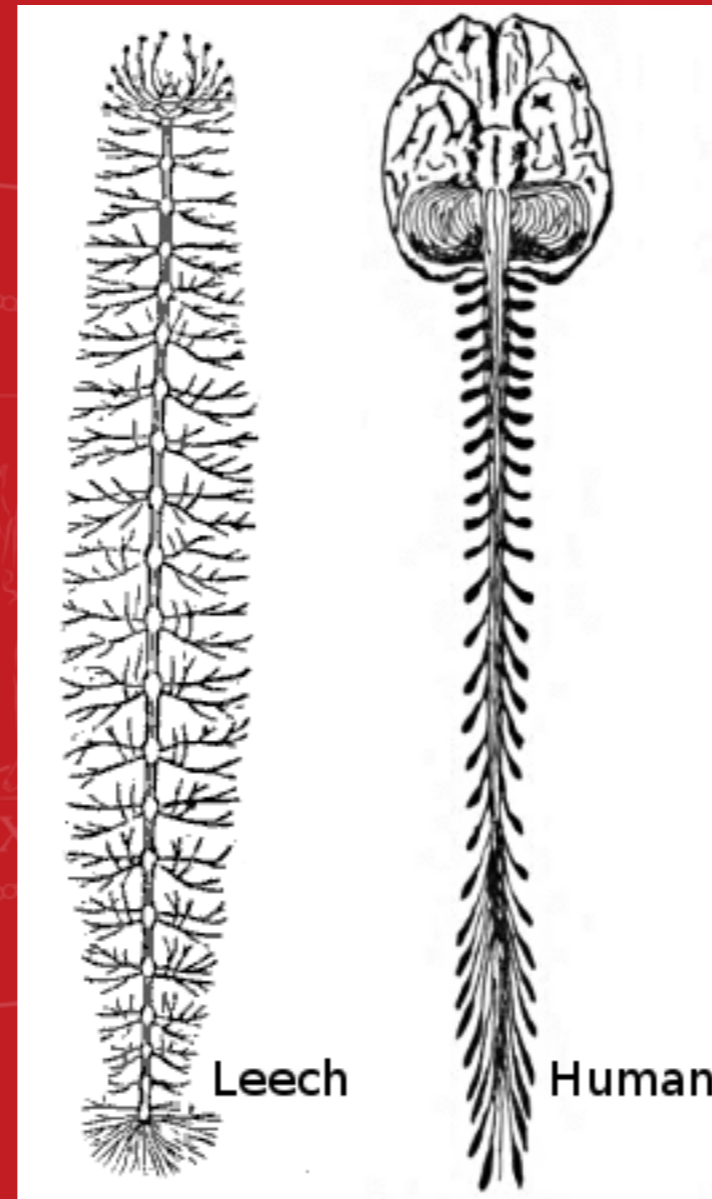
STRATIFICAZIONE



EVOLUZIONE

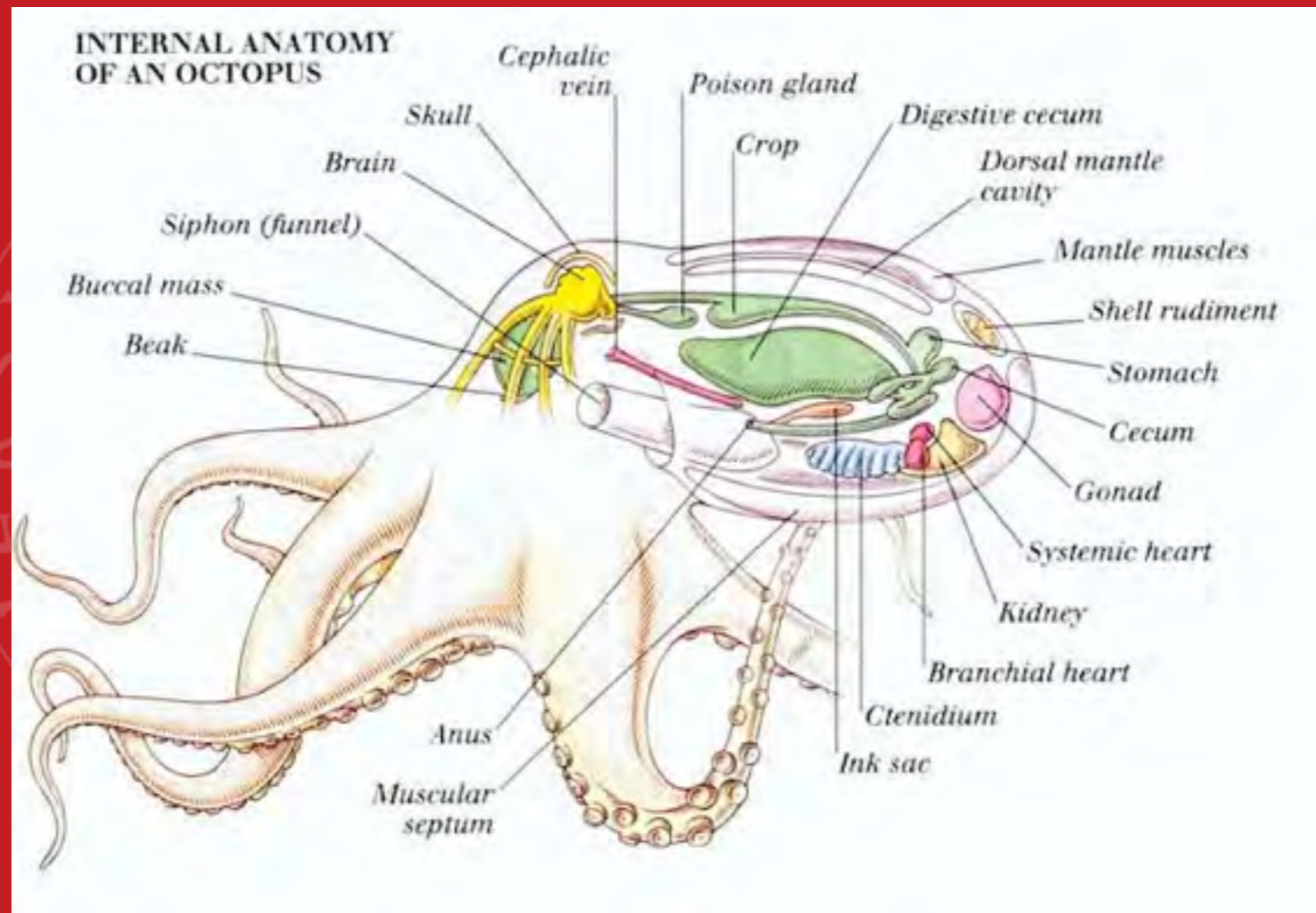


EVOLUZIONE

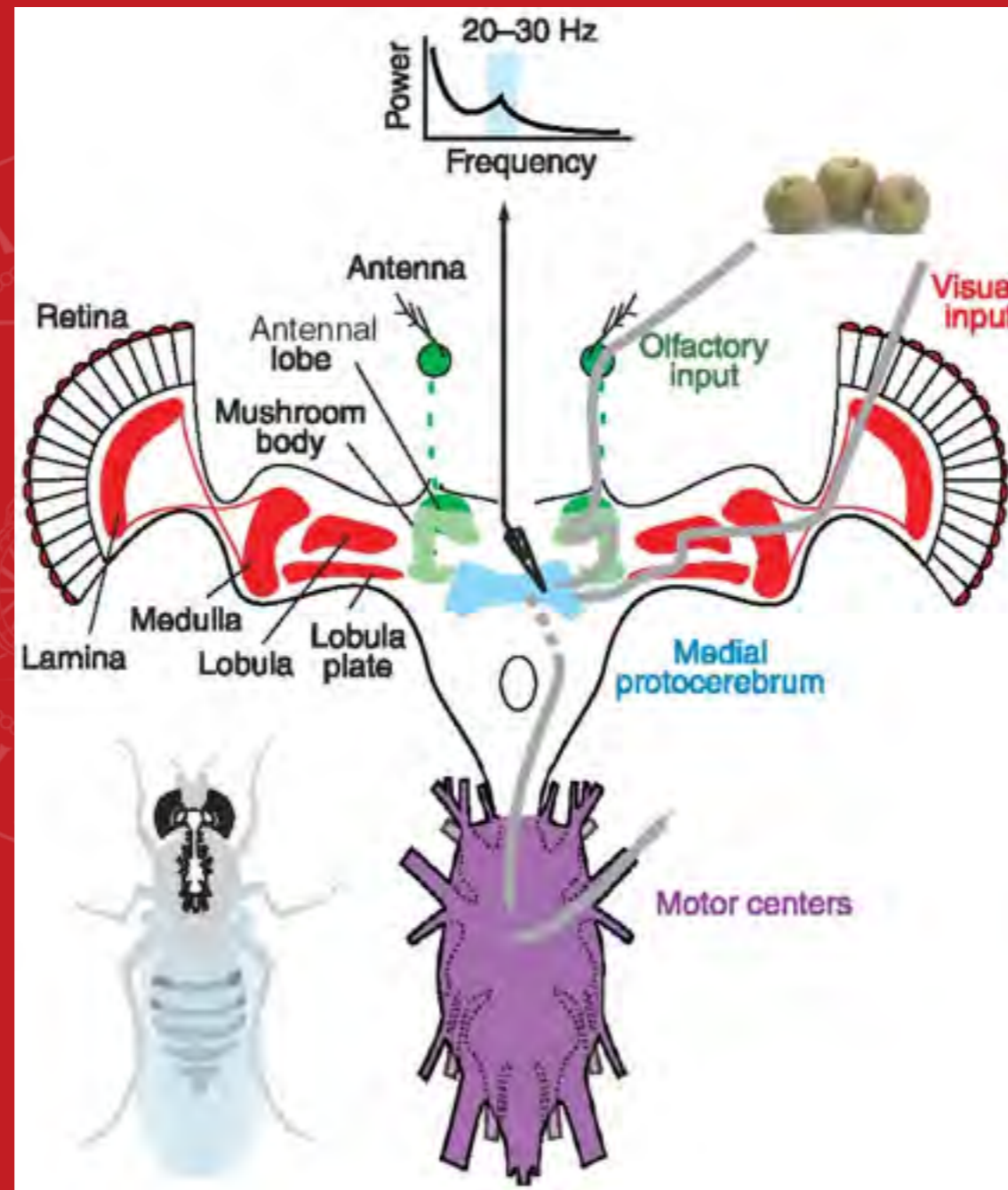


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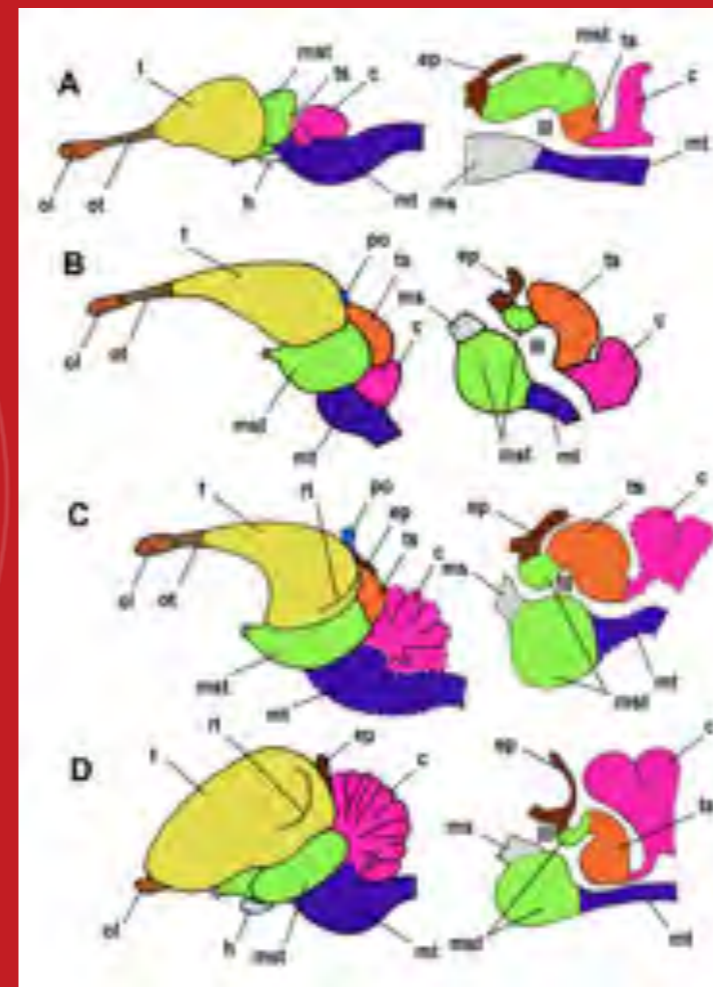
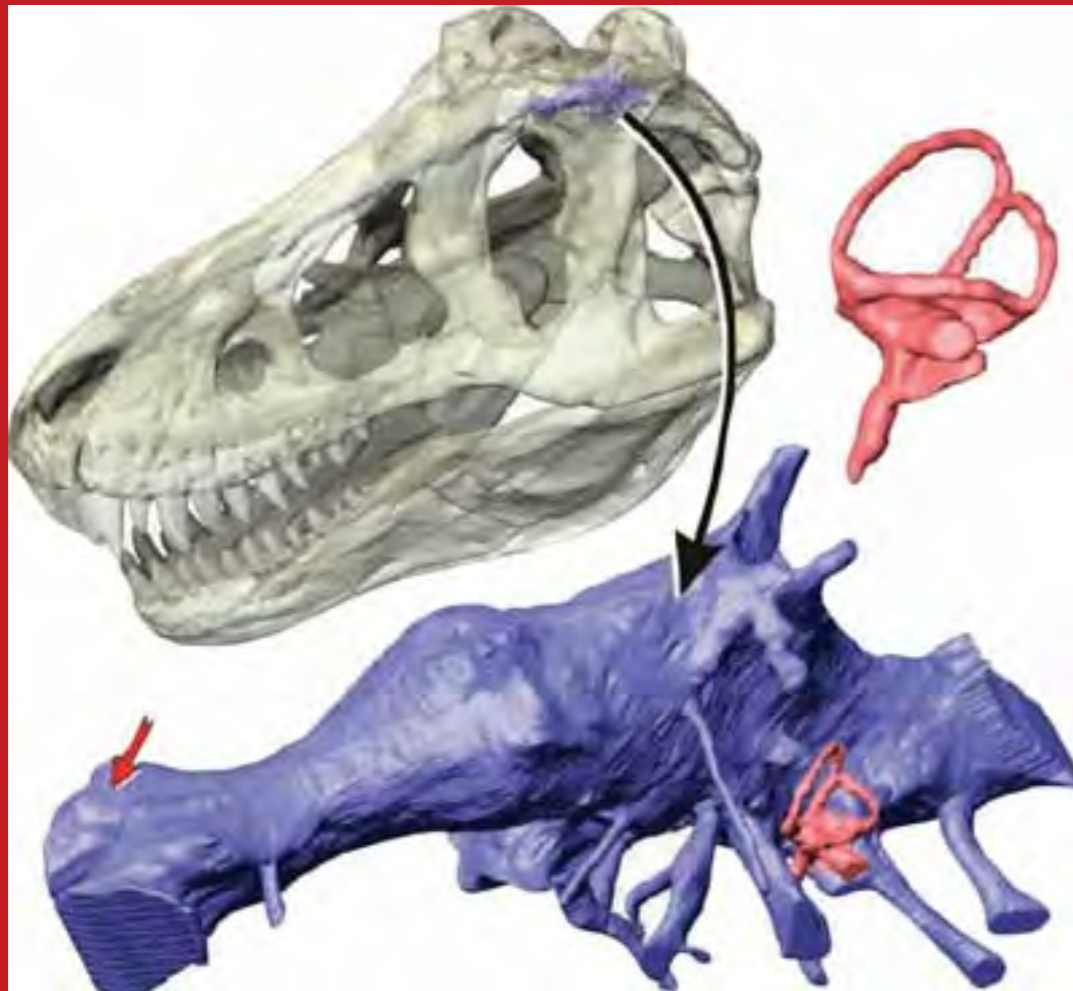
EVOLUZIONE



EVOLUZIONE



EVOLUZIONE



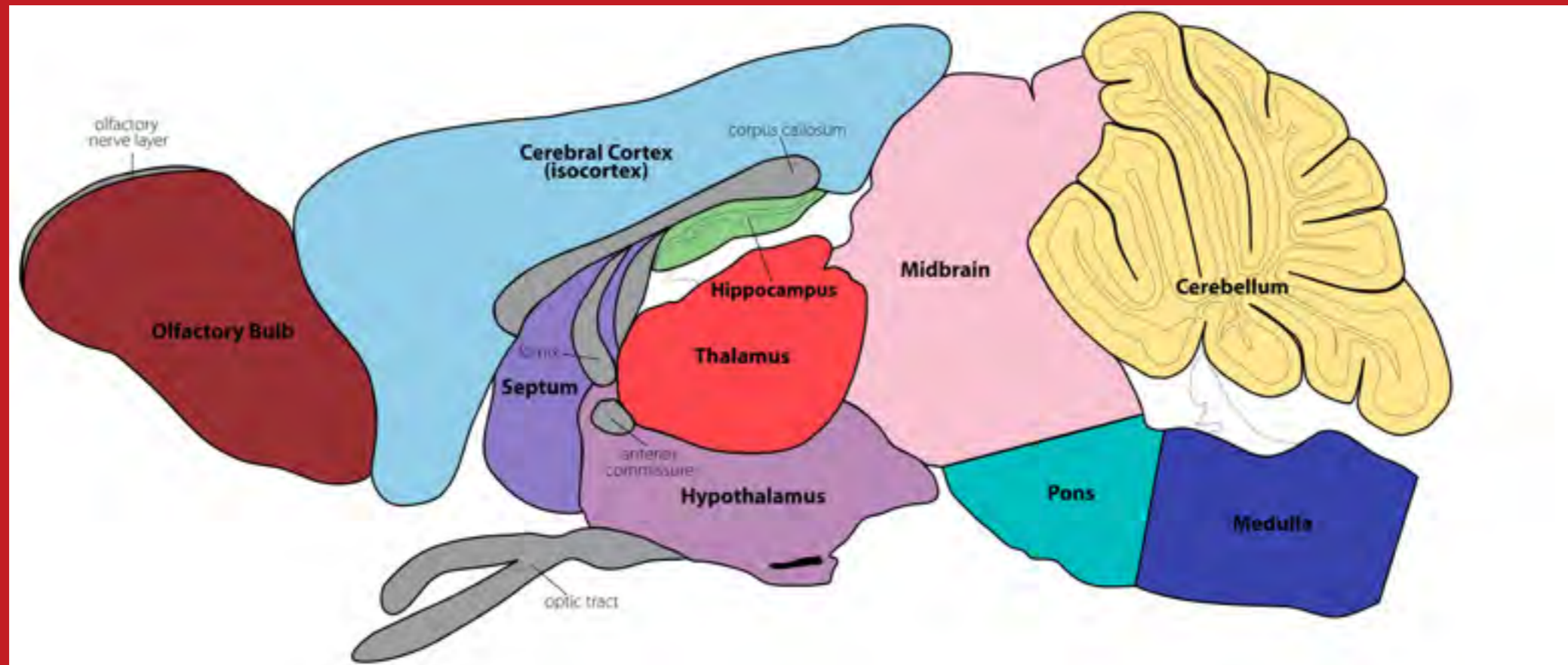
Coccodrillo

Archeopteris

Melovatka bird

Pigeon

EVOLUZIONE

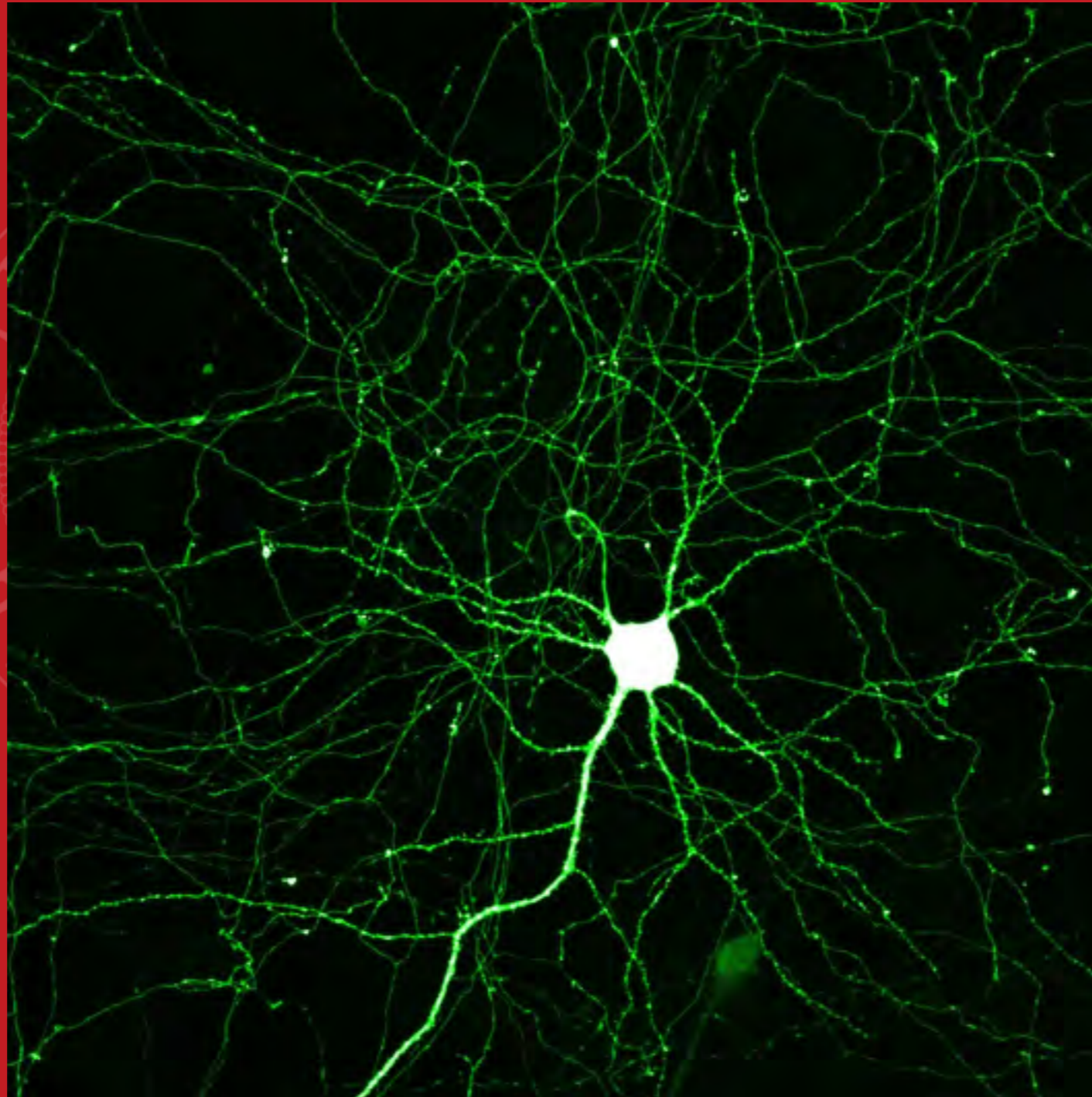


Topo

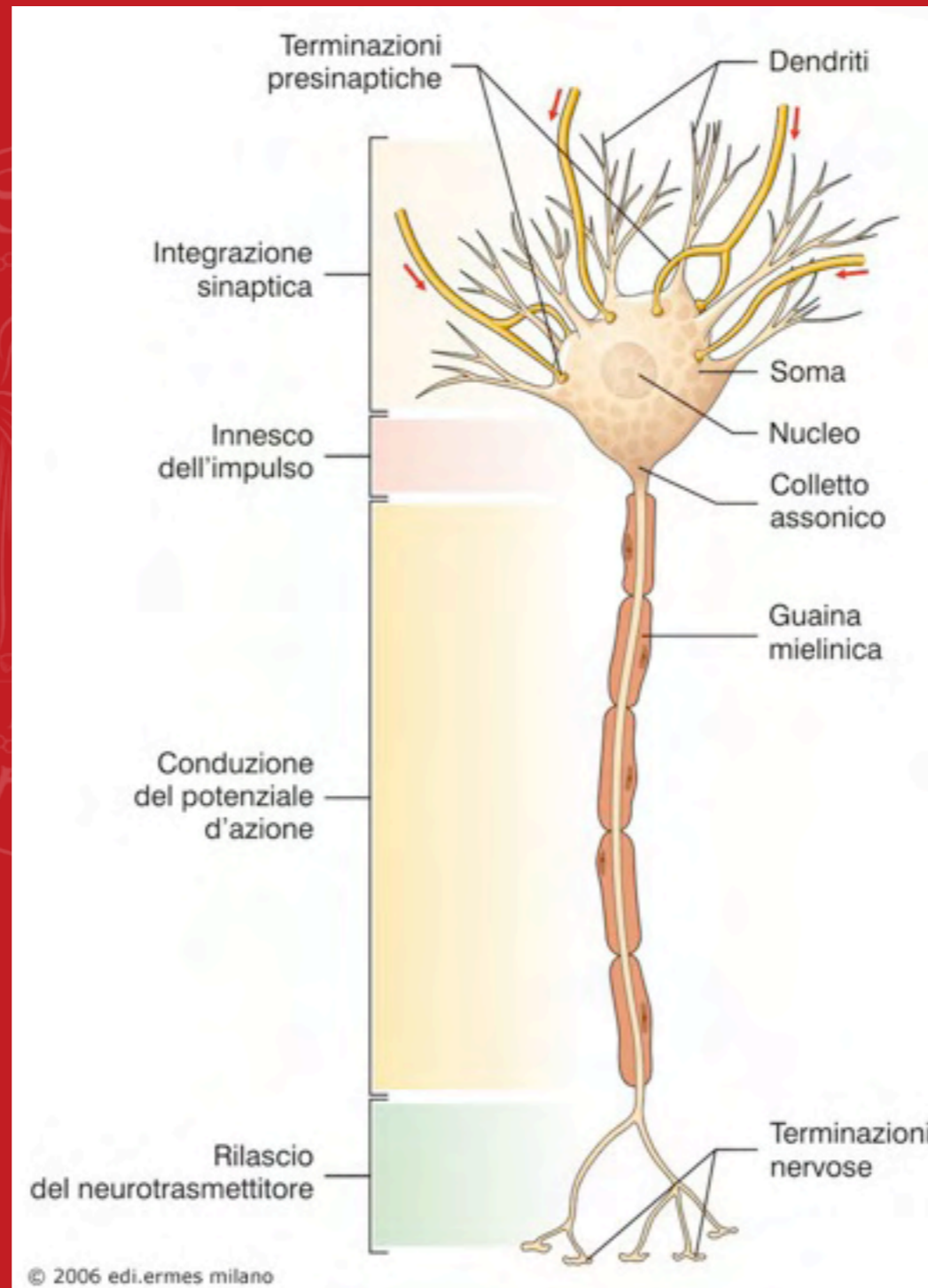
Brain function and neurons



Unità funzionali: i neuroni



Il neurone



L'impulso o informazione



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- L'informazione è un'informazione digitale di tipo binario

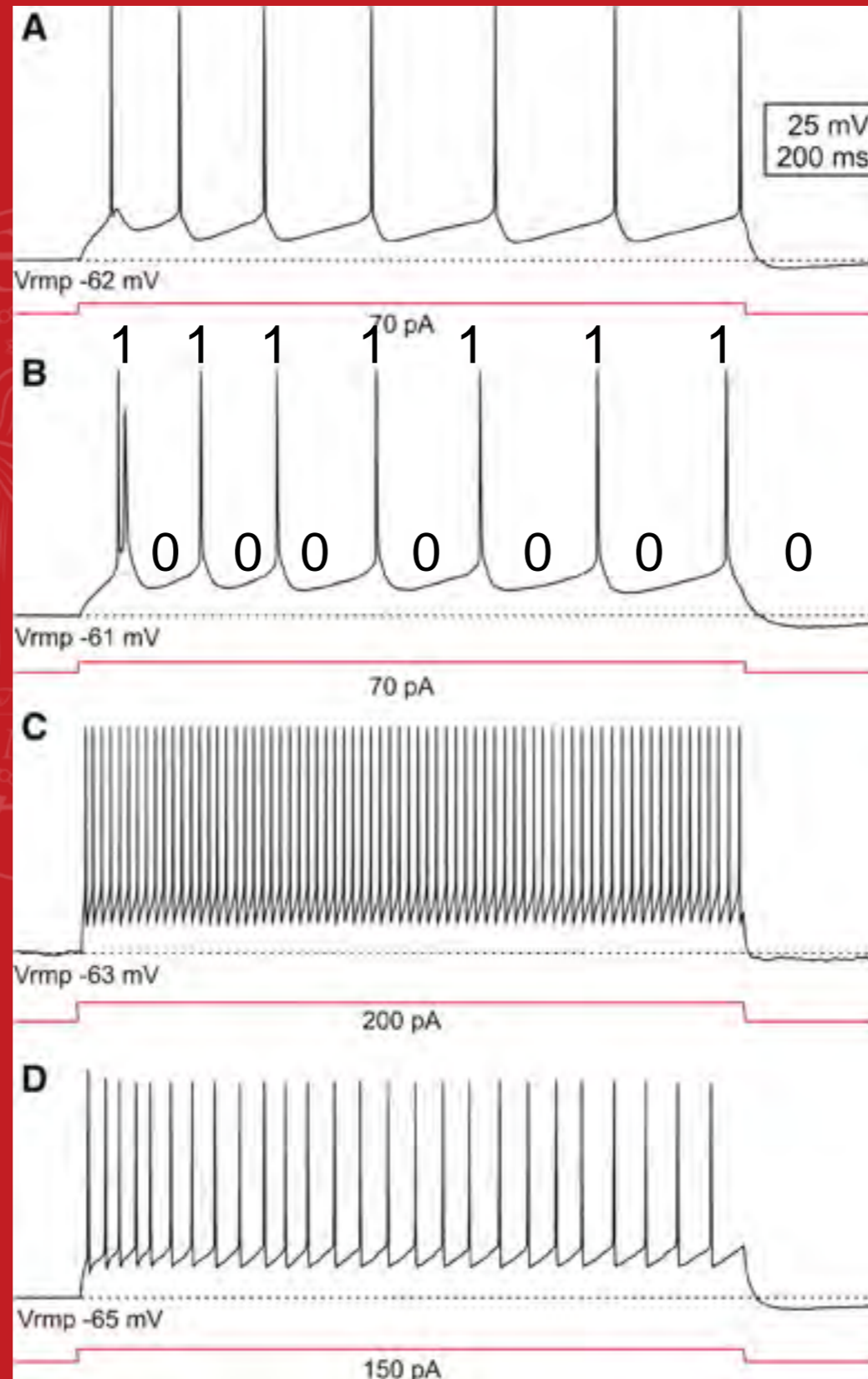


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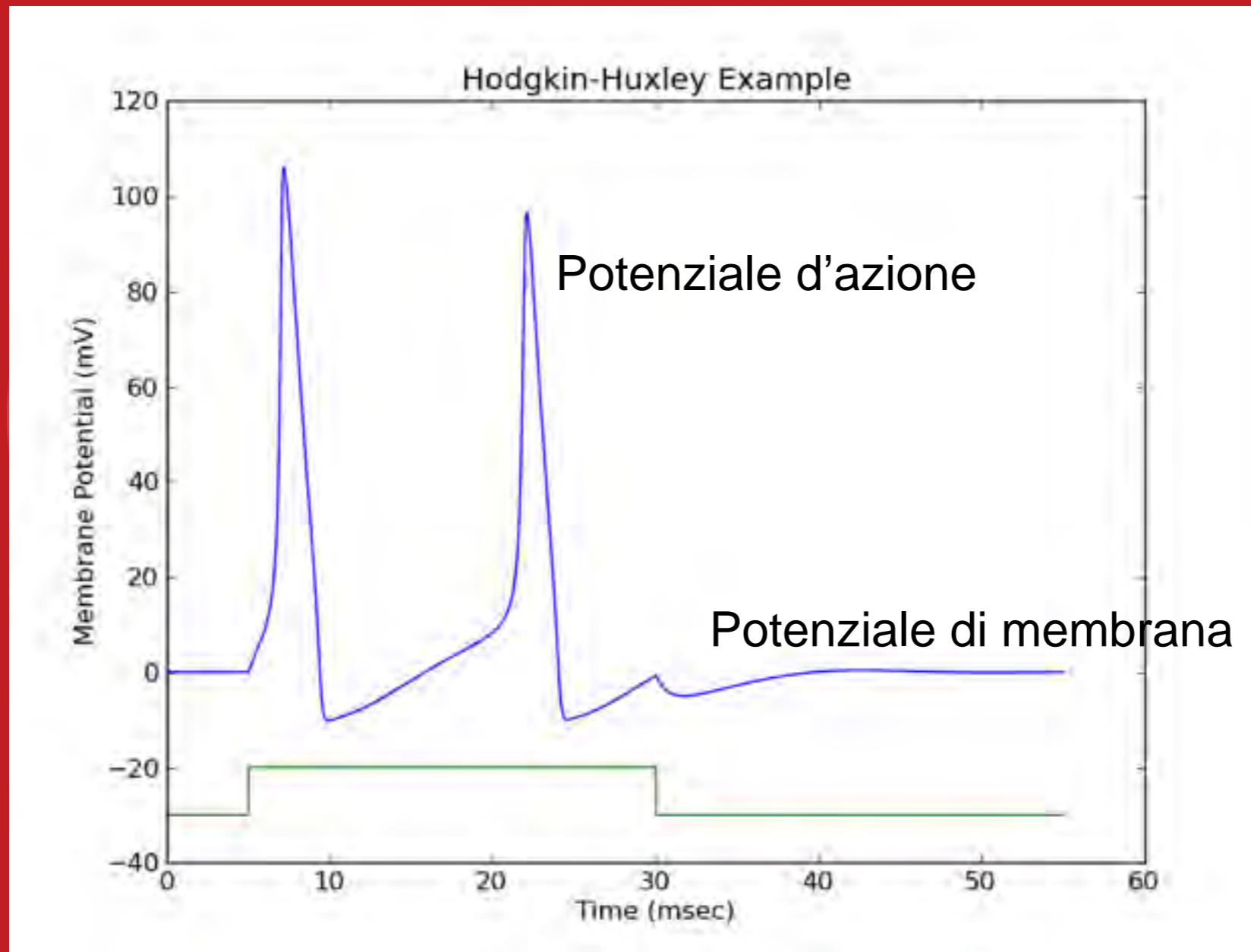
Digital signal



Cosa sono 0 e 1 ??



Potenziale d'azione



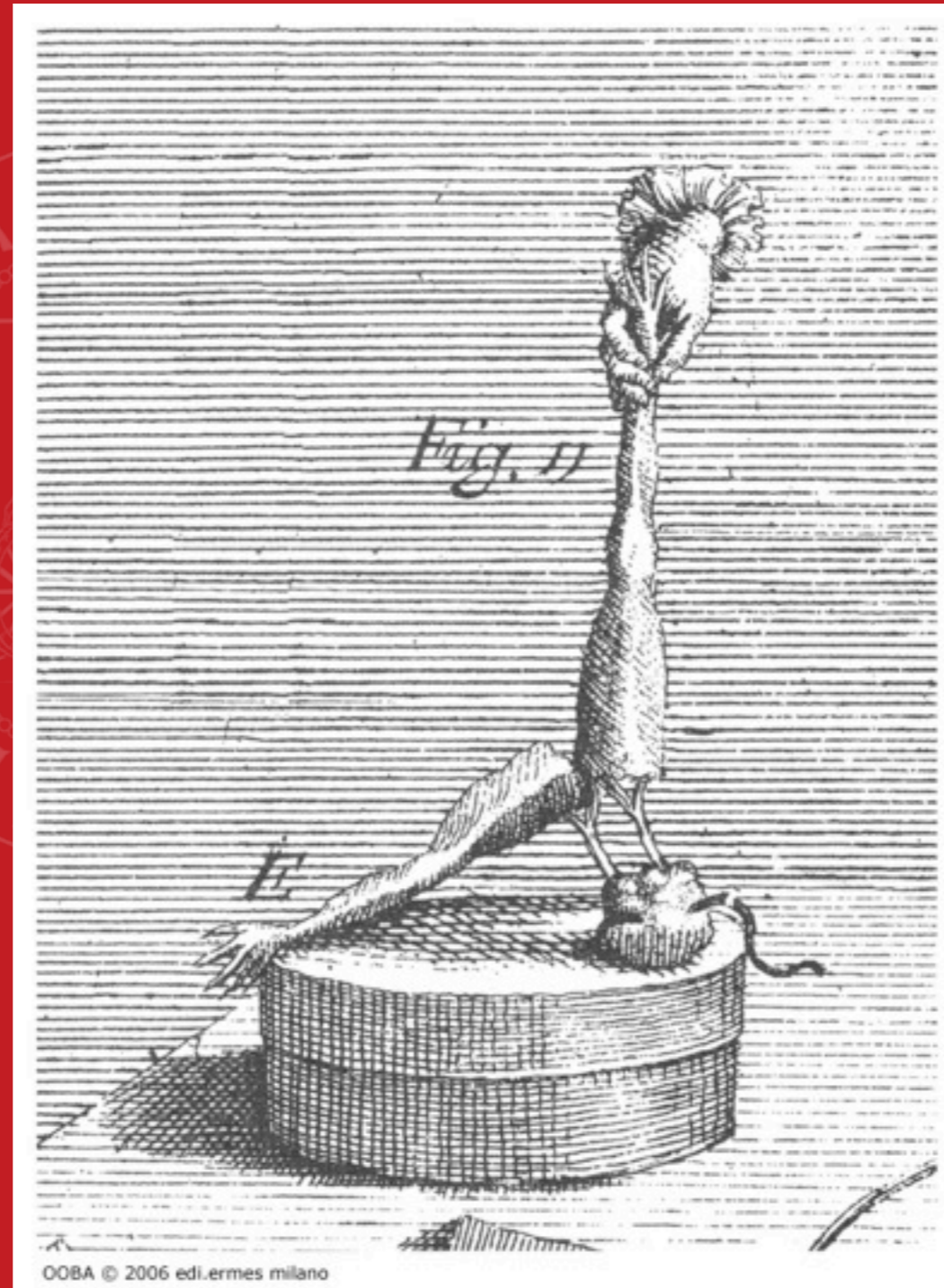
- Le cellule eccitabili (neuroni e cellule muscolari) sono in grado di generare dei segnali discreti, uguali per durata e ampiezza, nonostante lo stimolo che li genera, **PURCHE' QUESTO SIA SUFFICIENTE A DEPOLARIZZARE LA MEMBRANA DI UN CERTO VALORE** (concetto di soglia del potenziale d'azione e concetto di tutto o nulla del potenziale d'azione)

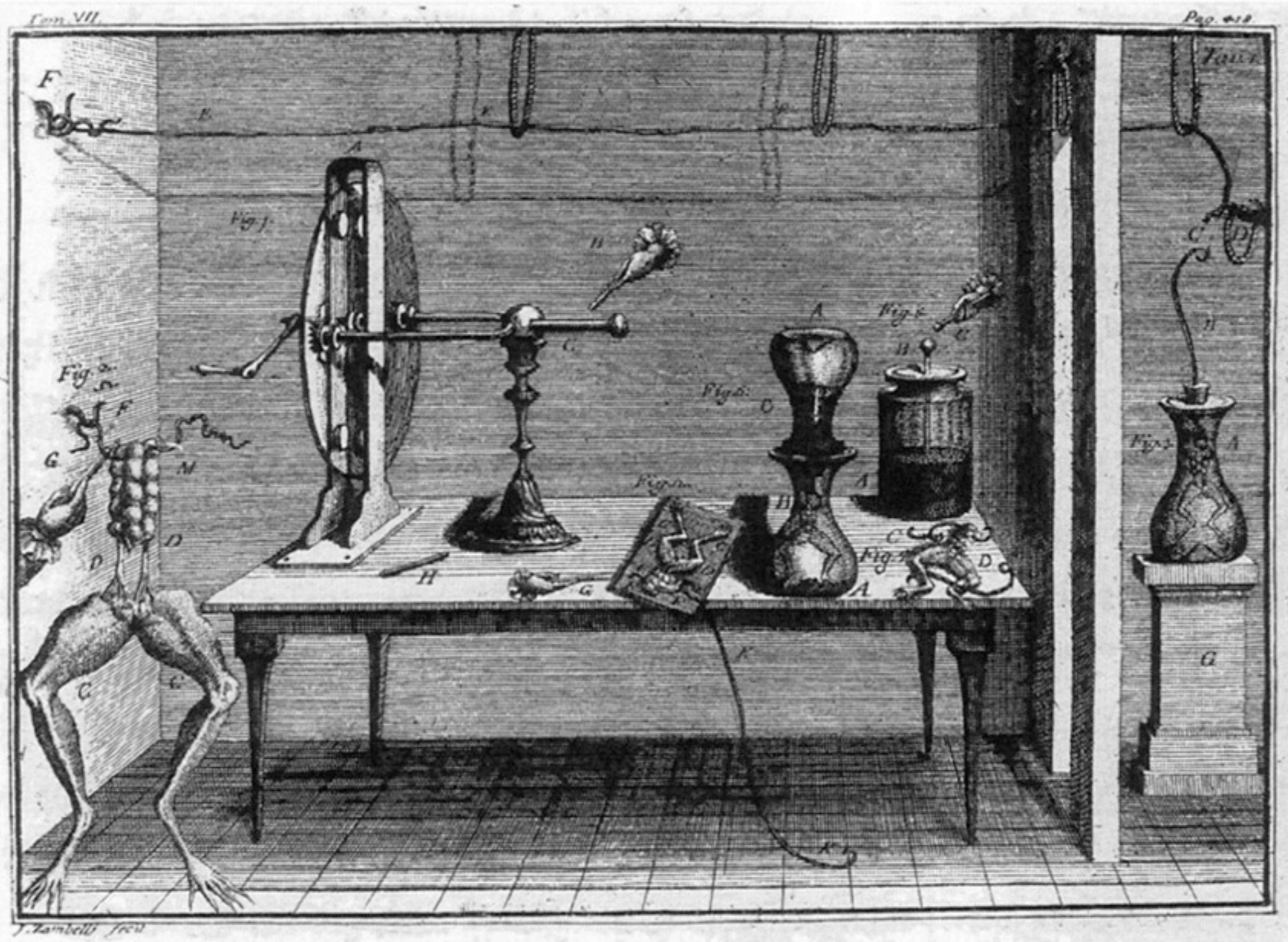
Galvani e Volta



OOBA © 2006 edi.ermes milano

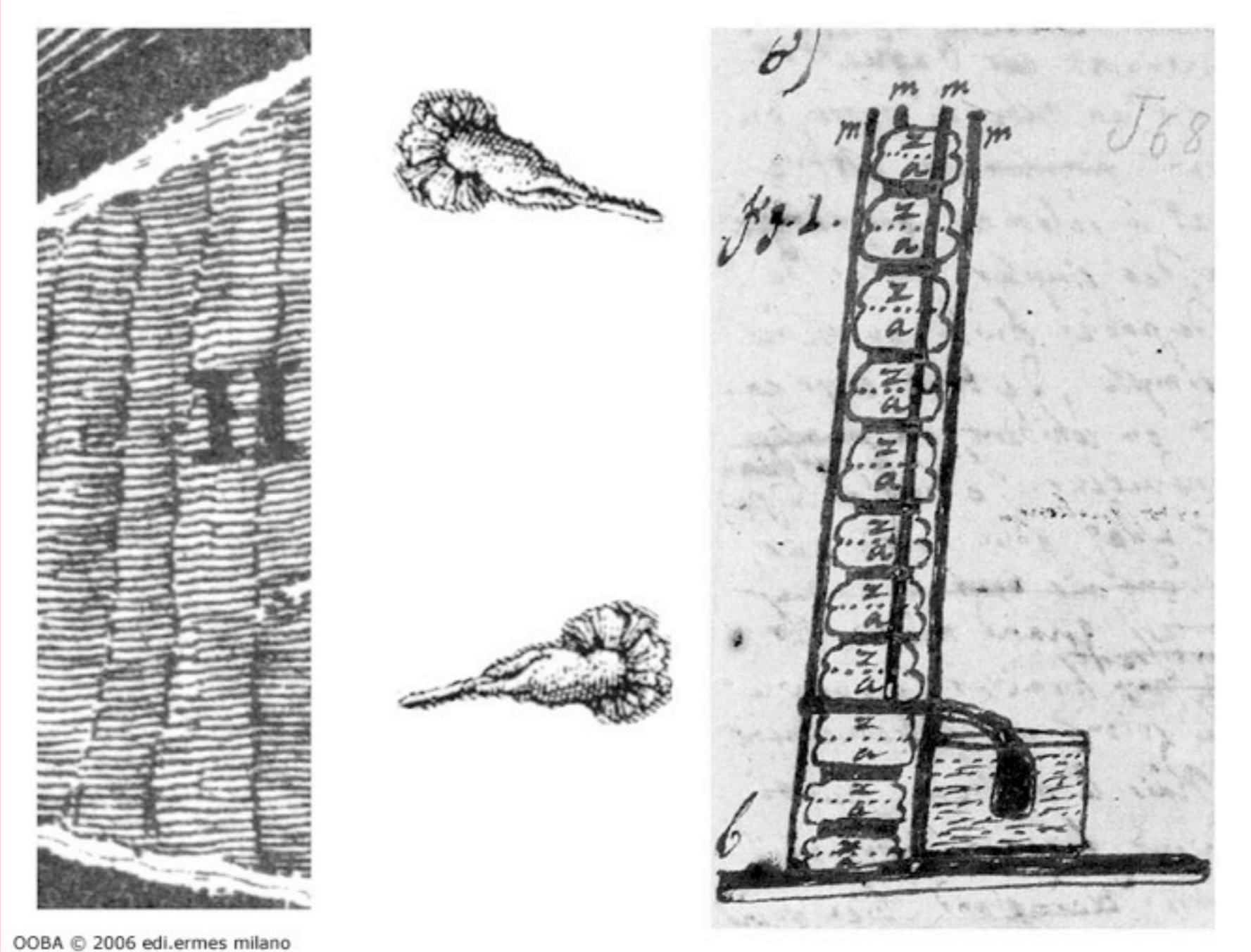
Gli studi sull'elettricità animale nella rana





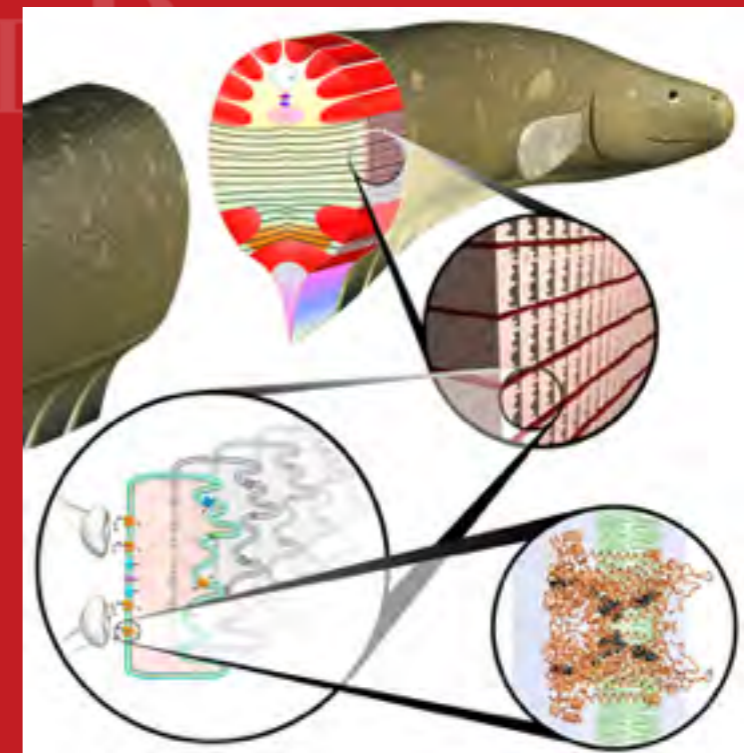
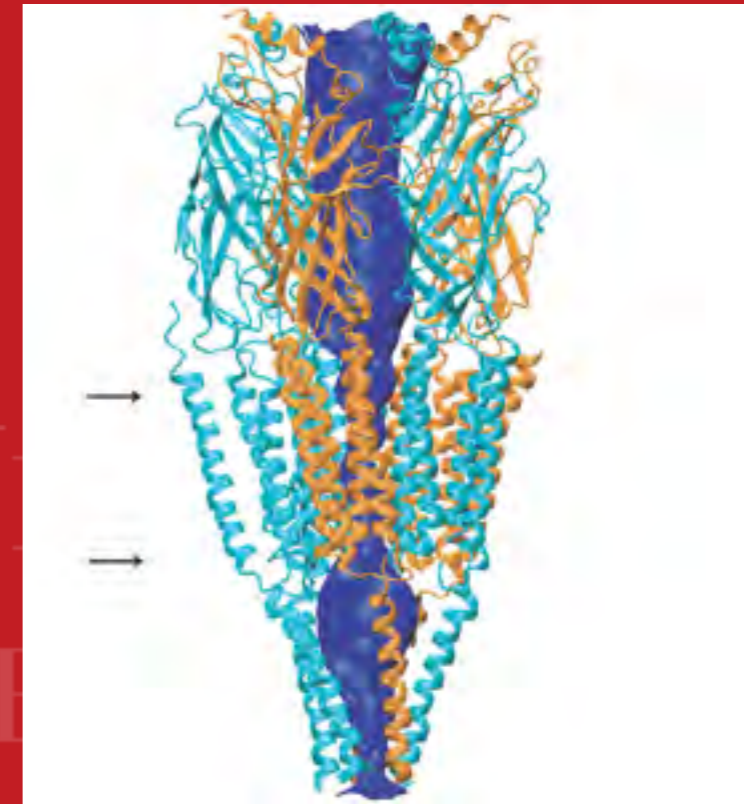
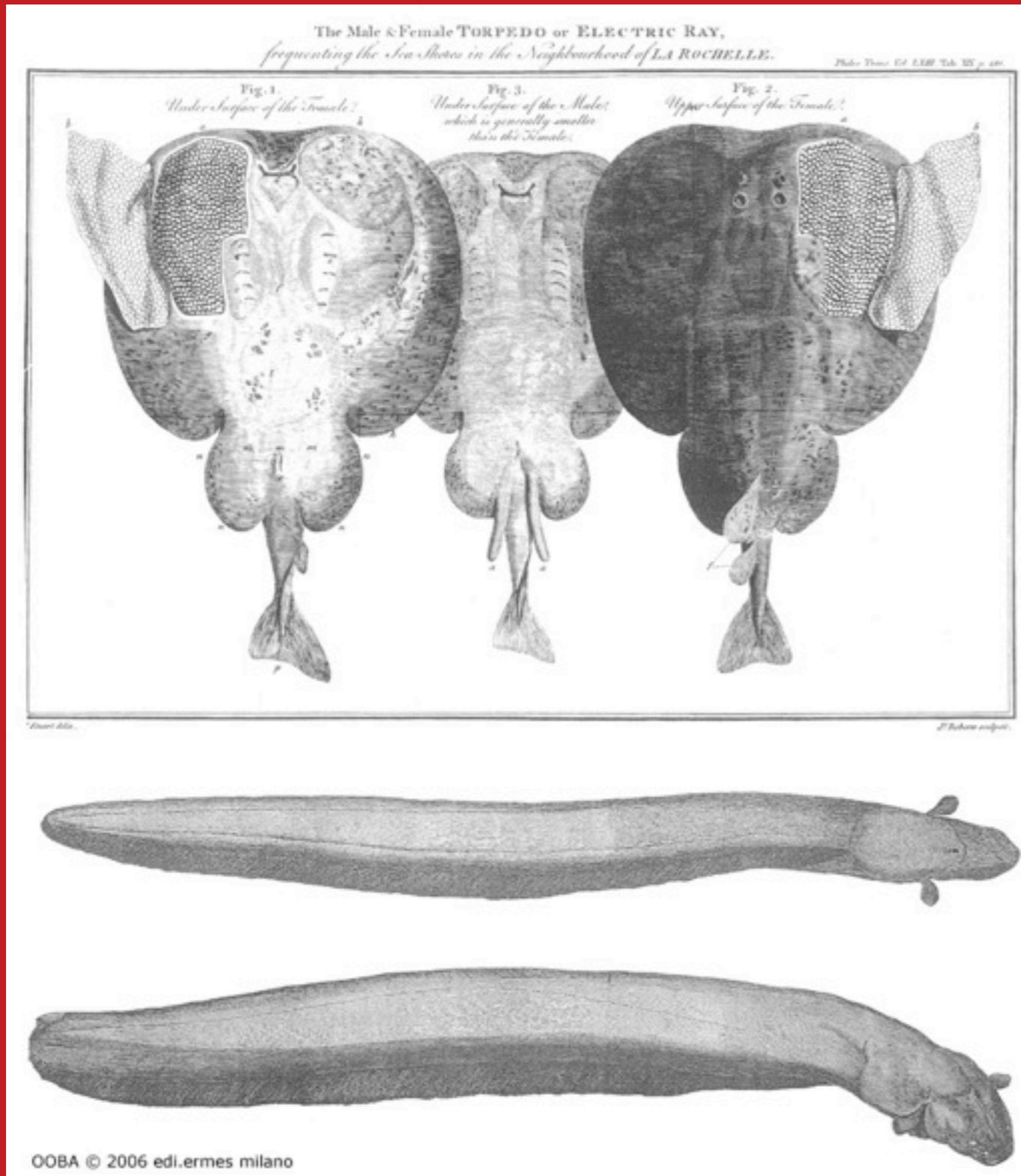
OOBA © 2006 edi.ermes milano

La pila



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Torpedo e anguilla elettrica

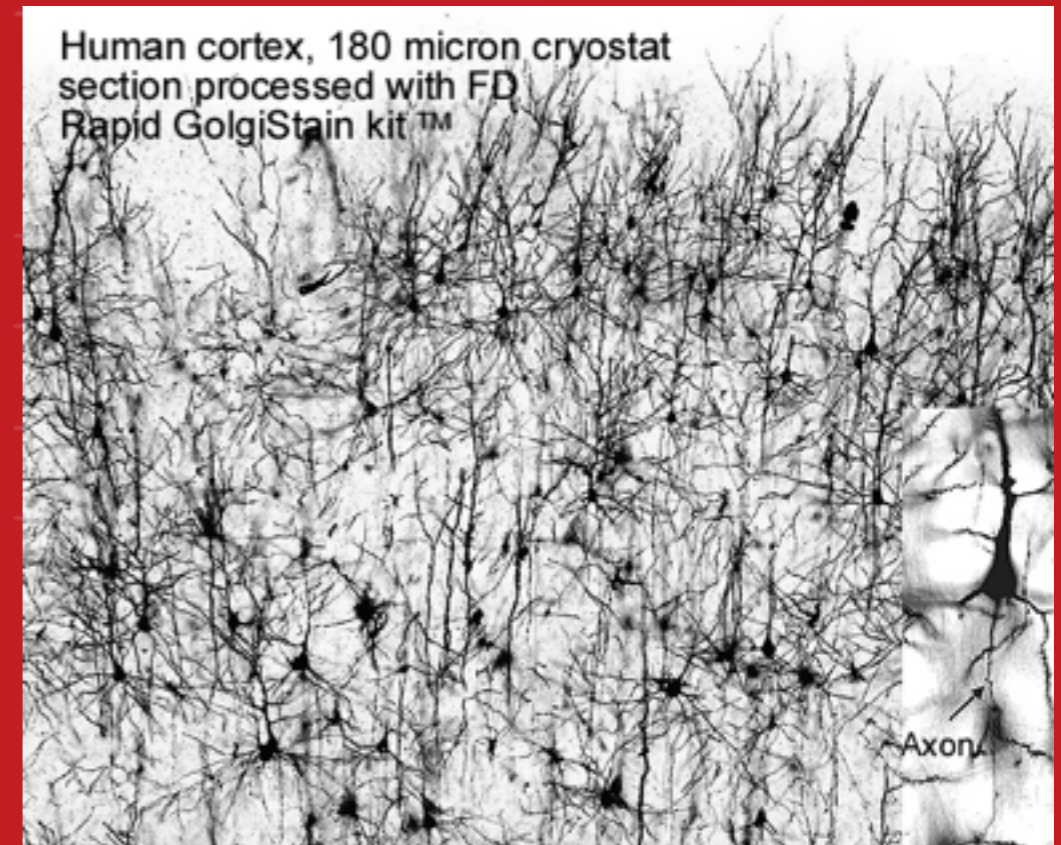
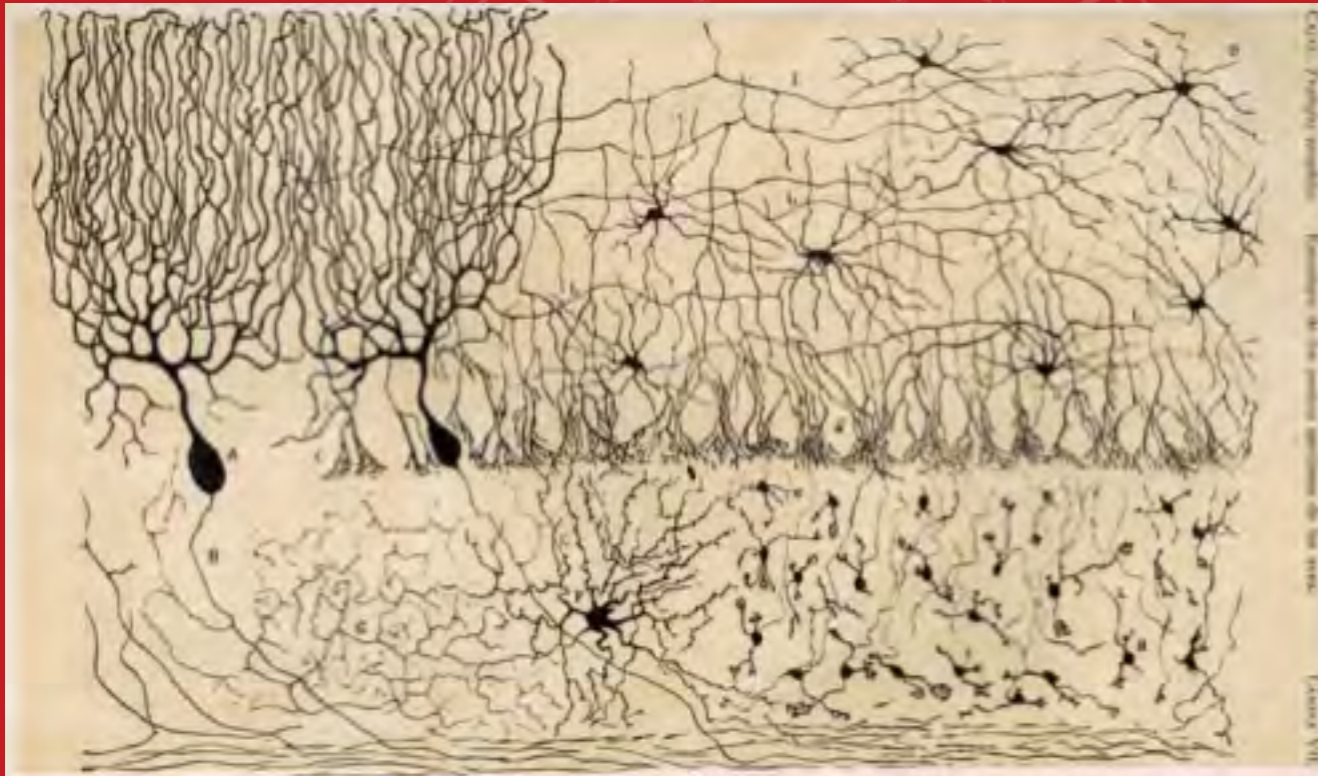


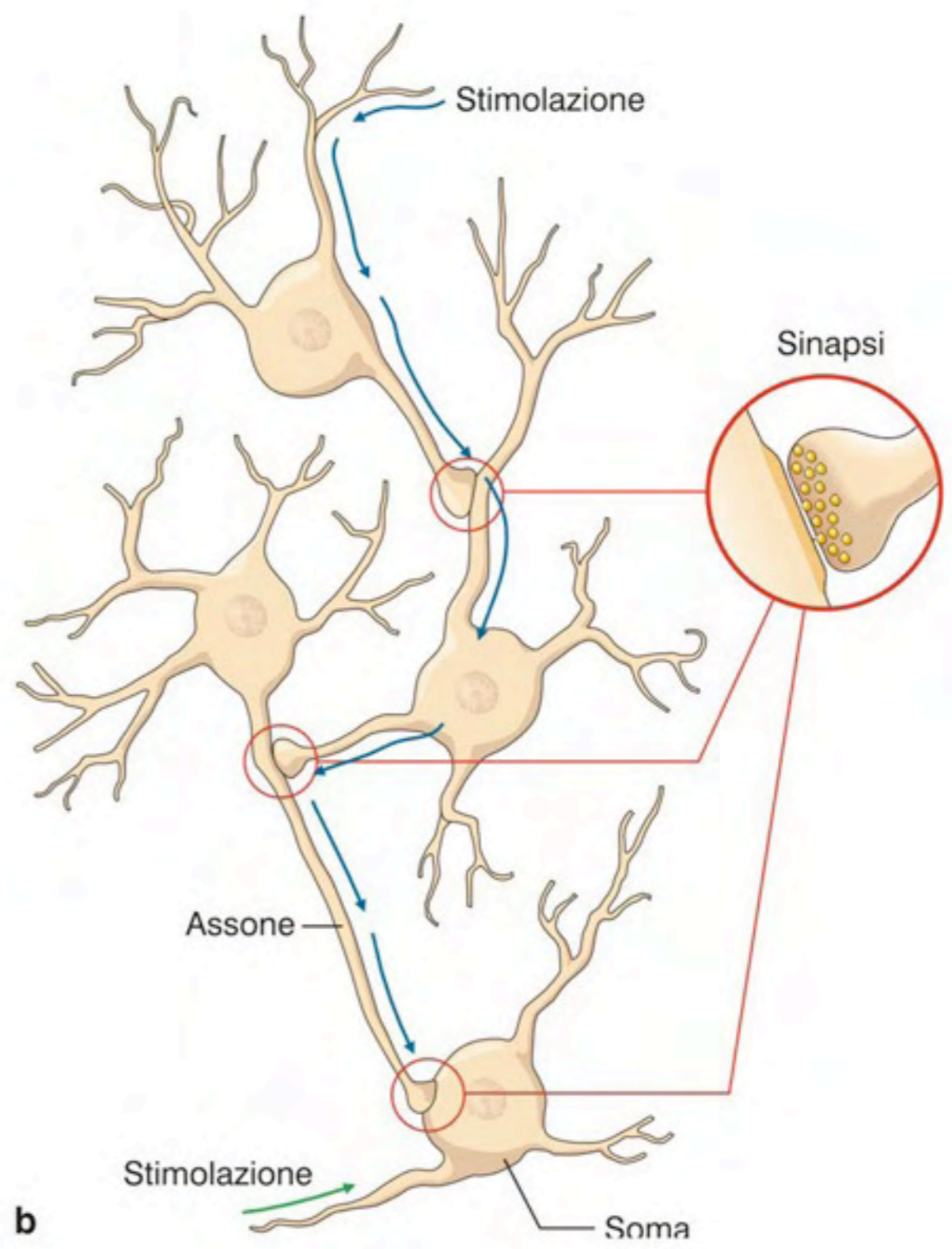
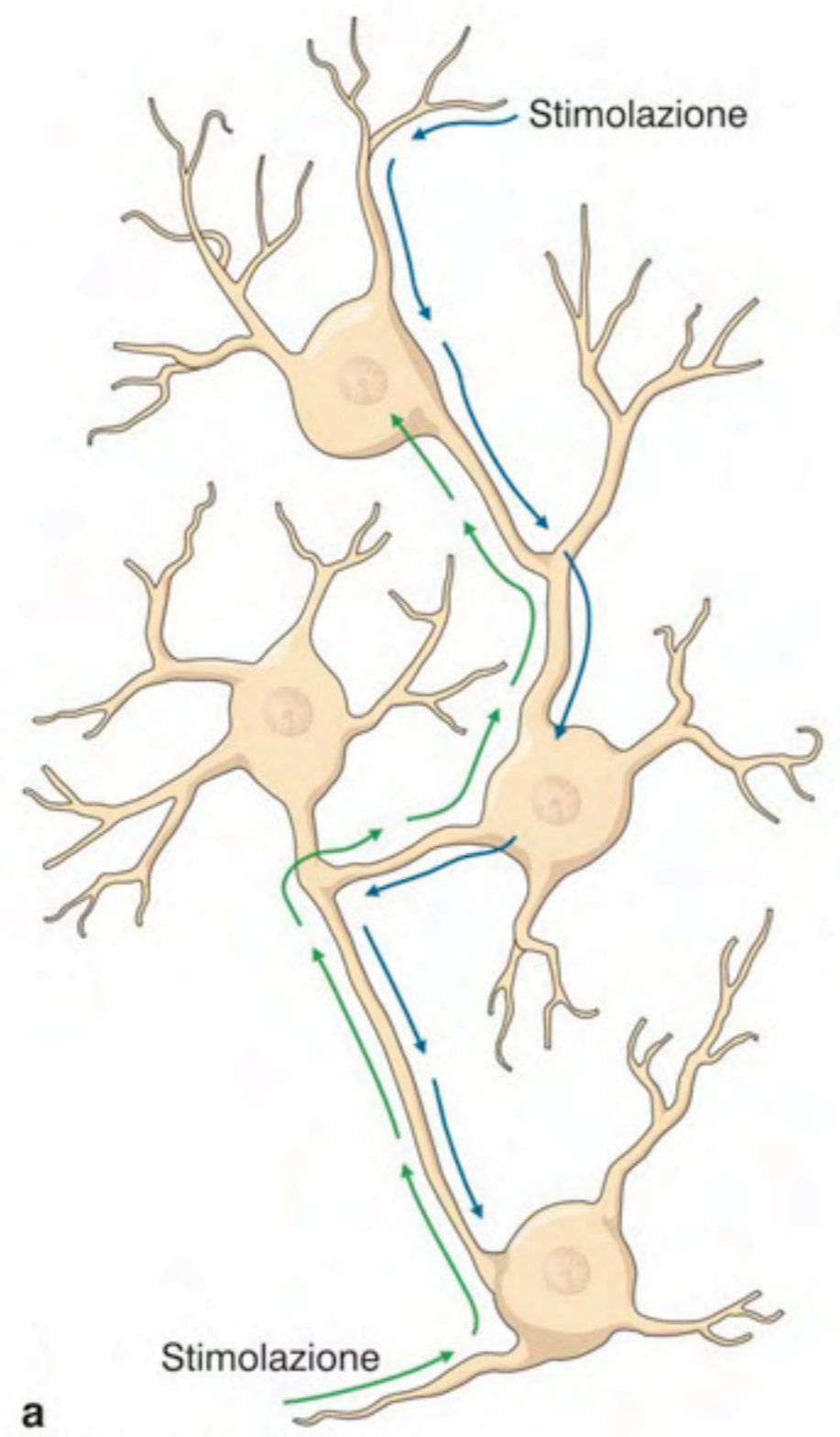
Golgi e Cajal



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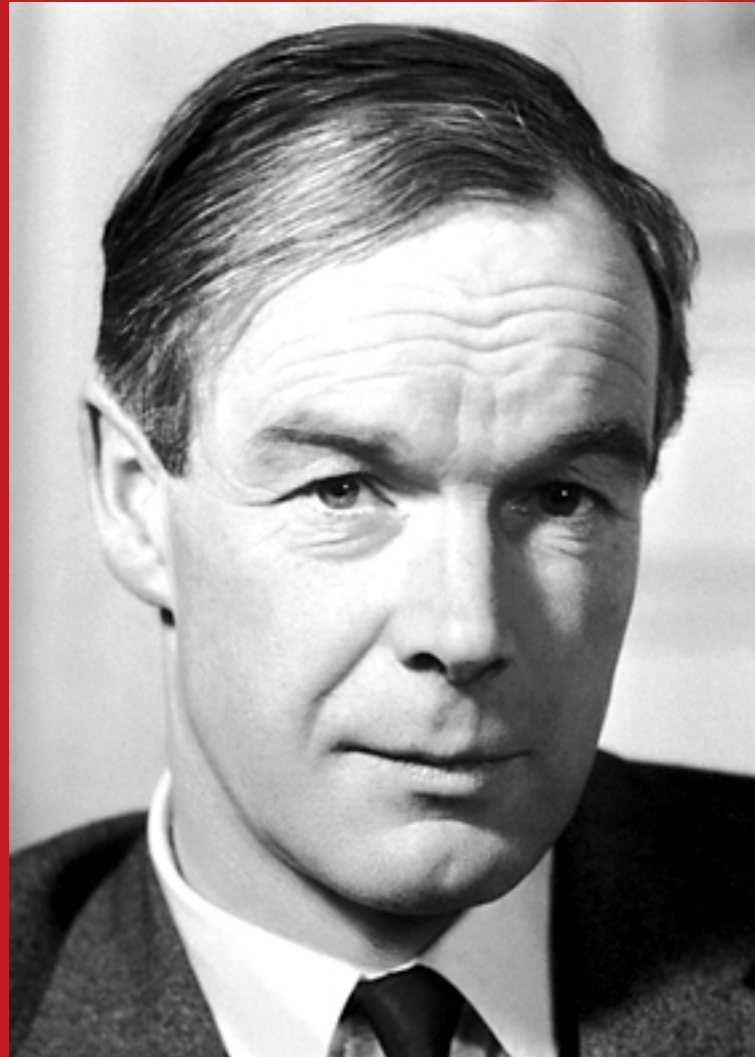
I neuroni colorati con il metodo di Golgi



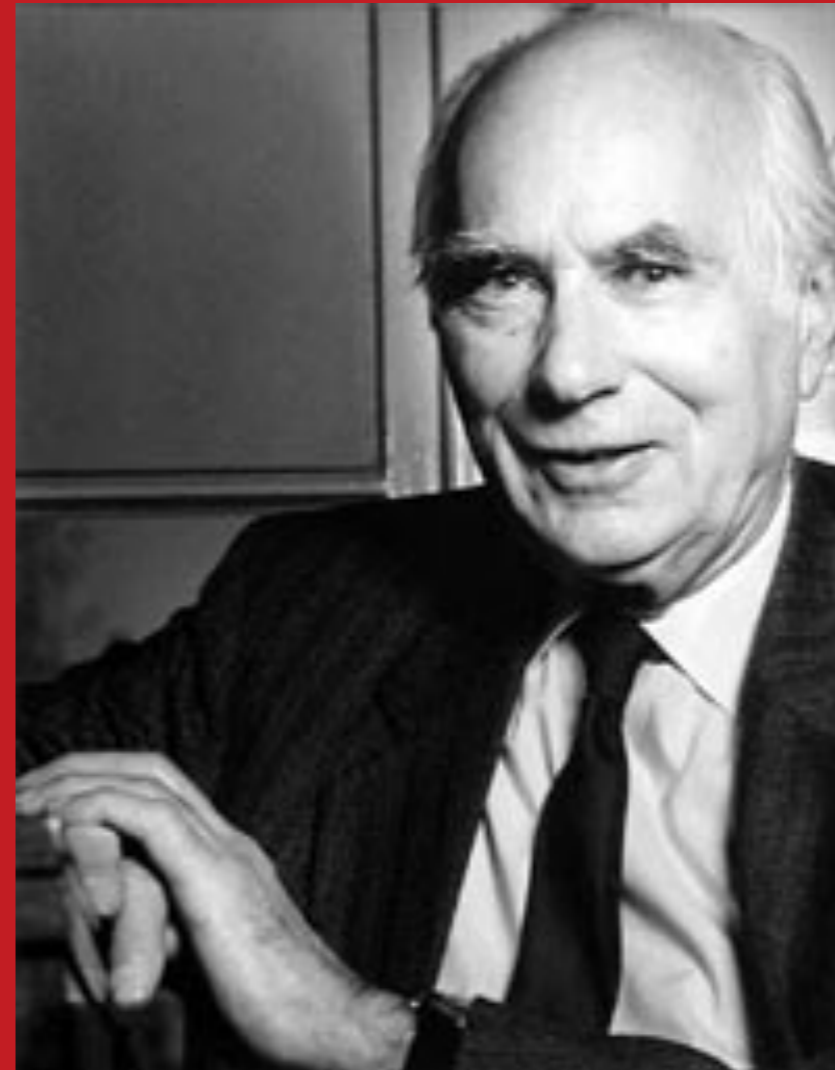


a
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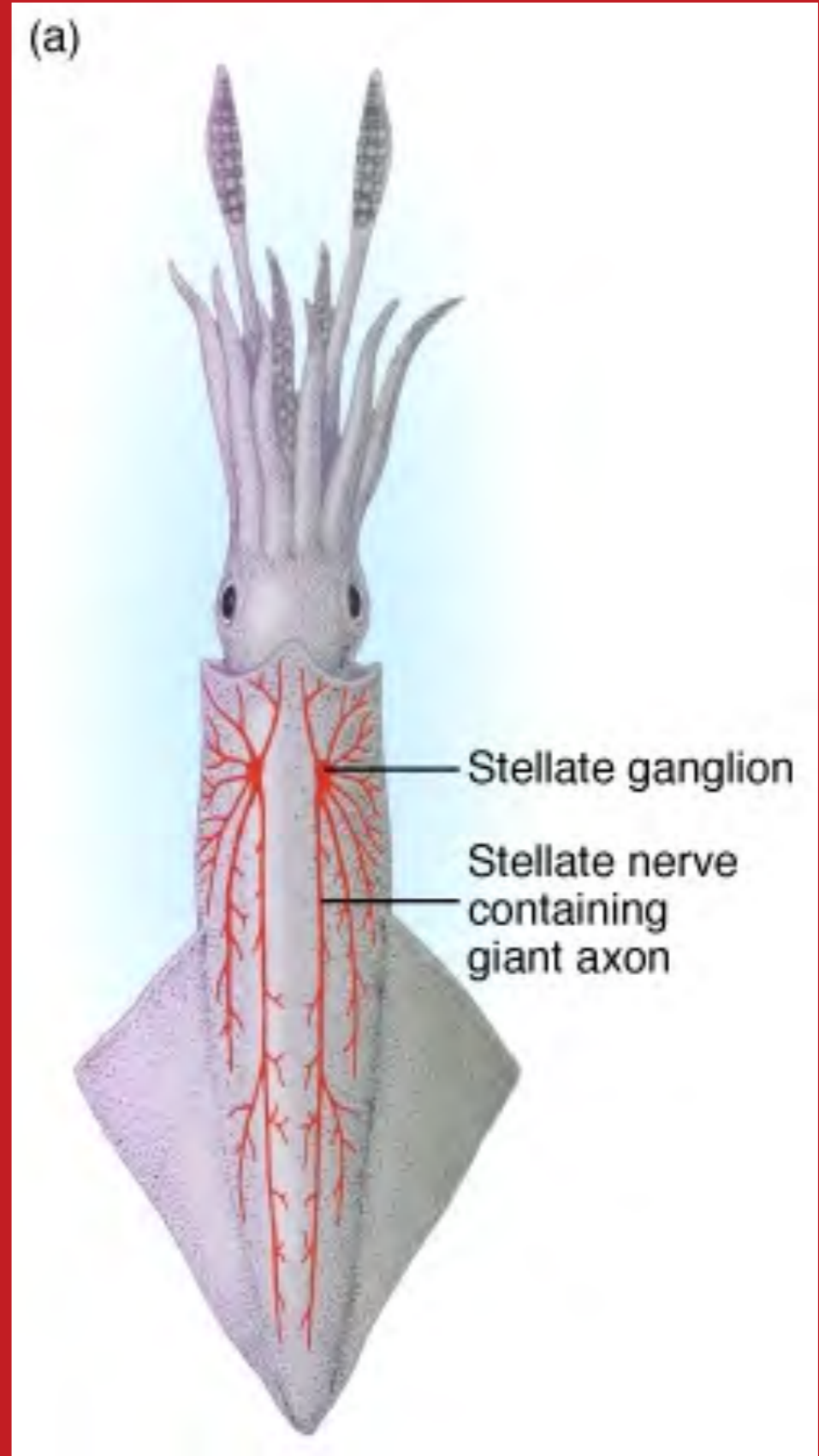
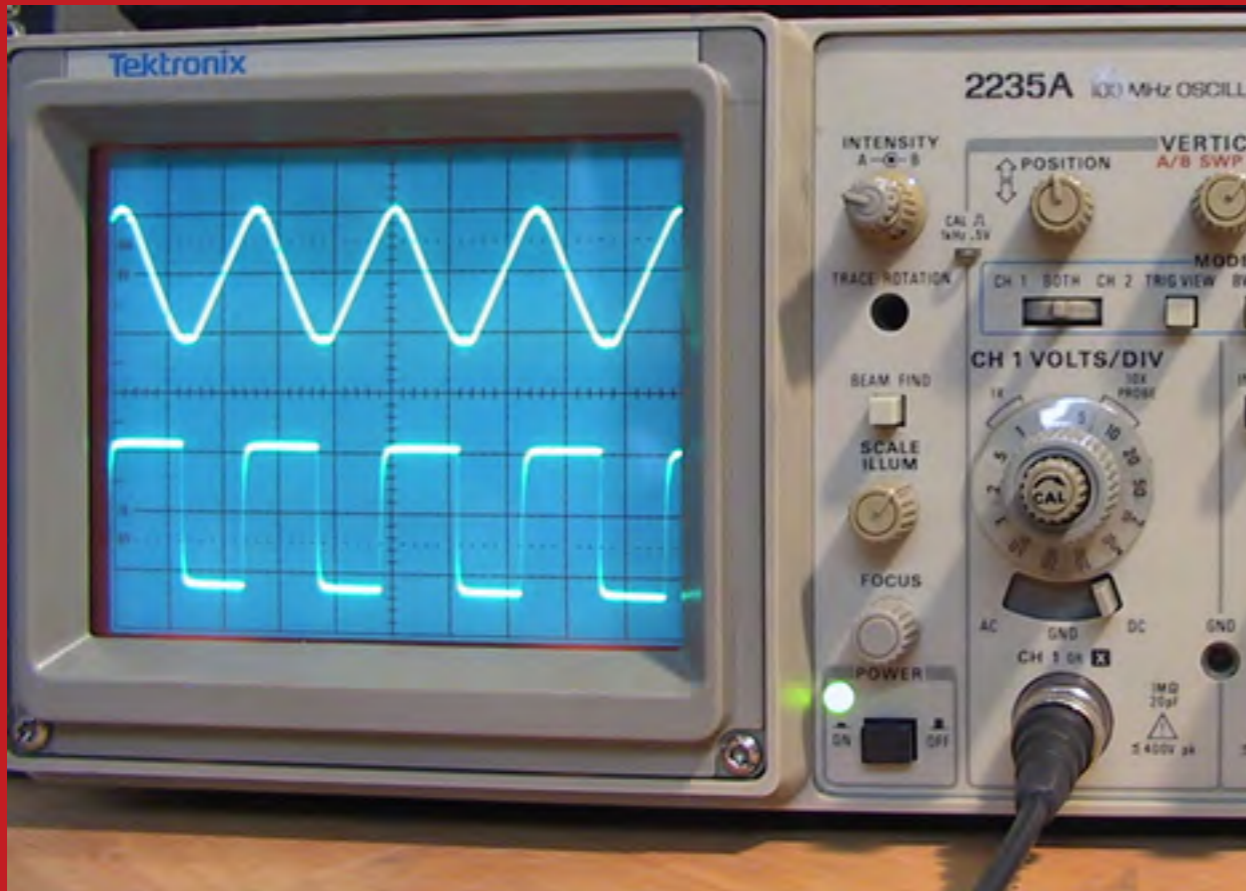
b
Assone
Soma

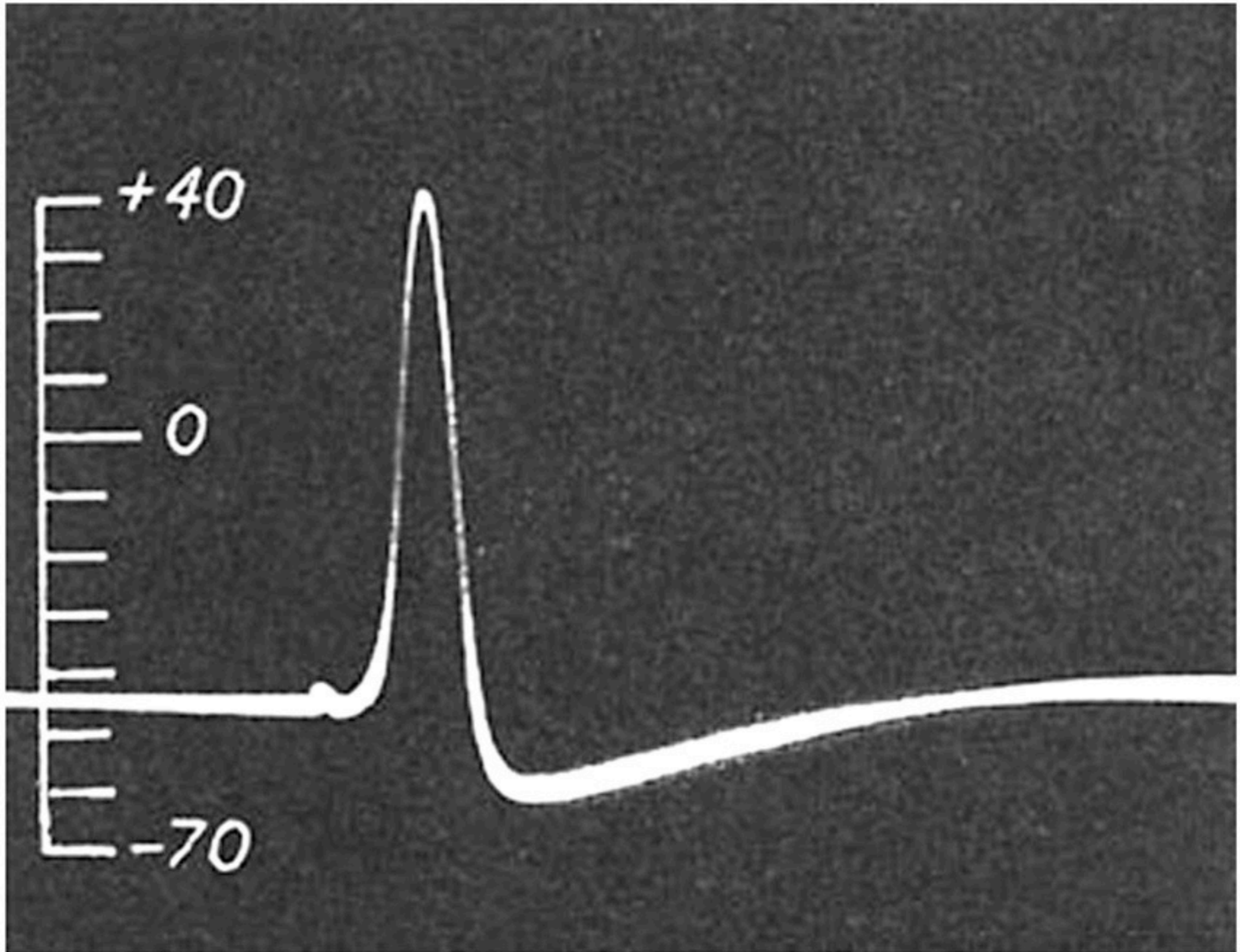


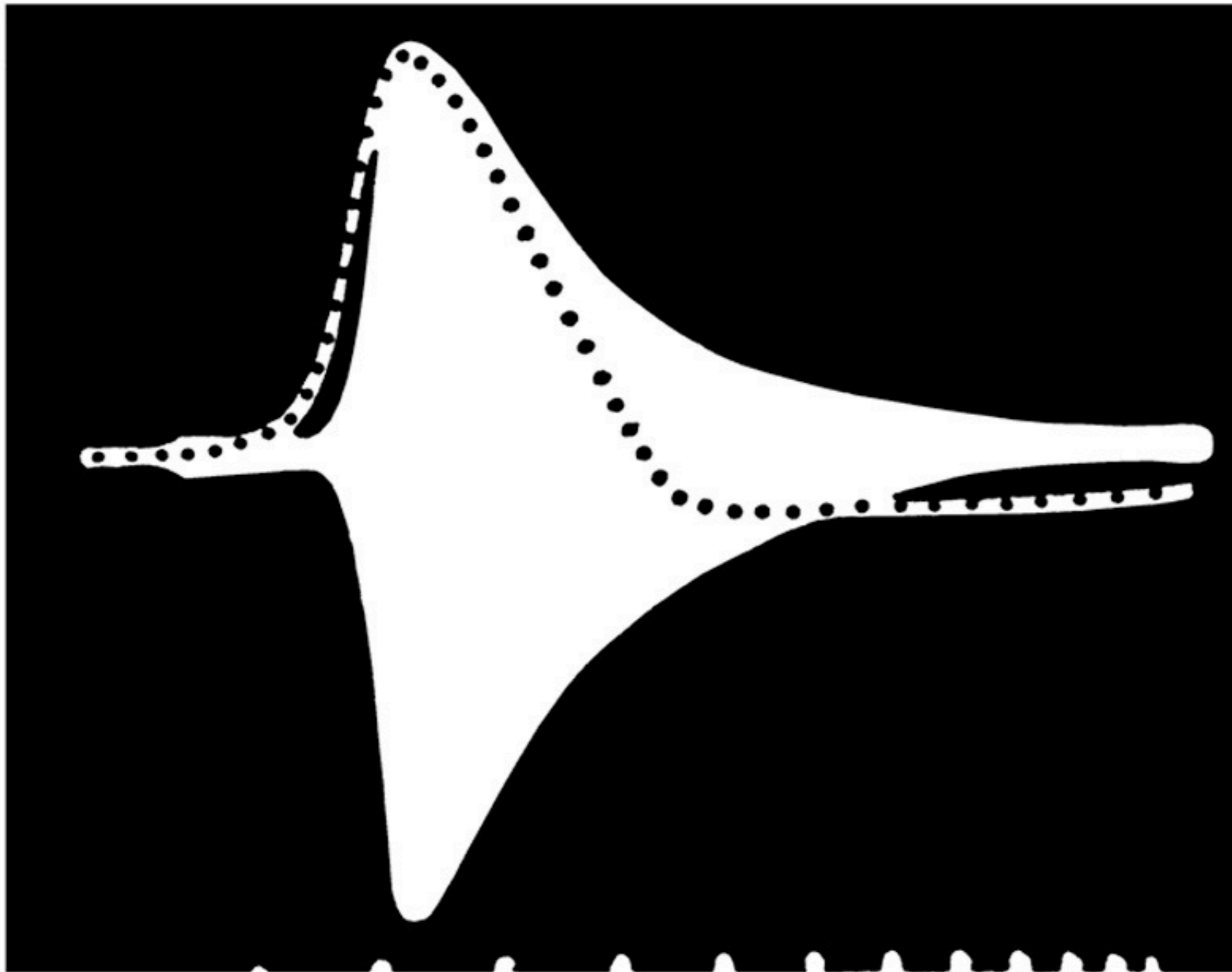
Hodgkin



Huxley





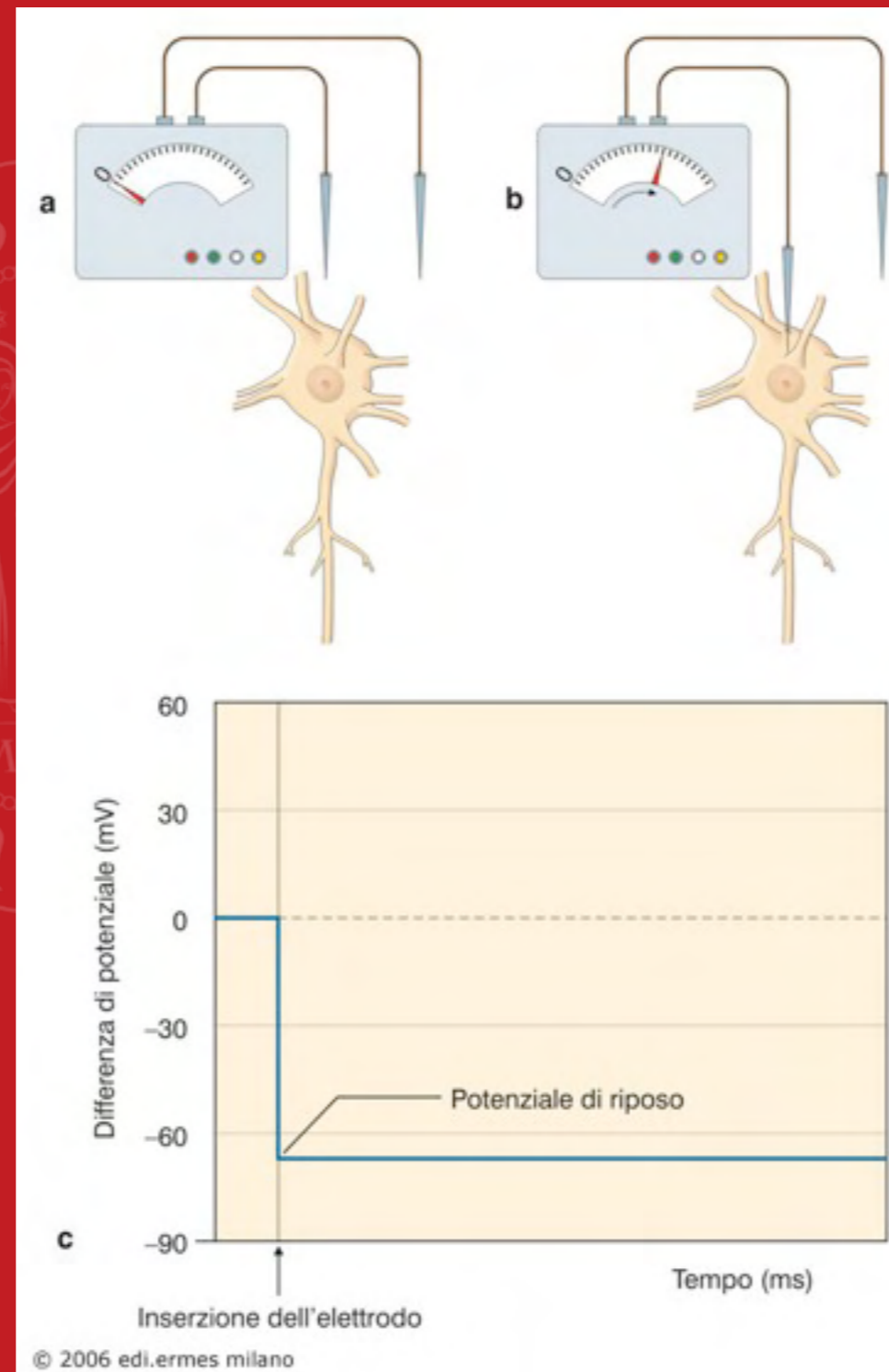


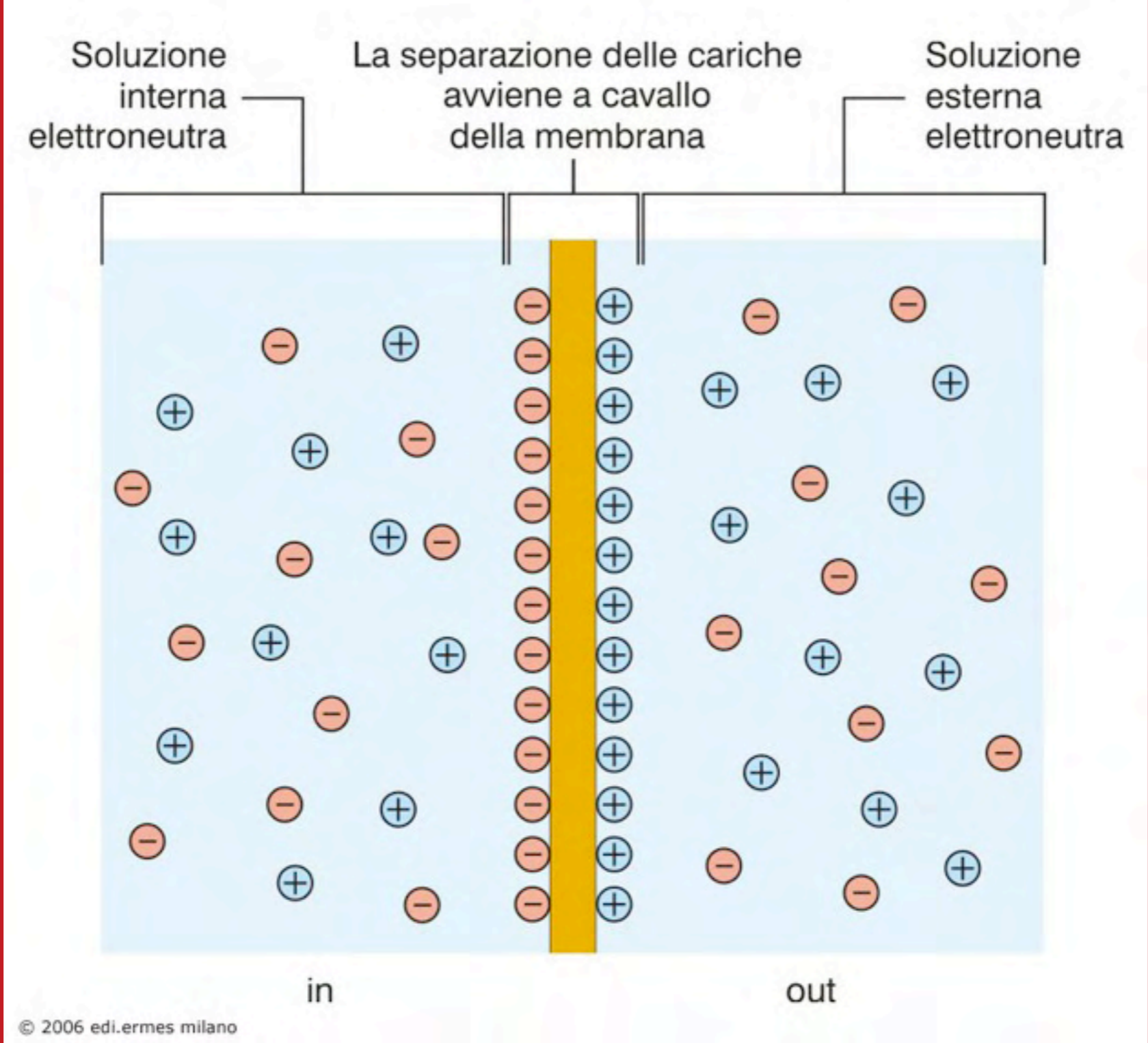
0 1 2 3 4 5 6 7 8 9 10 msec

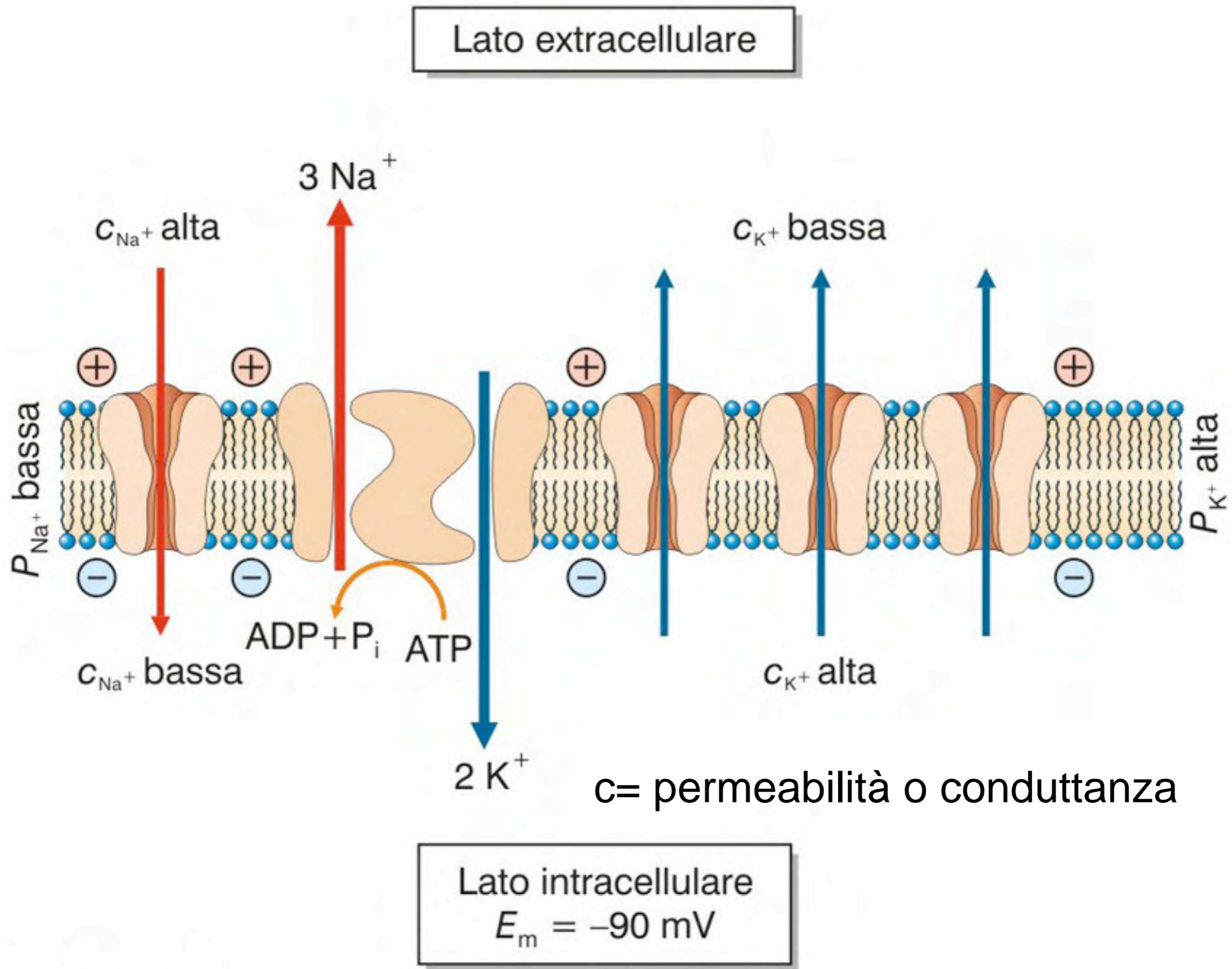
Potenziale d'azione e conduttanze ioniche

- Il potenziale di membrana a riposo e il potenziale d'azione sono determinati:
 - dalla differente concentrazione di ioni ai due lati della membrana
 - dalla presenza di “conduttanze di membrana”
 - dalla modifica di queste conduttanze di membrana

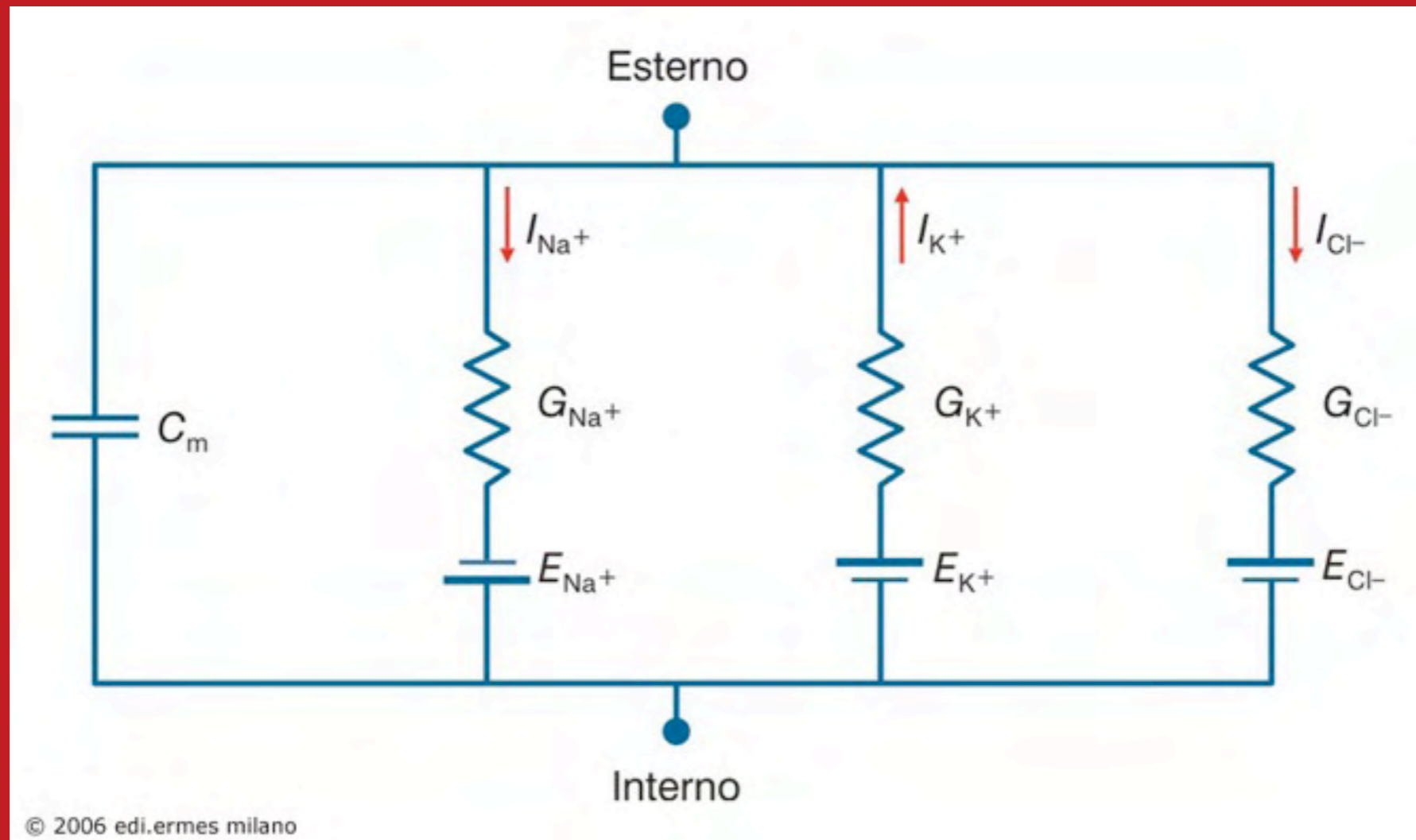
Potenziale di membrana







Membrana come circuito elettrico



Membrana come
circuito elettrico
Resistenza e
condensatore in
parallelo

