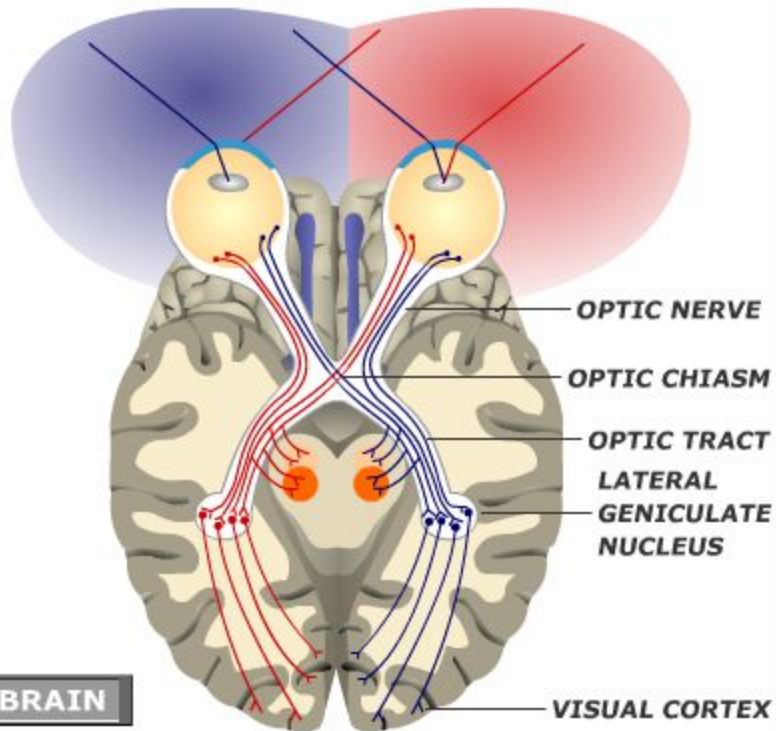


Curs 5

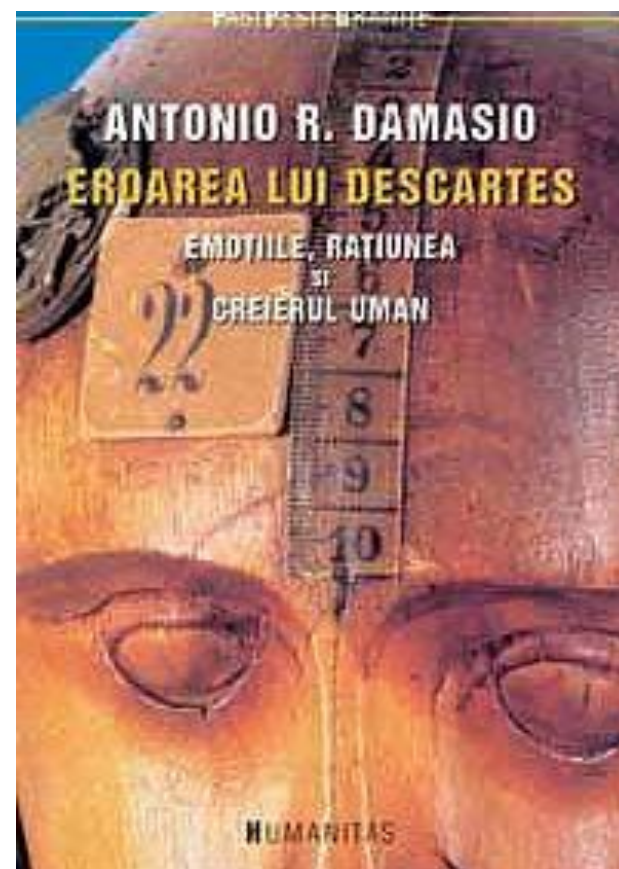
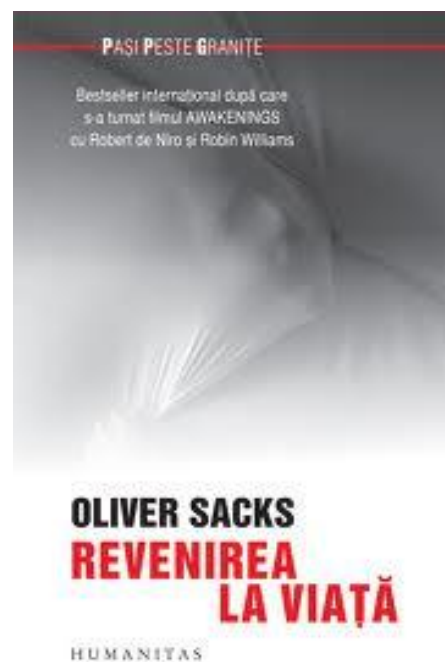
Creierul si cognitia

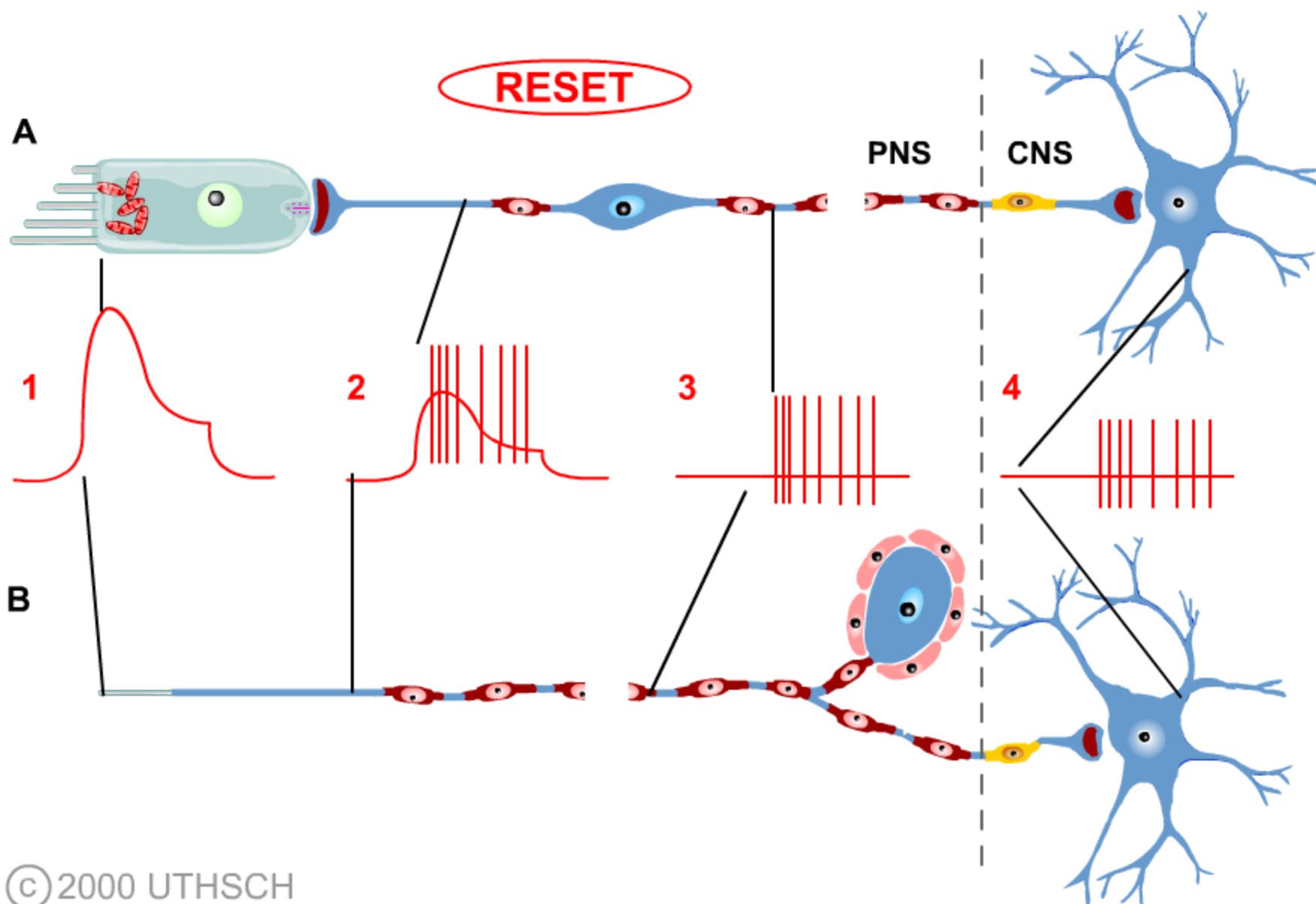
Reset



VISUAL PATHWAYS

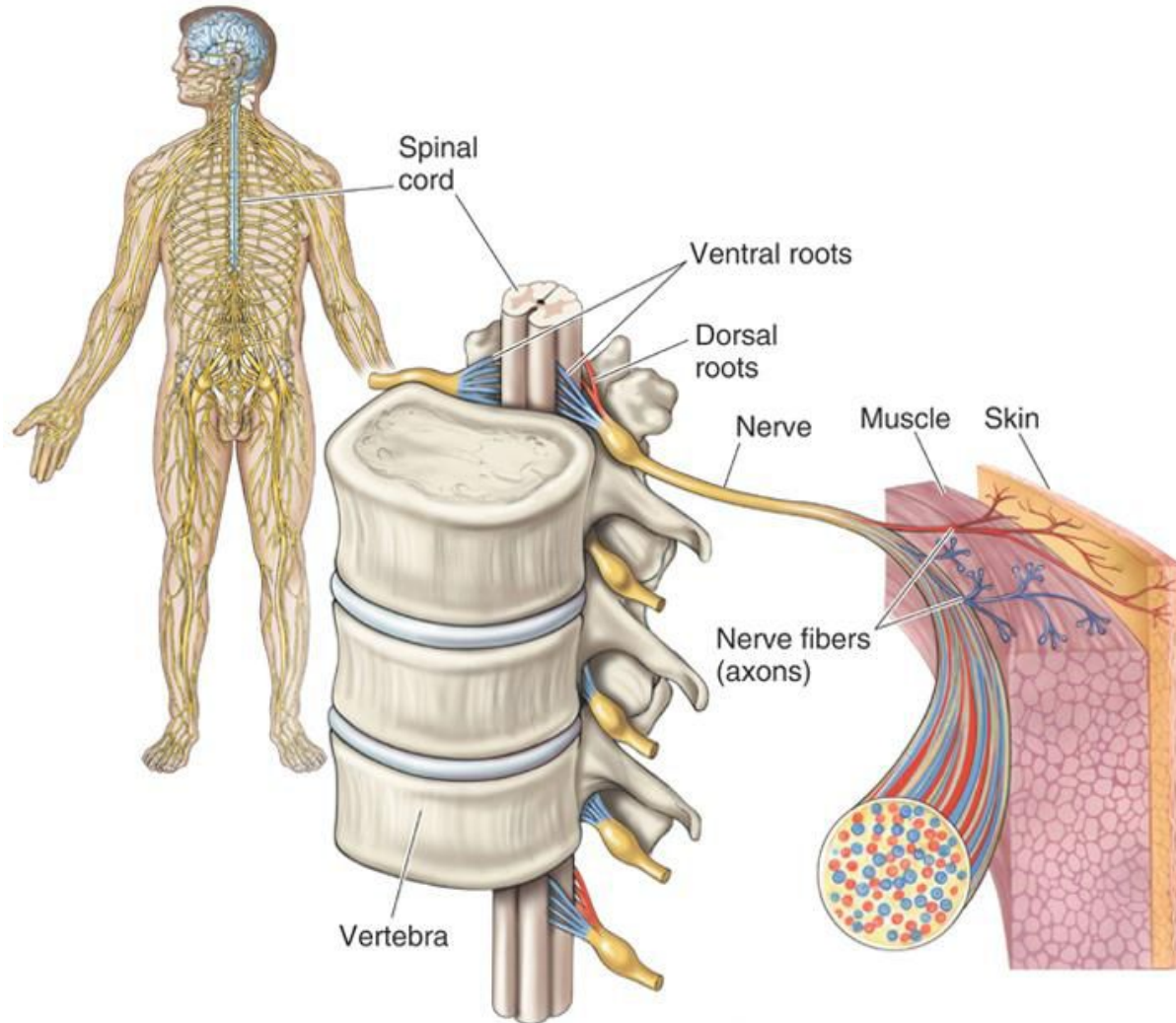
- ☐ LABEL ALL
- ☐ OPTIC NERVE
- ☐ OPTIC CHIASM
- ☐ OPTIC TRACT
- ☐ LATERAL GENICULATE NUCLEUS
- ☐ VISUAL CORTEX

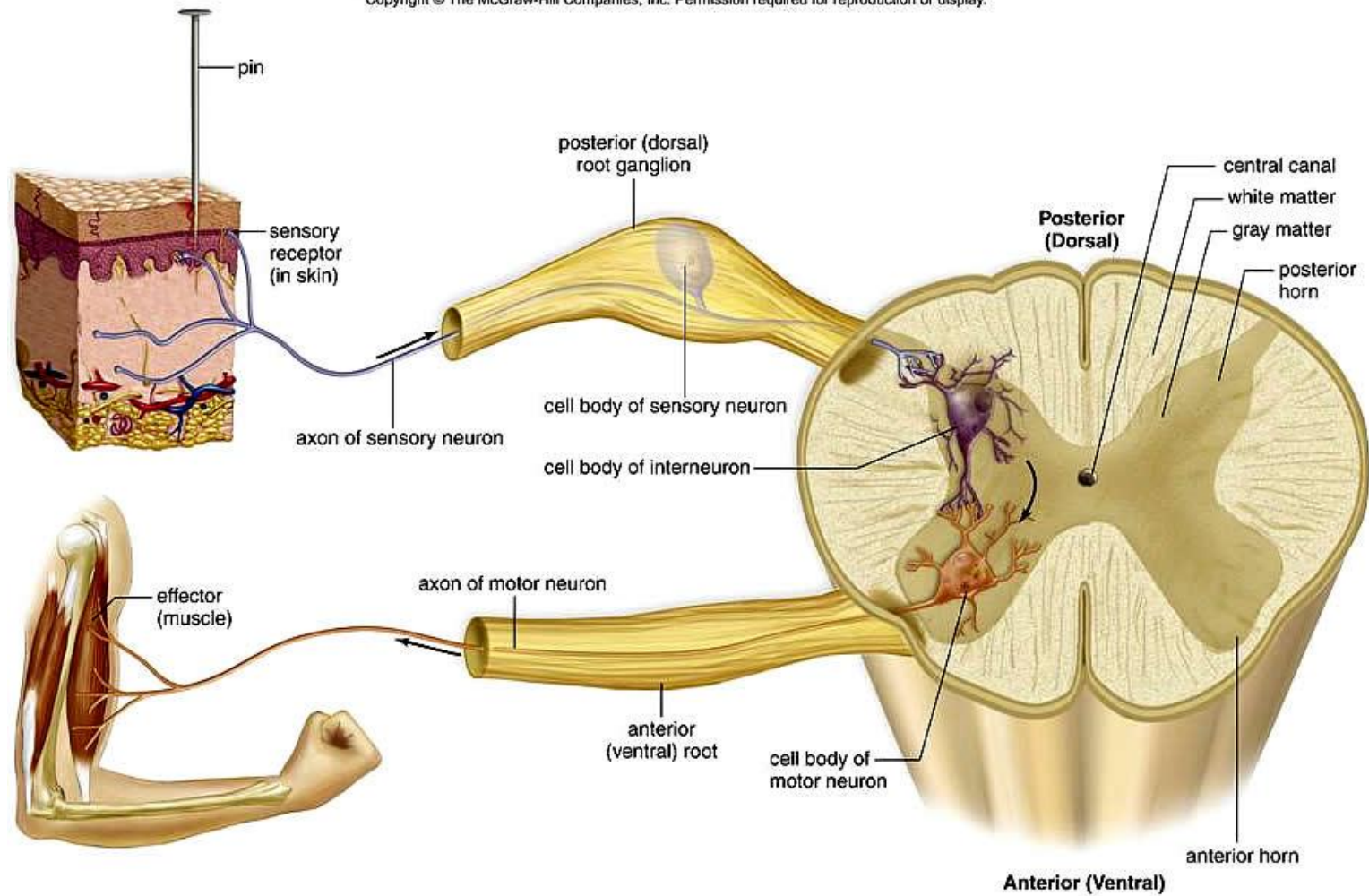




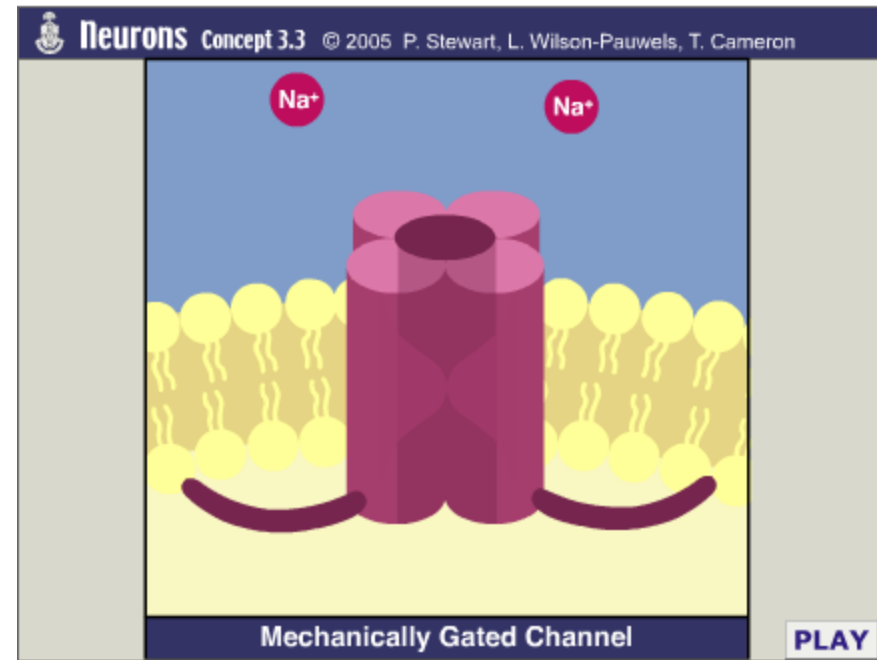
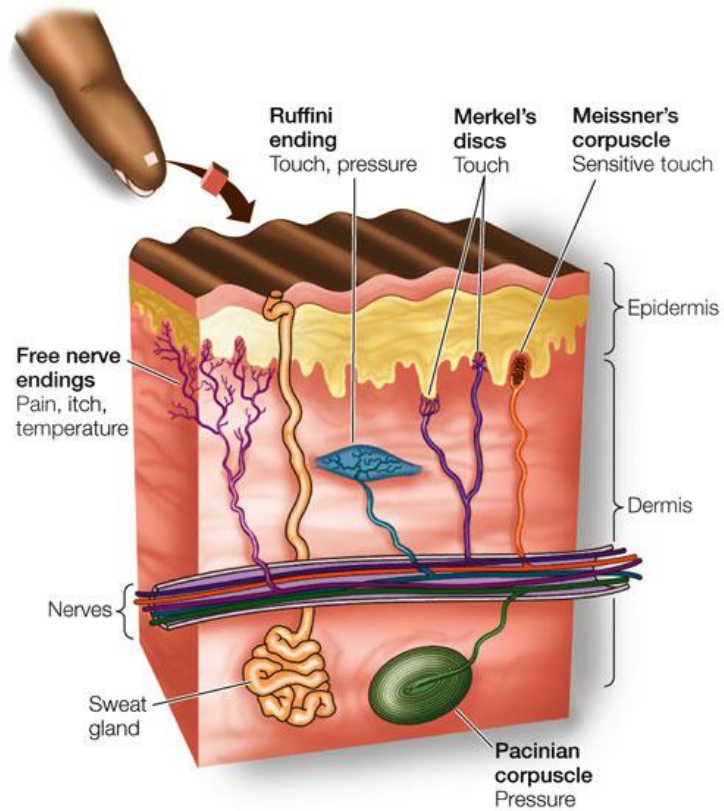
Analizatorul somatic

- receptorii sunt distribuiți pe toată suprafața corpului și la nivelul organelor interne
- recepționează informații legate de stimuli tactili, termici, dureroși (nocicepție) precum și de poziția corpului (propriocepție)





Mecanoreceptori tactili

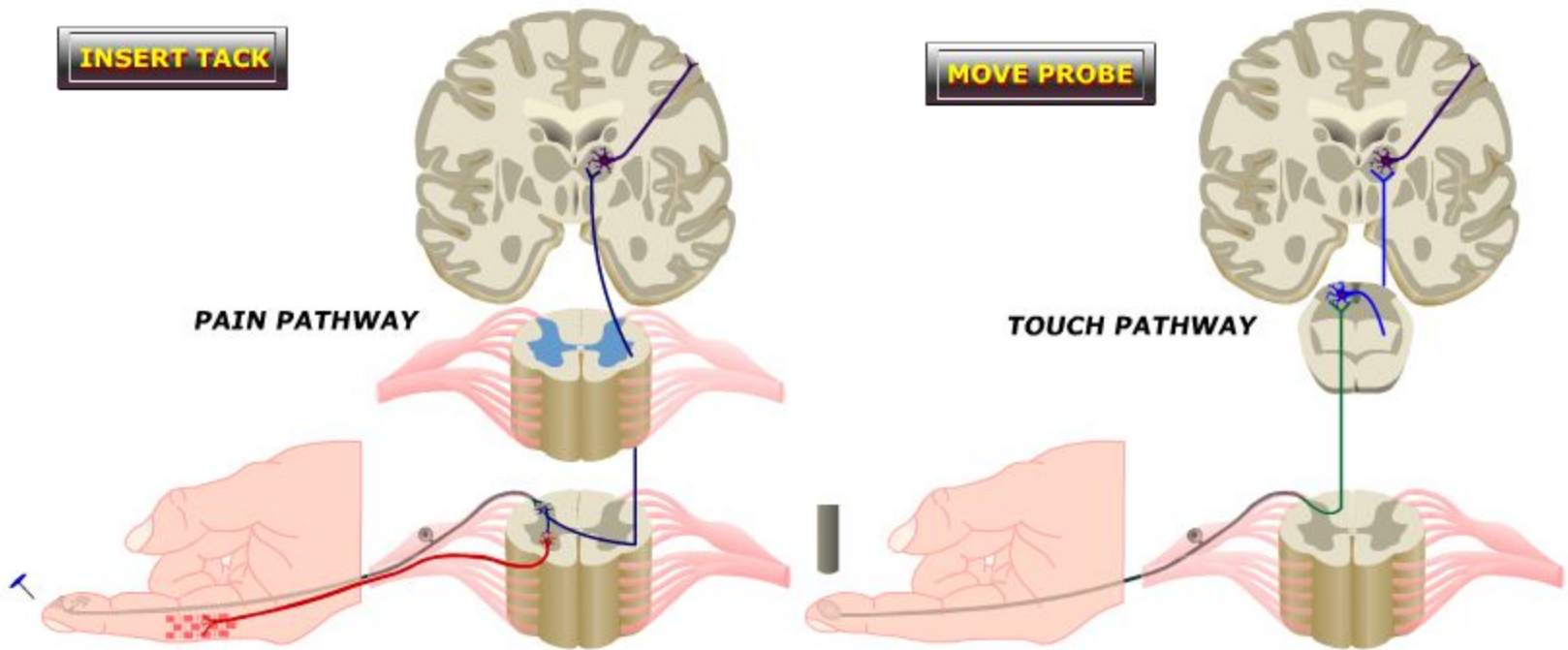


INSERT TACK

PAIN PATHWAY

MOVE PROBE

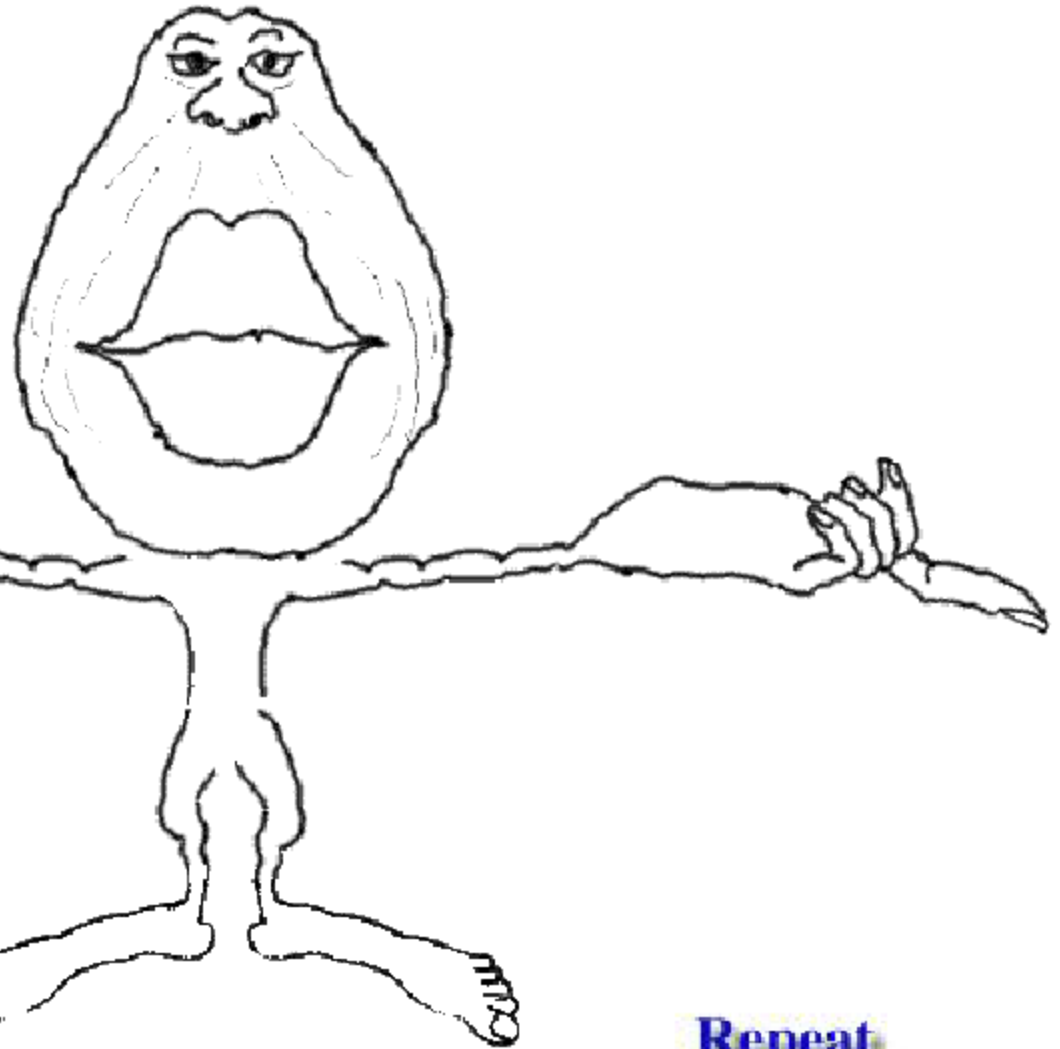
TOUCH PATHWAY



The Homunculus

A body map based on
the amount of
cerebral cortex used

to process "touch
receptors".

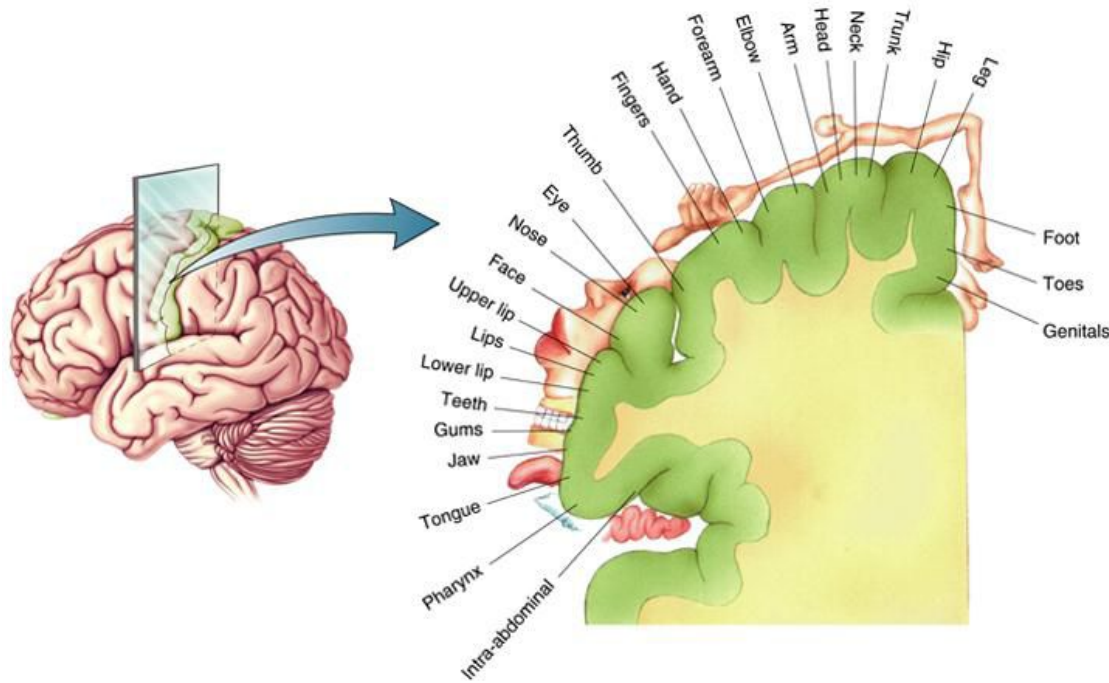


Repeat
(from the start)

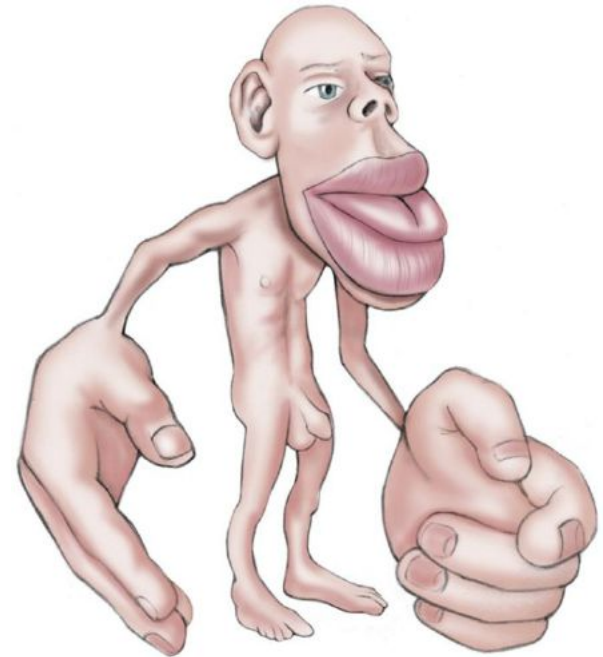
Credits

Repeat
(the drawing)

Cortexul somatosenzitiv primar

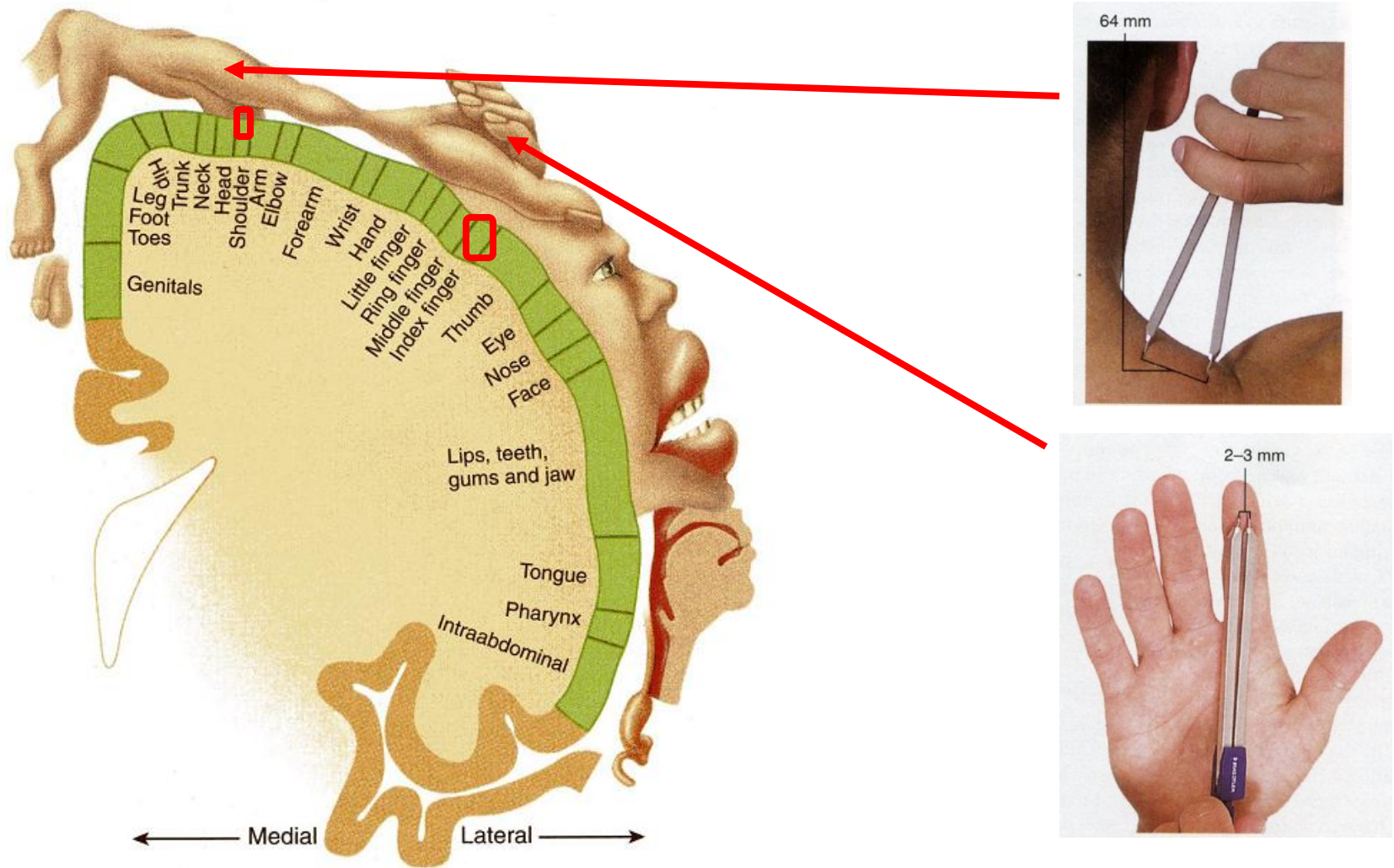


Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins

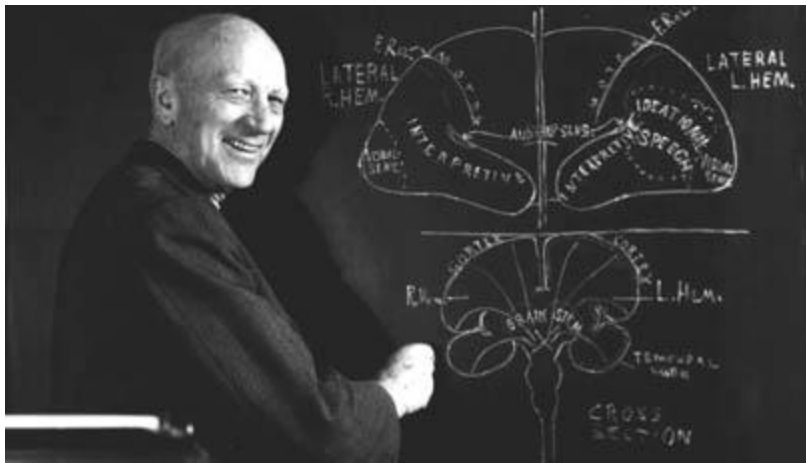


Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins

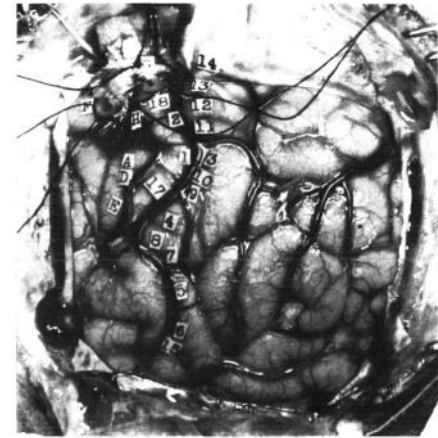
Cortexul somato-senzitiv primar



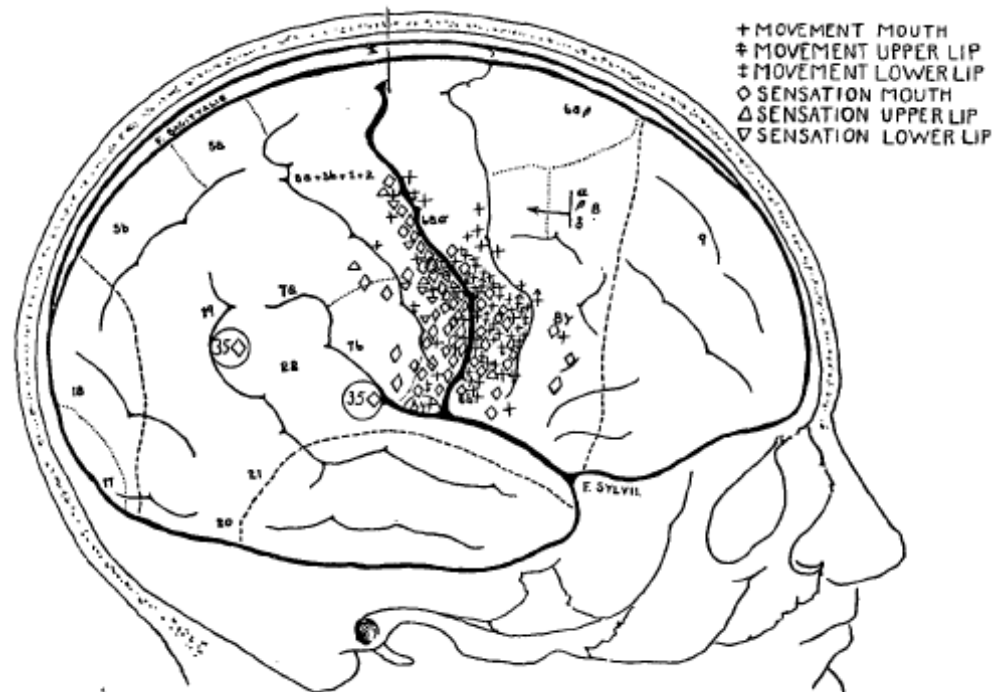
Aria corticala asociata fiecărei parti a suprafeței corpului este proporțională cu densitatea de inervare



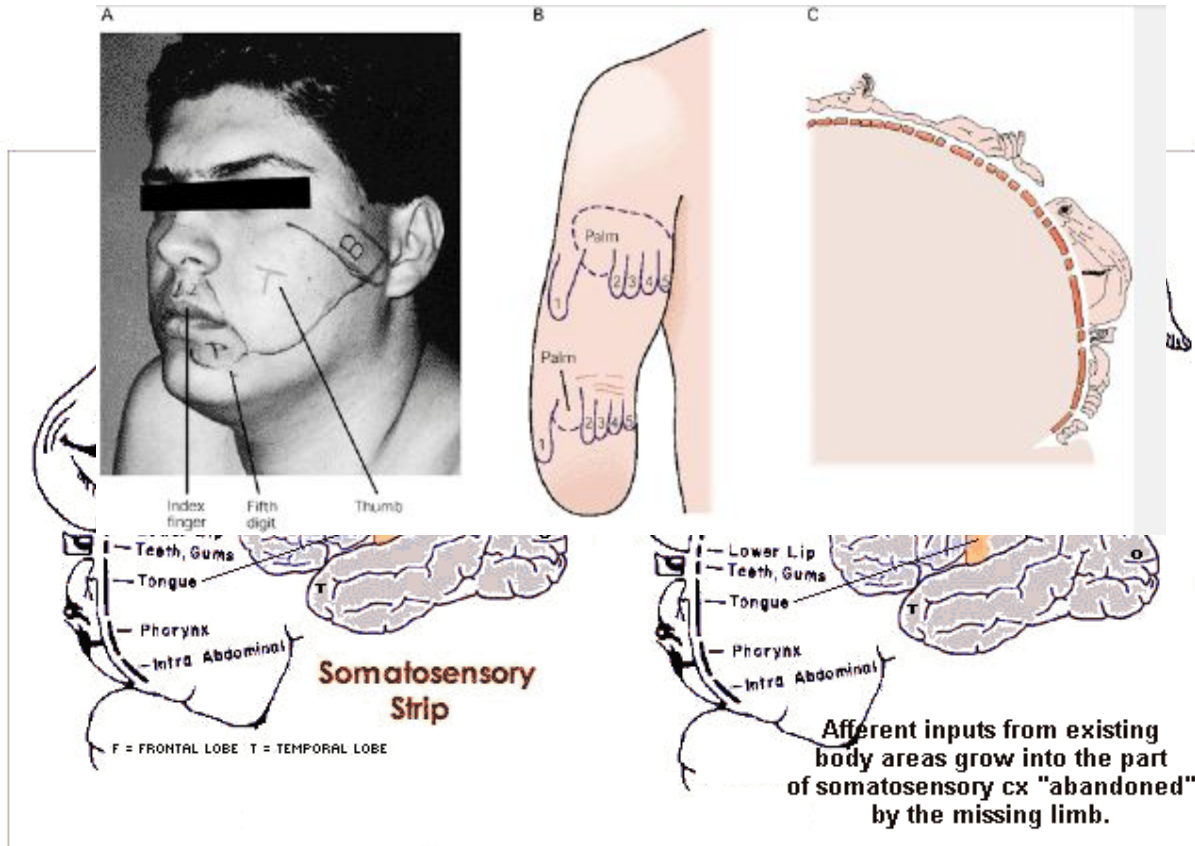
Wilder Penfield (1891-1976)

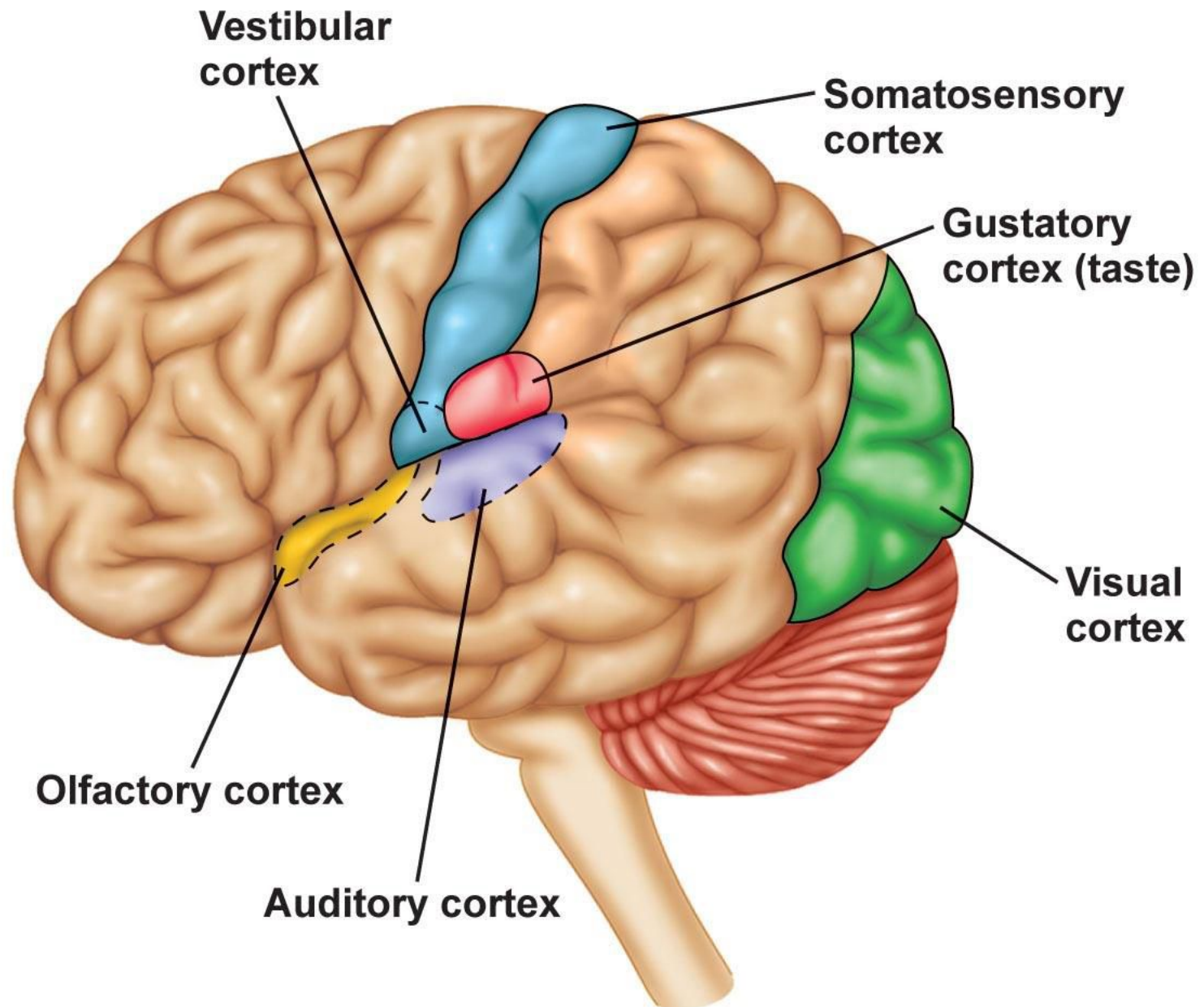


"Whoa! *That* was a good one! Try it, Hobbs — just poke his brain right where my finger is."

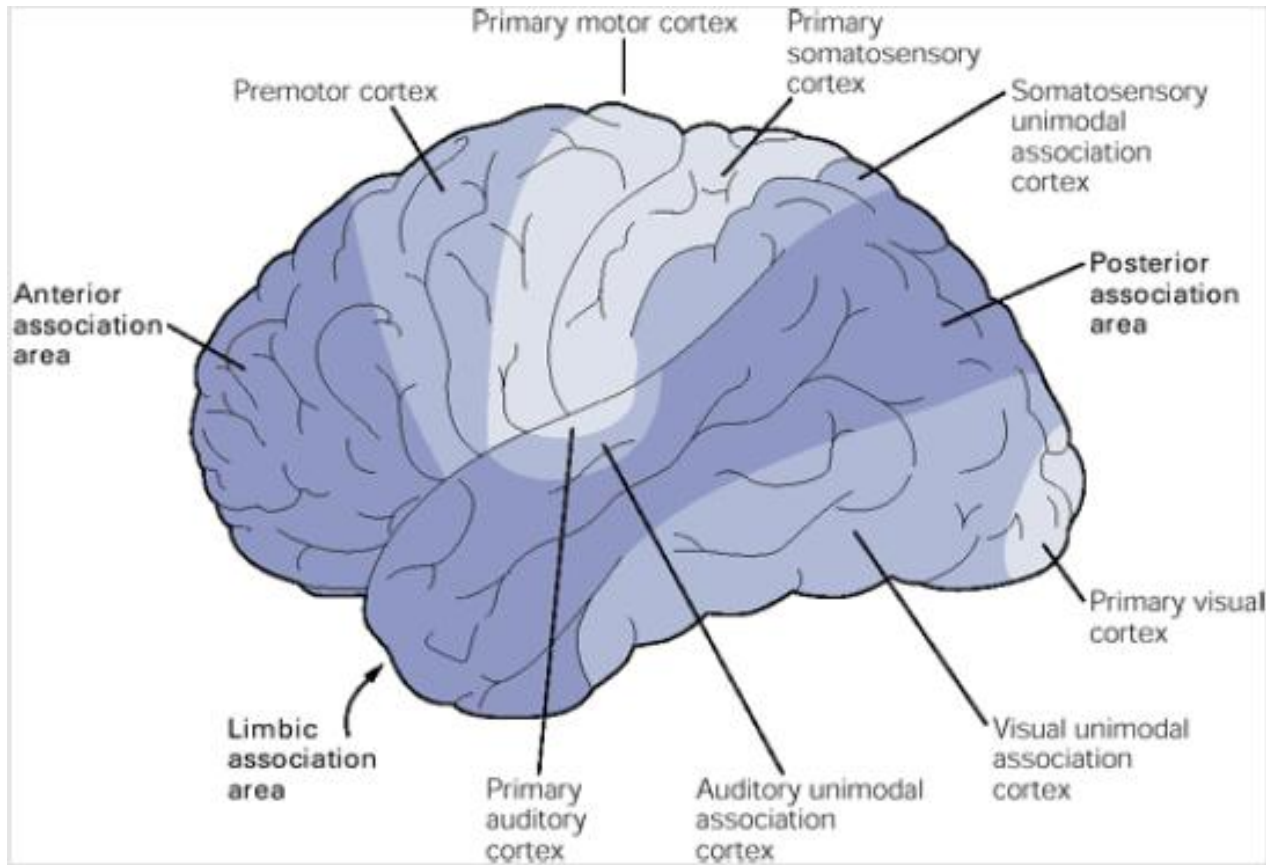


Membrul fantoma



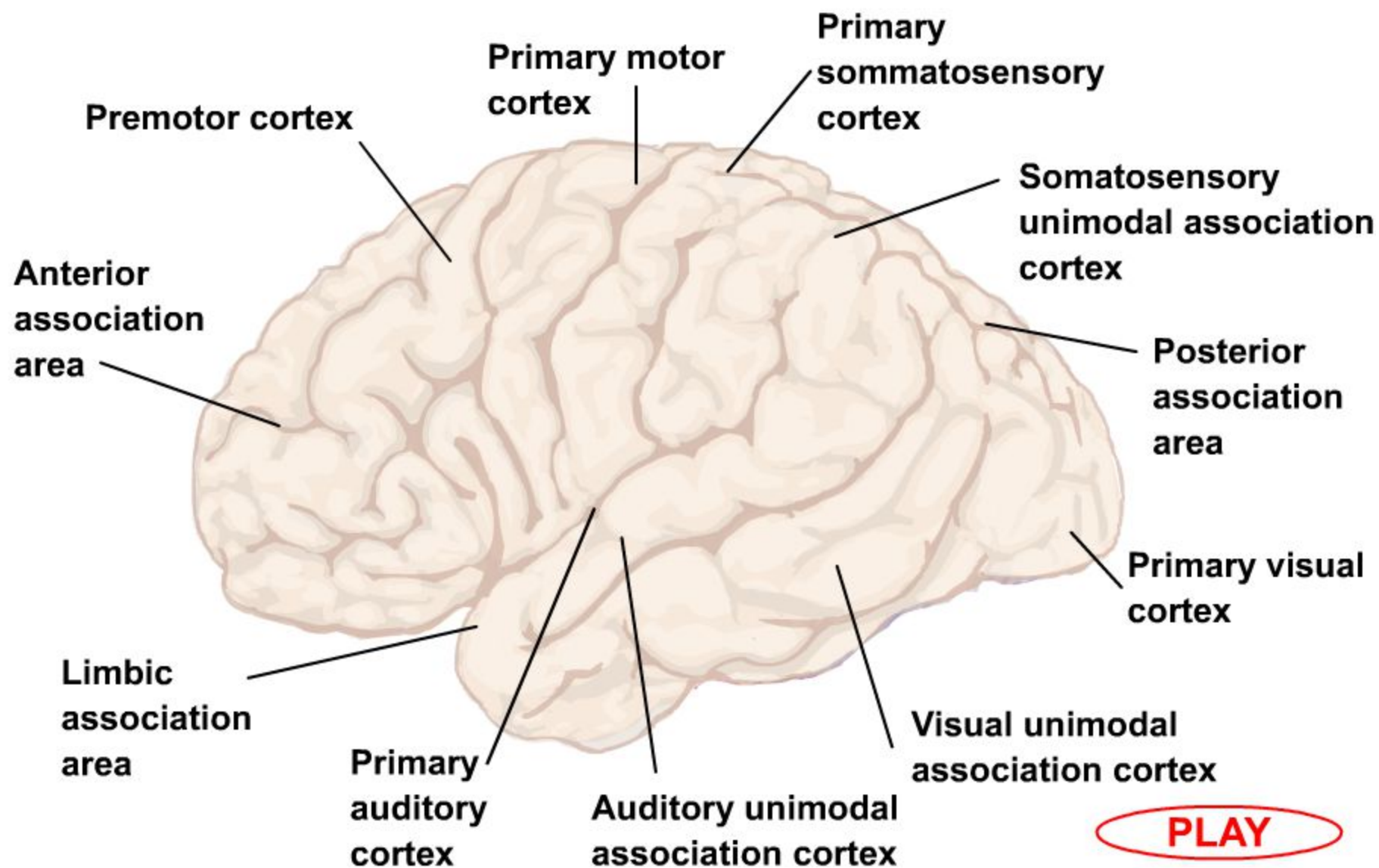


Regiunile corticale de asociație



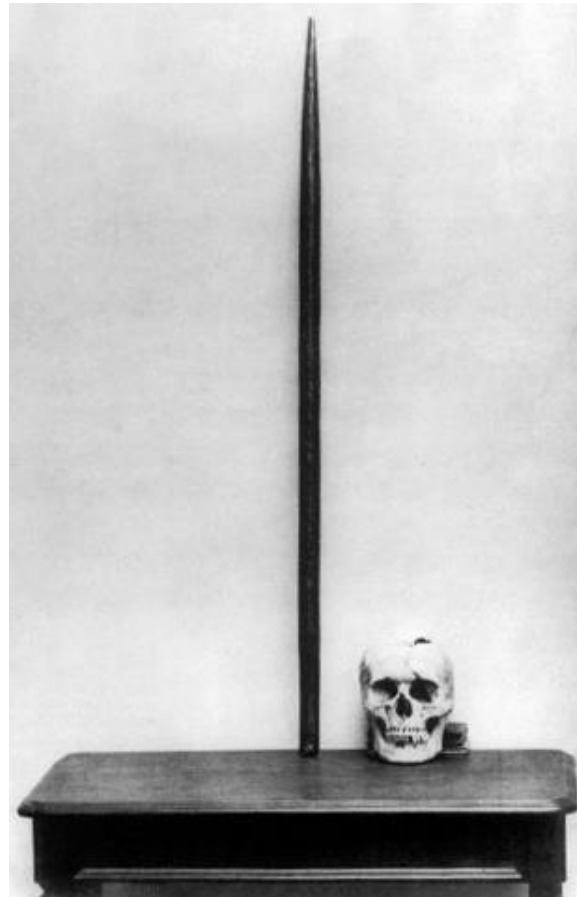
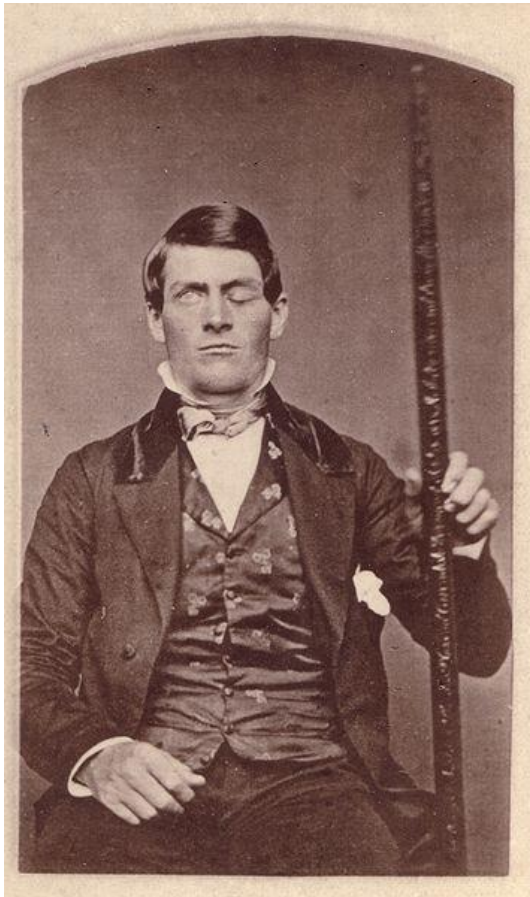
Arii de asociație unimodale – procesează informații de aceeași modalitate (ex: somatosenzitivă, auditivă, vizuală)

Arii de asociație multimodale – informație convergentă de mai multe modalități



Aria de asociație anterioară – cortexul prefrontal

Phineas Gage, 1848

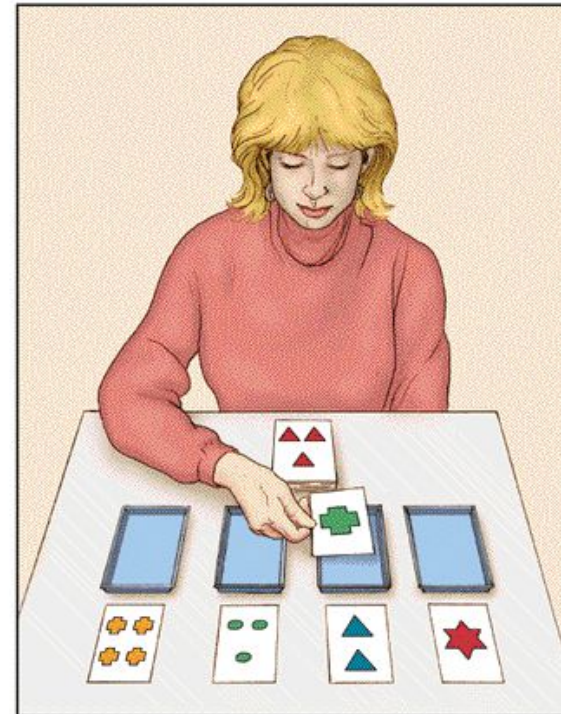
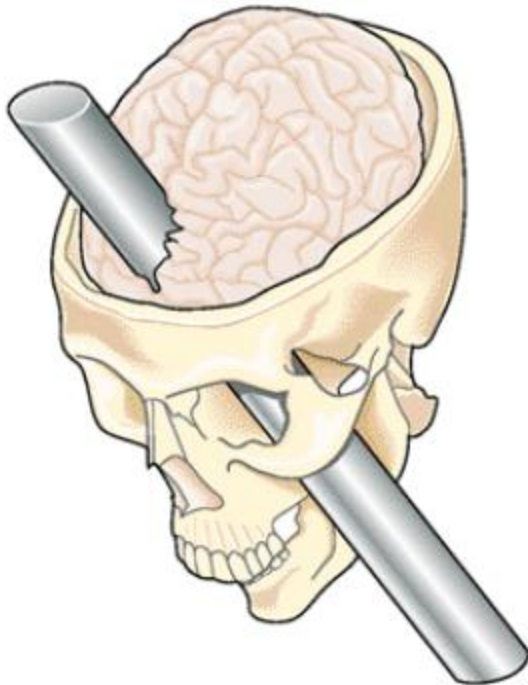


Phineas Gage – leziunea lobului prefrontal – modificarea profundă a personalității – incapacitarea rațiunii și a planificării

Aria de asociație anterioară – cortexul prefrontal

- Planificarea acțiunilor viitoare; memoria de lucru; evaluarea consecințelor

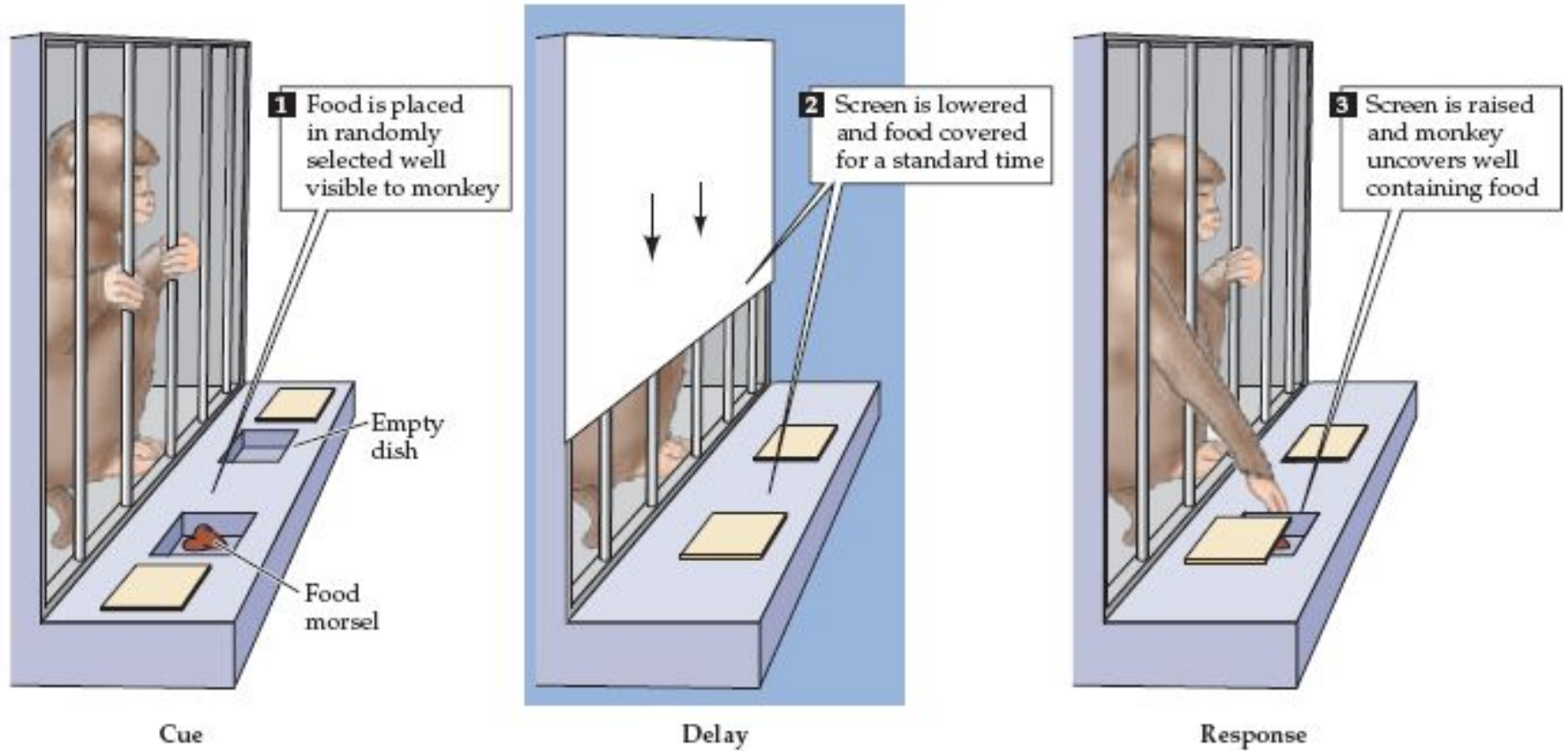
► Wisconsin Card Sorting Test



Pacienții cu leziuni sau disfuncții ale lobului frontal (traume, tumori, atacuri cerebrale, intervenții chirurgicale, schizofrenie) au dificultăți în planificare

Teste pentru memoria de lucru (working memory)

-animalele trebuie să memoreze localizarea hranei timp de 4-5 secunde



-animalele cu leziuni ale cortexului prefrontal au o performanță slabă la acest test

Lobotomia frontală



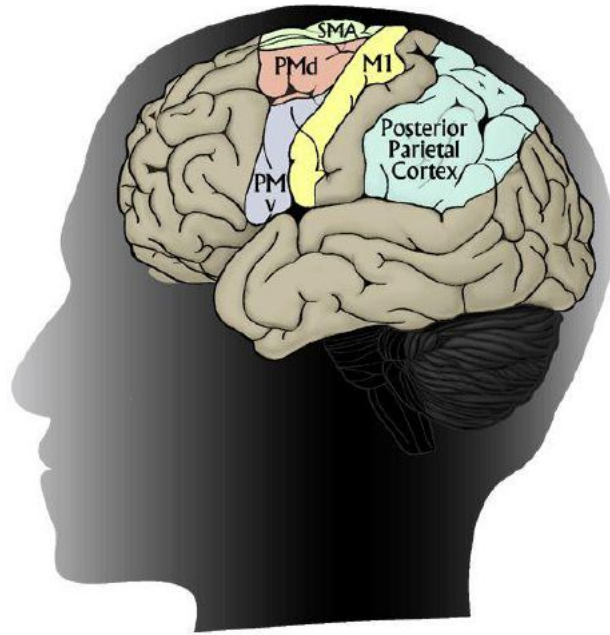
Egas Moniz –
Premiul Nobel 1949
-lobotomia frontala
-angiografia cerebrala

Walter Freeman

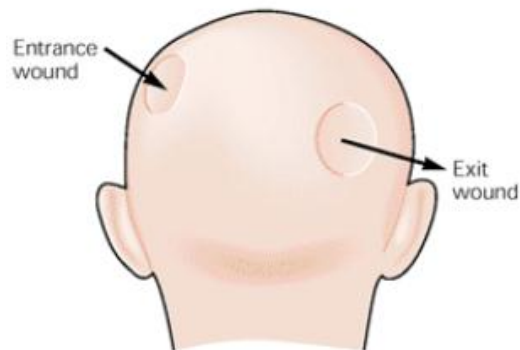


-in anii '50 s-au practicat zeci de mii de lobotomii ca tratament pentru anxietate, depresie, schizofrenie, agresivitate

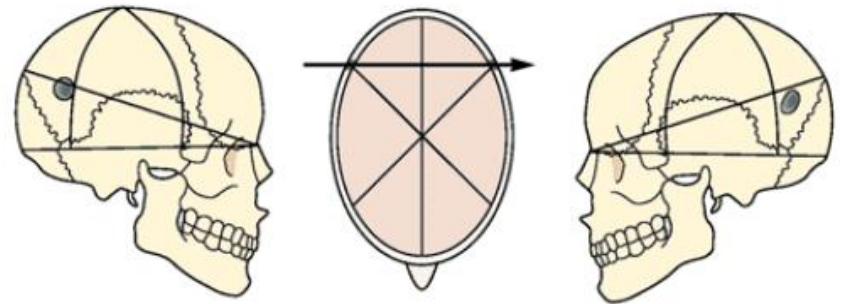
Aria de asociație posterioară – parieto-temporală



A₁

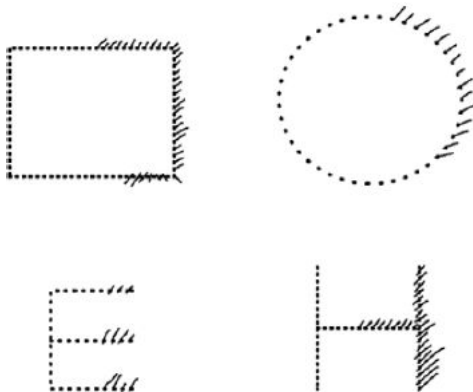
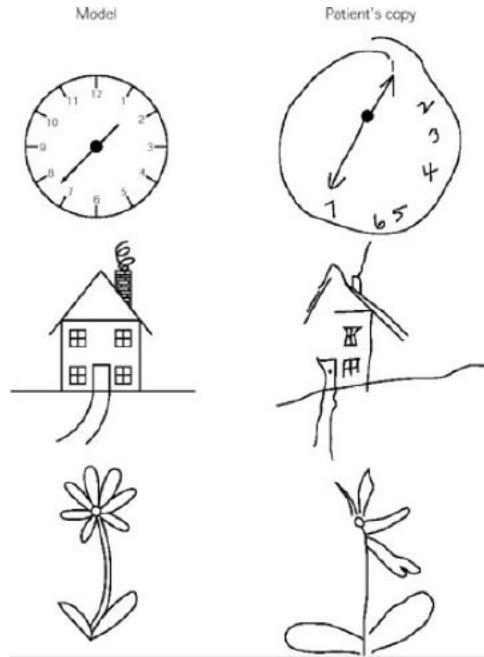


A₂



Cortexul posterior parieto-temporal – integrează informație senzorială somatică, vizuală, auditivă – lezarea acestei regiuni corticale - **agnozie**

Leziuni ale cortexului posterior parieto-temporal

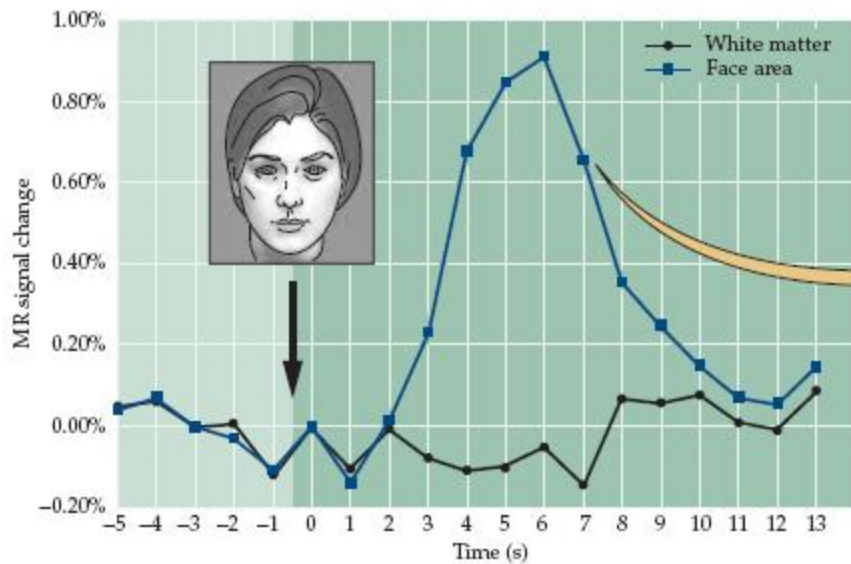


Aria de asociație parieto-temporală – cortexul fusiform

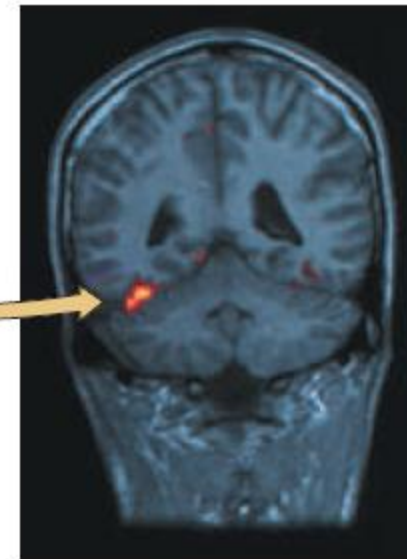
-Implicată în recunoașterea chipurilor - *prosopagnozie*



(A)

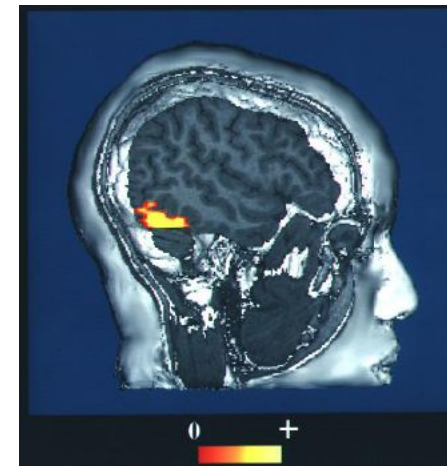


(B)



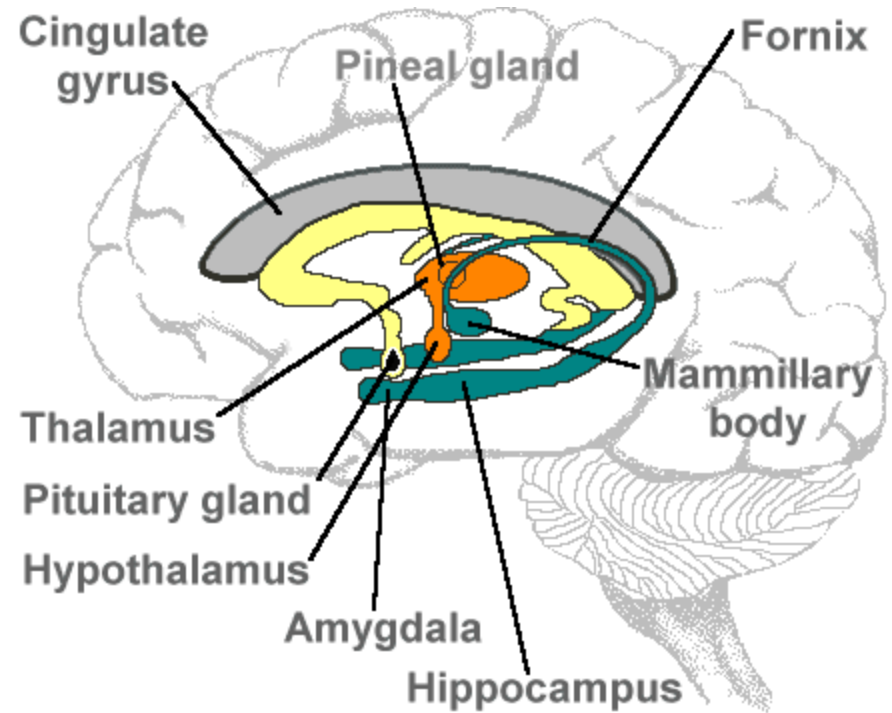
R

L



- Aria de asociație temporală se activează la recunoașterea unui chip

Aria de asociatie limbica - hipocampusul

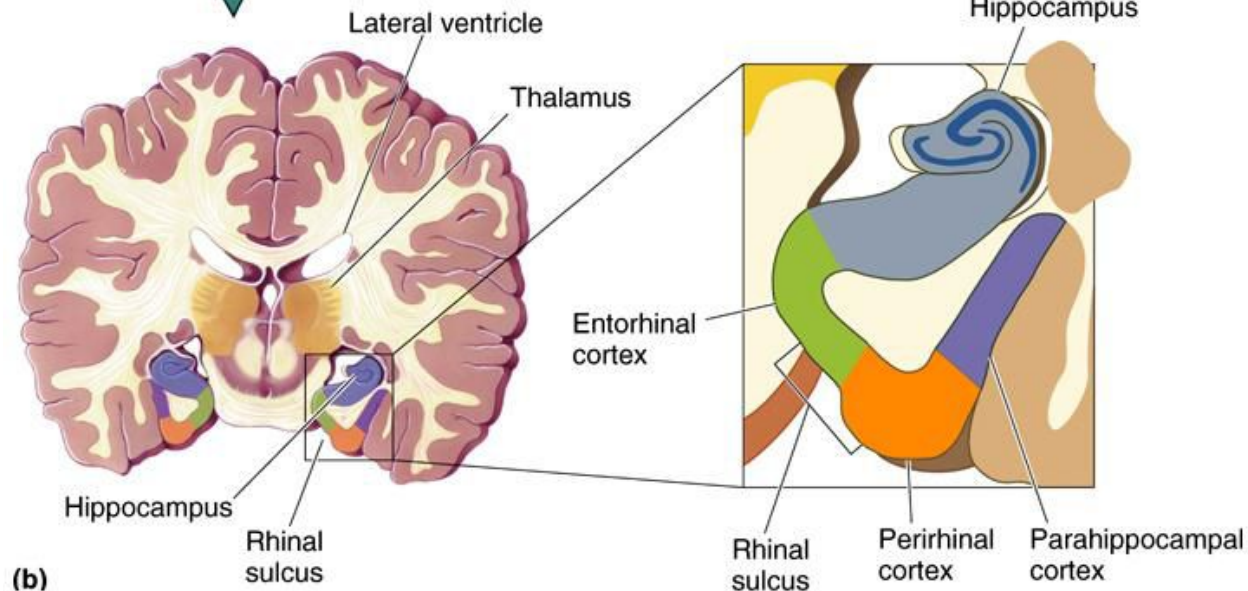
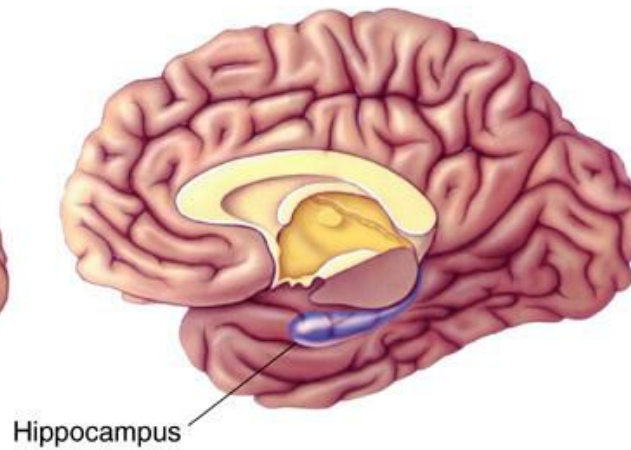
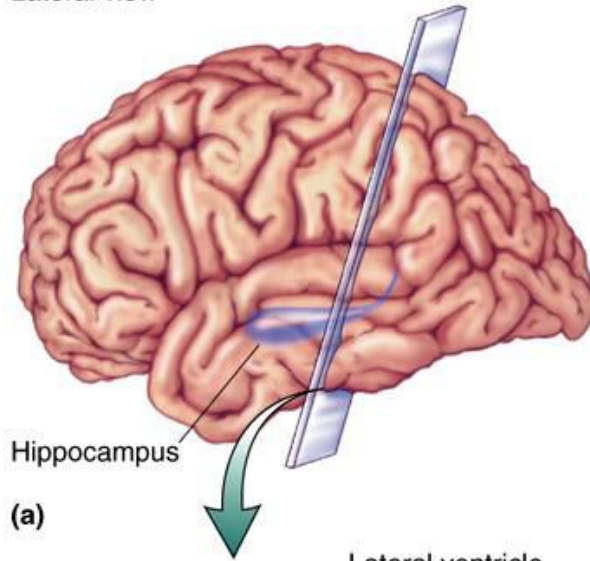


The Limbic System

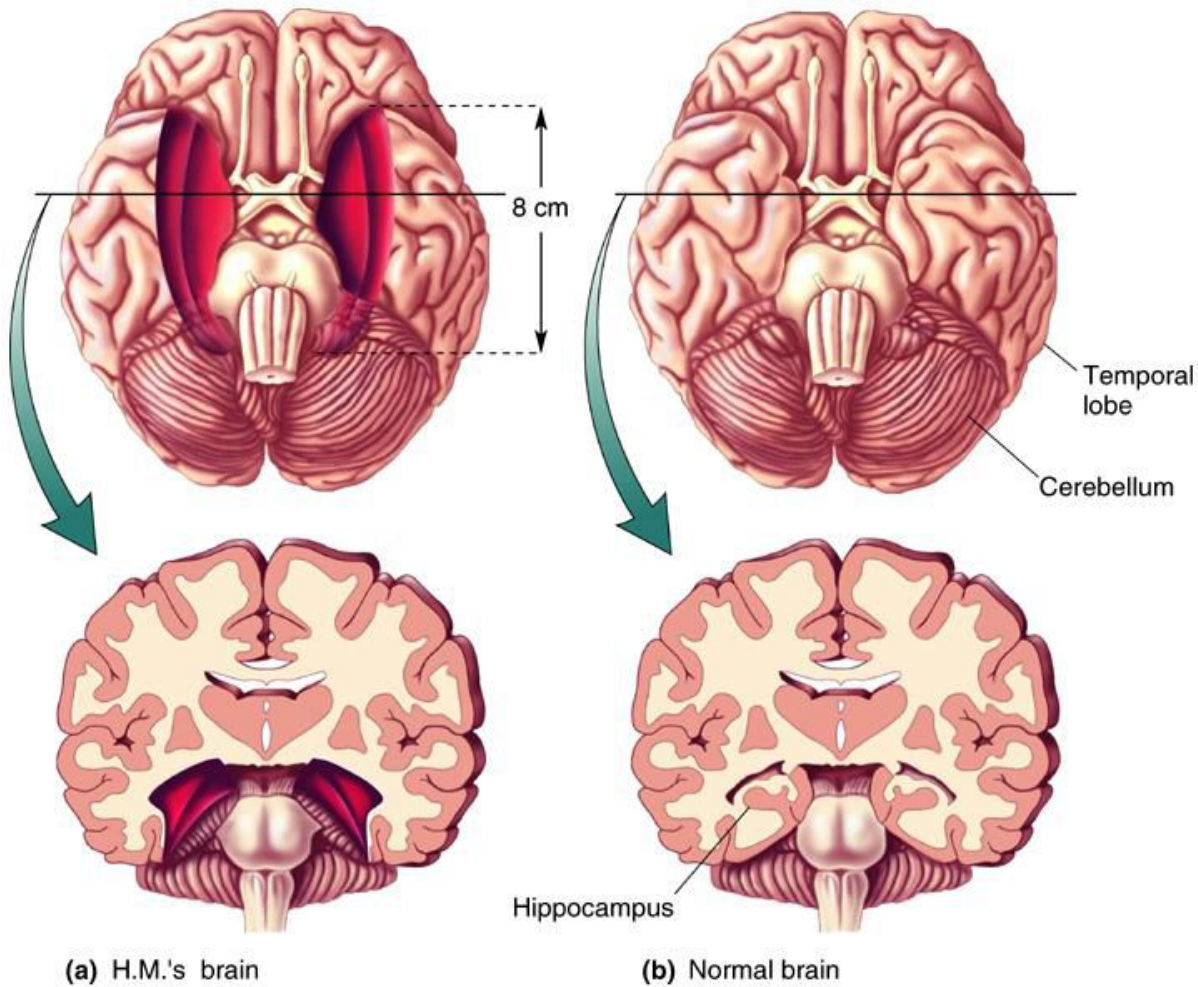
Hipocampusul si memoria

Lateral view

Medial view



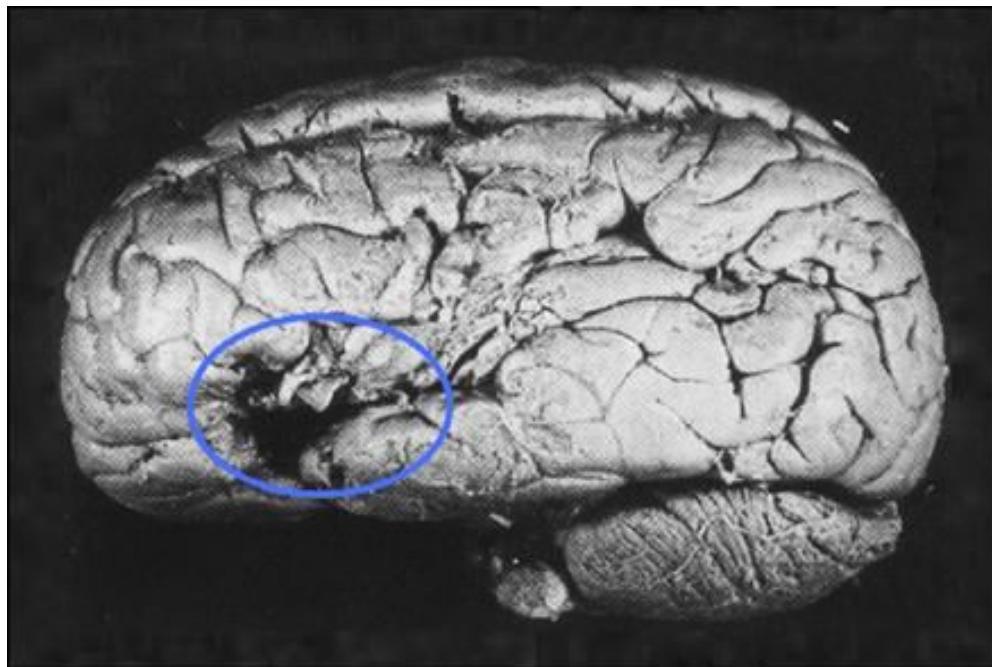
Pacientul H.M.





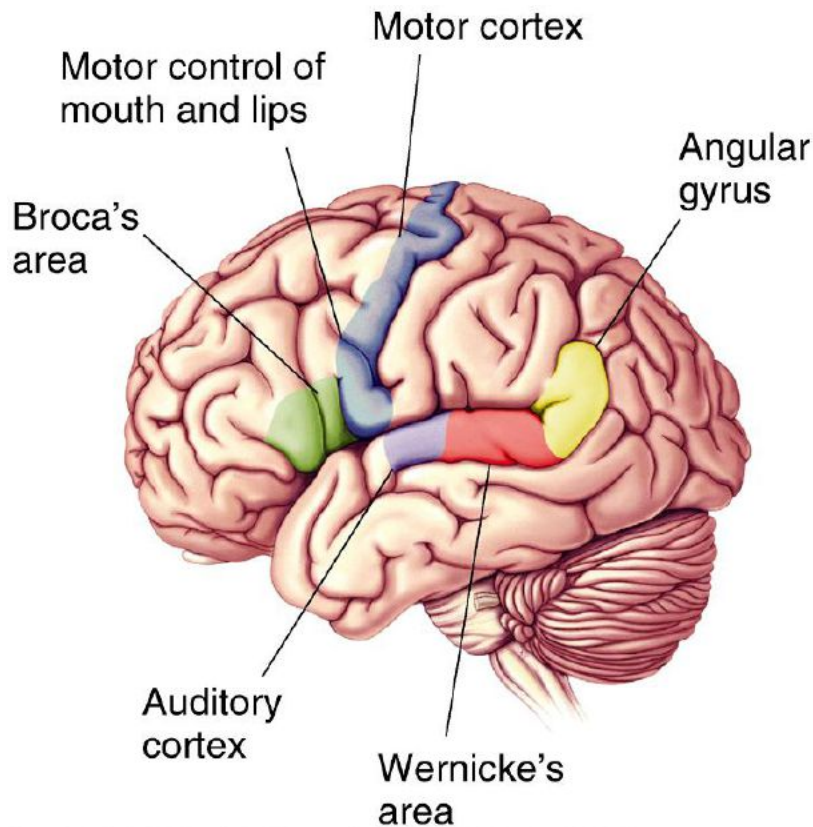
Limbaajul

Pierre Paul Broca (1824 – 1880) – a identificat aria corticala implicata in vorbire – aria lui Broca

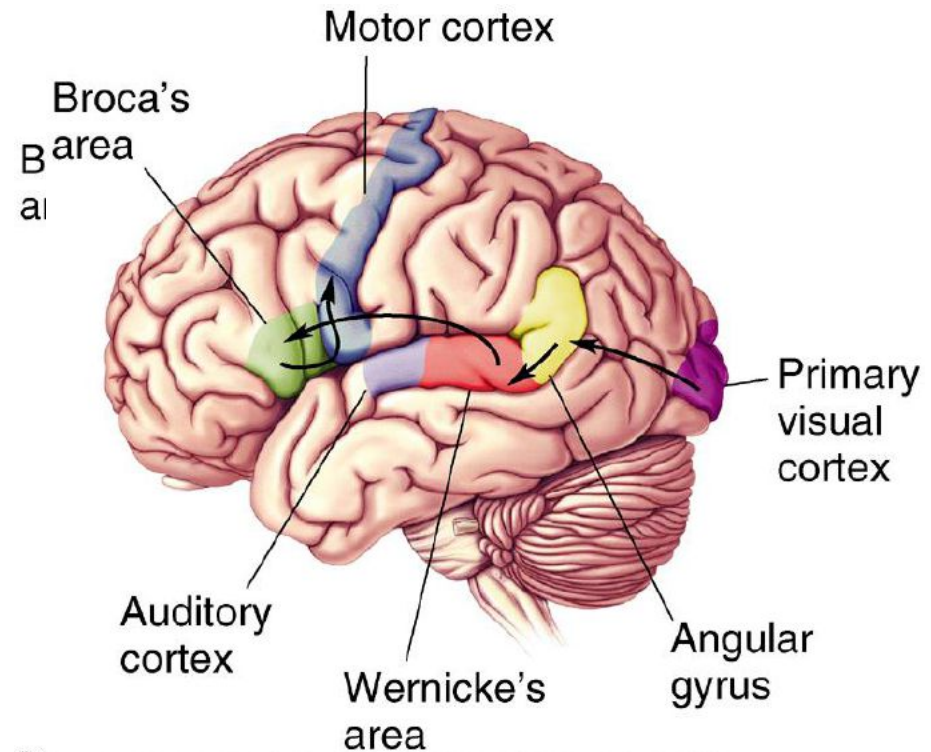


Carl Wernicke (1848 – 1905) – a identificat aria corticala implicata in intelegerea limbajului – aria lui Wernicke

Ariile corticale ale limbajului (Broca și Wernicke)



Neuroscience: Exploring the Brain, 3rd Ed., Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins



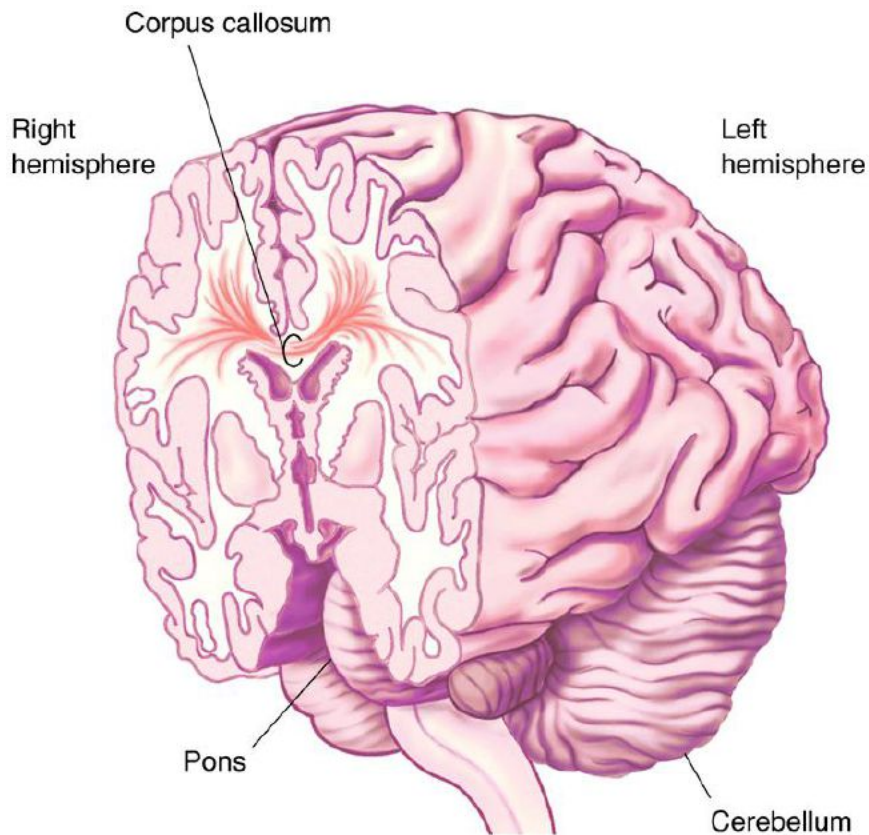
Neuroscience: Exploring the Brain, 3rd Ed., Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins

Afazia Broca – “motorie”

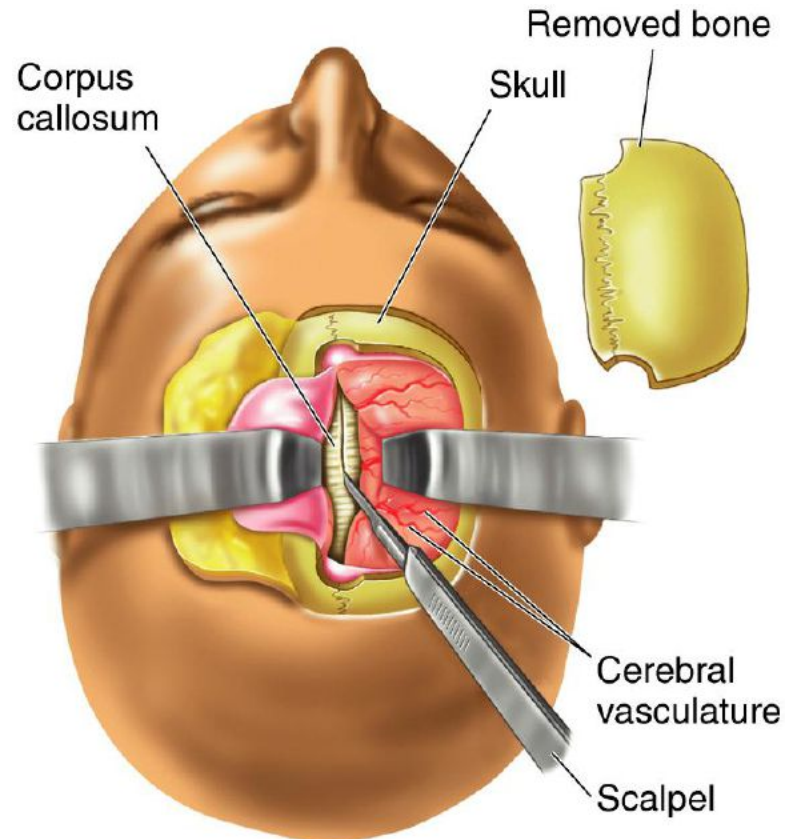
Afazia Wernicke – “senzitivă”

Afazia de conducție

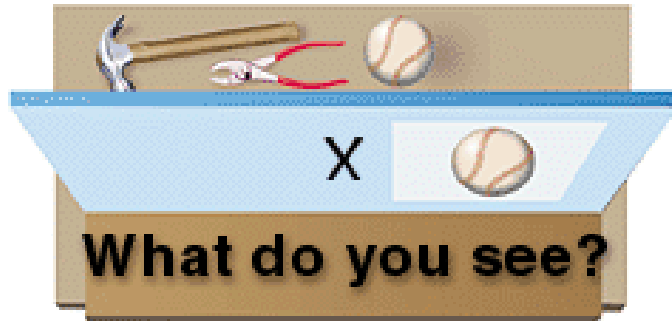
Lateralizarea functiilor corticale



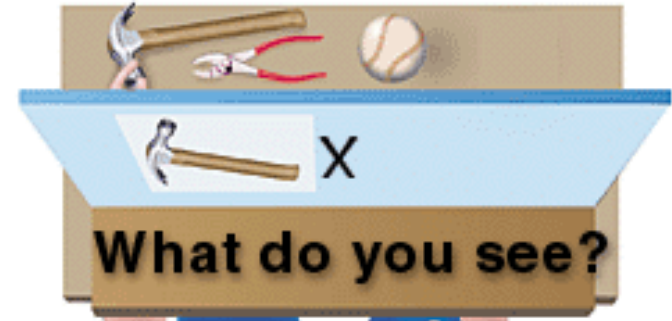
Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins



Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins



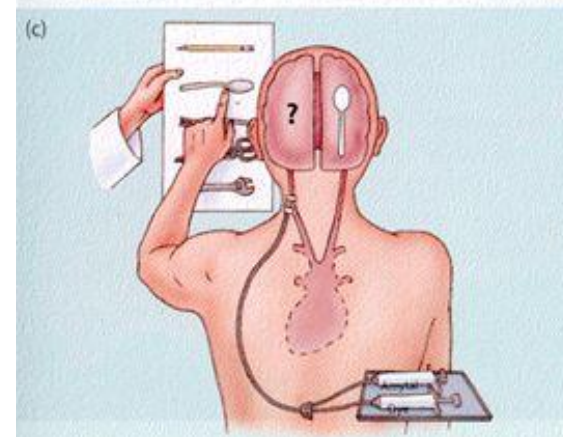
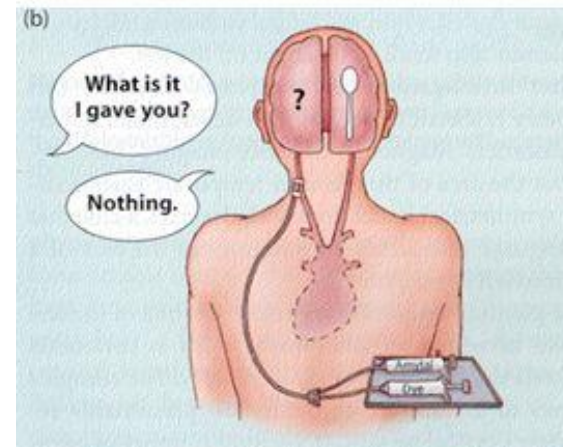
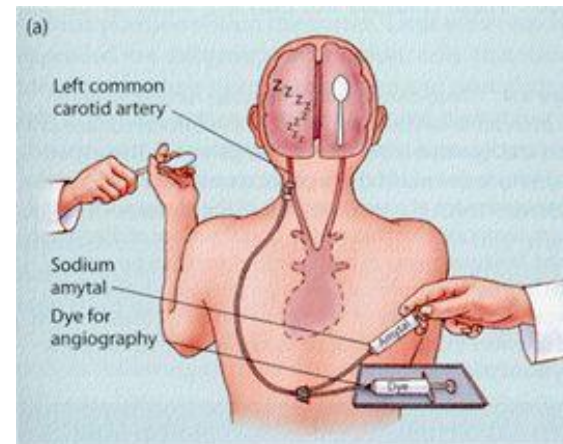
**I see
a ball.**

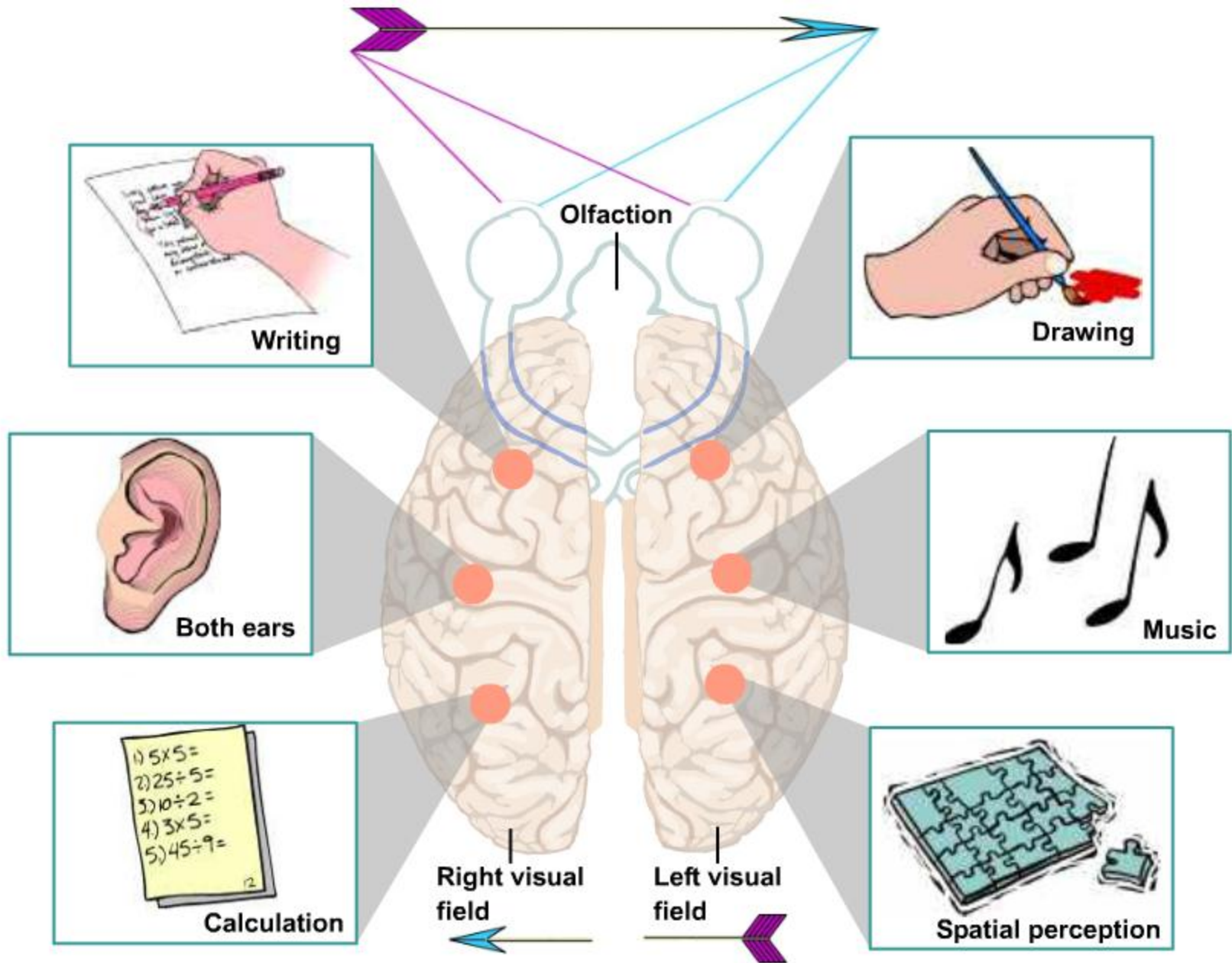


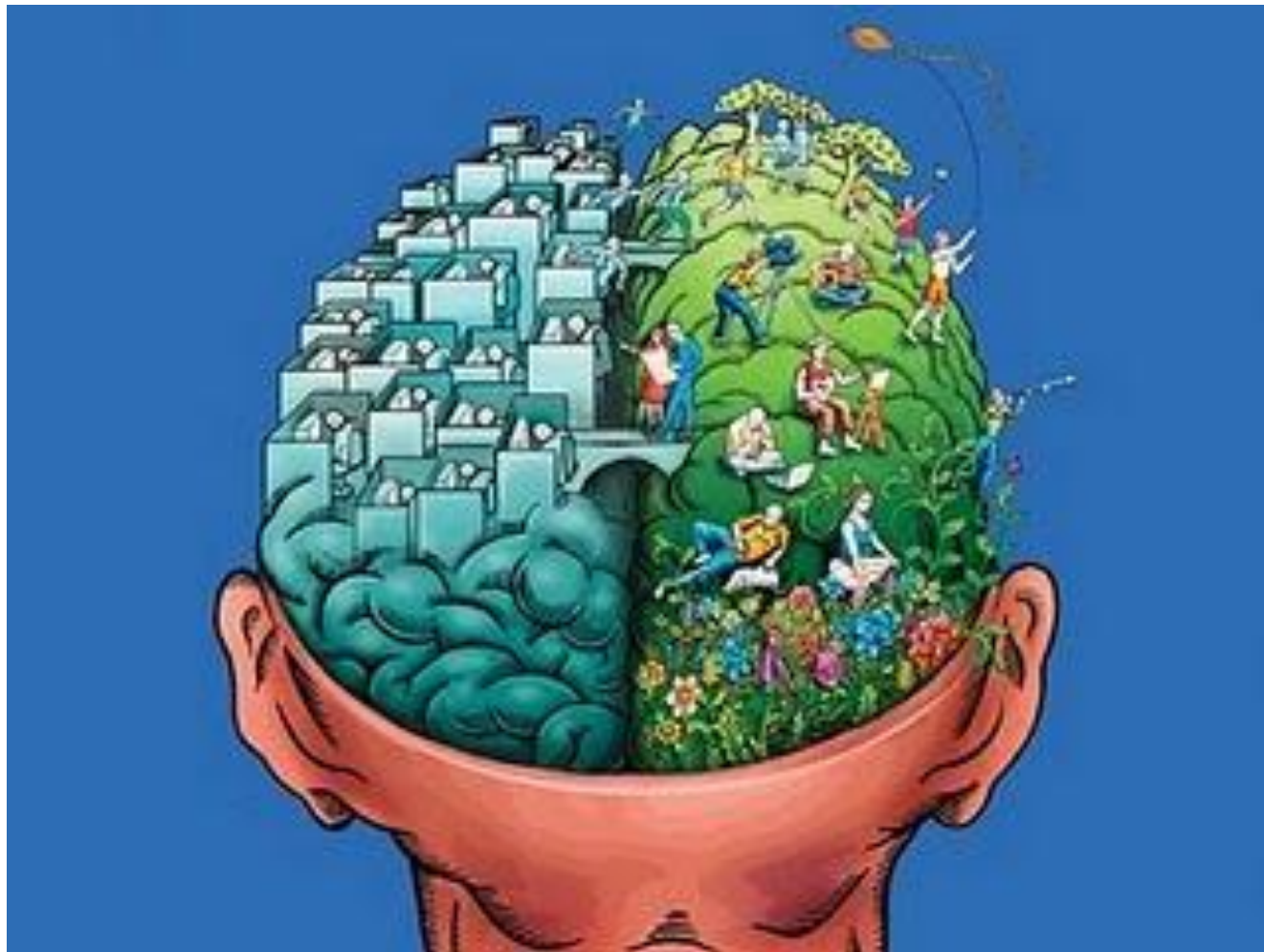
**I see
nothing.**

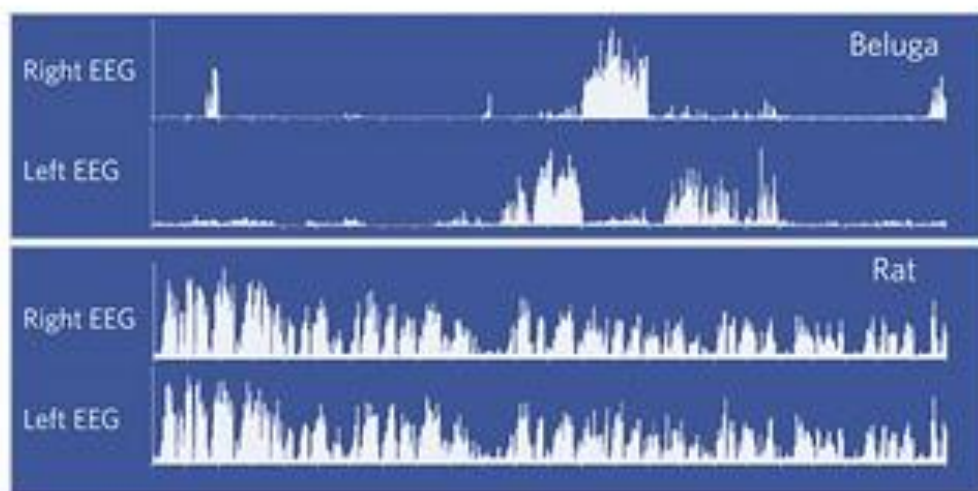
Testul Wada pentru determinarea emisferei dominante pentru limbaj

Emisfera dominantă pentru limbaj – (96% dreptaci + 70% stângaci – emisfera stângă) – detectează semnificația limbajului; cealaltă emisferă – tonul emoțional, expresia facială





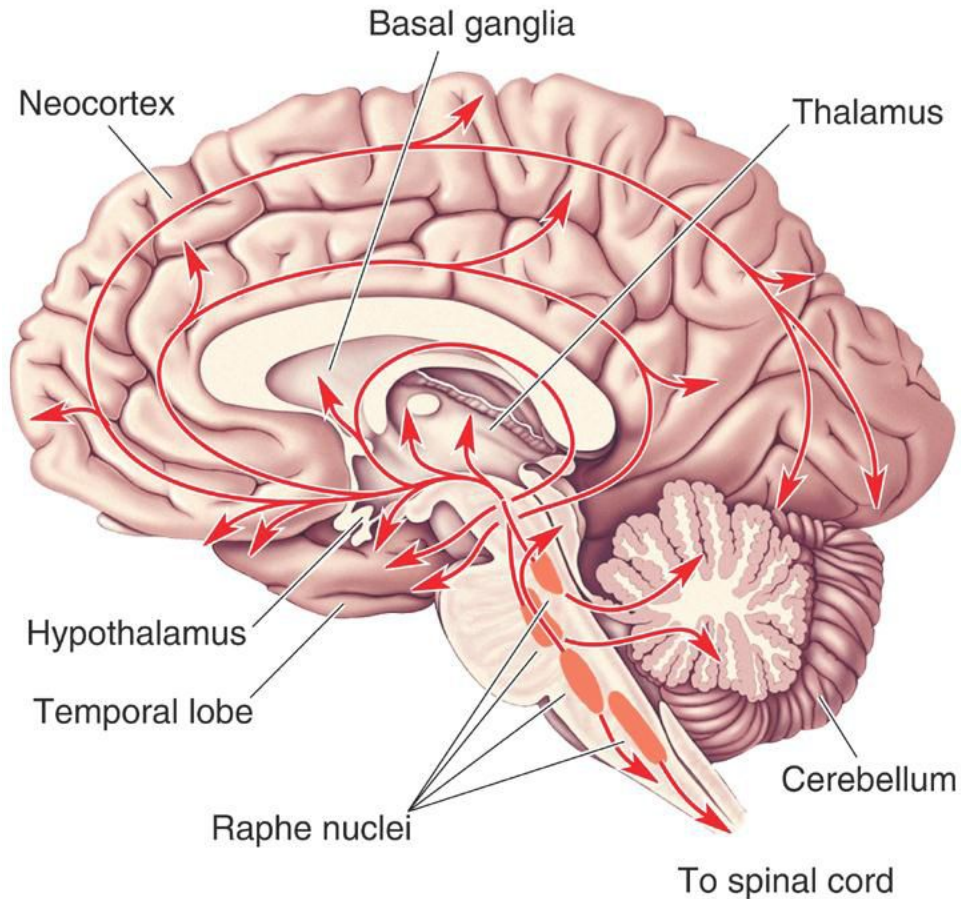




Creierul si comportamentul

- sistemele modulatoroare difuze ale creierului – functii reglatoare cu efect asupra unor regiuni extinse ale creierului – cortex, talamus, trunchi cerebral
- neuromediatori: **serotonina, dopamina, noradrenalina, acetilcolina**
- rol in controlul motor, memorie, dispozitie, motivatie, stare metabolica, stare de veghe
- disfunctiile acestor sisteme duc la tulburari psihiatrice; multi agenti psihoactivi (cocaina) au efecte asupra acestor sisteme

Serotonin system



Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins

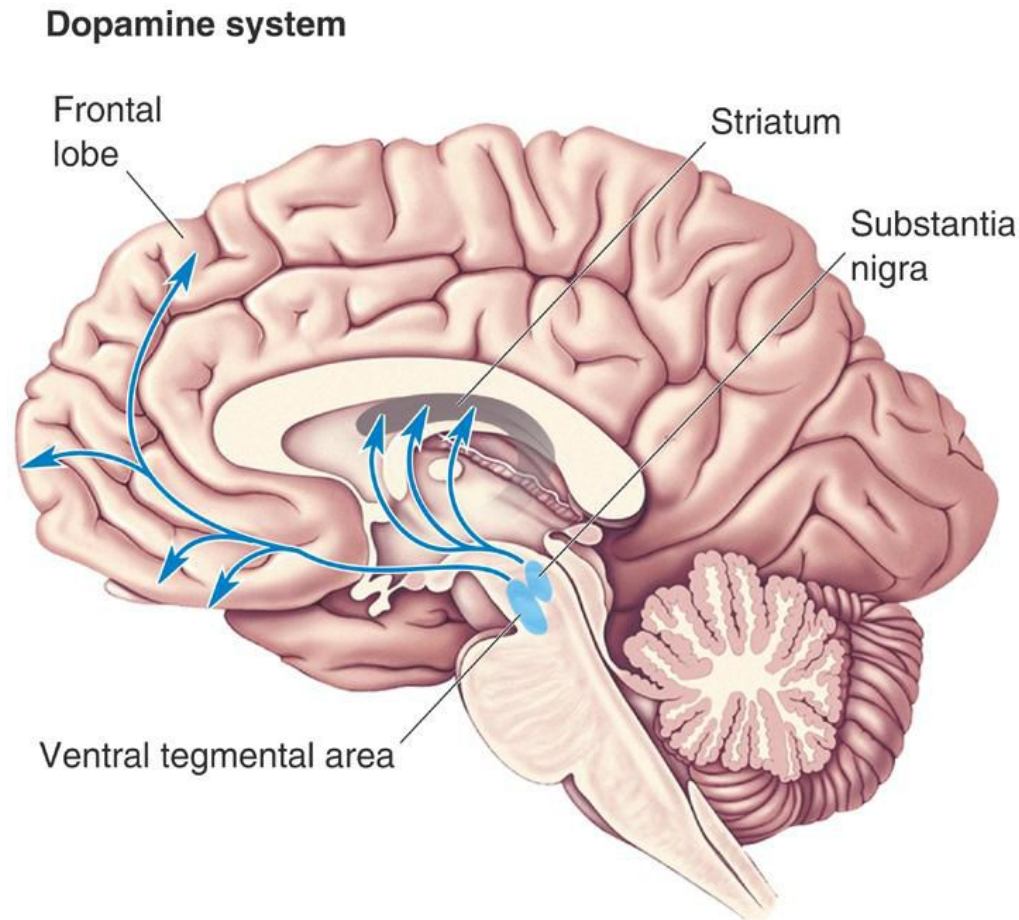


- **Sistemul serotoninergic** – rol in alternanta somn – veghe; reglarea apetitului
- rol in dispozitie ("mood"), afectiuni ale dispozitiei ("mood disorders" – depresie, anxietate, maladia obsesiv-compulsiva, anorexia nervosa)

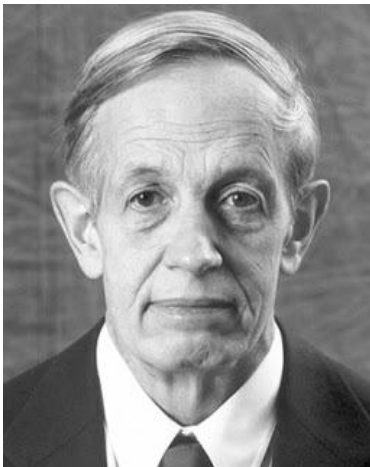
Sistemul serotonergic descendent de inhibare a semnalizarii durerii



Sistemul dopaminergic - rol in motivatie, sistem de recompensa



Neuroscience: Exploring the Brain, 3rd Ed, Bear, Connors, and Paradiso Copyright © 2007 Lippincott Williams & Wilkins



John Nash



Syd Barrett

-maladii asociate cu disfunctii ale sistemului dopaminergic: schizofrenia, ADHD, Parkinson's

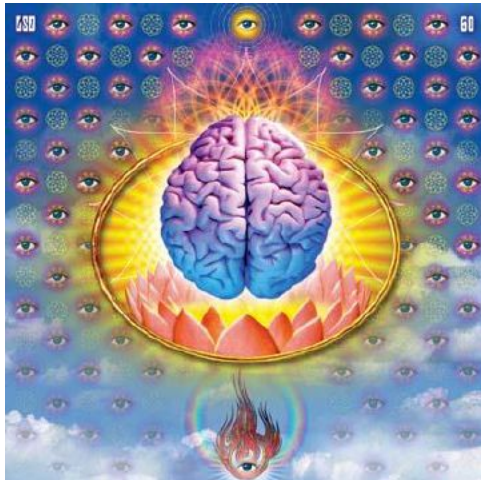


Marijuana – extract din Cannabis sativa
Compus activ – tetrahidrocanabinol (THC)

-eliberare de **dopamina** in ganglionii bazali, hipocampus, hipotalamus, cortex



Cocaina – (Erythroxylum coca) inhiba transportorii de dopamina si noradrenalina; prelungesc actiunea acestor neuromediatorii la sinapse; adictie





He **BAYER Pharmaceutical Products** **-or** **HEROIN—HYDROCHLORIDE - 12%**

is pre-eminently adapted for the manufacture of cough elixirs, cough balsams, cough drops, cough lozenges, and cough medicines of any kind. Price in 1 oz. packages, \$4.85 per ounce; less in larger quantities. The efficient dose being very small (1-48 to 1-24 gr.), it is

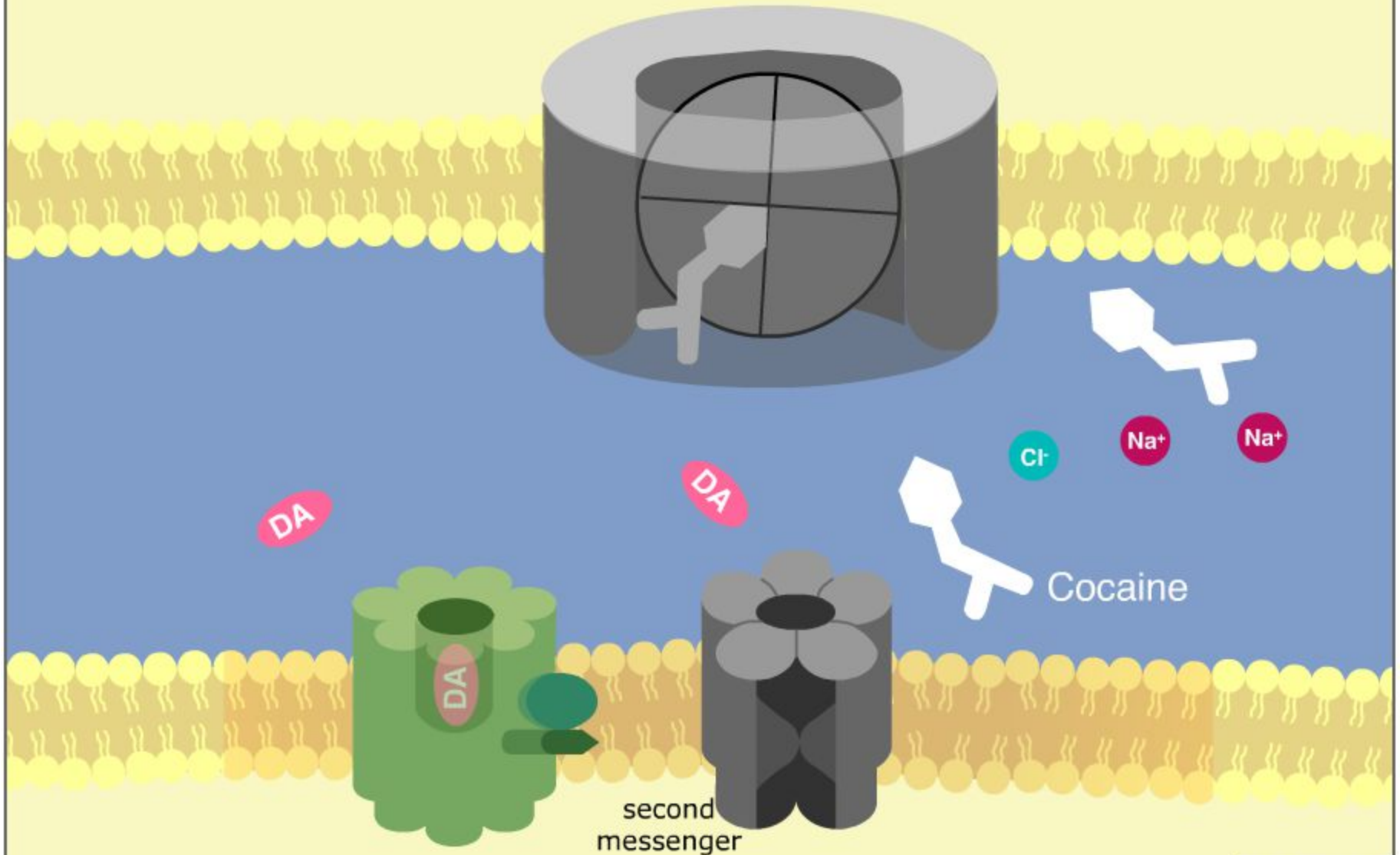
The Cheapest Specific for the Relief of Coughs tie
(In bronchitis, phthisis, whooping cough, etc., etc.)

WRITE FOR LITERATURE TO
FARRENFARREN OF FIFTEEN COMPANY



Ecstasy – MDMA
-elibarare de serotonina (5-HT)
-"ecstasy rave"





Adictia – reducerea densitatii de receptori dopaminergici

