

NEURAL COMPUTATION

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LAST TIME

- * cortical microcircuits (~6 layers)
- * cortical cell types

TODAY

- * paper presentation!
- * neuroscience methods
 - * lesions
 - * cortical maps

METHODS

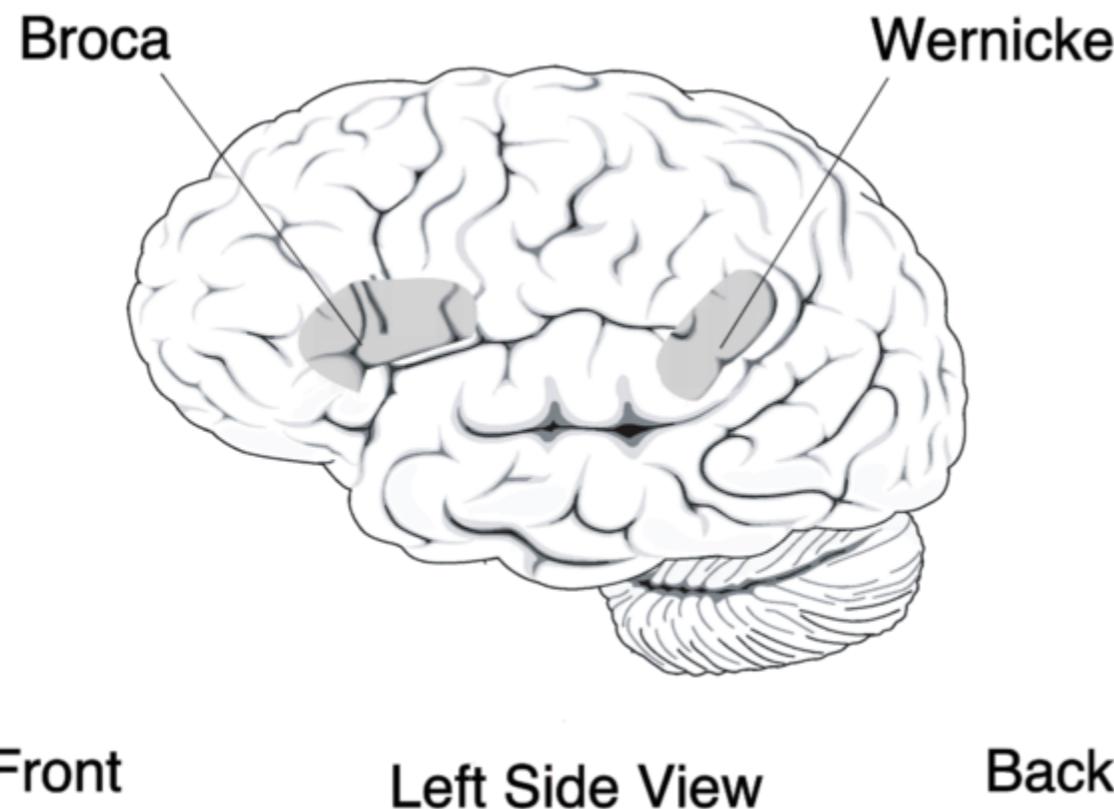
- * **Break it**
- * Measure it

LESIONS

- * First scientific way to study brain function
- * Led to idea of **localization of function**
 - * The brain is divided into parts or **areas**
 - * What is the function of each area?

LESIONS

- * Broca's aphasia: the inability to produce fluent speech

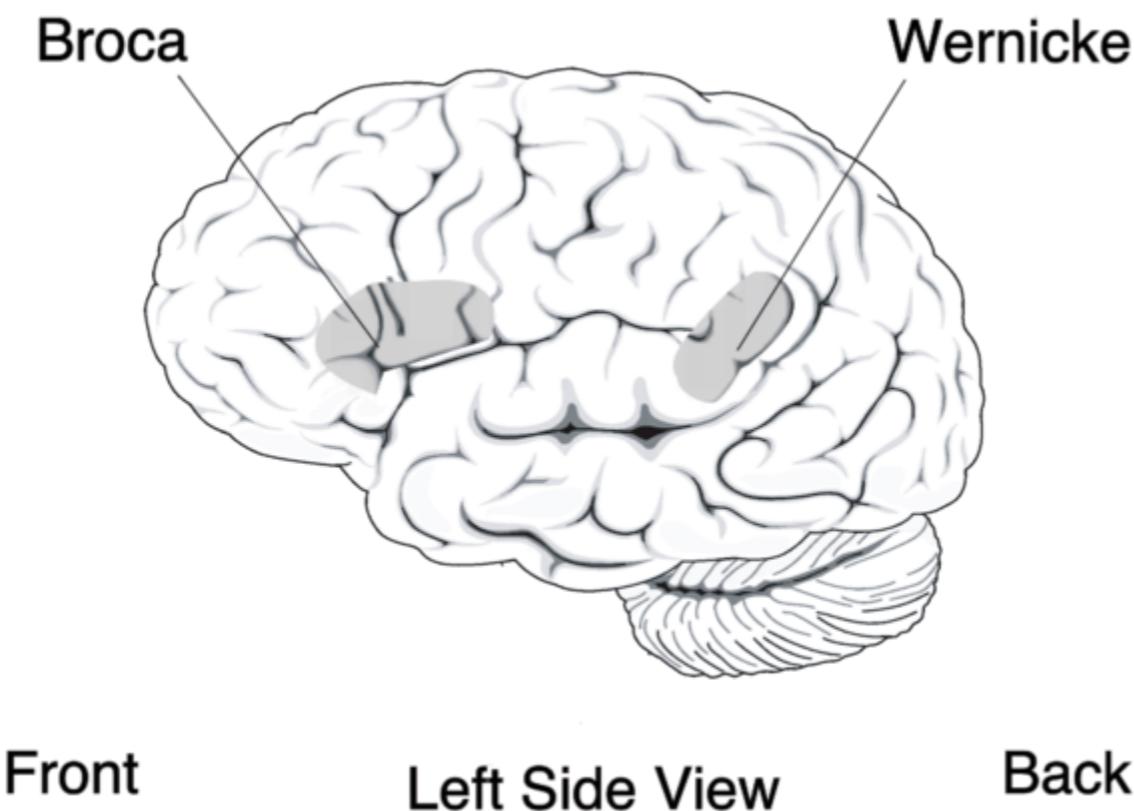


Paul Broca
(1824-1880)

Example: <https://www.youtube.com/watch?v=JWC-cVQmEmY>

LESIONS

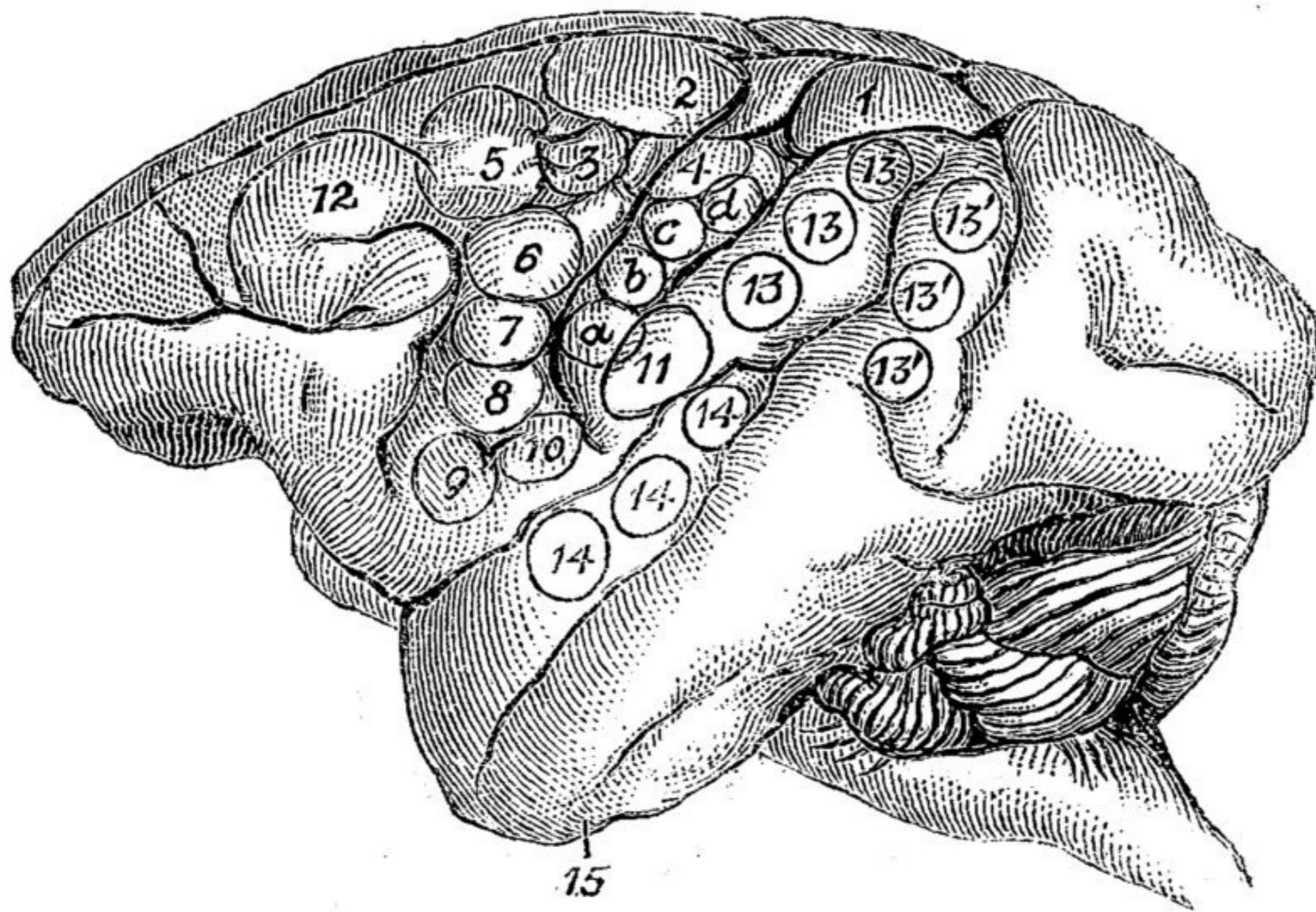
- * Wernicke's aphasia: the inability to understand speech



Carl Wernicke
(1848-1905)

Example: <https://www.youtube.com/watch?v=3oef68YabD0>

SOMATOTOPIC MAPS

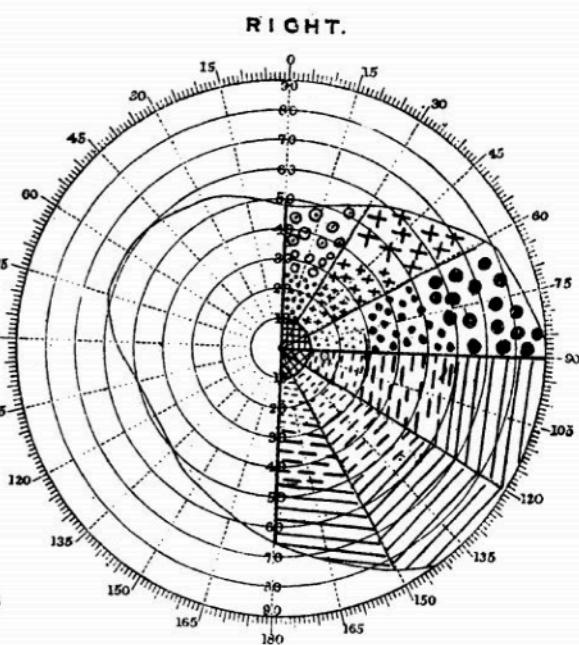
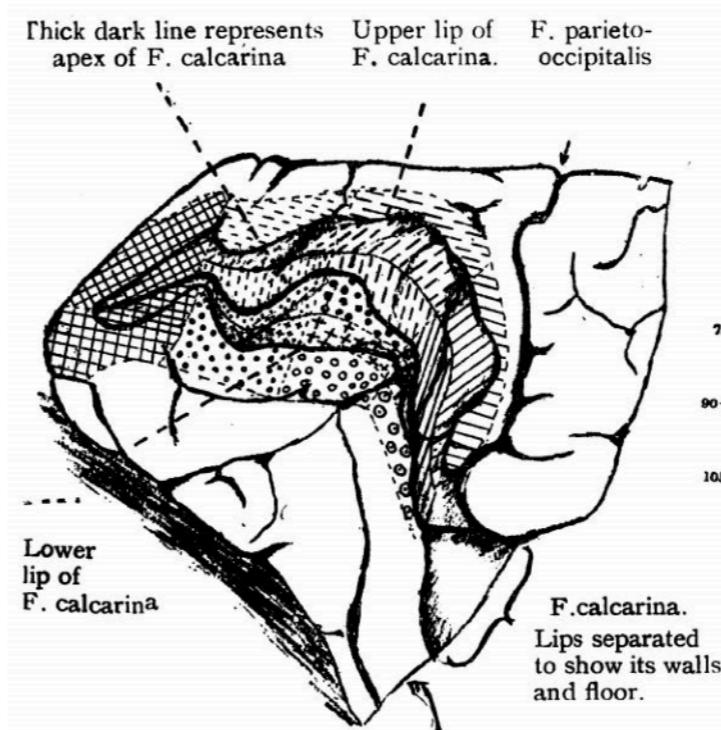
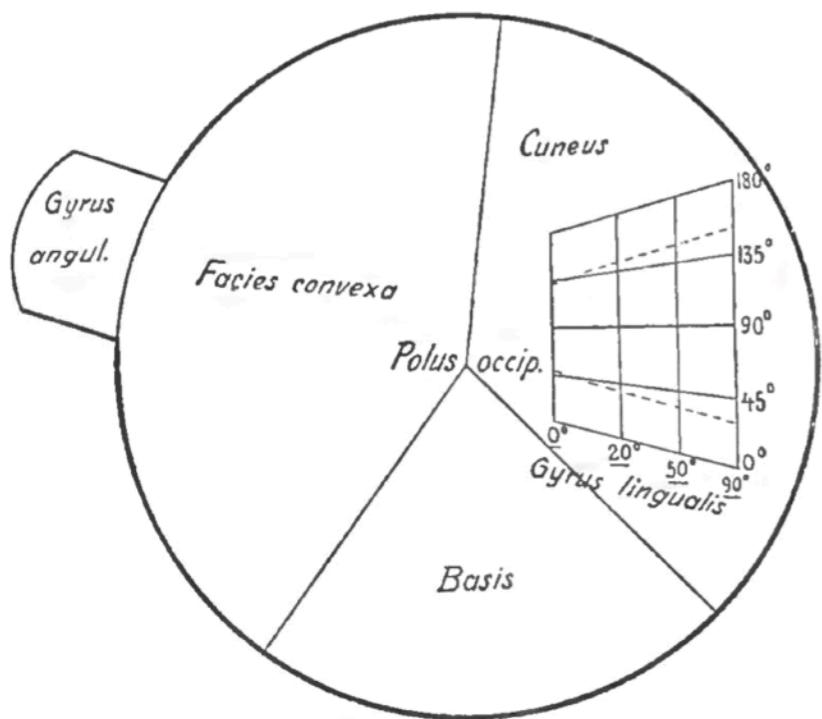


David Ferrier, 1886

RETINOTOPIC MAPS

Fig. 39.

Flächenentreue Darstellung der linken Haupt- und Nebensehsphäre.



Tatsuji Inouye, 1909

Gordon Holmes, 1918

LESSON DISCUSSION

- * There are many problems with using lesions to **interpret & understand** brain function
- * Can you think of some? Let's brainstorm for a couple minutes.

LESION DISCUSSION

- * Sufficiency vs. necessity
- * Disconnection
- * Plasticity

NEXT TIME

- * neurophysiology methods