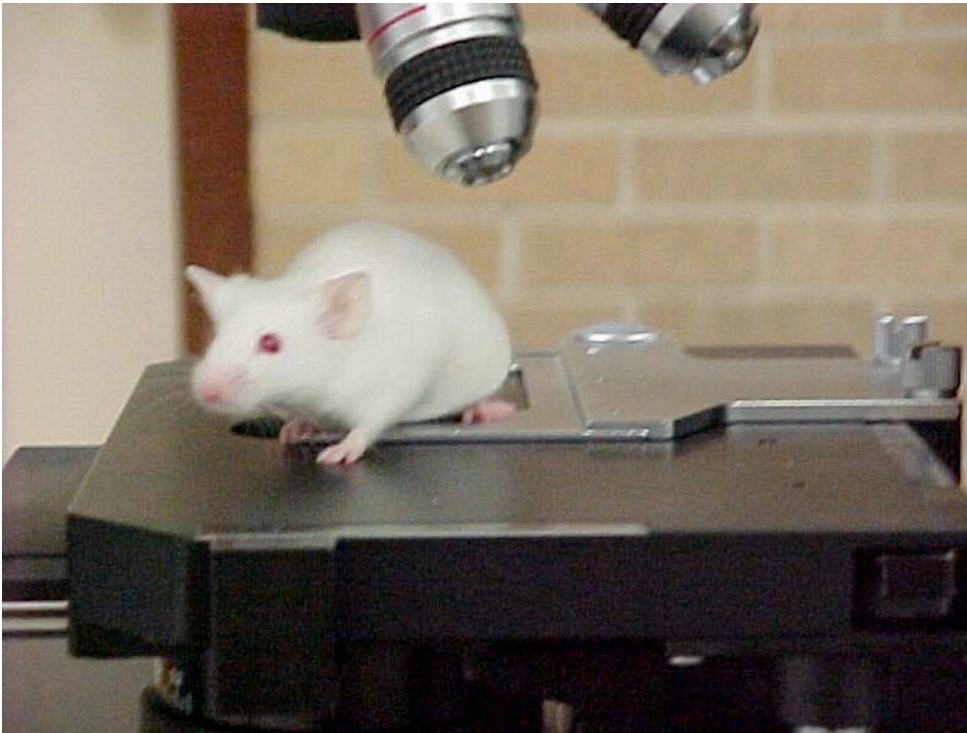


# How to study the brain?



**If only mice could read...**



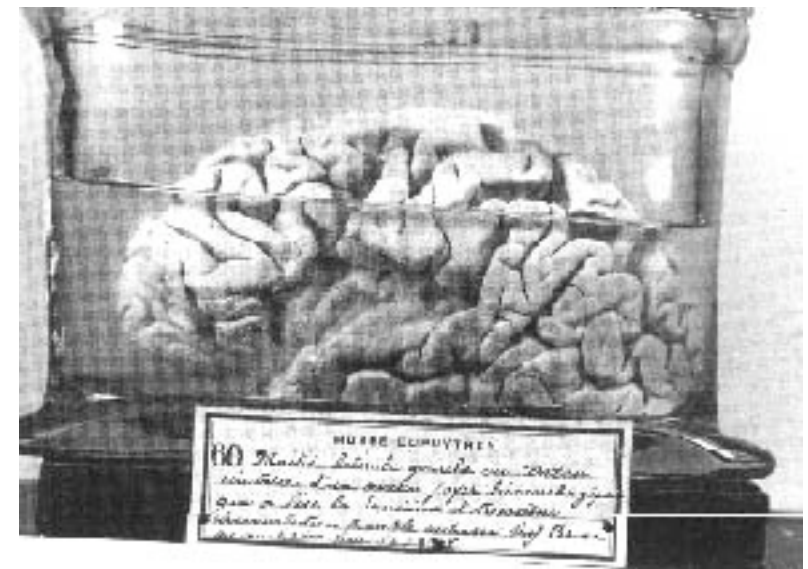


# **How to study language in the human brain?**

- In the 1800's:
  - **Study people who have language problems, and then, after they're dead, study their brains.**

# Paul Broca & Broca's aphasia

- First localization of language function.
- Patient could only produce a single syllable “tan”.
- Production problem.
  - **Broca's aphasia**
- Lesion in the posterior part of the left third frontal convolution
  - **Broca's area**



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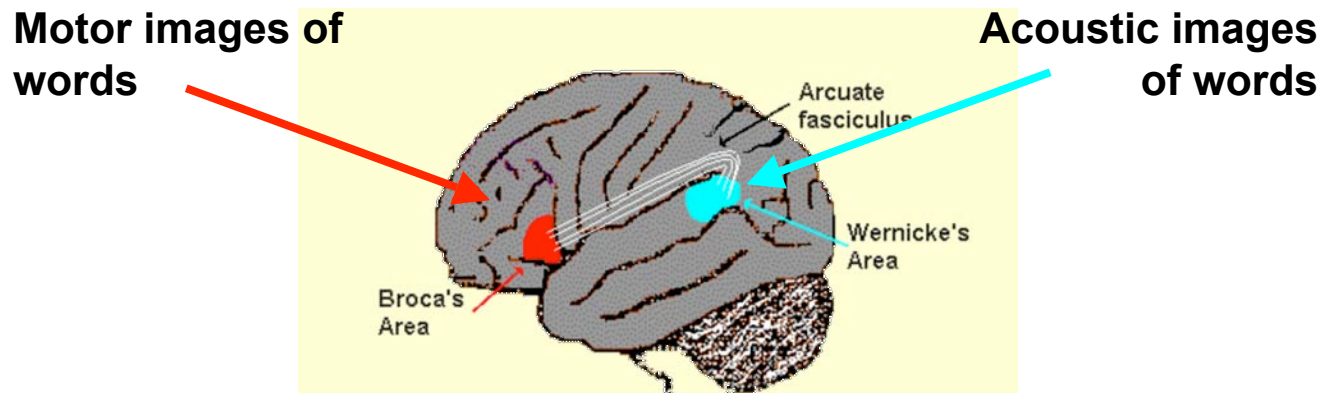


# Carl Wernicke & Wernicke's aphasia

- Comprehension problems
- Localization: the boundary of the temporal and parietal lobes



# The classic model



## Broca's aphasia (non-fluent aphasia):

Ah ... Monday ... ah Dad and Paul  
[patient's name] ... and Dad ... hospital.  
Two ... ah doctors ..., and ah ... thirty  
minutes ... and yes ... ah ... hospital.  
And, er Wednesday ... nine o'clock.  
And er Thursday, ten o'clock ...  
doctors. Two doctors ... and ah ... teeth.  
Yeah, ..., fine. (Goodglass, 1976)

## Wernicke's aphasia (fluent aphasia):

Examiner: What kind of work did you do before you came into the hospital?

Patient: Never, now mista oyge I wanna tell you this happened when happened when he rent. His - his kell come down here and is - he got ren something. It happened. In these ropiers were with him for hi - is friend - like was. And it just happened so I don't know, he did not bring around anything. And he did not pay it. And he roden all o these arranjen from the pedis on from iss pescid. (Kertesz, 1981)

# Left temporal parietal damage



# Wernicke's aphasic





# **Limitation of aphasiology**

- Research questions are driven by the clinical population that happens to be available.