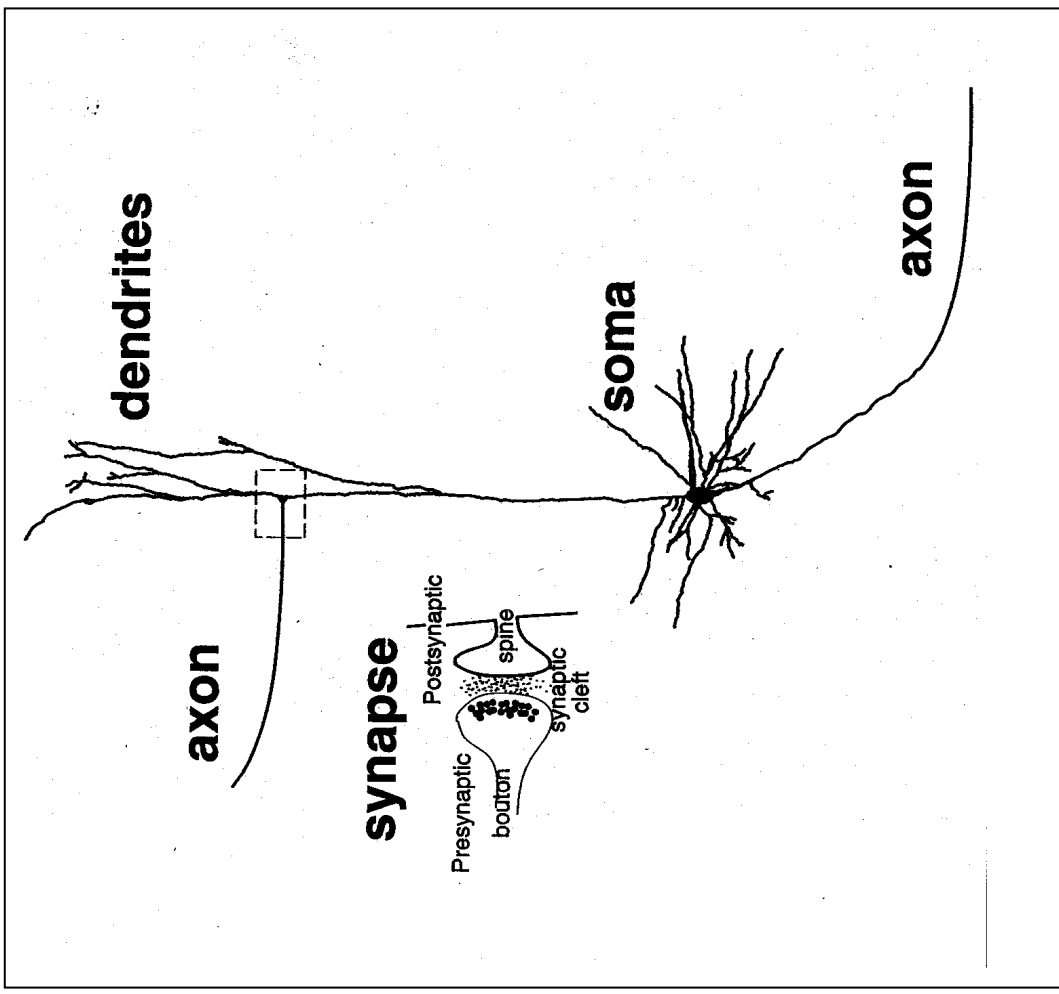


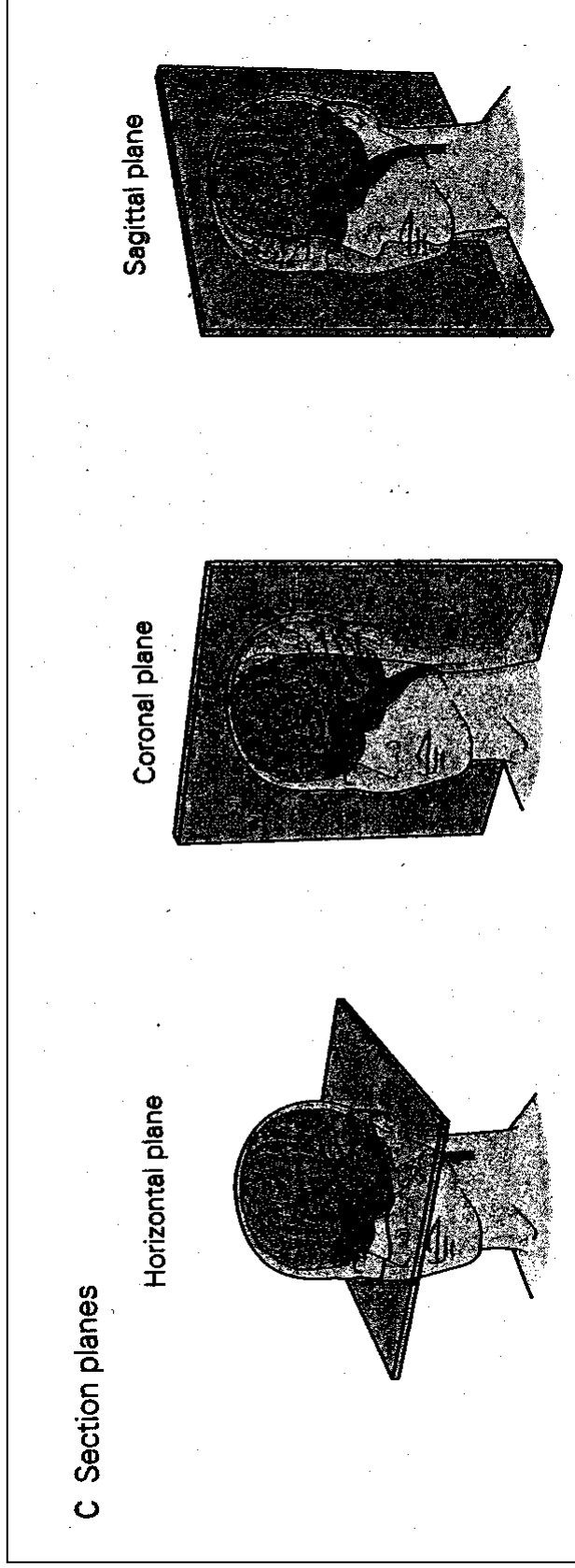
Chapter 3, Basic Neuroscience

A (pyramidal) neuron of cortex (Lytton, page 27)



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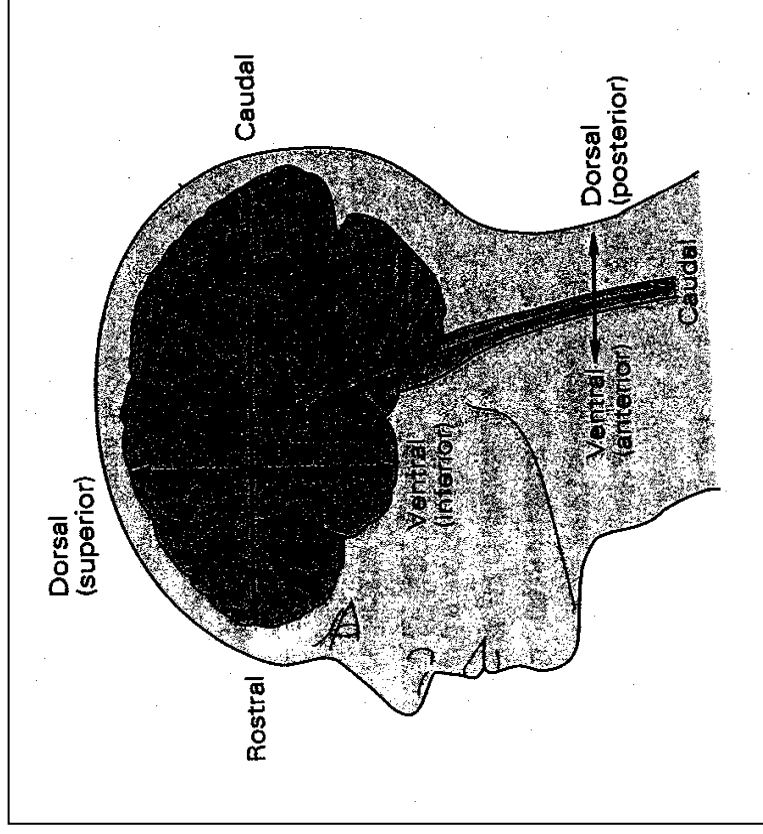
How to describe where:



From Kandel et al. (Eds.): Principles of Neural Science

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How to describe where (or people don't say up and down):

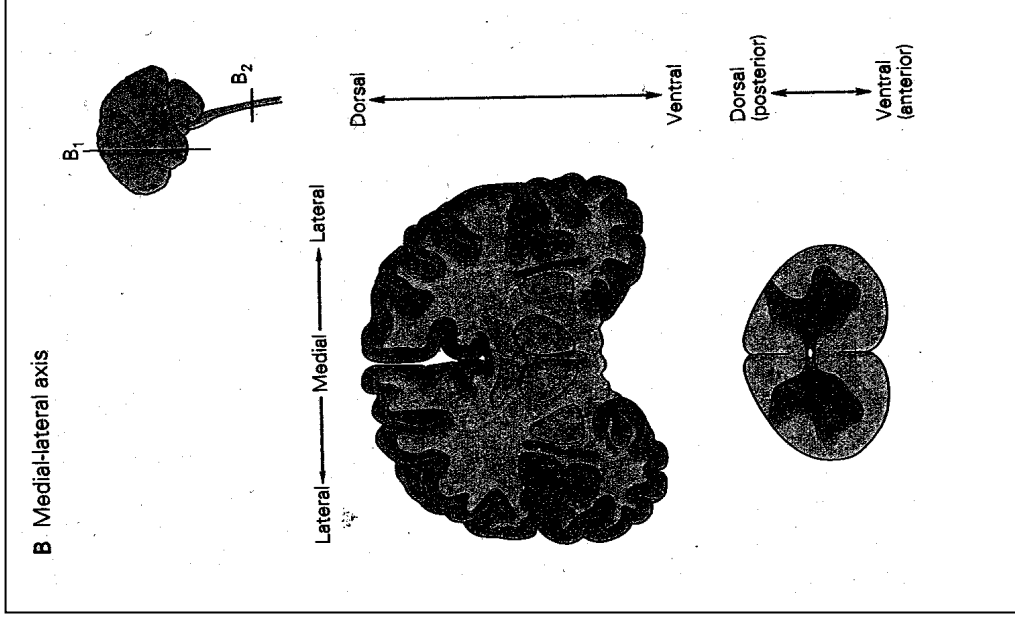


From Kandel et al. (Eds.): Principles of Neural Science

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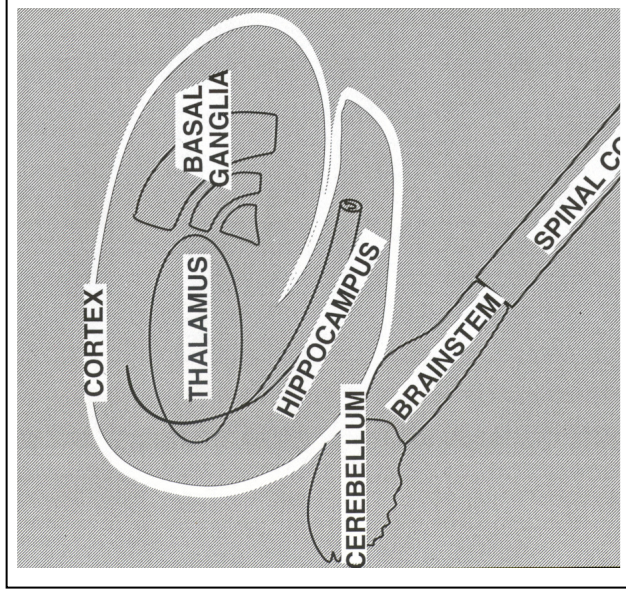
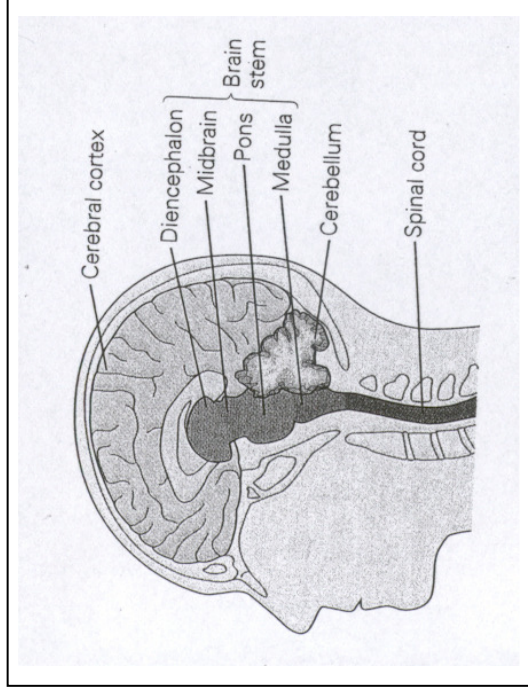
How to describe where:

From Kandel et al. (Eds.):
Principles of Neural Science



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Major divisions of the Central Nervous System – CNS



As outlined in Kandel et al. (Eds.):
Principles of Neural Science

As outlined by Lytton

Chapter 3, Basic Neuroscience

How do we learn about the brain?

Some sources:

**Galen's observations in the second century AD
(gladiators who suffered blows to their heads suffered problems of the mind)**

**Observations in the Crimean war and the American Civil War
(a "local" shot wound caused defined behavioural effects)**

**Phineas Gage suffered massive lesions in his prefrontal cortex
(emotional processes guide thought and control)**

**Small, well defined, strokes cause specific impairments
(see, e.g. Butterworth: What counts, How Every Brain is Hardwired for Math)**

**Electrodes inserted into neurons of animals (mostly)
(monkeys looking at an object display retinotopic activity in V1)**

Electrodes outside the skull – electroencephelography EEG

Brain banks and disease record (anatomy)
(suggesting minicolumnar abnormalities in autism)

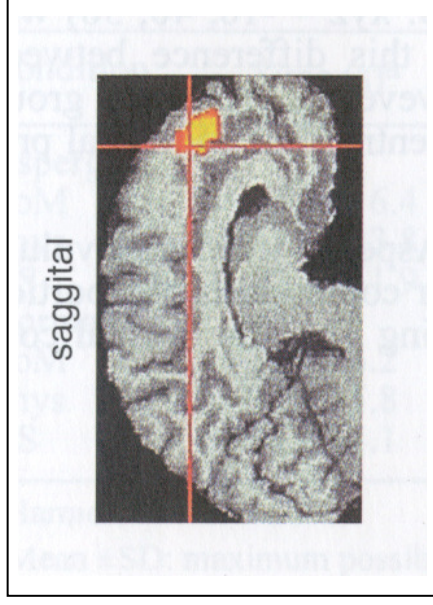
Imaging methods measuring activity – PET and fMRI
(people with autism generally don't use the fusiform gyrus to recognize faces)

Psychophysics

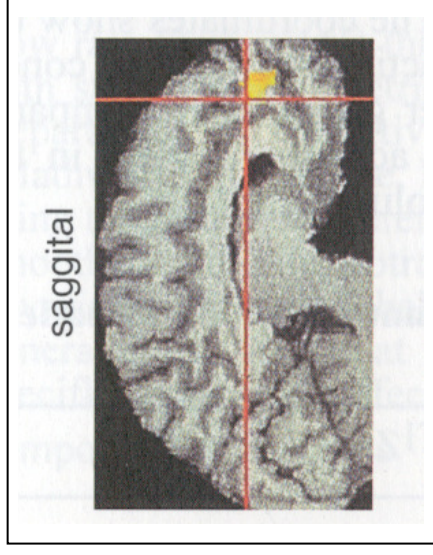
(binding of features of objects isn't immediately realized – the binding problem has a time component)

Chapter 3, Basic Neuroscience

Activity when solving a “theory of mind” task



In normal controls



In individuals with Asperger's

From Happe et al.: “Theory of mind in the brain. Evidence from a PET scan study of Asperger syndrome, NeuroReport, 1996, 197-201

Part II Computers

Chapter 4 : Computer representations

&

Chapter 5: In the head of an old machine

These chapters discuss possible parallels between computers and brains. I want to play down any such possible parallels and instead stress that we wish to use computers to experiment with models of the brain, and there need be no parallels between computers and brains for this purpose, except that they both process information.

Lytton suggests that the brain is a hacker's delight and I don't see anything objectionable in that view. But I don't wish to spend time discussing computer hacking, however entertaining.