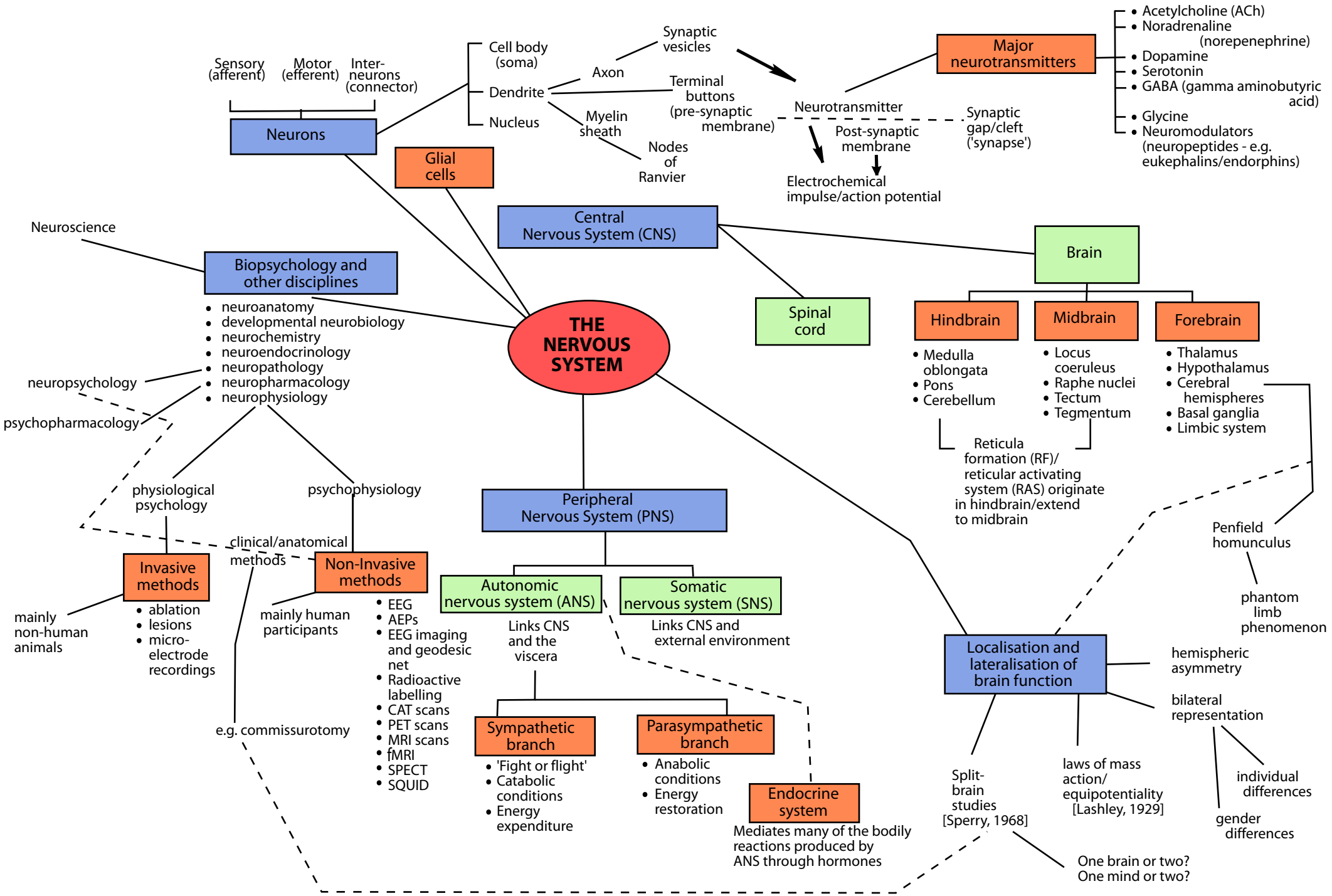
THE NERVOUS SYSTEM
Neurons
Sensory (afferent)
Motor (efferent)
Inter-neurons (connector)
Cell body (soma)
Dendrite
Nucleus
Axon
Synaptic vesicles
Terminal buttons (pre-synaptic membrane)
Myelin sheath
Nodes of Ranvier
Neurotransmitter
Synaptic gap/cleft ('synapse')
Post-synaptic membrane
Electrochemical impulse/action potential
Major neurotransmitters
Acetylcholine (ACh)
Noradrenaline (norepenephrine)
Dopamine
Serotonin
GABA (gamma aminobutyric acid)
Glycine
Neuromodulators (neuropeptides - e.g. eukephalins/endorphins)
Glial cells
Central Nervous System (CNS)
Spinal cord
Brain
Hindbrain
Midbrain
Forebrain
Medulla oblongata
Pons
Cerebellum
Locus coeruleus
Raphe nuclei
Tectum
Tegmentum
Thalamus
Hypothalamus
Cerebral hemispheres
Basal ganglia
Limbic system
Reticula formation (RF)/ reticular activating system (RAS) originate in hindbrain/extend to midbrain
Neuroscience
Biopsychology and other disciplines
neuroanatomy
developmental neurobiology
neurochemistry
neuroendocrinology
neuropathology
neuropharmacology
neurophysiology
neuropsychology
psychopharmacology
physiological psychology
psychophysiology
clinical/anatomical methods
Invasive methods
ablation
lesions
micro-electrode recordings
mainly non-human animals
Non-Invasive methods
mainly human participants
EEG
AEPs
EEG imaging and geodesic net
Radioactive labelling
CAT scans
PET scans
MRI scans
fMRI
SPECT
SQUID
e.g. commissurotomy
Peripheral Nervous System (PNS)
Autonomic nervous system (ANS)
Links CNS and the viscera
Somatic nervous system (SNS)
Links CNS and external environment
Sympathetic branch
'Fight or flight'
Catabolic conditions
Energy expenditure
Parasympathetic branch
Anabolic conditions
Energy restoration
Endocrine system
Mediates many of the bodily reactions produced by ANS through hormones
Localisation and lateralisation of brain function
Penfield homunculus
phantom limb phenomenon
hemispheric asymmetry
bilateral representation
individual differences
gender differences
Split-brain studies [Sperry, 1968]
laws of mass action/ equipotentiality [Lashley, 1929]
One brain or two? One mind or two?