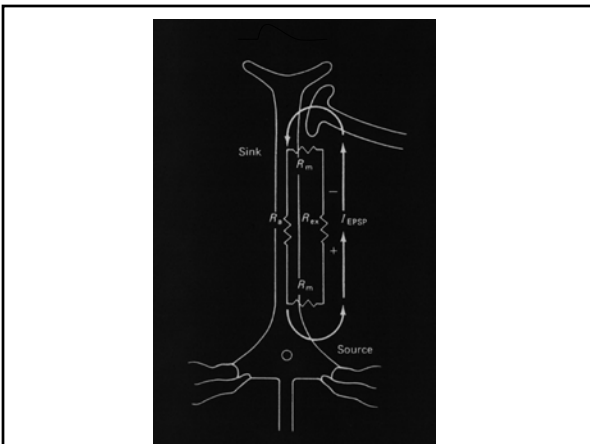
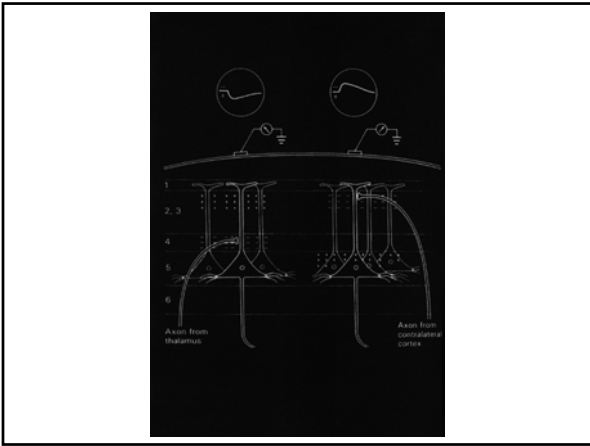
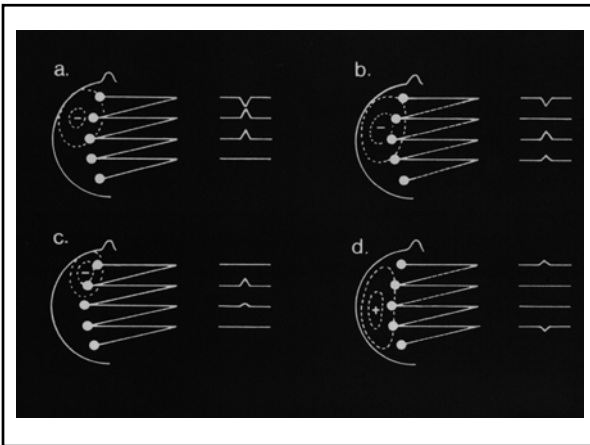


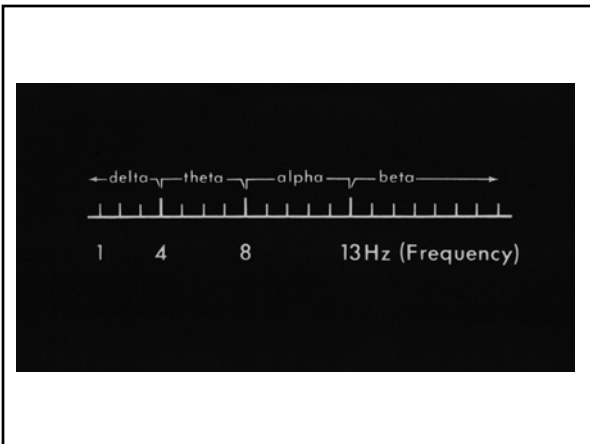
FIGURE 145. Hans Berger first recorded the electrical activity of the brain through the intact skull and discovered and named the electroencephalogram.

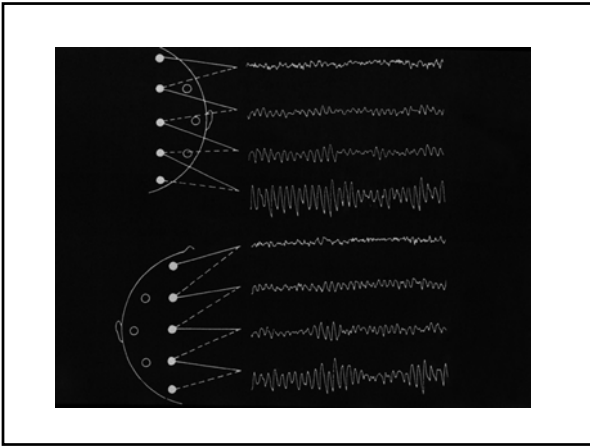


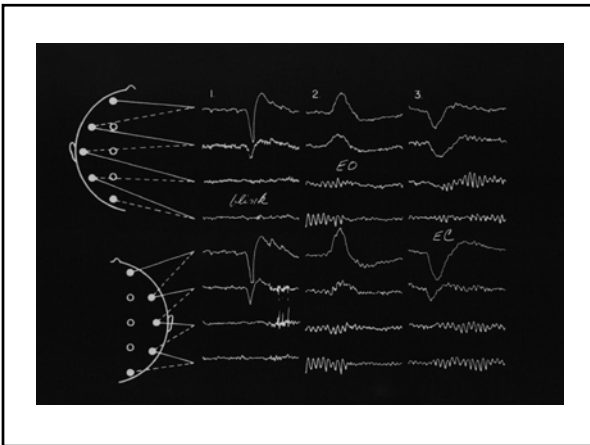


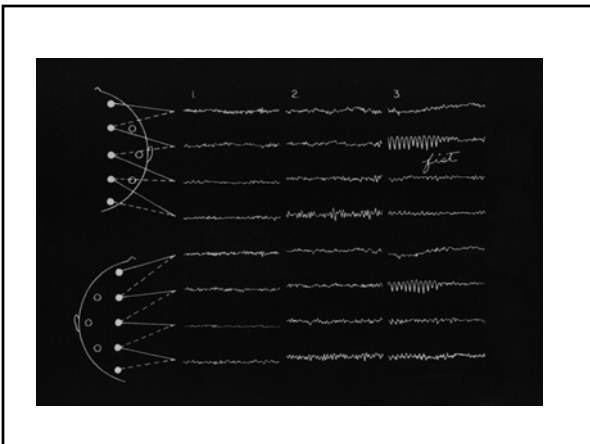


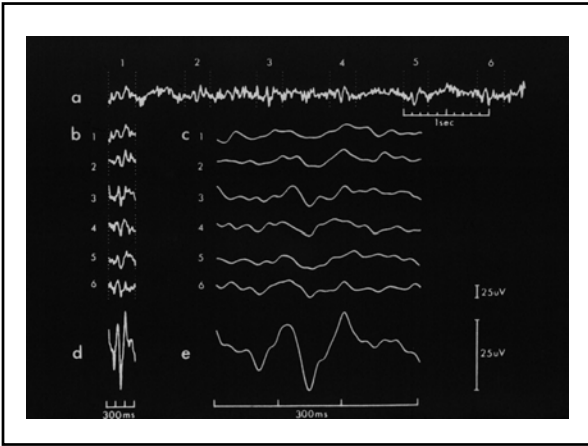


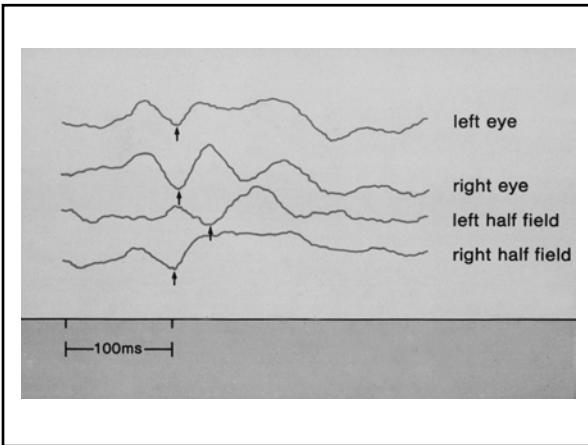


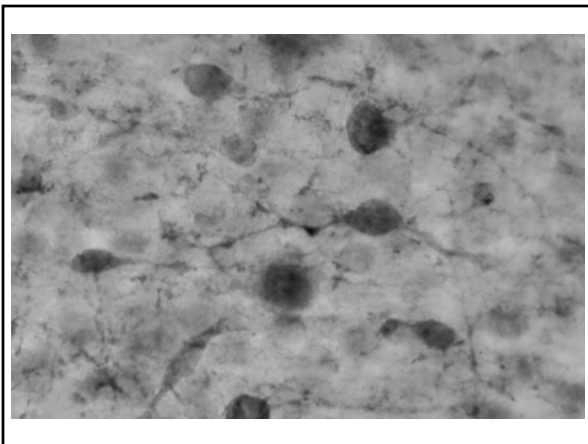


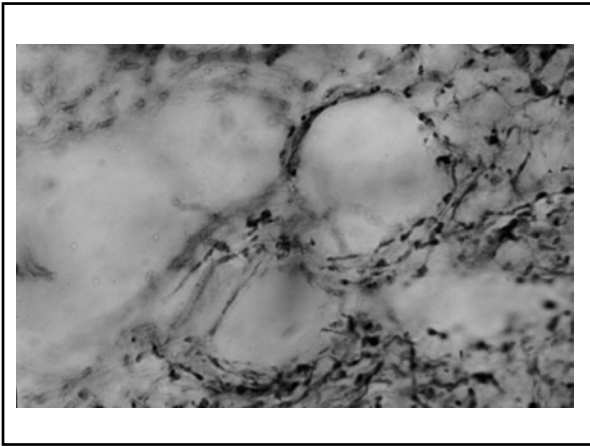


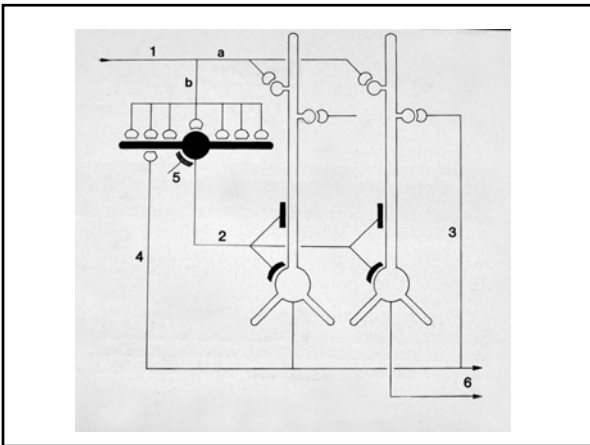


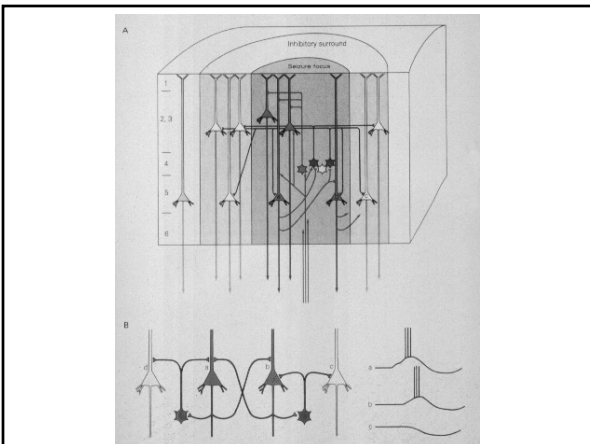


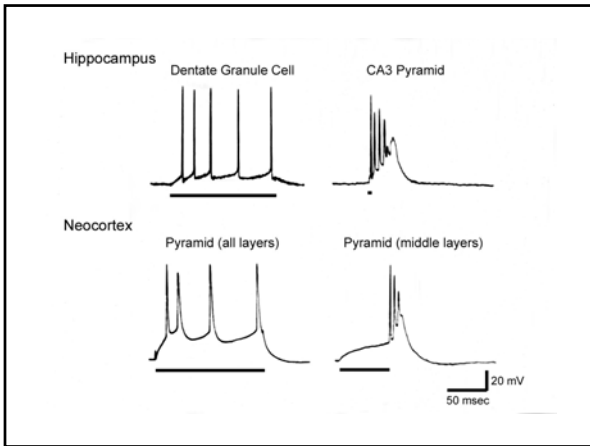


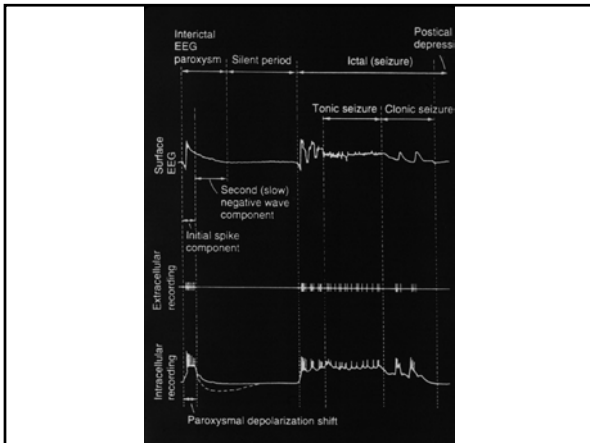






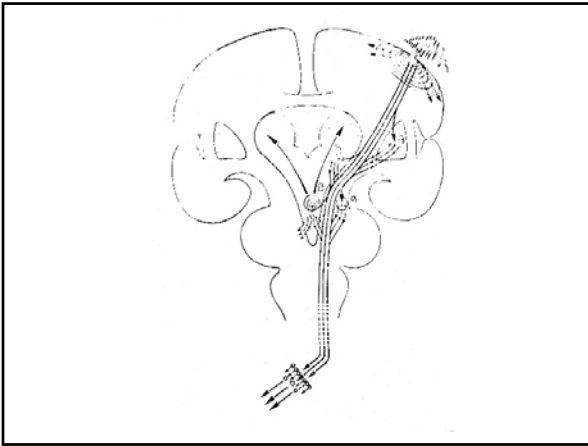






Classification of Epilepsy

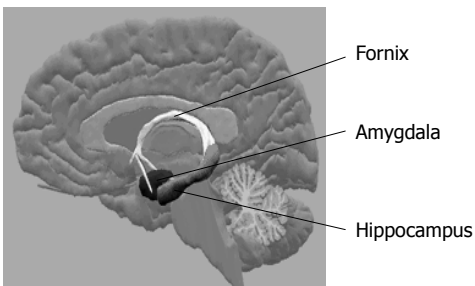
- Generalized
 - Convulsive (grand mal)
 - Nonconvulsive (petit mal)
 - Myoclonic
 - Febrile
- Partial (focal)
 - P. seizures with elementary symptoms
 - P. seizures with complex symptoms
 - P. seizures with secondary generalization

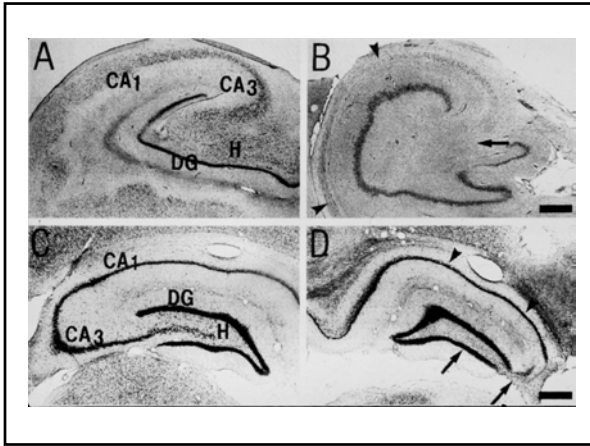


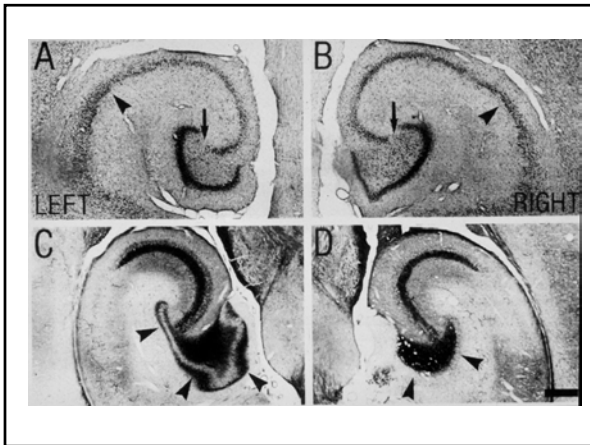
Complex partial seizures -localization

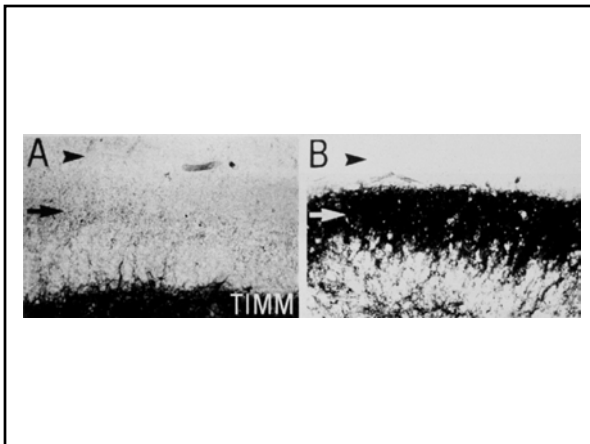
- **Orbital frontal**
Olfactory hallucinations, autonomic phenomena.
- **Anterior temporal, amygdalar**
Lip smaking, forced searching, blank staring, epigastric distress, respiratory irregularity.
- **Posterior temporal**
Auditory, vestibular, and visual phenomena.
- **Temporal, limbic**
Dysmnesic states (déjà vu, j'amaï vu), dream states, mind-body dissociation, fear, panic, and anxiety.

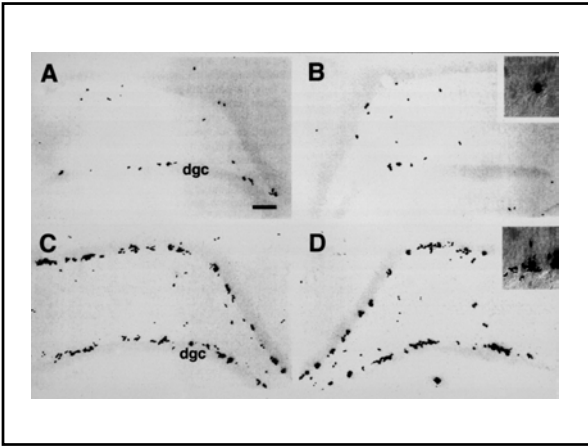
Hippocampus

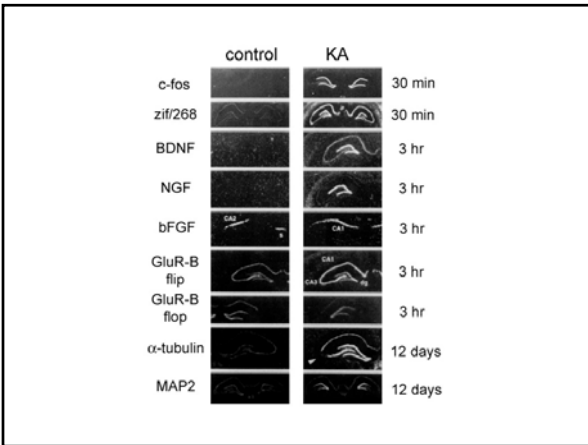












Insights from genetics

- Mendelian inheritance
 - Neonatal convulsions
 - Nocturnal frontal lobe epilepsy
 - Progressive myoclonic epilepsy
 - Cortical malformation syndromes
- Complex inheritance (alters synaptic function, ion channels, neuronal structure)

Most epilepsies

Molecular genetics of idiopathic epilepsies

Disease	Mode of Inheritance	Gene
Generalized epilepsy with seizures plus	AD	Na ⁺ channel ($\beta 1$ subunit)
		Na ⁺ channel ($\alpha 1$ subunit)
Benign familial neonatal convulsions	AD	K ⁺ channel (KCNQ2)
		K ⁺ channel (KCNQ3)
Autosomal dominant nocturnal frontal lobe epilepsy	AD	nACh receptor subunit



Lord, have mercy on my son, for he is an epileptic and he suffers terribly; for often he falls into the fire, and often into the water, And I brought him to your disciples, And they could not heal him.

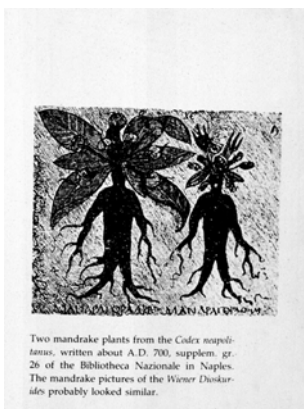
– Matthew 17:15-16

Both Pat and Shirley believe that exorcism is a much-too-neglected therapy for the epileptic,

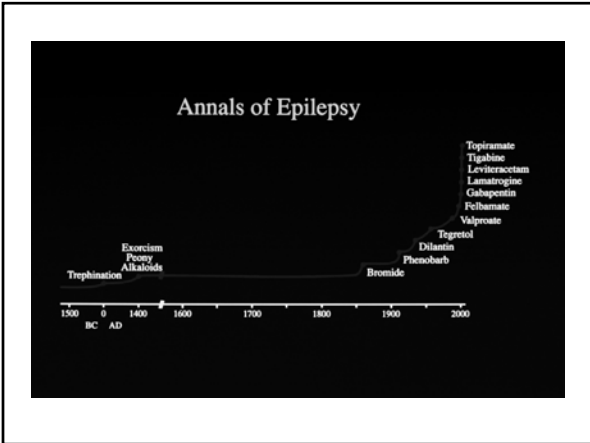
“What we call fits - seizures and epilepsy today” he explained, “Jesus recognized as possession by demons. Jesus saw epilepsy for what it is - the work of Satan.”

– Pat Boone Believes in Miracles
McCalls Magazine, February 1973, p. 122







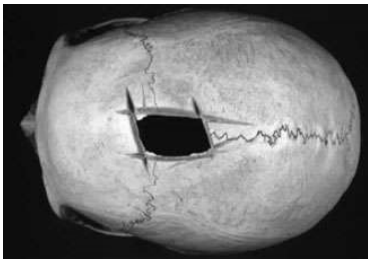


Pharmacotherapy

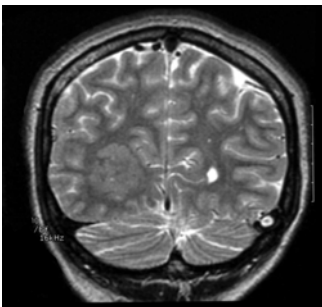
- ↓Burst firing (Na⁺ channel blockade)
Phenytoin, Carbamezapine, Felbamate, Topiramate
- ↑Inhibition (GABA potentiation)
Barbituates, Benzodiazepines, Valproate, Gabapentin, Tiagabine, Topiramate
- ↓Coupling (Glutamate receptor antagonist)
Topiramate, Felbamate



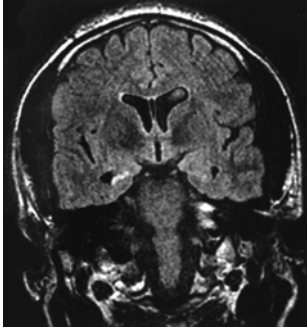
Trephination was practiced in the Old and New world 7,000 - 3,000 B.C.



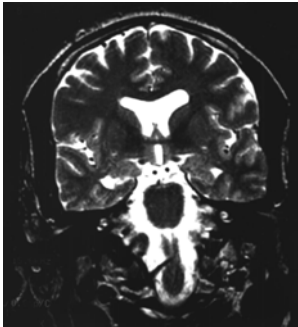
Neuroimaging



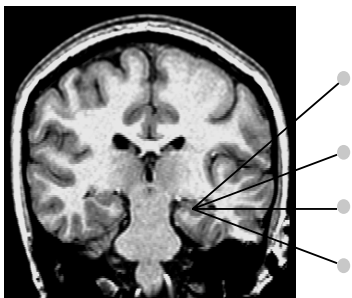
Neuroimaging:
mesial temporal lobe sclerosis (Flair)

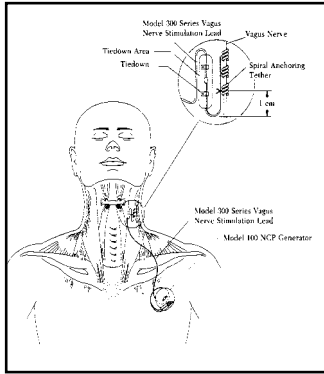


Neuroimaging: MTS (T2)



Gamma Knife Surgery





Cyberonics, Webster, Texas

Figure 1: The Vagus Nerve Stimulator: NCP 101 generator (with leads attached).
Reprinted with permission of Cyberonics, Webster, Texas.



Tacuinum sanitatis, 15th century, Rx for insomnia



