Dec. 31, 1965 Brain

1) Find system with few neurons (long).

2) Identify all cells of system & devise way of monitoring all cells simultaneously. System must be teachable or must react in various patterns.

3) Monitoring Methods

1) Camera or spectrophotometer. Change in absorbance at diff. wavelengths due to nerve conduction!

1) Micro Cary.

2) Flourescence.

3) Neurons must be in flat sheet, cell that? Differentiating system. Grow between 2 flat plates, optical glass.

2) Neurons grow in conducting 3 dimensional meshwork. Can measure change in Na & K etc at all points simultaneously.

3) New method of measuring nerve conduction - discharge & interaction between 1 neuron & another without harming neuron.

1) Flourescent material - ripples into cell or excretion due to impulse of neurons.

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4) Can you see impulse microscopically? Try diff λ.
a) Glial alt activity pro neurons.

5) Need monolayer of neurons on electronic grid, constant recording of potentials at all intersections.
Detect pattern & ignore noise. Excitatory vs inhibitory impulses?

* 6) Refraction
Reflection.
Na-K shifts.
O_2 consumption. — Battery Chance. - Must have many microbeams
Speed of impulses?
Shine pattern in 1 eye. Detect pattern of stim. neurons in other eyes retina (!)
Closed system with fewest neurons?
Pattern detector!
Conducting millepore
1) Neurons grow thru or on top of pores?
2) Must be able to record each pore or intersection.

Detect & monitor wiring

Local changes in Methylene blue ox vs red.?
Can you detect neurons impulse by perturbation of magnetic field.

Maybe divide neurons into groups of neurons (areas) & monitor connections between areas.

Must watch living neurons - under microscope & diff wavelengths & correlate with electrical stim.

Find single closed system & identify components
a) Cockroach ganglion.

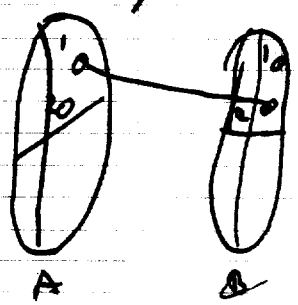
Compound eye of insect. Monitor each facet.

Maybe find large system with identical multiple units.
Sonar system fish.
Fodder lots

Maybe ignore circuitry. Prob. bad. Circuit may be memory.

Pulses: Frequency
Amplitude
Polarity

Microperturbation of 1 cell on others.



Diff between 1A & 2B Neuron growing thru pores. Each pore recorded.

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Cells Radio transmitter? Pick up impulses from distance?

Must know neuroanatomy of single systems. Bullock

# of diff patterns? Correlate pattern with behavior

Expts on learning of patterns. Forgetting pattern.

# of units participating in pattern? Compare patterns

of diff organisms, some sensory input.

Translate behavior into patterns of cell interaction.

Max. # of recording points/unit area?

Multiple seismographic tech. Pass waves through neurons

& look for diff sheetener neurons at rest & disturbing

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