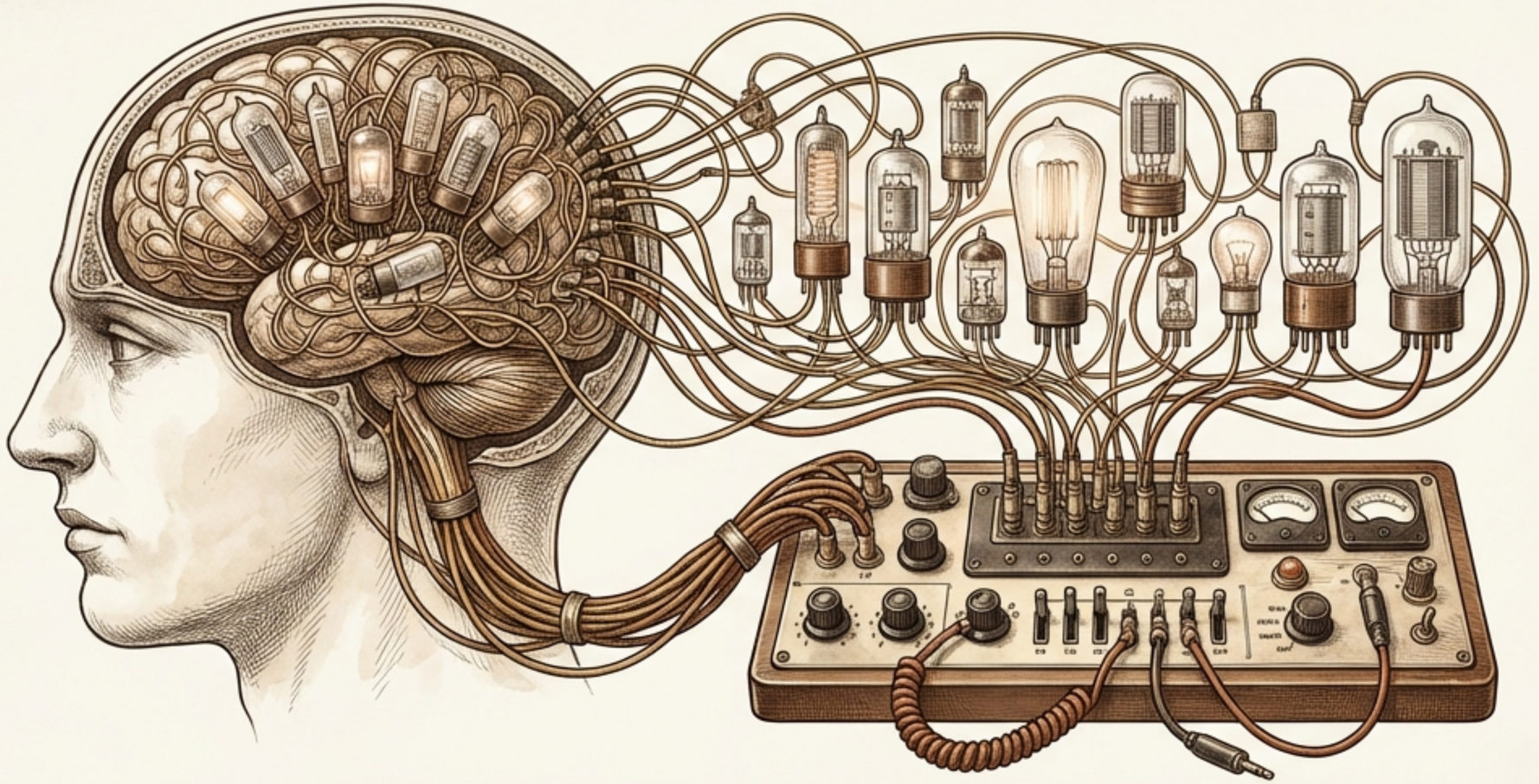


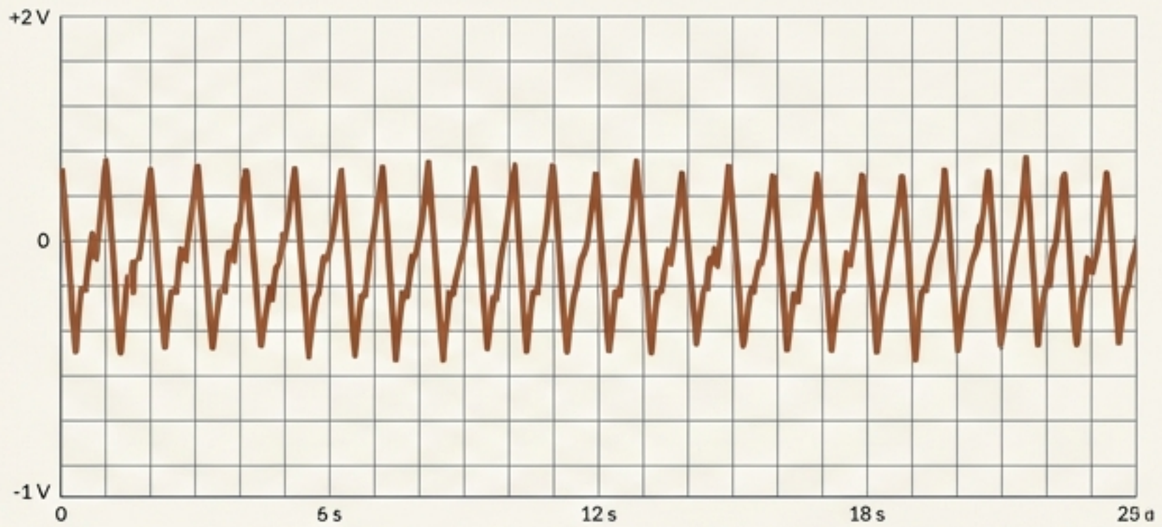
The Brain's Switchboard for Pleasure and Pain

Dr. Robert Heath's Radical Quest to Remap the Emotional Mind

In 1950, at Tulane University, Dr. Robert G. Heath began a controversial series of experiments that would fundamentally challenge our understanding of mental illness. By placing electrodes deep inside the human brain for the first time, he charted the unknown circuitry of our most intense emotions: rage, fear, joy, and pleasure.

Charting the Circuitry of Pain

Heath began by implanting electrodes in 26 patients, many from the back wards of state mental hospitals. His goal: to find the the biological basis for psychosis. He discovered that when patients flew into a violent rage or became catatonic, their EEGs displayed a tell-tale “sawtooth pattern.” This was the signature of the brain's “punishment” or “aversive" system.



Aversive System Firing: Rage Episode

Aversive System Components

- Amygdala (partial)
- Hippocampus
- Thalamus
- Tegmentum

“Schizophrenics… function in an almost continuous state of fear or rage, fight or flight, because they don’t have the pleasure to neutralize it.”

You Must Be Hitting Some Goody Place.

While mapping the circuits of pain, Heath's team made a startling discovery. Stimulating a different area—the septal region—produced the opposite effect. A patient, previously withdrawn and locked in despair, suddenly smiled and giggled, transformed.

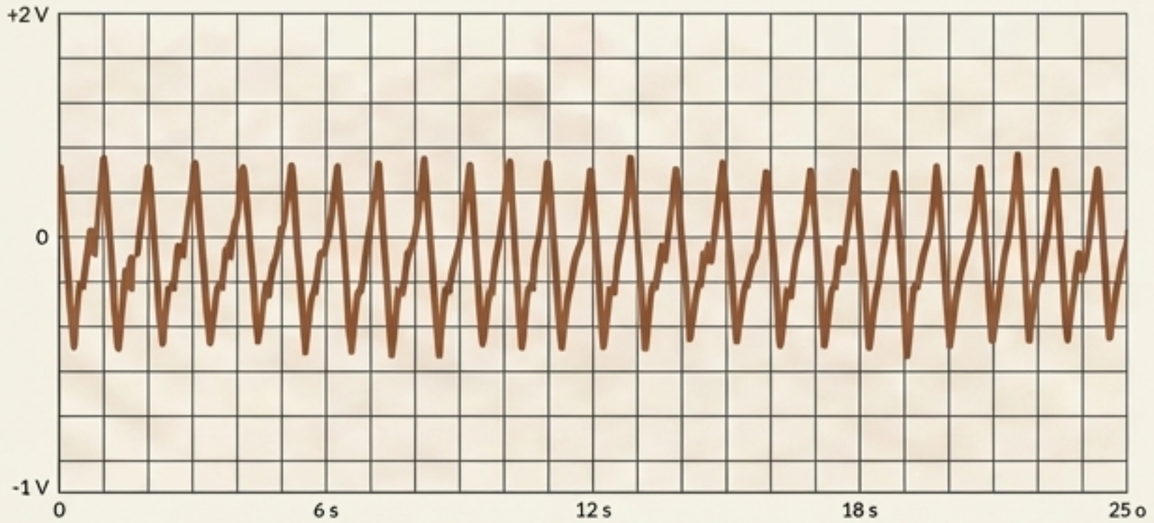
"What in the hell are you doing? ... You must be hitting some goody place."

A Duality in the Brain: The Aversive vs. The Pleasure System

Heath's research revealed two distinct and competing systems. Crucially, he found they were mutually inhibitory: electrically stimulating the pleasure center automatically turned off the punishment system, and vice-versa. This wasn't just a map; it was a switch. For the first time, **madness** seemed **mechanically reversible.**

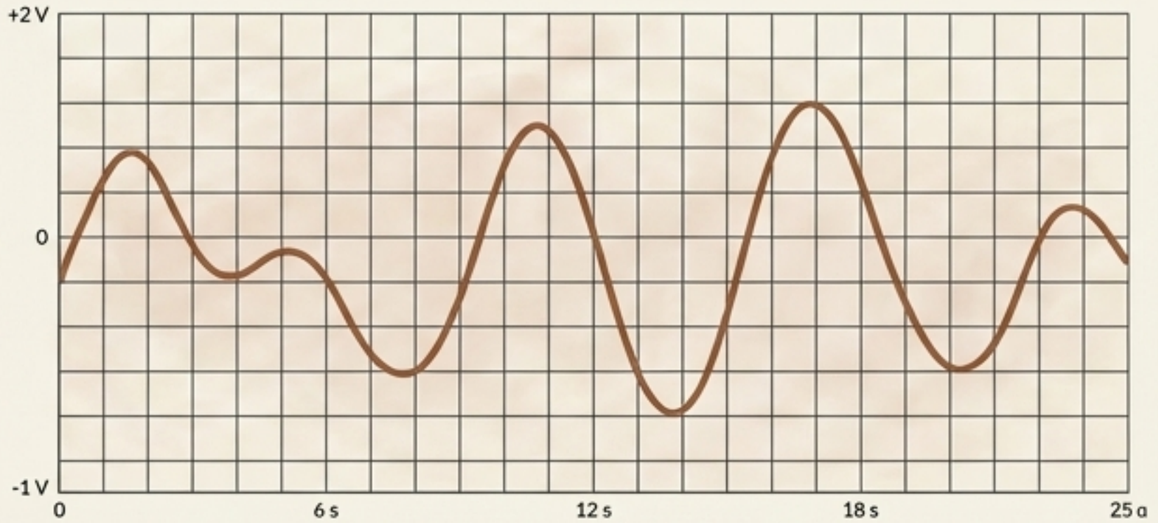
The "Pain" Circuit

"It's knocking me out... I just want to claw... I'll kill you, Dr. Lawrence."



The "Pleasure" Circuit

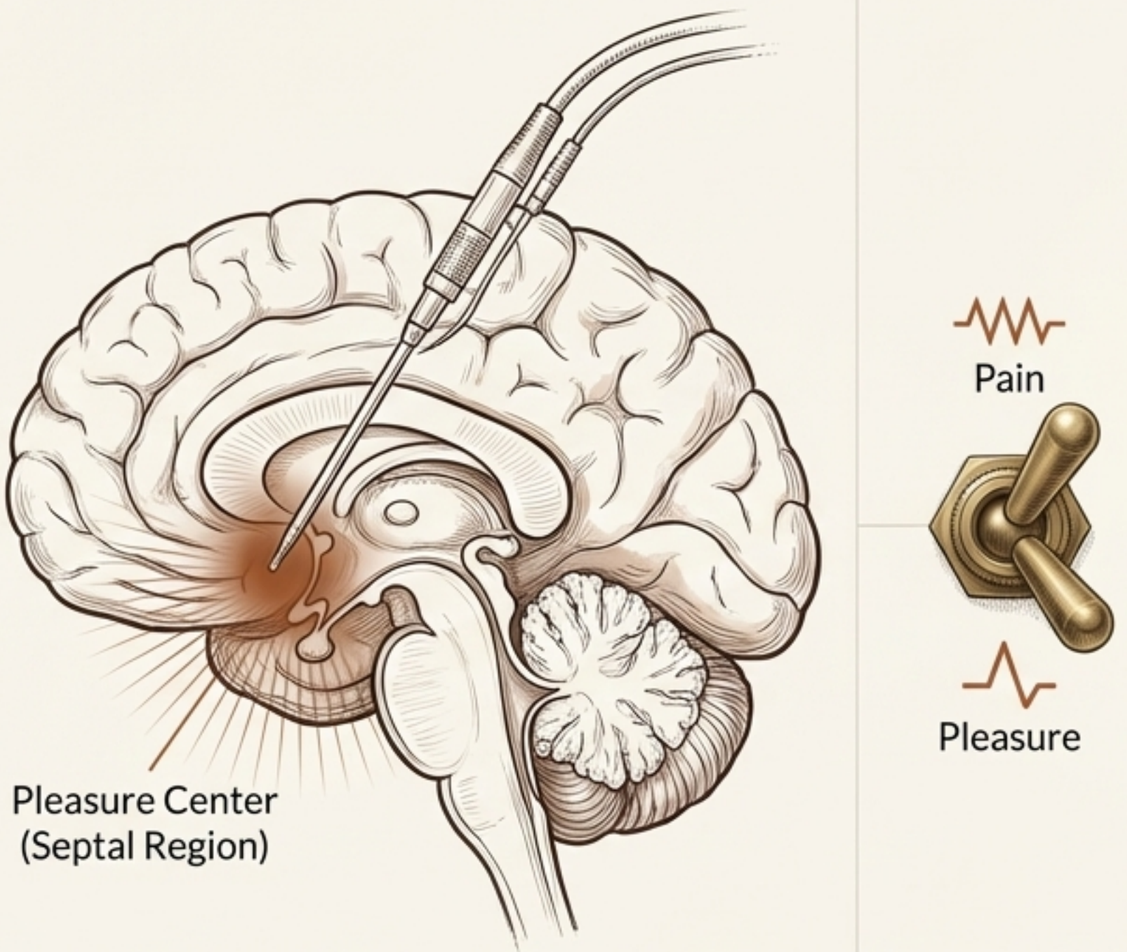
"When he gets a rush of good feeling, the record shows large-amplitude waves in the pleasure system."



Flipping the Switch on Mental Illness

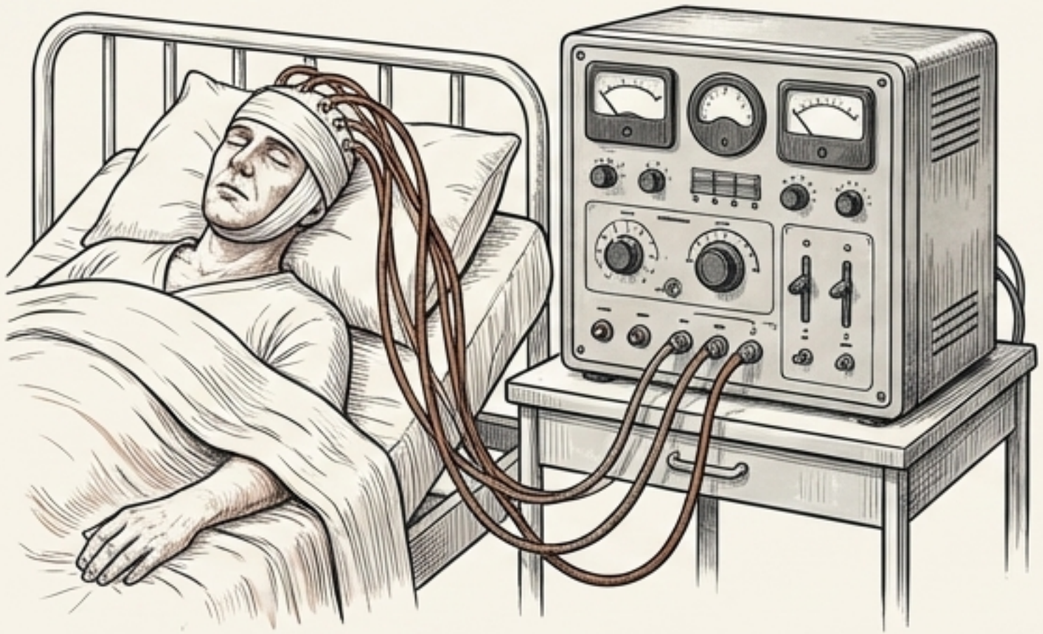
Armed with this discovery, Heath attempted to cure mental illness by directly stimulating the pleasure neurons in the septal area. The results were immediate and dramatic. He found he could halt rage attacks, lift profound depression, and even turn off intractable physical pain from cancer.

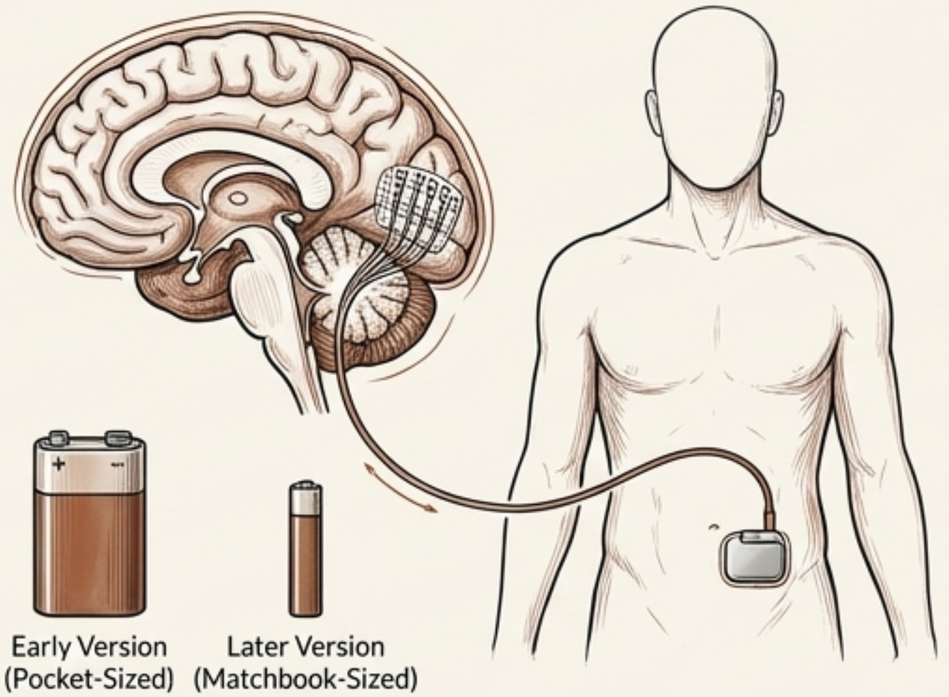
- Violent psychotics stopped having rage attacks.
- Intractable cancer and arthritis pain could be turned off.
- Homicidal manias, suicide attempts, and delusions would vanish, sometimes for extended periods.



From Temporary Pulses to a Pacemaker for the Brain

Short bursts of stimulation weren't enough to cure madness. A long-term solution was needed. In 1976, Heath developed the first brain pacemaker, a device that could deliver consistent, automated stimulation to the brain's emotional circuitry.





Key Innovation: Instead of invading the deep limbic areas, the pacemaker stimulated the cerebellum, which Heath found was a better entryway to fire the pleasure area and inhibit the rage centers.

First Recipient: Its first recipient was "the most violent patient in the state," a young man who had to be tied to his bed. The device worked—until its wires broke.

Case Files: The Power of an Unbroken Circuit

CASE FILE: B-19

TULANE MEDICAL ARCHIVES

Condition: A 21-year-old shot in the head. Suffered seizures, constant rage, excruciating pain, and tried to stab her father.

Intervention:
Intervention: Pacemaker installed in Nov. 1976.

Outcome: Magically, the rage episodes subsided. She started eating; her memory improved; her personality was described as "pleasant" even "sparkling."

CASE FILE: C-08

TULANE MEDICAL ARCHIVES

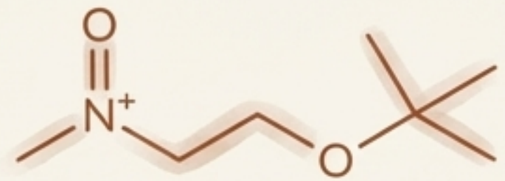
Condition: Severely depressed, heard voices commanding him to choke his wife.

Intervention: Pacemaker installed in 1977.

Outcome: The infernal voices vanished. But *his* wires eventually broke, and his wife was again threatened. When the gadgetry was mended, so was the man's psyche.

These technical snafus provided the perfect controls for Heath's experiments, demonstrating a **direct causal link between the stimulation** and the patients' **mental state.**

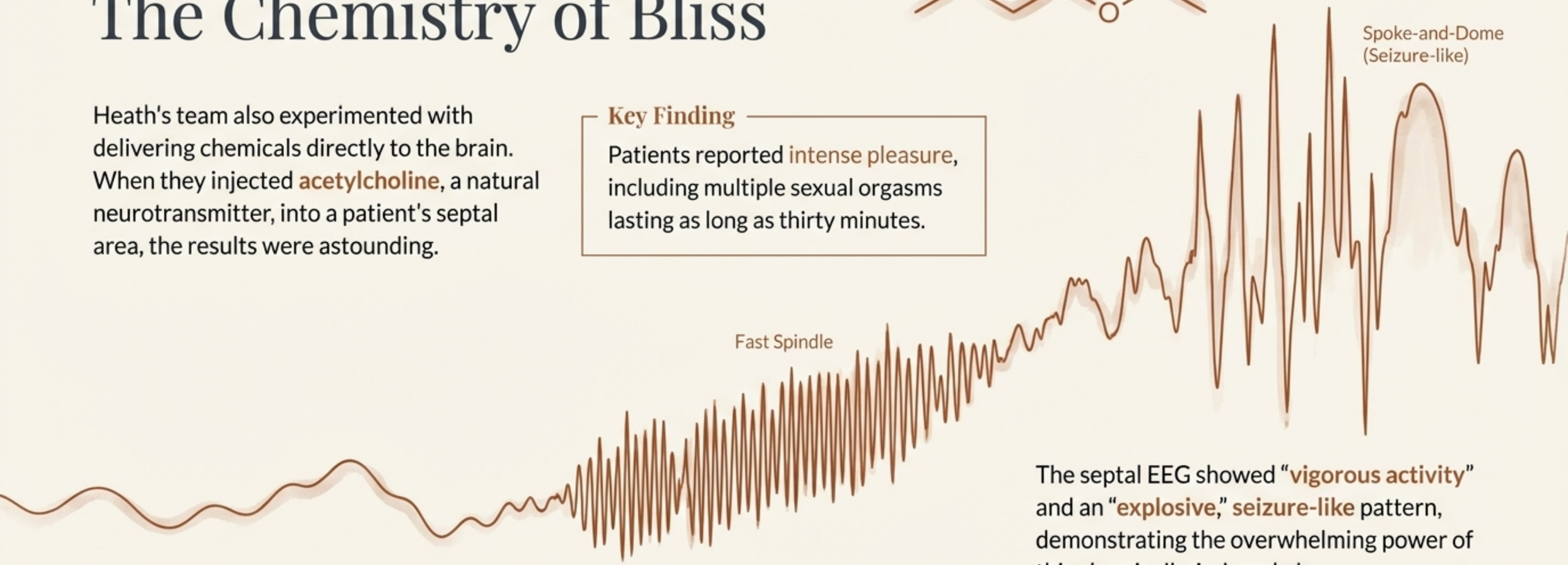
An Unintended Discovery: The Chemistry of Bliss



Heath's team also experimented with delivering chemicals directly to the brain. When they injected **acetylcholine**, a natural neurotransmitter, into a patient's septal area, the results were astounding.

Key Finding

Patients reported intense pleasure, including multiple sexual orgasms lasting as long as thirty minutes.



The septal EEG showed "**vigorous activity**" and an "**explosive**," **seizure-like** pattern, demonstrating the overwhelming power of this chemically-induced pleasure response.

Not a Cure-All: The Limits of Stimulation

Despite its power, the cerebellar pacemaker was not a psychiatric **panacea.** Heath estimated that about half of his 70-odd "incurable" patients were substantially rehabilitated. Depressives and those with uncontrollable violence benefitted most; chronic schizophrenics the least.

Most benefit: Depressives, Uncontrollable Violence

Least benefit: Chronic Schizophrenics

Human vs. Machine

Heath's finding

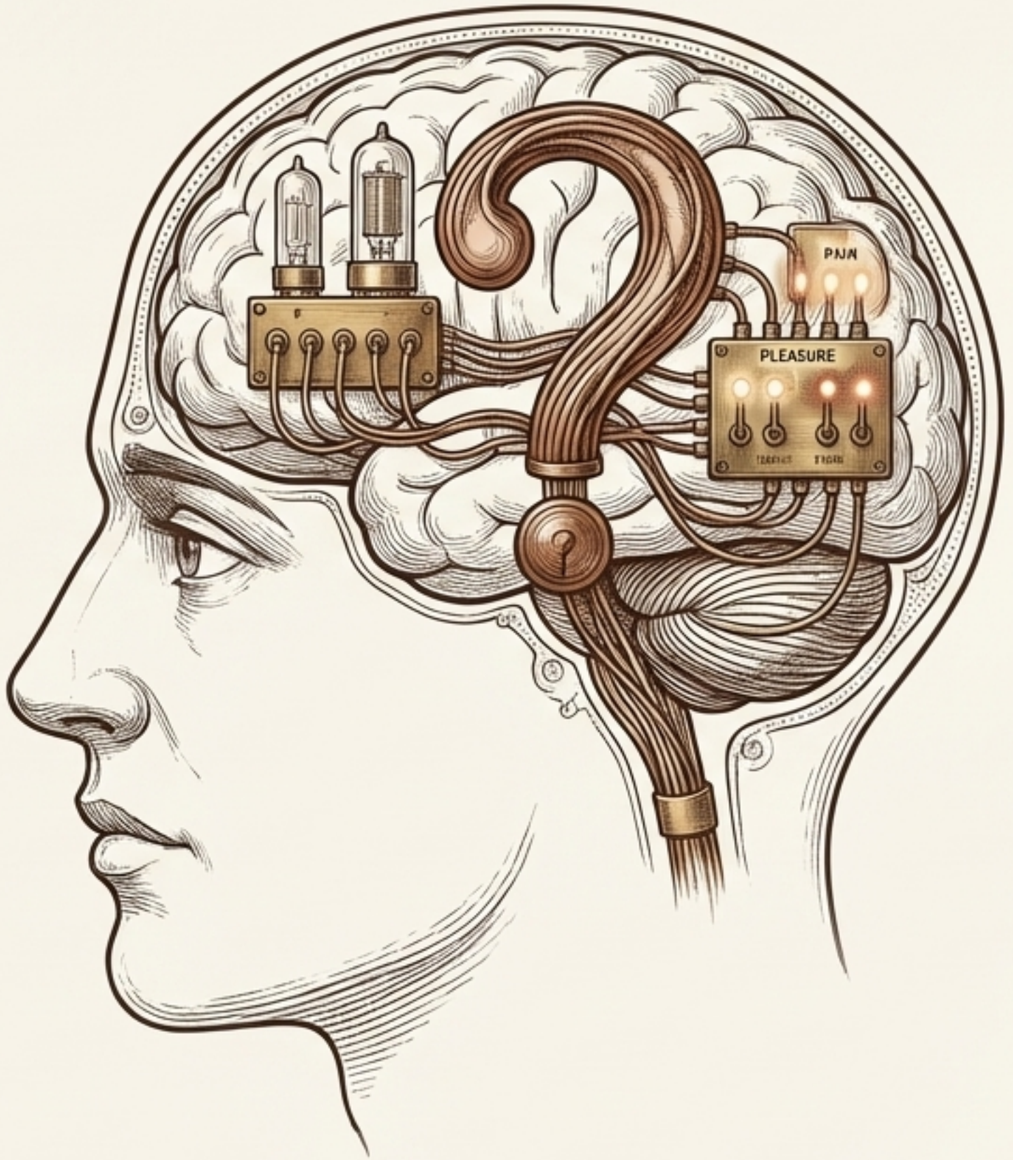
People don't self-stimulate constantly—as long as they're feeling good. Only when they're depressed does the stimulation trigger a big response.

Conclusion

Human pleasure is complex, modulated by experience, memory, and sensory cues. It is not a simple button to be pushed endlessly.

The Ghost in the Switchboard

Dr. Heath's work opened a new frontier, demonstrating that the most profound human experiences—rage, despair, pleasure, ecstasy—could be mechanically and chemically manipulated. While offering hope to the "incurable," it also raised fundamental questions that remain with us today.



If our emotions can be controlled by an electrical current, what does that mean for free will?

When we "fix" a broken circuit in the brain, are we restoring a person's true self, or creating a new one?

Where is the line between therapy and enhancement, between curing illness and controlling the mind?