

The Dynamic Unconscious in Psychology & Anesthesiology

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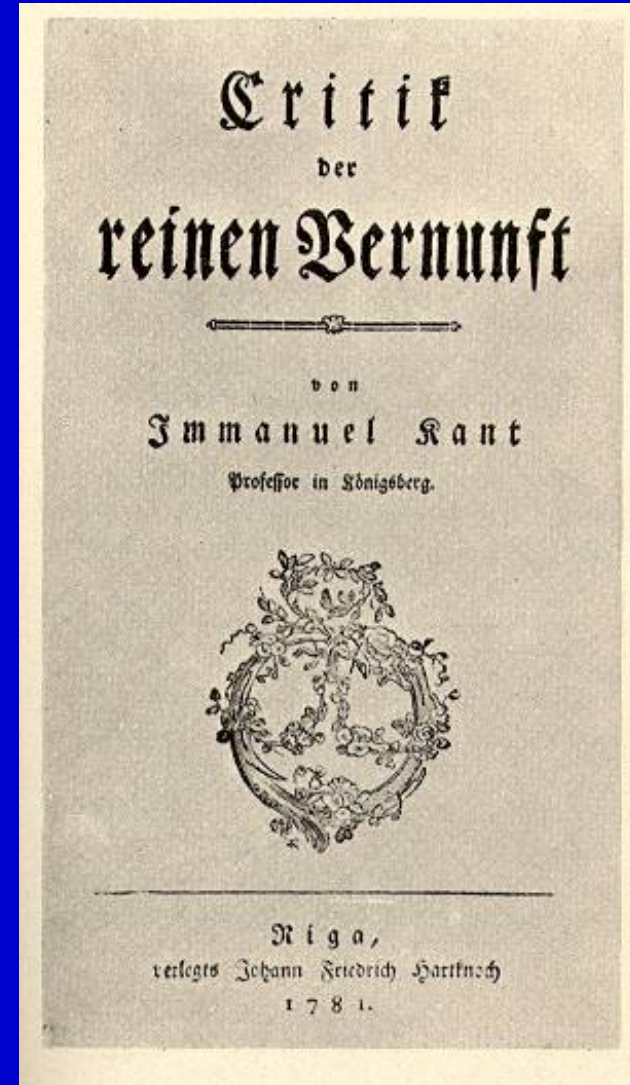
Boston, Massachusetts

Overview

- The unity of consciousness in philosophy & neuroscience
- The “cognitive unbinding” hypothesis of general anesthesia
- Anesthetist & analyst: Agents of binding & unbinding
- A general theory of the unconscious in psychiatry & anesthesiology?

Unity of Consciousness

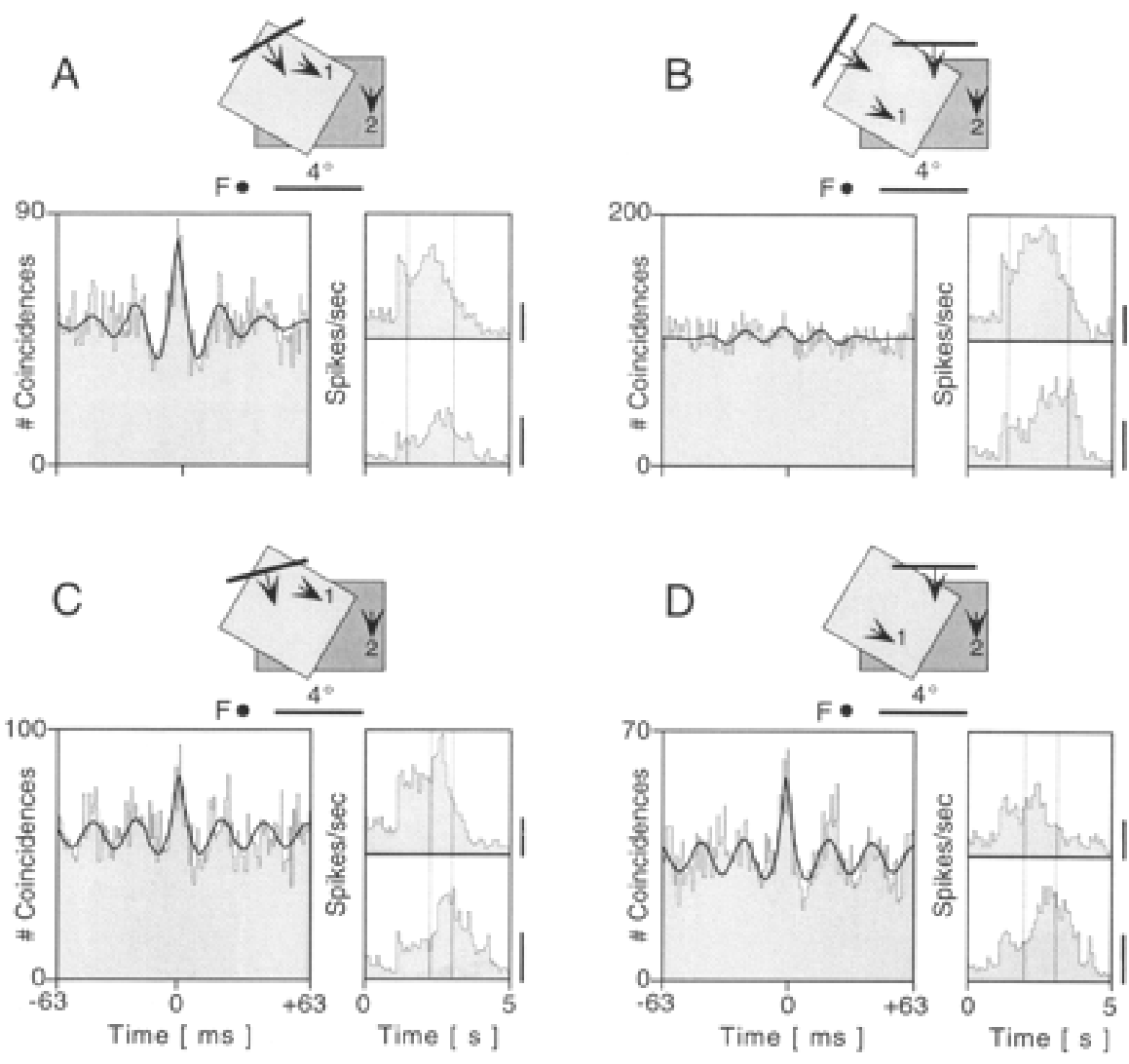
- In the “*Critique of Pure Reason*,” Kant discusses the transcendental unity of apperception

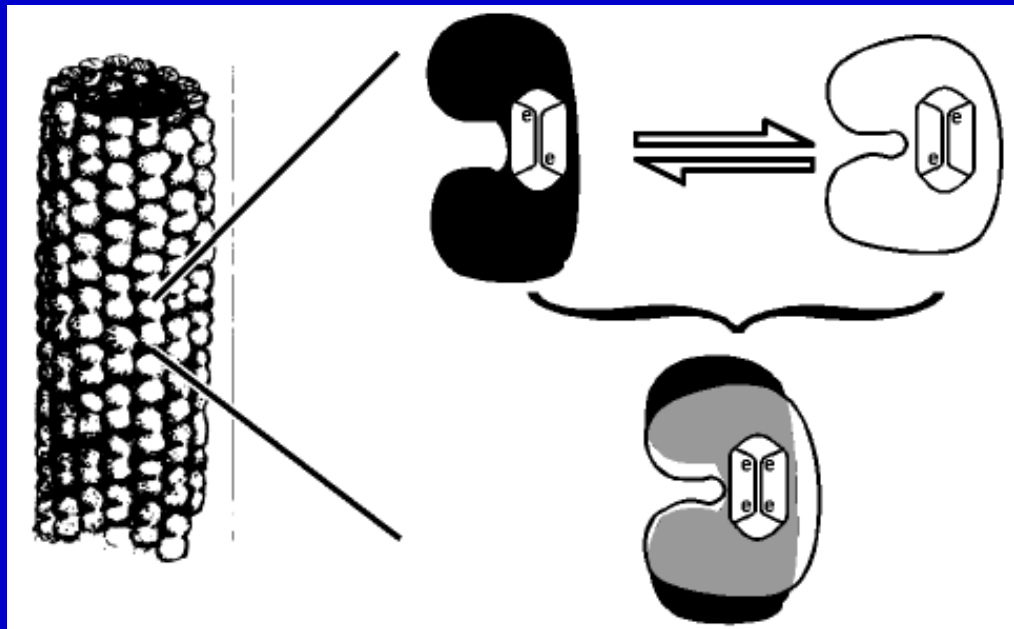
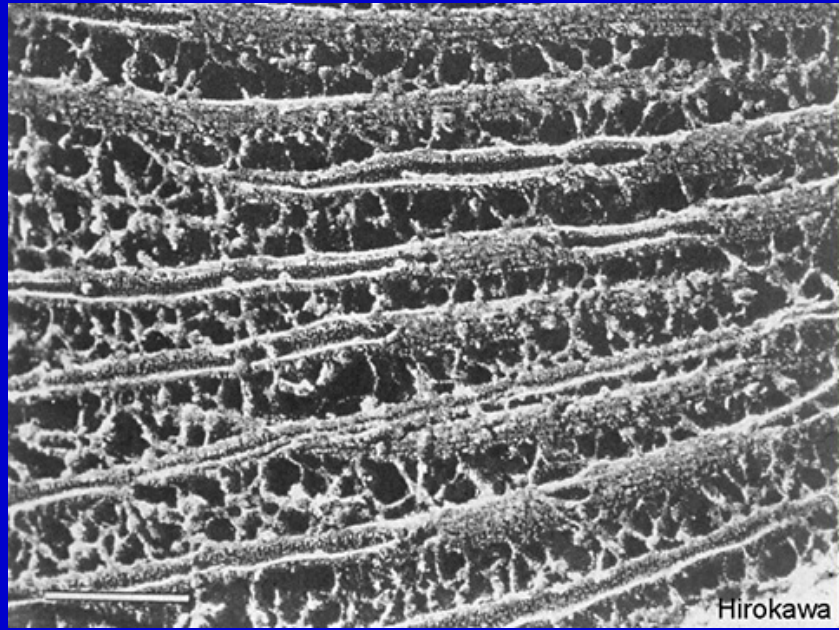


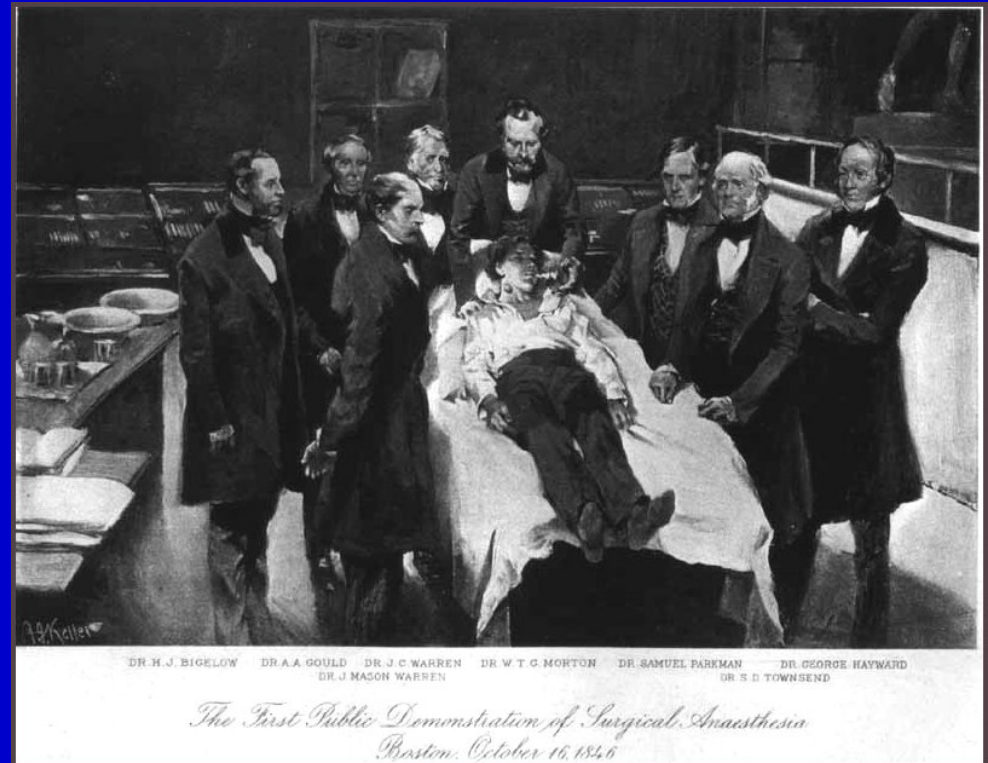
The Cognitive Binding Problem: How Does the Brain Synthesize Information?

- Binding by **Convergence**
- Binding by **Assembly**
- Binding by **Synchrony**
- **Quantum Binding**









If binding is essential to the generation of conscious states, is its interruption essential to the generation of unconscious states?

- Isoflurane inhibits pattern recognition but not component recognition in cortical area MT (CC Pack *et al*, 2001)
- Sevoflurane inhibits 40 Hz activity in the hippocampus (S Uchida *et al*, 2000)
- Multiple anesthetic agents lead to electrical uncoupling of rostrocaudal and interhemispheric brain regions (ER John *et al*, 2001)
- Multiple anesthetic agents impair caudorostral visual information transfer (Professor Hudetz—coming soon!)

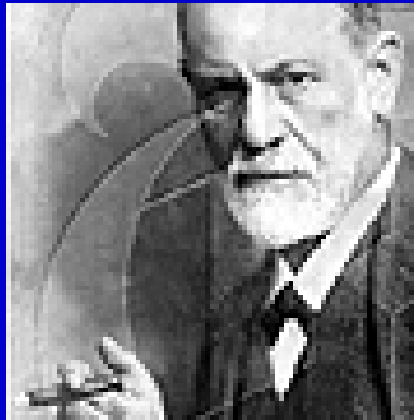
The “Cognitive Unbinding” Paradigm of General Anesthesia

GA Mashour, *Anesthesiology*, 2004

H Flohr, *Neuropsychologia*, 1995

- Describes the effects of diverse agents by a common final mechanism
- Allows a common principle of anesthetic activity at different levels of neural processing
- Integrates the study of anesthesia with that of consciousness
- Provides a direction for future research

This paradigm suggests that discrete information processing may persist in the anesthetized state, while complete representation is inhibited



- Is general anesthesia an extreme form of *ensorship*?
- Is censorship or repression a form of cognitive unbinding?
- Do anesthetics *activate* a cognitive system?
- Is the state of anesthesia a “*dynamic unconscious*”?
- Are there common features of the analytic and anesthetic aspects of the unconscious?

Ether



Mesmerism

“High-dose” anesthetic or hypnosis:
anesthesia

“Low-dose” anesthetic or hypnosis:
disinhibition

The Anesthetist...

“Puts people to sleep”

- The anesthetist employs a variety of intravenous and inhalational agents to transform the **conscious** into the **unconscious**
- The anesthetist is the **AGENT OF UNBINDING**

The Analyst...

“Wakes people up”

- The analyst employs a variety of therapeutic techniques to transform the **unconscious** into the **conscious**
- *Free association* is the probing of fragmented, unbound information; *interpretation* is the act of binding this information for re-presentation
- The analyst is the **AGENT OF BINDING**

Both the anesthetist and the analyst must keep the patient
“in a safe place”



Framework for the Unconscious in Psychology & Anesthesiology

- **Material:** Neural activity
- **Formal:** Cognitive unbinding
- **Efficient:** Anesthetic effects (classical vs. quantum), ego functions (think prefrontal cortex)
- **Final:** The relief of pain

Many thanks to...

- Mass General, Harvard Medical School
- The organizers of Tucson 2004
- The audience!