The Dynamic Unconscious in Psychology & Anesthesiology

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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 censorship?
• 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!