

Chapter 18

How Does the New Protoconsciousness Hypothesis Fit with Your Own Concept of the Cognitive Unconscious?

John F. Kihlstrom

Philosophers who try to define consciousness often contrast it to a state of dreamless sleep. So I think that Allan Hobson is right to think that understanding sleep, and dreams, may be a key to that Holy Grail of psychological research – understanding consciousness itself, including its biological substrates. Hobson argues that dreaming is not an unconscious process but rather an altered state of consciousness which is poorly remembered – if it is remembered at all – in normal waking life. I agree, but it is one thing for dreaming to result from an unconscious *process* and another thing for dreaming to be an unconscious *mental state* (Kihlstrom 2010).

You do not have to be Freud to believe that dreaming results from unconscious processes that are executed involuntarily and unavailable to introspective phenomenal awareness. Hobson's AIM model hypothesizes that dreaming is just the adventitious result of certain patterns of physiological activity that occur during Stage REM: high levels of cortical activation plus the gating of external inputs and motor outputs plus a modulatory imbalance favoring cholinergic over aminergic activity equals dreaming – and it all just happens, automatically and unconsciously, as a consequence of the physiology of the sleep cycle. A psychological consequence of these physiological changes, apparently, is the more-or-less random activation of neural networks that correspond to various objects of cognition – a bicycle, London, a tree that needs trimming, etc. These are then synthesized into a makeshift narrative – riding a bicycle through London, on my way to trimming a tree.

But when does this synthesis happen? Are we actually conscious of our dreams as they occur during Stage REM? Or are we conscious of the dream only when we awaken from a dream and retrieve it from working memory – or perhaps in the ascension from Stage REM, as we're recovering our wits, but before completely awakening? Consider the implications of Maury's "Dream of the Guillotine," as recounted by Freud in Chapter 1 of *The Interpretation of Dreams* (1900). It seems

J.F. Kihlstrom (✉)

Department of Psychology, University of California, Berkeley, Berkeley, CA, USA
e-mail: jfkihlstrom@berkeley.edu

unlikely that Maury experienced an extended narrative dream in which the fall of the blade occurred precisely at the moment that his headboard fell on his neck. Rather (and this thought is not original with me), it seems more likely that the fallen headboard awakened Maury, and that the dream itself was a retrospective reconstruction, piecing together whatever happened to be in working memory at the time he awakened – including the sensation of the falling headboard. Put another way, perhaps Maury had no conscious awareness of whatever was going on during the REM period itself. Perhaps conscious awareness began only when he woke up, and when he woke up he pulled together the bits and pieces left active in working memory to construct the dream. Perhaps this constructive activity is responsible for the peculiar formal qualities of dream-mentation noted by Hobson.

The hypothesis that people are not aware of dreams as they occur, but only retrospectively, upon awakening – and that what they are aware of is a retrospective reconstruction, not the dream itself – would seem to be contradicted by the phenomenon of lucid dreaming. Lucid dreamers do appear to be conscious during their dreams: they are conscious of their dreams, and that their dreams are dreams, and not actual experiences. On the other hand, lucid dreaming appears to be “rare and evanescent” (Lecture I), unless subjects are expressly trained to do it, and even extensive training does not always succeed. Moreover, it is not at all clear that lucid dreaming is representative of ordinary dreaming. It may constitute a separate state of consciousness altogether – produced, if Hobson is right, by a loosening of the gating mechanism, and the restoration of some balance between aminergic and cholinergic activity (in other words, the sleeper is waking up, but hasn’t quite gotten there yet).

As Hobson defines it, “protoconsciousness” in dreams resembles the cognitive unconscious because whatever ideas and images are activated during REM (e.g., representations of bicycles, London, and trees to be trimmed) would be available to consciousness (if we were awake), even if they are not accessible to phenomenal awareness. Something then acts to bring these mental elements into awareness, where we can monitor and control them and put them together into some sort of image or narrative. But the cognitive unconscious is more than just a collection of latent mental contents, available but not accessible to conscious awareness, and waiting to be activated. What makes implicit memory, implicit perception, and the like interesting for psychological theory is that the percepts and memories in question influence ongoing experience, thought, and action, as in priming effects, in the absence of phenomenal awareness. They are dynamically active – even if this is not the kind of dynamic activity envisaged by Freudian psychoanalysis.

The late patient H.M. famously described his amnesia as like “awakening from a dream” (Milner et al. 1968). But H.M. was clearly conscious of events as he experienced them. They were subsequently lost to conscious recollection, or explicit memory, but their traces were nevertheless visible in priming effects and other manifestations of implicit, or unconscious memory. Which begs the following questions: How certain can we be that we are conscious of dreams as they’re generated by the AIM process, every 90 min or so, four or five times a night (depending on how much sleep you get)? If we are conscious of these dreams

while they occur, why are they forgotten so soon afterward? And regardless of whether we are conscious of the dreams as they occur, do the activated ideas and images influence our conscious experience, thought, and action the way implicit percepts and memories do? How would we know?

Dreaming may well be an altered state of consciousness. But if there is no consciousness during the dream itself, and the manifest contents of a dream do not dynamically influence experience, thought, and action outside of phenomenal awareness and voluntary control, then the idea of dreaming as a state of “protoconsciousness” may be something of a misnomer. This is because whatever ideas and images are activated during Stage REM may be entirely unconscious – and when we awaken, all we are aware of are whatever traces happen to remain in working memory, H.M.-like – soon to disappear entirely unless these fragments are reconstructed into a dream experience.

References

- Freud, S. (1900). *The interpretation of dreams* (Translated from German and edited by J. Strachey). New York: Basic Books.
- Kihlstrom, J. F. (2010). Unconscious processes. In D. Reisberg (Ed.), *Oxford handbook cognitive psychology*. Oxford: Oxford University Press.
- Milner, B., Corkin, S., & Teuber, H. L. (1968). Further analysis of the Hippocampal Amnesic syndrome: 14-year follow-up study of H. M. *Neuropsychologia*, 6(3), 215–234.