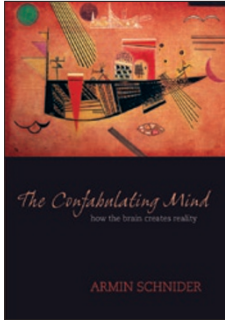


Memory and reality



The Confabulating Mind: How the Brain Creates Reality

By Armin Schnider

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Mrs. B was a 63-year-old psychiatrist who lived in Switzerland and was married to a state official. In an interview at a Geneva hospital, she complained about the rupture of a vessel in her left leg, recalled that her mother and brother had visited her earlier that day, and looked forward to a reception she would host at her home that evening. Despite her sincere belief that she was telling the truth, none of these events were real. Mrs. B was in fact a patient at the hospital, where she was recovering from a severe hemorrhage of a vessel in her brain. The striking disconnection between Mrs. B's beliefs and her current reality provides the jumping off point for Armin Schnider's fascinating new book, *The Confabulating Mind*.

The basis for understanding the misguided convictions of patients such as Mrs. B goes all the way back to 1932, when the British psychologist Frederic C. Bartlett published a landmark volume, *Remembering*. In it, he argued that human memory is not a simple reproductive system, but instead involves complex constructive processes that are prone to error: when we remember, we piece together fragments of stored information under the influence of general knowledge and beliefs. Although the field took time to adopt this view, many cognitive psychologists endorsed Bartlett's constructive approach by the 1970s and the psychological study of memory distortions has flourished ever since. The picture looks a bit different when we turn to neuroscience. For much of the twentieth century, neuroscientists paid little attention to the kinds of memory distortions that Bartlett and later cognitive psychologists believed would yield crucial insights into the nature of memory. Yet there was one distortion exhibited by brain-damaged patients that attracted the attention of investigators interested in the brain and memory: confabulation, the production of fabricated narratives and experiences. Schnider's Mrs. B constitutes a classic example of a confabulating patient: she has difficulty remembering what actually happened in her past but strongly believes in the reality of her confabulations.

As Schnider points out in a chapter that contains an informative history of confabulation, neurologists had begun to provide vivid case reports of brain-damaged patients who were similar to Mrs. B as early as the 1880s. One point noted by early clinical observers, and emphasized in this book, is that multiple forms of confabulation can be distinguished,

ranging from very brief or momentary confabulation to bizarre, fantastic confabulation that occurs in psychotic or demented states. The book focuses on what the author calls behaviorally spontaneous confabulation, in which patients such as Mrs. B spontaneously and frequently generate confabulated tales when attempting to deal with ongoing reality that seem plausible to an uninformed observer. One feature that is common to such patients, and that looms large in the author's theoretical approach, is the fact that the confabulations are not invented out of whole cloth; they draw on bits of actual experiences that are incorrectly assembled and confused with current reality. Mrs. B, for instance, had hosted many receptions as the wife of a state official that probably contributed to her believing she would host another that evening; her brain injury and a prior surgery probably had something to do with her belief in a nonexistent leg injury.

The book proposes that such confabulators have lost access to temporal information that normally allows a healthy individual to distinguish past from present, creating a 'temporal context confusion' that is a characteristic feature of behaviorally spontaneous confabulation. The author reviews evidence that the condition is consistently associated with damage to the posterior medial orbitofrontal cortex and to structures directly connected to it, such as the medial hypothalamus.

The book also describes empirical investigations of the author's ideas using a controlled experimental procedure that shows convincingly that temporal context confusion in confabulators is greater than in nonconfabulating amnesic patients or non-brain-damaged controls. Neuroimaging studies using a similar procedure with healthy volunteers indicate that the posterior medial orbitofrontal region is activated when memory for temporal context is required, suggesting to Schnider that this region allows us to filter memories according to their relevance to present reality, which is precisely what confabulators cannot do. Although this argument is compelling, one might question the strength of the link between the experimental results and everyday confabulation, as the former involves a temporal scrambling of events encoded after brain damage, whereas the latter typically comprises confusions among remote events that occurred well before brain damage.

The author links his findings and ideas to those of others, providing a broad overview that will bring interested readers to the cutting edge of research on confabulation. He also covers studies of neurological patients who show related memory distortions, such as pathological false recognition, the experience of inappropriate familiarity in response to novel events. Recent developments in the analysis of what are termed 'normal false memories' is also nicely integrated in this book and this is one area where both behavioral and neuroimaging studies have greatly expanded our knowledge of the cognitive and neural mechanisms underlying memory distortion in the healthy brain.

The Confabulating Mind succeeds in showing us that confabulation is not merely a neurological curiosity, but fits into an emerging theoretical picture in which neuroscience has an increasingly prominent role in illuminating the constructive nature of memory. We suspect that Bartlett would have been quite interested in what this book has to say and that investigators of memory and the brain, including researchers in the areas of memory and memory disorders and graduate students in neuroscience and psychology, will find much of value here.

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