Eggs, butter, milk -- memory is not just a shopping list

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Often, the goal of science is to show that things are not what they seem to be. But now, in an article which will be published in an upcoming issue of *Perspectives on Psychological Science*, a journal of the Association for Psychological Science, a veteran cognitive psychologist exhorts his colleagues in memory research to consult the truth of their own experience.

"Cognitive psychologists are trying to be like physicists and chemists, which means doing controlled laboratory experiments, getting numbers out of them and explaining the numbers," says Douglas L. Hintzman, now retired from the University of Oregon. The lion's share of experiments, he says, involve giving people lists of words and asking them to remember the words.

"Researchers often completely forget that they have memories and they can see how their memories work from the inside," he continues, "—and that this may be very relevant to the theory they are developing."

Reviewing the literature in his field and the experimental models that have come in and gone out of fashion over the last half-century, Hintzman concludes that these simple experimental tasks, observed in isolation from one another, yield theories that are so oversimplified as to fundamentally misrepresent the nature of memory.

For instance, he says, these word-list tasks make it look as if we only remember when we intentionally put our minds to it— yet we all

experience spontaneous memories, many times every day.

Also, because these experiments take place in short sessions, researchers ignore the obvious fact that memory is about personal history, and history is laid out in time. Memory, then, is basic to our understanding of time.

The preference for so-called theoretical parsimony—the idea that a theory should be no more complex than necessary—leads memory scientists up the wrong path, he writes: "The breadth of a theory is at least as important as its precision. Indeed, if we take the theory of evolution as our standard, breadth would appear to be far more important."

Contemplating evolution, Hintzman has come to believe that a crucial role is played by what he calls "involuntary reminding"—the process by which current experiences evoke memories of earlier experiences, creating a coherent record of our interactions with the environment.

"Animals—mammals in particular—evolved in a complex world in which patterns of related events are distributed over time. It's essential for survival that you learn about these patterns." Humans have developed the additional ability to learn and retrieve memories deliberately, he continues. But "the evolutionary purpose of memory is revealed" by these everyday remindings, "not by what typically goes on in the lab."

In this article, Hintzman does not outline a research program for the future, but urges memory researchers and theorists to consider the wide variety of things that memory does for us. "Our ancestors' survival," he writes, "did not hinge on their ability to remember shopping lists. Hunter-gatherers take what they can find."