

TRICKED BY MEMORY

Elizabeth F. Loftus

Elizabeth Loftus is renowned as a courtroom specialist in eyewitness testimony, directly applying almost twenty years of psychological research on human memory. Loftus has compiled a comprehensive and profound body of work on eyewitness testimony centering on the question, How capable is the average person of storing and remembering information in detail? A professor of psychology and adjunct professor of law at the University of Washington, she focuses in this paper on the ways in which individual memory can be distorted through what she has called "red herrings," those "little bits of information that get into the memory system, float around, and cause trouble." Loftus is concerned with how individual memory works and responds in determining what really happened in a specific situation in a factual way. Her publications include Eyewitness Testimony (1979), Memory (1980), Eyewitness Testimony: Psychological Perspectives (1984), Eyewitness Testimony: Civil and Criminal (1987), and Witness for the Defense (1991).

It is always a matter of some fascination when human memory goes awry. It happened to President Ronald Reagan when he was tricked by his own changing memories of the Iran-Contra affair. On 26 January 1987, the President said that in August of 1985 he had approved the shipment of arms by Israel to Iran. He couldn't remember the precise date, but he did remember giving approval. By February 11, his memory had changed. Now, he said, after talking things over with his close advisor, Donald Regan, he did not recall authorizing the August shipment. President Reagan had gone over the matter several times with Mr. Regan, and specifically recalled that he was "surprised" to learn that the Israelis had shipped arms to Iran, and that this surprised feeling must have meant that he did not give advance approval for the transfer.

Later in February, Reagan tried to explain his changing memory: "In trying to recall the events that happened eighteen months ago, I'm afraid that I let myself be influenced by others' recollections, not my own. . . . I have no personal notes or records to help my recollection on this matter. The only honest answer is to say that try as I might, I cannot recall anything . . . the simple truth is, I don't remember—period."¹

Reagan might take comfort in knowing of a body of research that shows that he is not alone. We all let ourselves be influenced by the recollections of others, even though we may not realize it. The memories of others can effectively invade us, like Trojan horses, precisely because we do not detect their influence. Understanding how we become tricked by memory is important, not only because memory is important to history, but because it is central to the way in which we identify ourselves.

Modern-day research showing how memory can become skewed (when people unwittingly assimilate new information) utilizes a simple paradigm. Subjects witness a complex event, like a film of a crime or an accident. Subsequently, some receive new, often misleading information about the event. Control subjects do not. Finally, all subjects attempt to recall the original event. In a typical example of a study using this paradigm, subjects saw a series of slides depicting a traffic accident. They then received written information about the accident, but some subjects were misled about what they saw. For example, a stop sign in the slides was referred to as a yield sign. When asked whether they originally saw a stop or a yield sign, the misled subjects performed much more poorly than controls.

This basic paradigm has been duplicated in scores of studies, involving a wide variety of materials.² When exposed to misleading postevent information, subjects have not only misrecalled stop signs as yield signs, but they have misrecalled the color of a car that was green as being blue, hammers as wrenches, straight hair as being curly, broken glass or tape recorders that never existed, and even recalled something as large and conspicuous as a barn when no barn was ever seen. In short, misleading postevent information can alter a person's recollection of an event. I refer to this phenomenon as the misinformation effect. Now that researchers have established the ubiquity of the misinformation effect, they are trying to understand its full nature. What does the misinformation effect tell us about the way memory works? Once misinformation has invaded memory, can the original memories ever be recovered? Are there any techniques that can be used to distinguish between a memory that is the result of true perception and a memory that is a result of suggestion?

THE IMPORTANCE OF MEMORY

Without memory, life would consist of momentary experiences that have little relation to one another. Without memory we could not communicate with other people for we could not remember the ideas we wished to express. Without memory, we would not have the sense of continuity even to know who we are. Memory is central to being human; thus

it will come as no surprise that philosophers and scientists have been interested in the subject as far back as recorded history goes.

How far back can we go? Greek mythology gave us a goddess of memory or remembrance—her name was Mnemosyne. Mnemosyne grants power through her daughters to “tell of what is, and what is to be, and what was before now.”³ In representing memory, Mnemosyne represented the foundation of all intellectual discipline and wisdom. For some Greek philosophers, the goddess also paradoxically brought “forgetfulness of sorrow and rest from anxiety.” This was a beneficent and creative forgetting. But for most of the philosophers of the day memory and forgetfulness were opposites. To lack memory was to lack knowledge and ultimately to lose oneself.

Some of the most profound historical writing about memory occurred during the seventeenth century. In 1690, for example, John Locke distinguished between sensation and reflection—two sources or ideas in the mind. For Locke, reflections consisted of thoughts about thoughts, and these could modify the simple sensory content of the mind that was created from perceiving a world of objects. Locke anticipated modern-day research, then, when he talked about memory as a complex of sensory ideas modified by a history of reflection.

David Hume, a half century later, also recognized that our memories can contain both fact and fiction. In trying to distinguish the two, he suggested that factual memory tends to be “more lively and strong” and “paints its objects with more distinct colours.” Thus, truth and falsehood in memory have been enduring philosophical issues. Modern methods of investigating memory developed from these roots. Eventually, history became the study of our collective memories, and psychology found a place for itself as the scientific study of the human species in general, and individual memory in particular.

The experimental study of memory is at least one hundred years old. For most of this period, the study of memory has been polarized. Early psychologists such as Hermann Ebbinghaus were interested only in memory that was closely linked to sensory stimuli. They were not interested in memory that was the result of reflective processes. Later-day psychologists appreciated the idea that memory performance reflects not only progressive losses of information, but modifications as well. In fact, this conception of memory became central to psychoanalytic theory and to the work of many major theorists, such as Sir Francis Bartlett. Indeed, some of these later scholars contended that all memory processes are reconstructive, meaning that retrieval of memory involves a process in which the initial memory content is modified as a result of interactions with other information already stored in memory.

But clearly some acts of remembering do not involve reconstruction. There is no indication that we reconstruct something when we remember our own name. No reconstruction seems to be involved when we remember the arithmetic tables or the meaning of common words in our native language or how to use a fork and knife to eat.

In short, our vast memory store contains different kinds of memories. It includes general knowledge about the world, such as the fact that AIDS is a disease or that 4×5 is 20. But it also includes our own personal experiences, such as the conversation I had with a friend yesterday. These two kinds of memories might operate by a different set of laws. Indeed, in 1972 University of Toronto psychologist Endel Tulving coined a useful distinction between the two classes of memories. He labeled the former kind “semantic memories” and the latter kind “episodic memories.” In his own words:

Episodic memory receives and stores information about temporally dated episodes or events, and temporal-spatial relations among these events. . . . Semantic memory is necessary for the use of language. It is a mental thesaurus, organized knowledge a person possesses about words and other verbal symbols, their meaning and referents, about relations among them, and about rules, formulas, and algorithms for the manipulation of these symbols, concepts and relations.⁴

In other words, episodic memory contains information about life experiences. It is memory of one’s personal history—information that is associated with a particular time or place. Semantic memory has to do with one’s general factual knowledge. Words and concepts that a person knows without necessarily knowing how or when they were first encountered or acquired fall into this category.

Tulving conceived of episodic and semantic memory as two information-processing systems that (1) selectively receive information from perceptual and cognitive systems, (2) retain various aspects of that information, and (3) transmit that information when it is needed. The two systems are thought to differ in terms of the type of information that is stored, the conditions and consequences of retrieval, and the possibility of their vulnerability to interference.

In his 1983 formulations, Tulving presented a much-expanded set of features that distinguish episodic and semantic memory. One important distinguishing feature is the vulnerability of information to change. Information stored in the episodic system is more vulnerable—it is changed, modified, and lost more readily—than information in the semantic system. Why? One reason is that the information in the semantic system is over-

learned while information in the episodic system is typically based upon single episodes.

In Tulving's formulation, there is clear recognition of the concept of the malleability of memory, at least as far as episodic memories are concerned. The idea that misleading information can enter a person's consciousness and create havoc with previously acquired memories is implicit in this framework. The idea that memories can become altered has a place.

THE MALLEABILITY OF MEMORY

A variety of experiments have demonstrated the elasticity of memory. Through suggestion, false memories have been created in the minds of people for objects like barns and tape recorders that never existed. A number of separate lines of research have tried to delimit the boundary conditions for the recollection change phenomenon. One line of research concerns the delay interval between the initial experience and when misleading information is encountered. People are more influenced by misinformation when longer intervals of time occur after the initial event. Another line of research concerns the presence or absence of warnings. When warned about the possibility of receiving misinformation, people are better able to resist it. Apparently the warning motivates people to scrutinize the misinformation, which leads to the greater likelihood of their detecting and then resisting the misinformation. These varied research pursuits concerning memory distortion are linked by a shared unifying principle known as "discrepancy detection." This refers to the detection of a conflict between the original memory and the misleading postevent information. A change in memory of an event is more likely to occur if discrepancies between the original event and the misinformation are not immediately detected.

THE FATE OF MEMORY

Although research on the misinformation effect is clear in showing that postevent information can influence a person's reported recollection, many questions remain as to why this occurs. Why is the postevent information remembered instead of what was originally experienced? A further question concerns the fate of the underlying memory traces. When a person sees an accident involving a car racing through an intersection with a red traffic light, and later "learns" that the light was green and now remembers seeing green, what happened to the original memory for a red light? Has the memory truly been updated or altered by the postevent in-

formation so that the original traces could not be recovered in the future? This has been referred to as the “alteration” hypothesis, and it suggests that the original memory representations are altered when postevent information is encoded that differs from what was originally experienced. Another position is the “coexistence” hypothesis, which assumes that the original and the postevent information coexist in memory. The introduction of postevent information, under this position, is thought to make the original memories simply less accessible, but still potentially recoverable at some future time.

The coexistence-alteration issue is important from both a theoretical and a practical standpoint. Speaking practically, the dichotomy bears on attempts that one might make to correct a memory after it has been biased by postevent suggestion. Under the coexistence view, but perhaps not the alteration view, it makes sense to vigorously pursue retrieval techniques (e.g., hypnosis, reinstatement of context) that might access the original information. Under the alteration view, one’s efforts would be placed elsewhere because it is likely that the only way to return to the original information is by a “re-alteration” of memory.

Theoretically speaking, the dichotomy bears on one of the most fundamental questions about memory: the permanence of memory traces. The coexistence view is consistent with the idea that all information, once stored in memory, remains there more or less permanently. The alteration view implies a true loss of information from memory due to the updating, substitution, or blending in of new inputs.

Coexistence theories derive their support from studies that show successful recovery of original memories. Original memories have been successfully recovered, for example, by reinstating the context of the original event more fully, or by warning people that they may have been exposed to misleading information. Despite these successful recoveries of allegedly altered memories, this still does not mean that all memories are similarly recoverable.

Alteration theories derive their support (although are certainly not proven) by numerous failed empirical attempts to recover original memory. Even the mysterious technique of hypnosis has failed to lead to the original memories once they have been altered. Of course, such failures do not prove that the original memories do not exist, because it can always be argued that the original memory does exist but that the appropriate retrieval method was not used or that the method used was not sufficiently powerful.

Upon this intellectual battleground, there recently appeared some new warriors who claim that neither the coexistence nor the alteration view hold up. Michael McCloskey and Maria Zaragoza, from the psychology department at Johns Hopkins University, maintain that misleading post-

event information neither alters the original memory nor makes it less accessible. Consider the empirical work that led them to this assertion.⁶ The Hopkins researchers used the standard three-phase paradigm, with one modification. Subject was a simulated office burglary. The simulation contained a number of critical items, one of which shows a man holding a hammer. Then subjects read a narrative describing the events shown in the slides. In the control condition, the narrative gave no specific information about the critical item—it was referred to simply as a tool. In the misled condition, the narrative referred to the critical item as a screwdriver. After reading the narrative, the subjects were tested on what they saw. The original test procedure required subjects to choose between hammer, the originally seen item, and screwdriver, the item presented to the misled subjects as misleading information.

The Hopkins researchers felt that this test was not adequate for telling whether the original memory has been modified since the postevent information could simply bias some subjects towards choosing the other object. So they created a modified procedure in which the bias presumably could not operate. In the modified procedure, the misleading information, the screwdriver, was not included as an option on the test. Instead subjects were asked to choose between the original item, the hammer, and a new item, a wrench. If misleading information impairs subjects' memories (by erasing the original or by making it less accessible), then misled subjects should show poorer test performance than control subjects, even in the modified procedure. However, if misleading information does not influence memory for the original information, then control and misled conditions should not differ.

The Hopkins researchers carried out six replications of this test using nearly eight hundred college students and found that misled and control subjects performed about equally on recognition tests. They averaged 72 percent and 75 percent correct, respectively. (With the traditional original procedure—a test between hammer and screwdriver, for example—the researchers obtained the usual effect of misleading information, 37 percent correct for misled subjects and 72 percent correct for control subjects.) It was these data that led the researchers to conclude that misleading information has no effect on a person's ability to remember the original event.

At the heart of the Hopkins work is the complaint that the usual testing procedure, where the suggested item is included on the test, is inappropriate for assessing the effects of misleading information on memory. Yet the usual testing procedure is quite appropriate for answering certain kinds of questions about the misinformation effect. Consider a case in which subjects see a man with a hammer. Later, some subjects receive misleading information about a screwdriver. How shall we now test these subjects to assess the impact of postevent information? If we wanted to know

whether misled subjects would adopt the suggestion and choose it on a recognition test, it would be perfectly appropriate to give subjects a choice between the original and suggested item.

But suppose that we were interested in whether the misleading information impaired memory. In this case, the Hopkins researchers may be right that the presence of the suggested item on the test and the choice by subjects of that item cannot be easily interpreted. Subjects could be choosing the item not because their memory is impaired but because they feel that the experimenter wants them to or because they feel that the experimenter must know more than they do. Or they could choose the item because they failed to encode the original information and the misleading information supplemented their memory. Or, finally, they could be choosing the item because their memory was altered by the misleading information. Past researchers have recognized these possibilities before and have used a variety of techniques to attempt to disentangle the various interpretations. In one study designed explicitly to identify those who were simply succumbing to the experimenter's wishes or apparent knowledge, it was concluded that only a small percentage of misled subjects could be characterized this way.

If the presence of the suggested item as a response possibility leads to problems in interpreting performance, does the absence of the suggested item solve those problems? Certainly if subjects cannot choose the suggested item, then they cannot respond to that particular demand characteristic. This is one apparent benefit of the modified test. However, there are other problems with the modified test that must be recognized. One problem is that it is not sufficiently sensitive to detect small impairments in memory. Put another way, the test between hammer and wrench (when the suggested item was screwdriver) may not have been sensitive enough to capture a loss in accessibility of hammer. This arises in part because many subjects will simply guess when they do not know the right answer. With the two-item test (hammer versus wrench), subjects can guess the correct answer half the time. The particular items used in the Hopkins research were difficult items (as evidenced by the fact that the misled subjects were correct only 72 percent of the time). Thus they were not particularly accessible even for subjects who were not misled. If items are not particularly accessible to begin with, it is hard to make them less accessible. This reasoning motivated research by Carla Chandler (1989).⁷ Chandler found that when she utilized critical items that were indeed accessible to begin with, misleading postevent information impaired memory performance even in a test that did not permit the choice of the misleading item.

Ultimately, the current debate regarding the most appropriate way to conceptualize the rate of postevent information requires addressing some critical questions about the nature of memory representation. Since we

cannot get inside subjects' heads to see how their memories are represented, we must rely on indirect inferences based on reports of what is recalled. Unfortunately, what subjects claim to experience may not actually represent the true nature of their memories. Even if we demonstrate that subjects truly believe that their altered memories represent what they originally saw, we can never know whether somewhere in the recesses of the mind lies an inaccessible but pristine memory trace. Thus, rather than trying to make inferences about representation issues that may be unanswerable, researchers may more profitably shift the focus of research to new questions. Under what conditions will we observe a change in memory performance after exposure to new information? Is there any way to distinguish a memory that results from a true perceptual experience from a memory that results from postevent suggestions? It is the latter question that I now address.

DISTINGUISHING REAL AND SUGGESTED MEMORIES

Some time ago I held a reception at my home for the president of the American Psychological Association. The Armenian pinwheel sandwiches, brought by a caterer, were far better than anything I could have made myself. So, it was with some sadness that I watched a plate of them accidentally fall to the floor. The next day one of my colleagues mentioned the pity he felt at watching the fall of the plate of curried chicken puffs. A mild disagreement ensued over exactly what had fallen, and curiosity prompted me to examine the trash, which proved the veracity of my version of the event over his.

Why did my colleague misremember the fallen object as chicken puffs rather than pinwheel sandwiches? If I hadn't had a convenient way to verify these memories, would there have been some technique that I could have used to probe my colleague's memory further and establish its veracity?

The problem of judging the reality of memory arises again and again. When we listen to people describe events from their past, we make judgments about those descriptions. We judge whether or not the speaker is lying, perhaps using cues such as reduced eye contact or speech hesitations to indicate a possible lie. But what if our speaker is trying to tell the truth? He might or might not be accurate. Can the average listener tell which memories are accurate and which are not? When Oliver North testified at the Iran-Contra hearings that the late CIA director William Casey had given him a ledger in which to record the flow of money to the Contras and at times this account contained as much as \$175,000, was this

memory accurate? Could we examine North's words carefully and get clues as to the veracity of the underlying memory?

Psychologist Marcia Johnson and her collaborators have investigated a theory termed "reality monitoring" that accounts for how people distinguish memory that results from a true perceptual experience from memory that results from acts of imagination or from other nonreal memories.⁸ The representation of a true perception is thought to contain more spatial and temporal attributes, more sensory attributes, and more detail. The representation of nonreal memories are thought to contain more information about the cognitive operations that produced these details. Applying reality monitoring theory to my colleague's memory for chicken puffs, we might expect that, if asked to describe his memory, he might mention rather few sensory details, while emphasizing his own cognitive processes (e.g., "I remember thinking to myself when the chicken puffs fell how I wished I had eaten another one before it happened"). In contrast, someone who actually saw the pinwheels might be more apt to recall, "I remember how funny shaped they became after they plopped on the floor."

In collaboration with former students, I tested these predictions by comparing the written descriptions of real and suggested memories. In one study, subjects viewed a series of slides depicting a car accident. We asked subjects who had either seen a car go through an intersection with a yield sign, or who had merely had the yield sign suggested to them, to give a detailed description of the object. When examined one at a time, the real and suggested descriptions were virtually indistinguishable from one another. Consider these verbatim descriptions:

1. As the car was approaching the intersection, I saw the yield sign at the corner.
2. It was on the corner on the right side of the street.
3. When the Datsun pulled up to the yield sign, it was there on the right corner. It was a red and white triangle, not yellow.

Which descriptions came from subjects who actually saw the sign and which came from subjects who simply had it suggested to them? Most people generally cannot tell. In reality, the first and third came from subjects who saw the sign while the second one came from a subject who had it created in his mind. We asked judges to tell us whether a particular memory description came from someone who was accurate or inaccurate. Although the judges performed above chance levels, their ability to distinguish was not particularly good.

Although it is difficult to classify correctly an individual description as to its authenticity, when a large set of descriptions was analyzed, some

interesting results emerged. Real memory descriptions were more likely to explicitly mention the sensory properties of the sign. An example of a sign description that contained this quality is, “I saw the yield sign—it was red and white—looked like any old yield sign.” Suggested memory descriptions were more likely to mention the thought processes that the subject engaged while watching the accident or while trying to recall it. An example of a description that contained this quality is, “After seeing the question, the answer I gave was more of an immediate impression of what I remembered. But I believe it was located on the corner just before the car turned.”

Our research provides support for some of the earlier philosophical intuitions about the differences between veridical and nonveridical memories. However, we go further in identifying some of the characteristics that might typify these two classes of memories. In a wide variety of studies, we have shown that real and unreal memories are often associated with telltale verbal cues indicating their source. Real memory descriptions reflect more perceptual processing, including greater sensory detail. Suggested memories reflect more internal processing, including more mention of thought processes.

At this point it is important to acknowledge that the memory descriptions used in the research just described were written down by subjects rather than spoken out loud. Perhaps if subjects were allowed to naturally describe through speaking the contents of their memories, more information would be available to use for judging the probable veracity of the underlying memory. In a study to assess this possibility, subjects were videotaped while they described out loud various objects they claimed to have seen from a previously presented simulated burglary. Before the videotaped recall session, some subjects received misleading postevent information about certain critical details, and others did not.

Once again, the real descriptions tended to include more sensory details and the suggested description contained more information about cognitive processes. When judges watched the videotapes to see if they could tell when a subject was describing a real memory and when the memory was the result of suggestion, the judges did not perform well. When they heard a subject describe a nonexistent blue robe hanging on the wall of the bathroom, they were nearly as convinced that the object really existed as when they heard a subject who described a blue bathrobe that he had actually seen. Judges tended to believe that witnesses had seen what they claimed, whether it was true or not.

In several studies, then, untrained judges could not readily distinguish real and unreal memories. Can they be helped, in any way, to better perform this task? Fortunately, it appears that they can. When we told judges exactly what to look for, their ability improved. More specifically, when

we provided judges with information (hints) regarding the differences between suggested and real memories, their ability to gauge the accuracy of someone else's memory significantly improved. The hints that we gave judges to use were quite straightforward: Look for examples of sensory details, look for instances of mentioning cognitive operations, and so on.

Before one becomes overly tempted to use this advice to make assessments of whether a particular memory is real or not, caution is in order. Many nonreal memories contain lots of detail. The astonishingly detailed memory of one man, John Dean, provides the perfect example. Recall that Dean was former counsel to President Richard Nixon during the Watergate break-in. In June 1973, Dean testified before a committee of the United States Senate, and he began his testimony with a 245-page statement describing dozens of meetings that he had attended with various other persons on Nixon's staff over the previous several years. Because Dean's memory was so detailed, several senators disbelieved Dean's memory. One asked Dean, "Have you always had a facility for recalling the details of conversations which took place many months ago?" The senator was especially impressed that Dean had done this without the benefit of notes or a daily diary.

Dean said he kept a newspaper clipping file from the date of the first *Washington Post* article until the time of the Senate hearings. He said he triggered his recollection by reading every single newspaper article, outlining what happened, and then placing himself in the described scene.

Did the articles trigger his recollection, as Dean claimed, or did they partially supplement or distort his memory? Dean was unaware that all conversations in Nixon's Oval Office were secretly recorded. Psychologist Ulric Neisser, who made an extensive comparison of those tapes with Dean's Senate testimony, concluded that Dean was entirely wrong about the course of many conversations, but nevertheless he essentially recounted the facts of those conversations.¹⁰ Although it is difficult to ascertain whether Dean truly remembered those facts or whether he reinstated those facts into his memory from his perusal of newspaper clippings, it is of interest that his excessive detail prompted disbelief in those charged with judging his memory.

Most judges, like the senators judging Dean, are not especially good at discriminating real and suggested memories. In Dean's case, his excessive detail led people to disbelieve him, although in most cases, detail is impressive in a positive way. Could judges be given information that would allow them to make a more accurate determination of whether a memory description is real or not? Some promising new work suggests that providing judges with certain hints improves their ability to tell when someone has been tricked by memory. Far more research is needed to really develop

the ability to tell in ourselves, as well as in others, which memories are real and which are not.

Notes

1. John Tower, Edmund Muskie, Brent Scowcroft, eds., *Report of the President's Special Review Board* (Washington, D.C.: U.S. Government Printing Office, 26 February 1987), 819-20.

2. See Elizabeth F. Loftus, *Eyewitness Testimony* (Cambridge, Mass.: Harvard University Press, 1979); and Elizabeth F. Loftus and Katherine Ketcham, *Witness for the Defense: The Accused, the Eyewitness, and the Expert Who Puts Memory on Trial* (New York: St. Martin's Press, 1991).

3. Hesiod, *Theogony*, trans. Richmond Lattimore (Ann Arbor: University of Michigan Press, 1984), quoted in M. Lourie, D. Stenton, and M. Vicinus, eds., "Women and Memory," *Michigan Quarterly Review* 26, no. 1:1.

4. Endel Tulving, "Episodic and Semantic Memory," in *Organization of Memory*, ed. Endel Tulving and Wayne Donaldson (New York: Academic Press, 1977), 385-86.

5. Endel Tulving, *Elements of Episodic Memory* (New York: Oxford University Press, 1983).

6. Michael McClosky and Maria Zaragosa, "Misleading Postevent Information and Memory for Events: Arguments and Evidence Against Memory Impairment Hypotheses," *Journal of Experimental Psychology: General* 114 (1): 1-16.

7. C. C. Chandler, "Specific Retroactive Interference in Modified Recognition Tests: Evidence for an Unknown Cause of Interference," *Journal of Experimental Psychology: Learning, Memory & Cognition* 15 (1989): 256-65.

8. M. K. Johnson and C. L. Raye, "Reality Monitoring," *Psychological Review* 88 (1981): 67-85.

9. J. W. Schooler, D. Gerhard, and E. F. Loftus, "Qualities of the Unreal," *Journal of Experimental Psychology: Learning, Memory & Cognition* 12 (1986): 171-81.

10. Ulric Neisser, "John Dean's Memory: A Case Study" in *Memory Observed: Remembering in Natural Contexts*, ed. Ulric Neisser (San Francisco: W. H. Freeman, 1982), 139-59.

COMMENT

Eva M. McMahan teaches speech communications at the University of Alabama. Author of *Elite Oral History Discourse: A Study of Cooperation and Coherence*,

she here applies insights from her own specialty of discourse analysis to Loftus's psychological research, discussing particularly the relationships involved in oral history and oral history as a creative process.

Since my discipline is speech communication, I want to discuss the relationship between Elizabeth Loftus's memory research and the interview process of oral history. The link that I am seeking to address is found in the creation of historical records, a creative process in which memory and discourse are inextricably bound.

There are two relationships within this creative process which parallel two themes highlighted by Loftus. The first I label the synchronic communicative experience of the oral interview. The second is the diachronic relationship between the interactants and the historical event.¹

Turning to the synchronic communicative experience, we see the most direct connection to Loftus's work on postevent contamination, that is, new information that people unwittingly incorporate into their previously stored memories. Loftus's research convincingly demonstrates the malleability of human memory, even in the context of short-lived recollection exercises. Since researchers can rather easily induce postevent contamination, it stands to reason that oral history interviewers can also induce postevent contamination, albeit unwittingly.

I define oral history as a conversation with a person whose life experience is regarded as memorable. This conversation, however, cannot be regarded as comparable to other documentary modes of inquiry. This is because the interview is an investigative form in which evidence originates through oral, face-to-face communication. The oral history interview is the joint intellectual product of a process wherein understanding is aided through speech and counterspeech. The interpretative acts of remembering, thinking, and speaking signify the meaning which emerges through the speech performances. Clearly, Loftus's work alerts us to the interpretative act of remembering and to the potential influences of the oral interview method on the recollection process.

For example, the research suggests that syntax and word choice in interviewer discourse can be quite influential in remembering. Apparently, interviewers can contaminate respondent memories by embedding discrepant information into minor clauses of questions. It also appears that forewarning could be used as a preventative for certain types of bias. While Loftus has not tested these ideas in the context of the oral history interview, I certainly would like to see such work taking place.

In a similar vein, Loftus's research alerts us to other forms of potential postevent contamination which are relevant for oral history. We live in an

Information Age where people are more likely than not to encounter printed and video versions of historical events, not to mention endless discussions of said events by pundits and other commentators. I would like to see the imagination and experimental rigor of Loftus focused on questions of how the activity of oral recollection impacts on the memories that are preserved. For example, my colleagues at the University of Alabama are working on the history of the desegregation of the university. The first desegregation attempt occurred in 1956 when Autherine Lucy, a young black woman, was admitted to the university. Riots erupted on campus. Recounting events during that four-day period, several townspeople claim to remember picking up Ms. Lucy at the city jail. Actually, it was Lucy's driver who was picked up. We need to know more about how the processes of remembering, thinking, and speaking influence accurate and inaccurate memories.

For me, the most intriguing aspect of Loftus's work pertains to the diachronic relationship in the oral history interview: the relationship between the interactants and the historical event. She argues that memory researchers should conceptualize human memory in new ways, noting that memories are not neat photos containing only the original or only the suggested information, but are more like montages containing a variety of features blended into a holistic representation.

I believe such a holistic characterization of memory is the most fruitful conceptual grounding for those who are interested in memory and history. Clearly, this depiction of memory would enable us to explore the diachronic relationship between the interactants and the historical event. As a researcher, the oral historian brings her or his informed perspective of the historical event, for example, the knowledge that Lucy's driver was picked up downtown. Even so, that perspective is, as Joseph Kockelmans would note, a reflection of the "historicity of historical interpretation."² The historian's viewpoint, then, is the product of the evolution of historical tradition which is itself "a succession of synchronic moments"³ of remembering, thinking, and speaking.

While the relationship between the *respondent* and the historical event is also diachronic in nature, the respondent brings her or his own perception of that event formed from the memory of lived-through experience; that is, townspeople who recall picking up Lucy instead of her driver. Since any lived experience can acquire meaning only to the extent that it is reflected upon after it occurs, the interviewee's knowledge of the event develops diachronically.⁴ The meaning of the lived experience depends upon the "temporal distance" of the interviewee. "Temporal distance is not a distance to be traveled through," notes Kockelmans, "but a living continuity of elements which as links in a chain constitute the tradition which functions as the light in which everything with which we are con-

fronted . . . can appear as that which it really is.”⁵ Storytelling, as discussed by Daniel Bertaux, is illustrative. Bertaux says, “Stories about the past are told from the present, from a situation which may have changed over the years and defines a new relationship to the past. It is this relationship which underlies the whole story. . . . Telling a story about the past is a way of expressing indirectly a meaning about the present.”⁶

Finally, the interdependent relationships among interviewers, interviewee, and the historical event reflect the holistic and complex nature of the oral history interview situation. This hermeneutical situation is both synchronic and diachronic and, as such, directs attention to the jointly creative process wherein historical meanings are produced. The production of that meaning is bound to the interpretative acts of remembering, thinking, and speaking. Therefore, among other things, we need to know how the act of oral interviewing impacts on memories; how the act of reflection influences those memories; how the act of articulation solidifies memories; what kinds of memories are best obtained through oral interviewing; and how interview context influences memory.

Because these synchronic and diachronic relationships are inherent in the hermeneutical situation of the oral history interview, I believe memory research which is pursued from the holistic viewpoint supported by Loftus can provide much needed insights into the relationships among oral interviewing, memory, and history.

Notes

1. E. Culpepper Clark, Michael J. Hyde, and Eva M. McMahan, “Communication in the Oral History Interview: Investigating Problems of Interpreting Oral Data,” *International Journal of Oral History* 1 (February 1980): 28-40.

2. Joseph J. Kockelmans, “Toward An Interpretative or Hermeneutic Social Science,” *New School for Social Research Graduate Faculty Philosophy Journal* 5 (Fall 1975): 83.

3. Clark, Hyde, and McMahan, “Communication,” 32.

4. Ibid.

5. Kockelmans, “Interpretative or Hermeneutic,” 92.

6. Daniel Bertaux, “Stories as Clues to Sociological Understanding: The Bakers of Paris,” in *Our Common History: The Transformation of Europe*, ed. Paul Thompson (London: Pluto Press, 1982), 98.