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Eavesdropping on Memory

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Abstract

For more than four decades, I have been studying human memory. My research concerns the malleable nature of memory. Information suggested to an individual about an event can be integrated with the memory of the event itself, so that what actually occurred, and what was discussed later about what may have occurred, become inextricably interwoven, allowing distortion, elaboration, and even total fabrication. In my writings, classes, and public speeches, I've tried to convey one important take-home message: Just because someone tells you something in great detail, with much confidence, and with emotion, it doesn't mean that it is true. Here I describe my professional life as an experimental psychologist, in which I've eavesdropped on this process, as well as many personal experiences that may have influenced my thinking and choices.

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INTRODUCTION

A few years ago, I received a horrifying email. It came from a woman I'll call Betty, with a subject line in all capital letters: HAVE YOU NO SHAME AT ALL. After learning that I had testified for the defense in a criminal trial involving allegations of abuse by a priest, Betty wrote:

> Loftus, I remember you trying to discredit every single victim of sexual abuse that crossed your line of vision, but this is a new low even for you.. to attack the victims of predatory Catholic priests, who needed every drop of courage they had to come forward in the first place.
>
> Do NOT send me a reply. All I want is to hold up a mirror to you for an instant and let you see things about yourself that will have you waking up in the middle of the night screaming. And if you contact me, believe me, whore of the press, I will make you wish you had never heard of me. I will make you beg for me to shut the fuck up.

The email continued in this vein, ending by calling me a bitch. I never wrote back to Betty. Her communication was among the most vitriolic that I've received over the past few decades, but it was far from the only attack. Fortunately for me, the Bettys of the world are outnumbered by the Alices.

On June 26, 2014, I received this email from a woman I'll call Alice who lives in Nevada. Alice wrote:

> Dr. Loftus,
>
> I wanted to take a moment to thank you for your work. Until last year I'd never heard of you, and then suddenly you became someone I desperately needed to hear. I met a wonderful man whose wife (an old friend of mine) had died of cancer and he had the awful task of waiting for the right moment to tell me his middle daughter had accused him of heinous things.
>
> I went online and researched recovered memories and realized from lots of sources that she was a textbook case of false memory syndrome and

> married him. Most of the time he manages to make her accusations irrelevant to his daily life but there are days he still struggles,
>
> especially when he realized he probably lost his first wife due to these troubles . .
>
> I found your Ted talk and it was such a relief, such an oasis for those of us in these situations. I just had to let you know that you are a clear voice in our darkness and I hope you continue speaking out for us.

I wrote back to Alice right away and stored her email in my "WhenBlue" file, which contains a collection of letters I can read when the next unexpected Betty decides to send a hateful message my way.

MY CHILDHOOD: IN MEMORY

Growing up in Los Angeles, I never for a moment anticipated that I would become both a target of vitriol and an object of adoration; a bitch to some, but a clear voice in the darkness to others. I never for a moment imagined that I would become a scientist who could alter what people believe about their own histories.

I was born in 1944, while World War II was still raging. Everyone called me Beth. I met my father, Sidney Fishman, about a year later when he returned from the war. I lived with this workaholic physician, my librarian mother Rebecca, and, later, my two brothers, David and Robert. We had a charming, placid life together. I remember ballet classes, although I was never very good. I remember begging to take piano lessons when I was about 8 and then begging to be able to quit them when I was about 9. I remember the scariness of changing elementary schools, required by a family move. I remember bagels at Aunt Pearl's, swimming in Uncle Herman's pool, and visits from Uncle Joe and the Pittsburgh family branch. And I remember when this idyllic childhood ended. My mother drowned in a swimming pool when I was 14 and my younger brothers only 12 and 9. I kept a diary during those years and wrote about that day as "the most tragic day of my life." It still is.[1]

Many teenage girls who keep diaries fear that someone might find and read them, and I was no exception. I could have censored my diary, but I came up with a different idea. When I wanted to write something particularly painful or private, I would jot the thoughts on a separate piece of paper, which I clipped to the page in the diary that contained the date of the thought. Then, if some putative boyfriend begged to read the diary as proof of my genuine affection, I could unclip the little pieces of paper before he got his hands on them. I would later call these my "removable truths." Not all of these removable truths were about matters of childhood romance, such as which boy I had a crush on or who tried to kiss me. One removable truth was titled "My greatest regret." It described in detail how I wished I had been kinder to my mother. It is ironic that I would one day grow up to become a scientist who built her career on removing "truths" from people's memories.

Only two years after my mother died, a raging Southern California fire burned down our family house, along with more than 400 others in our neighborhood in west Los Angeles. I had returned from a normal high school day with my younger brother David to find roadblocks, which we eluded using shortcuts. I actually ran into our burning house to grab the encyclopedia so I could

[1]My brothers tease me to this day: "Don't say the M word (mother) or Beth will cry." That teasing, I fear, covers something deeper. When Robert's daughter (whom he named Sydney) turned 10, he called to tell me, "Sydney just turned 10 and still has a mother." Of course I cried.

complete my homework, but it was too dangerous to try to retrieve my diaries. I fretted about these precious possessions: Were they burned, or would they be found with my removable truths still attached? Eventually, when we were able to go back and sift through the charred remains, the diaries were recovered, and so my permanent record of truths, both removable and otherwise, exists today. I consulted them once, 40 years after my mother's death, when I wrote her a letter, titled "Dear Mother," telling her how I felt on the day she died, during the weeks and months in the aftermath, and four decades later (Loftus 2003a).

THE YEARS OF HIGHER EDUCATION

Writing this autobiography wasn't as easy for me as you might think. I was invited 10 years ago to write one for the *History of Psychology in Autobiography* (Loftus 2007a) and another for an edited volume devoted to my contributions to science, law, and academic freedom (Loftus 2007b). I've told my life story before; the past hasn't changed in the past 10 years. Or has it?

Growing up, I loved math. When I was in school, math was the one thing that brought me and my father together; he enjoyed helping me with my homework, and I treasured the time I spent learning from him. In high school, I excelled in algebra and geometry, and when I began college at the University of California, Los Angeles in 1962, I majored in mathematics. In college, I was a bit disheartened to discover that my math classes were taught by only male professors instructing almost exclusively male students. I wasn't as crazy about calculus, but by then, I felt I had invested too much effort in math and was determined to finish a degree in that field. Along the way, I happened to take an introductory psychology course and was utterly fascinated. I finished college in four years with a double major in math and psychology.

What would I do next? My undergraduate professors told me about a subfield in psychology called mathematical psychology, which sounded perfect to me, given my double major. In 1966, I began graduate school at Stanford and majored in psychology, with an emphasis in mathematical psychology. I soon discovered I wasn't particularly interested in mathematical psychology, but I never missed the required Friday seminar sessions where faculty and fellow graduate students discussed their research findings, even though my mind was elsewhere. I would often sit in the back and write letters to my relatives. Sometimes I actually got some sewing done (e.g., hemming skirts that needed to be shortened) to the sound of voices discussing the latest developments in mathematical learning theory.

It was then customary in the Stanford Psychology Department to pair an incoming graduate student with a second-year student who could provide some mentoring. My assigned mentee was a gorgeous graduate of Brown University, named Geoff Loftus, who had driven his black BMW motorcycle across the country to Stanford. I guess you could say I took my mentoring seriously, because nine months later, Beth Fishman became Elizabeth Loftus.[2]

Recently, I found a letter written to me by my soon-to-be father-in-law, Russell Loftus, only two weeks before I married his son. Russ thanked me for a birthday present I had sent him (a 1969 San Francisco calendar). He said I was the "most imaginatively thoughtful person" he had ever met. (I guess he liked the calendar.) The ending of his letter reminded me of an important episode in my past with Geoff. Russ wrote, "Beth dear, I was going to try to get through this letter without being maudlin. I can't. Pete [Geoff's mother] and I constantly think of you and Geoff with more love and affection than we shall ever be able to express . . . also with concern. Concern

[2]I married Geoff despite the fact that this Ivy League–educated husband of mine would frequently tease me about word mispronunciations, saying, "You can take the girl out of LA, but you can't take LA out of the girl."

only because of the nature of the times with all of the related implications. . . . " What was that concern? Oh, yes, I remember now: America was in the midst of the Vietnam War, and Geoff was in enormous danger of being drafted and sent to Vietnam. In fact, we decided to get married in the hope of finding a course of joint action that would keep him from fighting in a war that neither of us believed in. It's a long story, but, for roundabout reasons, it worked. We married in my family home in Los Angeles and had a one-day honeymoon so that I could get back to Stanford to study for the comprehensive exams.

I spent my early years at Stanford working on projects that involved computer-assisted instruction. Richard Atkinson chaired my master's thesis committee and helped me complete a thesis on using computerized instruction to learn spelling. Patrick Suppes chaired my doctoral committee and helped me complete a dissertation on using computerized instruction to learn mathematics. I admired these busy professors and wished they could have spent more time with me. It was also satisfying to be able to complete research projects and see them appear in print (Fishman et al. 1968, Loftus & Suppes 1972). But I never got swept off my feet by this line of work.

It wasn't until the later years of graduate school that I was introduced to research that I could truly get excited about. With the social psychologist Jonathan Freedman, I studied semantic memory, i.e., memory for words, concepts, and factual knowledge of the world (Collins & Loftus 1975). It is our repository of general information disassociated from any moment in time. A semantic memory could be knowing that bananas are fruits that are yellow, or that zebra is the name of an animal that is striped. Freedman and I did a number of studies to explore how semantic information is organized in memory. For example, in one study we showed participants the category cue "animal" either before or after the descriptor "striped." We found that participants were a quarter of a second faster to give the response "zebra" when the category cue came before the descriptor. From this we inferred that information in semantic memory is organized according to categories such as animals, rather than attributes such as striped, enabling the mental search for a word to begin sooner when the word's category is given first. Freedman and I published several additional studies together (e.g., Freedman & Loftus 1971, Loftus & Freedman 1972), and I began to give conference talks on semantic memory. I finished graduate school in 1970 and taught for a few years in New York City. Geoff and I had a problem many academic couples face, known as the two-body problem. We wanted to find jobs in the same city. After a few years of job searching, Geoff and I both received offers from the University of Washington, where I would ultimately spend the next several decades.

REAL-WORLD MEMORIES

A few years after my honeymoon with semantic memory, I faced the fact that I wanted to do research with more obvious practical applications. My dad died of cancer at the age of 61 in 1975. I would have loved to do something about the cancer problem, but I obviously lacked the skills and training. My new project would have to involve memory, but how? I decided to study the memories of witnesses to accidents, crimes, and other legal events, combining my experience in memory and my growing interest in legal matters. After obtaining research funding from the US Department of Transportation, I began showing people films of car accidents and noticed that the questions I asked could skew the answers I got from witnesses. Asking, "How fast were the cars going when they smashed into each other?" led to higher estimates of speed than a more neutral question such as, "How fast were the cars going when they hit each other?" The "smashed" question also increased the likelihood that witnesses would say that they saw broken glass at the accident scene, even though there was no broken glass at all. The published paper describing this study has one of my favorite titles: "Reconstruction of Automobile Destruction." I coauthored this paper with

John Palmer, an undergraduate who would go on to become a fantastic researcher himself (Loftus & Palmer 1974). This early study on memory distortion caused by leading questions was followed by others (e.g., Loftus 1975), and it soon became clear that leading questions are one way—though only one of several—by which witnesses' memories can be contaminated. I also found that memories can be contaminated when witnesses talk to one another or when they are exposed to media coverage that contains erroneous detail. Misinformation encountered after the fact can lead to problems with accurate memory, a phenomenon that became known as the misinformation effect (Loftus & Hoffman 1989).

Just for the heck of it, as I was writing this chapter, I searched for "misinformation effect" using Google and discovered that it has a Wikipedia page. Wikipedia tells us that, "The misinformation effect happens when our recall of episodic memories becomes less accurate because of postevent information" (**https://en.wikipedia.org/wiki/Misinformation_effect**). How fun! The entry goes on to describe another of my studies from the l970s. In this study, subjects saw a simulated accident in which a car stopped at a stop sign. Afterward, some subjects received misinformation that it was a yield sign. Finally, subjects were tested on what they had originally seen. Many subjects reported that they had seen a yield sign, succumbing to the misinformation. A cute cartoon accompanied this description (**Figure 1**).

Studying the misinformation effect has kept me busy because there have been so many interesting questions to ask about the phenomenon (Frenda et al. 2011). When are people particularly prone to having their recollections modified by misinformation? Early on, we showed that people are more susceptible to misinformation about older memories than about more recent ones (Loftus 1992). More recently, we showed that people are also more susceptible when they are sleep deprived than when they are rested (Frenda et al. 2014), to the extent that they can be especially likely to confess to "crimes" that they did not commit (Frenda et al. 2016). These misinformation memories can last for quite a while; in one study, the false memories lasted more than a year (Zhu et al. 2012). What groups of people are especially susceptible to impairments from misinformation? First, we showed that young children were more susceptible to misinformation than adults

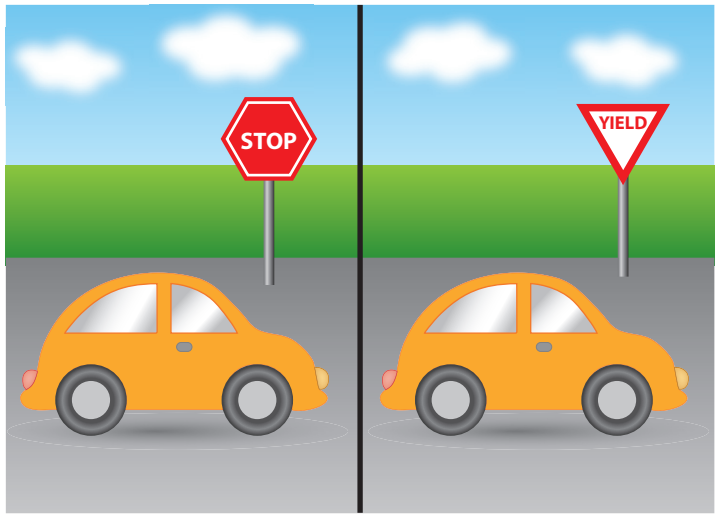

Figure 1

Cartoon used by Wikipedia to illustrate the misinformation effect. Figure modified from CaitlinJames/Wikipedia (**https://en.wikipedia.org/wiki/Misinformation_effect**)/CC-BY-SA-3.0.

(Loftus et al. 1992). Second, we showed that people with low cognitive ability are more susceptible to misinformation than those with high cognitive ability (Zhu et al. 2010). Even people who have superior autobiographical memories are susceptible to misinformation. We conducted a study on a special group of individuals with highly superior autobiographical memory (HSAM). Although these individuals have an extraordinary ability to recall specific dates and autobiographical events, they were as susceptible to memory distortion as their age-matched controls. Taken together, this research invites the speculation that no group of individuals is completely immune to the distorting effects of suggestion and misinformation (Patihis et al. 2013). Finally, we have done numerous studies that show how difficult it is to tell whether a particular memory is authentic or not; one needs independent corroboration (Bernstein & Loftus 2009).

MY FORAY INTO THE WORLD OF LAW

My research on distortions in memory implicitly challenges the credibility and value of memories in a variety of contexts, including eyewitness memories in legal cases. However, eyewitness testimony is typically seen as highly trustworthy evidence by American jurors. In the mid-1970s, I wrote an article for *Psychology Today* magazine titled "Reconstructing Memory: The Incredible Eyewitness" (Loftus 1974). In this article, I wrote about how eyewitness testimony is perceived by jurors and how it can influence the outcome of legal cases. I discussed an unpublished study I had performed with mock jurors. In this study, mock jurors read about a grocery store robbery in which the owner was killed and then had to decide if the defendant was guilty or not. The first group of jurors was told that there had been no eyewitnesses, only circumstantial evidence. The second was told that a store clerk had identified the defendant. The third group was told that the store clerk's identification had been discredited by his poor vision. The results showed that without the eyewitness the evidence for guilt was weak, with only 18% of jurors in the first group voting guilty. Adding a single eyewitness increased the rate of guilty verdicts to 72% in the second group. Discrediting the perceptions of the eyewitness had little impact, with 68% of jurors in the third group supporting a guilty verdict. I also described some of my then-recent studies showing that, in fact, eyewitness testimony is malleable, and leading questions can easily affect what witnesses remember and report. Finally, I talked about a case that I had worked on in which a woman was accused of murder on the basis of eyewitness memory. Perhaps it was due to her acquittal that lawyers began to call me to request case advice and invite me to speak at their conferences.

Attorneys also began asking me to testify in court on the malleability of eyewitness memory. However, at the time, judges were resistant to my work and typically excluded my testimony on the grounds that it invaded the province of the jury or that it was all common knowledge. When one judge finally agreed to let me testify, it came at a terrible time. I will never forget that day—June 3, 1975. My brother David called to tell me that our father had died that morning after a battle with melanoma. I had visited him only a couple of weeks before. I was still wiping away tears when the phone rang again. It was David Allen, a Seattle attorney, who asked me to come to the courthouse right away because it looked like the judge would admit my testimony. Could I really set aside my grief and do this? I somehow managed to collect myself and go to court. Judge Janice Neimi admitted my testimony into trial. Today, when prosecutors try to discredit me by asking how many times I have testified in court (translation: "you're a hired gun"), I often mention the exact date I first began testifying. Then the conversation goes something like this:

> Prosecutor: I see you have no trouble remembering that date, even though you've been testifying about difficulties with memory.

Me: I remember that date because it was the day my father died.

Prosecutor: (silence)

I testified at three trials in 1975, five trials in 1976, and seven trials in 1977, and continued testifying at many trials each year. Despite the occasional harsh cross examination, I enjoyed testifying. I felt like I was helping people and spreading the truth about memory. Sometimes my experiences would give me ideas for additional research studies, and the cases were fascinating to my students, enlivening my lectures and writing. I wrote about some of these cases in my presidential address for the American Psychology-Law Society (Loftus 1986b). Some of my scholarship even examined my dual role as an expert witness and an experimental psychologist. Should this role involve being only an impartial educator? Or could it involve some element of advocacy (Loftus 1986a)?

Eventually, I coauthored a book about some of the cases in which I had testified and the role that memory science had played in them (Loftus & Ketcham 1991). My wonderful coauthor, Kathy Ketcham, had been my secretary for years while she was helping put her husband through school. She typed my papers and became fascinated by my work with memory in the process. She is now a successful writer. In writing *Witness for the Defense* (Loftus & Ketcham 1991), Ketcham and I drew material from trial transcripts, police reports, newspaper accounts, and interviews with witnesses, defendants, attorneys, jurors, and family members. We did our best to get accurate information but ultimately had to rely on the memories of people directly involved in the legal dramas, as well as on my own personal memories. We acknowledged in the author's note that "It is unavoidable that these retrospective interpretations will contain memory flaws" (Loftus & Ketcham 1991, p. xiv). Memory, we said, is not always the same thing as truth.

In *Witness for the Defense*, I wrote about some of the more unusual people I met along the way—people involved in criminal and civil cases in which memory was an issue. I've met notorious individuals such as Ted Bundy and Timothy McVeigh. I've also met famous people who got entangled in legal situations in which memory played a role. For example, in my 2007 autobiography (Loftus 2007a), I wrote about Oliver North and, briefly, Martha Stewart as well. I interviewed Martha in New York about a critical phone call with her stockbroker, in which, as she remembered, he told her about ImClone stock. The government thought she was lying when she said she didn't remember being told that the president was selling the stock. I wondered if distractions or other factors could have explained her lack of memory, so I asked her where she was when she received the call. She told me she was on a private plane heading to Mexico for a short vacation and took the call when the aircraft stopped to refuel in San Antonio.

EL: What were you doing just before the call?

MS: Eating lunch.

EL: What did you have for lunch?

MS: Smoked salmon, caviar, and vodka.

EL: Vodka? How much vodka?

MS: Couple of drinks.

EL: Well, two to three drinks are enough to affect the formation of new memories, unless there is some reason you don't want people to know that.

She insisted she didn't care one way or the other, and so the vodka theory was potentially to be offered at trial. When the trial began, her lawyers felt things were going so well that they cut short

their defense and dropped the vodka theory. To what I'm sure was her great disappointment, she was convicted. But that one little-known fact might have changed the outcome of her case. I'm pleased to see her smiling face in many magazines today; she obviously bounced back and is a model for how one can hit bottom and survive, even thrive.

I've also met Phil Spector, the famous American music producer, who worked with the Beatles and other talented musicians. *Rolling Stone* magazine had him on their list of the greatest artists of all time. In 2009, he went on trial for murder in the shooting death of an actress in his California home. I testified at his trial about the memory issues surrounding what his driver claimed he had heard Spector say. A few days after testifying, Phil sent me a little card with this message: "Dr. Loftus. Thank you for your amazing and brilliant testimony. I am most grateful and appreciative, and you're prettier than Leslie Stahl." (He was referring to my then-recent interview by Stahl on *60 Minutes*, during which I temporarily tampered with her memory for faces. To her credit, she allowed her memory mistakes to be shown to millions of viewers.) The jury in Spector's case had to decide: Was the actress' death an accident or murder? Ultimately, my testimony did not help his case; he was convicted and began serving a prison sentence of 19 years to life.

THE MEMORY WARS

I was introduced in earnest to the notion of repressed memory in the early 1990s. It began with a phone call from a lawyer who was representing George Franklin, a man accused of murder based on a repressed memory. Franklin's daughter, Eileen, claimed she had recovered a terrible memory, in which she witnessed her dad kill her best friend 20 years earlier. I've written extensively about this case (Loftus 1993, Loftus & Ketcham 1994). At Franklin's trial, Eileen testified in great detail about watching the murder. A prominent psychiatrist vouched for the memory's authenticity. Franklin was convicted, much to my dismay and that of his attorneys and many family members. He became the first American citizen to be convicted of murder based on nothing more than a claim of repressed memory. Five years later, a federal judge reversed his conviction, concluding that the risk of an unreliable outcome was unacceptable.

Because of this case, I started to wonder how such detailed whole memories could grow in someone's mind despite the memories being completely false. If Eileen Franklin's memories were false, she was not simply remembering a detail differently, like a stop sign instead of a yield sign. She was remembering huge events (murders, years of rapes) that didn't happen. How could such elaborate false memories develop in people? I wanted to study this, but what type of false memory could I try to plant in people's minds? It did not seem likely that the Human Subjects Review Committee would appreciate a proposal to plant memories that the subject's father had killed their best friend or raped them repeatedly, so I had to find an analog, something that would have been at least mildly traumatic if it had actually happened to the subjects. Eventually, I had the idea to plant a memory that the subject had been lost in a shopping mall and, after a period of great upset, had been discovered by an elderly person and reunited with their family.[3]

This became our first effort to deliberately plant relatively harmless but rich false memories in volunteers. Along with other researchers, I have been quite successful in getting people to believe and remember that they had all sorts of experiences that would have been at least mildly troubling had they actually happened. Not only have we led ordinary healthy people to believe that they had

[3]The idea came to me unexpectedly after trying to solve this puzzle for a couple of years. I was being driven to the airport, after having given a talk at the University of Georgia, by a faculty member, Denise Park, and her two children. Explaining to my host my frustration with trying to think of a memory to plant, it was she who said, "How about getting lost?' We happened to be driving past a huge shopping mall, and the idea just popped into my head. "What about getting lost in a shopping mall?"

been lost in a shopping mall as a child (Loftus & Pickrell 1995), but we and other psychologists have also planted even more bizarre or unusual false memories, such as nearly drowning and being rescued by a lifeguard, witnessing demonic possession, or committing a crime as a teenager (for reviews of some of these memory planting findings, see Loftus 2003b, 2005; Loftus & Davis 2006). In the years after the Franklin case, thousands of other repressed memory cases emerged. The memories often revolved around severe sexual abuse. People were going into therapy with one sort of problem, such as depression or an eating disorder, and coming out with another problem: horrific memories of sexual abuse allegedly perpetrated over years and then repressed into the unconscious until the memory returned. People were suing their family and former neighbors, as well as their doctors, dentists, and teachers. Many families were destroyed in the process, and I found myself deep in the midst of these wars. I tried to speak out about these travesties, the dubious nature of repressed memories, and the injustice of convicting people of crimes based on these memories without additional evidence. I was met with a great deal of anger from people like Betty. The anger came from both the repressed memory patients, convinced of the veracity of their newly "recovered" memories, and the therapists who had helped these patients "find" their memories.

I could endure nasty letters and emails. I could handle death threats made to universities that invited me to speak. But I was not quite prepared for the lengthy battle I would face when I investigated a case that was being touted as solid "proof" of repressed memory, the case of Jane Doe. Jane Doe had accused her mother of sexual abuse when she was a child caught in the midst of an unpleasant divorce and custody battle. A psychiatrist videotaped the "retrieval" of this memory and showed the tapes to others discussing this new "proof." I investigated the case with Mel Guyer, a lawyer and psychologist from the University of Michigan. Our investigation suggested that it was quite possible that no abuse ever occurred to Jane Doe. However, when we published our findings in the *Skeptical Inquirer* (Loftus & Guyer 2002a,b) without identifying Jane Doe, a number of bad things happened. We shielded her identity, but Jane Doe sued us anyway, using her real name, Nicole Taus. She filed her case in 2003, asking for $1.3 million for defamation, invasion of privacy, and other claims. Over the ensuing years of litigation, a trio of California courts threw out 20 of the 21 allegations that she made against me and the other defendants.

My graduate seminar actually traveled from the University of California, Irvine to Los Angeles to watch the oral arguments being made to the California Supreme Court. It would have been a much more fascinating experience for me if there had not been so much personally at stake. Earlier courts had thrown out most of the claims, and the California Supreme Court tossed out all the rest but one. That one claim was that I had misrepresented myself to a foster mother of Taus, allegedly pretending I was a colleague and supervisor of the psychiatrist who was popularizing her case—a claim I completely deny. Ms. Taus's foster mother supported her story by also claiming that she abruptly terminated the interview when she realized my identity, which is not true. Photographs taken of us right after the interview showed the cordial nature of our interaction. Personally, I suspect that after our interview, she regretted what she had told me about Ms. Taus. (Journalists call this source remorse.)

After the California Supreme Court effectively finished gutting her case, Taus offered to withdraw her case against me in return for a payment of $7,500. I would have preferred to have a jury vindicate me, but the insurance company for the magazine decided that the cost of a trial would far exceed $7,500. Insurance companies have a label for this: nuisance settlement. The California Supreme Court also ordered the trial judge to determine how much Taus herself would have to pay for attorney fees and costs incurred by the other defendants who had been cleared of charges along the way. These included my coauthor, Mel Guyer; the *Skeptical Inquirer*, which had published our essay; and Carol Tavris, whom we had thanked in a footnote for her help with the essay.

The trial judge determined that Taus would be responsible for nearly $250,000 in attorney and court fees, and she declared bankruptcy soon after. So, what do I say when people ask me, "Who won the case?" No one won, except perhaps the attorneys; they were well compensated for their time.

During this protracted and miserable legal process, I learned a great deal about the vulnerability of academics to lawsuits. Scholars are not always afforded the full protection of constitutional guarantees, and this is especially true when the scholars work on problems that matter in people's lives and are therefore likely to be sources of controversy or conflict. But these are precisely the kinds of scholarly inquiries in which there is a profound need for our institutions to provide vigilant protection of free speech (Geis & Loftus 2009).

BACK TO RESEARCH

Despite the emotional and financial burden of the Taus complaint, I was able to develop a new line of research with Dan Bernstein, who was a postdoc at the time, and several graduate students at UC Irvine. We wanted to better understand the repercussions of implanted memories—how these false memories impact later thoughts, intentions, and behaviors. In our initial studies, we planted false memories in participants of having gotten sick eating particular foods, such as eggs, pickles, or strawberry ice cream, and found that the participants with the false memories didn't want to eat these foods as much as did participants without false memories (for details, see Bernstein et al. 2005a,b; for a review, see Loftus 2007a). In another study, we planted false memories of having gotten sick on vodka, and the participants were subsequently less interested in drinking a vodka drink. We also planted pleasant memories about white wine and found that people who developed the false memories were more attracted to white wine (Clifasefi et al. 2013, Mantonakis et al. 2013).

This research suggests that it can be disturbingly easy to manipulate people's memories in ways that shape their behavior, a finding that raises a number of ethical concerns. Should we think about banning the use of these mind-manipulating techniques entirely? Could we affirmatively and responsibly use these techniques to help people live happier and healthier lives? These basic ethical questions must be considered carefully in pursuing and applying this line of memory research.

THE TED TALK

By the end of 2012, when I was invited to give a TED talk on false memories (**Figure 2**), I had already been teaching for four decades. When I first started teaching, I wrote out my lectures word for word, even the jokes. Then, if I got nervous, I would have the notes to rely on. By 2012, I was pretty comfortable in the classroom and in front of large one-time audiences. But this did not prepare me for the kind of talk that would be required at TEDGlobal. First I had to submit an outline, and then a script. The TED organizers told me my script was too long for a 16-minute talk, and I had to cut it. When it got to an acceptable length, I began the work of memorizing it. After all, it would be on the Internet and translated into a large number of languages. Exact wording mattered in a way that it never really does in the classroom. I got help from my longtime collaborator, Maryanne Garry, and her students, who found much hipper slides to accompany the talk than I would have found on my own. A few months before the event, I rehearsed the talk via Skype with the TED organizers, and even then I was still reading. I practiced the talk in guest lectures that I volunteered to give for colleagues. To memorize the talk, I used the method of loci, a memorization method developed more than 2,000 years ago in ancient Greece. Specifically, I used familiar locations in my home to remember chunks of the talk. For example, I visualized

Figure 2

Photos of Elizabeth Loftus giving a TED talk at TEDGlobal in 2013. Photo credits: (*a*) J.D. Davidson/TED, (*b*) TED.

Steve Titus, a falsely accused man, greeting me at my front door. That reminded me to start the talk by telling the audience about the sad case of Steve Titus. I visually entered my house and noticed on my right a portrait that my mother-in-law had painted of me at the time I married her son: a reminder to tell them about myself and why I had worked on the Titus case. I noticed on my left a bowl of pine cones: Those became the hundreds of falsely accused people. In all, I placed eight chunks of my talk into eight locations in my home. When I wanted to remember the talk, I took a mental walk through the house, stopping at each location to pick up the chunk of the talk that I had mentally deposited there earlier.

In June 2013, I flew to Edinburgh, Scotland, thumb drive in tow. My former doctoral student Shari Berkowitz joined me for the five-day adventure. Nearly a thousand people had paid thousands of dollars to attend TEDGlobal. Shari and I met and ate and drank with some fascinating people, such as Shonda Rhimes, the wildly successful television producer, and Marlies Carruth, a scouter for the MacArthur Genius Award program. We watched other TED talks that were amazing, such as that given by Apollo Robbins, the American deception specialist, and Arthur Benjamin, the mathematician, who gave a splendid Mathemagic performance. We also watched a brilliant neuroscientist lose her train of thought in the middle of her talk and struggle to finish. My worst nightmare! In the end, I got through my talk without a hitch, and to my amazement the video of it has, as I write this, been viewed more than 2.8 million times (**http://www.ted.com/talks/elizabeth_loftus_the_fiction_of_memory**).

TED AND THE MEMORY WARS

Near the end of my TED Talk in Scotland, I offered the audience a simple take-home message: Just because someone tells you something with confidence, just because they say it with lots of detail, just because they express emotion when they say it, that doesn't mean that it really happened. We can't reliably distinguish true memories from false memories. This weakness in memory has implications for the legal profession, for psychotherapy, and for other aspects of our social lives. Personally, I feel that exposure to this research has made me more tolerant of the everyday memory mistakes and distortions made by my friends and family members. If a sibling or friend tells a story that I know is not accurate, I don't instantly assume they are deliberately fibbing; more typically, I start with the thought that they might have a genuine false memory. I apply the same attitude to public cases of potential lies. When celebrities such as Hillary Clinton

or NBC News anchor Brian Williams are shredded by the press for telling inaccurate stories, I sometimes come to their defense with the possibility of a false memory. In the cases of both Clinton and Williams, the spontaneous creation of false memories seems far more plausible to me than the theory that they are deliberately lying, given that both of them told inaccurate stories that had a high chance of being disproven. They had a great deal to lose by lying but very little to gain. To me, this makes the possibility of a false memory in such cases more plausible than lying.

Just to be clear, I don't always assume that a purveyor of falsehoods is honestly mistaken or misremembering. Some people knowingly, consciously lie. Because my research has dramatically challenged the assumptions and therapeutic practices of many repressed-and-recovered-memory practitioners, some of them have repeatedly tried to kill the messenger—me—when they can't kill the data. For example, the Jane Doe case reared its ugly head again in 2014, when a journal published several essays about the case. Virtually all came from people who had found something to complain about in my handling of the case and who were primarily believers in recovered memories of abuse, which they had promoted in their own work for years. They were heavily invested in the Jane Doe story, because they believed it gave their cause credibility. They're entitled to their opinions, of course, but their essays were riddled with distortions of the evidence, which Mel Guyer and I had already addressed in previous publications (Loftus & Guyer 2002a,b). One commenter, whom I'll call K, used his essay as an opportunity to tell a lie about me that dates back two decades, when I resigned from membership in the American Psychological Association (APA) because of the mistreatment of two female colleagues and because of the APA's shift toward becoming more of a guild for practitioners than a home for psychological scientists. In my resignation letter, I wrote that I would be devoting myself to organizations that valued science more highly and more consistently, and I went on to become active in the Association for Psychological Science. At the time of my resignation from the APA, Ray Fowler, then the CEO, urged me to reconsider because he feared more experimental psychologists would join my exodus. But in K's Jane Doe essay, he claimed that Fowler had tipped me off about a pending ethics complaint so that I could resign in time to avoid it. This is a flat-out lie that Fowler himself denied before he died. This rumor still turns up when I'm on the witness stand, being interviewed by prosecutors trying to discredit me. I mention it because it is abhorrent to me when people pass out untruths for applause lines, for attention, or because they don't like scientific work that doesn't jibe with their orthodoxies. Fortunately, the nastiness of people like pants-on-fire K and his allies is outweighed by the Alices of the world.

UNIVERSITY LIFE

I love my job. A colleague once quipped, "Isn't academia great? You get to work any 80 hours a week you want." Yes, I work a lot of hours, but for the most part it is pretty enjoyable work. It's a near-perfect combination of structure and entrepreneurial opportunity. One of my favorite aspects is the interactions with the students, postdocs, and faculty collaborators who help me plan and conduct my research. I wish I had more space to mention them all.[4] I love hearing updates on the students' lives, such as when one becomes chair of a psychology department or another wins a teaching award at her liberal arts college. I like strategizing when one complains about

[4]In my 2007 autobiographical chapter, I listed the PhD students whose committees I had chaired or cochaired, ending with the 2006 dissertation of Cara Laney, who recently wrote to tell me that she was chairing the psychology department at her university. Since then, the list has grown to include terrific work by Suzanne Kaasa, Shari Berkowitz, Erin Morris, Tia Peterson, Kally Nelson (Enright), Steven Frenda, Rebecca Nichols, and Lawrence Patihis. Many more are in the pipeline.

being overworked and under-appreciated at her corporate research scientist position or when one complains about his status as a freeway flyer.

One aspect of my professional life that might be different than those of others is the gigantic number of requests for help I routinely receive from people outside the university setting. Some requests come from prisoners and desperate family members; I try to answer all of these. Then there are the weekly requests from far-away college students who want help with papers they are writing, from high school students who want help with assignments, and from elementary students who ask for help with science fair projects. Eighty hours a week isn't enough to answer them all, so I crafted a polite reply that I can easily send back with a few clicks on the keyboard:

> Thanks for your email. I'm so sorry I'm going to have to decline this project. I'm so swamped with work, I barely have time for the things I've already promised to do. So while this sounds exciting, I know I would have trouble meeting any additional obligations. I hope you understand. Best of luck to you and your project.

Sometimes I just couldn't bring myself to send the polite reply, as was the case when a middle school student in Weston, Connecticut, who seemed passionate about human memory, asked for my help. Although she was overly apologetic for intruding on my "busy schedule," she had some questions for me. While asking them, she managed to slip in the fact that her mother was a science reporter for the *New York Times*. I took the time to answer her questions about false memories, the role of trauma in memory, and the processes by which people store and recall memories. Her email arrived just a few months after her mother had written a terrific piece for the *Times* called "Memories Weaken Without Reinforcement," which reported on a new study providing evidence that when a new experience enters memory, it can weaken the ability to remember older experiences (Belluck 2015). This is an issue I had thought deeply about more than three decades ago (Loftus & Loftus 1980). It seemed so cute that the daughter, perhaps a budding science journalist herself, was following in her mother's footsteps, so I answered her right away.

In addition to the interactions with students and colleagues, another great thing about the academic lifestyle is the sabbatical. I used one of those opportunities to spend a year at Harvard University as an American Council on Education fellow working for the President of the university and the Dean of Harvard College. Another year, I spent my sabbatical at the Center for Advanced Study in the Behavioral Sciences at Stanford, where I wrote my first book, *Eyewitness Testimony* (Loftus 1979). I spent another leave at the Georgetown Law Center in Washington, DC, teaching law students and getting a feel for life as a law professor. I spent my last sabbatical in Irvine, using most of my time to write this article. It was not the only thing that I had hoped to accomplish during the sabbatical. My original plan was to spend some time in Tunisia. I had been invited to participate in the International Congress on Cognition, Emotion, and Motivation to be held in Tunisia. In fact, I had been invited not only to present my research at the conference but also to serve as Honorary Chair. I crafted a letter that was posted on the website welcoming people to this important conference, which was dedicated to the proposition that in order to fully understand how we manage everyday tasks in life, such as knowing how to order dinner at a favorite restaurant, or deciding whether to give a B or a B– to a student, or judging whether a defendant is guilty or not guilty, we need to integrate what scientists are discovering about cognition, emotion, and motivation. Tunisia, the furthest north of all countries in Africa, would have been an exciting place to gather and discuss these issues. How moving it would be to discuss psychology while also soaking up some of the geography, politics, and history of a country that held its first free elections only within the past few years. Sadly, I would never get to have this exciting and moving experience. Shortly after my travel plans were firmly in place, three terrorists attacked the Bardo

National Museum in Tunis, the capital city, taking hostages in the process. It was March 18, 2015, and more than 20 people, primarily tourists, were killed, and many others were injured. Three months later, on June 26, 2015, armed terrorists attacked two hotels in a tourist resort area not far from the city of Sousse in Tunisia, killing 40 people, also mostly tourists. These unexpected events likely contributed to the financial difficulties that the conference organizers experienced. In any event, funding was no longer available to bring me to Tunisia. I was able to deliver my presentation and to answer questions in November 2015 via videoconferencing from the terror-free safety of UC Irvine. But I never got the full experience of visiting a beautiful, progressive country that only gave women full legal status, so that they could run their own businesses, deposit money in their own bank accounts, and receive passports that would allow them to travel by themselves, about 50 years ago.

BRIEF CANDLES IN THE ROMANTIC DARK

My marriage to Geoff lasted for 23 years and ended in large part because of my workaholic ways. Happily, we have remained good friends and speak on the phone at least three times a year: on each of our birthdays and on the day of our wedding anniversary.[5]

Since Geoff, I've had a few romantic entanglements, some lasting for days and some for years. I spent time with corporate presidents, film producers, and successful lawyers and academics, but also with mailmen and bakers. I love the beginnings, when you share past memories as you're getting to know each other. I've used these opportunities to dredge up the past and to tell some favored stories, like the ones that had to do with maneuvering a difficult relationship with a stepmother. I cherish some of the wonderful things that have been said to me at the beginning of a new relationship, such as, "If I could make a woman from scratch, she'd be just like you." I've sometimes been the one to end things, but I've had my share of disappointed feelings when he's not as interested as I am. One of the worst breakup lines I have heard was, "When I was in college I dated women who were trim and fit, and, well, you're not that." I can laugh about it now—and even turned it into a Johnny Cochran line: "Trim and fit, and you're not it."

What I've learned is that female friends have the best intentions when they try to offer you an excuse for why he isn't calling, but their comforting words may not be the best medicine. As in the film *He's Just Not That into You*, well-meaning friends might say something like, "Maybe he lost your phone number." "He can't handle your emotional maturity." "You're too pretty; he can't handle that." The film opens with scenes of girlfriends giving these placating excuses to each other all over the world—England, Japan, India—but when I watched two women in Africa having this same conversation, I almost fell off my chair laughing. One woman is distraught that he wasn't calling, and her friend says, "Maybe he was eaten by a lion." After the chair stopped shaking, I thought more. Are these excuse-finding morsels simply helpful white lies that make a friend feel better? Perhaps not if, as my pal Carol Tavris cautioned me, they delay the process of accepting the truth and moving on in life. Maybe we should appreciate our friends when they resist the temptation to make us feel better by suggesting that he was eaten by a lion and tell us, straight, he's just not that into us. They are offering us removable truths—truths worth keeping, even if we temporarily remove them from our diaries.

[5]This reminds me of a most unusual Valentine's Day in 2016. Geoff and his lovely third wife, Willa, were visiting a college-going daughter, Emma, that he had with his second wife. Emma wanted to meet me. So Geoff took Wife 3, Wife 1, and the daughter of Wife 2 out for a delicious Italian meal. Just another modern American family!

MEMORY AND SOCIETY

One of the things I'm most pleased to see is how the public understanding about memory has changed, perhaps in part due to the scientific work that I and others have published and publicized. The common understanding that memory is often not reliable has permeated our culture in important ways. Judges who were once resistant to admitting expert testimony from memory scientists into court cases are now more willing to do so. Methods for gathering memory evidence in legal cases have changed, embracing reforms that can lead to greater accuracy. Psychotherapists have become more aware of problematic techniques that can lead their patients into false memories that wreak havoc on the lives of patients and those around them. You can see evidence of the changes in our view of memory over time in a study described in our paper "Are the Memory Wars Over?" (Patihis et al. 2014). It's a thrill for me to be reading some unrelated article in, say, the *New Yorker*, and see heartwarming proclamations, as happened twice in a single day while I was on a long airplane trip. I was catching up with my early 2016 issues of the *New Yorker* and read one piece about child welfare in which the author referred to the "sexual-abuse scandals of the eighties and the recovered-memory travesty of the nineties" (Lepore 2016), and another piece about the series *Making a Murderer* in which the author mentioned that "seventy-two percent of wrongful convictions involve a mistaken eyewitness" (Schulz 2016).

Of course, there is still much educating to do, and we can't remain complacent. While writing this article, the *New York Times* columnist David Brooks published an essay titled "The Year of Unearthed Memories" that made me cringe (Brooks 2015). Brooks has long been a champion for psychological science; he has embraced what our field has to offer and used it to help his readers understand politics, conflict, and even themselves. But in his 2015 essay, he touted worthless theories about how memory works, including the psychobabble that traumatic memories are buried deep in primitive regions of the brain, tucked underneath conscious awareness, yet leaking toxic waste into people's lives. Brooks tied these myths to global racism and oppression. My former postdoc and longtime collaborator, Maryanne Garry, and I wrote a complaining letter to the *Times* that they never published. My favorite part of our letter took Brooks to task for his poor use of metaphor, arguing that he was not helping the world "by drawing a parallel between the culturally-shaped, pseudoscientific operatic plot device that is repressed memory and the culturally-shared, very real burden of painful memories." As Brooks well knows, pseudoscience helped create the beliefs that support racism and oppression. Our short letter ended with a crucial message in three words: "Pseudoscience never helps."

And so, after all these years of studying how we as humans come to be visited by memories that aren't true, I end this review with a message from someone who seems to understand this well and can express it even better. In the words of Harold Pinter in *Old Times*: "The past is what you remember, imagine you remember, convince yourself you remember, or pretend you remember."

In that spirit, I hope this memoire consists more of what I remember than of what I imagine or pretend to remember. But you never know.

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