Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.



Elizabeth F. Loftus

ANNUAL REVIEWS

Annual Review of Law and Social Science

Eyewitness Science and the Legal System

Elizabeth F. Loftus

Department of Psychology and Social Behavior, University of California, Irvine, California 92697, USA; email: eloftus@uci.edu

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

ANNUAL REVIEWS CONNECT
www.annualreviews.org
• Download figures
• Navigate cited references
• Keyword search
• Explore related articles
• Share via email or social media

Annu. Rev. Law Soc. Sci. 2018. 14:1–10

The *Annual Review of Law and Social Science* is online at lawsocsci.annualreviews.org

https://doi.org/10.1146/annurev-lawsocsci-101317-030850

Copyright © 2018 by Annual Reviews.
All rights reserved

Keywords

memory, false memory, eyewitness testimony, psychology and law

Abstract

For more than four decades, I have been studying the malleable nature of human memory. For most of this time period, I have also played a role as a consultant or expert in many legal cases that hinged on eyewitness testimony or other memory evidence. Here I describe some of the science that reveals how error prone eyewitnesses can be. Getting the legal field to recognize potential problems with memory evidence, and taking steps to solve those problems, has been a continuing struggle. It is a success story worth sharing.

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

INTRODUCTION

Did you ever stop to contemplate who might be remembered from the field of law and social sciences 100 years from now? Sometimes it is easier to think backward rather than forward. One scholar from the past who was influential for me was Hugo Munsterberg. He published his groundbreaking book, *On the Witness Stand*, in 1908 (Munsterberg 1908). Seventy years later I read this book, as a young experimental psychologist, while preparing to write my first book on eyewitness testimony (Loftus 1979).

Munsterberg was a colorful character. When he wrote his famous book, he was a professor of psychology at Harvard and was a leading figure, if not the founder, of the discipline of psychology and law. Among his other activities, Munsterberg used to stage unexpected intrusions in his classroom and then question the students about what they had seen. He wrote about these observations in his classic book, where he argued that the psychological methods for testing the accuracy of eyewitness memory were far superior to those being used by the legal system. Munsterberg would soon find himself criticized by an eminent legal scholar, John Henry Wigmore (1909). Wigmore's satirical attack came in the form of a wonderfully witty imaginary trial in which members of the Bar sued Munsterberg for defamation. Despite Wigmore's savage slaughter of psychology, I, for one, appreciated that Munsterberg did much to introduce the public to many ideas that are still central to the field of eyewitness testimony—a field that I would devote myself to for four decades.

STUDIES OF MEMORY

My foray into Law and Social Sciences occurred some years after I had been studying human memory. In graduate school I did studies of memory that had little immediate relevance to the legal system. But once I secured an academic position, I decided I wanted to do some research that had more obvious practical applicability. I had always had an interest in legal matters, including a concern for people who were wrongly accused. So it seemed like a good idea for me to study the memory of people for crimes and accidents and other legally relevant events. Most other memory scientists were studying memory for rather pallid materials, like lists of words, where you could get a lot of control over what the subjects were experiencing. But I began showing films of accidents, and later, crimes, and exploring how the questioning process affected what people remembered. In one study, research witnesses who had seen films of auto accidents were asked about the speed of the vehicles using one of several question formats. "About how fast were the cars going when they smashed into each other?" led to higher estimates of speed than the same question asked with the verb "hit." Moreover, witnesses who had been asked the "smashed" question were later more likely to report that they had seen broken glass at the accident scene, broken glass that did not exist. These and other findings led me to propose that the questions were changing the witness's memory for the accident. But questions are only one form of postevent activity that can alter what a witness remembers. Talking with other witnesses, reading or watching media coverage about an event, and other postevent activities have the potential to contaminate, transform, or even simply supplement memory. The phenomenon became known as the misinformation effect. [Much of this early work is reviewed in my aforementioned book on eyewitness testimony (Loftus 1979)]. Many later studies of misinformation would follow (e.g., Loftus & Hoffman 1989), but I do not describe the scientific work more fully because I did so in a recent autobiographical piece (Loftus 2017). Instead, here I focus more on how the work intersected with the law.

After I published several experimental papers describing the behavior of laboratory witnesses, I volunteered to work on a murder case so I could see the behavior of real-world witnesses up close. It just so happened that the defendant in that case was acquitted, and I wrote about the experience

(the science, the case) for *Psychology Today* magazine (Loftus 1974). At the time, *Psychology Today* had a huge circulation and was read not only by psychology aficionados but by many members of the legal profession. After publication of that article, entitled "The Incredible Eyewitness," lawyers began asking me to work on their cases, to lecture to their legal groups, and to write for their publications, and this is how one ordinary experimental psychologist became entangled with the legal world.

INTO THE COURTROOM

At the time that I first started consulting with lawyers, a few psychologists were being asked to testify on the science of eyewitness memory, with mixed success. Robert Buckhout was able to testify in the highly publicized case of *People of California v. Angela Davis* in 1972 (see Caldwell 1972). Readers old enough might recall that the trial arose out of allegations that Davis, described in Wikipedia as an American political activist/academic/author, was involved in a shoot-out in the early 1970s. The key prosecution evidence involved questionable eyewitness testimony. Buckhout testified about the badly biased test that had been used to secure an identification of Davis. Davis was acquitted. Defense attorneys began to appreciate the usefulness of eyewitness experts in educating jurors about the factors that can negatively affect eyewitness memory.

But the legal profession was not exactly whole-heartedly embracing this new type of expert testimony. It was mostly defense lawyers in criminal cases who attempted to introduce eyewitness expert testimony, and judges in the early days frequently excluded it. One common reason given for excluding the proffered testimony was that the material was within the common knowledge of the jury and was therefore not a proper subject matter for expert testimony. One court wrote, "It is something everyone knows about, the problems of identification . . . . Everyone knows these things happen" [*People v. Guzman* (1975), pp. 384, 72]. Other courts worried that the eyewitness expert would invade the province of the jury. The argument here is that it is up to the jury to decide whether a particular witness did or did not see what is being reported. Somewhat less frequently, the court would express concern that the eyewitness expert would have a prejudicial effect on the jury, or that the testimony was not generally accepted in the relevant scientific community.

Given these concerns, it is unsurprising that the higher courts would routinely uphold the convictions of defendants who had appealed their cases because of the exclusion by the trial judge of the expert. For the most part, the higher courts ruled that trial judges had the broad discretion to refuse expert testimony, and doing so was not an abuse of discretion. If you looked only at published appeals at that time, you would get the impression that courts were almost uniformly against this type of expert, but there is an obvious reason for this apparent one-sidedness. Criminal defendants appealed their cases on this issue only when the expert was excluded and the defendant was convicted. If the trial judge admitted the expert, and the defendant was acquitted, there was no appeal.

There things stood until 1983. That was the year that the Supreme Court of Arizona reached a ground-breaking decision [*State v. Chapple* (1983)]. Dolan Chapple had been convicted of murder and drug trafficking, primarily on the basis of two eyewitnesses who identified him at trial. The eyewitness testimonies were, shall we say, fishy: The first identification of Chapple had been from photos shown to the witnesses more than a year after the crime. Chapple's lawyer had tried to introduce my testimony, but the trial judge refused, on the grounds that the subject matter was common knowledge. The Arizona Supreme Court reversed the conviction, holding that the expert testimony would have provided useful scientific data on such matters as the accuracy of delayed identifications and the effects of stress on memory.

A year after *Chapple*, the California Supreme Court reversed a conviction in a murder case [*People v. McDonald* (1984)]. The defendant had been convicted of murdering a restaurant worker in a trial

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

that included multiple eyewitnesses who claimed he was the shooter. The jury believed them over myriad alibi witnesses who said he was visiting his grandfather in Alabama on the day of the shooting. This was the beginning of a string of state supreme court and appellate decisions reversing convictions after eyewitness experts had been excluded. I covered a lot of this early background in my Presidential Address for the American Psychology-Law Society (Loftus 1986) and took a deep dive into some of the early cases in a book entitled *Witness for the Defense* (Loftus & Ketcham 1991).

EXPERT OUT, EXPERT IN

Because it was common in the early days for judges to exclude expert testimony on the grounds that the material was all common knowledge, several scientists began to ask, just what is common knowledge? My first foray into answering this question involved a pilot study that I wrote about in my first eyewitness book (Loftus 1979, p. 172). It showed that many jury-eligible individuals held beliefs that were contradicted by the scientific literature. Subsequently, I collaborated on more extensive efforts that revealed the misconceptions that jurors have about the workings of eyewitness memory (Deffenbacher & Loftus 1982, Schmechel et al. 2006). To give one example, Schmechel et al. (2006) explored whether respondents were aware of the cross-race identification problem, namely, that people have more difficulty identifying strangers of a different race compared with their own race. Almost two-thirds of potential jurors surveyed answered in a way that revealed they were ill-informed about the cross-race issue. Most of those in error (48%) believed that cross-race and same-race identifications were equally reliable, with some even suggesting that cross-race identifications might be more reliable (11%). In reviewing the results of a large number of survey studies, Semmler et al. (2012) concluded that they show a general lack of knowledge among potential jurors about the effects of interviewing techniques and other procedures for handling witness evidence.

The number of other scientists from around the world who contributed to the literature regarding common knowledge about eyewitness memory is too large to comprehensively list here. They have used not only the survey methods just mentioned but also other procedures, such as mock-trial simulations, to understand how jurors think about the factors that affect witness memory (see Semmler et al. 2012). The point I want to make about this entire body of research is that the effort reveals a nice example of how what is happening in the legal world can influence what science is done, and what is happening in the science world can influence what is happening in the legal world. Today, in contrast to the world of the 1970s, there have been many reversals of convictions for excluding expert testimony—some of which express an explicit appreciation of the research showing that jurors do have misconceptions and can probably benefit from some education. The Illinois case of *People v. Lerma* (2016) provides an example. The case arose out of the shooting death of Jason Gill—shot in front of his home in Chicago back in 2008. The prosecution's case rested on two eyewitness identifications. The defense tried to introduce the expert testimony of Dr. Fulero. Midway through trial, the defense attempted to introduce a report by a different expert because Dr. Fulero had since passed away. That new expert was Dr. Geoffrey Loftus (my Wasband), who was described in the court opinion as a "widely-published and globally-recognized expert in the field of human perception and memory." G. Loftus's report covered such factors as the effects of a weapon, time duration, cross-race identification, and more. The jury convicted Lerma, and he was sentenced to 45 years in prison. Lerma appealed, and the appellate court reversed the conviction. That court concluded that the trial judge had abused his discretion in not carefully considering the expert evidence and explicitly noted that the trial court ruling amounted to "little more than a series of conclusions based on personal belief." The state supreme court went further and noted that "expert testimony concerning the reliability of eyewitness testimony has moved from novel

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

and uncertain to settled and widely accepted." It further asserted that there is now "a clear trend among state and federal courts permitting the admission of eyewitness expert testimony."

THE WRONGFUL CONVICTION REVELATION

Scholars since Munsterberg's day have taken an interest in wrongful convictions, and the fact that many involved faulty eyewitness memory certainly helped fuel interest in studying the topic. But what really made a difference in this area was the development of DNA testing on semen and biological materials that proved the convicted defendants were actually innocent. The lawyer/author James Doyle (2005) provides a terrific account of why this mattered. After a highly publicized DNA exoneration, the National Institute of Justice (the research arm of the US Department of Justice) began collecting other cases. They came up with 28 and wrote about them in the late 1990s (Connors et al. 1998). As Doyle (2005, p. 129) put it, the 28 cases were "an amazing catalogue of underserved punishment and shattered lives." The major cause of those tragedies: faulty eyewitness testimony. Today, the Innocence Project has used DNA testing to exonerate more than 350 people who were wrongly convicted of murder, rape, or other serious crimes. When these cases have been thoroughly analyzed, the major cause has been faulty eyewitness memory (Garrett 2011, Scheck et al. 2000).

Other scientists have contributed majorly to our collective effort to learn what causes eyewitnesses to make these types of mistakes. Whereas I was mostly concentrating on how postevent activity could affect memory (Frenda et al. 2011; Loftus 2003, 2005), other scientists focused on different parts of the elephant. They studied how to design eyewitness procedures that would maximize accuracy, and many of them came together to produce an excellent edited volume entitled *Reform of Eyewitness Identification Procedures* (Cutler 2013). But it was almost certainly the DNA cases that helped bring attention to the problems and created a legal culture that would pay at least a modicum of attention to the kinds of reforms that the scientists were suggesting.

MEMORY SCIENCE AND SOCIETY TODAY

A huge development in this area occurred in 2013. That was the year that the Arnold Foundation asked the National Academy of Sciences to conduct a thorough study of scientific research relating to eyewitness testimony. In response, the National Research Council formed a committee, cochaired by a prominent federal judge (Jed Rakoff) and a prominent cognitive scientist (Thomas Albright of the Salk Institute for Biological Studies). After a couple of years of work, the committee published its report: *Identifying the Culprit: Assessing Eyewitness Identification* (Natl. Res. Counc. 2014). A press release about the report quotes Albright, who makes clear the problem: "Human visual perception and memory are changeable, the ability to recognize individuals is imperfect, and policies governing law enforcement procedures are not standard—and any of these limitations can produce mistaken identifications with serious consequences" (Natl. Acad. Sci. 2014). It included myriad suggestions for the handling of eyewitnesses in legal cases, such as recommending training of law enforcement officers in eyewitness issues and use of standardized instructions and double-blind methods for conducting lineups or other identification tests. It also included suggestions for better education of jurors about eyewitness memory. The committee recommended that judges be able to admit expert testimony as a way of educating or, alternatively, that they deliver carefully crafted jury instructions that could accomplish this same educational goal.

Expert witnesses can be expensive, in terms of their cost and the additional cost in time spent by judges, their staff, lawyers, and others whose time is compensated as they listen to what might be several hours of court testimony. Jury instructions delivered by a judge would seem more efficient

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

in that they might add a mere fraction of an hour. But devising the right instructions is easier said than done, as I argued in a recent essay written with Judge Rakoff (Rakoff & Loftus 2018).

Before presenting the new findings on jury instructions, a bit of background is required. In *State v. Henderson* (2011), a new legal standard for assessing eyewitness evidence was established. The defendant in that case had been implicated in a murder that had occurred years earlier and was convicted based largely on eyewitness testimony. He appealed, and when the case reached the state supreme court, it issued a rather bold ruling that established that new legal standard. Namely, if a defendant can show evidence of suggestive issues surrounding the eyewitness, the court must hold a hearing in which all relevant factors are explored. Then, if the judge decides to admit the eyewitness, he or she must provide specially tailored jury instructions that guide the jury on how to evaluate the eyewitness account. The special instructions were drafted over the next year, and they convey important scientific findings, such as telling the jury that human memory does not work like a video recording, or that cross-race identifications of strangers are more difficult for people.

The *Henderson* instructions were now in place, but it was not clear what effect they actually were having. So several scientists decided to take a close look. One of those studies used a mock jury procedure to present individuals with trial testimony about a murder case in which the evidence was either strong or weak (Papalliou et al. 2015). One finding from this study is that the mock jurors were far less likely to convict the defendant of murder when they had been given the New Jersey *Henderson* instructions (versus some pallid standard instruction). But the reduction in the conviction rate occurred for both the strong and the weak case. Ideally, an instruction should help jurors discriminate good eyewitness testimony from bad, producing a reduction for the bad case but less so for the good. A similar finding occurred in another mock jury case (Dillon et al. 2017). These initial efforts suggest that scholars need to keep working to find new ways to improve the jury instructions so that they do not merely induce general skepticism but also improve sensitivity.

As we strive for more and better, it is worth noting that many scholars have applauded the progress that eyewitness science has made, in the science and in getting the attention of the legal field (e.g., Wells et al. 2006). Based explicitly on the eyewitness literature, many recommendations have been adopted for conducting identification tests in many jurisdictions. As one group noted, "Eyewitness scientists have played a central role in explaining the literature and helping translate the findings into practical reforms" (Wells et al. 2006, p. 68).

THE MEMORY WARS

At the present time, I have testified as an eyewitness expert in nearly 300 trials. But I want to step back a few decades to describe another development pertaining to memory and the law. By 1990, I had testified as an eyewitness expert in more that l50 trials. Typically, that testimony involved discussing how memory works and identifying various factors that could contribute to possible mistakes in memory that were present in the case at bar. Often I described some of my own studies showing how postevent misinformation can contaminate a witness's memory and lead to false reporting.

In 1990, I was asked to work on a highly unusual murder case. The defendant, George Franklin, was charged with murdering an 8-year-old girl (Susie) 20 years earlier. The only evidence against Franklin was the testimony of his daughter Eileen, who claimed she witnessed the murder and repressed it, as well as repressing years of sexual abuse by her father. I took a deep dive into the purported evidence for such massive repression and discovered no credible scientific support for what McNally (2003) would call the repression folklore. Despite this, Franklin was convicted, becoming virtually the first American to be convicted of murder based on claims of repressed memory (see Loftus & Ketcham 1994 for a description of the Franklin case).

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

After the Franklin case, thousands more claims would emerge in which people were accused of horrific abuse that had allegedly been repressed. Although I had considerable experience with people (in experiments and in cases) misremembering the details of past events that had occurred, this was an altogether more extreme kind of memory issue. If these memories were not real (and many of them were contradicted by geographical, biological, or psychological evidence), where could they come from? Most, it appeared, had come to light after certain kinds of therapy. But could suggestive therapy lead people to have such rich memories, and what would the process of developing rich false memories look like? My initial study involved an attempt to plant memories of something that would have been at least mildly traumatic if the event had actually happened. The subjects were led through suggestion to believe that they were, at age five or six, lost in a shopping mall, frightened, crying, and ultimately rescued by an elderly person and reunited with their family [more can be learned about the initial work by reading Loftus & Ketcham (1994, chapter 7) or the initial publication reporting complete or partial false memories in 25% of our sample, Loftus & Pickrell (1995)]. Soon thereafter, other researchers used similar suggestive techniques and planted false memories of events that were more unusual, bizarre, or traumatic, such as nearly drowning or being attacked by a vicious animal. More recently a group of researchers used a common coding scheme to analyze the false memory reports of more than 400 subjects who had previously participated in studies of rich false memories. Overall, more than approximately 30% of the reports were classified as indicative of false memories and an additional 20% plus accepted the event to some degree (Scoboria et al. 2017). So it could be said that the Franklin case, and its wild claims of massive repression, not only influenced the legal landscape but also spawned a whole series of studies that showed just how far you can go with people in terms of planting false information into their memory banks.

These rich false memories have been studied extensively by many research groups around the world. In my own laboratory, we have shown that such false memories have repercussions for people, influencing their subsequent thoughts, intentions, and behaviors (e.g., Bernstein et al. 2005a,b). We have shown that it is virtually impossible without independent corroboration to tell the difference between a real memory and one that is a product of some other process (Bernstein & Loftus 2009).

In the years since the Franklin case, there have been hundreds of cases, both criminal and civil, involving claims of massive repression. In one early case, 32-year-old Sharon Keene sued her former neighbor, Ronald Edie (age 57), claiming that he had molested her over several years some two decades earlier (Seven 1993). Keene claimed that she had repressed her memories until she recovered them in therapy that she attended to deal with marital problems. She had even previously denied the abuse under oath. But now, a jury awarded Keene more than $300,000. In cases like this, opposing experts frequently appear disagreeing about whether there is any credible scientific support for the existence of such massive repression. Experts for the accusers claim there is, and those for the accused disagree.

A massive published literature emerged, and dueling experts have fought the battle in that arena as well (for a review, see Davis & Loftus 2009, Loftus & Davis 2006). Today, the memory wars persist. This can be seen in part in surveys of mental health professionals, memory experts, and other groups of professionals. In one study (Patihis et al. 2014), research-oriented psychologists and memory experts expressed far more skepticism about repression than practitioners from other groups. For just one example, respondents were asked if they agreed with the statement "Traumatic memories are often repressed." Some groups agreed (either slightly or strongly), such as hypnotherapists at 82% and psychoanalysts at 69%. Other groups rarely agreed, such as experimental psychologists at 27% and clinical psychologists/researchers at 19%.

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

Despite the controversy in the field, hundreds of cases emerged in the 1990s and continue to this day. Sometimes they involve an accuser like Keene suing an accused like Edie. Other times they involve former accusers who have realized their memories are false suing their former therapists for planting false memories. Sometimes they involve third-party litigation, in which, say, an accused parent sues the daughter's therapist for planting false memories in the mind of their grown child, even when the grown child still believes in the memories. A large legal literature has emerged from the appearance of these memory wars in the legal arena (see Finer 1996 for one of the most comprehensive examples of legal scholarship). Interestingly, experts on memory and suggestibility have routinely testified in these cases, and they rarely confront the huge struggle and controversy that met the earlier eyewitness experts when they initially were sought out for trial testimony.

CONCLUDING REMARKS

On the hundredth anniversary of Munsterberg's *On the Witness Stand*, a new publisher planned to reissue the book and asked me to write a forward for it (Munsterberg 2009). "I'm envious of Hugo Munsterberg" was the sentence that began my forward. Having seen one book that I published go out of print fewer than 10 years after it appeared, I knew that the life span of books can be tenuous. I could only fantasize about publishing a book that might be reprinted a century later. Other reasons to envy Munsterberg might be for his stellar career and his sensational ability to write for a broad audience.

But those warm fuzzy feelings would change for me about a decade later. Here is why: Have you ever played the party game where friends tell one another the person in history with whom they would most like to have dinner? For years, one of my top choices would have been Hugo Munsterberg. Recent events have made it clear, however, that Munsterberg would probably not be interested in having dinner with me. As I was writing this article, a colleague gave me a copy of Jill Lepore's fabulous biography of Wonder Woman and her creator, the psychologist William Marston. Munsterberg featured in this biography in several places, as he was Marston's academic advisor at Harvard. And from Lepore, whose writing I greatly admire, I learned how infamous Munsterberg was for his opposition to the education of women. Apparently Munsterberg felt that the main reason any woman should be educated is to become a more interesting wife. Moreover, women, he felt, should not serve on juries because, as Lepore (2014, p. 29) quoted him saying, "they are unwilling to listen to argument and cannot be brought to change their opinion on any subject." This new-found information changed my view of Hugo. I still imagine having that dinner, but it would go a bit differently from the way I imagined it before. After letting Hugo talk about himself for the first couple of hours, I would slip in some information about me. Remember that organization that you were president of? The American Psychological Association? Well, in 2013, the American Psychological Foundation gave me their Gold Medal Award for Life Achievement in the Science of Psychology. The citation says it was awarded for "extraordinary contributions to our understanding of memory during the past 40 years that are remarkable for their creativity and impact." And, as for your views on women and jury duty, while writing this article, I was summoned to report for jury duty. When the clerk read the names of those called to the box, he included mine. As I walked toward the jury box, the judge said out loud, "Professor Elizabeth Loftus?"

Me: "Yes, your honor.'"

Judge: "Uh . . . I took a class from you years ago . . . . This may be a conflict."

And so I was excused from jury duty, which was slightly disappointing, because I would have loved, at least once in life, to be in the trenches on the other side of the box.

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

DISCLOSURE STATEMENT

The author is not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

LITERATURE CITED

Bernstein DM, Laney C, Morris EK, Loftus EF. 2005a. False memories about food can lead to food avoidance. *Soc. Cogn.* 23:10–33

Bernstein DM, Laney C, Morris EK, Loftus EF. 2005b. False beliefs about fattening foods can have healthy consequences. *PNAS* 102:13724–31

Bernstein DM, Loftus EF. 2009. How to tell if a particular memory is true or false. *Perspect. Psychol. Sci.* 4:370–74

Caldwell E. 1972. Angela Davis acquitted on all charges. *New York Times*, June 5. **https://archive.nytimes.com/www.nytimes.com/books/98/03/08/home/davis-acquit.html**

Connors E, Lundregan T, Miller N, McEwen T. 1998. *Convicted by Juries, Exonerated by Science*. Alexandria, VA: Natl. Inst. Justice

Cutler BL, ed. 2013. *Reform of Eyewitness Identification Procedures*. Washington, DC: Am. Psychol. Assoc. Press

Davis D, Loftus EF. 2009. The scientific status of "repressed" and "recovered" memories of sexual abuse. In *Psychological Science and Non-Science in the Courtroom: Consensus and Controversy*, ed. JS Skeem, KS Douglas, SO Lilienfeld, pp. 55–79. New York: Guilford

Deffenbacher KA, Loftus EF. 1982. Do jurors share a common understanding concerning eyewitness behavior? *Law Hum. Behav.* 6:15–30

Dillon MK, Jones AM, Bergold AN, Hui CYT, Penrod SD. 2017. *Henderson* instructions: Do they enhance evidence evaluation? *J. Forensic Psychol. Res. Pract.* 17:1–24. **http://dx.doi.org/10.1080/15228932.2017.1235964**

Doyle JM. 2005. *True Witness*. New York: Palgrave Macmillan

Finer JJ. 1996. Therapists' liability to the falsely accused for inducing illusory memories of childhood sexual abuse—current remedies and a proposed statute. *J. Law Health* 11:45–131

Frenda SJ, Nichols RM, Loftus EF. 2011. Current issues and advances in misinformation research. *Curr. Dir. Psychol. Sci.* 20:20–23

Garrett BL. 2011. *Convicting the Innocent*. Cambridge, MA: Harvard Univ. Press

Lepore J. 2014. *The Secret History of Wonder Woman*. New York: Knopf

Loftus EF. 1974. Reconstructing memory: the incredible eyewitness. *Psychol. Today* 8:116–19

Loftus EF. 1979. *Eyewitness Testimony*. Cambridge, MA: Harvard Univ. Press

Loftus EF. 1986. Ten years in the life of an expert witness. *Law Hum. Behav.* 10:241–63

Loftus EF. 2003. Make-believe memories. *Am. Psychol.* 58:864–73

Loftus EF. 2005. Planting misinformation in the human mind: a 30-year investigation of the malleability of memory. *Learn. Mem.* 12:361–66

Loftus EF. 2017. Eavesdropping on memory. *Annu. Rev. Psychol.* 68:1–18

Loftus EF, Davis D. 2006. Recovered memories. *Annu. Rev. Clin. Psychol.* 2:469–98

Loftus EF, Hoffman HG. 1989. Misinformation and memory: the creation of memory. *J. Exp. Psychol.* 118:100–4

Loftus EF, Ketcham K. 1991. *Witness for the Defense: The Accused, the Eyewitness, and the Expert Who Puts Memory on Trial*. New York: St. Martin's

Loftus EF, Ketcham K. 1994. *The Myth of Repressed Memory*. New York: St. Martin's

Loftus EF, Pickrell JE. 1995. The formation of false memories. *Psychiatr. Ann.* 25:720–25

McNally R. 2003. *Remembering Trauma*. Cambridge, MA: Harvard Univ. Press

Munsterberg H. 1908. *On the Witness Stand*. New York: Doubleday, Page

Munsterberg H. 2009. *On the Witness Stand*. Greentop, MO: Greentop Acad. (reissue with new forward by E. Loftus)

Natl. Acad. Sci. 2014. *Report urges caution in handling and relying upon eyewitness identification in criminal cases. Recommends best practices for law enforcement and courts*. Press Release, Oct. 2

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

Natl. Res. Counc. 2014. *Identifying the Culprit: Assessing Eyewitness Identification*. Washington, DC: Natl. Acad. Press

Papalliou AP, Yokum DV, Robertson CT. 2015. The novel New Jersey eyewitness instruction induces skepticism but not sensitivity. *PLOS ONE* 10(12):e0142695. **http://doi.org/10.1371/journal.pone.0142695**

Patihis L, Ho LY, Tingen IW, Lilienfeld SO, Loftus EF. 2014. Are the "memory wars" over? A scientist-practioner gap in beliefs about repressed memory. *Psychol. Sci.* 25:519–30

People v. Guzman, 47 Cal. App. 3d 380, 121 Cal. Rptr. 69 (1975)

People v. Lerma, 2016 IL 118496, 47 N.E. 3d 985 (2016)

People v. McDonald, 37 Cal. 3d 351, 208 Cal. Rptr. 236, 690 P. 2d 709 (1984)

Rakoff J, Loftus EF. 2018. The intractability of inaccurate eyewitness identification. *Daedelus*. In press

Scheck B, Neufeld P, Dwyer J. 2000. *Actual Innocence*. New York: Doubleday

Schmechel RS, O'Toole TP, Easterly C, Loftus EF. 2006. Beyond the ken: testing juror's understanding of eyewitness reliability evidence. *Jurimetr. J.* 46:177–214

Scoboria A, Wade KA, Lindsay DS, Azad T, Strange D, et al. 2017. A mega-analysis of memory reports from eight peer-reviewed false memory implantation studies. *Memory* 25:146–63

Semmler C, Brewer N, Douglass AB. 2012. Jurors believe eyewitnesses. In *Conviction of the Innocent*, ed. BL Cutler, pp. 185–209. Washington, DC: Am. Psychol. Assoc. Press

Seven R. 1993. Psychiatry of repressed memory on trial. *Seattle Times*, July 9

State v. Chapple, 135 Ariz. 281, 660 P. 2d 1208 (1983)

State v. Henderson, 27 A. 3d 872 (N.J. 2011)

Wells GL, Memon AM, Penrod SD. 2006. Eyewitness evidence: improving its probative value. *Psychol. Sci. Public Interest* 7:45–75

Wigmore JH. 1909. Professor Munsterberg and the psychology of evidence. *Ill. Law Rev.* 3:399–445

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

ANNUAL REVIEWS
Connect With Our Experts

New From Annual Reviews:

Annual Review of Criminology

criminol.annualreviews.org • Volume 1 • January 2018

ONLINE NOW!

Co-Editors: **Joan Petersilia**, *Stanford University* and **Robert J. Sampson**, *Harvard University*

The *Annual Review of Criminology* provides comprehensive reviews of significant developments in the multidisciplinary field of criminology, defined as the study of both the nature of criminal behavior and societal reactions to crime. International in scope, the journal examines variations in crime and punishment across time (e.g., why crime increases or decreases) and among individuals, communities, and societies (e.g., why certain individuals, groups, or nations are more likely than others to have high crime or victimization rates). The societal effects of crime and crime control, and why certain individuals or groups are more likely to be arrested, convicted, and sentenced to prison, will also be covered via topics relating to criminal justice agencies (e.g., police, courts, and corrections) and criminal law.

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

TABLE OF CONTENTS FOR VOLUME 1:

THE DISCIPLINE

- *Reflections on Disciplines and Fields, Problems, Policies, and Life,* James F. Short
- *Replication in Criminology and the Social Sciences,* William Alex Pridemore, Matthew C. Makel, Jonathan A. Plucker

CRIME AND VIOLENCE

- *Bringing Crime Trends Back into Criminology: A Critical Assessment of the Literature and a Blueprint for Future Inquiry,* Eric P. Baumer, María B. Vélez, Richard Rosenfeld
- *Immigration and Crime: Assessing a Contentious Issue,* Graham C. Ousey, Charis E. Kubrin
- *The Long Reach of Violence: A Broader Perspective on Data, Theory, and Evidence on the Prevalence and Consequences of Exposure to Violence,* Patrick Sharkey
- *Victimization Trends and Correlates: Macro- and Microinfluences and New Directions for Research,* Janet L. Lauritsen, Maribeth L. Rezey
- *Situational Opportunity Theories of Crime,* Pamela Wilcox, Francis T. Cullen
- *Schools and Crime,* Paul J. Hirschfield

PUNISHMENT AND POLICY

- *Collateral Consequences of Punishment: A Critical Review and Path Forward,* David S. Kirk, Sara Wakefield
- *Understanding the Determinants of Penal Policy: Crime, Culture, and Comparative Political Economy,* Nicola Lacey, David Soskice, David Hope
- *Varieties of Mass Incarceration: What We Learn from State Histories,* Michael C. Campbell
- *The Politics, Promise, and Peril of Criminal Justice Reform in the Context of Mass Incarceration,* Katherine Beckett

THE PRISON

- *Inmate Society in the Era of Mass Incarceration,* Derek A. Kreager, Candace Kruttschnitt
- *Restricting the Use of Solitary Confinement,* Craig Haney

DEVELOPMENTAL AND LIFE-COURSE CRIMINOLOGY

- *Desistance from Offending in the Twenty-First Century,* Bianca E. Bersani, Elaine Eggleston Doherty
- *On the Measurement and Identification of Turning Points in Criminology,* Holly Nguyen, Thomas A. Loughran

ECONOMICS OF CRIME

- *Gun Markets,* Philip J. Cook
- *Offender Decision-Making in Criminology: Contributions from Behavioral Economics,* Greg Pogarsky, Sean Patrick Roche, Justin T. Pickett

POLICE AND COURTS

- *Policing in the Era of Big Data,* Greg Ridgeway
- *Reducing Fatal Police Shootings as System Crashes: Research, Theory, and Practice,* Lawrence W. Sherman
- *The Problems With Prosecutors,* David Alan Sklansky
- *Monetary Sanctions: Legal Financial Obligations in US Systems of Justice,* Karin D. Martin, Bryan L. Sykes, Sarah Shannon, Frank Edwards, Alexes Harris
- *Forensic DNA Typing,* Erin Murphy

ANNUAL REVIEWS | CONNECT WITH OUR EXPERTS
650.493.4400/800.523.8635 (US/CAN)
www.annualreviews.org | service@annualreviews.org

Annual Review of Law and Social Science

Volume 14, 2018

Contents

Eyewitness Science and the Legal System
Elizabeth F. Loftus 1

Campaign Finance Disclosure
Abby K. Wood 11

Conditions of Confinement in American Prisons and Jails
Christopher Wildeman, Maria D. Fitzpatrick, and Alyssa W. Goldman 29

Correctional Autonomy and Authority in the Rise of Mass Incarceration
Keramet Reiter and Kelsie Chesnut 49

Critiques of Human Rights
Malcolm Langford 69

From Nudge to Culture and Back Again: Coalface Governance in the Regulated Organization
Ruthanne Huising and Susan S. Silbey 91

Law and the Dead Body: Is a Corpse a Person or a Thing?
Ellen Stroud 115

Law's Underdog: A Call for More-than-Human Legalities
Irus Braverman 127

Norms, Normativity, and the Legitimacy of Justice Institutions: International Perspectives
Jonathan Jackson 145

Rule-of-Law Ethnography
Nick Cheesman 167

Environmental Security and the Anthropocene: Law, Criminology, and International Relations
Cameron Holley, Clifford Shearing, Cameron Harrington, Amanda Kennedy, and Tariro Mutongwizo 185

Styles of Argumentation in Judicial Opinions (Legitimating Judicial Decisions)
Nicholas Scurich 205

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.

The Use of Amicus Briefs
Paul M. Collins, Jr. 219

The Contemporary American Jury
Shari Seidman Diamond and Mary R. Rose 239

Social Media, the Internet, and Trial by Jury
Thaddeus Hoffmeister and Ann Charles Watts 259

The Lessons and Limitations of Experiments in Democratic Deliberation
John Gastil 271

The Criminal Law and Law Enforcement Implications of Big Data
Sarah Brayne 293

The Politics of Professionalism: Reappraising Occupational Licensure and Competition Policy
Sandeep Vaheesan and Frank Pasquale 309

The Rise of International Regime Complexity
Karen J. Alter and Kal Raustiala 329

The Sharing Economy
Bronwen Morgan 351

The Social Psychology of Property: Looking Beyond Market Exchange
Janice Nadler 367

The Use of Case Studies in Law and Social Science Research
Lisa L. Miller 381

Transitional Justice and Economic Policy
René Urueña and María Angélica Prada-Uribe 397

Violent Video Games, Sexist Video Games, and the Law: Why Can't We Find Effects?
Christopher J. Ferguson 411

Indexes

Cumulative Index of Contributing Authors, Volumes 1–14 427

Cumulative Index of Article Titles, Volumes 1–14 431

Errata

An online log of corrections to *Annual Review of Law and Social Science* articles may be found at http://www.annualreviews.org/errata/lawsocsci

Annu. Rev. Law. Soc. Sci. 2018.14:1-10. Downloaded from www.annualreviews.org
by eloftus@uci.edu on 10/26/18. For personal use only.