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Repeatedly Thinking about a Non-event: Source Misattributions among Preschoolers

STEPHEN J. CECI,[1] MARY LYNDIA CROTTEAU HUFFMAN, AND ELLIOTT SMITH

HDFS, Cornell University, Ithaca, New York 14853

AND

ELIZABETH F. LOFTUS

University of Washington, Seattle, Washington 98195

In this paper we review the factors alleged to be responsible for the creation of inaccurate reports among preschool-aged children, focusing on so-called "source misattribution errors." We present the first round of results from an ongoing program of research that suggests that source misattributions could be a powerful mechanism underlying children's false beliefs about having experienced fictitious events. Preliminary findings from this program of research indicate that all children of all ages are equally susceptible to making source misattributions. Data from a follow-up wave of data indicate that very young children may be disproportionately vulnerable to these kinds of errors when the procedure is changed slightly to create mental images more easily. This vulnerability leads younger preschoolers, on occasion, to claim that they actually experienced events that they only thought about. These preliminary findings are discussed in the context of the ongoing debate over the veracity and durability of delayed reports of early memories, repressed memories, dissociative states, and the validity risks posed by therapeutic techniques that entail repeated visually guided imagery inductions.

Recently, much has been written about the presumed suggestibility of children, especially very young children (Ceci & Bruck, 1993a, b). Although even adults are suggestible (e.g., Loftus, 1979), there appears to be a reliable age-related vulnerability to suggestive postevent questioning, with preschoolers disproportionately more vulnerable to these forms of suggestion than older children and adults (Ceci & Bruck, 1993a). This assertion may surprise some, as much confusion exists across studies in how suggestibility is defined and operationalized. As a result, it is easy to find scholars who express the view that there are no age-related differences in suggestibility or that any such differences are principally due to peripheral, unimportant details (e.g., whether a perpetrator wore a certain brand of sneakers when he robbed a store). Those expressing this view assert that young children are significantly less susceptible to erroneous suggestions about central actions or gist (e.g., whether a perpetrator touched a child who was

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[1] To whom correspondence and reprint requests should be addressed.

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shopping when he robbed the store). Thus, some influential policymakers, such as the past president of Division 41 of APA and the APA Division of Children, Youth & Families, have opined that there is no real basis for assuming that children are any more suggestible than adults, except in cases concerning peripheral, unimportant details:

> There is now no real question that the law and many developmentalists were wrong in their assumption that children are highly vulnerable to suggestion, at least in regard to salient details. Although some developmentalists may be challenged to find developmental differences in suggestibility in increasingly arcane circumstances, as a practical matter who really cares whether 3-year-old children are more suggestible about peripheral details in events that they witnessed than are 4-year-old children? Perhaps the question has some significance for developmental theory, but surely it has little or no meaning for policy and practice in child protection and law. (Melton, 1992, p. 154)

Notwithstanding such claims, in a recent review Ceci and Bruck (1993a) reported that 83% of studies that have compared preschoolers with older children and adults have found increased levels of suggestibility among the preschoolers. Moreover, studies that have found increased susceptibility to suggestive questioning among preschoolers have not been confined to "arcane circumstances" or "peripheral details." Instead, they have included reports of bodily touching, emotional consequences of medical procedures, observations of simulated thefts, and anatomical doll interviews about genital touching (see Ceci, in press, for review). In short, there appears to be no useful purpose served by attempting to gainsay what is surely a scientifically robust conclusion, namely, that preschoolers present a special reliability risk if the postevent context has been riddled with repeated, erroneous suggestions. Young children's suggestibility proneness, while probably reduced for bodily events, is by no means nonexistent or negligible.

Having said the above, it is important for the sake of balance to also say that children, no matter how much more suggestible they are than adults, are nevertheless capable of recollecting large amounts of forensically accurate information when the adults who have access to them have not engaged in repeated erroneous suggestions. In many of the studies that have reported age-related differences in suggestibility, young children perform quite well—until and unless an interviewer persists in making repeated erroneous suggestions or subtly rewards the child for inaccurate answers. Short of this, the children do quite well.

Finally, age is a rather crude variable, masking important individual differences related to children's personality, intelligence, and family structure. Despite robust age-related normative trends, courts want to know whether a particular child in a particular setting is likely to be a reliability risk. To answer such questions, one must go beyond chronological age to examine the relevant contextual variables that might be operative. Specifically, it will be necessary in the future for those wanting to aid fact finders in examining how contextual factors (e.g., family structure, number of siblings, type of parenting style) moderate intellectual, personalogical, and motivational variables. Researchers are a long way from doing this at present.

THE ROLE OF SOURCE MISATTRIBUTIONS

Although developmental differences in suggestibility seem to be well established, numerous attendant questions remain unresolved. These include such practically important matters as whether the magnitude of observed developmental differences is forensically relevant (and, if so, whether judges ought to give jurors cautionary instructions about young children's reliability risks), whether preschool children's greater suggestibility is memory-based (i.e., does suggestive questioning alter their memory trace for the event), or is their suggestibility socially based (e.g., are they more likely than older children and adults to defer the contents of their memories to their beliefs about what the interviewer wants them to report, e.g., Lindsay, Gonzalez, & Eso, in press; McCloskey & Zaragoza, 1985; Zaragoza, 1991; Zaragoza, Dahlgren, & Muensch, 1992).

The present paper is concerned with one of the conditions that has heretofore received only minimal attention in accounting for suggestibility among very young children, namely "source misattributions." Source misattributions refer to the difficulties that arise when one attempts to separate two or more sources of their memories, for example, an actual perception of some event versus an induction to imagine the event. A number of researchers have shown that preschool aged children find it more difficult to subsequently distinguish between actual and imagined self-generated acts, that is, between things that they merely imagined doing versus things that they actually did (Foley & Johnson, 1985; Foley, Santini, & Sopasakis, 1989). Even 9-year-olds have difficulty discriminating between acts they actually committed and those they merely imagined committing (Lindsay, & Johnson, 1987), as well as between acts of others they actually witnessed and those they only imagined that others performed. Recently, Lindsay and his colleagues (Lindsay et al., in press; Lindsay, Johnson, & Kwon, 1991) have extended this conclusion to argue that children are disproportionately more likely to confuse perceptually or semantically similar sources (e.g., acts performed by two different individuals who are similar in age). This work raises the possibility that children's source misattributions will occur when the two sources are similar and/or considered simultaneously. Therefore, by inducing even younger children to imagine what they might have seen or done, it is possible that false memories may be created.

In the past several years, attorneys have asked us to review the notes, audio tapes, and occasional videotapes of several hundred interviews with young children that were conducted by law enforcement, social work, and mental health professionals. The most frequent context for these interviews is the therapeutic session, since it is in therapy that important "disclosures" of sexual abuse are frequently made. Sometimes these disclosures come about after months or years of therapy, during which a child or adult has been encouraged to engage in visually guided imagery, self-empowerment training (e.g., reenacting alleged victimization scenes with victim and perpetrator dolls, and encouraging the child doll to dominate the perpetrator doll to regain control of presumed victimization feelings), symbol interpretation, hypnosis, and role playing (e.g., Fredrickson, 1992).

We decided to experiment with one of the techniques frequently used by therapists and social workers who interview preschool children, as evidenced by the

tapes and transcripts that we have reviewed. The technique in question is a simple one, namely, the repeated encouragement of a young child by a therapist to think about a possible event that the therapist believes may have occurred sometime in the child's past, but is being denied or repressed by the child for a variety of reasons. Repeatedly encouraging a child to "think real hard" about an alleged event may create multiple sources of memories, some actually experienced and some only imagined, in the attempt at retrieval of nonexisting memories.

As indicated above, the source monitoring literature demonstrates that young children have greater difficulty separating memories of events that they actually experienced from those that they merely were asked to imagine enacting (Foley & Johnson, 1985; Lindsay et al., 1991). A number of researchers have shown that preschool aged children find it more difficult to engage in "realization judgments," that is, to distinguish between actual and imagined self-generated acts (things that they merely imagined doing themselves versus things that they actually did—Foley & Johnson, 1985; Foley, Santini, & Sopasakis, 1989). Even 9-year-olds have difficulty discriminating between acts they actually committed versus those that they merely imagined committing (Lindsay & Johnson, 1987), as well as between acts they actually witnessed and those they only imagined they witnessed.

Others have extended this conclusion to argue that children are disproportionately more likely to confuse perceptually or semantically similar sources (e.g., acts performed by two individuals who are similar in terms of age or gender) or acts performed by another person versus those they merely imagine that person to perform, since the source is the same individual in both cases (Lindsay et al., in press, 1991).

Before we describe how source misattributions might be involved in the production of inaccurate reports, and examine the developmental course of such misattributions, some historical background is useful.

REPRESSED MEMORIES

Since the time of Hoffding (1891), it has been contended that stored information about life events fluctuates in its retrievability. The best known proponent of this early position was, of course, Freud (1938), who elevated repression to the center of the defensive organization, supplanting dissociation. Freud argued that memories about important societally conflictual events persist, repressed out of consciousness, or linger in a disguised form. For Freud (1905/1953, 1914/1963), successful therapy depended on the accessibility of these early events. He believed that autobiographical details were safely locked from consciousness but were accessible in the appropriate retrieval environment.

A great deal has been written about the validity of so-called "repressed memories," and Freud's own reversal of view about the presumed sexual fantasies of his 12 female clients has been singled out for criticism (Mason, 1984). Many scholars believe in the existence of latent memories that are inaccessible because of retrieval difficulties, including the classical Freudian notions of "blockading" due to frightening or sexual experiences (Briere & Conte, 1993; Fredrickson, 1992; Van Der Kolk & Van Der Hart, 1991; Williams, 1992). Other researchers,

however, question the authenticity of such reports (e.g., Ofshe & Watters, 1993). For example, in a *Washington Post* story, Ulric Neisser, Ralph Haber, John Kihlstrom, and other well-known memory researchers expressed doubts about the authenticity of claims of repressed memories (Oldenberg, 1991). Recently, Loftus (1993) has argued that the evidence mounted by advocates of the repressed memory view is open to criticism and that the evidence for the repression of memories is either methodologically problematic or anecdotal, despite decades of effort.

Recently, the issue of repressed memories once again has come to the fore, this time not as a result of an academic debate over its underlying mechanism, but because of the alleged authenticity of plaintiffs' claims that they were the victims of childhood abuse that had been repressed or forgotten until adulthood. Courts in over 20 states have amended their statutes of limitation to permit plaintiffs to pursue repressed memory allegations starting from the time they become aware of their memory rather than the time of the alleged event.[2]

The best known repressed memory case involved Eileen Franklin-Lipsker, a housewife in Los Angeles. One day she looked up at her young daughter, Jessica, and noticed her hair. This momentary image triggered what was alleged to be a long repressed memory:

> The look in Jessica's eyes—her very blue eyes that were so much like Susie's—took Eileen back to a look of betrayal in the eyes of Susie Nason almost 20 years earlier. From then on, there were fragments. The first one she talked about to Kirk Barrett, her therapist, was the long silver ring. The ring was on Susie Nason's bloody hand and it was smashed. Then Eileen had an image of riding in a van, and then there was a mattress, and a lavender sweater. . . . The images were frightening. Little Susie Nason had been only 8 when she was murdered by an assailant who was never found. Eileen told Kirk Barrett that she couldn't believe that the images were coming into her mind and she didn't understand what they meant. It was 3 or 4 sessions later that her father was there—in her memory. As she eventually testified: "I remembered looking into Susie's eyes and I saw the silhouette of my father with his hands raised up above his head with a rock in them. . . . It was something that was completely, to my recollection, unknown to me, and it frightened me." (Edmiston, 1990, p. 229)

Franklin-Lipsker's revelation set in motion a series of statements that in turn set in motion a landmark case in which her father was tried and convicted of the 20-year-old murder of her girlhood friend (currently on appeal). During the past 3 years there have been many similar cases (Oldenberg, 1991), and it is now common to read about repressed memories dating back to toddlerhood. For example, in Albion New York an 8-year-old boy is currently claiming to have uncovered a memory of witnessing his father murder his mother with a baseball bat from when he was 23 months old.

[2] The analogy is made to medical malpractice case law where it has been firmly entrenched for many decades that patients are permitted to sue their doctors many years after being subjected to a medical procedure if they only discovered the connection between their suffering and the medical procedure in recent years. For example, if someone who had abdominal surgery a decade earlier never realized that the pain they experienced in recent years was due to a surgical sponge that had been inadvertently left in their stomach until an X-ray revealed this. Similarly, so-called survivors of childhood abuse are being permitted to sue their perpetrators upon "discovery" of their abuse memories in therapy.

Are these memories real or constructed? Does the memory system work the way that proponents of repressed memory maintain? As noted above, many believe that children and adults who testify about events from their distant past may be the victims of memory alteration resulting from repeated suggestions from therapists and others. If these "memories" are not real but have resulted from persistent, erroneous suggestions, then source misattributions could be the basis of *some* sexual abuse allegations, leading patients to have confidence in their vivid but inaccurate memories. As Rabinowitz (1990) has observed of the children from the infamous McMartin trial,

> . . . the worst thing about the long investigation and trial may be that, however unfounded the charges, the child witnesses grow up having internalized the belief that they have been the victims of hideous sexual abuse. (p. 63)

We have placed the words "repressed memory" in quotes because of the need for caution in accepting them as actual memories. Perhaps they *are* genuine memories, perhaps they are not. If the memories are not genuine, perhaps they are a product of suggestion. This hypothesis raises the question of whether it is even possible to inject an entire memory into the mind of someone for something that never happened. One recent study has shown that it is possible to inject an entire episode of being lost for an extended period of time into the mind of people (see Loftus & Coan, in press). However, no study of this type has been done with very young children.

Hence, the following study should be viewed as a "first pass," one that will undoubtedly require extension and replication by future researchers. But this study could be relevant to the debate over the validity of repressed memories by demonstrating one mechanism that can lead to vivid but false recollections, namely, source misattributions. While such a demonstration, if confirmed, would not rule out the validity of other types of delayed memory, it could elucidate some of the circumstances that can lead to false accounts.

METHODS

Subjects. Children who were enrolled in two preschool programs in central New York served as subjects. No child attending these programs was excluded as long as parental agreement was obtained and the child had a sufficient understanding of English. Only one parent of nearly 125 declined to have their child participate, and only 8 children's language was deemed to be insufficient. The children came from a wide range of sociodemographic backgrounds, with approximately 40% the entire sample coming from professional families and 60% coming from blue collar and kindred occupations (with over half of this latter group receiving aid to families with dependent children at the time of the study). Approximately one-third of the sample was of African-American ancestry. The children were divided into two age groups: The young group ranged in age between 3 and 4 years and the older preschoolers were aged between 5 and 6 years. In total, 122 children began the study, with 96 of them completing a minimum of seven interviews by the end.

Design. Although the full design of this study is a 2 Ages at the time of the experiment (3–4 vs 5–6) × 2 Ages at the time of the actual events (1–2 months

earlier vs 1 year earlier) × 2 time periods (initial interview vs terminal interview) × 3 Types of event (positive, neutral, negative), with the final three factors within-subjects, only part of this design will be discussed in this article. The reason for this is that the study is ongoing, with additional samples not scheduled to be completed until next year. At the time of writing, complete data on 96 children are available, and we shall confine all discussion to an analysis of this group of children. Of primary interest is age differences in the generation of true and false reports during the initial interview, and growth in false reports between the initial and terminal interviews. Future reports will consider the nature of events (positive, neutral, and negative) and the age of the child at the time of the original experience.

Procedure. Children's parents were interviewed to find out about events that transpired at various times in their children's lives (e.g., moving house, birth of younger siblings, vacation trips). Both affectively positive and negative events were elicited (e.g., surprise birthday parties, vacations to Disneyworld, injuries requiring stitches, deaths of pets). Parents were sent an information sheet explaining that the experimenters would present a list of events to their children and that the events on the list may or may not contain the actual events that the parents supplied. Events that did not come from parents were verified by them as never having occurred. In this wave of data, we focus on the children's reports of real events that occurred within the past 12 months and that were either negative or neutral participant activities (i.e., we do not report on real bystander activities nor on real events of any type that transpired more than 12 months earlier).

Children were interviewed individually and provided a list of both real (parent-supplied) and fictitious (experimenter-contrived) events. They were asked to judge which events on the list actually happened to them, emphasizing that some of the events did not happen to them. Lists contained two actual events provided by the child's parent, and these were very salient events. All lists also included two fictitious events that parents assured us had never happened to their children. One of these concerned getting one's hand caught in a mousetrap and having to go to the hospital to get it removed. The other involved going on a hot air balloon ride with their classmates. The interviewer held index cards on which the real and fictitious events were written and informed the child

> I am going to read some things that may have happened to you, and I want you to think real hard about each one of them that I am going to read. Try to remember if it really happened. We made this list up by talking to your mother and father to get them to tell us about things that really happened to you when you were younger, but not all of the things that I am going to read to you really happened.

Children were asked to try to recollect the events on 7–10 separate occasions, spaced on average approximately 7–10 days apart.[3] We suspected that simply

[3] Due to absences, unscheduled vacations, and occasional refusal to "play" with the interviewers, many of the children had weeks during which they were not interviewed at all. To ensure that children received the required number of interviews, they occasionally were given two interviews in a single week (Monday and Friday). This occurred, at most, twice for a given child.

asking preschoolers to think about the events so often might foster the conditions for fictitious "repressed memories." This work raises the possibility that misattributions of the sources of children's memories will occur when the two sources are similar or considered simultaneously. Therefore, by inducing even younger children to imagine what they might have seen or done, it is possible that false memories may be created.

Each occasion upon which a child falsely "recollects" an event in response to the interviewer's enjoinder to "think real hard if it happened" should serve to reinforce that event in memory. The last session (7th–10th) was always 10 weeks following the first session. At this time, a new interviewer asked the children for a free narrative about each of the real and imagined events. This interval was selected because research with adults' autobiographical memory shows that recognition of nonevents increases after a 3-month delay (Barclay & Wellman, 1986). During this final interview, children were asked to recall as much as they could about the events that were presented, including perceptual details such as location, clothing, utterances, and emotional expressions of others in the same context. They were also asked to rate their confidence for each detail as well as for the entire event, using a child-adapted rating scale. This final session was videotaped in order to collect data on adult judges' beliefs in the veracity of potentially misattributed memories, as well as to subject children's false reports to various techniques that have been touted as a means of discerning accurate and inaccurate reports (Raskin & Yuille, 1989). Many schemes for distinguishing between false and actual memories claim that they can be differentiated on the basis of internal consistency, perceptual details, unusualness of events, etc. (e.g., Schooler, Gerhard, & Loftus, 1986; Raskin & Yuille, 1989). Based on prior work with repeated erroneous suggestions, Ceci, Leichtman, and White (in press-a) have suggested that preschoolers' erroneous and accurate memories may not be distinguishable because repeated attempts to recollect false events may result in their incorporation into memory. In other words, perhaps false memories cannot be detected as false because the children, after repeatedly encouraged to imagine false events, have come to believe that they are accurately recalling real events. Therefore, they exhibit none of the signs of confabulation, tricking, or duping that characterize false reports by adults (Ceci et al., in press-a).

RESULTS

The data in Table 1 are organized in terms of the first, third, fifth, and seventh sessions for both true and false assents. These data indicate the mean proportion of opportunities on which children assented to the false and true events. As can be seen, true events were nearly always recalled accurately, with little variation in all conditions. This is unsurprising since these were highly salient participatory events that had occurred during the past 12 months and probably received ample discussion and rehearsal in the children's homes.

While the findings for the true events were expected, this was not the case for the fictitious events. Our expectation that children would begin by denying that they remembered the fictitious events, but over time increasingly assent to them,

TABLE 1
Mean Proportion of True and False Assents as a Function of Age and Session (SDs in Parentheses)

Age	Sessions 1	3	5	7
		False		
Older	.25	.33	.37	.32
	(.31)	(.36)	(.39)	(.39)
Younger	.44	.42	.41	.36
	(.35)	(.38)	(.39)	(.34)
		True		
Older	.93	.99	.99	.97
	(.21)	(.08)	(.08)	(.12)
Younger	.93	.92	.93	.85
	(.21)	(.22)	(.21)	(.31)

is not borne out, at least not overall (.34 false assent at 1st session vs .34 at 7th session).

But when the data are disaggregated by both ages, an interaction with sessions was apparent. Overall, twice as many younger children assented to false events at the initial interview than did older children (44% vs 25%). Interestingly, by the final (7th) interview approximately 3 months later, slightly fewer younger children were assenting (36%), whereas slightly more older children were now assenting (32%). Neither of these changes over time were significant.[4]

The above conclusions were confirmed in a series of repeated measures ANOVAs, with *Age* as a between-subject variable, and *Sessions* as a within-subjects variable. These analyses yielded a marginally significant *Age* × *Session* interaction, $F(3, 213) = 2.14$, $MS_e = .04$, $p = .097$. The interaction was the result of a 7% increase over sessions in false assents for older children, while younger children actually decreased in their false assents by 8% over sessions. Simple effects tests revealed that the difference between younger and older children's false assents at the time of the first interview was reliable, $F(1,71) = 6.04$, $MS_e = .11$, $p < .01$. In contrast, the difference between younger and older children's false assents at the time of the final interview was not significant ($F < 1$).

Thus, although older children are significantly more accurate than younger ones

[4] We ran these analyses different ways to see if the results would change if the length of time between first and final interview was held constant, as well as if the number of sessions was equated. When we used the 7th interview for all children, or the 10th week for all children (which for some children represented their 7th session, but for others only their 5th session), the findings were only slightly changed. The sole reliable difference was that younger children actually significantly declined in false assents between the first and final session ($M = .44$ vs .35, $F(1,71) = 4.25$, $p < .05$), whereas older children significantly increased in false assents ($M = .22$ vs .34, $F(1,71) = 4.07$, $p < .05$). With this single exception, the pattern of significant main effects and interactions were the same in both analyses. For ease of exposition, we have lumped together the 7th to 10th sessions, in view of the similar findings.

when all the false assent data are collapsed across all sessions, their advantage is relatively lessened over sessions so that by the final session there is no difference.

The ANOVAs do not tell the complete story, however. Specifically, they do not tell about the consistency of individual differences—that is, whether the same children who falsely assented during early sessions were still falsely assenting during later sessions. There is a modest degree of intraindividual variability, with only several children "flip-flopping" back and forth between assenting and not assenting. Stability coefficients that were computed on a third of the sample ranged between .62 and .87, for adjacent sessions. A conditional probability analysis calculated for the 1st, 2nd, 6th, and 7th sessions indicated that the likelihood of falsely assenting during session $n + 3$ was a function of the linear combination of assenting during sessions n, $n + 1$, and $n + 2$. In short, false assenting during later sessions was predictable from false assenting during previous sessions. The more prior false assents, the greater the likelihood of subsequent false assents. It was relatively rare to observe a child make a false assent for the first time at the final session.

Does flip-flopping back and forth between assent and denial imply anything about children's beliefs in their false claims? It may be that the children who flip-flopped possessed an uncertainty about the truth-value of their claims. But for those children who consistently assented over repeated sessions, we suspect that they believed their claims. We say this because some of the latter children clung tenaciously to their accounts, despite efforts by parents and strange interviewers to dissuade them. While we could not test this claim systematically, due to the approaching end of school year, we were able to reinterview some of the children who had consistently made false assents. We attempted to dissuade these children by first having their parents explain that the events were false and then having a strange interviewer attempt to get them to deny their assents. Despite this form of multilevel debriefing, these children resisted recanting in varying degrees. One boy, responding to his mother's assertion that his hand had never been caught in a mousetrap, told her "But it did happen. I remember it!" Another girl argued when her mother tried to disabuse her of her false assent, arguing that her mother wasn't at home when it happened; a third child insisted to his parents that he recalled this event happening when the family lived in their prior residence. He emphatically refused to accept their explanation that he had only imagined the false events.

DISCUSSION

The results of this study demonstrate that while it is possible to mislead young children into claiming that they experienced nonevents, the frequency of doing so does not increase over time. Elsewhere, we have run a replication of this study, with an important modification: each week the interviewer informed the children that they had actually experienced the fictitious events and then asked them if they remembered having done so (Ceci, Loftus, Leichtman, & Bruck, in press). Under these conditions, there is a reliable increase in children's claims of having remembered the fictitious events over a 12-week period. By the penulti-

mate (11th) interview, children's false assent rate had increased by over 80% from the rate at the first interview. At the final interview, the children were told that the individual who had been interviewing them during the prior 11 weeks had made lots of mistakes, including informing children that they had experienced events that they had not. Now when asked if they actually remembered experiencing fictitious events, nearly all of the children reduced their level of false assents, but the new rate was still more than 50% greater than their initial false assent rate. This indicates that very young children will increasingly assent to fictitious events over time, provided the procedure begins by informing them they had actually experienced the event. After a prolonged period of making such suggestions, the children are difficult to talk out of their "memories."

An examination of the children's final videotaped narratives in this follow-up study reveals richly detailed, but false, claims. At times, the children seem so convincing, inserting affect at the appropriate place, including low frequency details and spontaneous corrections. Although we were unable to examine increases in their vividness in the present study because videotapes of the initial interviews were often unavailable, in our replication study we videotaped all of the initial and final interviews. In this study there is some evidence that children's false reports increased in their vividness and amount of perceptual detail over time (i.e., increases over time in the mean length of descriptions, mean rated confidence on false assents, and the number of low frequency perceptual details provided by the child on false assents). There were no changes in the true event memories, with vividness measures increasing very little after the third interview.

As a test of our opinion that the children's final reports were highly credible, we selected five fictitious events that were reported by children during the final videotaped interview, along with five real events from the final interview, and showed them to 109 professionals in psychology, law enforcement, social work, and psychiatry to see if they could determine which events had actually been experienced by the children and which were fictitious.[5] (The psychologists were primarily clinicians and developmental psychologists.) We asked them to watch the videos, and rate their confidence on a 7-point scale that the event was actually experienced by the child (1, very confident that the child's narrative is essentially an account of an experienced event; 4, uncertainty about the accuracy of the child's narrative; 7, very confident that the child's narrative is essentially an

[5] In a separate study, transcriptions of 20 true and false reports from the same final interview were given to four experts who specialize in children's statement validity analysis. They were not informed of how many of the reports were true and false, but merely instructed to rate them using published CBCA criteria (Raskin & Esplin, 1991). These data are being analyzed at this time, but preliminary analyses by the second author, Crotteau, as part of her Master's thesis, indicate that CBCA was practically ineffective at distinguishing between accurate and inaccurate statements. It could be argued that the procedure is not a fair test of CBCA's discriminability because the statements were too short or because the interviewers did not adhere strictly to the recommended interviewing format (SVA), although they were conducted according to SVA recommended practices and none of the raters claimed that the statements were too brief for application of CBCA. We suspect that the reason CBCA was ineffective is because some of these children *appear* to have adopted false beliefs as a result of the repeated visualizations. Perhaps techniques such as CBCA fare better when the task is to detect overt lying rather than false beliefs.

account of a nonexperienced event). They were not told how many videos were true and false, only that some were of each type.

The results were as we expected: Professionals were fooled by the children's narratives: There were as many professionals who were reliably worse than chance at detecting which events were real as there were professionals who were at chance and above chance (overall $p = .62$, for two-tailed test, $\alpha = .025$ each tail).[6]

Ratings for each subject for each child's statement were used to construct a ROC curve. Hits and false alarms were tallied for each professional, summed across the events. Decision matrices were constructed for these aggregated data, with hits along the y axis and false alarms along the x axis (Banks, 1970), allowing a Receiver Operator Characteristics (ROC) curve to be plotted. The area under the curve (A') was .529, corresponding to a d' (discriminability) near zero (i.e., chance). This is persuasive evidence that these particular professionals were unable to reliably discriminate signals from noise in the determination of statements of children who have been persistently rehearsed and provided congruent stereotypes. We make no claim about the ability of professionals to discriminate signals from noise if children are consciously lying to protect loved ones, to gain rewards, or to avoid punishment; the present paradigm is not a lie detection study but a false belief one, and the children themselves appear to often believe the authenticity of their erroneous reports (see below).

The above findings are in accord with Horner, Guyer, and Kalter's (1993) recent finding that mental health specialists' predictions of the accuracy of sexual abuse cases was disturbingly unreliable, spanning the full range of estimated probabilities that a child was abused from 0 to 1.0. In the present study, there was slight confirmatory bias, resulting in a mean confidence rating of 2.88. Several professionals in the present study reported that they found it difficult to imagine any of the narratives being fabricated. They may be right—at least if by fabrication we mean "a conscious attempt to mislead a listener about the truth as one understands it" (Ceci & Bruck, 1993). We are of the opinion, although we cannot prove it in a scientifically adequate manner, that many of these children had come to believe what they were telling the interviewer. This is probably why they were so believable to the present professionals who watched them. They exhibited none of the tell-tale signs of duping, teasing, or tricking. They seemed sincere, their facial expressions and affect were appropriate, and their narratives were filled with the kind of low frequency details that make accounts seem plausible. Consider, for example, one 4-year-old's statement during the interview sessions. He is being asked if he remembered having his hand caught in a mousetrap and requiring hospital treatment:

> My brother Colin was trying to get Blowtorch (an action figure) from me, and I wouldn't let him take it from me, so he pushed me into the wood pile where the mousetrap was. And then my finger got caught in it. And then we went to the hospital, and my mommy, daddy,

[6] A static Bernouli sampling process specifies the likelihood of correctly judging a real claim (p) and the likelihood of achieving precisely x correct in N independent trials $= (N/x)\, p^x q^{N-x}$, where the probabilities for $x = 0$–10 correct guesses, $N = 10$ trials, and $p = .5$ and $q = .5$. A two-tailed test was preferred in view of our interest in the number of raters who performed above as well as below chance.

and Colin drove me there, to the hospital in our van, because it was far away. And the doctor put a bandage on this finger (indicating).

As can be seen, this child supplies a plausible account, not simply yes/no answers to suggestive questions. Such children can be very believable to raters who are not told the ground truth about this experiment—individuals who are merely shown these children's videotaped "disclosures" and asked to judge their authenticity.

One further bit of evidence supports our impression that at least some of these children had come to believe that they actually experienced the fictitious events. When ABC's news program, *20-20,* heard about this study they requested to film some of these children. We called some of these children's parents to ask if they would bring their children back for a session with John Stossel, the *20-20* interviewer. One parent came in with her 4-year-old son and reported to us that her husband and she had thought that the experiment was over, and therefore they explained to their son that the story about the mousetrap was fictitious and had never happened. She said that her son initially refused to accept this debriefing, claiming that he remembered it happening when the family lived in their former house. She and her husband explained that the story was just in his imagination and that nothing like this ever happened. Two days later, when the child came to do the *20-20* interview, John Stossel asked him if he ever got his finger caught in a mousetrap and had to go to the hospital to get it off. The child's mother was shocked at his reply. He stated that he remembered this happening, and he proceeded to supply a richly detailed narrative. When Stossel challenged him, reminding him that his mother had already explained that this never happened, the child protested that it really happened and refused to back down in the face of inducements from the interviewer to recant.

While the above child's insistence in the validity of his inaccurate report, in the presence of his mother, is not proof that he believed what he was saying about this fictitious event, it does suggest that he was not duping us for any obvious motive, given that the demand characteristics were all tilted against his claiming that he remembered this.[7] We are currently pursuing this hypothesis with a new set of experiments.

So, repeatedly thinking about a fictitious event appears to have led preschool children to produce vivid, detailed reports that the present group of professionals

[7] As a result of this child's insistence, we asked eight other parents if we could reinterview their children about the nonevents in the parent's presence. During these interviews, we asked the parent to explain to their child that the nonevents never happened. Of these eight children, three did not challenge the parent's debriefing in any way we could discern, three children protested mildly (e.g., asking "Are you sure, mommy?"), and two protested strongly, like the child interviewed by ABC ("It did so happen . . . you were not there when I got caught in the mousetrap . . . you were at work that day"; "It happened but it was at our old house. Dad knows, you can ask him."). Finally, in a follow-up experiment, the interviewer told children each time that they had experienced the false events until the final interview, whereupon a new interviewer explained to the children that the previous interviewer had gotten it wrong and told children they experienced events that they had not. Interestingly, while children reduced their claims of having recalled false events when told this, they did not return to baseline at the first interview.

were unable to discern from reports of actual events. While it is possible that professionals who are trained in lie detection methods such as CBCA (Raskin & Esplin, 1991; Devitt, Honts, & Peters, 1994) may perform better than these unselected professionals, this is conjecture awaiting empirical validation.

Recently, cognitivists have provided demonstrations of the various mechanisms that may induce adults to erroneously come to "remember" false events (Lindsay & Read, in press), including repeatedly thinking about events.

REPRESSION, SUPPRESSION, FORGETTING, AND/OR CO-CONSTRUCTION?

In this concluding section, we shall comment briefly on the current debate over the validity of so-called repressed memories and the relevance of the work reported here for that debate. Several of us have been immersed in this debate for years, and others of us have been studying the pro and con positions as part of our role as members of the *APA Working Group on Investigation of Memories of Childhood Abuse* (APA Monitor, 1993). Here we shall confine our thoughts to two points, (1) the evidentiary basis of the pro and con positions and (2) the relevance of the present data to this debate.

The canons of evidence. One of the most surprising aspects of the present debate over the validity of adult recollections of childhood memories of abuse is the laxity of definitions that seem to be driving the pro and con positions. This can be seen by reviewing the most common evidence cited in support of the position that early abuse experiences can be repressed, only to resurface in therapy decades later. There are four longitudinal surveys of adults who allegedly experienced sexual assaults as infants and children (Briere & Conte, 1993; Herman & Schatzow, 1987; Loftus, Polansky, & Fullilove, 1994; Williams, 1992). Depending on which survey results you choose, the incidence of self-reported forgetting about early abuse-related experiences ranges from 19% (Loftus et al., 1994) to 26% (Herman and Schatzow (1987)[8] to 38% (Williams, 1992) to 59% (Briere & Conte, 1993) to 64% (if Herman and Schatzow's 28% of severe repression is combined with the 38% of moderate forgetting that also was observed in their study—as done by Briere and Conte). Thus, there is a very wide range of estimates of the prevalence of repression, and it is not easily narrowed by examining the differences in how each researcher defines sexual abuse (narrow vs broadly defined) or chooses their samples (two studies were composed mainly of middle class white female samples, namely, those of Briere and Conte, Herman and Schatzow, and the other two were comprised of predominantly inner city African-American women). Some but not all of the studies tend to associate memory lapses with an early onset of abuse, repetitive abuse, and the violent abuse. Adults who report abuse onset in early childhood are more likely to claim to have lost contact with the memory than adults whose abuse occurred during middle or later childhood. Moreover, memory of violent abuse is more likely to

[8] In the text of their report, Herman and Schatzow report that 28% of their subjects had severe repression but the actual number is 14 of 53, which comes to 26%.

be lost than memory of nonviolent abuse. And, finally, memory of repeated abuse is more likely to be lost than memory of isolated abuse.

Each of these studies is open to alternative explanations. The way that adult respondents interpret the critical abuse questions is of paramount importance, as is the interpretation researchers give to the responses. In the Briere and Conte survey, for instance, the wording of the critical question was as follows:

> During the period of time when the first forced sexual experience happened and your 18th birthday was there ever a time when you could not remember the forced sexual experience?

In the Loftus, et al. study, the critical question, number 3, is worded:

> People differ in terms of how they remember their abuse. Which of the following experiences best characterizes your memory? 1) Some people have always remembered their abuse throughout their lives, even if they never talked about it. 2) Some people have remembered parts of their abuse their whole lives, while not remembering all of it. 3) Some people forget the abuse for a period of time, and only later have the memory return.

Some adults who were abused might have answered the Briere and Conte and Loftus et al. (No. 3) questions positively because they interpreted such questions to mean that there were long stretches of their life when they chose not to think about the abuse, due to its upsetting nature. Some crime victims report doing this; that is, following victimization they deliberately try to avoid thinking about their experience. Returning veterans frequently report that they engage in various forms of conscious blockading of combat memories. But there is little doubt that the vast majority of adult survivors of traumatic experiences can usually recall their frightful experiences if they are asked (e.g., "Do you remember being mugged in the parking lot when you worked at your former job?"; "Do you remember being in a concentration camp in Auschwitz as a young boy during the war?"). In fact, therapists who treat Viet Nam veterans report that the problem with post traumatic stress is not that the memories are repressed but that they cannot be forgotten; they frequently intrude into conscious awareness unexpectedly and/or in response to some auditory stimuli.

In the Loftus et al. survey, 81% of respondents report always having remembered part or all of their early abuse. But Loftus et al.'s third question is open to the alternative interpretation that some portion of 19% of respondents who claimed to have lost contact with their memory of abuse misunderstood the question to include nonrepressed memory lapses, e.g., long periods of time when they did not think about the abuse, even though they could have easily recalled it if asked to do so. To minimize such interpretive alternatives, a fourth question is needed such as *Was their ever a time when you would have said someone was crazy if they said that you had been abused as a child?* We suspect that if such a question were added to surveys, the number of respondents giving evidence of "repressed memory" would decline even further.

Another problem with assuming that an affirmative answer indicates that the abuse memory went underground, repressed into the unconscious, is that it is normal to forget experiences, both pleasant and traumatic ones. To be unable to retrieve an experience may not reveal repression, but merely ordinary forgetting processes. Thus, failure to recall early abuse experiences may be the result of

normal memory decay and interference mechanisms, not fierce repression. To the extent that lost contact with memory reflects ordinary forgetting processes, as opposed to repression, we would expect that the memory, once rediscovered, would be an imperfect record of what had originally been experienced. That is, normal memory processes are highly constructive and susceptible to fading and shaping. So, when an adult purports to have uncovered an early abuse memory that is highly detailed, vivid, and coherent, memory experts are often skeptical. This is why it becomes more than a semantic distinction to decide whether the lost memory was the result of repression or ordinary forgetting; the latter would suggest that some highly vivid, detailed accounts of recovered memory are open to challenge.

The interpretative snarls go on. It is possible that many early abuse experiences were forgotten, not because of some fierce repression mechanism that blockaded the abusive experience from consciousness, nor because of ordinary forgetting processes, but rather because the event occurred prior to the offset of the infantile amnesia period. In other words, we expect the earliest experiences to be unrecallable—even pleasurable early experiences are unrecallable. The world of the 1- or 2-year-old may be beyond the ability of adults to resurrect. That adults who claim to have lost contact with experiences from the first couple years of their lives can suddenly do so in therapy or in a support groups raises doubts about the authenticity of their delayed "memories." While research still has a long way to go before it can claim to fully understand infantile amnesia, we do have a large corpus of scientific studies that suggest it is unlikely that as adults we can gain access to these earliest experiences in the form in which they were experienced and interpreted at the time by the infant. It is not clear that fondling or even fellatio are experienced by infants and young children as assaultive; they may at times be pleasurable or neutral, thus not carrying the psychic trauma needed for repression.

Of course, painful penetration is in a different class altogether. But even here it is not obvious that such experiences can be resurrected from the earliest years. Again, there is no evidence that circumcision, the insertion of anal suppositories, etc. are recallable from the first 2 years of life. Most adults cannot even recall painful medical procedures that occurred up to age 5 (e.g., tonsillectomy).

Interestingly, there is one study that we know of in which preschoolers were subjected to a highly aversive medical procedure called a "voiding cystourethrogram" or VCUG for short. The VCUG entails a stressful urinary tract catheterization, followed by filling the child's bladder with contrast fluid. This procedure is given for different reasons, including to check the reflex action of the urinary tract muscle. It is not only stressful, but also embarrassing, because after the child's bladder is filled to an extremely uncomfortable level, she is made to urinate on the examining table in front of the medical team. Films of children undergoing this procedure vividly demonstrate its aversiveness. Goodman, and her colleagues have studied children who have been subjected to between one and six VCUGs, and they found that children who received repetitive VCUGs were no more likely to forget the details of their experiences than children who received only a single VCUG. In fact, repeated experience with this voiding procedure is,

if anything, associated with superior recall (Goodman, 1993). While this does not prove that repetitive abuse is not more likely to be repressed, it does force us to ask what mechanism would lead to repression of illicit sexual abuse experiences but not to socially sanctioned genital probing. To say it is the socially sanctioned nature of the latter is to beg the question.

Thus, to whatever extent we as adults are capable of accurately recollecting memories of events that transpired during the first couple years of life, they are likely to be the product of family rehearsals during reunions and get-togethers; family members' retellings that become part of our oral history. We may remember getting car sick on the way to grandmother's house at age 3 or having an awful temper tantrum at the supermarket at age 2, not because we can gain access to the original encoding of these experiences, but because we heard accounts of them later in childhood and we mentally created images from these later retellings. The findings from the present study and the follow-up study briefly described here suggest that these mental images could take on a vividness that is easily mistaken for a veridical memory, much like the famous abduction anecdote that Jean Piaget thought he could "remember."

Finally, all of us forget experiences, positive and negative ones. It is physiologically impossible to maintain a conscious record of our complete past. We do not need to posit special repression or dissociative mechanisms to account for this type of forgetting.

If you add up these alternative interpretations, a reasonable reader of this literature could be persuaded that much—perhaps even most—of the reported inability of adults to recollect their abuse allegations at some point in their past is not the result of repression, at least not in its strong or "robust" form (Ofshe & Singer, 1993). Rather, most instances of forgetting early abuse experiences are due to ordinary forgetting (which would raise doubts about how authentic claims of veridicality and vividness are, since ordinary memories are not hermetically sealed and forgetting exacts a toll), infantile amnesia (which would preclude recalling accurately the earliest experiences, regardless whether they were positive or negative), or the way the respondent interpreted the question. Taken together, these considerations suggest that most so-called repressed memories may not have been repressed and later uncovered but were always accessible, although not dwelt on for long periods of time, or were forgotten for ordinary reasons or else were the result of false constructions.

Does this mean that repression is an invalid concept? Not at all. Even if we were to take the lowest incidence figure (19%) from the four studies (Loftus et al., 1994) and "discounted" it for the possibility of infantile amnesia (e.g., throwing out all claims of abuse that occurred during the first 2 years of life on the ground that they cannot be expected to have been recalled, thus including the failure to recall them as evidence that they were repressed inflates the prevalence of repression), ordinary forgetting, and so on, this might still leave a residual of cases that could not be dismissed as artifactual. We believe that the most prudent reading of this literature is that repression may occur, but not as frequently as any of the four studies indicate. We pointedly do not accept the higher rates that have been touted (i.e., over half of all abuse victims report having repressed their

abuse at some time), because the demand characteristics associated with the recruitment methods are problematic (e.g., the respondents were members of "survivors of incest" support groups, who attended sessions with the aim of recovering memories; thus they are self-selected and cannot be used to extrapolate prevalence rates in the population of all abuse victims). While it is possible to criticize the lowest estimate of 19% on the assumption that some of the women (all participants in a drug rehabilitation program) who failed to report childhood abuse are still repressing the abuse memory, this would seem assume an answer to what ought to be the object of investigation.

Putting aside methodological issues in these four studies, there is a growing disillusionment in the adult cognitive literature with special mechanisms that have been invoked to validate of some of the more dramatic accounts of an alleged early abuse experience erupting into consciousness for the first time, replete with highly specific details (see Lindsay & Read, in press, for a good description of various cognitive mechanisms that might be responsible for memory errors). Such testimonials sound suspiciously similar to the claims by "flashbulb" researchers that have been rejected in favor of the view that even personally significant and surprising events are susceptible to the same constructive/schematic distortion processes as everyday memories:

> The point is that we appear to gain nothing by attributing these processes to special mechanisms. As stated earlier, it is impossible to reject that for some, somewhere a special neural memory mechanism permanently imprints details for certain events; it is just that as data accumulates, it does not appear this explanation is the best approach. (Wright, 1993, p. 136)

Elsewhere, we have reviewed the claim that highly stressful experiences are given privileged encoding (Ceci & Bruck, 1993), and we will not rehash that here, except to note that a fundamental difference of opinion exists among researchers regarding the role of affect in memory. Some believe that high levels of stress at the time of an event (e.g., a medical procedure) facilitates the events being remembered, while others claim the opposite (see debate between Goodman, 1991, and Peters, 1991). Interestingly, neither of these positions fits with the claim of some that trauma experiences are repressed.

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REFERENCES

APA Monitor (1993, November). APA panel is examining memories of child abuse, p. 44

Banks, W. (1970). Signal detection theory and memory. *Psychological Bulletin*, **74**, 81–99.

Briere, J., & Conte, J. (1993). Self-reported amnesia for abuse in adults molested as children. *Journal of Traumatic Stress*, **6**, 21–31.

Ceci, S. J. (in press). Cognitive and social factors in children's testimony. In B. Sales & G. Vandebos (Eds.) (1993). *Psychology and Law Master Lectures*. Washington, DC: APA Books.

Ceci, S. J., & Bruck, M. (1993b). Child witnesses: Translating research into policy. *SRCD Social Policy Report*. Vol. 7 (pp. 1–31).

Ceci, S. J., & Bruck, M. (1993a). The suggestibility of the child witness: A historical review and synthesis. *Psychological Bulletin*, **113**, 403–439.

Ceci, S. J., Leichtman, M., & White, T. (in press-a). Interviewing preschoolers. In D. P. Peters (Ed.), *The child witness in context: Cognitive, social, and legal perspectives*. Netherlands: Kluwer.

Ceci, S. J., Loftus, E. F., Leichtman, M. D., & Bruck, M. (in press-b). The role of source misattributions in the creation of false beliefs among preschoolers. *International Journal of Clinical and Experimental Hypnosis*.

Devitt, M., Honts, C., & Peters, D. (1994, March 12). Paper presented at the biennial meeting of the American Psychology/Law Society, Santa Fe.

Edmiston, S. (1990). A twenty-nine-year-old California woman charges her father with a 20-year-old murder. *Glamour*, **November**, 228–285.

Foley, M., & Johnson, M. (1985). Confusion between memories for performed and imagined actions. *Child Development*, **56**, 1145–1155.

Foley, M., Santini, C., & Sopasakis, M. (1989). Discriminating between memories: Evidence for children's spontaneous elaborations. *Journal of Experimental Child Psychology*, **48**, 146–169.

Fredrickson, R. (1992). *Repressed memories: A journey to recovery from sexual abuse*. New York: Simon & Schuster.

Freud, S. (1938). The psychopathology of everyday life. In A. Brill (Ed.), *The writings of Sigmund Freud*. NY: Modern Library (originally published 1914).

Freud, S. (1905/1953). Three essays on the theory of sexuality. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 7), pp. 135–243). London: Hogarth Press (Originally published in 1905).

Freud, S. (1914/1963). *Instincts and their vicissitudes*. Collected papers. NY: Basic Books. (Originally published in 1915).

Goodman, G. S. (1993, August, 21). *Child victims, child witnesses*. Paper presented at the annual meeting of the American Psychological Association, Toronto.

Herman, J. L., & Schatzow, E. (1987). Recovery and verification of memories of childhood sexual trauma. *Psychoanalytic Psychology*, **4**, 1–14.

Hoffding, H. (1891). *Outlines of psychology*. NY: Macmillan.

Horner, T. H., Guyer, M. J., & Kalter, N. M. (1993). Clinical expertise and the assessment of child sexual abuse. *Journal of the Academy of Child and Adolescent Psychiatry*, **32**, 925–933.

Lindsay, D. S., Gonzalez, V., & Esso, K. (in press). Aware and unaware uses of postevent suggestions. In M. Zaragoza (Ed.), *Memory, suggestibility, and eyewitness testimony in children and adults*. Beverly Hills, CA: Sage.

Lindsay, D. S., & Johnson, M. K. (1987). Reality monitoring and suggestibility. In S. J. Ceci, M. Toglia, & D. Ross (Eds.), *Children's eyewitness memory*. (pp. 92–121). New York: Springer-Verlag.

Lindsay, D. S., Johnson, M., & Kwon, P. (1991). Developmental changes in memory source monitoring. *Journal of Experimental Child Psychology*, **52**, 297–318.

Lindsay, D. S., & Read, J. D. (in press). Psychotherapy and memories of childhood sexual abuse: A cognitive perspective. *Applied Cognitive Psychology*.

Loftus, E. F. (1979). Reactions to blatantly contradictory information. *Memory & Cognition*, **7**, 368–374.

Loftus, E. F. (1993). The reality of repressed memories. *American Psychologist*, **48**, 518–537.

Loftus, E. F., & Coan, D. (in press). The construction of childhood memories. In D. P. Peters (Ed.), *The child witness in context: Cognitive, social, and legal perspectives*. Netherlands: Kluwer.

Loftus, E. F., Polonsky, S., & Fullilove, M. T. (1994). Memories of childhood sexual abuse: Remembering and repressing. *Psychology of Women Quarterly*.

Mason, M. A. (1991). A judicial dilemma: Expert witness testimony in child sex abuse cases. *Psychiatry and Law*, **Winter–Fall**, 185–219.

McCloskey, M., & Zaragoza, M. (1985). Misleading postevent information and memory for events: Arguments and evidence against the memory impairment hypothesis. *Journal of Experimental Psychology: General,* **114,** 1–16.

McGough, L. (in press). *Fragile voices: The child witness in American courts.* New Haven, CT: Yale Univ. Press.

Melton, G. (1992). Children as partners for justice: Next steps for developmentalists. *Monographs of the Society for Research in Child Development,* **57**(Serial No. 229), 153–159.

Moll, A. (1913). *The sexual life of the child.* New York: Macmillan.

Ofshe, R., & Watters, E. (1993, March/April). Making monsters. *Society,* 4–16.

Ofshe, R. J., & Singer, M. T. (1993). *Recovered memory therapies and robust repression: A collective error.* Unpublished Manuscript, University of California, Berkeley.

Oldenberg, D. (1991). Dark memories: Adults confront their childhood abuse. *Washington Post.* **June 20,** D5.

Rabinowitz, D. (1990). From the mouths of babes to a jail cell: Child abuse and the abuse of justice. *Harper's Magazine,* **May,** 52–63.

Raskin, D. C., & Esplin, P. W. (1991). Statement validity analysis: Interview procedures and content analysis of children's statements of sexual abuse. *Behavioral Assessment,* **13,** 265–291.

Raskin, D. C., & Yuille, J. (1989). Problems in evaluating interviews of children in sexual abuse cases. In S. J. Ceci, M. P. Toglia, & Ross, D. F. (Eds.), *Adults' perceptions of children's testimony* (pp. 184–207). New York: Springer-Verlag.

Schooler, J., Gerhard, J., & Loftus, E. F. (1986). Qualities of the unreal. *Journal of Experimental Psychology: Learning, Memory, and Cognition,* **12,** 171–181.

Sherman, S. J., Cialdini, R. B., Schwartzman, D. F., & Reynolds, K. D. (1985). Imagining can heighten or lower the perceived likelihood of contracting a disease. *Personality and Social Psychology Bulletin,* **11,** 118–127.

Van Der Kolk, B. A., & Van Der Hart, O. (1991). The intrusive past: The flexibility of memory and the engraving of trauma. *American Imago,* **48,** 425–454.

Williams, L. M. (1992). Adult memories of childhood abuse: Preliminary findings from a longitudinal study. *APSAC Advisor,* **5,** 19–21.

Wright, D. B. (1993). Recall of the Hillsborough disaster over time: Systematic biases of 'flashbulb' memories. *Applied Cognitive Psychology,* **7,** 129–138.

Zaragoza, M. (1991). Preschool children's susceptibility to memory impairment. In J. L. Doris (Ed.), *The suggestibility of children's recollections* (pp. 27–39). Washington, DC: American Psychological Association.

Zaragoza, M., Dahlgren, D., & Muench, J. (1992). The role of memory impairment in children's suggestibility. In M. L. Howe, C. J. Brainerd, & V. F. Reyna (Eds.), *Development of long term retention* (pp. 184–216). New York: Springer-Verlag.

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