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Desperately seeking evidence: The recovered memory debate

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Desperately seeking evidence: The recovered memory debate

Introduction

In the 1990s we have seen a startling rise in reports of memories of childhood sexual abuse from adults alleging that the memories were previously `unavailable' to them. Such memories are often `recovered' during psychotherapy and have resulted in fierce debate concerning the reality and reliability of such memories. It is a debate that has elicited considerable controversy in the courts, in academic circles and in professional practice due to its personal, social and political implications. A criminal case based on the recovered memory of a murder was instrumental in bringing the debate to the attention of the public and courts. In 1990, George Franklin was convicted for the murder of a child based primarily on evidence from his daughter Eileen who claimed she had repressed the murder of her friend for 20 years (Maclean, 1993). The conviction was overturned following a successful appeal in 1995 but the case nevertheless remains a poignant example of impact of a recovered memory in the legal context. In the academic domain, recovered memories have presented memory researchers with some challenging questions. The debate has focused attention on conditions under which memories are recovered and the power of suggestion bringing the practices of psychotherapists under close scrutiny. Unfortunately some have interpreted this as an invasion of the therapist's domain and an attempt to undermine the credibility of therapists and victims. This has resulted in a polarisation of the debate, the consequences of which are well illustrated by recent reviews (Loftus and Ketchum, 1994; Ofshe and Watters, 1994, Lindsay and Read, 1995; Pendergrast, 1995). This paper will show how scientific research can inform the courts about the reliability of recovered memory evidence.

Defining Terms

One of the major problems in working in the area of recovered memories is that of defining terms such as amnesia, recovery, repression, trauma, therapy and even forgetting. The term amnesia is terribly confusing since it is also used in cases of psychogenic amnesia or functional amnesia which refers to "a temporary loss of memory precipitated by a psychological trauma." (Schacter, 1996). It is also used to refer to amnesia due to organic causes. The term recovered memories broadly refers to the reporting of memories of childhood events for the first time by adults who have previously been unable to recall or report these events or the circumstances surrounding them. The definition of `Repression' is crucial in establishing whether or not there is supporting evidence for recovered memories. Freud was inconsistent in his use of this term. In his early writings, he clearly stated that repression involved the intentional rejection of distressing thoughts and memories from conscious awareness (also referred to in the literature as `suppression,' or `repression proper'). Over time, he began to use the term repression in reference to unconscious defence mechanisms designed to exclude threatening material from protruding into conscious awareness (`primary repression.'). The assertion that this is involuntary distinguishes repression from suppression (see Erdelyi, 1990 for a full discussion of Freud's writings on the subject). Finally, it is helpful to define what is meant by the term `trauma' since there is an implicit assumption in the literature that a traumatic experience may be remembered in a different way to a non-traumatic one (evidence pertaining to this is considered later). Brewin, Dalgleish and Joseph (in press) define `trauma' as "any experience that by its occurrence has threatened the health or well being of the individual." So what are the most interesting psychological questions in the recovered memory debate?

Questions

Do recovered memories require special mechanisms to explain their existence and quality? This is a central question since it is the assumption that such memories are `special' that makes them stand apart from `normal' everyday memories in the eyes of the courts. If traumatic memories are no different from other types of memories, then data from the study of autobiographical memories and eyewitness memory may provide some useful answers. Related to this are concerns that of the accuracy of recovered memories. If memories are not repressed and are not stored in pristine form, then it follows that recovered memories are likely to created memories or a mixture of fact and fiction.

Before reviewing the literature, it may be useful to summarise how the courts treat evidence based on a recovered memory claim.

The statute of limitations

In the USA statutes of limitations usually require that if someone wishes to take legal action for damages or harm suffered (say as a result of a car accident) they have to begin proceedings within one to three years of the event but if they are a minor or mentally disabled the commencement of limitations is postponed until they reach the age of majority or recover from disability (see Taub, 1996 for a review). With respect to child sexual abuse (CSA) claims there are any number of pressures that may have prevented legal proceedings being initiated within the statutory period such as bribes and threats, dependency of the child on the adult and ignorance about harm being done (Bulkley and Horowitz,1994). Related to the statute of limitations is the `delayed discovery' doctrine which originated in medical malpractice cases (see Brooks, 1996 for examples). The discovery rule was soon extended to encompass other forms of professional malpractice and in

1981 it was held that in order to:

"activate the running of limitations (it must be proven that the plaintiff had) actual knowledge--express cognition or awareness implied from `knowledge of the circumstances which ought to put a person of ordinary prudence on inquiry (thus charging the individual) with notice of all facts which such an investigation would in all probability have disclosed if it had been properly pursued."

(Poffenberger v. Risser, 290 Md. 631 A. 2d 677, 1981).

The statutory period of limitation in civil cases has now been extended in many states in the US and Canada (see Lindsay and Read, 1995 for details). In the UK, the statute is applied loosely in criminal cases. In civil cases there are two periods, when suing for negligence, action should normally begin within three years of discovery, for trespass it is six years (Carson, 1996). It should be pointed out that as in the USA statutes may vary considerably and to some extend may depend on a particular courts interpretations.

Having identified some of the relevant questions in the recovered memory debate, we will now take a look at the relevant literatures in order to develop an understanding of some of the processes that may underlie memories for traumatic events. We will begin by looking at evidence for repression and related mechanisms. The evidence here comes primarily form recent studies of clinical samples. We will then turn our attention to the large body experimental data on autobiographical memory and eyewitness recall to explore forgetting in normal population. We will then review the literature on the conditions under which false memory may occur ending with some examples of recovered memory cases that have gone to trial.

Part I: Lost in the search for repression.

(i) Repression and memory loss

A review of sixty years of experimental tests of `repression proper' led to the conclusion that at this time there is no controlled laboratory evidence supporting repression (Holmes, 1990). This review of research is often cited in the recovered memory literature as evidence against the Freudian interpretation of repression as an unconscious mechanism without any clarification of what these null effects mean: Are we to conclude from that there is no evidence for repression? Can we generalise from these laboratory studies (which for example, use threatening words as emotional stimuli) to real trauma? A scientist should answer `no' to both these questions but proceed to see if evidence can be obtained from other sources of data[1]. Currently substantive efforts are being directed towards the study of adult clients who have recovered memories of childhood abuse (primarily in a therapy context) in an attempt to provide some retrospective data on repression and recovery. The published data are summarised in Table 1. The typical method for documenting actual forgetting of trauma has been to identify individuals on the basis of trauma and ask whether they can remember it. This research provides us with an interesting insight into the nature of previously inaccessible memories but does not allow us to determine whether we are dealing with primary repression, repression proper or merely forgetting due to lack of retrieval cues and the passage of time. For example, in the Briere and Conte (1993) study subjects were asked whether there were any conditions under which they could not remember the experience. Now this is a difficult question, does it mean was there a time when you couldn't remember, had not thought about the event. It is not clear what a `yes' answer to this question means. The memory status of these patients prior to entering therapy is not clear either and the fact that the patients

were in survivor groups already is problematic. Recent surveys (e.g. Poole, Lindsay, Memon and Bull, 1995) indicate that a significant minority of clients in therapy may have been undergone some form of memory recovery therapy such as hypnosis, the risks of which are well documented in earlier reviews (e.g. Lindsay and Read, 1994).

Williams (1994) had the opportunity to followed up females with a known history of childhood abuse (recorded as part of a mental health survey). Williams asked women during the course of a single interview whether they had been abused, no specific technique was used to help them remember and the question did not allude to a specific episode of abuse. Hence when 38% denied abuse it is not clear whether they were referring to a particular instance. Williams suggests that her respondents indicated that they were referring to periods of time during which they avoided thinking about the abuse. This does not constitute evidence for primary repression however but is more consistent with a suppression of the memory. Similarly, whether the women in the Loftus et al (1994) study had not disclosed memories of abuse due to repression, suppression, embarrassment, threat or merely a result of forgetting cannot be ascertained.

Repression or infantile amnesia?

Infantile amnesia refers to the inaccessibility for verbal recall of events occurring before 20-24 months of age (Fivush and Schwarzmueller, 1996). This may contribute to failures of memory in some of the clinical case studies reviewed although the work of Robyn Fivush and colleagues would caution us from specifying a childhood amnesia barrier for preschoolers. As indicated in a recent review children's earlier memories are highly dependent on social context and the extent to which adults can help children structure their experiences (Fivush, Pipe. Murchver and Reese, in press). This may account for individual differences in memories for early childhood traumas (see Howe, Courage and Peterson, 1994; Peterson, 1996). Fivush et al (in press) make the interesting observation that in the Williams (1994) study the women who always remembered the abuse recalled more supportive interactions surrounding their abuse experience from their mothers than those claiming to have forgotten for a period of time. As pointed out by Fivush and colleagues the effects of social variables on children's recall of early childhood events is only beginning to be studied but it does suggest the possibility that "the absence of discussion may contribute to the forgetting of traumatic experiences." They conclude that even if early memories are accessible in adulthood they are `likely to be unorganised and quite sparse." This fits with what has been found in some of the studies of clients in the studies reviewed in Table 1.

Repression or dissociation?

Dissociation may also explain the gaps in memory noted in studies of recovered memory clients. Spiegel and Cardena (1991) define dissociation as "a structured separation of mental processes (e.g. thoughts, emotions, connotation, memory and identity) that are ordinarily integrated". Dissociation may take many different forms such as Multiple Personality Disorder (MPD), a condition in which an individual develops a separate personality or personalities and experiences a lack of memory for events experienced in different states. Perhaps the most well known case is that of "Sybil"who took on some 16 different personalities following persistent sexual abuse by her sadistic mother (Schreiber, 1973). The extent to which MPD is a genuine condition and the extent to which it is manufactured during therapy is fiercely debated (e.g. Ofshe and Watters, 1994). Moreover, as Mulhern (1996) has so eloquently illustrated social and cultural forces have played a major part in shaping MPD as an idiom of distress.

Dissociation as a possible coping mechanism for sexual abuse was identified by Hunter, Andrews

and Brewin (1996) in their indepth interviews with women who recovered memories in therapy. They noted partial/profound amnesia in 12 of their 16 cases with a slight tendency for amnesia to be associated with earlier onset of abuse and more severe episodes. The authors comment that the dissociation took various forms including an out of body experience during which the assault was described as happening to someone else, an imaginary worlds was created in order to escape and conscious attempts were made to block memories of the experience. These data needed to be treated with caution however since the number of cases falling into these categories are small (three in each example). As more data are collected it may be possible to get a better insight into the different mechanisms that may account for the forgetting of traumatic experiences and the way in which they interact with other variables.

(iv) Psychogenic amnesia and fugue states

Studies of psychogenic amnesia suggest traumatic experiences can lead to extensive memory loss and sometimes `fugue' states in which a person is completely unaware of having lost all knowledge of personal identity. Schacter (1996) gives the example of a wartime fugue, an Australian soldier serving in Africa during World War II became traumatised supposedly when a German fighter plane swooped down towards him. he recalls trying to fire at a t the plane before blacking out. He became aware of his memory loss when he came to in a Syrian hospital about a month later. He had wandered in fugue in the intervening period focused on seeking refuge near a camp he had heard about in Syria. While it is not possible to conduct controlled tests of the condition under which this occurs, it does provide us with another illustration of apparently sudden and severe disturbance in memory functioning in response to a threatening situation. The literature on psychogenic amnesia is reviewed by Kihlstrom and Schacter (1995).

(iv) The verification of repressed memories: new directions

Much of the evidence discussed so far has been covered in earlier reviews of the literature (e.g. Lindsay and Read, 1994; 1995). As the pace of research on recovered memories gets faster and research methodology improves we are beginning to see some promising lines of investigation for the future. In this final section on evidence for repression,we will take a brief look at some of we will explore some new avenues of research.

(a) Systematic studies of clinical cases

The clinical psychologist and researcher Constance Dalenberg has developed multiple methods for examination of recovery and amnesia. She lists single clinical case studies of recovered memories, surveys of clinicians behaviour, clinical group comparisons between recovered and nonrecovered memory cases and studies of eyewitness memory including the memories of holocaust survivors (Dalenberg,1996). Dalenberg is currently undertaking a study of her former clients recruited after their therapy was completed (see table A). She draws a distinction between continuous memories of sexual abuse and recovered sexual abuse (thereby making a within-subject comparison of the reliability of the recovered memories of patient X with her other memories). Clients were asked to rate the truth value of each memory and a record was made of the point at which the memory emerged, whether it was continuous or recovered, and whether it emerged in or out of therapy. Clients were asked to track down any physical evidence supporting their memories and Dalenberg interviewed the fathers who were the alleged perpetrators of the abuse. Independent raters assessed the evidence which included some confessions from fathers. Two thirds of the sample were able to locate evidence confirming or disconfirming their memories. The percentage accurate ranged from 32% to 96% with 4 clients with more accurate continuous and 4 clients with more accurate

recovered (for 9 clients accuracy of continuous/recovered was identical). Dalenberg concludes therefore that this constitutes some evidence for recovered memories but does it tell us about the mechanisms underlying the prior unavailability of these memories? Nine of the father/daughter pairs stated they had never discussed the abuse in their lives suggesting that the memories may have been suppressed. As pointed out by Dalenberg, the question of what constitutes accuracy is critical here. All the clients were accusing their fathers and in 10 cases corroboration came from confessions or medical evidence. Not all recovered memories were corroborated however and Dalenberg presents two cases of false memories. Dalenberg speculates that the women here are likely to have had violent and sexually provocative fathers but they probably did not abuse their daughters. Here is an example from Dalenberg (1996):

"Stephanie recovered a memory of her father grabbing and shaking her. He was nude in the flashback and she was convinced it was a post-sexual abuse experience. She gradually recalled the where- a houseboat-her age-16 and the type of abuse-oral sex. In the investigation, the divorce report told an interesting story. Stephanie couldn't have interacted in this way with her father at age 16, since the divorce occurred at age 12 and she no longer saw him. At age 12, Stephanie walked in on her father while he was having sex with a 16 year old. He did chase her and admits threatening her. The family believe Stephanie placed herself in the role of the other child. Social services did investigate and no evidence emerged. Stephanie did have nightmares...one route to partially false memories." This is a good example of a case where the description of an event may contain some accurate details and some confabulations It is also an example of how easily memory may be distorted and source confusions (see below) may occur.

(b) Cases histories of recovered memories: non-therapy samples.

In addition to improved studies of clinical populations, there has been an effort to obtain non-clinical examples of recovery from repression in order to come up with data on the veridity of recovered memories that occur outside the therapy domain. The technique is to undertake a detailed analysis of case studies. Schooler has provided us with some scholarly reviews of this work (Schooler, 1994; Schooler, Bendiksen and Ambadar, in press). There are two public cases of delayed discovery of sexual abuse that are described by Schooler et al. In the first case, that of Ross Cheit, the corroboration came from newspaper report articles. In the second, the case of Commonwealth of Massachusetts v Porter in 1993, the corroboration came from multiple sources including suspicions of Porter's improper behaviour and allegations which followed from others who knew him or of him. More convincing is the case of JR who was allegedly repeatedly abused on camping trips by a parish priest. JR denies having any recollection of the history of the abuse prior to the recovery experience (which began when he watched a movie where the main character was subject to memories of sexual abuse) despite having been in therapy discussing intimate life events several years earlier. Corroboration came from several `reputable' sources including a colleague of Schooler who maintained regular contact with JR throughout the recovery process. As indicated by Schooler and colleagues it is not possible to check the authenticity of this recovered memory account and one cannot rule out the possibility that repression was being used as a means of overturning statute of limitation laws. They conclude however, that this is not a case where repression was being feigned. In our opinion however, this does not rule out other explanations for the delayed discovery or the possibility that corroborating evidence (including the reports of JR) were uncontaminated[2]. Several other cases are detailed by Schooler et al and again the evidence is carefully documented but in need of unbiased external corroboration (in one such case the victim acknowledged that she had not disclosed due to embarrassment). While the case studies offer a fascinating insight into processes underlying recovery of memories of trauma

(see also Davies and Robertson, 1996) they do not in themselves offer adequate scientific support for repression as a mechanism underlying delayed discovery of abuse.

(c) Repression: the role of cognitive mechanisms

So far, we have sought evidence for primary repression and other unconscious defensive mechanisms as explanations for memory loss. Brewin (1996) draws our attention cognitive psychology literature which suggests that repression and dissociation imply the presence of cognitive mechanisms that inhibit the activation of representations of traumatic events. He argues that these mechanisms have parallels in everyday cognitive processing thus providing us with yet another interpretation of repression. Relevant research reviewed by Brewin (1996) includes studies of retrieval induced forgetting where subjects are typically presented with a different categories of words and exemplars of them in the study phase. In the next phase they have to practice retrieval of some items from the studied categories by completing words that formed part of the category exemplars (e.g Animal-Ho---). In a subsequent recall it is subjects recall more of the practised items, recall of unpractised items is impaired relative to recall of items from control (baseline). It is concluded from this that there are `active inhibitory processes' which serve to reduce the activation level of practised versus practised words (Anderson and Spellman, 1995). Brewin et al (in press) elaborate on inhibitory mechanisms in the discussion of their dual processing model of post-traumatic stress disorder (PTSD),which according to the authors is characterised by" an alternation between reexperiencing and avoiding trauma related memories." (p. 4). It is proposed that traumatic memories are represented in two ways: (i) a conscious experience of the trauma (verbally accessible memories) which can be deliberately retrieved from the memory store (ii) a non conscious processing of the traumatic situation resulting in automatic activation of memories in specific contexts (referred to as specific situationally accessible knowledge). The dual representation theory predicts that the latter would remain intact even when verbal memories are incomplete. Brewin et al (in press) argue that `premature inhibition strategies' may be employed to avoid thinking about the trauma and intrusive memories will be prevented from surfacing but this does not mean that the memories cannot be reactivated later in life. While this theory remains to be systematically tested it is a significant theoretical development in our understanding of memory for traumatic events and how individual differences in coping strategies (Brewin and Myers, 1996) may contribute to memory deficits and other symptoms in trauma victims.

Summary of Part I

The evidence reviewed in this section suggests that is is possible for deficits in memory functioning and memory loss over time but the available evidence does not provide unequivocal support for the theory that this is a result of primary repression. On the other hand what has been referred to as suppression (repression proper), dissociation and inhibition could be coping strategies for dealing with the discomfort caused by the memories of the trauma. Perhaps, these strategies are a response to the intrusive memories of traumatic experiences rather than a response to the threatening elements of the trauma itself (Creamer, Burgess and Pattison, 1992). Indeed the intrusive thoughts seen in PTSD victims go against the theory of repression. There are clearly individual differences in reactions to traumatic experiences as revealed by some of the evidence considered above. Moreover, case studies show how complex it is to check the validity of these memories. As the quality of research with clients in therapy continues to improve, we may be able to develop a better understanding of the contribution of the different mechanisms and new theoretical developments in the study of the reactions of trauma victims may further improve our understanding. In the next section we turn our attention to the literature on the effects of emotional arousal on memory in order to focus more on the question of the of accuracy of recall of

emotionally arousing events. Are memories of such events resistant to forgetting and distortion? In this section we begin to address the question of how memory distortions may come about.

Part II: Emotional arousal and memory accuracy

(i) Eyewitness memory

A recurring conclusion throughout the early literature (eg. Clifford & Hollin, 1981; Kuehn, 1974) was that the accuracy (either of victim or witness) is adversely affected by the presence of emotionality or violence experienced during an event. The field research of Yuille and his colleagues (Yuille & Cutshall, 1986; Yuille & Tollestrup, 1992) led them to take issue with this conclusion. Yuille & Cutshall (1986) studied reports of a real-life incident and found unusually high accuracy and completeness of testimony over a 5-month period. Although some specific aspects of the event were forgotten, the authors maintain that these did not affect the overall accuracy of the rest of the account. A model of the diverse effects of event impact on memory was proposed by Yuille & Tollestrup (1992), based on attention and rehearsal. "Remarkable" (ie. distinctive) events of great impact - not achieved in the laboratory - tend to be rehearsed frequently and hence memories for such are well maintained. (Howe, Courage and Peterson, 1994, concur that stress is just one factor which makes an event unique). Furthermore, Yuille and Tollestrup (1992) posit that attention may be focused either internally or externally during an emotional event. An internal focus may be on emotions, and consequently few event details will be stored; whilst an external focus (ie. on the event itself) leads to the retention of central thematic elements. Thus it can be assumed that the extent of memory for details is a function of emotional impact, a conclusion that is supported by data from recent studies of arousal on memory for detail (e.g. Libkuman, Nichols-Whitehead, Griffith and Thomas, 1996).

Thus we begin to see the complexity of the association between emotion and memory. Certain elements of a traumatic event may be remembered well, whilst others display quite poor retention. One group of researchers (eg. Christianson, 1992a; 1992b; Kebeck and Lohaus, 1986) suggest that the centrality of details may predict whether or not they are recalled. Central details such as the emotional event itself tend to be well retained; whilst background information (peripheral details) is more susceptible to forgetting. Despite its circularity, the central/peripheral dichotomy may plausibly account for the discrepancies in the effects of emotion on recall. Moreover, Christianson (1992b) has applied Easterbrook's (1959) cue utilisation theory to the current domain. The latter predicts that arousal affects memory by redirecting attention or reducing attentional resources, such that gist or central information is well retained at the expense of peripheral details. Recent tests of this hypothesis have produced mixed results. For example, Wessel and Mercelbach (in press) exposed spider phobics and low fear controls to a large live spider and tested their memory afterwards. The phobics displayed a poorer memory for peripheral detail information but there were no group differences with respect to memory details.While this only provided partial support for the attention narrowing hypothesis, it does fit with the theory proposed by Yuille and Tollestrup (1992) considered earlier. If the phobics directed part of their attention inwardly (on their emotions) then memory for peripheral details would have suffered.

(ii) Emotional focus and Source memory

Locating the source of an event (initial experience of the event) and distinguishing it from memories of largely internal experiences (thoughts about the event, the reading of written information and what others have said) is essential in order to arrive at an accurate memory of an experienced event. This has been referred to as source monitoring theory ((Johnson, Hashtroudi

and Lindsay, 1993)[3].

Johnson, Nolde and Leonardis (1996) have recently looked at the role of emotional focus in source monitoring. They argue that insofar as peripheral details are critical in identifying source of information, an internal focus on emotions may occur at a cost to the processing of external perceptual information (information about source). Johnson et al reason that: "Self-focus should have a negative impact on source monitoring because it reduces the chances that a listener will bind features of a speaker (eg. voice quality, inferred attitudes, etc.) to the semantic content of what was said." (Johnson et al, 1996, p. 138). In support of their hypotheses, Johnson et al (1996) found when students focused on their own feelings about statements about various `emotional' topics heard on tape relative to how the speakers felt they were better at recognising the statements but worse at identifying the source. Moreover, subjects who focused on their emotions were less accurate at identifying the source on the more emotion-evoking statements.

The neat thing about source monitoring theory is that it can account for accurate and false reports. In terms of the effects of emotion on source monitoring, Johnson et al (1996) argue that emotion induces `reactivations' of events that took place then should result in accurate recall but when it induces embellishments false memories may occur (see the final section for a discussion of conditions under source confusions may result in false memories).

(iii) Repressed Memories and Flashbulb Memories

So far, it appears that attentional mechanisms at encoding act to preserve some details in memory whilst not preserving others. Thus, intensity of emotion is not a safeguard against forgetting. However, there remains a debate in the applied domain as to the effects of emotion, whether it is facilitative or detrimental to memory. Both schools of thought employ a special mechanism to explain their phenomenon - in the former case, flashbulb memories are formed; in the latter, repression occurs. In actual fact, the experimental evidence described above suggests that emotion may be both facilitative and detrimental to memory, depending on circumstances; and that a special mechanism is not required to explain these effects. Take the literature on "flashbulb" (FB) memories (apparently vivid and confidently held memories of significant events, such as the Challenger explosion, or the assassination of John F. Kennedy). The term `flashbulb' is misleading since it implies a photographic reproduction when it has been found that even these highly lucid memories can be in error (Neisser and Harsch, 1992).

Terr (1996) interviewed children's (aged 8 years and 15 years) about their memories of the *Challenger* spacecraft explosion of January 1986. The interviews took place 5-7 weeks after the explosion and again at 14 months. While such memories were clear, consistent and detailed there were not without errors. Some 30% of children had misunderstood something about the explosion and incorporated the misinformation into their memories of the event. In other words, clarity and detail cannot guarantee accuracy.

So what impact does trauma have on memory for an event? Terr's work shows it is possible for children to recollect traumatic details albeit with some inaccuracies. Terr (1991) attempted to come up with a theory of when traumatic memories may be repressed and when they are retained. She maintained that while a single event produced a flashbulb type memory, a multiple incident would result in dissociation or repression. This theory has met with much criticism and the limitations of Terr's theorising are best summed up by Dan Schacter (1996)

" Terr's ideas are provocative but hundreds of studies have shown that repetition of information

leads to improved memory, not loss of memory, for that information. To produce profound amnesia, the repression mechanism would have to be so effective as to succeed despite the normal tendency for repeated experiences to enhance memory. People who live through repeated traumas in war generally remember these terrifying experiences only too well. An individual experience or trauma may be set aside, especially when much time has passed, but with rare exception such fugue states-which are generally of short duration-people do not forget an entire set of repeated traumas". (p. 256).

Summary of Part II

There has been much controversy in the literature about how accurately people remember emotionally significant information. A summary statement of the research presented would suggest that the effects of emotional arousal on memory are complex. Central details of a traumatic event may be remembered well, whilst peripheral information is sometimes poorly retained. Moreover, attending to one's emotional reactions may occur at the expense of identifying the source of the remembered information (Johnson, in press).

While studies of flashbulb memories initially suggested that such memories are accurate and persistent, it is clear that even when memories are vivid and compelling they are susceptible to distortion in the same way that normal memories are. Such memories do not warrant any special mechanisms (a conclusion echoed by Hyman and Loftus in press). Normal processes imply that normal errors may occur, and in the next section it will be shown that the conditions that give rise to veridical remembering map closely onto conditions that result in the creation of false memories.

Part III Retrieval of information from memory

(i) Retrieval cues

It has been well established through decades of careful research that forgetting can occur over short and long delays through deficits in encoding, storage or retrieval processes, or a combination of these (see Brainerd, Reyna, Howe and Kingma, 1990 for a review). Encoding specificity theory (Tulving and Thomson, 1973) highlights the role of retrieval cues which match conditions at encoding in facilitating access to memory. This can be achieved by mentally reinstating the physical and personal contexts[4] that existed at the time an event was witnessed (see Memon and Bruce, 1985, Davies and Thomson, 1988; for a review of the literature on context effects and Eich, 1980 for a review of the literature on state-dependent learning). Schacter and colleagues have recently completed research in their laboratory that provides a nice illustration of how properties of retrieval cues can influence what is recalled about the past. In their experiments, college students looked at photos of people (in which they were slightly smiling or frowning) and heard them speak in either a pleasant or irritating tone of voice. Later, they saw the same photos again and tried to recall the tone of voice. Those faces seen with a slight smile were tended to be attributed a pleasant voice and vice versa despite the fact that there was no relationship between facial expression and tone of voice (cited in Schacter, 1996).

(ii)The reconstructive nature of memory

While retrieval cues may be effective in bringing back memories, we know that false recollections increase with the passage of time (Barclay, 1986). There are now several layers of research that inform us about the mechanisms underlying memory distortions. The first layer dates back to 1932 when Bartlett so tacitly demonstrated pre-existing knowledge and reconstructive processes in story

memory. Another layer of evidence comes form the work of Loftus and colleagues over the last 2 decades (Loftus 1974 to present) showing how easily it is to bias recollection through subtle changes in wording of questions (see Schacter, 1995 for a historical review). This work has resulted in a wealth of literature on a phenonomenon which has become known as `suggestibility' (but also includes compliance with experimenters demands). We will now examine the relevance of this research to the debate about the accuracy of recovered memories.

(iii) Source Monitoring and false memories.

The role of source confusions in creating false memories was alluded to earlier in our discussion of the effects of emotional focus on source memory. Zaragoza and Mitchell (in press) highlight some of the conditions under which source monitoring failures may lead to memory distortions in their work on repeated suggestions on eyewitness memory. In their study participants view a video of a burglary immediately afterwards answer questions about the event, some of which contained misleading suggestions. Some suggestions appeared once and others three times in the postevent questions (the latter presented in a written form). Participants were tested on their memory for the source of the suggested items (after 10 minutes, 48 hours or 1 week). A false memory was defined as one where a suggested item was attributed to the video. In all three groups there was a progressive increase in false memories from no exposure to suggestion to 1 exposure and most markedly from 1 exposure to suggestions to 3 exposures. The authors conclude that "what is striking about the present results is that repetition produced a marked increase in high confidence misattribution errors even though it served to preserve subjects' memory for the source of the suggestions." (p.12).

The role of source monitoring in the creation of false memories about a real life event (the crashing of El AL Boeing 747 into apartment buildings in Amsterdam) was examined by Crombag, Wagenaar and Van Koppen (1996). They misled adults (including a large number of law students) into believing they had witnessed (seen on television) the plane crash when in reality they had only heard about the crash from media reports and seen the effects of the aftermath (no film of the crash exists). Crombag et al argue that the ease with which participants were fooled about such a serious event questions the `supposedly indelible' nature of flashbulb memories. Furthermore, a significant number answered detailed questions about the crash. The effects are attributed to source monitoring problems. It is assumed that while the participants in the study had heard numerous reports about the plane crash, they paid little attention to these instead they `seem to have imagined the various scenes using their common sense. These images become very real to them, and since to many subjects the source of these images was not obvious, the suggestion that they had seen them on TV, for many, proved irresistible. The authors go on to point out: "Conflicting and implausible information typically occurs in court cases; one witness contradicts another...Then all of a sudden `source monitoring' becomes of the essence, and that is why the law of evidence in many countries forbids or at least limits, the use of hearsay information in court." (p. 103). Crombag et al stress that witness in legal trials need to be explicitly reminded that they should only report what they know first-hand.

The studies reviewed in this section concur with the conclusion that memory distortions involve source monitoring failures. They show an individual may come to believe something happened because they thought about it a lot, imagined or fantasised about it, saw, read or heard about it.

(iii)The false memory paradigm.

As a direct result of concerns about the possibility that false memories can be created, several

laboratories have developed paradigms to systematically study whether or not it is possible to implant an entire false memory in the mind of an adult. There are two strands of studies here. The first set provide a demonstration of false recall in a verbal paradigm, the second set provide a demonstrate how its possible to implant an entire false memory about a childhood event in the mind of an adult.

Following a procedure that was pioneered by Deese (1959) several researchers have presented subjects with lists of words all associated to a single non-presented word (e.g. slumber, doze, nap, bedtime). After studying the words lists, subjects complete recognition tests with the common finding that the common non-presented word *sleep* is recognised with as much confidence as the presented words (e.g. Roediger and McDermott, 1995). The effects have been replicated in a cued recall paradigm (McDermott, 1996) and the false memory has been shown to increase over successive recall tests (a hypermnesia false recall effect) even when subjects were warned about guessing on recall tests (Payne, Elie, Blackwell and Neuschantz, 1996). Schacter and colleagues have recently completed a neurophysiological study in their laboratory in which they have found that medial temporal lobes close to the left hippocampus become active during both "true" recognition of previously studied words and "false" recognition of nonstudied but associated words. Moreover, areas in the temporal and parietal lobes that store information about word sounds became active following recognition of words that had been heard in the experiment but not during the false recognition of nonpresented associates (Schacter, Reiman, Curran, Yun, Bandy, McDermott and Roediger, 1996 cited in Schacter in press).

(iv) Implanting entire false memories in adults.

The typical procedure in the memory implantation studies is described by Loftus and Pickrell (1996). In the first part of their study, an older relative presents participants with four stories about their childhood. Three stories are "true" and one is a "false" event (eg. lost in a shopping mall). All participants are interviewed twice and asked to recall as much as they can. Loftus and Pickrell report that 68% of the true events are remembered while 25% of false events are fully or partially recalled at the first and second interview. These findings have been replicated. For example, Hyman, Husband, and Billings (1995, experiment 2) implanted memories of an accident at a wedding reception which resulted in a punch bowl being overturned on the parents of the bride. Memory for true events was highly accurate over three separate interviews. For the false `punch bowl' events, no participants provided false recollections during the first interview whereas 25.5 percent did so by the third interview. (The false recalls varied in clarity, with six of the 23 rated as "very clear"). Interestingly, subjects who incorporated general details that fitted the event script into their first or second interview more likely to have false recollections by interview three. The extent to which one has some prior knowledge of, or a script for the implanted event may determine the likelihood that the event will be suggestively implanted into memory. Payne et al (1996) suggest that the conceptual framework provided by fuzzy trace theory (Brainerd and Reyna, 1990) offers a useful perspective from which to evaluate false memory effects (see also Toglia, 1996). Basically the theory would lead us to predict there are two separate representations at encoding- verbatim (information itself) and gist (semantic content) and the latter is more accessible than former. This fits with the hypothesis that people may be more likely to introduce false memories in situations where they have a script of the target episode (Pezdek, 1995).

Hyman and Pentland (1996) in an extension of the earlier studies of memory implantation were interested in whether guided imagery type procedures resembling ones sometimes used in therapy would increase the recall of true and false memories and whether `hypermnesia' (or net increases in recall) would occur over repeated interviews. Students were interviewed three times about a

series of `true' events based upon information supplied by their parents and a false event (the accident with the punch bowl). They were given basic cues (age, nature of event, locations). When participants in the imagery condition failed to recall the event, they were asked for detailed descriptions (and asked questions about what happened). The control group were asked to sit quietly and think about the event for a minute. There were no significant differences in the imagery versus control condition in the percentage of true events recalled but there was a tendency for additional information to be reported following the first interview (this is most marked in the imagery condition) suggesting a form of hypermnesia. Not surprisingly, memories provided by subjects in the imagery condition were rated as higher in image clarity than memories provided in the control condition. Turning to the false events, these were scored as clear false memory, partial, no memory and no but trying (a memory recovered from the first to the third interview was referred to as a recovered memory). The number of clear false memories increased across interviews in both conditions (there were no clear differences in partial memories although some individuals went from partial to trying to clear). By the third interview, experimental condition was related to the creation of a false memory. 37.5% in the imagery condition versus 12.4% in the control condition had created a false memory. Those who created a false memory tended to rate their image as clearer and were more confident. The data are compatible with source monitoring theory (see above). In related research, Hyman and colleagues (Hyman and Billings, in press) have attempted to identify the cognitive and personality characteristics of individuals that relate to the creation of a false memory.

More recently, Garry et al (1996) have demonstrated that imagery increases confidence and likelihood that a false event occurred. In a three staged procedure, subjects firstly completed a life events inventory (LEI) where they rated the likelihood of a series of true and false events on a 8 point scale. Two weeks later they returned and were asked to produce an image of some of the events. They were also asked questions about the images to cue them further. Note that there were 8 critical events, split into two groups of four, one set to be imagined and one to serve as control (the items were rotated). Following this the experimenter asked them to complete the LEI once more on the pretence that earlier scores had been misplaced. The majority of subjects did not change their confidence scores for the critical events in the imagine/ non imagine condition. Analysis of individual items did reveal significant differences in the confidence of events in the imagined condition. 24% of subjects who had imagined the false event `put hand through glass and broke window' increased their subjective confidence as compared to 12% who had not imagined the event. Interestingly, there was a general increase in subjective confidence among items regardless of whether they had been imagined. (The authors suggest this could reflect regression towards the mean or be an effect of hypermnesia.) The increases in subjective confidence following imagery is in keeping with the finding that illusions of familiarity can be created by manipulating the ease with which items to mind (see work of Lindsay and Kelley, 1996 and Jacoby et al, 1989).

Finally, false memories may be created under hypnosis. Lynn, Malinoski and Sivec asked adults to recall early childhood memory in a hypnotic or nonhypnotic context in several studies. In one study, 20% of subjects who were hypnotised and age regressed to four reported that they had played with a `cabbage patch' or `he-man' doll, despite the fact that the dolls were not manufactured until two years later. In another study, with probes and verbal reinforcement, 78.2% reported memories from age two and younger and such reports were correlated with compliance, hypnotisability and interrogative suggestibility. This work i highlights the dangers of using hypnosis in memory recovery therapy (see Poole et al, 1995).

(v) The power of suggestion in the therapy context

Guided imagery or visualisation techniques may be used successfully in therapeutic contexts in the relief symptoms of post-traumatic stress disorder in rape victims (e.g Foa, Rothbaum, Riggs and Murdock, 1991). However, they are also used by some practitioners as part of repressed memory therapy and their use for memory recovery is problematic. The conditions under which false reports are created in the false memory experiments are not unlike those in which a therapist using `memory recovery techniques' may elicit memories from adults (see Lindsay and Read, 1994; Poole et al, 1995). If anything, the therapist is more likely to have enlisted the trust and confidence of a client than an experimenter (after all this is an essential part of the client therapist relationship). This means that demand characteristics may have a greater impact in the real world[5]. Trauma patients in therapy may hold the belief that abuse occurred in very early childhood and this is why they do not remember it. Kihlstrom (1995) argues that under these circumstances, memories may be based on attributional processes and not on retrieval. Witnesses and suspects that are subjected to investigative interviews may also succumb to social influences (Gudjonsson, 1992; 1994).

Summary

The focus of this section has been on the impact of retrieval conditions on remembering. A number of different paradigms have been used to demonstrate how over repeated suggestive questioning a false memory may occur. While the participants in these studies are limited to some extent in ecological validity (the participants are typically younger than clients undergoing therapy and the events being reported are fairly innocuous as compared to a sexual trauma) the interviews do simulate the social psychological pressures to comply with suggestions. Future studies of this kind may provide some clues as to the cognitive and personality characteristics of individuals that may predict vulnerability to suggestion. Moreover, much can be gained by looking more carefully at the way in which an individuals beliefs and attributions about memory may be shaped by their experiences of remembering and forgetting. The role of attribution processes in nicely illustrated by some work recently reported by Belli, Winkelman, Schwarz and Read (1996). They showed in their studies with undergraduate students that experienced difficulty in remembering past experiences of childhood are attributed to the incompleteness of memory about childhood experiences (the availability heuristic).

We would urge caution in using the term `false memory.' As pointed out by Winograd and Killinger (1983) there is an important sense in which no memory is false, if information is part of the cognitive system and an individuals beliefs about what happened then its presence needs to be explained. Therapists need to avoid using any suggestive practices in memory recovery therapy so that the truth can be reached without contaminating it. While some clinicians maintain that the accuracy and detail with which an account is recalled is not critical (e.g. Olio and Cornell, 1994), we would argue that knowing whether abuse has truly occurred may help therapy progress (see Pennebaker and Memon, 1996). In the forensic context, not only is it important to establish whether or not an event has occurred but to determine precisely what happened. In the final section of this paper, we illustrate the significance of accuracy and memory for details with reference to some recent cases of recovered memory that have gone to trial.

Part IV: Taking a recovered memory to court

Verifying the accuracy of recovered memories in the courtroom

Willem Wagennar who has often served as an expert witness[6] in the Netherlands recounts the case of Yolanda who accused her parents and others of continual abuse and the murder of her unborn babies. Wagenaar was asked to review the reliability of the witness evidence (autobiographical memories) in the case of Yolanda which came to trial in 1991 and 1994) and noted how difficulty in doing this given that some suspects had been questioned around 20-30 times and had changed their accounts. This together with the `gaps' and inconsistencies in information about what had transpired made it impossible to ascertain the accuracy of information with the degree of precision required by the courts. One of the critical questions is the case was when Yolanda's pregnancy had been terminated. Abortion is defined as the termination of a pregnancy that lasted less than 24 weeks while the termination of a pregnancy that lasted over 24 weeks is technically a murder. Specifying when the termination occurred was critical in terms of deciding what crime had been committed but as Wagenaar discovered this was impossible to find out given that the first pregnancies supposedly occurred around 1980 and the memories of witnesses for dates were so hazy (Wagenaar, 1996).

The case of George Franklin cited in the opening paragraph of this chapter, provides a telling example of conflicting therapeutic and legal agendas. Franklin was accused of the 1969 murder of Susan Nason based, to a large degree, on the memories recovered 20 years after the event by Franklin's daughter, Eileen. Although it is not clear when Eileen's memories began to return, she claims that the initial recollection occurred when she recognized an expression on her own daughter's face as being identical to that of her friend Susan before she was killed. Eileen was seeing a therapist and acknowledged that she had undergone hypnosis. More importantly, her reports of what she remembered clearly changed during the course of the investigation and the trial (Maclean, 1993). This is not surprising given that she was questioned repeatedly by a number of different people with conflicting motives. The prosecution's case that George Franklin murdered Nason tallied with the history of abuse in the Franklin family and the involvement of Franklin in behaviours consistent with paedophilia. Franklin was convicted of first degree murder in November, 1990, a decision that was overturned in 1995 due, in part, to the fact that the defence was not permitted to introduce newspaper accounts of the crime scene which would have shown that Eileen's memories may have come from this source. The latter contained details similar to those given by Eileen after she recovered the memories (Bikel, 1995).

Eileen's recovered memories may have tallied with other memories in her life as well as many of her emotions and perceptions in adulthood. Pennebaker and Memon (1995) point out this criterion may be sufficient in the clinical setting where one is attempting to understand the patient's distress and world view. However, if recovered memories are to be the basis for confronting presumed past abusers, for instituting legal actions, actions which are likely to have a devastating impact on the course of the client's or other people's lives, the therapist has a moral obligation to play detective[7] and seek additional data that could confirm or disconfirm the recovered memories. If the therapist is unable to do this then, she or he should inform the client of the relevant issues.

The preceding discussion raises the question of how it is possible to tell the difference between a true and false account. Ross and Newby (1996) argue that rememberers and observers will invoke a variety of truth criteria to assess validity of recollections and will often be wrong. They illustrate this with reference to memories of alien abductions where a rememberer may use criteria such as context, vividness, memorability, originality to assess validity of these accounts in the absence of external evidence. Of course the same criteria could be used by observers to discredit the memory. Thus if someone truly believes in their memory then what we as scientists ought to be able to do is study the conditions under which it was obtained and be able to comment on the accuracy of the

report. However, according to Ross and Newby trying to distinguish true and false memories on the basis of truth criteria is not going to tell us much about the accuracy of the memory. Unless external corroboration is available, neither cognitive nor clinical psychologists are able to distinguish between false memories on the one hand and genuine memories on the other. This is the major area where the results of future research are awaited.

Concluding Remarks

The aim of the research reviewed here has been to show review some of the mechanisms that may account for recovered memories and to examine their likely accuracy in relation to the literature on the encoding and retrieval of traumatic events. It was concluded that evidence for primary repression is sparse and that intentional forgetting or suppression may account for the previous unavailability of childhood memories. A similar conclusion was reached in a case filed by the court of appeals of Maryland in July 1996 (Jane Doe et al. v. A. Joseph Maskell, et al.). In this case, the courts were asked to decide whether the discovery rule was applicable. The details of the case are relevant to the present discussion. Jane Doe and Jane Roe were students at a parochial school in Baltimore city in the late 1960s. During their time there they had individually been referred for counselling to the school chaplain Father A. Joseph Maskell. It is alleged that Maskell subjected the girls to repeated sexual, physical and psychological abuse. Both girls were allegedly threatened with punishments if they told and they claimed to have ceased to recall the abuse after they left school in 1971/1972. The girls filed suits in 1994 claiming that in order to avoid the pain associated with recalling the abuse they had `repressed' their memories and then later `recovered' them. According to this they were `blamelessly ignorant" and could not file suit earlier. The court of appeal extracted two assumptions from this: (i) there is a difference between repression and mere forgetting and (ii) the difference is a sufficient quality to operate the discovery rule. The courts reviewed the scientific literature on repression and forgetting (including some of the studies described later in this chapter) and concluded that repression and forgetting could not be distinguished scientifically and thus should be treated the same legally. The court concluded therefore that the plaintiffs suits were barred by the statute of limitations three years after they reached their eighteenth birthdays (1974/1975).

There is no doubt that sexual abuse is a serious problem, the contexts in which it occurs and fear of consequences of reporting it makes it very difficult for victims to come forward (Browne and Finkelhor, 1986; Beitchman, Zucker, Hood, da Costa, Akman and Cassavia, 1992)[8]. Indeed false denials are likely to exceed false memories for this reason. Ethical constraints prevent researchers from simulating the threat experienced in real life situations. We therefore have to rely on what we know about the vulnerability of our memories and the power of suggestion. Even Freud modified his theories when he discovered that some of the early memories his patients retrieved were fantasy based confabulations (Freud, 1910). At the same time, Freud may have misinterpreted real memories of sexual abuse as fantasies (Powell and Boer, 1995). Bearing in mind the ease with which we may be misled, we (researchers and practitioners) should aim to create conditions where accurate recollections can be fostered while being cautious that we may fostering inaccurate recollections under the same conditions.

References

Anderson, M.C. & Spellman, B.A. (1995). On the status of inhibitory mechanisms in cognition: Memory retrieval as a model case. *Psychological Review*, **102**, 68-100.

Barclay, C.R. (1986) Schematization of autobiographical memory. In D.C. Rubin (Ed.),

Autobiographical Memory. Cambridge: Cambridge University Press.

Bartlett, F.C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge: Cambridge University Press.

Beitchman, J.H., Zucker, K.J., Hood, J.E., da Costa, G.A., Akman, D. and Cassavia, E. (1992). A review of long term effects of child sexual abuse. *Child Abuse and Neglect,* **16**, 108-118.

Belli, B., Winkielman, P., Schwartz, N. & Read, J.D. (1996) Attributions on the completeness of childhood memory. Paper presented at the International Conference on Memory, Padova, 14-19th July

Bowers, K.S. & Farvolden, P. (1996). Revisiting a century-old Freudian slip- From suggestion disavowed to the truth repressed. *Psychological Bulletin*, **199**, 355-380.

Brainerd, C.J. & Reyna, V.F. (1990). Gist is the gist: The fuzzy trace theory and new intuitionism. *Developmental Review*, **10**, 3-47.

Brainerd, C.J., Reyna, V.F., Howe, M.L., & Kingma, J. (1990). The Development of Forgetting and Reminiscence. *Monographs of the Society for Research in Child Development*, **55**, (3-4 Serial No. 222).

Brewin, C.R. (1986). Clinical and experimental approaches to understanding repression. Paper presented at the NATO Advanced Study Institute on Recollections of Trauma, France 15-25 June.

Brewin, C.R & Myers, L.B. (1996). Repressive coping and impaired recall of autobiographical and experimental memory. Paper presented at the International Conference on Memory, Padova, 14-19th July

Brewin, C.R., Dalgleish, T. & Joseph, S. (in press) A dual representation theory of Post-Traumatic Stress Disorder. *Psychological Review*

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

Browne, A. & Finkelhor , D. (1986). The impact of child sexual abuse: A review of research. *Psychological Bulletin*, **99**, 66-77.

Bulkley, J. A., & Horowitz, M.J. (1994) Adults sexually abused as children: legal actions and issues. *Behavioural Sciences and the Law*, **12**, 65-86.

Carson, D. C. (1996) Personal communication.

Christianson, S. (1992a), "Do Flashbulb Memories Differ from Other Types of Emotional Memories?" In E. Winograd & U. Neisser (eds.), *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories* (pp. 191-211). New York: Cambridge University Press.

Christianson, S. (1992b). Emotional stress and eyewitness memory: a critical review. *Psychological Bulletin*, **112** (2), 284-309.

Clifford, B. R. & Hollin, C. R. (1981), "Effects of the Type of Incident and the Number of Perpetrators on Eyewitness Memory". *Journal of Applied Psychology* **66**, 364-370.

Creamer, M., Burgess, P. & Pattison, P. (1992). Reaction to trauma: A cognitive processing model. *Journal of Abnormal Psychology*, 101 (3) 452-59.

Crombag, H.F.M., Wagenaar, W.A. & Van Koppen, P.J. (1996). Crashing memories and the problem of source monitoring. *Applied Cognitive Psychology*. **10**, 95-104.

Dalenberg, C. (1996). The prediction of accurate recollections of trauma. Paper presented at the NATO Advanced Study Institute on Recollections of Trauma, France 15-25 June.

Davies, G. & Robertson, N. (1996). A recovered memory of a traumatic event: A single case study. Poster presented at the NATO Advanced Study Institute on Recollections of Trauma, France 15-25 June.

Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S CT. 2786 (1993).

Deese, J. (1959). On the prediction of occurrence of particular verbal intrusions in immediate recall. *Journal of Experimental Psychology*, **58**, 17-22.

Easterbrook, J. A. (1959), The Effect of Emotion on Cue Utilization and the Organization of Behavior. *Psychological Review* **66**, 183-201.

Eich, J.E. (1980). The cue dependent nature of state dependent retrieval. *Memory and Cognition*, **8**, 157-173.

Erdelyi, M.H. (1990). Repression, reconstruction and defence: History and integration of the psychoanalytic and experimetental frameworks. In J.L. Singer (Ed.) *Repression and dissociation: Implications for personality theory, psychopathology and health*. University of Chicago Press.

Faigman, D.L. (1995). The evidentiary status of social science under *Daubert*: Is it `Scientific,' `technical,' or `other' knowledge? *Psychology, Public Policy and Law,* **1** (4), 960-79.

Fivush, R., Pipe, M-E., Murachver, T. & Reese, E. (in press). Events spoken and unspoken: Implications of language and memory development for the recovered memory debate. IN M. Conway (Ed.), False and recovered memories. London: Oxford.

Fivush, R. & Schwarzmueller, A. (1996). Children remember childhood: Implications for childhood amnesia. Paper presented at the Second International Conference on Memory, Padua, Italy.

Foa, E. B., Rothbaum, B.O., Riggs, D., & Murdock, T. (1991). Treatment of post-traumatic stress disorder in rape victims: A comparison between cognitive behavioural procedures and counselling. J*ournal of Consulting & Clinical Psychology*, 59, 715-23.

Freud, S. (1910). Leonardo da Vinci and a memory of his childhood. In J. Strachey (Ed.), The standard edition of the complete psychological works of Sigmund Freud. London: Hogarth Press.

Frye v. United states 293 F.1013 (D.C. Cir. 1923)

Garry, M., Loftus, E.F. & Sherman, S.J. (1996). Imagination inflation: Imagining a childhood event inflates confidence that it occurred. *Psychonomic Bulletin & Review*, 3 (2), 208-14.

Greenberg, S.A. and Shuman, D (in press). Irreconcilable conflict between therapeutic and

forensic roles. Professional Psychology: Research and Practice.

Gudjonsson, G. (1992) *The psychology of interrogations, confessions and testimony*. Chichester: Wiley.

Gudjonsson, G. (1994). Investigative interviewing: recent developments and some fundamental issues. *International Review of Psychiatry*, **6**, 237-245.

Hastings, R. (1996) Does facilitated communication free imprisoned minds? The Psychologist, 9, 19-24.

Herman, J.L. and Schatzow, E. (1987) Recovery and verification of memories of childhood sexual trauma. *Psychoanalytic Psycholog*y, **112**, 1-14.

Holmes, D.S. (1990). The evidence for repression: An examination of sixty years of research. In J.L. Singer (Ed.) *Repression and dissociation: Implications for personality theory, psychopathology and health*. University of Chicago Press.

Howe, M.L., Courage, M.L. & Peterson (1994). How can I remember when I wasn't there: Long term retention of traumatic experiences and convergence of the cognitive self. *Consciousness & Cognition*, **3**, 327-55.

Hunter, E., Andrews, B. & Brewin, C. (1996). Memory loss for childhood sexual abuse-distinguishing between encoding and retrieval factors. Paper presented at the International Conference on Memory, Padova, 14-19th July.

Hyman, I.E & Billings. (in press). Individual differences in the creation of a false memory. *Memory*

Hyman, I.E. & Loftus, E.F. (in press). Memory: Modern conceptions of the vicissitudes of early childhood memories. In D.A. Halperin (Ed.), *False Memory Syndrome: Therapeutic and Forensic Perspectives*. American Psychiatric Press

Hyman, I.E & Pentland, J. (1996). The role of mental imagery in the creation of false memories. *Journal of Memory and Language*, **35**, 101-117.

Hyman, I.E., Husband, T.H. & Billings, J.F. (1995). False memories of childhood experiences. *Applied Cognitive Psychology*, **9**, 181-97.

Jacoby, L.L., Kelley, C.M., & Dywan, J. (1989) Memory Attributions. In H.L. Roediger and F.I.M. Craik (Eds.), *Varieties of memory and consciousness: Essays in honour of Endel Tulving* (pp. 391-422). Hillsdale, NJ: Erlbaum. Press.

Johnson, M.K. (in press) Identifying the origin of mental experience. In M.S. Myslobodsky (Ed.), Mythomanias. NJ: Erlbaum.

Johnson, M.K., Hashtroudi, S. and Lindsay, D.S. (1993). Source monitoring. *Psychological Bulletin*, **114**, 3-28.

Johnson, M.K., Nolde, S.F. and De Leonardis, D.M. (1996). Emotional focus and source monitoring, Journal of Memory and Language, 35, 135-56.

Kebeck, G. & Lohaus, A. (1986), "Effect of Emotional Arousal on Free Recall of Complex Material". *Perceptual and Motor Skills,* **63**, 461-462.

Kihlstrom, J. F. (1995) The Trauma Memory argument. *Consciousness and Cognition, 4,* 63-67.

Kihlstrom, J. F. & Schacter, D. (1995) Functional disorders of autobiographical memory. In A. Baddeley, B. Wilson, & F. Watts (Ed.), Handbook of Memory Disorders (pp. 337-364). Chichester: Wiley.

Koriat, A. & Goldsmith, M. (1996). Memory metaphors and the everyday laboratory controversy: Comparing the storehouse and correspondence conceptions of memory. *Brain and Behavioural Sciences*.

Kuehn, L. L. (1974), "Looking Down a Gun Barrel: Person Perception and

Violent Crime". *Perceptual and Motor Skills* **39**, 1159-1164

Libkuman, Nichols-Whitehead, Griffith and Thomas (1996). Source of arousal and memory for detail. Manuscript submitted for publication.

Lindsay, D. S. & Kelley, C.M. (1996). Creating illusions of knowing in a cued recall remember know paradigm. *Journal of Memory and Language,* 35, 197-211.

Lindsay, D. S. & Read, J.D. (1994). Psychotherapy and memories of child sexual abuse: A cognitive perspective. *Applied Cognitive Psychology* **8**, 281-338.

Lindsay, D. S. & Read, J.D. (1995) Memory work and recovered memories of childhood sexual abuse: Scientific evidence and public, professional and personal issues. *Psychology, Public Policy and Law*, 1, 846-908.

Loftus, E. (1974). Reconstructing memory: The incredible witness. *Psychology Today,* 8, 116-19

Loftus, E. & Ketcham, K. (1994) *The myth of repressed memory*. New York: St Martins Press.

Loftus, E. F. & Pickrell, J. E. (1995). The formation of false memories. *Psychiatric Annals*.25:12, 720-5.

Loftus, E., Polonsky, S. & Fullilove, M. (1994). Memories of childhood sexual abuse: Remembering and Repressing. *Psychology of Women Quarterly,* **18**, 67-84.

Maclean, H. (1993) *Once upon a time*. New York: Harper Collins.

Lynn, S., Malinoski, P. & Sivec. H. (1996) Psuedomemory reports in hypnotic and non-hypnotic contexts. Paper presented at the International Conference on Memory, Padova, 14-19th July.

McDermott, K.B. (1996). The persistence of false memories in list recall. *Journal of Memory and Language*, 35, 212-230.

Mulhern, S. (1996). The socialization of altered states of consciousness. Paper presented at the NATO Advanced Study Institute on Recollections of Trauma, France 15-25 June.

Neisser, U. & Harsch, N. (1992), "Phantom Flashbulbs: False Recollections of Hearing the News

About Challenger". In E. Winograd & U. Neisser (eds.), *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories* (pp. 9-31). Cambridge: CUP

Ofshe, R. & Watters, E. (1994). Making Monsters: false memories, psychotherapy and sexual hysteria. New York: Scribner.

Olio, K. (1989) Memory retrieval in the treatment of adult survivors of sexual abuse. *Transactional Analysis Journal . 19,* 93-100.

Olio, K. & Cornell, W.F. (1994) Making meaning not monsters: reflections on the delayed memory controversy. *Journal of Child Sexual Abuse,* **3** (3), 77-93.

Payne, D.G., Elie, C.J., Blackwell, J.M. & Neuschantz (1996). Memory illusions: Recalling, recognizing and recollecting events that never occurred. *Journal of Memory and Language*, 35, 261-285.

Pennebaker, J.W. & Memon, A. (1996). *Recovered memories in context: Thoughts and elaborations on Bowers and Farvolden*. Psychological Bulletin, **119** (3), 381-85.

Pendergrast, M. (1995). *Victims of memory: Incest accusations and shattered lives*. Hinesburg VT: Upper Access.

Peterson, C. (1996). The preschool child witness: Errors in accounts of traumatic injury. *Canadian Journal of Behavioural Science*, 28, 36-42.

Pezdek, K. (1995). What types of childhood event are not likely to be suggestively planted? Paper presented at the Annual meeting of the Psychonomic Society, Los Angeles.

Poole, D.A., Lindsay, D.S., Memon, A., and Bull, R. (1995). Psychotherapy and the recovery of memories of childhood sexual abuse: U.S. and British practitioners' opinions, practices and experiences. *Journal of Consulting and Clinical Psychology,* **63,** (3), 426-37.

Powell, R.A. & Boer, D.P. (1995). Did Freud misinterpret reported memories of sexual abuse as fantasies? *Psychological Reports*, **77**, 563-70.

Roediger, H.L. & McDermott, K.B. (1995) Creating false memories: Remembering words not presented in lists. *Journal of Experimental Psychology: Learning, Memory & Cognition*, 21, 803-814.

Ross, M. & Newby, I.R. (1996). Distinguishing memory from fantasy. Commentary on Newman and Baumeister. *Psychological Inquiry*, 7 (2), in press.

Ross, M. & Buehler, R. (1994). Creative Remembering. IN U. Neisser & R. Fivush (Eds.), The remembering self (pp. 205-235). New York: Cambridge University press.

Schacter, D.L. (in press) Illusory memories: A cognitive neuroscience analysis. *Proceedings of the National Academy of Science*.

Schacter, D.L. (1996). *Searching for Memory: The brain, the mind and the past*. New York: Basic Books.

Schacter, D.L. (1995) Memory distortion: History and current status. In Schacter, D.L., Coyle,

J.T., Fishbach, G.D., Mesulam, M-M., & Sullivan, L.E. (Eds.) *Memory distortion: How minds, brains, and societies reconstruct the past*. Cambridge, MA: Harvard University Press.

Schreiber, F.R. (1973). Sybil. NY: Warner Book Inc.

Schooler, J. (1994). Cutting towards the core: the issues and evidence surrounding recovered accounts of sexual trauma. *Consciousness and Cognition*. **3**, 452-469

Schooler, J.W., Bendiksen, M. & Ambadar, Z. (in press). Toeing the middle line: Can we accommodate both fabricated and recovered memories of sexual abuse? To appear in M. Conway (Ed.) *Fabricated and recovered memories*. Oxford University Press.

Shuman, D. (1993). The use of empathy in forensic examinations. Ethical behaviour, 3 (3 & 4), 289-302.

Spiegel, D. & Cardena, E. (1991) Disintegrated experience: The dissociative disorders revisited. *Journal of Abnormal Psychology*, 100, 366-78.

Taub, S. (1996). The legal treatment of recovered memories of child sexual abuse. *The Journal of Legal Medicine*, 17, 183-214.

Terr, L. (1996). Children's memories in the wake of Challenger, *American Journal of Psychiatry*, 153, 618-625.

Terr, L. (1991). Childhood traumas: An outline and overview. *American Journal of Psychiatry*, **148**, 10-20.

Toglia, M. (1996). Gist representation and the production of false memories. Paper presented at the International Conference on Memory, Padova, 14-19th July

Wagenaar, W. (1996) Autobiographical memory in court. In D.C. Rubin (Ed.), Remembering our past New York: Cambridge University Press.

Wessel, I. & Mercelbach, H. (in press). The impact of anxiety on memory for details in spider phobics. *Applied Cognitive Psychology.*

Williams, L. (1994) Recall of childhood trauma: A prospective study of women's memories of child sexual abuse. *Journal of Consulting and Clinical Psychology, **62***, 1167-1176.

Winograd, E. & Killinger, W.A. Jr. (1983). Relating age at encoding in early childhood to adult recall: Development of flashbulb memories. *Journal of Experimental Psychology: General*, **112**, 413-422.

Zaragoza, M.S. & Mitchell, K.J. (in press). Repeated exposure to suggestion and the creation of false memories. *Psychological Science*.

Yuille, J. C. & Cutshall, J. L. (1986), A Case Study of Eyewitness Memory of a Crime. *Journal of Applied Psychology,* **71**, 291-301.

Yuille, J. C. & Tollestrup, P. A. (1992). *A Model of the Diverse Effects of Emotion on Eyewitness Memory*. In S.-A. Christianson (Ed.), *The Handbook of Emotion and Memory: Research and Theory* (pp. 201-215). Hillsdale, NJ: Lawrence Erlbaum..

[1]As indicated by Bowers and Farvolden (1996) scientific claims are always underdetermined by the available evidence.

[2]See Ross and Buehler (in press) for a discussion of the problems associated with corroborated recall accounts.

[3]Source monitoring decisions tend to be made heuristically on the basis of qualitative characteristics of memories such as their vividness (Johnson, in press). Heuristic and strategic process require setting criteria for making a judgement such as how salient the information is, how readily it comes to mind, consistency with other information and so on (see Lindsay and Read, 1994 for a review). Moreover, as pointed out by Johnson (in press) source monitoring criteria are more lax under some conditions (e.g. recalling the source of gossip) than other (recalling source of scientific data at a meeting).

[4] recollection of an experience is likely to be most successful when a retrieval cue reinstates a person's subjective perception of an event, including any thoughts, fantasies and inferences (Schacter, 1996)

[5]A poignant example of the power of suggestion comes from the work on facilitated communication, a procedure that is used to help people with severe learning disabilities to communicate. The facilitators takes charge of the clients wrist while the client points to what he or she wishes the facilitator to type. Early reports showed remarkable advances in communication abilities of clients. More stringent tests of the procedure revealed the facilitator was the source of the clients communication- putting words into the hands of the client (see Hastings, 1996 for a review of the literature).

[6]When presented with evidence based on a `recovered' memory in a court of Law, a psychologist may be called to assess the reliability of that memory based upon their `expert' knowledge. They may wish to ask some questions about the nature of the recovered memory and these are likely to focus on the conditions prevalent at encoding and the processes by which the memory was recovered. In the US, rules setting the scientific criteria for the admissibility of expert evidence such as Daubert (1993) may constitutes a major problem for recovered memories (see Faigman, 1995). The *Daubert* criteria were applied in criminal case based on recovered memories of sexual abuse (State vs. Hungerford, Hillsborough Country, 1993) where the judge concluded that there was insufficient scientific evidence for repression and the lack of agreement among psychologists about the likelihood of recovery following amnesia. Moreover, the judge criticised the psychotherapy techniques used to recover memories as having failed to satisfy scientific criteria and also expressed a concern that by allowing experts to testify on the accuracy of a compliant's memory (when there was no external corroboration of abuse) would make jurors based their decisions solely on the experts' testimony (cited in Taub, 1996).

[7]Of course this raises all sorts of issues. For example, can a therapist be an effective investigator, How can the therapist deal with any conflicts that may arise in their role as care providers and detective (see Shuman and Greenberg in press; Shuman 1983? for a discussion of the conflicting roles of therapist and forensic investigator).

[8]The fear and threat s accompanying a real experience cannot be simulated in laboratory studies for ethical reasons and the extent to which this may contribute to suppression/ denial is therefore likely to be underestimated