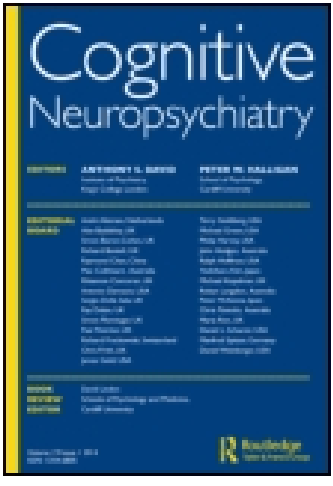

Cognitive Neuropsychiatry
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/pcnp20

A Study of Recovery of Memory Function in a Case of Witnessed Functional Retrograde Amnesia

Narinder Kapur

Published online: 09 Sep 2010.

To cite this article: Narinder Kapur (1996) A Study of Recovery of Memory Function in a Case of Witnessed Functional Retrograde Amnesia, Cognitive Neuropsychiatry, 1:3, 247-258, DOI: 10.1080/135468096396541

To link to this article: http://dx.doi.org/10.1080/135468096396541

COGNITIVE NEUROPSYCHIATRY, 1996, *1* (3), 247–258

A Study of Recovery of Memory Function in a Case of Witnessed Functional Retrograde Amnesia

Narinder Kapur and Pat Abbott

Wessex Neurological Centre, Southampton, UK
and University of Southampton, UK

We describe a case of transient functional retrograde amnesia that had features of a fugue state, and that was accompanied by loss of personal identity and significant autobiographical amnesia. Uniquely, we were able to gather information from witnesses who observed the episode from its onset, and we were also able to monitor the acute stages of recovery of memory function over the subsequent four-week period. The profile of memory loss was characterised by impaired performance on both autobiographical and public events memory tasks, in the context of normal anterograde memory test scores. Shrinkage of retrograde amnesia took place over a four-week period, with autobiographical and public events components of retrograde memory recovering at the same rate. We discuss the possible role of unconscious processes underlying the episode, as compared to conscious simulation. We argue that most cases of functional retrograde amnesia may represent a combination of conscious simulation and unconscious processes.

INTRODUCTION

Compared to the classical amnesic syndrome, transient amnesic episodes have traditionally been a somewhat neglected area of study. Recent years have seen a welcome change in this state of affairs (Hodges, 1991; Markowitsch, 1990), with an increasing spotlight on the cognitive and anatomical bases of transient amnesic states.

Transient psychogenic memory loss has been the focus of a number of studies, these being mostly clinical rather than experimental case reports (see reviews by Mace & Trimble, 1991, and by Kopelman, 1995). There remains a dearth of reliable data on the features of transient psychogenic amnesic episodes, the pattern of recovery of function in the acute stages, and how they can be

Requests for reprints should be sent to Dr Narinder Kapur, Wessex Neurological Centre, Southampton General Hospital, Southampton SO16 6YD, UK; E-mail n.kapur@soton.ac.uk.

differentiated from amnesic states due to specific instances of cerebral dysfunction. Although it has been accepted as part of the standard criteria for conditions, such as transient global amnesia, that they be witnessed before a formal diagnosis is made (Caplan, 1990), it has rarely been the case that transient episodes of psychogenic memory loss have been witnessed from the onset. In addition, as the few patients that have been reported have usually been tested weeks after the onset of the episode, we know little about the early stages of recovery of memory function in such cases. In a review of functional amnesia, Schacter and Kihlstrom (1989, p. 210) noted: ''Since the fugue is defined as that period during which patients are unaware of memory loss, it almost never comes to the attention of appropriate professionals until awareness is achieved, and it is therefore virtually impossible to study while it is occurring. Information about fugue states is thus necessarily based on retrospective accounts.'' Therefore, it is possible that much of the existing data on functional retrograde amnesia, such as fugue states, is only partially correct or even somewhat flawed. This will in turn limit the value of theoretical formulations that are based on such data.

In this report, we were able to gather information on a patient who presented with the classic features of psychogenic amnesia, including loss of personal identity and a dense autobiographical amnesia. We were able to interview witnesses who observed the amnesia from its onset, and we were also able to monitor shrinkage of retrograde amnesia during the initial few weeks after the occurrence of the attack.

CASE REPORT

PP (substitute initials), a 19-year-old right-handed male university student (date of birth: 20 December 1974), was found in the city park a few days before his university exams were due to start. There was local media coverage of the incident, which was portrayed as one where a student had been mugged, hit over the head, and had subsequent memory loss for much of his past life.

The record in the Accident and Emergency Department states that, when he was interviewed, PP could not remember his name, date of birth, or any famous personalities, and that he had no recollection of his past life. He could remember that he was found in the park and being brought to the hospital, and he could also remember the name of the passer-by who picked him up and brought him to hospital. He complained of headaches. A symptom of pins and needles, that he reported on the way to the hospital, was no longer present. A brief physical examination in the casualty department did not reveal any abnormality.

He was admitted to one of the hospital wards. He still had no spontaneous recall of items of personal information, but when he was interviewed later in the day he indicated that he now knew these items because he had been told them a few hours earlier.

Detailed physical examination failed to show any abnormality. A computerised tomographic (CT) scan was carried out, and this was normal.

His past medical history was unremarkable. In particular, it is important to note that there was no history of alcohol or drug abuse, no history of psychiatric illness or epilepsy, and no evidence of head injury or minor/transient neurological episodes in the past. There was no evidence of major depression. However, it is worth recording that, in addition to the likely stress related to the patient's pending university examinations, his grandmother had died eight months earlier, and that PP had reportedly been quite close to her.

1. Witnessed Account

The witness who found him gave the following account: I found PP sitting at the side of the cycle path in the park. He sat there holding his head. He appeared to be in a confused state. He did not know where he was, or what was going on. PP said: ''*I assume this is England, because you are speaking English.*'' He was bleeding from a graze on his head. He said: ''*I woke up two minutes ago in the bushes and crawled out.*'' I asked him for identification. He said that he thought he had seen his wallet in the bushes but he was not sure. (A friend of the witness subsequently found the wallet in a nearby clearing.) I asked him his name, but he did not know. He found a photo railcard in his pocket, which had his picture on it. He asked: ''*Is this me?*'' I then drove him to the hospital. On the way to the hospital, he complained of feeling dizzy, having blurred vision, and suffering from pins and needles in his hands. He also asked: ''*Are we in a car?*'' I told him that we were in a car. When I also told him that he was studying chemistry, he asked: ''*What's a chemist?*''

2. Patient's Account

PP was interviewed by NK four days after the onset of the episode, and his mother was interviewed seven days after its onset. The patient's account is provided below [and additional comments made by his mother are given in square brackets]. Note that the account given by the patient was quite detailed, and suggests excellent anterograde memory for events subsequent to the episode.

PP remembered the day (Thursday) of the episode. He recalled waking up in the morning, near some bushes in the park. He indicated that he walked from the bushes into the park, where a couple of people found him. They looked through the various possessions he had with him. He did not know who he was, but he found a railcard with a name and a picture, and he then realised who he was. He recalls being driven by one of the two helpers to the local casualty department. He recalls being in the casualty department for a few hours, and recalls being taken upstairs to a ward. He remembers his parents coming to see him, and he

recalls having no recognition of them whatsoever. He remembers being upset at not being able to recognise them. Some of his friends came to see him, and he indicated that he could not recognise them. He recalls not sleeping well that night, and having a couple of very strange dreams. He recalls his parents coming to see him the following afternoon. [He asked us if he had a younger brother, and we told him that he did have one. When his university friends visited him, he told them: ''*you'll have to tell me who you are*.''] He told his parents about the dreams, and they told him that the dreams in fact related to things that he had done [the dreams included reference to an orange van, a beach and two dogs and this was in fact part of a holiday he had spent 4–5 years previously].

[On Friday, the day after the episode, PP was quite distressed and wanted to discharge himself from hospital—he said that he wanted to be taken somewhere that he could recognise as familiar. However, we persuaded him from discharging himself. His brother visited him on Friday afternoon, but PP did not recognise him.]

He recalls a neurologist coming to see him on the Friday evening, and remembers the neurologist telling him that his memory would come back. He then recalls being allowed out of the hospital for a couple of hours to go to his flat. He said that he did not recognise his place of residence, nor anyone he met during that visit to his flat, apart from one old friend whom he remembered having been in one of his dreams. He recalls being allowed to visit his home the following day. He admitted to having some patchy recognition of the house (e.g. he knew where the bathroom was, but he confused his own bedroom with his brother's bedroom). He still could not recognise some people such as an old family friend. He recalls going home the next day, and being able to identify some of the people he met and also identify a few faces in photographs.

[On Monday, four days after the episode, when he went by train to his home town about 30 miles away, he indicated that he did not know any of the stations between, even though he had been on the journey many times.]

On the day of the neuropsychological assessment, four days after his admission to hospital, he complained of persistent major loss of memory for the past, but that around 20% of his past memories had returned. He considered that his memories from his childhood were returning before later memories. He said that he could recall some of his high-school lessons though he was unsure if he could recognise his school if he saw it. He could not recall doing his final exams at school nor starting at university. He could recall bits from a few holidays, and a few isolated family incidents.

Informal questioning revealed significant retrograde amnesia/semantic memory loss. For example, he did not recognise the names Bill Clinton, Ian Paisley, or Lord Mountbatten. The name ''Lockerbie'' did not sound familiar to him. He did, however, recognise the name ''Falkland Islands'', and he could offer information relating to the war in the Falkland Islands. He knew who Richard Nixon was, but he did not know whether he was dead or alive (Richard

Nixon had died about a month previously). He could indicate that the meaning of the word AIDS was a disease, but he did not know how it was caught.

PP was keen to leave hospital, and had in fact sought and obtained several hours leave on each of the days that he was admitted. For practical reasons, therefore, the range of tests that were administered in the acute phase of his condition had to be limited to the most relevant ones that pertained to his amnesia.

3. Follow-up

PP was followed up four weeks after the original episode. He now felt that most of his lost memories had returned. The only exceptions to this were the five months prior to the episode. The three weeks immediately prior to the episode were blank, and he indicated that his memory for the four months previous to this was rather patchy. He reported that during the past few weeks, his distant memories had returned first, with more recent ones returning later. He could now remember starting university in October 1993, and he could remember items that he had learned during the first term at university. He thought his memory was somewhat impaired for material that he was taught in the second and third terms. At the time of the follow-up appointment, he had no cognitive symptoms, and he continued to deny any stresses in respect of his studies or his personal life.

On this occasion, both his parents were interviewed. They considered that PP's past memories had returned gradually over the previous few weeks rather than suddenly. They thought that his current cognitive functioning was satisfactory.

PP was retested on those tests where he had previously performed poorly (it should be added that he was rather reluctant to visit hospital again and to retake these tests).

NEUROPSYCHOLOGICAL ASSESSMENT

This assessment was primarily aimed at elucidating our patient's retrograde memory loss during the acute phase of his illness. For this reason, and due to the practical circumstances surrounding his hospital care (e.g. he was keen to be discharged home), less emphasis was placed on more general cognitive and anterograde memory assessment.

1. Cognitive and Anterograde Memory Functions

This assessment was carried out four days after the onset of the amnesic episode. On four subtests from the WAIS-R (Wechsler, 1981)—Block Design, Digit Symbol, Similarities, Information—his scores were generally around average, with a prorated Verbal IQ of 100, Performance IQ of 110, and Full Scale IQ of

104. On the National Adult Reading Test (Nelson, 1982), he had a predicted Full Scale IQ of 105. Because the Information subtest of the WAIS-R samples past factual knowledge, it is possible that his IQ scores are a slight underestimate of his premorbid level of cognitive functioning.

On memory testing, PP was oriented for time and place. Several subtests from the Wechsler Memory Scale-Revised (Wechsler, 1987) were administered. Immediate story recall was normal (percentile score = 53), and delayed recall was also within normal limits (percentile score = 33). On the verbal paired-associate learning subtest, his immediate and delayed scores were normal (20 and 8, respectively), and his scores on the pattern-colour paired-associate learning subtest were similarly unimpaired (16 and 6, respectively). On none of the above tests did PP show any evidence of malingering.

2. Pattern and Recovery of Retrograde Amnesia

PP was administered three retrograde tests four days after the onset of his retrograde amnesia and also four weeks later when there was clinical evidence of recovery of function. These memory tests were: a test of autobiographical memory, the Autobiographical Memory Interview (Kopelman, Wilson, & Baddeley, 1990), a real-fictitious news events test similar to one used previously in a study of functional retrograde amnesia (Kapur, 1991), and a test that assessed memory for famous personalities.

Autobiographical Memory Interview. In this test, the patient is asked a series of structured questions relating to his memory for facts about his past life, and his memory for specific events over the same period. The data from PP's performance on the Autobiographical Memory Interview are shown in Table 1. As can be seen, PP showed a marked impairment, both in his recall of personal

TABLE 1
PP's Performance on the Autobiographical Memory Interview 4 Days and 4 Weeks after the Onset of Amnesia

	Personal Semantic	*Incidents*
Childhood		
After 4 days	19/21 (normal)	6/9 (normal)
After 4 weeks	*20/21* (*normal*)	*6/9* (*normal*)
Early adult life		
After 4 days	8/21 (abnormal)	1/9 (abnormal)
After 4 weeks	*15/21* (*abnormal*)	*6/9* (*borderline*)
Recent life		
After 4 days	8/21 (abnormal)	2/9 (abnormal)
After 4 weeks	*19.5/21* (*normal*)	*9/9* (*normal*)

semantic facts and in his recall for specific incidents, with a sparing of memories for items relating to his childhood. There was a dramatic improvement in his performance from the low scores seen four days after the onset of amnesia to the generally normal performance that was shown at four weeks. (His persistent low score for personal semantic items relating to ''early adult life'' may be artefactual—he obtained a zero score for items relating to birth of children/nephews/nieces because he was unmarried and did not have relevant family members with children.)

News Events Test. This test assessed memory for new events that had occurred over the previous four years. In view of our patient's age at the time of assessment, any longer time period would not have yielded meaningful data. A series of 22 cards was shown to PP and four matched control subjects (mean age = 19.6 years, mean NART predicted Full Scale IQ = 112). On each card were three descriptions of news events. Only one of the three descriptions referred to a news event that had actually occurred. The other two events were plausible but fictitious. The position of the real news event was systematically varied. Subjects were asked to decide which of the three events had actually occurred. If the subject was able to identify the real news event, he was also asked a further specific question relating to that event. A composition percentage score was drawn up, based on these two responses. As can be see in Fig. 1, PP was markedly impaired when seen in the acute stages of his illness, but he performed normally when seen four weeks after the onset of his amnesia.

Famous Names Test. For this test PP and the same four matched control subjects were shown a list of 40 names of personalities who had been famous within the last 5 to 10 years. They were asked to circle the names of those people whom they recognised as being familiar. Subjects scored one point for each of the names that they recognised as familiar and a percentage score for each subject was calculated. The results of the Famous Names Test are presented in Fig. 2. As can be seen, PP performed poorly during the acute stage of his amnesia, but his performance returned to normal after four weeks.

DISCUSSION

Our patient had normal anterograde memory test scores, with a clear recollection of events around and after the episode, although his memory for both personal and public past knowledge and events was markedly impaired. This profile of test scores, together with the absence of physical evidence of major cerebral pathology, the presence of loss of personal identity, and potential secondary gain (avoidance of term examinations), all pointed to a psychological as opposed to a neurological basis to his memory symptoms. The pattern of memory performance shown by our patient was the direct opposite of that associated

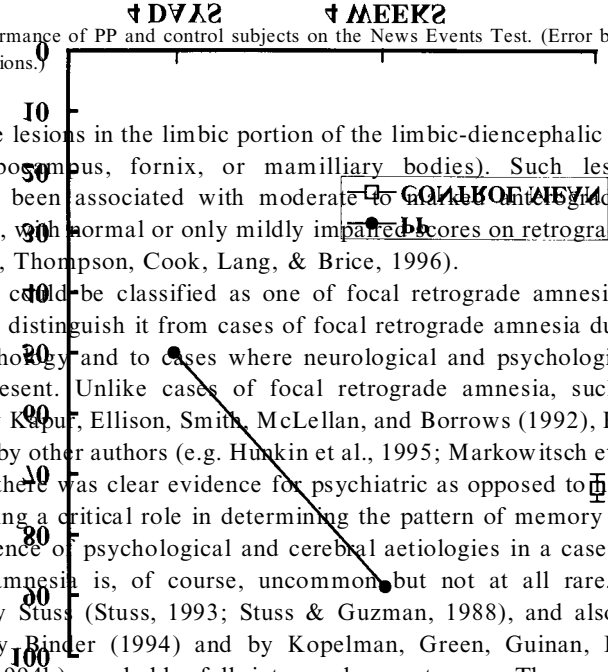

FIG. 1. Performance of PP and control subjects on the News Events Test. (Error bars indicate 2 standard deviations.)

with discrete lesions in the limbic portion of the limbic-diencephalic circuit (i.e. to the hippocampus, fornix, or mamilliary bodies). Such lesions have traditionally been associated with moderate to marked anterograde memory impairments, with normal or only mildly impaired scores on retrograde memory tests (Kapur, Thompson, Cook, Lang, & Brice, 1996).

Our case could be classified as one of focal retrograde amnesia, but it is important to distinguish it from cases of focal retrograde amnesia due to major cerebral pathology and to cases where neurological and psychological factors are both present. Unlike cases of focal retrograde amnesia, such as those described by Kapur, Ellison, Smith, McLellan, and Borrows (1992), Kapur et al. (1996), and by other authors (e.g. Hunkin et al., 1995; Markowitsch et al., 1993), in our case there was clear evidence for psychiatric as opposed to neurological factors playing a critical role in determining the pattern of memory symptoms. The coexistence of psychological and cerebral aetiologies in a case of marked retrograde amnesia is, of course, uncommon but not at all rare. The case described by Stuss (Stuss, 1993; Stuss & Guzman, 1988), and also the cases described by Binder (1994) and by Kopelman, Green, Guinan, Lewis, and Stanhope (1994b), probably fall into such a category. The occurrence of

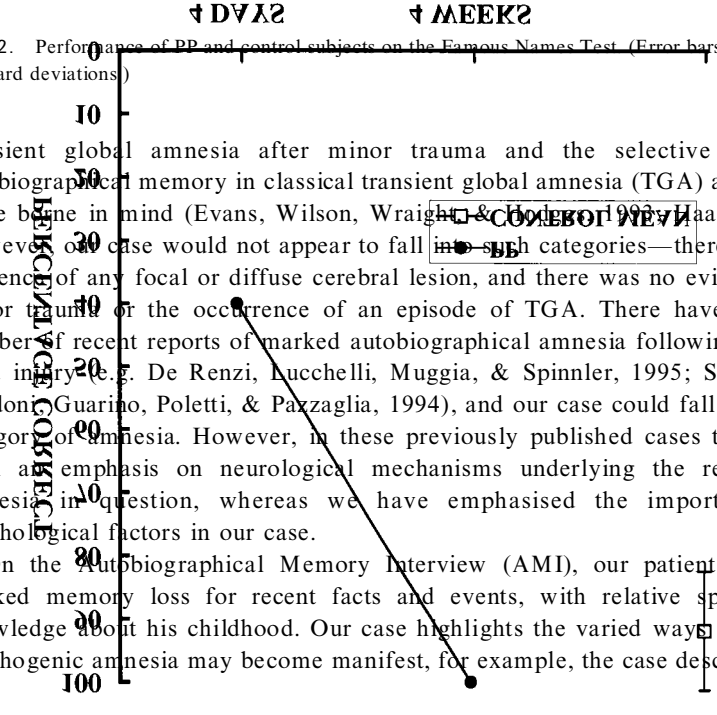

FIG. 2. Performance of PP and control subjects on the Famous Names Test. (Error bars indicate 2 standard deviations.)

transient global amnesia after minor trauma and the selective loss of autobiographical memory in classical transient global amnesia (TGA) also need to be borne in mind (Evans, Wilson, Wraight, & Hodges, 1993; Haas, 1990). However, our case would not appear to fall into such categories—there was no evidence of any focal or diffuse cerebral lesion, and there was no evidence of major trauma or the occurrence of an episode of TGA. There have been a number of recent reports of marked autobiographical amnesia following minor head injury (e.g. De Renzi, Lucchelli, Muggia, & Spinnler, 1995; Stracciari, Ghidoni, Guarino, Poletti, & Pazzaglia, 1994), and our case could fall into this category of amnesia. However, in these previously published cases there has been an emphasis on neurological mechanisms underlying the retrograde amnesia in question, whereas we have emphasised the importance of psychological factors in our case.

On the Autobiographical Memory Interview (AMI), our patient showed marked memory loss for recent facts and events, with relative sparing of knowledge about his childhood. Our case highlights the varied ways in which psychogenic amnesia may become manifest, for example, the case described by

Kopelman, Christensen, Puffett, and Stanhope (1994a) yielded a pattern of AMI scores where excellent memory for events after the onset of the episode were compared with much poorer pre-illness onset events, and with relative sparing of childhood events. In our case, who was examined during the acute stages of recovery and where comparisons between pre-and post-illness events were not possible, ''Recent life'' and ''Early adult life'' sections of the AMI covered the past 5 to 10 years of someone in his/her early twenties, much younger than the case described the Kopelman et al. Our patient's pattern of AMI test scores did not, therefore, fit into a clear pattern that immediately suggested a psychogenic amnesia, although his marked loss of personal semantic knowledge for ''Recent life'' and ''Early adult life'' is rather unusual, and would generally only be found in severe cases of a classical amnesic syndrome.

Where shrinkage of retrograde amnesia occurs in cases of neurologically based retrograde memory loss (Benson & Geschwind, 1967), there is usually a gradual rather than sudden return of past memories, whereas the latter form of recovery pattern is usually found in cases of psychogenic retrograde amnesia. A classic case of psychogenic retrograde amnesia, with sudden return of past memories, is that of Schacter, Wang, Tulving, and Freeman (1982). In psychogenic amnesia, the return of past memories is often triggered by an emotionally laden event. Although the return of memories in our case was not as sudden as that in the Schacter et al. case, or in another case of fugue reported by one of us (Kapur, 1991), it was nevertheless more rapid than that associated with cases of severe head injury (High, Levin, & Gray, 1990). It is also worth noting that our patient's report on the pattern of shrinkage of retrograde amnesia, with earlier memories returning before more recent memories, is similar to that found in cases of retrograde amnesia after cerebral pathology—this suggests that ''Ribot's Law'' relating to the recovery of past memories cannot be taken as a marker to distinguish psychogenic and neurologically based amnesias.

We found that memory for autobiographical events was markedly impaired, but we also found that on tests of nonpersonal, factual knowledge our patient was impaired. As Schacter and Kihlstrom (1989) have pointed out, there is variability in the literature on whether factual knowledge will be impaired in cases of functional retrograde amnesia. Some studies report only memory loss for personally experienced events and personal semantic knowledge, whereas in other cases both types of memory are impaired. In an earlier study (Kapur, 1991), we noted a dramatic dissociation between impaired autobiographical memory and preserved memory for public events. Indeed, such a dissociation can be a marker to help diagnose the presence of functional retrograde amnesia. The co-occurrence and dissociation between the two types of memory loss has been noted in studies of patients with focal structural cerebral pathology (Dalla Barba, Cipolotti, & Denes, 1990; De Renzi, Liotti, & Nichelli 1987; Grossi, Trojan, Grasso, & Orsini, 1988) and in TGA (Evans et al., 1993), and there should, *prima facie*, be no good reason why at the psychological level such variability should not also occur. The mechanisms that underlie such variability

remain to be elucidated, but it may relate to metamemory factors, namely patients' knowledge about memory loss and how they may be expected to behave in settings where there is stress-related functional retrograde amnesia. We would thus support the argument that is implicit in the conceptual framework offered by Kopelman et al. (1994a). We would agree that there is a broad continuum between unconsciously determined psychogenic amnesia and conscious simulation of memory loss. We consider that the point on the continuum where an individual patient is placed, together with his/her knowledge about memory loss and the particular medical/nonmedical setting where he/she finds himself, will play an important part in determining the pattern and severity of memory loss that ensues. Another important factor will be the relationship between the stress-related factors that precipitated the functional retrograde amnesia and the memory testing itself. In our case, the student did not seem to know what ''chemistry'' was, and this may have been related to the stress that surrounded his taking part in chemistry examinations. It is clear, as Treadway, McCloskey, Gordon, and Cohen (1992) have pointed out, that the distinction between autobiographical and nonautobiographical memories can sometimes be a rather artificial one, with frequent opportunities for linkage between personal and factual knowledge, and between personal and factual knowledge of events. In certain cases, it may prove difficult to gather detailed information on relevant variables—metamemory factors may be documented via questionnaire data, but the extent of conscious simulation requires explicit admission by the patient, together with corroborative data from other sources. It is possible that psychophysiological measures, such as ''lie detector'' tests, may also provide useful data in this respect.

Manuscript received 19 February 1996
Revised manuscript received 28 May 1996

REFERENCES

Benson, D.F., & Geschwind, N. (1967). Shrinking retrograde amnesia. *Journal of Neurology, Neurosurgery and Psychiatry*, *30*, 539–544.

Binder, L.M. (1994). Psychogenic mechanisms of prolonged autobiographical retrograde amnesia. *The Clinical Neuropsychologist*, *8*, 439–450.

Caplan, L.R. (1990). Transient global amnesia: characteristic features and overview. In H.J. Markowitsch (Ed.), *Transient global amnesia and related disorders*. Toronto, Hogrefe & Huber.

Dalla Barba, G., Cipolotti, L., & Denes, G. (1990). Autobiographical memory loss and confabulation in Korsakoff's syndrome: a case report. *Cortex*, *26*, 525–534.

De Renzi, E., Liotti, M., & Nichelli, P. (1987). Semantic amnesia with preservation of autobiographical memory. A case report. *Cortex*, *23*, 575–597.

De Renzi, E., Lucchelli, F., Muggia, S., & Spinnler, H. (1995). Persistent retrograde amnesia following a minor trauma. *Cortex 31*, 531–542.

Evans, J., Wilson, B., Wraight, E.P., & Hodges, J.R. (1993). Neuropsychological and SPECT findings during and after transient global amnesia: evidence for the differential impairment of remote episodic memory. *Journal of Neurology, Neurosurgery and Psychiatry*, *56*, 1227–1230.

Grossi, D., Trojan, L., Grasso, A., & Orsini, A. (1988). Selective ''semanticamnesia'' after closed-head injury. A case report. *Cortex*, *24*, 457–464.

Haas, D.C. (1990). Transient global amnesia triggered by mild head trauma: a form of traumatic migraine. In H.J. Markowitsch (Ed.), *Transient global amnesia and related disorders.* Toronto, Hogrefe & Huber.

High, W.M., Levin, H.S., & Gary, H.E. (1990). Recovery of orientation following closed-head injury. *Journal of Clinical and Experimental Neuropsychology*, *12*, 703–714.

Hodges, J.R. (1991). Transient amnesia. Clinical and neuropsychological aspects. London: W.B. Saunders.

Hunkin, N.M., Parkin, A.J., Bradley, V.A., Burrows, E.H., Aldrich, F.K., Jansari, A., & Burden-Cooper, C. (1995). Focal retrograde amnesia following closed head injury: a case study and theoretical account. *Neuropsychologia*, *33*, 509–523.

Kapur, N. (1991). Amnesia in relation to fugue states—distinguishing a neurological from a psychogenic basis. *British Journal of Psychiatry*, *159*, 872–877.

Kapur, N., Ellison, D., Smith, M.P., McLellan, D.L., & Burrows, E.H. (1992). Focal retrograde amnesia following bilateral temporal lobe pathology: a neuropsychological and magnetic resonance study. *Brain*, *115*, 73–85.

Kapur, N., Thompson, S., Cook, P., Lang, D., & Brice, J. (1996). Anterograde but not retrograde memory loss following combined mamillary body and medial thalamic lesions. *Neuropsychologia*, *34*, 1–8.

Kopelman, M.D. (1995). The assessment of psychogenic amnesia. In A.D. Baddeley, B.A. Wilson, & F.N. Watts (Eds.), *Handbook of memory disorders.* Chichester: Wiley.

Kopelman, M.D., Christensen, H., Puffett, A., & Stanhope, N. (1994a). The great escape: a neuropsychological study of psychogenic amnesia. *Neuropsychologia*, *32*, 675–691.

Kopelman, M.D., Green, R.E.A., Guinan, E.M., Lewis, P.D.R., & Stanhope, N. (1994b). The case of the amnesic intelligence officer. *Psychological Medicine*, *24*, 1037–1045.

Kopelman, M.D., Wilson, B.A., & Baddeley, A.D. (1990). *The Autobiographical Memory Interview*. Bury St. Edmunds: Thames Valley Test Co.

Mace, C.J., & Trimble, M.R. (1991). Psychogenic amnesias. In T. Yanagihara & R.C. Petersen (Eds.), *Memory disorders: research and clinical practice.* New York: Marcel Dekker.

Markowitsch, H.J. (1990). Memory disorders: the transient global amnesias. In H.J. Markowitsch (Ed.)., *Transient global amnesia and related disorders.* Toronto, Hogrefe & Huber.

Markowitsch, H.J., Calabrese, P., Haupts, M., Durwen, H.F., Liess, J., & Gehlen, W. (1993). Searching for the anatomical basis of retrograde amnesia. *Journal of Clinical and Experimental Neuropsychology*, *15*, 947–967.

Nelson, H.E. (1982). *The National Adult Reading Test.* Windsor, UK: NFER-Nelson.

Schacter, D.L., Wang, P.L., Tulving, E., & Freeman, M. (1982). Functional retrograde amnesia: a quantitative case study. *Neuropsychologia*, *20*, 523–532.

Schacter, D.L., & Kihlstrom, J.F. (1989). Functional amnesia. In F. Boller & J. Grafman (Eds.), *Handbook of neuropsychology* (Vol. 3). New York: Elsevier.

Stracciari, A., Ghidoni, E., Guarino, M., Poletti, M., & Pazzaglia, P. (1994). Post-traumatic retrograde amnesia with selective impairment of autobiographical memory. *Cortex*, *30*, 459–468.

Stuss, D.T. (1993). An unusual case of retrograde amnesia: fact or fake? (Abstract). *Journal of Clinical and Experimental Neuropsychology*, *15*, 389.

Stuss, D.T., & Guzman, D.A. (1988). Severe remote memory loss with minimal anterograde amnesia: a clinical note. *Brain and Cognition*, *8*, 21–30.

Treadway, M., McCloskey, M., Gordon, B., & Cohen, N.J. (1992). Landmark life events and the organisation of memory: evidence from functional retrograde amnesia. In S. Christianson (Ed.), *The handbook of emotion and memory: research and theory.* Hillsdale, NJ: Lawrence Erlbaum Associates Inc.

Wechsler, D. (1981). *Wechsler Adult Intelligence Scale—Revised.* San Antonio: Psychological Corporation.

Wechsler, D. (1987). *Wechsler Memory Scale—Revised.* San Antonio: Psychological Corporation.