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Ottawa, Canada
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Source Amnesia: Some Social Psychological Effects

by

C. Lori Della Malva

A thesis submitted to the Faculty of Graduate Studies
in partial fulfillment of the requirements for the
degree of Master of Arts

Department of Psychology
Carleton University
Ottawa, Ontario
July, 1981
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"Source Amnesia:
Some Psychological Effects"

submitted by Lori C. Della Malva

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Abstract

Eighty-eight Carleton University students, all high susceptibles, were randomly assigned to one of three treatment conditions. Subjects in the first condition received no preliminary instructions before a standard Source Amnesia (SA) procedure. Subjects in the second condition (salience alone) were told pre-experimentally that, among other responses, a suggestion for post-hypnotic amnesia could produce SA; these subjects were then told that none of their responses was better than any other. The final condition (salience plus demand) involved telling subjects the same preliminary information; in addition, however, subjects in this condition were told that although no one response was better than any other, this study was particularly interested in SA. All subjects then underwent the SA procedure outlined by Evans (1979).

In the salience plus demand condition, significant increases were found not only in the number of subjects who showed SA, but also in the number of times that these subjects did so. Taken together with other findings these results indicate that social psychological variables can affect the likelihood of SA responding.

The present study failed to find a relationship between SA and serial organization during recall amnesia; these findings are further evidence that serial organization and amnesia are unrelated. Moreover, recall amnesia for the questions and sugges-
tions were significantly correlated, indicating that amnesia for the two types of material involves a similar underlying process.

In general, the present findings are consistent with theoretical frameworks which emphasize the strategic nature of hypnotic responding.
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This research project was conducted under the supervision of Dr. K. Spanos, whose advice, support and co-operation made this project a valuable learning experience. In addition I would like to thank my fellow lab-mates at Carleton University's Hypnosis lab for their help and co-operation, and Y. Osman whose assistance during many phases of this project, proved invaluable.
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Introduction

Theoretical controversy exists concerning the conceptualization of hypnosis. State theorists view hypnosis as an altered state of consciousness in which modified sensory and cognitive processes are brought about by variables such as hypnotic susceptibility and hypnotic induction procedures (Gill & Breman, 1959; Hilgard, 1965, 1977; Orne, 1959). Non-state theorists reject the utility of this formulation and point instead to the importance of variables such as demand characteristics of the situation (Coe, 1978) and imaginative involvement (Spanos & Barber, 1974) in bringing about hypnotic behaviour.

The controversy between the two groups involves many of the phenomena that have been traditionally associated with the notion of an hypnotic state, including post-hypnotic amnesia.

Post-hypnotic amnesia is defined as a temporary failure to recall available target information following the termination of hypnotic procedures (Cooper, 1966). In most cases, the forgetting is explicitly suggested. Typically, the subject is instructed to forget all that occurred during the session, until given a pre-determined signal that restores memory.

Post-hypnotic amnesia can be conceptualized in at least two ways: it may be seen as resulting from attempts on the part of co-operative subjects to meet the demands of an explicitly or
implicitly administered post-hypnotic suggestion or alternately, as an automatically occurring form of dissociation due perhaps to intrinsic differences in the structure of thought processes during hypnosis (Kihlstrom, 1978; Orne, 1966).

Variables Affecting Post-Hypnotic Amnesia

Despite differences in conceptualization, state and non-state theorists alike recognize the influence of several independent variables on the occurrence of hypnotic amnesia. These variables include hypnotic susceptibility and hypnotic induction procedures.

Hypnotic Susceptibility

Subjects who display amnesia also tend to respond positively to the other suggestions contained in standardized hypnotic susceptibility scales. In other words, high susceptibles are more likely to show amnesia than low susceptibles (Barber & Calverly, 1966; Hilgard & Cooper, 1965; Spanos & Bodorik, 1977). Significant correlations have been found between amnesia and hypnotic susceptibility (Hilgard & Cooper, 1965; Kihlstrom & Evans, 1976).

The relationship between susceptibility and amnesia is not dependent upon the use of an hypnotic induction procedure. It occurs regardless of whether an induction procedure or a task-motivated (waking condition) procedure precedes administration of
the amnesia suggestion (Barber & Calverly, 1966; Spanos & Bodorik, 1977; Spanos, Bodorik & Stam, 1980; Thorne & Hall, 1974).

Furthermore, the relationship between amnesia and susceptibility is independent of the type of scale used to assess hypnotic susceptibility; positive associations have been found for the following: 1) The Harvard Group Scale of Hypnotic Susceptibility, Form A (Kihlstrom & Evans, 1976; Spanos et al., in press), 2) The Stanford Hypnotic Susceptibility Scale, Forms A, B and C (Coe, Taul, Basden & Basden, 1973; Hilgard & Cooper, 1965; Nace, Orne & Hammer, 1974), 3) The Barber Susceptibility Scale (Barber & Calverly, 1966; Spanos & Bodorik, 1977).

**Hypnotic Induction Procedure**

A number of studies have shown that equivalent amounts of amnesia are produced by both hypnotic induction procedures and task-motivational instructions. The latter are designed to match the motivation involved in most hypnotic procedures, while omitting mention of drowsiness, sleep or hypnosis.

Barber and Calverly (1966) compared hypnotic induction and task motivation with respect to amnesia for six words learned to criterion. Recall and recognition amnesia occurred to the same degree in both induction and task-motivated groups. Other studies have obtained similar results (Norris, 1973; Spanos & Ham, 1973; Thorne & Hall, 1974).

More recent studies, however, suggest that subjects
receiving hypnotic induction procedures show more amnesia than those receiving task motivation instructions (Spanos & Bodorik, 1977; Spanos, Radtke-Bodorik & Stam, 1980). The factors responsible for these contradictory findings are hard to determine since many of the studies use very different procedures.

What Hypnotic Amnesia Is Not

Traditionally, one of the most popular explanations for post-hypnotic amnesia was dissociation (Hilgard, 1974, 1976). Janet (1925), proposed that consciousness is composed of a collection of interassociated ideas and that anxiety-based ideas may become cut off from consciousness and therefore, dissociated from other ideas. With respect to post-hypnotic amnesia, dissociation implies that the ideas associated with amnesia become "functionally ablated" from the ideas that constitute waking consciousness. Accordingly, "forgotten" material should no longer influence other information in memory. When memory is assessed with such indirect methods as the retroactive inhibition paradigm, findings indicate that "forgotten" material continues to influence waking performance (Coe, Basden, Basden & Graham, 1976; Coe et al, 1973; Graham & Patton, 1968; Stevenson, Stoyva & Beach, 1962).
State Theorist View of Post-Hypnotic Amnesia

State theorists believe that amnesia results from an impairment in retrieval caused by the altered cognitive state created in hypnosis (Evans & Kihlstrom, 1979; Hilgard, 1966; Sheehan & Orne, 1966; Takahashi, 1958). According to Evans and Kihlstrom, the problem in amnesia is in gaining direct access to memories which are available and active in memory storage. Post-hypnotic amnesia involves a loss of cues and strategies by which memory retrieval is usually structured. The subject's inability to utilize appropriate organizational cues, because of an altered state, renders the act of remembering difficult and inefficient (Evans & Kihlstrom, 1979).

Tulving (1967) proposed that memory involves both semantic and episodic components. Episodic memories carry an essential component of autobiographical reference and are encoded in a specific spatiotemporal context, whereas semantic memories consist of knowledge, facts stored independently of a particular experiential context. Many memories contain both semantic and episodic components. Evans and Kihlstrom (1973) proposed that hypnotic amnesia involves a dissociation between semantic and episodic components of memory. Purportedly, episodic components are affected by amnesia while semantic components are not.
Non-State Theorist View of Post-Hypnotic Amnesia

Non-state theorists (Barber, 1969; Sarbin & Coe, 1972; Spanos et al, 1980) argue that the failure in retrieval associated with post-hypnotic amnesia is a "doing". These theorists regard amnesia as an active process in which both the subject and the experimenter are participating. Their interests lie in investigating variables such as potency of situational demands and the subjective experience of amnesia. Barber (1969) suggests that post-hypnotic amnesia may not refer to forgetting at all, but rather to an unwillingness on the part of the subject to verbalize in order to comply with the wishes and expectations of the hypnotist. Cooper (1966) discussed several variables which may affect hypnotic amnesia. He suggests that instructions and expectations may affect post-hypnotic amnesia insofar as the subject, a thinking being trying to understand procedures and hypotheses, may deduce what is expected of him/her on the basis of the instructions. Coe (1978), argues that the subject's self-report (which is the only evidence available for the evaluation of phenomenal experience) is plainly affected by such factors as relationship variables, contingencies of reinforcement and ambiguity of the context. Coe believes that the way the context is defined leads to predictable differences in the degree of self-disclosure concerning the supposedly forgotten material, as well as the literalness of phenomenal reports (Coe, 1976).
The emphasis, from this perspective, is on the interactions between persons and surroundings; the subject is doing, interacting and actively participating. The stress is on determining conditions or contexts that encourage self-disclosure. When a subject is asked to 'tell all he remembers', the degree to which he will report his memories may be determined by how he has defined the situation: the more ambiguous the situation, the more freedom the subject has in arriving at his own definition of it. Non-state theorists believe that those subjects who produce post-hypnotic amnesia, actively do something (e.g. engage in self-distraction) in order not to remember.

**Source Amnesia**

As previously discussed, the concept of dissociation has not fared well when tested by any means more objective than a subject's direct verbal report. In defence of this concept, state theorists have singled out the phenomenon of Source Amnesia (SA), first named by Thorn in 1960, as one of the most striking examples of dissociation between episodic and semantic memory. Surprisingly, very limited study of this phenomenon has been carried out.

A typical SA experiment proceeds as follows: after a standard hypnotic induction procedure and the administration of several hypnotic suggestions, the subject receives a test con-
sisting of questions about little known facts, for example
"What colour does amethyst become when exposed to heat?" Most
subjects do know that the answer is "yellow". They are then
explicitly supplied with the correct answer after each
question. Amnesia for what occurred during the session is then
suggested, followed by a recall trial. At this time, some
subjects will show full recall, i.e. they will remember the
suggestions and the specific questions and answers of the test.
Other subjects will show partial or complete amnesia. These sub-
jects may fail to recall the items on the general knowledge test.
If so, the test is readministered. Subjects may now respond to
the questions in one of two ways: they may either show amnesia
for the correct answer and therefore fail the question again
or they may give the correct answer to a question they previously
failed.

When a correct answer is given the subject is asked "How do
you know that?" Most subjects will reply that they were given
the answer earlier in the session. Occasionally, however, a
subject may show SA and reply "I don't know, I never knew that
before!" or he may try to rationalize his response with sentences
such as "Someone must have told me" or "I must have read it
somewhere". (See Figure 1)

SA is assumed to occur when subjects appear to be aware of
specific items of knowledge (for instance, that amethyst turns
Figure 1

SOURCE AMNESIA PARADIGM

Hypnotic Induction

Suggestions

General Knowledge Test

Amnesia Suggestion

Recall Trial 1  Full Recallers  Cancellation of Amnesia

Amnesic Subjects

Repeat General Knowledge Test  Amnesia for Correct Answers

Correct Answers to Questions Previously Failed

"How Do You Know That?"  Identifies Correct Source "You told me!"

Shows Source Amnesia

"I don't know"

Cancellation of Amnesia
yellow), but are unaware that they learned this information during the test session shortly before the administration of the amnesia suggestion.

This phenomenon seems to support the hypothesis that post-hypnotic amnesia reflects a disruption of memory retrieval stemming from a disorganization of the process of memory search (Evans & Kihlstrom, 1973). Evans and Kihlstrom argue that during the SA response, retrieval from episodic memory is impaired (i.e., the context in which facts were learned is forgotten) while retrieval from semantic memory is not (the facts themselves are recalled). From this perspective SA involves an extreme form of distortion in the retrieval process. The material is remembered as knowledge, not as history (Evans & Kihlstrom, 1979). These researchers view SA as a hypnosis specific behaviour which is independent of situational cues. A survey of the literature, however, reveals that the evidence for this is far from conclusive.

- Evans and Thorn (1966), compared the frequency of spontaneous SA in three hypnotized samples to the frequency of SA in a waking sample and found that 10% of the combined hypnotized samples showed SA compared to 2% of the waking sample. They interpreted these results as showing that SA is hypnosis specific. However Coe (1978) pointed out that their method of scoring SA was critical to this conclusion. Evans and
Thorn (1966) scored SA on a six-point scoring scale. Items 4, 5, and 6 indicated the presence of SA while items 1, 2, and 3 simply reflected various degrees of certainty about the source of the information. Item 4, however, is the following: "Subject states source, but appears to be guessing or deducing this." The inclusion or exclusion of subjects who were rated at this ambiguous level with those who were rated as 5 or 6 changes the data dramatically. Without these subjects the pooled percentage of SA in the three groups drops from 10% to only 4%. Moreover, one might also question how Evans and Thorn (1966) explain the occurrence of any SA in their waking sample when they regard the phenomenon as hypnosis specific.

Cooper (1966) obtained similar findings with hypnotic subjects. Only 2% of his sample showed spontaneous SA when a strict scoring criterion was employed; when scoring was made easier, he found SA in 9% of his subjects. It would seem that the specificity of SA to hypnosis greatly depends on how it is scored.

Several studies have shown that post-hypnotic behaviour, including post-hypnotic amnesia, is affected by social-psychological factors. Fisher (1954, 1955) suggested that post hypnotic behaviour occurs only when the subject believes it should occur. He demonstrated that subjects "spontaneously" stopped engaging in a post-hypnotic response when the situation was no longer defined as the experiment. Spanos, Stam, D'Eon, Pawlak and Bodorik
(1980) argued that amnesia testing situations confront the subject with contradictory demands and that the subject's interpretation of these determines whether amnesia will occur. These investigators provided subjects with preliminary instructions aimed at clarifying ambiguous situational demands in opposite directions. When subjects were explicitly asked to interpret the suggestion as a request to maintain attention away from target material, amnesia was substantially enhanced. When they were instructed to interpret the "recall challenge" as a serious request to remember, amnesia was practically eliminated.

Cooper (1966), found some evidence for the involvement of social-psychological variables in SA. One of two groups was tested for spontaneous SA on day 1 and for suggested SA on day 2. The second group received a suggestion for SA on day 1 and was tested for spontaneous SA on day 2. An order effect was found. If SA was suggested first and spontaneous SA was tested for on the second day, the ratio of subjects who showed SA on the two days was 17% (suggested) to 2% (spontaneous). When treatment order was reversed the incidence of SA was 15% (spontaneous) to 11% (suggested). A suggestion for SA on day 1 may have indicated that it was not expected automatically and thus decreased spontaneous incidence on day 2. A second interesting point is that a suggestion for SA did not increase its incidence to any significant degree.
Evans (1979) attempted to determine whether SA is a) simply a specific case of partial amnesia or b) counterexpectational and thus not a result of subtle cues within the testing situation. Evans sought to control for the first factor (i.e., partial amnesia) by using subjects who had shown only complete amnesia. In order to assess the role of expectations he tested simulating subjects as well as hypnotic subjects in a SA paradigm. Simulators are usually low susceptibles who, before going through the experimental procedure, are asked to fake hypnosis throughout the experiment i.e. to behave as if they were hypnotized while making an effort to not subjectively experience any of the suggestions. Simulators always showed complete amnesia. Moreover, there were differences in recall amnesia between hypnotic subjects who showed SA and those who did not. Evans (1979) concluded that SA is not merely a form of partial amnesia. Because simulators failed to show SA, he also concluded that it is counterexpectational. Furthermore he hypothesized that the dissociation between content and context purportedly manifested in SA, may be a state-specific effect. The context in which the learning takes place (i.e., hypnosis) may differ substantially from the post-hypnotic "state" in which recall occurs.

Evans (1971) interpreted the fact that 1/3 of his amnesics but none of his simulators showed SA as meaning that SA is hypnosis specific. It is not unreasonable to suggest, however,
that simulating subjects are particularly alert and careful as to how they respond. For them the suggestion to remember nothing may override any other demands, whereas, less alert hypnotic subjects may "counterexpectationally" remember the answer when asked the question but then try to recoup when asked its source by saying they don't know (coe, 1978).

The feasibility of using simulators in this paradigm is questionable. Simulating subjects show complete amnesia. In other words, when retested on the questions, they do not give any correct answers. Therefore they are never asked "How do you know that?" On the other hand, partially amnesic hypnotic subjects may give a correct answer to a previously failed question. In that case, they are immediately asked "How do you know that?" Clearly one cannot conclude that SA is counterexpectational because partial amnesics and simulators respond differently. These subjects are simply not exposed to the same situational cues.

Evans and Thorn (1966) distinguished between "recall amnesia" i.e. suggestion-induced reduction in recall and SA. They argued that these are distinct phenomena with different underlying mechanisms. Cooper (1966) however, found significant correlations between recall amnesia and both suggested, and spontaneous SA. Gheorgiu (1969) later claimed that all subjects manifesting recall amnesia can be led to manifest SA.
Most recently Evans (1979) has argued for a similarity in the mechanisms of recall and source amnesia. He contended that partial amnesia often involves an inability to organize recall in terms of temporal and contextual cues, and that SA may reflect one aspect of such disorganization. This hypothesis suggests that partial amnesics who show disorganized recall will be more likely than those who organize, to show SA. The present study afforded the opportunity to test this hypothesis.

An alternate hypothesis about what occurs during SA may be stated as follows: subjects are aware that earlier in the session they were given general knowledge questions and later supplied with the answer to each question. They are also aware that the experimenter knows this. Thus, once they give the correct answer most subjects will interpret the "How do you know?" question as a request to tell what they and the experimenter both know to be true and they will recall the correct origin of their answer. Occasionally, however, a subject will interpret the question "How do you know that?" as meaning that remembering is not an appropriate response and he will try to recoup by saying he doesn't know how he knows the correct answer. This response probably occurs only rarely because, as previously stated, the subject is aware that the experimenter knows where he learned the answer. However, if the salience of this response category is increased, and demands for SA are made explicit, the incidence
of SA should also increase. One way of increasing the salience, is to inform the subject pre-experimentally about the possibility of SA.

The Present Study

In order to test the latter hypothesis, two new conditions were devised and added to the paradigm used by Evans (1979) to assess SA. In one condition (i.e. salience treatment) the subjects were told before the procedure that the study specifically involved post-hypnotic amnesia. Following this, three possible effects of a post-hypnotic amnesia suggestion were outlined: the subject may remember everything regardless of a suggestion to forget; he may forget some or all of the things that happened during the session; or he may remember material from the hypnotic session without being aware of the fact that it was part of the session (Appendix 2). The aim of this explanation was to make the SA response category a salient one, to establish for the subject the behaviour patterns possible. However, these subjects were also told that no response (among the three outlined) was better than any other, that the study was merely looking at what happens. In a second condition (i.e. salience plus demand) subjects were given the same information but, in addition, were told that although no one response was better than any other, the study was particularly interested in SA. The final condition was
a control that consisted of the SA procedure outlined by Evans (1979). These subjects received no preliminary information about the purpose of the experiment or about the possible behaviour patterns which may result.
Method

Subjects

Eighty-eight individuals who, on prior testing scored either 9-12 on the Harvard Group Scale of Hypnotic Susceptibility (HGS HS: A, Shore & Orne, 1962) or 5-7 on the Carleton University Responsiveness to Suggestion Scale (CURSS), and who volunteered to participate in a one-session experiment on hypnosis and memory, served as subjects. All subjects were paid three dollars for their participation.

Procedure

All subjects were administered a standard 10-minute hypnotic induction procedure taken verbatim from Spanos and Bodorik, (1977) (Appendix 1). The induction was followed by three hypnotic suggestions: the arm levitation and arm rigidity suggestions from the CURSS, and a dream suggestion modified from the Stanford Hypnotic Susceptibility Scale: Form C (Weitzenhoffer & Hilgard, 1962). Following this, the subjects were asked a series of general knowledge questions. The instructions were as follows:

"Now, I am going to ask you some questions, questions of general knowledge and information. Some of these questions will be quite easy, others will be quite difficult. You will not know the answer to all of these questions, but please don't let that bother you at all because everybody gets several of these questions
wrong. You will be able to listen to the questions and listen to what I say but remain deeply hypnotized. Let's begin."

Four standard questions (Appendix 4) were presented to each subject. The order of presentation of the last three was varied in six different combinations to control for any order effect. After each question, the subject was given 10 seconds in which to answer. At the end of 10 seconds, the correct answer was supplied. Following the last question subjects were given a suggestion to forget everything that happened during the session until given an explicit signal to remember. Subjects were then "awakened" and given two minutes to describe everything that happened since being told to close their eyes.

If, at this time, subjects failed to recall all of the general questions and their answers, they were told: Now I am going to ask you some questions of general knowledge that I would like you to answer for me." They were then re-administered the general knowledge questions in their original order of presentation with 10 seconds again given to answer each question. When a correct answer was given, to a previously failed question, or an unanswered question, the subject was asked "How do you know that?" Subjects' responses were tape recorded and later transcribed.

Following their answers, the predetermined cue to remember was given and subjects were again asked to tell everything that happened since closing their eyes. When recall was finished, the
four questions were again administered in the same format. Once again, 10 seconds were given in which to answer, and following a correct response which was originally failed or left unanswered, the subject was asked: "How do you know that?"

This procedure allowed for the testing of SA and was administered to each subject in the same way. Before the procedure began, however, each subject was randomly assigned to one of three possible conditions.

Condition 1

This condition duplicated the procedure used by Evans (1979) and served as a control. Subjects were simply instructed to make themselves comfortable and listen to the tape.

Condition 2

Before beginning the induction procedure, subjects were told that the study involved post-hypnotic amnesia and were given a brief explanation about the possible outcomes of an amnesia suggestion (Appendix 2). The subjects were then told: No one response is better than any other, we are just interested in looking at what happens."

Condition 3

Subjects in this condition were also told that the study involved post-hypnotic amnesia and were given the same explanation of the phenomenon as in condition 2. Afterwards, however, they were told: "No one response is better than any other but in this
study, we are particularly interested in the third possibility, where a person remembers information, but does not remember that it was heard while being hypnotized."

**Scoring Procedure**

Source amnesia was scored using the criteria developed by Evans and Thorn (1966) (Appendix 5). These investigators categorized subjects' testimonies into six categories that ranged from subjects recalling the test questions asked during hypnosis—(classified 1), to subjects knowing the correct answer, but inventing or rationalizing the source of information (classified 6).

Subjects' testimony to each test question was scored separately on this six point scale. For any question, subjects were scored as showing SA if their testimony was classified in categories 5 or 6. They were scored as not showing SA if their testimony was classified into any other category.

The number of test questions to which a subject showed SA was summed to yield a single SA score per subject that ranged from 0 (no SA) to 3 (SA to each question). As expected, all subjects answered the first question correctly. This question, therefore, was not considered in the analyses.
Results

Correct Responses To Previously Failed Questions

Treatment manipulations could affect the overall amount of SA in two different ways. First, these manipulations might have changed the subjects' tendency to give a correct response to a previously failed question. Suppose, for example, that one treatment increased the likelihood of subjects giving a correct response to a previously failed question. Subjects in that treatment would more frequently be in a position to show SA as a possible response than would subjects in other treatments. Under these circumstances, overall differences between groups in SA would occur even when treatment manipulations failed to influence the likelihood of SA being shown once the question was answered correctly.

Alternatively, treatment manipulations might exert no influence on the number of correctly answered questions. In this case, treatment differences would reflect an actual increase in SA responding, independently of the number of questions answered correctly.

In order to assess these alternatives, the number of questions answered correctly in the three groups was compared in a one-way analysis of variance (ANOVA). Table 1 shows the group means for the number of questions answered correctly. The analysis of variance revealed no significant differences between
groups with respect to number of correct responses given (see Table 2).

**Source Amnesia Out Of Total**

For each subject, SA was measured as the proportion of SA responses out of the number of questions asked in the general knowledge test. In other words, how many times, out of the possible three did each subject show SA.

An ANOVA was performed on proportion SA scores. Four full recallers, three subjects from Group 2 and one subject from Group 3 were excluded from the analysis. These subjects had recalled the questions and answers during the first recall trial and therefore, had not received the general knowledge test a second time. As a result, they were not in a position to show SA at all.

The analysis of arcsine transformed scores of proportion SA yielded a significant F-ratio, \( F(2,81) = 7.38, p < .001 \) (see Table 3). The Newman-Keuls test, modified for unequal sample sizes, was used to locate differences among means (Kirk, 1968), (see Table 4). The proportion of SA was significantly higher in the salience plus demand condition (Group 3), than in either the standard condition (Group 1) or the salience alone condition (Group 2). No significant differences were found between Group 1 and Group 2 (see Figure 2).
Table 1

Group Means For The Number of Questions Answered Correctly

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>1.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Salience Plus Demand Group</td>
<td>1.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Table 2

One-Way Analysis of Variance on Number of Correct Responses

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>1.78</td>
<td>1.17</td>
</tr>
<tr>
<td>Error&lt;sub&gt;w&lt;/sub&gt;</td>
<td>85</td>
<td>1.53</td>
<td></td>
</tr>
</tbody>
</table>


### Table 3

One-Way Analysis of Variance on Arcsine Transformed Proportion Source Amnesia Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>5.49</td>
<td>7.38*</td>
</tr>
<tr>
<td>Error_{\nu}</td>
<td>61</td>
<td>0.74</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4

Mean Proportion of Source Amnesia Among Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Means</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>13.06</td>
<td>26.2</td>
</tr>
<tr>
<td>Salience Alone Condition</td>
<td>8.33</td>
<td>19.9</td>
</tr>
<tr>
<td>Salience Plus Demand Conditioner</td>
<td>34.59</td>
<td>37.1</td>
</tr>
</tbody>
</table>
Figure 2

Proportion of Source Amnesia in the Three Groups
A second measure of SA was an incidence score which simply reflected whether or not a subject had shown SA. A score of 1 indicated that SA was shown for one or more questions; a score of 0 indicated that no SA was shown. Table 5 shows the incidence of SA in each group.

Chi square analyses revealed significant differences between the groups, $\chi^2(2) = 14.18$, $p < .01$. Further analyses indicated that subjects in Group 3 showed more SA than those in either Group 1 $\chi^2(1) = 5.99$, $p < .05$, or Group 2, $\chi^2(1) = 10.21$, $p < .01$. Once again, Groups 1 and 2 did not differ, $\chi^2(1) = .612$, $p < .80$.

Source Amnesia Out of Possibles

In order to more fully examine the above differences, further analyses were performed. To be considered in the following analyses, subjects had to have been partial or complete amnesics and to have answered one or more questions correctly when given the general knowledge test during post-hypnotic testing. Thus, all of these subjects were in a position to show SA at least once during the second administration of the general knowledge test. SA was scored as the proportion of SA responses to the number of questions for which it was a possible response, i.e., the number of questions answered correctly on the second administration of the general knowledge test. Nineteen subjects in Group 1 fell into this category, along with 18 subjects in
Table 5

Frequency of Incidence of Source Amnesia in the Three Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Source Amnesia</th>
<th>No Source Amnesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Salience plus Demand Group</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>
Group 2 and 21 subjects in Group 3.

The results obtained from these analyses did not differ from the general pattern already established. An ANOVA on the arcsine transformed scores of proportion SA indicated that significant differences exist between groups, $F(2,55) = 5.93$, $p < .005$, (see Table 6).

Newman-Keuls, again adjusted for unequal sample size (Kirk, 1966) revealed significantly more SA in Group 3 than in either Groups 1 and 2. Groups 1 and 2 did not differ significantly from one another. (see Table 7)

Incidence scores were also calculated for these subjects. Results of an overall Chi square analysis indicated significant differences between groups, $\chi^2(2) = 8.48$, $p < .05$. Separate Chi square analyses on group pairs followed the familiar pattern. No differences existed between Groups 1 and 2, $\chi^2(1) = .346$, $p < .70$, while significant differences were found between Group 3 and Groups 1, $\chi^2(1) = 4.82$, $p < .05$, and 2, $\chi^2(1) = 7.39$, $p < .01$, in incidence of SA (see Table 8).

In short, once in the same situation (i.e., after a correct answer to a previously failed question) significantly more subjects showed SA when they had received salience plus demand instructions than when given the standard paradigm or salience alone instructions.
Table 6

One-Way Analysis of Variance on Arcsine Transformed Proportion

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>10.79</td>
<td>5.93</td>
</tr>
<tr>
<td>Error</td>
<td>55</td>
<td>1.82</td>
<td></td>
</tr>
</tbody>
</table>
Table 7

Mean Proportion of Source Amnesia (out of possibles) In The Three Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>30.70</td>
<td>1983.4</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>23.14</td>
<td>1605.5</td>
</tr>
<tr>
<td>Salience Plus Demand Group</td>
<td>66.25</td>
<td>2164.1</td>
</tr>
</tbody>
</table>
Table 8

Frequency Table for Incidence of Source Amnesia Out of Possibles

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Source Amnesia</th>
<th>No Source Amnesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Salience plus Demand Group</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>
Relationship Between Recall Amnesia And Source Amnesia

The relationship between amnesia shown for the suggestions and amnesia shown for the questions was examined with a correlational analysis that included all 88 subjects. A significant, positive correlation between amnesia for suggestions and amnesia for questions, $R(1, 86) = .521$, $p < .001$, indicates that these reflect a similar process.

Amnesia for the suggestions was then compared in those subjects who had shown some SA (incidence score of 1) as compared to those subjects who had not (incidence score of 0). An overall T-test revealed no differences in amount of amnesia shown, $t(86) = 0.175$, $p < .50$. Thus, subjects who showed SA and those who did not showed equivalent levels of amnesia for other parts of the session.

Source Amnesia And Organization Of Recall

Chi square analyses were carried out to determine whether subjects who showed SA tend to a) recall suggestions in a disorganized manner (i.e. out of temporal sequence) and b) mix suggestions and questions while recalling. Disorganized recall was determined by dichotomizing subjects into those who recalled all suggestions in their order of presentation, and those who recalled one or more non-sequentially. Subjects were also dichotomized into those who interspersed suggestions and questions
during recall, and those who recalled these items in separate groupings.

Analyses using both indices of disorganized recall did not yield significant results, $\chi^2(2) = 1.311$, $p < .50$; $\chi^2(2) = 1.381$, $p < .50$ (see Table 9). Thus, no differences in the organization of recall were found for subjects who showed and did not show SA.

**Source Amnesia, Questions And Question Order**

Several analyses were performed in order to determine whether the incidence of SA was differentially affected by the individual questions, or whether SA was more frequent for any particular ordinal position of questions.

**The Specific Questions**

A preliminary analysis was carried out to determine whether the individual questions differed in terms of how often they were answered correctly. Chi square analysis revealed no differences between the three questions in this respect, $\chi^2(2) = .274$, $p < .90$ (see Table 10).

A further analysis was carried out to look at the incidence of SA for the specific questions, once they had been answered correctly. Results again indicated no significant differences in the incidence of SA with respect to specific question material, $\chi^2(2) = .258$, $p < .90$ (see Table 11).
Table 9

Frequency Tables For Seriation Indices In Full Recollectors, Amnesics Who Showed SA, and Amnesics Who Did Not.

<table>
<thead>
<tr>
<th>Order of Suggestions</th>
<th>Full Recollectors</th>
<th>Amnesics SA</th>
<th>Amnesics no SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIXED</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>NOT MIXED</td>
<td>4</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggestions &amp; Questions</th>
<th>Full Recollectors</th>
<th>Amnesics SA</th>
<th>Amnesics no SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIXED</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>NOT MIXED</td>
<td>4</td>
<td>14</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 10

Frequency Table for Correct and Incorrect Responses to the Individual Questions (Regardless of Order)

<table>
<thead>
<tr>
<th></th>
<th>Amethyst</th>
<th>Moth</th>
<th>Lewis Carrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>43</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Incorrect</td>
<td>31</td>
<td>29</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 11

Frequency Table for SA Responses to Correctly Answered Individual Questions (Regardless of Order)

<table>
<thead>
<tr>
<th></th>
<th>Amethyst</th>
<th>Moth</th>
<th>Lewis Carroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>no SA</td>
<td>28</td>
<td>35</td>
<td>33</td>
</tr>
</tbody>
</table>
Question Order

Parallel analyses were performed to determine the effect of ordinal position on SA. Questions were now considered first, second, or third in order of presentation, regardless of which particular question was in these positions.

Analyses revealed no differences in incidence of SA based on position, $\chi^2(2) = .593$, $p > .80$ (see Table 12). In other words, the amount of SA was the same for all questions regardless of whether they were presented first, second, or third.

Moreover, the presentation order of questions did not affect the incidence of SA, $\chi^2(2) = 4.4$, $p < .10$. (see Table 13).
Table 12

Frequency Table for Correct and Incorrect Responses to the First, Second and Third Questions.

<table>
<thead>
<tr>
<th></th>
<th>First Question</th>
<th>Second Question</th>
<th>Third Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>42</td>
<td>42</td>
<td>46</td>
</tr>
<tr>
<td>Incorrect</td>
<td>36</td>
<td>34</td>
<td>26</td>
</tr>
</tbody>
</table>
Table 13

Frequency Table for SA Responses to Correctly Answered First, Second and Third Questions.

<table>
<thead>
<tr>
<th></th>
<th>First Question</th>
<th>Second Question</th>
<th>Third Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>16</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>no SA</td>
<td>27</td>
<td>31</td>
<td>32</td>
</tr>
</tbody>
</table>
Discussion

Providing subjects with information about SA, coupled with clear demands to give that response produced a dramatic increase not only in the number of subjects who showed SA, but also in the number of times that these subjects did so. This latter finding was demonstrated clearly when analyses included only those subjects who gave a correct answer to a previously failed question (i.e. those who were in a position to show SA for that particular question). Under these circumstances, subjects in the salience plus demand condition were significantly more likely than those in the remaining two groups to show SA.

It is important to note that preliminary instructions did not affect the likelihood of subjects being in a position to show SA. In other words, subjects in the three conditions were equally likely to correctly answer a previously failed question. Once they had done so, the salience plus demand manipulation greatly increased the likelihood that they would fail to recall the origin of their correct response.

It is interesting to note that the salience alone condition did not enhance SA responding. If anything, subjects in this group showed slightly less SA than controls. In order to understand these results it is necessary to look closely at the preliminary instructions given to the salience alone group. These
subjects were told about SA as one of the three possible responses to an amnesia suggestion. However, they were also informed that no one response was better than any other. Thus, although informed about the possibility of SA they were also informed that the response was no more desirable than any other. Perhaps the latter aspect of these instructions cancelled any facilitative effects produced by informing subjects about the possibility of SA. This hypothesis could be tested in future studies that provide subjects with possible alternative responses, but say nothing about the relative desirability of various responses.

Cooper (1966), it will be recalled, found that situationally generated expectations could produce decrements in SA responding. Taken together with the present findings, these results indicate that social psychological variables can both increase or decrease the likelihood of SA responding. Similar findings have been obtained with other aspects of amnesia responding. For instance, Spanos, Stam, D'Eon, Pawlak and Radtke-Bodorik (1980) found that recall amnesia could be either substantially enhanced or reduced by varying subjects' interpretation of the amnesia suggestion. Similarly, Spanos, Radtke and Dubreuil (1981) reported that subtle differences in the wording of suggestions determined whether amnesic subjects showed memory deficits on semantic as well as episodic tasks and Dubreuil (1981) found that experimentally transmitted expectations could either enhance or eliminate
subjects' tendency to "breach" amnesia. In short, SA, like other aspects of amnesic responding, is clearly related to social psychological variables. It is, at least in part, a function of subjects' interpretations of the test situation, and these interpretations are in turn influenced by the definition of the situation supplied to the subject by the experimental procedures they undergo.

Of course, the present results do not disconfirm the notion that some sort of automatically occurring dissociative process is operating along with social psychological variables to produce SA responding. In fact, it is not at all clear that the notion of dissociation has been formulated with enough precision to allow its unambiguous disconfirmation. On the other hand, the present results are inconsistent with one recently formulated variant of the dissociation hypothesis--the notion that SA reflects a general disruption in the organization of retrieval (Evans, 1979). According to this hypothesis, subjects who show SA should be more likely than those who do not to exhibit a disruption in the serial organization of their recall. Contrary to this hypothesis, we found no relationship between SA and two indices of serial organization during amnesia.

The notion that serial organization is related to hypnotic amnesia was initially formulated by Evans and Kihlstrom (1973). These investigators reported that highly susceptible subjects
were less likely than low susceptibles to serially organize their recall during an amnesia suggestion period. Unfortunately, Evans and Kihlstrom (1973) were unable to compute an unambiguous amnesia score for their subjects and failed to assess seriation either before or after the amnesia suggestion. As a result of these and other methodological limitations (detailed by Radtke and Spanos, in press) Evans and Kihlstrom (1973) were unable to directly assess relationships between level of amnesia and degree of seriation, or to examine changes in seriation before or during amnesia.

Recent studies (Radtke and Spanos, in press) have failed to replicate Evans and Kihlstrom's (1973) findings of a relationship between seriation and susceptibility. Moreover, in two recent studies (Radtke, 1981; Radtke, Spanos, Della Malva and Stam, 1981) amnesia was assessed unambiguously, and seriation was measured before and after amnesia as well as during it. These studies consistently failed to find any relationship between amnesia and seriation. Our failure to find a relationship between SA and seriation during recall amnesia simply adds to the growing evidence indicating that serial organization and amnesia are unrelated to one another.

Recall amnesia for the questions and suggestions was significantly correlated. This finding is consistent with the hypothesis that amnesia for these two types of material involves a similar
underlying process. Recent work suggests that this process can be usefully conceptualized in terms of situationally cued inattention (Spanos and Radtke-Bodorik, 1980). According to this notion, subjects show amnesia when they shift attention away from target-related retrieval cues. When subjects are exposed to two types of target material (e.g. suggestions and questions) a general shift in attention away from the task of target recall would, of course, be expected to reduce accessibility to both types of material. The more consistently attention is maintained away from target-related cues, the greater the degree of amnesia for both types of material. In short, the correlation found between amnesia for questions and suggestions is consistent with an inattention hypothesis.

In broader perspective, the present findings are consistent with theoretical frameworks that emphasize the strategic nature of hypnotic responding (Barber, 1969; Coe, 1978; Coe & Sarbin, 1977; Spanos et al. 1980). According to these formulations, hypnotic behaviour is goal-directed rather than automatic. It involves sentient individuals formulating and acting in terms of contextually guided interpretations concerning what is requested from them in a (frequently ambiguous) experimental situation.
Future Research Ideas

Several research ideas were generated during the course of testing. Two will be presented here as potential experiments aimed at clarifying the nature of SA.

As previously discussed, some theorists view SA as a hypnosis specific behaviour (Evans & Kihlstrom, 1973). In light of this, it would be of interest to test whether pre-experimental instructions could affect the point at which SA is shown. For example, a first group of subjects might receive the standard SA paradigm; a second group could be told that SA is possible not only while the amnesia suggestion is in effect, but also after the amnesia suggestion is lifted. A third group, however, would be told that SA can occur only after the amnesia suggestion is cancelled (see Appendix 6). If the point at which subjects show SA was, in fact, determined by these manipulations, it would cast considerable doubt on the necessity of regarding this response as hypnosis-specific.

Secondly, if SA results from some type of recouping behaviour one might argue that it would be found only once per subject. On the other hand, it would not be inconsistent with the social psychological perspective if SA occurred more than once within a session. If a subject, after giving a SA response, receives positive reinforcement (i.e., a favourable reaction from the experimenter) he may be encouraged to again display SA.
The procedure for this experiment would, essentially, be similar to that followed in condition three of the present study. In other words, subjects would receive the same preliminary instructions before the hypnotic induction procedure (see Appendix 2). However, the general knowledge test would now consist of about 6 questions. Subjects who show SA during the session would now be randomly assigned to one of two treatment conditions. One half of the subjects who show SA would be told by the experimenter: "I'd just like to remind you that this is a scientific experiment and all we are interested in getting is the truth. Please try to answer my questions as honestly as you can." The other half of the subjects would be told (after a SA response): "Very good! This response doesn't happen very often. That's great!"

If this manipulation had a significant effect on the amount of SA shown by each subject in the latter condition once SA had been obtained a first time, findings would support the notion that situational variables determine, at least in part, SA responding.
Reference Notes


References


Wright, M.E. Symposium on post-hypnotic amnesia: A discussion. 
The International Journal of Clinical and Experimental 
Appendix 1
Hypnotic Induction Procedure

Close your eyes. Your ability to be hypnotized depends entirely on your willingness to cooperate. It has nothing to do with your intelligence. As for your willpower - if you want to, you can pay no attention to me and remain awake all the time. In that case, you might make me seem silly, but you are only wasting time. On the other hand, if you pay close attention to what I say, and follow what I tell you, you can easily fall into a hypnotic sleep. In that case you will be helping this experiment and not wasting any time. Hypnosis is nothing fearful or mysterious. It is merely a state of strong interest in some particular thing. In a sense you are hypnotized whenever you see a good show and forget you are part of the audience, but instead, feel part of the story. Your cooperation, your interest, is what I ask for. Your ability to be hypnotized is a measure of your willingness to cooperate. Nothing will be done that will cause you the least embarrassment.

Now relax and make yourself entirely comfortable.


Your legs feel heavy and limp. Your arms are heavy, heavy, as lead. Your whole body feels heavy, heavier and heavier. You feel tired and sleepy, tired and sleepy. You feel drowsy
and sleepy. Your breathing is slow and regular, slow and regular.

You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy as you continue to listen to my voice. Soon you will be deep asleep but you will have no trouble hearing me. You will not wake up until I tell you to. Remember that the dangers of hypnosis are a myth. Nothing will be done that is in any way harmful to you. I shall now begin to count. At each count you will feel yourself going down, down, down, into a deep, comfortable, a deep restful sleep. A sleep in which you will be able to do all sorts of things I ask you to do. One--you are going to go deeply asleep...

Two--down, down, into a deep, sound sleep...Three-four-more and more, more and more asleep...Five-six-seven--you are sinking, sinking into a deep, deep sleep. Nothing will disturb you. Pay attention only to my voice and the things I tell you...Eight-nine-ten-eleven-twelve--deeper and deeper, always deeper asleep...

Thirteen-fourteen-fifteen. You will always hear me clearly no matter how deeply asleep you may be...Sixteen-seventeen--deep asleep, fast asleep. Nothing will disturb you. You are going to experience many things that I will tell you to experience...

Eighteen-nineteen-twenty. Deep asleep. You will not awaken until I tell you to do so. You will wish to sleep and have the experiences I shall presently describe.

You are feeling comfortable and relaxed, thinking of nothing, nothing but the sound of my voice, your eyes are closed, comfortably closed, you are thinking of nothing, nothing but what I say.
Your arms and legs feel heavy, your arms and legs feel heavy and you are relaxed relaxed, your whole body feels relaxed, your whole body feels relaxed the muscles of your face, arms, and legs are relaxed, your whole body is relaxed. Drift deeper. It feels as though you are going backward into the darkness, backward into the darkness, and as you go backward into the darkness you are more and more relaxed, more and more comfortable. You are going backward, backward and backward into the darkness and as you go backward into the darkness you feel more and more comfortable, more and more relaxed, you are listening only to my voice, only to my voice, thinking of nothing, absolutely nothing, concentrating only on my voice, listening only to what I say, listening only to my voice, you are feeling comfortable and relaxed, comfortable and relaxed, comfortable and relaxed, and as you go backward into the darkness you feel drowsy, very drowsy, and you are thinking of nothing, nothing but the sound of my voice, you feel comfortable and relaxed, comfortable and relaxed, breathing regularly and deeply, regularly and deeply--thinking of nothing, nothing but the sound of my voice--breathing regularly and deeply, regularly and deeply, regularly and deeply, and you are in a deep, sound comfortable sleep, a deep, sound comfortable sleep, breathing regularly and deeply, regularly and deeply, regularly and deeply--your sleep is getting deeper, deeper, deeper, as you go backward into the darkness your sleep is getting deeper and deeper--deeper and deeper--deeper and deeper--you feel comfortable and relaxed--listening only to my voice--breathing regularly and deeply, regularly and deeply, regularly and deeply--in a deep, sound
sleep, deep, sound sleep, deep sound sleep, and your sleep is getting deeper and deeper, deeper and deeper, deeper and deeper, you are in a deep, sound sleep, deep sound sleep - breathing regularly and deeply, regularly and deeply, regularly and deeply, and you are in a deep, sound sleep - a deep, sound sleep-sleep-sleep-sleep-sleep.
Appendix 2

Pre-Test Instructions Regarding Amnesia Suggestion.

I'd like to tell you something about the experiment you'll be involved in shortly. This study concerns post-hypnotic amnesia. What post-hypnotic amnesia involves is the following: while hypnotized, a subject is told that he will forget everything that happened during the hypnotic session until he is told to remember everything.

When a person is told in hypnosis not to remember, one of three things can happen once he is woken up:

1. He may remember everything, in spite of the suggestion to forget.
2. He may forget everything, or mostly everything, about the hypnotic session as was suggested.
3. He may remember things heard or learned during the session without being aware of the fact that the item was heard or learned while hypnotized.

Once the signal to remember everything is given, the subject can once again remember everything clearly.
Appendix 3

Amnesia Suggestion

Stay completely relaxed, but listen carefully to what I tell you next. In a little while, I shall begin counting backwards from twenty to one. You will awaken gradually, but you will still be in your present state for most of the count. When I reach five, you will you will open your eyes, but you will not be fully awake. When I get to one, you will be entirely roused up in your normal state of wakefulness. You will have been so relaxed, however, that you will have trouble recalling the things I have said to you and the things you did or experienced. It will prove to cost so much effort to recall that you will prefer not to try. It will be much easier just to forget everything until I tell you that you can remember. You will forget everything that happened until I say to you: "Now you can remember everything!" You will not remember anything until then. After you wake up, you will feel refreshed, and not have any pain or stiffness or other unpleasant aftereffects. I shall begin counting backwards from twenty to one, and at five, not sooner, you will open your eyes but not be fully aroused until I reach one. At one, you will be fully awake. Ready, now: 20-19-18-17-16-15-14-13-12-11-10(half way) 9-8-7-6-5-4-3-2-1.

Now you feel wide awake! I want you to describe your expe-
rience. Please tell me now, in your own words everything that happened since I asked you to close your eyes.

Listen carefully to my words: now you can remember everything.
Appendix 4

General Knowledge Questions:

1. What is the capital city of England?  
   (London)

2. An amethyst is a blue or purple gemstone. What colour does it become when it is exposed to heat?  
   (Yellow)

3. What is the difference between the antennae of a moth and the antennae of a butterfly?  
   (The moth's have long, furry hairs)

4. Lewis Carroll is, of course, the famous author of "Alice in Wonderland". Aside from this what was his primary occupation?  
   (a mathematician)
Appendix 5

Scoring Criteria For Source Amnesia.

1. Questions recalled during the test of recall amnesia.

2. Source of information correctly given when asked questions.

3. Probably knows source of information, confusion evident.

4. States source, but appears to be guessing or deducing this.

5. Apparently has no idea of source of information.

6. Invents or rationalizes source.
Appendix 6

Preliminary Instructions for Proposed Future Experiment

This experiment is studying post-hypnotic amnesia. What post-hypnotic amnesia involves is the following: while a subject is hypnotized he is given a suggestion to forget all that has happened during the time that he was hypnotized until given a signal to remember.

Instructions to Group 2

Individuals react to the amnesia suggestion in several ways. One possibility is that they may forget all or mostly everything that happened during the time they were hypnotized. A second possibility is that the suggestion may have no effect and the subject is able to remember everything clearly. A third possibility is that the subject may remember things that happened, that were learned or heard during the time he was hypnotized without being aware of the fact that it was during that time that those things were heard or learned. This particular phenomenon is unique, however, because it may not only happen while the amnesia suggestion is in effect but also after a person receives the signal to remember. In other words, people can show this third type of response both while they are hypnotized and amnesic as well as when
they are awake.

Instructions to Group 3

Once the amnesia suggestion is cancelled, i.e. once given the signal to remember, memory for what occurred during the session may be restored. Typically, however, regardless of what happened during amnesia, once woken up people tend to remember things that they may have learned or heard during the time they were hypnotized but they forget where this information came from.
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Ottawa, Canada
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Source Amnesia: Some Social Psychological Effects

by

C. Lori Della Malva

A thesis submitted to the Faculty of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Arts

Department of Psychology
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July, 1961
The undersigned recommend to the Faculty
of Graduate Studies and Research acceptance of the thesis
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in partial fulfillment of the requirements for
the degree of Master of Arts

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September 1981
Abstract

Eighty-eight Carleton University students, all high susceptibles, were randomly assigned to one of three treatment conditions. Subjects in the first condition received no preliminary instructions before a standard Source Amnesia (SA) procedure. Subjects in the second condition (salience alone) were told pre-experimentally that, among other responses, a suggestion for post-hypnotic amnesia could produce SA; these subjects were then told that none of their responses was better than any other. The final condition (salience plus demand) involved telling subjects the same preliminary information; in addition, however, subjects in this condition were told that although no one response was better than any other, this study was particularly interested in SA. All subjects then underwent the SA procedure outlined by Evans (1979).

In the salience plus demand condition, significant increases were found not only in the number of subjects who showed SA, but also in the number of times that these subjects did so. Taken together with other findings these results indicate that social psychological variables can affect the likelihood of SA responding.

The present study failed to find a relationship between SA and serial organization during recall amnesia; these findings are further evidence that serial organization and amnesia are unrelated. Moreover, recall amnesia for the questions and sugges-
tions were significantly correlated, indicating that amnesia for the two types of material involves a similar underlying process.

In general, the present findings are consistent with theoretical frameworks which emphasize the strategic nature of hypnotic responding.
Acknowledgements

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Introduction

Theoretical controversy exists concerning the conceptualization of hypnosis. State theorists view hypnosis as an altered state of consciousness in which modified sensory and cognitive processes are brought about by variables such as hypnotic susceptibility and hypnotic induction procedures (Gill & Breman, 1959; Hilgard, 1965, 1977; Orne, 1959). Non-state theorists reject the utility of this formulation and point instead to the importance of variables such as demand characteristics of the situation (Coe, 1978) and imaginative involvement (Spanos & Barber, 1974) in bringing about hypnotic behaviour.

The controversy between the two groups involves many of the phenomena that have been traditionally associated with the notion of an hypnotic state, including post-hypnotic amnesia.

Post-hypnotic amnesia is defined as a temporary failure to recall available target information following the termination of hypnotic procedures (Cooper, 1966). In most cases, the forgetting is explicitly suggested. Typically, the subject is instructed to forget all that occurred during the session, until given a predetermined signal that restores memory.

Post-hypnotic amnesia can be conceptualized in at least two ways: it may be seen as resulting from attempts on the part of co-operative subjects to meet the demands of an explicitly or
implicitly administered post-hypnotic suggestion or alternately, as an automatically occurring form of dissociation due perhaps to intrinsic differences in the structure of thought processes during hypnosis (Kihlstrom, 1975; Orne, 1966).

Variables Affecting Post-Hypnotic Amnesia

Despite differences in conceptualization, state and non-state theorists alike recognize the influence of several independent variables on the occurrence of hypnotic amnesia. These variables include hypnotic susceptibility and hypnotic induction procedures.

Hypnotic Susceptibility

Subjects who display amnesia also tend to respond positively to the other suggestions contained in standardized hypnotic susceptibility scales. In other words, high susceptibles are more likely to show amnesia than low susceptibles (Barber & Calverly, 1966; Hilgard & Cooper, 1965; Spanos & Bodorik, 1977). Significant correlations have been found between amnesia and hypnotic susceptibility (Hilgard & Cooper, 1965; Kihlstrom & Evans, 1976).

The relationship between susceptibility and amnesia is not dependent upon the use of an hypnotic induction procedure. It occurs regardless of whether an induction procedure or a task-motivated (waking condition) procedure precedes administration of
the amnesia suggestion (Barber & Calverly, 1966; Spanos & Bodorik, 1977; Spanos, Bodorik & Stam, 1980; Thorne & Hall, 1974).

Furthermore, the relationship between amnesia and susceptibility is independent of the type of scale used to assess hypnotic susceptibility; positive associations have been found for the following: 1) The Harvard Group Scale of Hypnotic Susceptibility, Form A (Kihlstrom & Evans, 1976; Spanos et al., in press), 2) The Stanford Hypnotic Susceptibility Scale, Forms A, B and C (Coe, Taul, Basden & Basden, 1973; Hilgard & Cooper, 1965; Nace, Orne & Hammer, 1974), 3) The Barber Susceptibility Scale (Barber & Calverly, 1966; Spanos & Bodorik, 1977).

**Hypnotic Induction Procedure**

A number of studies have shown that equivalent amounts of amnesia are produced by both hypnotic induction procedures and task-motivational instructions. The latter are designed to match the motivation involved in most hypnotic procedures, while omitting mention of drowsiness, sleep or hypnosis.

Barber and Calverly (1966) compared hypnotic induction and task motivation with respect to amnesia for six words learned to criterion. Recall and recognition amnesia occurred to the same degree in both induction and task-motivated groups. Other studies have obtained similar results (Norris, 1973; Spanos & Ham, 1973; Thorne & Hall, 1974).

More recent studies, however, suggest that subjects
receiving hypnotic induction procedures show more amnesia than those receiving task motivation instructions (Spanos & Bodorik, 1977; Spanos, Raitke-Bodorik & Stam, 1980). The factors responsible for these contradictory findings are hard to determine since many of the studies use very different procedures.

What Hypnotic Amnesia Is Not

Traditionally, one of the most popular explanations for post-hypnotic amnesia was dissociation (Hilgard, 1974, 1976). Janet (1925), proposed that consciousness is composed of a collection of interassociated ideas and that anxiety-based ideas may become cut off from consciousness and therefore, dissociated from other ideas. With respect to post-hypnotic amnesia, dissociation implies that the ideas associated with amnesia become "functionally ablated" from the ideas that constitute waking consciousness. Accordingly, "forgotten" material should no longer influence other information in memory. When memory is assessed with such indirect methods as the retroactive inhibition paradigm, findings indicate that "forgotten" material continues to influence waking performance (Coe, Basden, Basden & Graham, 1976; Coe et al, 1973; Graham & Patton, 1968; Stevenson, Stoyva & Beach, 1962).
State Theorist View of Post-Hypnotic Amnesia

State theorists believe that amnesia results from an impairment in retrieval caused by the altered cognitive state created in hypnosis (Evans & Kihlstrom, 1979; Hilgard, 1966; Sheehan & Orne, 1966; Takahashi, 1958). According to Evans and Kihlstrom, the problem in amnesia is in gaining direct access to memories which are available and active in memory storage. Post-hypnotic amnesia involves a loss of cues and strategies by which memory retrieval is usually structured. The subject's inability to utilize appropriate organizational cues, because of an altered state, renders the act of remembering difficult and inefficient (Evans & Kihlstrom, 1979).

Tulving (1967) proposed that memory involves both semantic and episodic components. Episodic memories carry an essential component of autobiographical reference and are encoded in a specific spatiotemporal context, whereas semantic memories consist of knowledge, facts stored independently of a particular experiential context. Many memories contain both semantic and episodic components. Evans and Kihlstrom (1973) proposed that hypnotic amnesia involves a dissociation between semantic and episodic components of memory. Purportedly, episodic components are affected by amnesia while semantic components are not.
Non-State Theorist View of Post-Hypnotic Amnesia

Non-state theorists (Barber, 1969; Sarbin & Coe, 1972; Spanos et al., 1980) argue that the failure in retrieval associated with post-hypnotic amnesia is a "doing". These theorists regard amnesia as an active process in which both the subject and the experimenter are participating. Their interests lie in investigating variables such as potency of situational demands and the subjective experience of amnesia. Barber (1969) suggests that post-hypnotic amnesia may not refer to forgetting at all, but rather to an unwillingness on the part of the subject to verbalize in order to comply with the wishes and expectations of the hypnotist. Cooper (1966) discussed several variables which may affect hypnotic amnesia. He suggests that instructions and expectations may affect post-hypnotic amnesia insofar as the subject, a thinking being trying to understand procedures and hypotheses, may deduce what is expected of him/her on the basis of the instructions. Coe (1976), argues that the subject's self-report (which is the only evidence available for the evaluation of phenomenal experience) is plainly affected by such factors as relationship variables, contingencies of reinforcement and ambiguity of the context. Coe believes that the way the context is defined leads to predictable differences in the degree of self-disclosure concerning the supposedly forgotten material, as well as the literalness of phenomenal reports (Coe, 1976).
The emphasis, from this perspective, is on the interactions between persons and surroundings: the subject is doing, interacting and actively participating. The stress is on determining conditions or contexts that encourage self-disclosure. When a subject is asked to tell all he remembers, the degree to which he will report his memories may be determined by how he has defined the situation: the more ambiguous the situation, the more freedom the subject has in arriving at his own definition of it. Non-state theorists believe that those subjects who produce post-hypnotic amnesia, actively do something (e.g. engage in self-distraction) in order not to remember.

Source Amnesia

As previously discussed, the concept of dissociation has not fared well when tested by any means more objective than a subject's direct verbal report. In defence of this concept, state theorists have singled out the phenomenon of Source Amnesia (SA), first named by Thorn in 1960, as one of the most striking examples of dissociation between episodic and semantic memory. Surprisingly, very limited study of this phenomenon has been carried out.

A typical SA experiment proceeds as follows: after a standard hypnotic induction procedure and the administration of several hypnotic suggestions, the subject receives a test con-
sisting of questions about little known facts, for example "What colour does amethyst become when exposed to heat?" Most subjects do know that the answer is "yellow". They are then explicitly supplied with the correct answer after each question. Amnesia for what occurred during the session is then suggested, followed by a recall trial. At this time, some subjects will show full recall, i.e. they will remember the suggestions and the specific questions and answers of the test. Other subjects will show partial or complete amnesia. These subjects may fail to recall the items on the general knowledge test. If so, the test is readministered. Subjects may now respond to the questions in one of two ways: they may either show amnesia for the correct answer and therefore fail the question again or they may give the correct answer to a question they previously failed.

When a correct answer is given the subject is asked "How do you know that?" Most subjects will reply that they were given the answer earlier in the session. Occasionally, however, a subject may show SA and reply "I don't know, I never knew that before!" or he may try to rationalize his response with sentences such as "Someone must have told me" or "I must have read it somewhere". (See Figure 1)

SA is assumed to occur when subjects appear to be aware of specific items of knowledge (for instance, that amethyst turns
Figure 1

SOURCE AMNESIA PARADIGM

Hypnotic Induction

Suggestions

General Knowledge Test

Amnesia Suggestion

Recall Trial 1 — Full Recallers —— Cancellation of Amnesia

Amnesic Subjects

Repeat General Knowledge Test —— Amnesia for Correct Answers

Correct Answers to Questions Previously Failed

"How Do You Know That?" —— Identifies Correct Source "You told me"

Shows Source Amnesia "I don't know"

Cancellation of Amnesia
yellow), but are unaware that they learned this information
during the test session shortly before the administration of
the amnesia suggestion.

This phenomenon seems to support the hypothesis that post-
hypnotic amnesia reflects a disruption of memory retrieval
stemming from a disorganization of the process of memory search
(Evans & Kihlstrom, 1973). Evans and Kihlstrom argue that
during the SA response, retrieval from episodic memory is im-
paired (i.e., the context in which facts were learned is forgotten)
while retrieval from semantic memory is not (the facts them-
selves are recalled). From this perspective SA involves an
extreme form of distortion in the retrieval process. The
material is remembered as knowledge, not as history (Evans &
Kihlstrom, 1979). These researchers view SA as a hypnosis
specific behaviour which is independent of situational cues. A
survey of the literature however, reveals that the evidence for
this is far from conclusive.

Evans and Thorn (1966) compared the frequency of
spontaneous SA in three hypnotized samples to the frequency of
SA in a waking sample and found that 10% of the combined
hypnotized samples showed SA compared to 2% of the waking
sample. They interpreted these results as showing that SA is
hypnosis specific. However, Coe (1978) pointed out that their
method of scoring SA was critical to this conclusion. Evans and
Thorn (1966) scored SA on a six-point scoring scale. Items 4, 5 and 6 indicated the presence of SA while items 1, 2 and 3 simply reflected various degrees of certainty about the source of the information. Item 4, however, is the following: "Subject states source, but appears to be guessing or deducing this." The inclusion or exclusion of subjects who were rated at this ambiguous level with those who were rated as 5 or 6 changes the data dramatically. Without these subjects the pooled percentage of SA in the three groups drops from 10% to only 4%. Moreover, one might also question now Evans and Thorn (1966) explain the occurrence of any SA in their waking sample when they regard the phenomenon as hypnosis specific.

Cooper (1966) obtained similar findings with hypnotic subjects. Only 2% of his sample showed spontaneous SA when a strict scoring criterion was employed; when scoring was made easier, he found SA in 9% of his subjects. It would seem that the specificity of SA to hypnosis greatly depends on how it is scored.

Several studies have shown that post-hypnotic behaviour, including post-hypnotic amnesia, is affected by social-psychological factors. Fisher (1954, 1955) suggested that post hypnotic behaviour occurs only when the subject believes it should occur. He demonstrated that subjects "spontaneously" stopped engaging in a post-hypnotic response when the situation was no longer defined as the experiment. Spanos, Stam, D'Eon, Pawlak and Bodorik
(1980) argued that amnesia testing situations confront the subject with contradictory demands and that the subject's interpretation of these determines whether amnesia will occur. These investigators provided subjects with preliminary instructions aimed at clarifying ambiguous situational demands in opposite directions. When subjects were explicitly asked to interpret the suggestion as a request to maintain attention away from target material, amnesia was substantially enhanced. When they were instructed to interpret the "recall challenge" as a serious request to remember, amnesia was practically eliminated.

Cooper (1966), found some evidence for the involvement of social-psychological variables in SA. One of two groups was tested for spontaneous SA on day 1 and for suggested SA on day 2. The second group received a suggestion for SA on day 1 and was tested for spontaneous SA on day 2. An order effect was found. If SA was suggested first and spontaneous SA was tested for on the second day, the ratio of subjects who showed SA on the two days was 17% (suggested) to 2% (spontaneous). When treatment order was reversed the incidence of SA was 15% (spontaneous) to 11% (suggested). A suggestion for SA on day 1 may have indicated that it was not expected automatically and thus decreased spontaneous incidence on day 2. A second interesting point is that a suggestion for SA did not increase its incidence to any significant degree.
Evans (1979) attempted to determine whether SA is a) simply a specific case of partial amnesia or b) counterexpectational and thus not a result of subtle cues within the testing situation. Evans sought to control for the first factor (i.e., partial amnesia) by using subjects who had shown only complete amnesia. In order to assess the role of expectations he tested simulating subjects as well as hypnotic subjects in a SA paradigm. Simulators are usually low susceptibles who, before going through the experimental procedure, are asked to fake hypnosis throughout the experiment i.e. to behave as if they were hypnotized while making an effort to not subjectively experience any of the suggestions. Simulators always showed complete amnesia. Moreover, there were differences in recall amnesia between hypnotic subjects who showed SA and those who did not. Evans (1979) concluded that SA is not merely a form of partial amnesia. Because simulators failed to show SA, he also concluded that it is counterexpectational. Furthermore, he hypothesized that the dissociation between content and context purportedly manifested in SA, may be a state-specific effect. The context in which the learning takes place (i.e., hypnosis) may differ substantially from the post-hypnotic "state" in which recall occurs.

Evans (1971) interpreted the fact that 1/3 of his amnesics but none of his simulators showed SA as meaning that SA is hypnosis specific. It is not unreasonable to suggest, however,
that simulating subjects are particularly alert and careful as to how they respond. For them the suggestion to remember nothing may override any other demands, whereas, less alert hypnotic subjects may "counterexpectationally" remember the answer when asked the question but then try to recoup when asked its source by saying they don't know (Loe, 1978).

The feasibility of using simulators in this paradigm is questionable. Simulating subjects show complete amnesia. In other words, when retested on the questions, they do not give any correct answers. Therefore they are never asked "How do you know that?" On the other hand, partially amnesic hypnotic subjects may give a correct answer to a previously failed question. In that case, they are immediately asked "How do you know that?" Clearly one cannot conclude that SA is counter-expectational because partial amnesics and simulators respond differently. These subjects are simply not exposed to the same situational cues.

Evans and Thorn (1966) distinguished between "recall amnesia" i.e. suggestion-induced reduction in recall and SA. They argued that these are distinct phenomena with different underlying mechanisms. Cooper (1966) however, found significant correlations between recall amnesia and both suggested, and spontaneous SA. Gheorgiu (1969) later claimed that all subjects manifesting recall amnesia can be led to manifest SA.
Most recently Evans (1979) has argued for a similarity in the mechanisms of recall and source amnesia. He contended that partial amnesia often involves an inability to organize recall in terms of temporal and contextual cues, and that SA may reflect one aspect of such disorganization. This hypothesis suggests that partial amnesics who show disorganized recall will be more likely than those who organize, to show SA. The present study afforded the opportunity to test this hypothesis.

An alternate hypothesis about what occurs during SA may be stated as follows: subjects are aware that earlier in the session they were given general knowledge questions and later supplied with the answer to each question. They are also aware that the experimenter knows this. Thus, once they give the correct answer most subjects will interpret the "How do you know?" question as a request to tell what they and the experimenter both know to be true and they will recall the correct origin of their answer. Occasionally, however, a subject will interpret the question "How do you know that?" as meaning that remembering is not an appropriate response and he will try to recoup by saying he doesn't know how he knows the correct answer. This response probably occurs only rarely because, as previously stated, the subject is aware that the experimenter knows where he learned the answer. However, if the salience of this response category is increased, and demands for SA are made explicit, the incidence
of SA should also increase. One way of increasing the salience, is to inform the subject pre-experimentally about the possibility of SA.

The Present Study

In order to test the latter hypothesis, two new conditions were devised and added to the paradigm used by Evans (1979) to assess SA. In one condition (i.e. salience treatment) the subjects were told before the procedure that the study specifically involved post-hypnotic amnesia. Following this, three possible effects of a post-hypnotic amnesia suggestion were outlined: the subject may remember everything regardless of a suggestion to forget; he may forget some or all of the things that happened during the session; or he may remember material from the hypnotic session without being aware of the fact that it was part of the session (Appendix 2). The aim of this explanation was to make the SA response category a salient one, to establish for the subject the behaviour patterns possible. However, these subjects were also told that no response (among the three outlined) was better than any other, that the study was merely looking at what happens. In a second condition (i.e. salience plus demand) subjects were given the same information but, in addition, were told that although no one response was better than any other, the study was particularly interested in SA. The final condition was
a control that consisted of the SA procedure outlined by Evans (1979). These subjects received no preliminary information about the purpose of the experiment or about the possible behaviour patterns which may result.
Method

Subjects

Eighty-eight individuals who, on prior testing scored either 9-12 on the Harvard Group Scale of Hypnotic Susceptibility (HGS: A. Shore & Orne, 1962) or 5-7 on the Carleton University Responsiveness to Suggestion Scale (CURSS), and who volunteered to participate in a one-session experiment on hypnosis and memory, served as subjects. All subjects were paid three dollars for their participation.

Procedure

All subjects were administered a standard 10-minute hypnotic induction procedure taken verbatim from Spanos and Bodorik, (1977) (Appendix 1). The induction was followed by three hypnotic suggestions: the arm levitation and arm rigidity suggestions from the CURSS, and a dream suggestion modified from the Stanford Hypnotic Susceptibility Scale: Form C (Weitzenhoffer & Hilgard, 1962). Following this, the subjects were asked a series of general knowledge questions. The instructions were as follows:

"Now, I am going to ask you some questions, questions of general knowledge and information. Some of these questions will be quite easy, others will be quite difficult. You will not know the answer to all of these questions, but please don't let that bother you at all because everybody gets several of these questions
Wrong. You will be able to listen to the questions and listen to what I say but remain deeply hypnotized. Let's begin.

Four standard questions (Appendix 4) were presented to each subject. The order of presentation of the last three was varied in six different combinations to control for any order effect. After each question, the subject was given 10 seconds in which to answer. At the end of 10 seconds, the correct answer was supplied. Following the last question subjects were given a suggestion to forget everything that happened during the session until given an explicit signal to remember. Subjects were then "awakened" and given two minutes to describe everything that happened since being told to close their eyes.

If, at this time, subjects failed to recall all of the general questions and their answers, they were told: Now I am going to ask you some questions of general knowledge that I would like you to answer for me." They were then re-administered the general knowledge questions in their original order of presentation with 10 seconds again given to answer each question. When a correct answer was given, to a previously failed question, or an unanswered question, the subject was asked "How do you know that?" Subjects' responses were tape recorded and later transcribed.

Following their answers, the predetermined cue to remember was given and subjects were again asked to tell everything that happened since closing their eyes. When recall was finished, the
four questions were again administered in the same format. Once again, 10 seconds were given in which to answer, and following a correct response which was originally failed or left unanswered, the subject was asked: "How do you know that?"

This procedure allowed for the testing of SA and was administered to each subject in the same way. Before the procedure began, however, each subject was randomly assigned to one of three possible conditions.

**Condition 1**

This condition duplicated the procedure used by Evans (1979) and served as a control. Subjects were simply instructed to make themselves comfortable and listen to the tape.

**Condition 2**

Before beginning the induction procedure, subjects were told that the study involved post-hypnotic amnesia and were given a brief explanation about the possible outcomes of an amnesia suggestion (Appendix 2). The subjects were then told: No one response is better than any other, we are just interested in looking at what happens."

**Condition 3**

Subjects in this condition were also told that the study involved post-hypnotic amnesia and were given the same explanation of the phenomenon as in condition 2. Afterwards, however, they were told: "No one response is better than any other but in this
study, we are particularly interested in the third possibility, where a person remembers information, but does not remember that it was heard while being hypnotized."

Scoring Procedure

Source amnesia was scored using the criteria developed by Evans and Thorn (1966)(Appendix 5). These investigators categorized subjects' testimonies into six categories that ranged from subjects recalling the test questions asked during hypnosis (classified 1), to subjects knowing the correct answer, but inventing or rationalizing the source of information (classified 6).

Subjects' testimony to each test question was scored separately on this six point scale. For any question, subjects were scored as showing SA if their testimony was classified in categories 5 or 6. They were scored as not showing SA if their testimony was classified into any other category.

The number of test questions to which a subject showed SA was summed to yield a single SA score per subject that ranged from 0 (no SA) to 3 (SA to each question). As expected, all subjects answered the first question correctly. This question, therefore, was not considered in the analyses.
Results

Correct Responses To Previously Failed Questions

Treatment manipulations could affect the overall amount of SA in two different ways. First, these manipulations might have changed the subjects' tendency to give a correct response to a previously failed question. Suppose, for example, that one treatment increased the likelihood of subjects giving a correct response to a previously failed question. Subjects in that treatment would more frequently be in a position to show SA as a possible response than would subjects in other treatments. Under these circumstances, overall differences between groups in SA would occur even when treatment manipulations failed to influence the likelihood of SA being shown once the question was answered correctly.

Alternatively, treatment manipulations might exert no influence on the number of correctly answered questions. In this case, treatment differences would reflect an actual increase in SA responding, independently of the number of questions answered correctly.

In order to assess these alternatives, the number of questions answered correctly in the three groups was compared in a one-way analysis of variance (ANOVA). Table 1 shows the group means for the number of questions answered correctly. The analysis of variance revealed no significant differences between
groups with respect to number of correct responses given (see Table 2).

Source Amnesia Out Of Total

For each subject, SA was measured as the proportion of SA responses out of the number of questions asked in the general knowledge test. In other words, how many times, out of the possible three did each subject show SA.

An ANOVA was performed on proportion SA scores. Four full recallers, three subjects from Group 2 and one subject from Group 3 were excluded from the analysis. These subjects had recalled the questions and answers during the first recall trial and therefore, had not received the general knowledge test a second time. As a result, they were not in a position to show SA at all.

The analysis of arcsine transformed scores of proportion SA yielded a significant F-ratio, $F(2, 81) = 7.36$, $p < 0.001$ (see Table 3). The Newman-Keuls test, modified for unequal sample sizes, was used to locate differences among means (Kirk, 1968), (see Table 4). The proportion of SA was significantly higher in the salience plus demand condition (Group 3), than in either the standard condition (Group 1) or the salience alone condition (Group 2). No significant differences were found between Group 1 and Group 2 (see Figure 2).
Table 1

Group Means For The Number of Questions Answered Correctly

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Salience Plus Demand Group</td>
<td>1.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Table 2

One-Way Analysis of Variance on Number of Correct Responses

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>1.78</td>
<td>1.17</td>
</tr>
<tr>
<td>Error_w</td>
<td>85</td>
<td>1.53</td>
<td></td>
</tr>
</tbody>
</table>
Table 3

One-Way Analysis of Variance on Arcsine Transformed Proportion Source Amnesia Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>5.49</td>
<td>7.38*</td>
</tr>
<tr>
<td>Error_w</td>
<td>51</td>
<td>.74</td>
<td></td>
</tr>
</tbody>
</table>
Table 4

Mean Proportion of Source Amnesia Among Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Means</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>13.06</td>
<td>26.2</td>
</tr>
<tr>
<td>Salience Alone Condition</td>
<td>8.33</td>
<td>19.9</td>
</tr>
<tr>
<td>Salience Plus Demand Condition</td>
<td>34.59</td>
<td>37.1</td>
</tr>
</tbody>
</table>
Figure 2

Proportion of Source Amnesia in the Three Groups
A second measure of SA was an incidence score which simply reflected whether or not a subject had shown SA. A score of 1 indicated that SA was shown for one or more questions; a score of 0 indicated that no SA was shown. Table 5 shows the incidence of SA in each group.

Chi square analyses revealed significant differences between the groups, $\chi^2(2) = 14.18$, $p < .01$. Further analyses indicated that subjects in Group 3 showed more SA than those in either Group 1 $\chi^2(1) = 5.99$, $p < .05$, or Group 2, $\chi^2(1) = 10.21$, $p < .01$. Once again, Groups 1 and 2 did not differ, $\chi^2(1) = .612$, $p > .80$.

**Source Amnesia Out of Possibles**

In order to more fully examine the above differences, further analyses were performed. To be considered in the following analyses, subjects had to have been partial or complete amnesics and to have answered one or more questions correctly when given the general knowledge test during post-hypnotic testing. Thus, all of these subjects were in a position to show SA at least once during the second administration of the general knowledge test. SA was scored as the proportion of SA responses to the number of questions for which it was a possible response, i.e., the number of questions answered correctly on the second administration of the general knowledge test. Nineteen subjects in Group 1 fell into this category, along with 18 subjects in
Table 5

Frequency of Incidence of Source Amnesia in the Three Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Source Amnesia</th>
<th>No Source Amnesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Salience plus Demand Group</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>
Group 2 and 21 subjects in Group 3.

The results obtained from these analyses did not differ from the general pattern already established. An ANOVA on the arcsine transformed scores of proportion SA indicated that significant differences exist between groups, $F(2,55)=5.93$, $p<.005$, (see Table 6).

Newman-Keuls, again adjusted for unequal sample size (Kirk, 1968) revealed significantly more SA in Group 3 than in either Groups 1 and 2. Groups 1 and 2 did not differ significantly from one another. (see Table 7)

Incidence scores were also calculated for these subjects. Results of an overall Chi square analysis indicated significant differences between groups, $\chi^2(2)=8.48$, $p<.05$. Separate Chi square analyses on group pairs followed the familiar pattern. No differences existed between Groups 1 and 2, $\chi^2(1)=.346$, $p<.70$, while significant differences were found between Group 3 and Groups 1, $\chi^2(1)=4.82$, $p<.05$, and 2, $\chi^2(1)=7.39$, $p<.01$, in incidence of SA (see Table 8).

In short, once in the same situation (i.e., after a correct answer to a previously failed question) significantly more subjects showed SA when they had received salience plus demand instructions than when given the standard paradigm or salience alone instructions.
Table 6

One-Way Analysis of Variance on Arccsine Transformed Proportion
Source: Amnesia Scores Out of Possibles

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditions</td>
<td>2</td>
<td>10.79</td>
<td>5.93</td>
</tr>
<tr>
<td>Error</td>
<td>55</td>
<td>1.82</td>
<td></td>
</tr>
</tbody>
</table>

* Indicates significance at the 0.05 level.
Table 7

Mean Proportion of Source Amnesia (out of possibles) In
The Three Groups

<table>
<thead>
<tr>
<th>Conditions</th>
<th>X</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>30.70</td>
<td>1983.4</td>
</tr>
<tr>
<td>Salience Alone Group</td>
<td>23.14</td>
<td>1605.5</td>
</tr>
<tr>
<td>Salience Plus Demand Group</td>
<td>68.25</td>
<td>2164.1</td>
</tr>
</tbody>
</table>
Table 8

Frequency Table for Incidence of Source Amnesia Out of Possibles

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Source Amnesia</th>
<th>No Source Amnesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Group</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Saliency Alone Group</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Saliency plus Demand Group</td>
<td>15</td>
<td>6</td>
</tr>
</tbody>
</table>
Relationship Between Recall Amnesia And Source Amnesia

The relationship between amnesia shown for the suggestions and amnesia shown for the questions was examined with a correlational analysis that included all 88 subjects. A significant, positive correlation between amnesia for suggestions and amnesia for questions, $R(1,86) = .521$, $p < .001$, indicates that these reflect a similar process.

Amnesia for the suggestions was then compared in those subjects who had shown some SA (incidence score of 1) as compared to those subjects who had not (incidence score of 0). An overall T-test revealed no differences in amount of amnesia shown, $t(86) = 0.175$, $p < .50$. Thus, subjects who showed SA and those who did not showed equivalent levels of amnesia for other parts of the session.

Source Amnesia And Organization Of Recall

Chi square analyses were carried out to determine whether subjects who showed SA tend to a) recall suggestions in a disorganized manner (ie. out of temporal sequence) and b) mix suggestions and questions while recalling. Disorganized recall was determined by dichotomizing subjects into those who recalled all suggestions in their order of presentation, and those who recalled one or more non-sequentially. Subjects were also dichotomized into those who interspersed suggestions and questions
during recall, and those who recalled these items in separate groupings.

Analyses using both indices of disorganized recall did not yield significant results, $\chi^2(2) = 1.311$, $p < .50$; $\chi^2(2) = 1.381$, $p < .50$ (see Table 9). Thus, no differences in the organization of recall were found for subjects who showed and did not show SA.

Source Amnesia, Questions And Question Order

Several analyses were performed in order to determine whether the incidence of SA was differentially affected by the individual questions, or whether SA was more frequent for any particular ordinal position of questions.

The Specific Questions

A preliminary analysis was carried out to determine whether the individual questions differed in terms of how often they were answered correctly. Chi square analysis revealed no differences between the three questions in this respect, $\chi^2(2) = .274$, $p < .90$ (see Table 10).

A further analysis was carried out to look at the incidence of SA for the specific questions, once they had been answered correctly. Results again indicated no significant differences in the incidence of SA with respect to specific question material, $\chi^2(2) = .258$, $p < .90$ (see Table 11).
Table 9

Frequency Tables For Seriation Indices In Full Recallers, Amnesics Who Showed SA, and Amnesics Who Did Not.

<table>
<thead>
<tr>
<th>Order of Suggestions</th>
<th>Full Recallers</th>
<th>Amnesics SA</th>
<th>Amnesics no SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIXED</td>
<td>0</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>NOT MIXED</td>
<td>4</td>
<td>10</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Suggestions &amp; Questions</th>
<th>Full Recallers</th>
<th>Amnesics SA</th>
<th>Amnesics no SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIXED</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>NOT MIXED</td>
<td>4</td>
<td>14</td>
<td>27</td>
</tr>
</tbody>
</table>
Table 10

Frequency Table for Correct and Incorrect Responses to the Individual Questions (Regardless of Order)

<table>
<thead>
<tr>
<th></th>
<th>Amethyst</th>
<th>Moth</th>
<th>Lewis Carroll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>43</td>
<td>48</td>
<td>48</td>
</tr>
<tr>
<td>Incorrect</td>
<td>31</td>
<td>29</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 11

Frequency Table for SA Responses to Correctly Answered Individual Questions (Regardless of Order)

<table>
<thead>
<tr>
<th></th>
<th>Amethyst</th>
<th>Moth</th>
<th>Lewis Carrol</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>no SA</td>
<td>28</td>
<td>35</td>
<td>33</td>
</tr>
</tbody>
</table>
Question Order

Parallel analyses were performed to determine the effect of ordinal position on SA. Questions were now considered first, second, or third in order of presentation, regardless of which particular question was in these positions.

Analyses revealed no differences in incidence of SA based on position, $\chi^2(2) = .593$, p < .80 (see Table 12). In other words, the amount of SA was the same for all questions regardless of whether they were presented first, second, or third.

Moreover, the presentation order of questions did not affect the incidence of SA, $\chi^2(2) = 4.4$, p < .10. (see Table 13).
Table 12

Frequency Table for Correct and Incorrect Responses to the First, Second and Third Questions.

<table>
<thead>
<tr>
<th></th>
<th>First Question</th>
<th>Second Question</th>
<th>Third Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>42</td>
<td>42</td>
<td>46</td>
</tr>
<tr>
<td>Incorrect</td>
<td>36</td>
<td>34</td>
<td>26</td>
</tr>
</tbody>
</table>
Table 13

Frequency Table for SA Responses to Correctly Answered First, Second and Third Questions.

<table>
<thead>
<tr>
<th></th>
<th>First Question</th>
<th>Second Question</th>
<th>Third Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>16</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>no SA</td>
<td>27</td>
<td>31</td>
<td>32</td>
</tr>
</tbody>
</table>
Discussion

Providing subjects with information about SA, coupled with clear demands to give that response produced a dramatic increase not only in the number of subjects who showed SA, but also in the number of times that these subjects did so. This latter finding was demonstrated clearly when analyses included only those subjects who gave a correct answer to a previously failed question (i.e. those who were in a position to show SA for that particular question). Under these circumstances, subjects in the salience plus demand condition were significantly more likely than those in the remaining two groups to show SA.

It is important to note that preliminary instructions did not affect the likelihood of subjects being in a position to show SA. In other words, subjects in the three conditions were equally likely to correctly answer a previously failed question. Once they had done so, the salience plus demand manipulation greatly increased the likelihood that they would fail to recall the origin of their correct response.

It is interesting to note that the salience alone condition did not enhance SA responding. If anything, subjects in this group showed slightly less SA than controls. In order to understand these results it is necessary to look closely at the preliminary instructions given to the salience alone group. These
subjects were told about SA as one of the three possible responses to an amnesia suggestion. However, they were also informed that no one response was better than any other. Thus, although informed about the possibility of SA they were also informed that the response was no more desirable than any other. Perhaps the latter aspect of these instructions cancelled any facilitative effects produced by informing subjects about the possibility of SA. This hypothesis could be tested in future studies that provide subjects with possible alternative responses, but say nothing about the relative desirability of various responses.

Cooper (1966), it will be recalled, found that situationally generated expectations could produce decrements in SA responding. Taken together with the present findings, these results indicate that social psychological variables can both increase or decrease the likelihood of SA responding. Similar findings have been obtained with other aspects of amnesia responding. For instance, Spanos, Stam, D'Eon, Pawlak and Radtke-Bodorik (1980) found that recall amnesia could be either substantially enhanced or reduced by varying subjects' interpretation of the amnesia suggestion. Similarly, Spanos, Radtke and Dubreuil (1981) reported that subtle differences in the wording of suggestions determined whether amnesic subjects showed memory deficits on semantic as well as episodic tasks and Dubreuil (1981) found that experimentally transmitted expectations could either enhance or eliminate
subjects' tendency to "breach" amnesia. In short, SA, like other aspects of amnesic responding, is clearly related to social psychological variables. It is, at least in part, a function of subjects' interpretations of the test situation, and these interpretations are in turn influenced by the definition of the situation supplied to the subject by the experimental procedures they undergo.

Of course, the present results do not disconfirm the notion that some sort of automatically occurring dissociative process is operating along with social psychological variables to produce SA responding. In fact, it is not at all clear that the notion of dissociation has been formulated with enough precision to allow its unambiguous disconfirmation. On the other hand, the present results are inconsistent with one recently formulated variant of the dissociation hypothesis--the notion that SA reflects a general disruption in the organization of retrieval (Evans, 1979). According to this hypothesis, subjects who show SA should be more likely than those who do not to exhibit a disruption in the serial organization of their recall. Contrary to this hypothesis, we found no relationship between SA and two indices of serial organization during amnesia.

The notion that serial organization is related to hypnotic amnesia was initially formulated by Evans and Kihlstrom (1973). These investigators reported that highly susceptible subjects
were less likely than low susceptibles to serially organize their recall during an amnesia suggestion period. Unfortunately, Evans and Kihlstrom (1973) were unable to compute an unambiguous amnesia score for their subjects and failed to assess seriation either before or after the amnesia suggestion. As a result of these and other methodological limitations (detailed by Radtke and Spanos, in press) Evans and Kihlstrom (1973) were unable to directly assess relationships between level of amnesia and degree of seriation, or to examine changes in seriation before or during amnesia.

Recent studies (Radtke and Spanos, in press) have failed to replicate Evans and Kihlstrom's (1973) findings of a relationship between seriation and susceptibility. Moreover, in two recent studies (Radtke, 1981; Radtke, Spanos, Della Malva and Stam, 1981) amnesia was assessed unambiguously, and seriation was measured before and after amnesia as well as during it. These studies consistently failed to find any relationship between amnesia and seriation. Our failure to find a relationship between SA and seriation during recall amnesia simply adds to the growing evidence indicating that serial organization and amnesia are unrelated to one another.

Recall amnesia for the questions and suggestions was significantly correlated. This finding is consistent with the hypothesis that amnesia for these two types of material involves a similar
underlying process. Recent work suggests that this process can be usefully conceptualized in terms of situationally cued inattention (Spanos and Radtke-Bodorik, 1980). According to this notion, subjects show amnesia when they shift attention away from target-related retrieval cues. When subjects are exposed to two types of target material (e.g. suggestions and questions) a general shift in attention away from the task of target recall would, of course, be expected to reduce accessibility to both types of material. The more consistently attention is maintained away from target-related cues, the greater the degree of amnesia for both types of material. In short, the correlation found between amnesia for questions and suggestions is consistent with an inattention hypothesis.

In broader perspective, the present findings are consistent with theoretical frameworks that emphasize the strategic nature of hypnotic responding (Barber, 1969; Coe, 1978; Coe & Sarbin, 1977; Spanos et al., 1980). According to these formulations, hypnotic behaviour is goal-directed rather than automatic. It involves sentient individuals formulating and acting in terms of contextually guided interpretations concerning what is requested from them in a (frequently ambiguous) experimental situation.
Future Research Ideas

Several research ideas were generated during the course of testing. Two will be presented here as potential experiments aimed at clarifying the nature of SA.

As previously discussed, some theorists view SA as a hypnosis specific behaviour (Evans & Kihlstrom, 1973). In light of this, it would be of interest to test whether pre-experimental instructions could affect the point at which SA is shown. For example, a first group of subjects might receive the standard SA paradigm, a second group could be told that SA is possible not only while the amnesia suggestion is in effect, but also after the amnesia suggestion is lifted. A third group, however, would be told that SA can occur only after the amnesia suggestion is cancelled (see Appendix 6). If the point at which subjects show SA was, in fact, determined by these manipulations, it would cast considerable doubt on the necessity of regarding this response as hypnosis-specific.

Secondly, if SA results from some type of recouping behaviour one might argue that it would be found only once per subject. On the other hand, it would not be inconsistent with the social psychological perspective if SA occurred more than once within a session. If a subject, after giving a SA response, receives positive reinforcement (i.e. a favourable reaction from the experimenter) he may be encouraged to again display SA.
The procedure for this experiment would, essentially, be similar to that followed in condition three of the present study. In other words, subjects would receive the same preliminary instructions before the hypnotic induction procedure (see Appendix 2). However, the general knowledge test would now consist of about 6 questions. Subjects who show SA during the session would now be randomly assigned to one of two treatment conditions. One half of the subjects who show SA would be told by the experimenter: "I'd just like to remind you that this is a scientific experiment and all we are interested in getting is the truth. Please try to answer my questions as honestly as you can." The other half of the subjects would be told (after a SA response): "Very good! This response doesn't happen very often. That's great!"

If this manipulation had a significant effect on the amount of SA shown by each subject in the latter condition once SA had been obtained a first time, findings would support the notion that situational variables determine, at least in part, SA responding.
Reference Notes


References


Wright, M.E. Symposium on post-hypnotic amnesia: A discussion.

Appendix 1
Hypnotic Induction Procedure

Close your eyes. Your ability to be hypnotized depends entirely on your willingness to cooperate. It has nothing to do with your intelligence. As for your willpower - if you want to, you can pay no attention to me and remain awake all the time. In that case, you might make me seem silly, but you are only wasting time. On the other hand, if you pay close attention to what I say, and follow what I tell you, you can easily fall into a hypnotic sleep. In that case you will be helping this experiment and not wasting any time. Hypnosis is nothing fearful or mysterious. It is merely a state of strong interest in some particular thing. In a sense you are hypnotized whenever you see a good show and forget you are part of the audience, but instead, feel part of the story. Your cooperation, your interest, is what I ask for. Your ability to be hypnotized is a measure of your willingness to cooperate. Nothing will be done that will cause you the least embarrassment.

Now relax and make yourself entirely comfortable.


Your legs feel heavy and limp. Your arms are heavy, heavy, as lead. Your whole body feels heavy, heavier and heavier. You feel tired and sleepy, tired and sleepy. You feel drowsy
and sleepy. Your breathing is slow and regular, slow and regular.

You feel pleasantly drowsy and sleepy as you continue to listen to my voice. Just keep your thoughts on what I am saying. You are going to get much more drowsy and sleepy as you continue to listen to my voice. Soon you will be deep asleep but you will have no trouble hearing me. You will not wake up until I tell you to. Remember that the dangers of hypnosis are a myth. Nothing will be done that is in any way harmful to you. I shall now begin to count. At each count you will feel yourself going down, down, down, into a deep, comfortable, a deep restful sleep. A sleep in which you will be able to do all sorts of things I ask you to do. One--you are going to go deeply asleep...

Two--down, down, into a deep, sound sleep...Three-four-more and more, more and more asleep...Five-six-seven--you are sinking, sinking into a deep, deep sleep. Nothing will disturb you. Pay attention only to my voice and the things I tell you...Eight-nine-ten-eleven-twelve--deeper and deeper, always deeper asleep...Thirteen-fourteen-fifteen. You will always hear me clearly no matter how deeply asleep you may be...Sixteen-seventeen--deep asleep, fast asleep. Nothing will disturb you. You are going to experience many things that I will tell you to experience...

Eighteen-nineteen-twenty. Deep asleep. You will not awaken until I tell you to do so. You will wish to sleep and have the experiences I shall presently describe.

You are feeling comfortable and relaxed, thinking of nothing, nothing but the sound of my voice, your eyes are closed, comfortably closed, you are thinking of nothing, nothing but what I say.
Your arms and legs feel heavy, your arms and legs feel heavy and you are relaxed relaxed, your whole body feels relaxed, your whole body feels relaxed the muscles of your face, arms, and legs are relaxed, your whole body is relaxed. Drift deeper. It feels as though you are going backward into the darkness, backward into the darkness, and as you go backward into the darkness you are more and more relaxed, more and more comfortable. You are going backward, backward and backward into the darkness and as you go backward into the darkness you feel more and more comfortable, more and more relaxed, you are listening only to my voice, only to my voice, thinking of nothing, absolutely nothing, concentrating only on my voice, listening only to what I say, listening only to my voice, you are feeling comfortable and relaxed, comfortable and relaxed, comfortable and relaxed, and as you go backward into the darkness you feel drowsy, very drowsy, and you are thinking of nothing, nothing but the sound of my voice, you feel comfortable and relaxed, comfortable and relaxed, breathing regularly and deeply, regularly and deeply--thinking of nothing, nothing but the sound of my voice--breathing regularly and deeply, regularly and deeply, regularly and deeply, and you are in a deep, sound comfortable sleep, a deep, sound comfortable sleep, breathing regularly and deeply, regularly and deeply, regularly and deeply--your sleep is getting deeper, deeper, deeper, as. you go backward into the darkness your sleep is getting deeper and deeper--deeper and deeper--deeper and deeper--you feel comfortable and relaxed--listening only to my voice--breathing regularly and deeply, regularly and deeply, regularly and deeply--in a deep, sound
sleep, deep, sound sleep, deep sound sleep, and your sleep is
getting deeper and deeper, deeper and deeper, deeper and deeper,
you are in a deep, sound sleep, deep sound sleep - breathing
regularly and deeply, regularly and deeply, regularly and deeply,
and you are in a deep, sound sleep - a deep, sound sleep-sleep-
sleep-sleep-sleep-sleep-sleep.
Appendix 2

Pre-Test Instructions Regarding Amnesia Suggestion.

I'd like to tell you something about the experiment you'll be involved in shortly. This study concerns post-hypnotic amnesia. What post-hypnotic amnesia involves is the following: while hypnotized, a subject is told that he will forget everything that happened during the hypnotic session until he is told to remember everything.

When a person is told in hypnosis not to remember, one of three things can happen once he is woken up:

1. He may remember everything, in spite of the suggestion to forget.

2. He may forget everything, or mostly everything, about the hypnotic session as was suggested.

3. He may remember things heard or learned during the session without being aware of the fact that the item was heard or learned while hypnotized.

Once the signal to remember everything is given, the subject can once again remember everything clearly.
Appendix 3

Amnesia Suggestion

Stay completely relaxed, but listen carefully to what I tell you next. In a little while, I shall begin counting backwards from twenty to one. You will awaken gradually, but you will still be in your present state for most of the count. When I reach five, you will you will open your eyes, but you will not be fully awake. When I get to one, you will be entirely roused up in your normal state of wakefulness. You will have been so relaxed, however, that you will have trouble recalling the things I have said to you and the things you did or experienced. It will prove to cost so much effort to recall that you will prefer not to try. It will be much easier just to forget everything until I tell you that you can remember. You will forget everything that happened until I say to you: "Now you can remember everything!" You will not remember anything until then. After you wake up, you will feel refreshed, and not have any pain or stiffness or other unpleasant aftereffects. I shall begin counting backwards from twenty to one, and at five, not sooner, you will open your eyes but not be fully aroused until I reach one. At one, you will be fully awake. Ready, now: 20-19-18-17-16-15-14-13-12-11-10(half way) 9-8-7-6-5-4-3-2-1.

Now you feel wide awake! I want you to describe your expe-
rience. Please tell me now, in your own words everything that happened since I asked you to close your eyes.

Listen carefully to my words: now you can remember everything.
Appendix 4

General Knowledge Questions

1. What is the capital city of England? (London)

2. An amethyst is a blue or purple gemstone. What colour does it become when it is exposed to heat? (Yellow)

3. What is the difference between the antenae of a moth and the antennae of a butterfly? (The moth's have long, furry hairs)

4. Lewis Carroll is, of course, the famous author of "Alice in Wonderland". Aside from this what was his primary occupation? (a mathematician)
Appendix 5

Scoring Criteria For Source Amnesia.

1. Questions recalled during the test of recall amnesia.

2. Source of information correctly given when asked questions.

3. Probably knows source of information, confusion evident.

4. States source, but appears to be guessing or deducing this.

5. Apparently has no idea of source of information.

6. Invents or rationalizes source.
Appendix B.

Preliminary Instructions for Proposed Future Experiment

This experiment is studying post-hypnotic amnesia. What post-hypnotic amnesia involves is the following: while a subject is hypnotized he is given a suggestion to forget all that has happened during the time that he was hypnotized until given a signal to remember.

Instructions to Group 2

Individuals react to the amnesia suggestion in several ways. One possibility is that they may forget all or mostly everything that happened during the time they were hypnotized. A second possibility is that the suggestion may have no effect and the subject is able to remember everything clearly. A third possibility is that the subject may remember things that happened, that were learned or heard during the time he was hypnotized without being aware of the fact that it was during that time that those things were heard or learned. This particular phenomenon is unique, however, because it may not only happen while the amnesia suggestion is in effect but also after a person receives the signal to remember. In other words, people can show this third type of response both while they are hypnotized and amnesic as well as when
they are awake.

Instructions to Group 3

Once the amnesia suggestion is cancelled, i.e. once given the signal to remember, memory for what occurred during the session may be restored. Typically, however, regardless of what happened during amnesia, once woken up people tend to remember things that they may have learned or heard during the time they were hypnotized but they forget where this information came from.