CRITICAL FACTORS IN THE ARTIFICIAL INDUCTION OF CONFLICTS: A HYPNOTIC PARADIGM FOR REPRESSION

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ABSTRACT

CRITICAL FACTORS IN THE ARTIFICIAL INDUCTION OF CONFLICTS: A HYPNOTIC PARADIGM FOR REPRESSION

By

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Previous research into the connection between repression and psychopathology (Reyher, 1958, 1962, 1963, 1967; Perkins, 1965; Sommershield, 1969) has suggested that an artificial conflict induced under hypnosis can activate an individual's defensive structure with the resulting appearance of characteristic symptomatology. This study was designed to examine the contribution of suggested amnesia and a destructive impulse to the symptomatic outcome. Since a previous study (Veenstra, 1969) which had excluded the destructive impulse from its design failed to produce symptomatology, it was hypothesized that the destructive impulse was the critical variable for activation of psychopathology. The amnesia variable was added because an earlier study (Bobbitt, 1958) had made its contribution to the activation of the conflict unclear.

Each of sixteen female S's served in two of the four experimental conditions. While the presence of the destructive impulse was varied for each S, S's were randomly placed in either an amnesia or no amnesia condition. Two E's of opposite sex selected their S's at a group hypnosis session

and then saw each S for three individual sessions. After the first hypnotic induction at each of these sessions S was asked to free associate to each of fifteen words on a word list. Under hypnosis at each of the two experimental sessions, S experienced the anger-inducing paramnesia, was told that certain words (1/3 of the word list) would revive the anger posthypnotically, and then was given instructions for the amnesia and/or destructive impulse corresponding to the experimental condition. During the 35 second free association period, G.S.R. measurements were taken. Later the G.S.R. data was analyzed and the free associations were rated using Reyher's (1967) symptom scale.

This procedure failed to produce the type of florid symptomatology or G.S.R. activation which had been observed in previous studies. Neither of the experimental variables had an effect significantly greater than chance. There was, however, a significant experimenter effect even before the experimental procedures were administered and a significant difference between the pre- and post-experiment data. Analysis of these outcomes suggests that the absence of significant symptomatology in this and Veenstra's (1969) study is the outcome of the use of a paramnesia that arouses anger without simultaneously stimulating guilt. The fact that S's were not distracted from the focus of E's interest may have also prevented the occurrence of florid reactions. Finally, the significant experimenter effect points out the

previously unexplored, but highly important, area of experimenter differences in expectations, sex, and personality characteristics.

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A THESIS

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To:
Dr. Thomas Leider
Whose faith and patience made this and all my future work
Possible.

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INTRODUCTION

Early Research on Posthypnotic Conflict

Although the connection between repression and psychopathology, particularly psychosomatic symptoms, is well accepted and documented by clinicians, little research has been done along these lines.

Luria (1932) was a pioneer in the use of hypnosis to simulate unconscious conflicts in normal subjects. Working in Pavlov's laboratory, he had his subjects depress a lever each time they responded to a word from a word association list. Luria hypothesized that the pressing response would become conditioned to any associations to individual words on the list, whether spoken or unspoken. While his subjects were in a hypnotic state, Luria suggested a reproachable act to them involving a serious misdeed on their part and a fear of its discovery. In reaction to the words connected with the induced experience, these subjects exhibited disturbances in both their associations and pressing behavior. Huston, Shakow, and Erickson (1934) replicated Luria's original research, reporting the same type of minor disturbances in sleep, appetite, and affect on the night and day following implantation of the suggestions.

Counts and Mensh (1950) tested the effects of posthypnotic anger aroused through the implantation of a paramnesia (an artificial experience) and directed towards E_1, who administered the Rorschach before and after the induction of the paramnesia. The S's were interviewed by another experimenter, E_2, before and after the implantation of the paramnesia with its associated posthypnotic anger towards E_1. Although the interviews with E_2 revealed S's struggle with anger, the S's Rorschach scores remained essentially unchanged. The single protocol presented in the literature reveals symptomatic reactions by S.

Bobbitt (1958) examined the Freudian theory of repression by equating degree of suggested amnesia with degree of repression. Degree of suggested amnesia for an induced paramnesia and the feelings it arouses was varied in the different conditions, with each S serving under all conditions. The results indicated that suggested complete amnesia for the paramnesia and its associated feelings or suggested complete awareness produced little or no disturbance. Significant disturbances of affect did, however, occur when the S's were only partially aware of the induced conflict and its associated feelings. Simulating S's were not included in the design.

Wolberg (1947) observed psychopathological reactions in two S's as a result of a posthypnotic conflict. He gave these S's the posthypnotic suggestion of an "irresistable " urge to eat a candy bar that was on his desk. Concurrently he told them that they would know that it is very wrong and

impolite to eat candy that does not belong to oneself. One S avoided looking at the chocolate, felt thirsty, dizzy, and faint, broke out into a cold sweat, started to tremble, and experienced a negative hallucination for the candy bar. The other S ate the candy but then developed nausea, stomach pains, and finally vomited up the candy. These informal observations suggest that the apparent pathogenecity of the posthypnotic conflict is related to impulses which become anxiety-producing when activated posthypnotically. Eisenbud (1937) was able to exacerbate a patient's psychopathology by implanting conflicts parallel to the patient's natural conflicts and then discussing the conflicts and the symptoms they produced in psychotherapy.

Conclusions relevant to psychopathology drawn from the preceding studies are restricted by two limitations in experimental design: (1) a method of assessing the demand characteristics of the experimental design is unknown (Orne, 1959; Reyher, 1967); (2) there is no way to separate the effects of direct suggestion from the spontaneous behavior produced by the hypnotically induced process (Reyher, 1962, 1963, 1967). All the paramnesias included suggestions as to how S should react to the paramnesia or hypnotically induced process.

To assess the demand characteristics of the experimental design Orne (1962) recommends using simulating, insusceptible S's with E blind as to whether S is susceptible

or insusceptible. Reyher, however, advises that using susceptible S's eliminates the possibility that distinguishing personality characteristics of insusceptible, simulating S's are correlated with the dependent variable.

Reyher recommends that no suggestions which specify S's behavior should be included; the effects of direct suggestion can then more easily be sorted out from the spontaneous effects of the induced process. If experiments using paramnesias are to parallel normal (non-hypnotic) functioning, the induced process must spontaneously produce S's behavior. Reyher (1962, 1963) has included both of these features in his paradigm for determining the clinical relevance of hypnotically induced psychopathology:

> "First, the induced process must in no way include cues as to how the experimenter expects the subject to respond in any other respect . . .
>
> Second, the induced process must produce other processes and behavior; that is, it must be response-producing.
>
> Third, some of these responses must satisfy the defining criteria for inclusion in some system of psychopathology.
>
> Finally , . . . some of the subjects must be asked by a co-experimenter, unknown to the experimenter, to fake hypnosis in order to determine the demand characteristics of the research." (1962, 348)

Using a paramnesia generating intense posthypnotic anger associated with a destructive impulse, Reyher (1963, 1967) observed that many S's spontaneously repressed the impulses but developed a wide variety of symptoms instead. These symptoms, which occurred in 87% (N=23) of "normal" S's,

included headaches, skin disturbances, nausea, tics, tremors, anxiety, paranoid reactions, and disturbances of affect. Simulating S's neither exhibited symptoms nor showed the same pronounced G.S.R. activation. Under hypnosis the S's were told that certain words relating to the paramnesia were to serve as cues for a sudden experience of rage and the execution of the destructive impulse after they awakened. When these words were later presented tachistoscopically, a posthypnotic conflict was produced. An index of repression based upon S's verbalized awareness of the impulses was (1) inversely related to the frequency of symptoms, and (2) directly related to the proportion of somatic symptoms. Reyher hypothesized that the sudden presentation of words associated with the conflict produces a temporary disequilibrium between repression and the anxiety-eliciting impulses. As a result the individual's own idiosyncratic defenses are brought into play, resulting in the manifestation of symptoms and pronounced G.S.R. activation until either the destructive impulse is acted upon or repression is restored.

Subsequent research from Reyher's laboratory has shed light on the four variables that he feels are critical. These are: (a) sudden surge of overwhelming rage, (b) towards an authority figure, (c) coupled with an overwhelming impulse to destroy property belonging to said authority figure, (d) activated suddenly by a posthypnotic cue (conflict word).

Moore (1964) reduced "a" to "almost overwhelming" instead of "overwhelming" anger and aggression and substituted the interpersonal relationship with E (an interview) as the posthypnotic cue for anger instead of word recognition (d). He found that high achievers experienced more repression of the anger-aggression than did low achievers. Although the incidence of psychopathology was relatively less than what Reyher had reported, it was still substantial (28%).

Perkins (1965) replicated Reyher's procedures and predicted that the TAT protocols of good repressers (S's who did not act upon the destructive impulse) would differ from poor repressers (S's who acted upon the destructive impulse). Pine's scoring system was used to measure (1) degree of drive representation, (2) integration of drive, and (3) socialization of drive. The two groups differed significantly on all three criterion measures. Essentially the same results as Reyher in regard to incidence of psychopathology and its relationship to degree of repression were also reported. A control group of simulating susceptible S's was relatively free of symptoms and showed markedly different patterns of G.S.R. activity.

Basch (1968) using a replicated design confirmed the relationship between degree of repression and frequency of symptoms utilizing non-hypnotic methods (the Byrne Represser-Sensitizer Scale). She rated personality inventory items in terms of degree of drive representation and correlated

this with frequency of reported physical symptoms on a physical health questionnaire. Both of her correlations of .43 and .57, respectively, were significant at the .01 level.

Sommershield (1969) replicated Reyher's procedures, including a sexual paramnesia with oedipal characteristics in addition to the anger paramnesia. Reyher's previous findings were confirmed. Furthermore, the sexual-oedipal paramnesia is apparently more pathogenic than the anger paramnesia: (1) it produced greater spontaneous repression of the posthypnotic impulses as demonstrated by fewer verbalizations of impulse awareness, and (2) it produced more symptoms. Once again a separate group of simulating susceptible subjects differed in terms of symptoms and G.S.R.

Veenstra (1969) has identified 13 variables in Reyher's procedures: (1) Hypnosis, (2) age regression, (3) paramnesia, (4) hypnotic arousal of anger, (5) hypnotic arousal of conflicting emotion, (6) anger associated under hypnosis with critical words, (7) anger directed towards an authority figure in the experimental situation, (8) suggested loss of control on presentation of conflict words, (9) posthypnotic arousal of anger, (10) posthypnotic suggestion of a destructive impulse, (11) induced amnesia, (12) tachistoscopic or sudden presentation of conflict words, and (13) accepting, non-directive experimenter attitude. Reyher believes that anger directed towards an authority figure in the experimental situation (7), posthypnotic arousal of anger (9), posthypnotic

suggestion of a destructive impulse (10), and tachistoscopic or sudden presentation of conflict words (12) are the variables critical to the production of psychopathology.

In his own research Veenstra (1969) eliminated age regression (2), hypnotic arousal of conflicting emotion (5), anger directed towards an authority figure in the experimental situation (7), and posthypnotic suggestion of a destructive impulse (10). This reduced design produced virtually no symptomatology as measured by Reyher's symptom checklist (see Appendix B). Unlike the subjects in Perkins', Reyher's, and Sommershield's experiments, all but one of these S's acknowledged feelings of anger. The only significant disturbance found by Veenstra was in response latency, and he furthermore discovered that direct suggestion was just as effective as the paramnesia in producing this change. It seems likely, therefore, that the critical variable or variables were among those excluded.

Although Veenstra's reduced design, which included the suggested amnesia, produced no psychopathology, Bobbitt's (1958) study indicates that suggested amnesia may also be a critical variable. Bobbitt's design differed from Reyher's in that her paramnesia involved guilt and anxiety rather than anger and in that she examined physiological measures and a conditioned light response rather than verbalizations of impulse awareness and of symptoms. She also used varying levels of suggested amnesia for the paramnesia and its

associated feelings. Reyher, it should be remembered, suggested amnesia only for the paramnesia, not for the emotions attached to it. Nonetheless, Bobbitt's study yielded a strong curvilinear relationship between the extent of suggested amnesia (total, partial, and no amnesia) and the amount of disturbance, with the greatest disturbance occuring when there was partial amnesia.

A recent study by Sheehan (1969) sought to assess Reyher's (1961) findings about posthypnotic conflict using simulating insusceptible subjects as controls instead of using simulating susceptible subjects as controls as Reyher did. Unlike Reyher, Sheehan gave his control S's specific instructions as to how S's should respond to the paramnesia. Since differences in hypnotic susceptibility may be the result of differences in personality, the results of an experiment comparing the effect of an independent variable on susceptible and insusceptible subjects may be confounded by the differences in personalities. Sheehan's controls were inferior to Reyher's in this respect. Sheehan's experiment also did not include what Reyher considers the critical variables for the production of psychopathology: (a) a sudden surge of overwhelming rage, (b) towards an authority figure, (c) coupled with an overwhelming impulse to destroy property belonging to said authority figure. Instead, a reproachable act was used for the paramnesia. In view of these differences from Reyher's design, it is not surprizing that Sheehan found no significant differences between the experimental and control groups.

In Reyher's procedures an amnesia for the paramnesia is suggested to guard against the breakdown of the post-hypnotic conflict. However, it is important to keep in mind that the suggested amnesia for the paramnesia (11) does not include amnesia for the posthypnotic anger (9) and destructive impulse (10). To the contrary, the anger and destructive impulse are strongly suggested to occur posthypnotically.

Sheehan (1969) and Veenstra (1969) present the first evidence that an amnesia for the paramnesia may not be a critical variable in the production of pathogenic post-hypnotic conflict. Veenstra's research is of particular interest because no symptoms were reported or observed when anger was not tied to a destructive impulse. Apparently anger is less anxiety-producing for S when it is not tied to a destructive impulse. To act upon the destructive impulse would increase anxiety to a prohibitive degree because undesirable intrapsychic (anxiety and guilt) and inter-personal consequences (rejection and retaliation) would result.

The destructive impulse (10) and amnesia (11) were the focus of the present investigation. Veenstra's research is of particular systematic importance because all but one S verbalized being angry. There apparently was relatively little repression of the posthypnotic anger, and S's did not manifest psychopathology as measured by the symptom rating scale (see Appendix B). These results are in marked contrast to previous work on Reyher's procedures and strongly suggest that the destructive impulse is the critical variable in

producing repression and psychopathology. Anger alone is not sufficient, although it might be necessary.

The suggested destructive impulses correspond closely to the libidinal impulses in the psychoanalytic construct of repression. According to psychoanalytic theory the impulse should activate the individual's defenses and induce a spontaneous repression of the impulse without the help of the suggested amnesia. The significance of the suggested amnesia is not clear at this point. Bobbitt found that the extent of suggested amnesia significantly influenced the extent of disturbance, but Veenstra observed that the amnesia did not differentially affect the production of psychopathology. Because of this contradiction, we decided to further investigate the effect of suggested amnesia.

Four conditions exhaust the ways these two variables can be manipulated: (1) both the amnesia for the paramnesia and the destructive impulse are suggested, (2) no amnesia is suggested but the destructive impulse is suggested, (3) amnesia for the paramnesia is suggested but the destructive impulse is not, and (4) neither the amnesia for the paramnesia nor the destructive impulse are suggested. The conditions all include posthypnotic suggestion of anger.

The hypotheses to be tested were:

1. The rated frequency of symptoms for the conditions including the destructive impulse differ significantly from the frequency of symptoms for the conditions without the destructive impulse.

2. The central nervous system activation as measured

by galvanic skin response for the conditions including the destructive impulse differs significantly from the C.N.S. activation for the conditions without the destructive impulse.

METHOD

Subjects

The subjects were 16 female college freshmen at M.S.U. who were enrolled in an introductory psychology course and had volunteered for the experiment. Each S had scored 9 or above on the self-scoring version of the Stanford Test of Hypnotic Susceptibility at a group hypnosis session and was free from obvious psychopathology. In addition, each S was capable of achieving posthypnotic amnesia as tested by an additional individual session with the experimenter.

To screen potential subjects, several initial group hypnotic sessions were held. The session was explained to the students as being simply a demonstration of hypnosis. The possibility that attendance might later lead to participation in an experiment was mentioned, but it was made clear that participation in this initial session in no way incurred an obligation to participate in the experiment. At this session the self-scoring form of the S.H.S.S. was administered.

Materials

The experiment was conducted in a sound-proof, ventilated room furnished with two comfortable chairs, a bed, two tables, and the G.S.R. apparatus. The subject sat in one chair with

the apparatus on a table to the right of him and the experimenter sat to her right beside the apparatus. A manuscript reading "Very Important, Don't Touch!" lay on the table next to the reclining chair in which the subject sat. A Grass Model #5 Polygraph was used to record the G.S.R., and finger electrodes manufactured by the Yellow Springs Equipment Co. were attached to the right hand, which had been immobilized through a posthypnotic suggestion.

A list of 15 words was used to stimulate free association. For each condition one third of the words (C words) served as cues for posthypnotic arousal of anger and were matched with five non-conflict words ($\overline{C}$ words) which were used as conflict words in the other condition, and with five neutral words (N words, never used as conflict words). All three word lists were matched for frequency in the English language according to the Thorndike-Lorge word count. The two groups of five conflict words served as N words in one condition and C words in the other condition. Each word was typed in pica type on a plain 3 X 5 index card and was presented singly in random order. The list was as follows:

C or $\overline{C}$	C or $\overline{C}$	Neutral
penny	pickle	triangle
nickle	cookie	rectangle
dime	sandwich	square
quarter	milk	oblong
dollar	bread	sphere

Procedure

A multiple factor nested design was used. Each S served in one experimental condition and then returned for an additional session which included the destructive impulse suggestion if it had been excluded in the previous session or excluded the destructive impulse if it had previously been included. Assignment of S's to experimental conditions was random. The four experimental conditions were: (1) suggestion of the amnesia for the paramnesia and of the destructive impulse, (2) suggestion of the amnesia but not of the destructive impulse, (3) suggestion of the destructive impulse but not of the amnesia, and (4) neither the amnesia nor the destructive impulse suggested.

Female S's scoring 9 or above were contacted by E and asked if they would be interested in participating in an experiment. The S's were told that the purpose of the experiment was to assess the effect of a hypnotically induced paralysis on the G.S.R. Those S's who agreed to participate were asked to come to an individual hypnosis session. During this session E hypnotized S, gave deepening suggestions, and tested a posthypnotic amnesia. To obtain baseline data, an initial presentation of the word list was made after S was awakened. S was asked to free associate to each word for 30 seconds. E refrained from speaking during this and subsequent free association periods.

The instructions given prior to the presentation of the word association list were as follows:

"Now I am going to show you some words. From the time I show you each word until the time I tell you to stop I want you to tell me everything that comes to mind; everything that comes to your attention, no matter what it is. Do you have any questions? All right, let's begin."

At the following session, one week later, S was again hypnotized. While S was in a hypnotic state the paramnesia was implanted using these instructions:

"Now as you continue to rest in a deep, sleep-like state, I'm going to recall to your mind an event which occurred not too long ago. As I recount this event to you, you will recall fully and completely everything that happened. As I recall this experience, you will remember each and every detail fully. Now bear in mind that while I repeat what I know of this event, you will recall fully and completely everything just as it happened, and more than that, you will remember the emotions which you had at this time, and you will feel as you did while this occurrence was taking place. Nod your head if you understand.

"Now the particular event of which I am going to tell you happened at the bookstore. The bookstore was very busy, crowded with people. As soon as you see the bookstore crowded with people, let me know by nodding your head. Nod your head to let me know when you see the large number of people that were milling around. You were carrying a full armload of books and had your money, the bills and the coins

in your hand. On top of the armload of books you had a lunch bag and a hard-bound book that you had really been looking forward to buying. Nod your head when you see that bag lunch and that special book. Having picked up all the books you needed, you walked to the end of the checkout line. Nod your head when you reach the end of the checkout line.

"The line was long. It inched forward so slowly; so slowly that you wondered if it was moving at all. You grew tired of waiting; you were tired and impatient. Nod your head when you feel the impatience you felt then. The line moved so slowly that you grew tired of holding your books. The books became heavier and heavier. Your arms ached from holding them. Nod your head when you feel the aching in your arms. Other people had fallen in line behind you as you waited. You waited and waited and grew more and more impatient and tired; your arms ached more and more. The person behind you shoved into you; this irritated you. Nod your head when you recall the shove. It irritated you that people were so inconsiderate and rude. Out of the corner of your eye you saw a man walking towards you. He pushed his way through the line right in front of you, bumping you and almost making you drop that special book you had been looking forward to reading. Nod your head when you see that man cutting through the line and bumping you. That really made you mad. You were thinking that you'd had just about enough. It would take just one more thing like that to make you boil.

over with anger. You turned your head to see how many people were lined up behind you when someone tapped you on the shoulder. You turned your head back, and you saw that it was the instructor in one of the courses you had enrolled in. He asked you to step back. Assuming that he wanted to go through, you stepped back, bumping into the person behind you, who snapped at you crossly, 'Watch it!' To your astonishment, your instructor stepped into the line, taking your place. That did it! Anger surged up within you. You thought to yourself, 'Who does he think he is?'

"Just then a man who was with him started to step into line, and you stepped forward to close the gap, but he bumped into you, spilling all your books, your money and your bag lunch to the floor. There were books, money, and the contents of your lunch bag all over the place. What a mess! Nod your head if you see it. As you stooped to pick up the books, money, and lunch, your instructor's friend stepped into your place. That made you furious! You picked up a book and saw that the binding was broken; the pages were crumpled and smudged with dirt. It was your favorite book, the special one you had been looking forward to reading. Nod your head if you see the broken book. You were just boiling with anger inside; you were fuming and seething with anger. As you knelt down to pick up your money, books, and lunch, your instructor commented sarcastically, 'You dropped something.' Those words really burned you; you were infuriated.

"As though that was not enough, he turned to his friend and snickered, 'You want to see something funny, look.' Then you heard them both laughing; laughing and laughing; really enjoying your predicament. With every laugh your anger surged up more uncontrollably. You were swept up in overwhelming feelings of anger and rage. You hated these men. Once again you find yourself feeling those powerful emotions. You feel them right now with your whole body.

"Now you can feel your anger fading away with each breath. Your feelings of anger are draining away as you gradually feel more and more calm and relaxed. The memory of the bookstore and your anger are fading away. Nod your head when your anger is gone.

"Now listen carefully. After you have awakened, anything that comes into your mind that is associated with (food or money - alternating) will stir overwhelming feelings of rage."

Following implantation of the paramnesia and while the S remained in a deep state of hypnosis, suggestions were given for amnesia and/or the destructive impulse, depending upon the experimental condition S was to serve in. S's serving in a condition including the destructive impulse were given the following instructions:

"When these feelings of hate and anger boil up you will realize that it is the person who wrote the manuscript on the table next to you that you hate, and you will have an

overwhelming urge to tear them up. Nod your head if you understand."

S's serving in a condition including the amnesia were given these instructions:

"After you awaken, you will not be able to remember anything about your experience in the bookstore. It will be just like a dream that you had while you were asleep that you don't remember after awakening. Just like a word on the tip of your tongue that you just can't remember even if you should try. Nod your head if you understand."

After implantation of the paramnesia and of the experimental condition instructions was completed, S was awakened. Electrodes for the G.S.R. were then placed upon S's fingers, and the equipment was prepared for use. When preparations were completed, S was presented with the words in the word list one by one and was asked to free associate to each word for 30 seconds. A tape recording was made of the associations, and G.S.R. measurements were taken throughout the free association period. Once the word list was gone through, S was rehypnotized, and all suggestions, including the induced paramnesia, were removed.

One week later S returned for the second session. She was again hypnotized and presented with the paramnesia. If the destructive impulse had been suggested at the previous session, it was excluded at this one. If the destructive impulse had not been included in the previous session, it was suggested at this session. Absence or presence of amnesia

was held constant across the two sessions. S was again awakened and presented with the word list. At the conclusion of the free association period, S was rehypnotized and given a posthypnotic cue for recalling and recounting the paramnesia. This procedure provides data indicating whether S accepted the paramnesia as a real experience and provides E an opportunity to note spontaneous distortions and omissions. Special efforts were made to remove all traces of the paramnesia before S was dismissed.

The experiment could be described chronologically as follows:

(1) Group hypnosis session

(2) Individual hypnosis session
Word associations - baseline data

Sessions 3 and 4 varied depending upon the experimental condition S was assigned to. The four patterns were:

Condition: Amnesia and destructive impulse

(3) Hypnosis
Paramnesia - posthypnotic anger
Amnesia and destructive impulse suggested posthypnotically
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed

(4) Hypnosis
Paramnesia - posthypnotic anger
Amnesia suggested posthypnotically; no destructive impulse
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed
S awakened
Discussion of experiment

Condition: Amnesia and no destructive impulse

(3) Hypnosis
Paramnesia - posthypnotic anger
Amnesia suggested posthypnotically; no destructive impulse
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed

(4) Hypnosis
Paramnesia - posthypnotic anger
Amnesia and destructive impulse suggested post-hypnotically
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed
S awakened
Discussion of experiment

Condition: Destructive impulse and no amnesia

(3) Hypnosis
Paramnesia - posthypnotic anger
Destructive impulse suggested posthypnotically; no amnesia
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed

(4) Hypnosis
Paramnesia - posthypnotic anger
No amnesia; no destructive impulse
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed
Discussion of experiment

Condition: No amnesia and no destructive impulse

(3) Hypnosis
Paramnesia - posthypnotic anger
No amnesia; no destructive impulse
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed

(4) Hypnosis
Paramnesia - posthypnotic anger
Destructive impulse suggested posthypnotically; no amnesia
S awakened
Word associations and G.S.R.
Hypnosis - treatment removed
Discussion of experiment

S's were assigned to these four conditions randomly.

Measures

The data in this experiment falls into two categories. One type of data consists of S's verbal responses to the word list. G.S.R. measurements are the other form of data. Only G.S.R.'s of 1,000 ohms. or greater were counted during the 35 seconds following stimulus presentation. S's verbal responses were classified in terms of Reyher's categories of psychopathology (see Appendix B). Category eight, "Disturbance or distortion in perception of the tachistoscopic stimulus," was eliminated in this instance because the words were not presented on a tachistoscope. Category 11, "Delayed awareness of one or both aspects of the conflict" was replaced by "Obsessional statements or ruminations." S's score was the total number of reactions in categories 1 through 11. The rating was done by one individual (an undergraduate psychology major) who was ignorant of the hypotheses under investigation.

RESULTS

Data Description

Statistical analysis can serve only as a summary of the salient characteristics of the experimental data. Of necessity the coding system used for this study excluded many potential observations from examination. For example, the personal attitude of S towards E was not examined, although this E observed wide variation. Some S's expressed a personal interest in E and seemed to regard her as a potential counselor or model for identification. Other S's, on the other hand, were neutral in their attitude towards E and mainly interested in acquiring extra credit for their introductory psychology course.

Another statistically ignored variable was response style. Some S's responded with strings of loosely connected words such as in Protocal 44: "Dollar - bill, green, cash, capitalism, America." Other S's spoke about previous experiences or momentary mental images.

> Protocal 20 - "Dollar - I see these rich men with lots of bills in their pockets. They're handing out money to these handicapped children. I see beautiful houses with . . . You can tell that they cost a lot of money. I see a store with, a furniture store."

Each S exhibited a relatively consistant response style. A subject who recited strings of words during the pre-experimental session continued to do so throughout the experiment. With very few exceptions S's who reported images, experiences, or associations also remained consistant in their response style. More S's in the author's group produced images, experiences, and associations than those in the group run by the other experimenter.

The obvious symptomatology which appeared in these protocals was minimal. There were a few reports of headaches, of coming up with "blanks," but no subject reported feeling anxious or depressed. The majority of the rated symptomatology fell into the category of "conscious correlates." For example, the subject who produced Protocal 9 gave this response to a C word, "Quarter - Fat people, spend money all the time and buy fat foods. No excuse for it. Loneliness, sadness, people fighting, wars."

No S tore up the papers, but three verbalized a special interest in the papers' owner. Only one S appeared to be completely aware of the paramnesia, but even she denied any memory of the instructions on questioning. However, the progression of her associations reveals considerable memory for the paramnesia and awareness of the destructive impulse.

> ". . . Spilled, angry, ticket. Who wrote this? . . . angry, tear, rip, destroy, rage, store, rather hold back, . . . spilled, angry, tear, person, bookstore, mad, scream. . . spilled, whoever wrote that, angry, mad, tear . . . angry, tear, rip, bookstore, mess, mad."

It would appear that this study failed to produce the florid symptomatology reported by Reyher (1958, 1967), Perkins (1965), and Sommershield (1969).

Data Analysis

The data for statistical analysis consisted of G.S.R. responses which had been recorded on paper tape and verbalized free associations which were tape recorded and then transcribed. For the G.S.R. data the maximum deflection in millimeters of the recording pen occuring during the 35 seconds following presentation of the individual word stimulus was used as the basic datum. The free association ratings (using a modified version of Reyher's system; see Appendix B) for each word presented in a particular session to a S were summed across categories 1 through 11, with this sum serving as the basic datum. A separate 2 nested in 2 X 2 X 3 analysis of variance was computed for each type of data from the two experimental conditions. The independent variables tested were: Amnesia (or no amnesia), destructive impulse (or no destructive impulse), word type (C words, $\overline{C}$ words, and N words), and experimenter (Aaron Karnilow or Alice Wolfe). The linear model for this analysis can be described as listed below:

$$Y_{klm/ij} = \mu + \gamma\delta\Pi_{klm/ij} + \alpha\beta\gamma\delta_{ijkl} + \alpha\gamma\delta_{ikl} + \beta\gamma\delta_{jkl} + \gamma\delta_{kl} + \gamma(\Pi)_{km/ij} + \alpha\beta\gamma_{ijk} + \alpha\gamma_{ik} + \beta\gamma_{jk} + \gamma_k + \delta\Pi_{lm/ij} + \alpha\beta\delta_{ijl} + \alpha\delta_{il} + \beta\delta_{jl} + \delta_l + \Pi_{m/ij} + \alpha\beta_{ij} + \alpha_i + \beta_j + e_{klm/ij}$$

This model was generated by Robert Gurney from the principles set forth by Myers (1966) and Lee (1961).

The results of the analysis of variance for the G.S.R. data are shown in Table 1. Using a two-tailed F test with a minimum acceptable alpha level of .05, only two contributions to the total variance are significantly greater than chance - differences in word type (C words, $\bar{C}$ words, and N words) and the interaction between experimenter and amnesia. (Both were significant beyond the .01 level.) Neither the amnesia nor the destructive impulse, the two experimental variables, had a greater than chance effect.

An identical 2 nested in 2 X 2 X 3 analysis of variance was performed on the verbal data with the results as listed in Table 2. This time three contributors to the total variance had a significant effect: 1. Experimenter differences, 2. differences in word type, and 3. the interaction between experimenter and word type. Comparison of the G.S.R. data to the verbal data reveals one consistantly

TABLE 1

G.S.R. Data - 2 Nested in 2 X 2 X 3 Analysis of Variance*

Component	F	Degrees of Freedom	p>.05	Eta^2
A	.4664	1/12	no	.0062
B	3.8495	1/12	no	.0516
C	12.9733	2/24	.01	.1277
D	1.0879	1/12	no	.0115
AB	14.9368	1/12	.01	.2002
AC	.3576	2/24	no	.0035
AD	.1930	1/12	no	.0020
BC	2.9540	2/24	no	.0290
BD	.6742	1/12	no	.0071
CD	1.7237	2/24	no	.0140
ABC	.6401	2/24	no	.0063
ABD	.0123	1/12	no	.0001
BCD	.9506	2/24	no	.0077
ACD	1.0460	2/24	no	.0084
ABCD	2.4961	2/24	no	.0202

A = amnesia

B = experimenter

C = word type

D = destructive impulse

* 2 Tailed Test of Significance

TABLE 2

Verbal Data - 2 Nested in 2 X 2 X 3 Analysis of Variance*

Component	F	Degrees of Freedom	p > .05	Eta^2
A	.2017	1/12	no	.0045
B	6.7476	1/12	.05	.1517
C	5.6619	2/24	.01	.0827
D	1.9074	1/12	no	.0137
AB	.2197	1/12	no	.0049
AC	.6875	2/24	no	.0100
AD	.8690	1/12	no	.0062
BC	4.3844	2/24	.05	.0640
BD	2.0039	1/12	no	.0144
CD	1.2580	2/24	no	.0070
ABC	1.2449	2/24	no	.0181
ABD	.8058	1/12	no	.0058
BCD	1.5461	2/24	no	.0087
ACD	.5097	2/24	no	.0028
ABCD	1.0111	2/24	no	.0056

A = amnesia

B = experimenter

C = word type

D = destructive impulse

* 2 Tailed Test of Significance

significant effect -- differences in word type. This result suggests that the three categories of words were either initially different in their response eliciting qualities or that the words in each category were affected in a different fashion by the experiment.

Eta^2 was computed for all sources of variance generated by both types of data (Tables 1 and 2). Subject differences accounted for 27% of the variance of the verbal data and 16% of the variance of the G.S.R. data. When the interactions of subject differences with other experimental variables were added, 60% of the verbal data variance and 50% of the G.S.R. data variance was accounted for. The great contribution of subject differences to the total variance is an expected result in this research, since individual differences in personality type and degree of pathology should differentially affect response style.

To determine whether the significant experimenter and word type effects were obscuring small but significant main effects, separate 2 X 2 analyses of variance were performed on both types of data. For these analyses only the two critical variables (amnesia and destructive impulse) were taken into consideration. Out of these 12 analyses of variance, there was only one significant F ratio, the effect of amnesia on $\bar{C}$ words with the author as experimenter. Since there were 36 F ratios altogether, the occurance of one significant F would occur with approximately .97 probability.

Because the two critical variables tested (amnesia and destructive impulse) had no significant effect in the 2 nested in 2 X 2 X 3 analysis of variance for either type of data, a 2 nested in 2 X 3 analysis of variance was computed for the verbal data, comparing the baserate data to that produced by the first experimental session. Again a two tailed test of significance with a minimum alpha level of .05 was used. Surprisingly, every independent variable and all their interactions had significant F ratios (See Table 3). Thus it would appear that not only was there a significant (.05) difference between the baserate and Condition I data, but there was also a significant (.01) amount of variation in word type and experimenter. Since the significant word type and experimenter differences appeared in the larger analysis of variance, only the condition difference (baserate vs Condition I) provides a new bit of information. Apparently something in the experimental procedure was associated with a change over baserate levels of rated symptomatology.

Since both experimenter and word type variables produced significant F ratios in the baserate vs Condition I analysis of variance as well as in the Condition I vs Condition II analysis of variance, an additional 2 X 3 analysis of variance was performed on the baserate data. (See Table 4.) There was a significant (.05) experimenter effect even before the experimental treatments were administered. However,

TABLE 3

Verbal Data - Baserate vs Condition I,

2 X 2 X 3 Analysis of Variance*

Component	F	Degrees of Freedom	p > .05
B	14.0815	1/14	.01
C	8.1455	2/28	.01
E	7.2123	1/14	.05
BC	8.7648	2/28	.01
BE	5.0085	1/14	.05
CE	7.4774	2/28	.01
BCE	5.7466	2/28	.01

B = experimenter

C = word type

E = condition (baserate vs Condition I)

* 2 Tailed Test of Significance

TABLE 4

Verbal Data - Baserate 2 X 3 Analysis of Variance*

Component	F	Degrees of Freedom	p .05
B	7.0422	1/15	.05
C	.0279	2/28	no
BC	3.6328	2/28	.05

B = experimenter

C = word type

* Two Tailed Test of Significance

there were no meaningful differences between the three types of words before experimental treatment was administered.

The chief statistical findings as measured by a variety of analyses of variance can be thus summarized: Even before the experiment began there was a significant difference either in the subjects chosen by the two experimenters or in the way the experimenters affected the subjects. On the other hand, the three categories of words were approximately equal in their symptomatology-eliciting effect before the experiment was begun.

As reflected in the verbal data, there was a significant difference in rated symptomatology between the pre-experimental and post-experimental conditions. Therefore, something in the experimental procedure was associated with a change in rated symptomatology. Furthermore, the addition of the experimental procedure also produced a significant difference in the rated symptomatology elicited by different word types (C words, $\overline{C}$ words, N words).

When the experimental variables (amnesia and destructive impulse) were analyzed in a 2 nested in 2 X 2 X 3 analysis of variance for the verbal data, they had no significant effect. Even when this data was broken down by experimenter and word type, the experimental variables still had no effect greater than that attributable to chance. An identical analysis of variance performed on the G.S.R. data similarly

indicated that the experimental variables had no significant effect on the G.S.R.

As suggested in the proposal, R (repression) was computed using Reyher's formula (see Appendix A) for each S in each of the baserate and experimental conditions. The results of this computation are listed in Table 5. It should be noted that there is actually an inverse relationship between repression and the computing formula, which evaluates the amount of conscious expression of the repressed material. This data was not, however, recomputed, since neither the differences between the groups nor the variation within the groups would change with the conversion. A T-test was computed on the baserate repression data comparing S's run by the two different experimenters. Not only was the difference between the means significant ($p = .025$), but there was also a large difference in the amount of variation within the two groups. Variance within the group run by the author was 20.00, while variance within the group run by the other experimenter was 1.19.

One hypothesis might account for such a difference in variance. Subjects may be categorized according to response style or personality type as reflected in the repression score. Perhaps some error in experimental procedure placed nearly all S's of one type in Mr. Karnilow's group but mixed them with other types of S's in the author's group. If this was the case, the experimental variables might still have a

TABLE 5

R (Repression) As Computed Using Reyher's Formula

		Baserate	Condition I	Condition II
E_1	S_1	- .1334	.4002	3.0000
	S_2	- .9338	- .8004	0.0000
	S_3	- .8671	1.0000	1.0000
	S_4	- .6003	.8004	- .2001
	S_5	- .3335	.4002	1.0000
	S_6	- .7337	3.2001	3.6003
	S_7	- .2668	.2001	0.0000
	S_8	- .9338	.4002	.8004
E_2	S_9	- .8671	- .8004	- .8004
	S_{10}	- .9338	-1.0000	- .6003
	S_{11}	- .9338	-1.0000	-1.0000
	S_{12}	- .8004	-1.0000	- .8004
	S_{13}	-1.0000	- .8004	-1.0000
	S_{14}	- .8004	- .4002	-1.0000
	S_{15}	- .8004	-1.0000	0.0000
	S_{16}	- .9338	.4002	- .8004

significant effect when only one group of S's was considered. To test this hypothesis, all S's with baserate repression scores ranging between -.86 and -1.0 were arbitrarily placed in one group.

A 2 X 2 analysis of variance was computed for this group of S's, using the C word verbal data only. By coincidence, the cell frequencies were equal. Neither of the experimental variables produced significant F's. In fact the F ratios for both the amnesia and the destructive impulse were approximately zero. While the F ratio for their interaction was larger (3.85), nevertheless, it was not significant at the .05 level of probability.

A similar 2 X 2 analysis of variance was performed on the seven S's with the highest R scores. This time the cell frequencies were unequal. Once again, none of the F ratios were significant.

It would seem, therefore, that no matter how the data is rearranged, the experimental variables have no significant effect.

DISCUSSION

The results of this study do not confirm the tested hypotheses. None of the analyses of variance, ranging from the largest, which took experimenter and word types into consideration, down to the smallest, which looked separately at each destructive impulse - amnesia interaction for each experimenter and word type, revealed any significant effect of the destructive impulse or its interactions. Even when an attempt was made to regroup the subjects by repression scores, the destructive impulse appeared to exert virtually no effect. This lack of significance was equally true for either G.S.R. or verbal data.

When we examine the other experimental variable, suggested amnesia, we again discover an absence of significance. By itself, suggested amnesia had a significant effect only in one of the 12 separate 2 X 2 analyses of variance. Since this was the only significant F ratio out of a group of 36 F ratios, it may very well be a chance effect. In the 2 nested in 2 X 2 X 3 analysis of variance for G.S.R. data, the interaction between suggested amnesia and experimenter was significant at the .01 level. This effect did not appear in the verbal data analysis.

The significant amnesia-experimenter interaction is, perhaps, part of the larger effect of experimenter differences. Even before the experiment was begun, there was a significant difference between the experimenters' subjects in terms of mean repression score. Variance around these means was 1.19 for one experimenter and 20.00 for the other. Taking only the verbal data into consideration, there was a significant experimenter effect throughout the experiment which showed up in all the analyses of variance. For the G.S.R. data in the 2 nested in 2 X 2 X 3 analysis of variance, the experimenter effect by itself did not have a significant F ratio, but its interaction with suggested amnesia was significant at the .01 level.

The consideration of experimenter differences provides an incidental, but very important, experimental variable. None of the studies to be reviewed below used more than one experimenter. Yet, using virtually the same procedure some experimenters (Reyher, Perkins, Sommershield) derived significant results, while others (Veenstra, Larison) had no significant findings.

Previous Findings

This entire line of research is an outgrowth of Reyher's (1958) doctoral dissertation, "Hypnotically Induced Conflict in Relation to Subception, Repression, Antisocial Behavior and Psychosomatic Reactions." Although the

experiment was designed to test perceptual defense as a function of an induced conflict, Reyher found that his subjects experienced various symptomatic reactions which were reflected in the side comments they made while reporting what they saw on the tachistoscope screen.

In a post-doctoral study (1967) Reyher replicated his original research with only minor modifications in the procedure. His purpose was to further examine the psychopathological reactions displayed by his subjects in what had originally been designed as an experiment on perceptual defense. This second experiment differed from the first both in the inclusion of simulating, control subjects and in the variation of the strength of the anxiety-arousing impulses posthypnotically over a scale from 1 to 4. Once again there were vivid symptomatic reactions, and the intensity of these symptoms seemed to increase as the posthypnotic signals for increasing the strength of the induced impulses were given.

There are a number of procedural differences between Reyher's research and the present study. To begin with, the S's attention was focused on the cognitive task of recognizing words flashed briefly on the tachistoscope screen. They were not aware that incidental comments about their subjective reactions were of interest. In the present study S's were alloted no task other than reporting their subjective impressions (free associations). Whereas in Reyher's

studies S's responses were either correct or incorrect, S's were told to report anything which came to their minds in this research. It seems most likely that the former procedure would produce a higher level of anxiety than the later, which is less evaluative.

While Reyher varied the intensity of impulses during each session in his replication study, the instructions to S's were uniform throughout this study. The emphasis placed on intensifying various aspects of the conflict may have made it seem more real to the subjects and thus be more pathogenic.

Perkins' (1965) study "Repression, Psychopathology, and Drive Representation: An Experimental Hypnotic Investigation of the Management of Impulse Inhibition" further investigated Reyher's (1958, 1967) findings. The major innovations in Perkins' study included the division of S's into good and bad repressers on the basis of their awareness of the conflict and the addition of a control group of simulating S's who were themselves capable of achieving a deep trance state. S's were also given TAT's following the one experimental session. S's again focused their attention on looking at the tachistoscope screen rather than monitoring their personal reactions. The intensity of the conflict and its various elements was varied during the experiment.

The results of Perkins' experiment revealed that the behavior of the hypnotized S's was qualitatively different from that of the simulating S's. As the intensity of the conflict was increased, there was a progressive rise in the rated symptomatology of the good repressers. Poor repressers were initially at a high level of rated symptomatology which first increased and then decreased to a point below that of the good repressers. It would appear, therefore, that the suggested intensification of the conflict had some influence on the experimental results.

These results were confirmed in a study by Sommershield (1969), "Posthypnotic Conflict, Repression and Psychopathology." Sommershield's procedure was similar to that of the present study in that the stimulus words were presented on index cards. S's were told to pronounce each of 57 words and then report to E on 'how they were doing'. However, in addition to this task S's were given the TAT prior to the first experimental session and a symptom questionnaire following the last session. Furthermore, a different paramnesia was used in each of the two experimental sessions to test the effectiveness of a sexual conflict as opposed to a hostile-aggressive conflict. Finally, all of Sommershield's S's were males.

The symptomatic reactions observed by Reyher and Perkins were also observed by Sommershield. He found that the sexual and aggressive paramnesias were approximately

equal in their pathogenicity as measured by G.S.R. and rated symptomatology. Using the TAT as a measure of degree of repression, Sommershield found a significant negative correlation between degree of repression and frequency of symptoms.

A fourth attempt to replicate Reyher's results failed to produce significant symptomatology. The focus of Veenstra's (1969) study, "The Effectiveness of Posthypnotically Aroused Anger in Producing Psychopathology," was to examine the effective pathogenicity of direct suggestion as opposed to the paramnesia. While the study revealed that these two methods of conflict induction were equally effective, the lack of significant symptomatology in this experiment puts this conclusion in question. Veenstra attributed this lack of symptomatology to the absence of the destructive impulse in his experimental design.

Veenstra's procedure was nearly identical to that of the present study. He used the same paramnesia and virtually identical instructions. Each S was asked to free associate to each word on the word list for 20 seconds and then report his emotions and feelings afterwards. Prior to the experiment, S's were given practice in free association, which may have biased the type of response offered. An additional similarity to the present study lay in the addition of a no amnesia condition. All but one of the subjects in Veenstra's experiment acknowledged angry feelings and displayed little or no symptomatic reaction.

Though not yet written up, a followup to the present study was conducted by Grey Larison to determine whether the specific wording of the instructions given to S on how to report his impressions was responsible for the lack of results in the present study. Larison's procedure differed from that of the present study only in that he varied the free association instructions with the "pump priming" instructions used by Sommershield, Perkins and Reyher. In both conditions there remained an absence of significant pathology, thus suggesting that the instructions were not responsible for the lack of results.

Another, as yet incomplete, study conducted by Bruce Burns has produced florid symptomatology like that which appeared in the earlier studies of this series. Burns used Sommershield's oedipal paramnesia to create a conflict stimulated by the posthypnotically anticipated appearance of the woman in the paramnesia. Rather than have his S's pronounce a list of words or identify words displayed briefly on a tachistoscope screen, Burns asked his subjects to close their eyes and describe any visual images or emotions which came to awareness.

Burns' experiment differs from the previous line of research in its use of free imagry (Reyher, 1963; Reyher and Smeltzer, 1968; Reyher and Morishige, 1969) to stimulate images, sensations, and symptomatology. The stimuli were spontaneous visual images (primary process material) rather

than words (cognitive, secondary process material) presented by the experimenter. It is to be expected that the images, which tap a primitive level of integration, would stimulate even more primary process elaboration than the word stimuli used in the present research. Although this experimental procedure differs significantly from that used in the previous line of research, the fact that symptomatic behavior was associated with materials reflecting the induced conflict once again confirms the effectiveness of the hypnotic paradigm in producing symptomatology.

Procedural Elements

Out of the 13 variables in the hypnotic paradigm which Veenstra (1969) identified, he reported eliminating five: Age regression, hypnotic arousal of conflicting emotion, anger directed towards an authority figure in the experimental situation, and posthypnotic suggestion of a destructive impulse. A major idea behind the present study was that the omission of the destructive impulse was responsible for the absence of symptomatology from Veenstra's study. However, the variation of the destructive impulse did not significantly affect the results in the present study.

On the other hand, both this study and that of Veenstra excluded the age regression variable. Excluding age regression was a function of the particular paramnesia used. While the bookstore paramnesia used in this study takes place in

the immediate past, the paramnesia used by Perkins (1965) takes place during S's childhood, when he was in sixth grade. It is difficult to imagine why the age of S in the paramnesia should make great difference in the production of symptoms, except that childhood incidents frequently have a greater impact than those which occur during adulthood. On the other hand, the intensity of the conflict may very well contribute to the pathogenicity of the paramnesia.

In Sommershield's anger paramnesia S commits a reprehensible act (breaking an art object) and then is insulted (made to feel guilty) by the authority figure in the conflict. Similarly, Sommershield's sexual paramnesia taps guilt by having S imagine making love to an older woman and then realize his inadequacy to satisfy her, thus reactivating the oedipal conflict. Guilt is also activated by Reyher's (1958) anger paramnesia. Here S steals some money and then is blackmailed by a fellow student who serves later as the authority figure in the induced conflict. This same paramnesia was used successfully by Perkins (1965).

In all these paramnesias S has already performed a reprehensible act before he is asked to act out posthypnotically. In the paramnesia used in the present study S has no reason to feel guilty if she does not tear up the "important" paper unless anger is wholly inacceptable to her superego. Even this act might be considered justifiable because the professor taunts S without provokation. On the

other hand, with the other paramnesias S has reason to feel guilty even before he tears up the papers; in fact S's anger serves to defend against acknowledging his guilt. Therefore, to tear up the papers would involve not only expressing anger in an antisocial destructive fashion but would also mean that S was offering the authority figure sufficient reason to again point out S's guilt over having performed the initial reprehensible act.

From a psychodynamic orientation, the paramnesias used by Reyher, Perkins, Sommershield, and Burns should be far more pathogenic (anxiety arousing) than the paramnesia used by Veenstra and in the present study. In the former paramnesias S's superego is actively involved in disapproving of S's having acted on libidinal impulses. Either S feels guilty, or his ego defends against the guilt. The introduction of the conflict-inducing instructions not only introduces a new libidinal impulse (aggressive acting out) to be defended against but also threatens to reactivate the initial superego reaction. In this instance ego is threatened by a strong superego reaction from two sides and is thus highly likely to activate its characteristic modes of defense. On the other hand, in the Veenstra paramnesia S risks a superego reaction only if he tears up the papers, and even then, his mechanisms of defense are called into play only if aggressive acting out under duress is inacceptable to his superego. It is easy to understand why no S in this study either tore up

the papers or exhibited outstanding symptomatology. If aggressive impulses are acceptable to S when they are not acted upon, then S can entirely avoid the conflict and the need for defense by failing to tear up the papers.

In the present study and that of Veenstra, S was instructed only once during each experimental session to tear up the papers. However, Reyher (1967), Perkins, and Sommershield all had their S's experience the antisocial impulse at several different intensities. In the procedure used by Perkins and Sommershield, S was advised by E during hypnosis that S would experience the destructive impulse at each of three (as opposed to Reyher's four) different intensities as triggered by a posthypnotic signal. Very possibly an impulse suggested under hypnosis and reinstituted several times by a posthypnotic signal is more actively pathogenic than an impulse suggested only once in the trance state. However, the validity of this conclusion is questionable since significant symptomatology appeared without the posthypnotic intensification of the impulses in Reyher's original study (1958) and in the Burns (1971) study.

Another possible contributor to the positive outcome of the early studies and the negative results of the present study is the focus of S's attention during the data collecting period. Reyher and Perkins both had their S's identify words presented briefly on a tachistoscope screen. This task in itself was anxiety arousing because S's answer was either

correct or incorrect. The verbal comments S made about his reactions were seemingly not the focus of E's investigation. Therefore, it seems likely that S would not put much effort into censoring what he said.

Sommershield's study, on the other hand, used much the same mode of stimulus presentation as the present study. S's were asked to pronounce each of 27 words, free associate to them, and then comment on their feelings during the free association period. This procedure differs from that of the present study only in the addition of the comment period following free association. However, Sommershield used a different list of 27 words for each of his two experimental sessions, while the same list of 15 words was presented to each S three times during the present study. In Sommershield's study S may have accepted pronouncing the words as a task with a correct or incorrect response. It was, however, clear to S in the present study that E was interested in his free associations. The likelihood that S would censor his verbalizations was probably greater in the present study than in any of the earlier, more successful research.

Experimenter Effects

As reported in the section on results, there were significant experimenter differences in repression scores and rated symptomatology even before the experimental instructions were presented. This finding introduces a new dimension to be considered as contributing to the experimental

outcome. At least three factors may be responsible for the experimenter differences: 1. Subject selection, 2. Variations in procedure, and 3. Demand characteristics.

Although the same procedure for subject selection was used by both experimenters in this study, subjects were not randomized across experimenters to control for selection differences. Certainly this control would have been advisable, but it would have lengthened the time required to complete the experiment beyond reasonable limits since far more potential subjects would have necessarily been rejected. Studies by Shor & Schatz (1960) and Dorcus (1963) indicate that hypnosis is a phenomenon specific to a particular subject and a particular hypnotist; a subject capable of achieving a deep trance state with one hypnotist may not necessarily reach the same depth of hypnosis with another hypnotist.

Selection factors were probably operating in this experiment. S's first volunteered for the experiment knowing they would be hypnotized. Although extra credit towards their grade in introductory psychology served as the external motivation for subjects to volunteer, there must have been special reasons why they volunteered for this particular experiment. Further, a considerable number of S's who wrote their names on the signup sheet did not come to the group hypnosis session. Since E contacted S by phone to inform her of the date and location of the group, it is possible that

certain volunteers chose not to come because they did not feel comfortable with the idea of being hypnotized by a member of the same or opposite sex. Thirdly, at the group hypnosis session S met E, was hypnotized, and then was asked to report on the depth of the trance achieved. At this point S probably made some evaluation of E in terms of competence and trustworthiness, and this evaluation might well have been unequal for the two experimenters. In the observation of the author, some S's who appeared to be in a deep state of hypnosis reported achieving only a light trance on the questionnaire. Was this report made out of an accurate subjective impression, or did S deny the depth of trance because she was made too uncomfortable by the idea of relinquishing control to a female peer? It is impossible to state the answer definitively, but this is certainly a fertile area for future research.

Finally, the significant experimenter effect may have been the outcome of the different demand characteristics created by the two experimenters. The fact that one experimenter was male and the other female could have altered S's perceptions of expected behaviors. For example, the greater symptomatology found in the data acquired by the female experimenter might have resulted from a greater willingness on the part of the female S's to express their emotions to another woman. To admit these feelings to a male could have been perceived by S as an invitation to a more intimate

(sexual) relationship with the male E. On the other hand, some female S's may have unconsciously interpreted the hypnotic induction by the female E as a homosexual assault. As a result, greater anxiety would be aroused and thus ultimately more symptomatology would appear.

The two experimenters may also have unconsciously affected the data differentially through nonverbal expressions of their expectations. Direct verbalization of anger towards E may have been less acceptable to one experimenter than the other. Again, one experimenter may have expected S to respond in a different fashion than the other experimenter. This hypothesis seems likely in view of the fact that one experimenter elicited virtually nothing but strings of words from his S's, while the other E also had S's who spoke in phrases and sentences, reporting images and experiences. Finally, one experimenter may have expected more pathology to appear than the other expected.

Word Type Differences

Although the experimental variables had no significant effect, the experimental procedure was effective in producing a significant change in differences in rated symptomatology for the three groups of words (C words, $\overline{C}$ words, and N words). Before the experiment the three groups of words were approximately equal in their rated symptomatology. After the first experimental session, however, there were significant

differences between the three word types on rated symptomatology. Furthermore, the destructive impulse - no destructive impulse conditions differentially affected the three word types.

In essence these results confirm that a single suggestion was effective, the suggestion that mention of a certain class of words would stir up overwhelming feelings of anger. The change in the class of words which produced the greatest amount of rated symptomatology can be simply accounted for by the fact that the class of words mentioned in the posthypnotic suggestion was shifted either from food to money or vice versa across the two experimental sessions. There is no need to assume that the inclusion or exclusion of the destructive impulse had any influence on the differences in rated symptomatology between the three classes of words.

On the other hand, the existance of these significant effects suggests that the experimental procedure did have some effect. It would seem unlikely in view of the success of this suggestion that the experimenters somehow presented the instructions in such a fashion that the S's rejected them. This finding further supports the hypothesis that the ineffectiveness of the paramnesia is responsible for the absence of significant pathology in the experimental findings. If the experimental variables coupled with the paramnesia had been as powerful stimulators of impulses as the direct suggestion of anger, the results of this study would probably have been far more significant.

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APPENDIX A

"If repression is assumed to be the opposite of verbalized awareness, then an index of repression can be devised simply by counting instances of verbalized awareness:

$$R = \frac{3\Sigma(FA) + 2\Sigma(PA) + \Sigma(CC) - \Sigma(CR)}{Tc}$$

where R is the average degree of repression over the experimental sessions; FA, full awareness upon c-word recognition; PA, partial awareness upon c-word recognition (awareness of either the hostility or destructive impulse); CC, conscious correlates of the unconscious hostility upon c-word recognition, such as feelings of annoyance with the task of recognizing words; CR, complete repression upon c-word recognition (no instances of symptoms or awareness); and Tc, the total number of conflict words recognized.

In view of the omnipresent possibility of suppression of the verbalizations of experienced affect upon the recognition of c-words, instances of full awareness were considered to be more important in assessing the average degree of repression than were partial awareness . . . Conscious correlates are assumed to indicate the mislabeling of the conscious representations of the relevant dynamics. The S is aware of some affect, but it is weak enough so that his cognitive appraisal

of it may be distorted. Instances of c-word recognition with no verbalized awareness and no symptoms were assumed to be the outcome of complete repression."

(Reyher, 1967, 130-131)

APPENDIX B

Reyher's Symptom Classification Scale

1. Symptoms characterized by the dominance of autonomic system enervation such as feelings of nausea, gastric distress, headache, tiredness, sleepiness, tachycardia, pressure in head, sweating, skin disturbances, flushing, organ dysfunctions, heaviness, temperature alterations, and such feelings as "queasy" and "antsy."
2. Symptoms dominated by enervation of the somatic or muscular nervous system such as stiffness, aches, pains, tension, tics, tremors, physical discomfort, and so on.
3. Disturbances of affect
   a. Flattening: lack of feeling, apathy, and the like upon the recognition of a c-word, when symptoms usually attend c-word recognition.
   b. Superego reactions: feelings of being alone, abandoned, ashamed, depressed, disgusted, guilty, worried, and so on.
   c. Inversion: definite feelings of well-being on the recognition of a c-word.
   d. Alienation: feelings that seem weird, strange, odd, unreal, unnatural, foreign, and so on.

4. Unspecified distress that cannot be clearly categorized as either physical or emotional in nature, in S's frame of reference, and are expressed in such conventional terms as being upset, fidgety, jittery, nervous, on edge, restless, and bothered.
5. States of emotional agitation that reflect the reaction of the ego to the threat of complete breakdown of repression, such as feelings of anxiety, fear, apprehension, and terror.
6. States of confusion, doubt, and disorientation that include statements that one's thoughts are being pushed or pulled and that the content of thought cannot be specified.
7. Dissociative reactions
   a. Somatic and ideational delusions such as limbs feeling detached, "crazy" thoughts and intruding paranoid ideas.
   b. Strong compulsive urges not carried out in behavior, such as wanting to move hands around, scratch at something, and so on . . . .
   c. Compulsive destructive urge acted out in behavior without awareness of the relevant hostile or destructive impulse, such as hitting or picking at the papers without knowing why, including destructive acts not directed at the papers.
8. Disturbance or distortion in perception of the tachistoscopic stimulus.

9. Derivatives of the induced conflict. These are symbols of the induced experience and/or the repressive forces themselves.
10. Conscious correlates of the unconscious hostility, such as feelings of irritation, annoyance, and frustration.
11. Delayed awareness of one or both aspects of the conflict.
12. Immediate awareness of one aspect of the conflict.
13. Immediate and complete awareness of both aspects of the conflict.

(Taken from Reyher, 1967)