THEMATIC PRODUCTIONS UNDER HYPNOTICALLY AROUSED CONFLICT IN AGE REGRESSED AND WAKING STATES -USING THE "REAL-SIMULATOR" DESIGN

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ABSTRACT

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By

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In recent years, there has been a growing controversy surrounding the nature of hypnosis. Two recent and extensive studies (Reiff and Scheerer, 1959; O'Connell, Shor, and Orne, 1970) attempted to determine the role of "demand characteristics" in hypnotic age regression research. Both lacked two very significant features; neither study used highly susceptible Ss to simulate hypnosis and neither study used a task which was relatively difficult to simulate (i.e. non-cognitive). In the present study, hypnotic and simulating Ss were highly susceptible to hypnosis. Also, in addition to a structured cognitive task (vocabulary subtest of the WISC or WPPSI), thematic stimuli were used to hypnotically activate conflict. The Ss were asked to regress to an age when this conflict was most intense. The descriptions of the experiences were compared between the hypnotic and simulating Ss.

It was hypothesized that simulating and hypnotic Ss would not differ in their performance on a highly cognitive, structured task in the regressed or waking conditions. As predicted, it was found that there were no significant differences between the groups in the waking condition. However, simulating Ss actually produced more age appropriate performance than hypnotic Ss in the regressed condition. Simulating Ss achieved age appropriate vocabulary scale scores (WISC or WPPSI) while hypnotic Ss achieved higher than expected scale scores. This difference may be ascribed to the surrendering of critical attitudes under hypnosis, while the simulators continue to utilize critical attitudes for more accurate performance.

It was also hypothesized that hypnotic Ss would give more direct drive expression responses in the age regressed condition than hypnotic Ss in the age regressed condition. The hypothesis was not confirmed, although the differences were in the expected direction and approached significance. It was further hypothesized that hypnotic Ss would more readily change their waking thematic productions than the simulating Ss. A methodological difficulty prevented a conclusive test of this hypothesis. However, the available data supported the hypothesis. It was also observed that four hypnotized Ss produced intense emotional reactions, while none of the simulating Ss produced such reactions. Additionally, hypnotized Ss reported more vivid and emotional experiences during the age regressed condition than the simulating Ss.

The findings taken together partially supported the altered state of consciousness theory of hypnosis and certainly presented some contradictory evidence for the role-playing theory of hypnosis.

Methodological issues were also discussed intensively. The use of highly susceptible Ss was considered a very workable method of controlling for possible differences in personality, in the real-simulator design. However, since some of the procedures of the study may have weakened the effect of the hypnosis, improvements in the design were suggested. The possibility was also considered that instructional differences (simulation vs. hypnosis) may contribute to the differences or lack of them, in behavior during the experiment. A design was suggested which incorporated the methodological changes and provided a more effective analysis of the treatment effects.

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Leon J. Schofield, Jr.

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To my wife, Pat,

for the years of patience, understanding and love.

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INTRODUCTION

For both experimenters and clinicians, hypnotic age regression has been one of the most interesting of all the phenomena associated with hypnosis (O'Connell, Shor and Orne, 1970). This study examines thematic productions under hypnotically aroused conflict in the age regressed and waking states using a recently developed experimental design, the "real-simulator" design (Orne, 1959).

Early Findings:

According to Platonow (1933), Kraft-Ebing was the first to demonstrate the phenomenon clinically in 1893. However, hypnotic age regression was not experimentally studied until forty years later, when Platonow (1933) observed that three hypnotically regressed subjects performed at levels appropriate for the suggested age level when given an intelligence test at each age level; their general behavior and their handwriting also were appropriate for the suggested age levels.

Platonow's findings have been confirmed by subsequent research using intelligence tests (e.g. Binet, Otis, Goodenough Drawings) under hypnotic age regression (Keir, 1945; Spiegel, Shor and Fishman, 1945; Bergmann, Graham and

Leavitt, 1947; Mercer and Gibson, 1950). Subjects have also demonstrated age appropriate responses using the Rorschach under hypnotic age regression (Bergmann, et. al., 1947; Mercer and Gibson, 1950). Additionally, in a unique attempt to validate age regression, Kline (1953) has reinstated several of Jersild's (1935) fear provoking situations with an adult subject hypnotically age regressed to early childhood.

Experimenters have also used projective testing (DAP, Rorschach, TAT) under hypnotic age regression to study the attitudinal and emotional states of individuals at various points in their past (Bergmann, et. al., 1947; Mercer and Gibson, 1950; Kline and Guze, 1951; Reyher and Shoemaker, 1961; Kline and Haggerty, 1963). The data obtained frequently confirmed or expanded impressions gained through more conventional diagnostic and or interview procedures. Mercer and Gibson (1950) for example, have noted that "the test (Rorschach) data reflected changes at the various regressed age levels which were consistent with productions characteristic of the age level and followed the clinical data so clearly that there seems to be no doubt that true regression was established."

Later Findings:

These early studies have not gone unchallenged, however. It has been frequently noted that most of the hypnotic regression studies have been inadequately designed (e.g. Crasilneck and Michael, 1957; Orne, 1959; Barber, 1962; Orne, 1962). The most important omission in the early studies cited above,

was a lack of unhypnotized control subjects. Critics have pointed out that such controls are necessary because "unstated hypotheses may be conveyed implicitly by the experimental procedure itself (demand characteristics)" (Orne, 1959), affecting the results, apart from the effects of hypnosis itself. The question has therefore been raised whether hypnotic-like phenomena can be reproduced by unhypnotized but highly motivated subjects. Stated differently, can hypnotized phenomena, particularly age regression phenomena, be ascribed to role playing (attention to the demand characteristics), rather than the psychophysiological changes supposedly peculiar to the hypnotic state?

Young (1940) carried out the first regression study using subjects (unhypnotizable) role-playing[1] behavior at suggested age levels. It was found that the role-playing subjects performed closer to the suggested age level than the hypnotized subjects, using a standard intelligence test as a criteria. However, both groups also performed somewhat above the suggested age level on the test. Sarbin (1950) and Barber (1961) found similar results. The finding that role-playing subjects actually performed better (closer to suggested age levels) than hypnotized subjects, was explained by Young (1940) as due to the "surrendering of

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[1]As O'Connell, et. al., (1970) have pointed out, there has been much confusion over the words "simulators," "role-players," etc. In this paper role-playing will refer to subjects asked to act like a child of a given age, while simulating will refer to subjects asked to act as though they were hypnotized, following all instructions, including age regression.

critical attitudes under hypnosis," while the role-players "continued to utilize them (critical attitudes) for more accurate performance."

Later research has also found that the behavior of hypnotically age regressed subjects was similar to the behavior of role-playing subjects, using such diverse instruments and techniques as the Draw-A-Person Test (DAP) (Taylor, 1950; Orne, 1951; Webster, 1962), the Rorschach (Orne, 1951; Staples and Wilensky, 1968), Michigan Picture Stories (MPS) (Webster, 1962), the Bender Gestalt Test (Crasilneck and Michael, 1957), language structure (Kline and Haggerty, 1953) and writing samples (Orne, 1951). Following these more recent findings, in reviews of the literature, a more skeptical viewpoint was expressed concerning the evidence for the reality of hypnotic age regression as a transcendence of the range of normal performance and recall (Gebhard, 1961; Yates, 1961; Barber, 1962).

Two Recent, Controlled Studies:

In a more sophisticated and very comprehensive study, Reiff and Scheerer (1959) used hypnotized and role playing subjects and compared their performance on eight different developmental task (some borrowed from Piaget) associated with specific age levels. The tasks were: (1) the Hollow Tube Test, in which the child must be able to reverse in thought the order of objects which he sees disappearing in a tube; (2) the Left-Right Test, in which an awareness of the subject's and other's left-right side is measured; (3)

Word Association Test, in which child vs. adult appropriate responses are recorded; (4) Arithmetic Test, in which the use of mathematical principles to achieve answers is noted; (5) the Clock Test, in which the ability to tell time is measured; (6) the Pledge of Allegiance Test, in which the number of errors in writing it out is recorded; (7) Free Play Situation, in which the subject's playing with toys is noted; and (8) the Mud and Lollipop Situation, in which the subject is measured on the reluctance to take a lollipop following play with mud pies.

The experimental subjects were five somnambulistic students and the control subjects were fifteen students, not chosen for hypnotizability. The experimental subjects were age regressed to three ages (10, 7, 4) and given various tasks. After each regression they were brought back to their chronological age and amnesia for their regressed experiences was suggested. There were three groups of control subjects. Each group was asked to role play one of the three ages to which the experimental subjects has been regressed, and was given the same tasks as the experimental subjects.

Reiff and Scheerer (1959) concluded that:

(1) The regressed Ss tended to function at a level consistent with the experimental age.
(2) On the various tasks at each experimental age level, the regressed Ss functioned more consistently than the simulating Ss.
(3) When the regressed Ss deviated from the experimental age, they tended to function below that age level.
(4) The simulating Ss tended to function above the experimental age level.
(5) The lower the experimental age, the more the simulating Ss tended to function above that level.

However, these conclusions have been challenged by Orne and O'Connell (1961). In their review of the Reiff and Scheerer study, they observed several methodological inadequacies. In addition to the small sample size, it was noted that the treatment of the simulators was not equivalent to the treatment of the regressed subjects, since each control subject role-played only one of the three suggested age levels used with the hypnotized subjects. One of the problems in treating the two groups differently, involves the introduction of amnesia for the hypnotically regressed subjects' experiences. It can be argued that the information gained under hypnosis is not forgotten (and may therefore unconsciously affect future performance) even though the subject may not be able to recall what went on, when asked directly. This in fact is somewhat analogous to the often used post-hypnotic suggestion, in which the subject carries out instructions given under hypnosis (followed by amnesia suggestion) without being able to recall the hypnotic experiences. Thus, it is possible that the demand characteristics of the study were more apparent with hypnotic than role playing subjects; regressed Ss may have learned to act more childishly, more readily perceiving the expectations (i.e. deterioration in performance) of the experimenter.

Also, the control Ss did not have previous hypnotic experience, while the regressed subjects were hypnotized at least once prior to the experiment in order to determine their hypnotizability and their ability to carry out an age regression under suggestion. Practice with hypnosis and age re-

gression may facilitate the experimental subjects' later performance.

Furthermore, there was no control group to test for the effects of hypnosis alone. Orne and O'Connell (1961) note that, "If an increase in autistic thinking is an intrinsic quality of hypnosis, age regressed subjects may appear to be functioning at an earlier developmental level, for autistic thinking is also a characteristic of the earliest stages of cognitive development."

It was also observed that the experimenter in the free play situation was aware of who was regressed and who was role playing; the subjects themselves knew that the experimenter was aware of their state (regressed vs. role playing). It is therefore quite possible that the experimenter may have reacted differently to the regressed and to the stimulating subjects, and also that the simulators may have felt awkward and embarrassed knowing that the experimenter was aware of the fact that the subject was playing a game.

Their final methodological objection was that no normative data was available for most of the tasks used in the study. It would be difficult to assess the relative success of the regressed vs. simulating subjects without such information.

To the above criticisms, it might be added that the experimental and control subjects were not equivalent. The regressed subjects were carefully selected for deepest levels of hypnotic susceptibility. It is quite possible that certain (as yet unknown) personality characteristics correlate

highly with hypnotizability. Thus, the Reiff and Scheerer results may be confounded by such personality factors and might reflect these factors, as much as the effect of hypnosis, alone.

In a very recent study, O'Connell, Shor and Orne (1970) have replicated the Reiff and Scheerer study with more subjects (10 per group) and with additional control groups: one age role players, corresponding to the role player groups (3) used in the original study; three-age role players, with subjects asked to role play (in descending age) the three ages in the original study; crypto-simulators, unhypnotizable subjects told to fool the experimenter (who didn't know which Ss were regressed or simulating) by pretending to be hypnotized, carrying out the suggestions of the experimenter; quasi-participants, with subjects given all the instructions and tasks of the regressed subjects and asked how they would respond if they were really in the experiment (no role support control); and finally, children (same ages as suggested levels of regression) providing norms to assess the effectiveness of the procedures. It should be noted that the one-age role players, the three age role players and the quasi-participants were not chosen for hypnotizability and were not told that the experiment had anything to do with hypnosis. They were chosen randomly from lists of volunteers.

O'Connell, et. al. (1970) only partially replicated the original findings of Reiff and Scheerer (1959). The behavior of the age regressed Ss generally replicated that reported by Reiff and Scheerer. However, in a comparison between the

behavior of these age regressed Ss and the one-age role players, there were several important failures of replication (Appendix A). These differences were largely in the behavior of the role players, not in the behavior of the age regressed subjects. It was noted that the experimenter's expectations in the O'Connell, et. al. study, were that all subjects, including control subjects, would be able to produce behavior appropriate for the suggested age level. Furthermore, tests amenable to the influence of experimenter expectation and demand characteristics showed the least replication, while tests resistant to such influence replicated well. Thus, it was concluded that:

> E, by virtue of his expectations and his conscious effort, gave more role support to the one-age role players and it was in those procedures which were open to the influence of such factors that the failure of replication occurred. (O'Connell, et. al., 1970)

In other comparisons, O'Connell, et. al. (1970) observed that the three age role players produced a more appropriately graduated series of performances than the three groups of one-age role players. It was hypothesized that the design used by Reiff and Scheerer may have produced greater differences in the behavior of regressed and role playing subjects by virtue of the simulators' more limited experience with age regression in the experiment; the demand characteristics (i.e. deteriorating performance) were undoubtedly more clear for the regressed subjects (hypnotically regressed to ages 10, 7, and 4 - in that order) than for the simulator subjects. More importantly, no differences in performance

were found between regressed subjects and simulating subjects (cryptosimulators) when identical cues, demands and supports were provided. Also, although the regressed subjects behaved appropriately when their performance was compared with the performance of real children, there were several qualitative differences in behavior; for example, children gave far more Mondegreenisms[1] than regressed or role playing subjects. Finally, few differences in performance occurred between the three age role players and the cryptosimulators. From these inter-group comparisons, it was concluded that:

> Reiff and Scheerer were mistaken and hypnotically age repressed behavior does not involve the total reinstitution of child-like mental processes and associated memories. Where activities were shown through controls to be in some way amenable to influence, such as E support, demand characteristics, and heightened motivation, age regressed subjects were able to perform in a child-like way. Where the activities were less amenable to such influence, age regressed subjects performed no more successfully than the other groups. (O'Connell, et. al., 1970)

Another finding of the O'Connell, et. al. (1970) study should be mentioned. In an effort to separate the effects of role support from role playing, the performance of the quasi-participants was compared with the performance of the three age role players. Although there were some differ-

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[1]Mondegreenisms refers to the substitution of inappropriate words children can understand for similar sounding phrases that they do not comprehend, such as "Lady Mondegreen" for "laid him on the green"

ences, generally, the "quasi-participants were able to approximate the behavior of the role players to a considerable degree. Either E was giving more role support than he realized or Ss brought more to the experimental situation than E anticipated."

Behavioral Differences - Hypnosis vs Simulation:

The findings of recent studies, particularly that of O'Connell, Shor and Orne (1970), clearly indicate that under sufficiently motivating instructions, simulating subjects (and to a large extent, role playing subjects) are able to produce a wide variety of "regressed" behaviors similar to the behavior of hypnotically regressed subjects and appropriate for the suggested age levels.

However, this should not be too surprising considering that the behaviors which were typically observed in studies of age regression (e.f. IQ tests, writing samples, arithmetic, free play, etc.) are highly amenable to simulation. Subjects' personal recollections and present observations of children (e.g. direct-siblings, or indirect-textbooks, research, popular magazines) make it possible to simulate successfully these behaviors. In short, young adults simply know a great deal about children and how they behave and it reasonable that under appropriate motivation (i.e. E's instructions and expectation of childlike behavior) subjects will be able to call upon this knowledge to produce appropriately "regressed" behavior.

This does not necessarily mean that because the be-

havior of regressed and simulating subjects looks very similar (O'Connell, et. al., 1970) the underlying process which preceded the behavior was similar, or that the subject's experience of the regression is identical.[1] On the contrary, what superficially appears to be identical, may in fact be quite different.

To date, experimenters have largely chosen to concentrate on highly objective and scoreable behaviors in their study of hypnotic age regression. Recent developments in clinical research have produced a variety of techniques for assessing more covert behavior - such as drive content (Pine, 1960) and primary process thinking (Holt, 1956). It was therefore considered potentially quite productive to study these more covert behaviors, for a better understanding of hypnosis in general and age regression in particular.

A few studies (unfortunately with major methodological weakness - a lack of control group(s), in particular) have been carried out using projective techniques under hypnosis. Some have facilitated the development of the hypotheses of the present study.

Bergmann, Graham and Leavitt (1947) regressed a 20

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[1]In fact, studies of hypnotic age regression typically observe such difference, often noting this as an incidental fact. O'Connell, et. al., (1970) found that "age regressed Ss reported subjective conviction of being at the suggested age throughout the experiment. None of the role-playing Ss described experiences that were comparable in quality and intensity to the experienced reality of the age-regressed group." The E was unable to distinguish between the overt behavior of regressed Ss from the overt behavior of crypto-simulators, however, beyond chancelevels. It was hypothesized that mechanisms which produced these behavioral patterns aren't the same (O'Connell, et. al., 1970).

year old soldier suffering from conversion hysteria, from his present age, going back alternate years to age three. At each suggested age, they administered the Rorschach test. The Rorschach findings reflected the actual historical changes at the various regressed age levels, closely following the clinical data.

Mercer and Gibson (1950) age regressed a 26 year old male alcoholic to 6, 10 and 14 years of age. They also administered the Rorschach at each suggested age and found that the responses correlated highly with the subject's clinical history.

In both of the previous studies, the subject was given Draw-a-Person tests at each level to validate the regression; these were scored using the Goodenough (1926) system and indicated the subjects were functioning at the suggested age levels. Bergmann, et. al. (1947) concluded that obtaining Rorschach records at various levels of age regression "may have diagnostic and therapeutic value. It also shows promise of throwing increased light on the growth and development of personality."

Also, in a few studies, subjects have been given projective tests under hypnosis but without age regression. Using the Rorschach (Wilkins and Adams, 1947; West, Baugh and Baugh, 1963; Fromm, Oberlander and Gruenwald, 1970; Hodge and Wagner, 1969), and Word Association Test (Kline and Schneck, 1951), it has been found that subjects are more responsive under hypnosis than in the waking state. Under hypnosis, psychological defenses were lowered and the

protocols became richer, more pathological, more primitive and more blatant in sexual and aggressive content.

More recently, Reyher and Shoemaker (1961) have given TAT cards to five neurotic clients in a waking and age regressed state. Conflict and neutral suggestions were given. The conflict procedure was as follows:

> The subject was told that he would be asked to look at a picture that would activate distrubing emotions. He then was asked to open his eyes and look at the card. After about ten seconds he was instructed to close his eyes and to go back in time to a period when these emotions were very difficult to manage. He was then asked to verbalize his experience.

The neutral procedure was identical to the conflict procedure, except that:

> The subject was told that the emotions to be experienced would not be disturbing, but nevertheless, would be meaningful.

Following the "free age regression," all subjects were given these instructions:

> Sometime later, when you are awake, Dr. A. will give you the same pictures that I gave you earlier, and he will ask you to tell stories about them. Each picture will stir up the same feelings, emotions, and ideas that it did before, but you will either reveal them directly or indirectly in stories that you tell.

The last sentence was "intended to give the S control over the nature of what would be consciously experienced in order to reduce the possibility of traumatic reaction to the premature recognition of repressed material."[1] The subjects

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[1]Unfortunately, this instruction could have also made it clear, to the Ss that they were expected to respond in a different manner in the waking state, differences in responses were expected on the two sets of protocols.

were given the standard TAT instructions in the waking state.

High difference scores (character, situation, affective-motivational state) between the regressed and waking state were noted for both the conflict cards and the neutral cards. The high difference scores to the neutral cards (positive affect under hypnosis and anxiety in waking state) were interpreted as evidence that hypnosis is an altered state of awareness in which unconscious drives tend to be perceived in terms of gratification, rather than threat." (Reyher and Shoemaker, 1961)

Thus, the use of projective testing under hypnosis has suggested that there are considerable changes in such covert behaviors as drive content, primary process thinking, defensiveness, etc. Two studies have also observed appropriate (clinically and developmentally) behavioral changes using projective tests under hypnotic age regression.

Design and Hypotheses:

The objective of the present study was to compare some of the more subtle and less cognitive changes on the part of hypnotized and simulating subjects, using the "real-simulator" design proposed by Orne (1959), O'Connell, Shor, and Orne (1970), and Sheehan (1971) and the procedure developed by Reyher and Shoemaker (1961) for stimulating hypnotic and posthypnotic conflict in Ss, using thematic cards.

Specifically, the hypotheses of the study were: (1) the age regressed productions of hypnotized Ss contain

more direct expression of libidinal and aggressive drive material than do the productions of simulating Ss; (2) the responses of age regressed hypnotized Ss and simulating Ss are equivalent on a test of cognitive functions; (3) the posthypnotic waking protocols of the hypnotized age regressed Ss show greater repression than do the protocols of simulating Ss; and (4) the posthypnotic responses of hypnotized age regressed Ss and simulating Ss are equivalent on a test of cognitive functions.

METHOD

Subjects:

Twenty female undergraduate psychology students were selected from 132 volunteers who were screened for hypnotic susceptibility, in groups of 10 to 20 students, using the Harvard Group Scale of Hypnotic Susceptibility (Shor and Orne, 1962). The criteria for inclusion in either the hypnosis or simulation group was the ability to carry out successfully eight of the twelve suggestions of the group scale, including posthypnotically induced amnesia of at least nine of the twelve suggestions.

Thus, in contrast to the recent studies by Reiff and Scheerer (1959) and O'Connell, et. al. (1970), control subjects (simulating), as well as experimental subjects (hypnotized), were highly susceptible to hypnosis as recommended by Reyher (1967) and Reyher and Smyth (1971).

In order to insure that simulating subjects didn't accidentally fall into a hypnotic state, posthypnotic and waking suggestions were given to the effect that they would not, under any circumstances, fall into a trance during the testing by the primary experimenter (E_1). A posthypnotic cue for rapid reinduction and two direct suggestions were given at the end of the experiment. Simulators were told to follow all instructions except these; if they closed their eyes

and/or followed the two suggestions, they were dropped from the study. Of course, hypnotized Ss who failed this test, i.e. kept their eyes open, were also dropped from the study. Self reports of Ss' experiences were also recorded. Since they were considered unreliable and too easily affected by the S's attitudes and expectations regarding hypnosis or the experiment, they were not used in the decision to retain or drop a subject.

Following group screening, 33.8% or 44 of the original 132 volunteers qualified for the present experiment. Twenty-six percent (9) of the 35 subjects who wished to continue the experiment failed to achieve complete amnesia during the individual sessions. Three other qualified Ss were removed from the experiment: one had recently completed psychotherapy and felt very uneasy about being hypnotized; another was extremely difficult to awaken during the pretesting phase of the individual session; and the third S became very anxious during the age regression procedures. Finally, four Ss failed to meet the behavior index developed to insure the Ss in the hypnotized group were actually hypnotized and that Ss in the simulating group were not hypnotized. Thus, only 15.2% of the original 132 volunteers were used in the present study.

In order to safeguard the welfare of the Ss, no S was included who demonstrated obvious psychopathology, reported feeling anxious about the experiment or reported being in therapy at the time of the experiment (or previously). Also, Ss who became anxious or upset during any part of the experiment were removed from further procedures and given as much

time and discussion as necessary to relax them and/or provide an opportunity for integrating and understanding their experiences. As noted above, only a few Ss were excluded from the experiment for any of these reasons.

All Ss were volunteers. They received no money. However, most received credit towards required participation in research, as part of their undergraduate course work.

Materials and Experimental Setting:

During the experimental session, each S was placed in a 12 x 12 foot sound proof cubicle and seated in a large reclining chair. The entire session of each subject was tape recorded.

Card number 2 of the TAT (Murray, 1943) and card number B8 of the Symonds Picture Story Test (Symonds, 1948) were given to all Ss, in both the waking and hypnotized conditions. The administration of the cards was counterbalanced to control for any effects related to order.

Both cards were independently selected by the author and a colleague as the cards (of the two sets) most related to female oedipal conflict. Card 2 of the TAT is described by Murray (1943) as a "country scene: in the foreground is a young woman with books in her hand, in the background a man is working in the fields and an older woman is looking on." Card B 8 of the Symonds Picture Story Test is an older, probably greying man with a bow tie, arms folded, speaking with a much younger woman (around 20 years old), looking intently at the older man; they are standing very

close together. From psychoanalytic theory and clinical observation, it was expected that these cards would arouse considerable emotion related to the early oedipal conflicts experienced by Ss.

Procedure:

Ss were assigned randomly to the hypnotized and simulating groups by a co-experimenter (E_2); he assigned these Ss to the experimental or control group by drawing a slip of paper (without replacement) with the S's group assignment and order of card administration written on it - from an envelope containing all of the possible groups and card orders, counterbalanced.

Hypnotic training: All Ss were given a very brief and ambiguous introduction by the primary experimenter (E_1), who was a clinical psychology graduate student experienced in hypnotic induction procedures. Ss were told:

> As you know, this is a hypnosis experiment with individuals (Ss were screened in a group hypnosis exercise). Unless you have any questions, we'll get started . . . I'd like you to begin to relax now . . and concentrate on the thumbtack you see on the opposite wall (about eight feet from the S at a 30° angle upward from the S's line of sight.)

The induction and deepening were carried out by using five of the tasks of the Stanford Scale of Hypnotic Susceptibility (Weitzenhoffer and Hilgard, 1959): eye closure; hand lowering; arm immobilization; hands moving together; and fly hallucination. Also, the amnesia instructions suggested by Reyher (1971) were given. The induction and

deepening instructions are presented in Appendix B.

In order to test the S's ability to: (1) open her eyes and to speak without disrupting the trance; (2) experience a hypnotic age regression; (3) achieve a complete amnesia for the hypnotic experience - Ss were told:[1]

> You are relaxed and comfortable, you are drifting, relaxing. Your sense of passing time is becoming vague...Time is passing, but it is difficult to measure this, the more you attempt to estimate this, the more confusing it will become. You are sinking into a deeper hypnotic-like-sleep... drifting. It is also becoming difficult to determine just where you are. You may have some thoughts about where you are, but it is difficult to keep them in mind. The more you attempt to determine where you are, the more confused it will become. It is even difficult to remember things in the past. The more you try to recall certain events, the more difficult it will become. Everything seems vague and confused...You are unable to determine where you are in time and space and you are unable to recall significant events of your past...You would like to regain these functions.
>
> At the count of three, you will remember events about a year ago. You will go back in age to a year ago...back...back...Perhaps some of these events were not altogether pleasant. In fact, you might find that some of them were unpleasant, maybe even upsetting. You are beginning to recall events around a year ago, 1...2...3... you're back, a year ago - fully experiencing these events - more vivid now, clearer. Raise your right hand a few inches and keep it raised when it is about a year ago... (hand raises)...Good. You'll be able to speak and you'll remain deeply hypnotized. Describe what is happening and when

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[1]The procedures follow the suggestions of Erickson and Kubie (1941). The instructions include a disorientation for time and place, gradual loss in recall, intensification of the desire to recall unspecified events of previous years and then specific suggestions for reliving a particular time in the past.

you have finished describing this lower your right hand. (Ss will be given three minutes maximum time). Alright, you're moving forward in time - these events are becoming more distant...forward...it is now_____(date, place)...Good relax completely.

Then all Ss were told:

At the count of three, you will open your eyes but remain in a deep hypnotic-like-sleep. When you open your eyes, I will give you a card with a picture on it (card 5 of the TAT). After you've looked at it for awhile (10 sec.), I'll ask you to turn it over, close your eyes and tell me a story about it. Tell what has led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking; and then give the outcome. You'll be able to speak and you'll remain deeply hypnotized. When you have finished the story, you will hand the card back to me. Nod your head if you understand. (nod) 1, 2, 3 (E hands S the card as she opens her eyes)... (10 sec.)...Now turn the card over please and close your eyes, and tell me a story about it. Tell what has led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking; and then give the outcome. Hand me the card when you're done...(story)...Fine... Relax...relax, completely. You're sinking into a deeper hypnotic-like-sleep...completely relaxed. When I count to three you will awaken, completely relaxed and comfortable; however, you will have no memory of the things you've done while hypnotized today. Whenever a thought about what you've done while hypnotized today begins to come to mind, it will become fuzzy, unclear, like a forgotten dream...The harder you attempt to recall the things you've done while hypnotized today, the more it will slip away...Nod your head if you understand. (nod)...After you're awakened all I will have to do is have you lean back and by the time I count to ten, your eyes will be closed and you will be in an even deeper sleep-like state than you are now in...Nod your head if you understand. (nod) One, two, three...

To avoid testing for amnesia while S is still in a highly susceptible state (Hull, 1933) just after awakening, a short two or three minute break was taken in which S was encouraged to stretch her legs, walk around, get a drink, etc. Then Ss were asked: "Is there anything about the session that comes to mind?" If S didn't begin to recall any of the previous experiences within 30 seconds, she was asked to lean back, relax and listen as E_1 counted from one to ten. After reinduction, E_1 told all Ss:

> In a moment, a colleague of mine, Mr. _____, will enter the room to conduct the next phase of this experiment... You will remain in a deep hypnotic-like-sleep and follow his instructions completely. Nod your head please if you understand. (nod) ...I'll now leave the room to get Mr._____, and he'll be right in. I'll be back for the remainder of the experiment in a few minutes. Just relax, relax...

Group assignment: E_2[1] then entered the lab right after E_1 left and told all Ss:

> My name is Mr._____. If you feel like you want to see what I look like - you can just open your eyes, without waking up in the slightest...(10 sec.)...(if open) Good. Now just close your eyes and relax. Relax and sink into a deep, deeper hypnotic-like-sleep.

E_2 then deepened the hypnosis by asking the S to concentrate on her breathing and on relaxing as he counted from one to twenty. Ss were told that they were sinking, into a deeper and deeper sleep, with each breath, as the E counted slowly

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[1]The E_2 was actually four different individuals - three clinical psychology graduate students and the author's wife. Many thanks to Bob Homant, Ruben Gur, Dave Schnarch, and Pat, for their assistance.

(about four or five seconds between each count).

At this point E_2 selected a group assignment and order of card administration for the S by drawing a slip with this information on it from the envelope. E_2 wrote the S's name on the paper (so as not to use it on a future draw), returned it to the envelope, then proceded with the appropriate suggestions (continued hypnosis vs. simulation of hypnosis).

Hypnotized Ss were told by E_2:

> In a moment I will leave the room to get Mr. Schofield...You will remain in a deep hypnotic-like-sleep and follow his instructions completely when he returns...Nod your head if you understand (nod). Good. Now I'll just sit here quietly for a minute and allow you to continue to relax, sink into a deeper, relaxing sleep. Then I'll leave the room and Mr. Schofield will be right in. Just continue to relax...relax...(wait 60 sec. then leave quietly).

Simulating Ss were told by E_2:

> In a moment, Mr. Schofield will enter the room to conduct the second phase of this experiment. At the count of three, you will awaken and you will not, under any circumstances, fall into a trance during the next phase of the experiment conducted by Mr. Schofield. You'll pretend to be hypnotized and you'll follow all of his instructions, acting as though you were hypnotized. However, near the end of the experiment, when Mr. Schofield taps three times with his pencil (demonstrate, pencil or penpoint hit on any hard object, one beat per second), you will not close your eyes or pretend to be hypnotized. Nod your head if you understand. (nod)...At the end of the experiment, after Mr. Schofield says "the research is over" you will then be able to be hypnotized by him at any future time if you so desire...Nod your head if you understand. (nod) Now you'll awaken at the count of three... 1, 2, 3....
>
> (Pause for a few seconds, while S gets her

> bearings). Mr. Schofield knows that some subjects will be pretending to be hypnotized, but he does not know which subjects are going to be pretending. Do your very best to fool him. The object of this study is to see how well students can pretend to be hypnotized... In the past, we have found that they have done very well and I'm sure that you will also do a fine job. Remember, you'll just pretend to be hypnotized, and you'll follow all of his instructions, except you will not close your eyes or pretend to be hypnotized when he taps his pencil three times, near the end of the experiment. Now, close your eyes please and pretend to be hypnotized, while I get Mr. Schofield.

As E_2 left the room, he only told E_1 the order to administer the two thematic cards. E_1 then entered the lab and began the age regression suggestions.

Age regression:[1] During the first several seconds after E_1 entered, relaxed and began to prepare for the next procedures - he observed S and made an assessment on the basis of non verbal cues (e.g. posture, general composure, etc.) of whether she was actually hypnotized, or was simulating hypnosis. Then E_1 told all Ss:

> You are relaxed and comfortable...relaxed and comfortable. You will sink into a deeper hypnotic-like-sleep...Relax...deeper, deeper, deeper. At some point the experiment will end and all I will do is simply say "awaken and open your eyes" and you will be completely awake, relaxed and comfortable. But for now, you will continue to sink into a deeper and deeper hypnotic-like-sleep. When I count to

---

[1]Here Ss were regressed to a time when certain feelings were most discomforting while in most studies, age regression occurs to a specific time for all Ss. It was anticipated that the technique of the present study would maximize the experience of particular emotions, widening the differences in behavior between hypnotic and simulating Ss.

> three, you will open your eyes but remain in a deep hypnotic-like-sleep. I will give you a picture (TAT card or Symonds card). This picture will activate.disturbing emotions...1, 2, 3...(open) (10 seconds to look at card)...Now, you'll close your eyes... you will go back in time, back to an age when these emotions activated by that picture were very difficult to manage.

Subjects were then given the age regression instructions:

> You are drifting, Your sense of passing time is becoming vague... time is passing, but it's difficult to measure this. The more you attempt to estimate this the more vague it becomes...drifting...sinking into a deeper hypnotic-like-sleep...sinking into a deeper hypnotic-like-sleep...It's also becoming difficult to determine just where you are...The more you attempt to determine where you are...the vaguer it becomes...drifting... drifting...
>
> You are going backward in time to the age when the disturbing emotions aroused by the picture which you just saw were the most difficult to manage. Backward...You are beginning to recall that period...It's becoming more vivid now...Raise your right hand a few inches and keep it raised when you are at that age when these disturbing emotions were the most difficult to manage (hand raised)...How old are you? (If not under 16, say "You're going back, still farther to an age when these disturbing emotions were even more difficult to manage...Raise your hand when you're at that age when these disturbing emotions were even more difficult to manage...How old are you?") ...Tell me about your experiences and when you've finished describing these, you'll lower your right hand...(production)...(lower hand)...Good. Now you are going forward in time...getting older...In a moment it will be _____(e.g. Monday, July 12, 1971, in Olds Hall). Forward...getting older, older... Raise your right hand when you reach this point. (hand raised).

At this point, E_1 again made an assessment - on the basis of verbal and non-verbal cues - of whether the S was

actually hypnotized, or was simulating hypnosis.

Following this, the second thematic card was administered by E_1, using the same procedure as above. However, before suggestions of moving forward in time (to the present date), all Ss were told that they were still _____ years of age (age during second regression) and were given the vocabulary subtest of the WISC or WPPSI using the standard testing procedures for the instrument. E_1 then made another assessment on the basis of verbal and non-verbal cues of whether the S was actually hypnotized or was simulating hypnosis. After all Ss were brought forward in time to the present date, E_1 told them:

> In a moment, I will awaken you, I'll give you the same pictures that I just gave you and I'll ask you to tell stories about them. Each picture will stir up the same intensity of feelings, emotions, and ideas that it did before. Nod your head if you understand. (nod) Sometime after this, I will tap three times on the table with my pen like this (demonstrate). You will then immediately close your eyes and fall into a deep hypnotic-like-sleep again. Nod your head if you understand. (nod) Good. Now, I'm about ready to wake you up. When I count to three you will be wide awake; however, you will have no memory of the things you've done while hypnotized today. Whenever a thought about what you've done while hypnotized today begins to come to mind, it will be fuzzy, like a forgotten dream...The harder you attempt to recall the things you've done while hypnotized today, the more it will slip away. Nod your head if you understand. (nod) Sometime after that I'll mention, "now you can remember all of the things you've done while hypnotized today." Nod your head if you understand. (nod) 1, 2, 3...you're awake.

As earlier, Ss were given a short break, two or three minutes, before testing for amnesia. Then Ss were again

asked, "Is there anything about the session that comes to mind? Do you remember anything at all about the last session?" After thirty seconds, if S had not begun to recall any of the previous activities of the session, she was told by E_1:

> (pause)...In a moment I'm going to give you a card (TAT or Symonds). Then I'll ask you to turn it over and tell me a story about it. Tell what has led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking; and then give the outcome. (10 sec.) Turn it over please and tell me a story about it; give the card back to me when you are finished.

After she had finished the story, the second thematic card was presented, in the same manner.

All Ss were then given the vocabulary subtest of the WAIS (still in the waking state), using the standard testing procedures for the instrument. Afterward E_1 tapped clearly, three times (cue for rapid re-induction). He noted whether or not S closed her eyes within 10 seconds. If S closed her eyes within 10 seconds, E_1 gave deepening suggestions, suggestions of arm heaviness, and suggestions of arm immobilization. The results of these suggestions were noted and S was awakened. No comments or suggestions were given to Ss who did not close their eyes and respond to the rapid re-induction cue.

Finally, E_1 gave all Ss three questions to answer on separate sheets of paper, and told the Ss:

> I know that Mr._____(E_2) has earlier instructed some of you to remain hypnotized, while he has instructed others to pretend to be hypnotized. At this time I'd like to

answer a few questions as honestly as possible.

The first question was: "Is there anything about the last session that comes to mind? Do you remember anything at all about the last session?" Ss were given three minutes to respond. Next, all Ss were told "now you can remember everything" and asked to answer the second question: "Is there anything about the last session that comes to mind now? Do you now remember anything about the last session?" Ss were given two minutes to respond. Finally, all Ss were asked: "Do you feel as though you were hypnotized? Were you hypnotized during the second part of the experiment when you were asked to go back in age? How vivid was that experience?" Then all Ss were told "the research is over" and were thanked for their participation.

The entire procedure took about two hours for each subject. All procedures were carried out in one session. Ss were given more information on the nature and results of the experiment three to six weeks later, after the study was completed.

RESULTS

Rating Instruments and Reliability:

Pine Scoring of Drive Content: Stories in the waking and hypnotized conditions were compared in terms of the directness of drive expression and the degree of integration of the drive expressions into the story. The scoring categories for directness of expression of drive content were: level 1- direct, unsocialized; level 2- direct, socialized; level 3- indirect, disguised, weak. The scoring categories for integration of drive expression into the story were: thematic - part of the central theme of the story; incidental - integrated with the central theme, but expendable; nonappropriate - productions unrelated to the task, such as exclamations, drive content as part of card description, misperceptions, verbal slips. A drive unit was not scored twice in a protocol, unless there was a different level of drive expression, a different aim of the drive, or unless the drive was expressed in a totally different sequence of action.

Four stories elicited from each of 20 **Ss** were rated by two raters, E_1 and a clinical psychology graduate student who was unaware of the nature and hypotheses of the study. Ratings were carried out after an extensive period of rating

practice by the two raters working together. Protocols from the Reyher and Shoemaker (1961) research were used for training purposes. Protocols from the present study were rated separately, without discussion.

Of the 80 stories rated, there were 185 rated units of drive content. An agreement was counted when both raters rated the same unit (i.e. word or phrase) with drive content or when both raters agreed that an entire story should get no ratings (which occurred in only 6 of the 80 stories). The raters agreed in 156 instances or 82.2% of the time. This compares very favorably to the level of agreement (69%) reported in Pine's (1960) manual.

Inter-rater agreement on drive level (1, 2 or 3) was calculated for only those units where there initially was agreement on drive presence. The percentage of agreement for the various levels of expression and degrees of integration are presented in Table 1. The percentages are all significantly ($p < .001$) higher than would be expected by chance alone (33%); all but one was above those reported originally by Pine (1960). Disagreements were resolved by retaining the author's ratings. The final percent of rated units for each of the categories was roughly equivalent to those of Pine (1960).

Scoring of Story Differences: Stories in the waking and hypnotized conditions were compared in terms of characters, situations and affective-motivational states (Reyher and Shoemaker, 1961). The degree of similarity for characters (C) and situations (S) was assessed by four-point

TABLE 1

Inter-Rater Agreement and Final Ratings for Drive Level & Drive Integration

	Number of Units[a]	Number Agreed[b]	Percent Agreed[c]	Final Number Rated	Final Percent Rated
Level I Expression	14	11	78.6*	15	10.0
Level II Expression	88	82	93.2*	89	59.3
Level III Expression	48	45	93.8*	46	30.7
Total for Levels	150	138	92.0*	150	100.0
Thematic Use of Drive	135	134	99.3*	134	89.4
Incidental Use of Drive	12	11	91.7*	13	8.6
Nonappropriate Use of Drive	3	3	100.0*	3	2.0
Total for Integration	150	148	98.7*	150	100.0

[a] Numbers of units where there was agreement on drive presence initially.

[b] Based on the degree to which rater TW agreed with rater LS.

[c] Discrepancies resolved by retaining LS's ratings.

* $p < .001$

rating scale with the following descriptive labels and numerical values: personalized (1), congruent (2), indeterminant (3) and different (4). The affective-motivational state (AM) was quantified by counting the expressions of intentions, needs and affects by the subject in the hypnotic condition (PH). The AM units in the latter condition were classified as either the same (PHs) or as different (PHd) from the hypnotic condition. Each AM unit was counted only once in each of the two conditions regardless of how often it may have appeared.

A difference score (D) for each card was devised:

$$D = C + S + AM$$

where $AM = \leq H - PHs + 2 \leq PHd$. If no changes occur in the waking reactions to the cards, D equals zero. As changes occur in the waking state, PHs decreases and PHd increases. The term PHd was weighted by a factor of two because it represented a transformation of affect, which was considered to be a more complicated process than simple repression.

Stories were rated independently by two raters, $\underline{E}_1$ and another clinical psychology graduate student who was unaware of the nature and the hypotheses of the study. Ratings were carried out after an extensive period of rating practice by the two raters working together. As above, protocols from the Reyher and Shoemaker (1961) research were used for training purposes. Protocols from the present study were rated separately, without discussion.

An estimate of the interrater reliability for the two raters was obtained from rank order coefficients of correla-

tion between D scores (waking vs. hypnotic conditions) for the two thematic productions. Coefficients of .94 (Symonds card) and .96 (TAT card) were obtained. These compared favorably with Reyher and Shoemaker's (1961) rank order correlations of .74 and .75 for two randomly selected protocols. Disagreements were resolved by retaining the author's ratings. Disagreements over the presence of an affective-motivational state were resolved by disregarding those units which were not identified by both raters; the raters were in agreement on the presence of AM units in 290 out of 368 ratings (78.8%) in the 80 stories.

The Hypotheses:

Hypothesis 1: It was hypothesized that the age regressed productions of hypnotized Ss would contain more direct expressions of libidinal and aggressive drive material than the productions of simulating Ss.

The most appropriate test of the hypothesis, involves a comparison of the level I responses. Only using the level I score is based on the rationale that the material subsequent to the outbreak of blatant drive representation may be defensive and therefore remote; accordingly, the remainder of the protocol may be a defensive reaction to one outbreak. The Holt (1956) scoring system and sequence analysis on the Rorschach is based upon this principle.

The presence or absence of level I response(s) for each stimulus card and for both cards combined, was noted. In Table 2, the number of Ss producing level I response(s) is

TABLE 2

Number of Hypnotic and Simulating Subjects Producing Level (I) Responses In the Age Regressed and Waking Condition

	Age Regressed Condition			Waking Condition		
	Tat & Symonds	Symonds	TAT	Tat & Symonds	Symonds	TAT
Hypnotic Ss N=10	6*	5**	3***	2	0	2
Simulating Ss N=10	2*	2**	0***	0	0	0

Note - The numbers are the total number of Ss producing level I responses for each group.

* p = .08, one-tailed
** p = .18, one-tailed
*** p = .10, one-tailed

presented for the hypnotized and simulating Ss in the age regressed and waking condition. A Fisher Exact Probability Test[1] indicated that more hypnotic Ss tended to produce level I responses than simulating Ss when the TAT card was considered alone (p= .10) and when the TAT and Symonds cards were considered together (p= .08), but did not tend to produce more level I responses than simulating Ss when the Symonds card was considered alone (p= .18).

Thus, hypothesis 1 was not supported, although the results were in the expected direction and generally approached significance.

Hypotheis 2: It was hypothesized that the responses of age regressed hypnotized Ss and simulating Ss would, on a test of cognitive functions, be equivalent.

The protocols[2] were mixed and scored by the primary E without the knowledge of the S's group assignment. The scoring standards presented in the WISC or WPSSI manual were strictly followed.

In Table 3, the mean scale score and the mean ages achieved during the waking and age regressed conditions are presented for both the hypnotized and simulating groups. The actual (waking) ages did not differ significantly between the

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[1]The procedures outlined by Siegel (1956) were followed. Non-parametric statistics were generally used in the analyses. The distributions were unknown because of the small sample size, and no normative data on the measures used in the study are available.

[2]Obtained during the second age regression with either the TAT or Symonds card as the stimulus.

hypnotic and simulating Ss (t= 1.28, df=17, $p > .10$, two-tailed). Also, the ages chosen by S during the first and second regressions did not differ significantly (first: t= .316, df=18, $p > .10$, two-tailed; second: t= .128, df=18, $p > .10$, two-tailed). The distribution of the ages of regression were highly similar for simulating and hypnotic Ss during the first regression (Figure 1) and during the second regression (Figure 2). The Pearson product moment correlation coefficient between the ages of the first and second age regression was - .14 for the hypnotic Ss and .00 for the simulating Ss.

TABLE 3

Mean Vocabulary Scale Scores and Ages for Hypnotic and Simulating Ss In the Age Regressed and Waking Condition

	Age Regressed Condition (WISC)[a]		Waking Condition (WAIS)[b]	
	Mean Scale Score	Mean Age	Mean Scale Score	Mean Age
Hypnotic Ss	17.2 (2.57)	10.1 (3.64)	14.7 (2.11)	21.2 (3.22)
Simulating Ss	13.8 (2.53)	10.3 (3.32)	13.7 (1.64)	19.7 (1.78)

Note - The numbers in the parentheses are the standard deviations.

[a] Second age regression; WISC or WPPSI vocabulary subtest used.

[b] WAIS vocabulary subtest used.

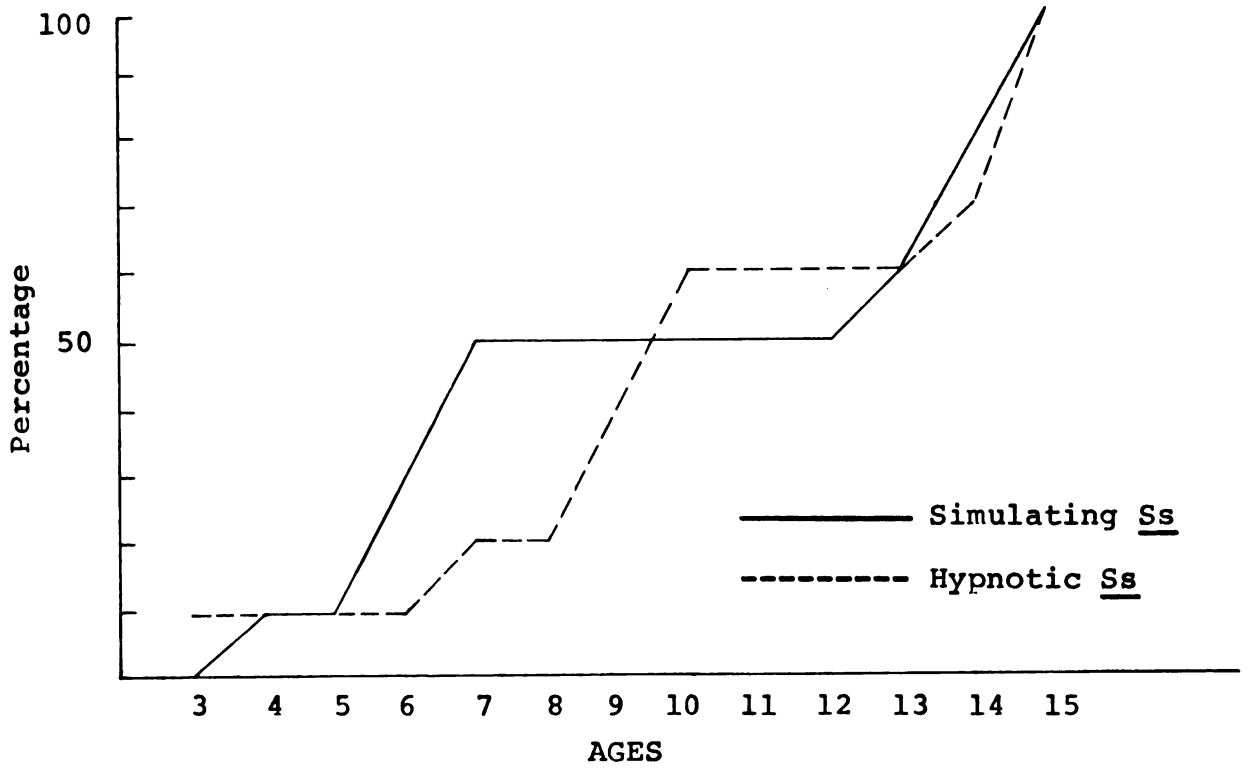

Fig. 1 Cumulative percentage of ages of the first regression for hypnotic and simulating Ss.

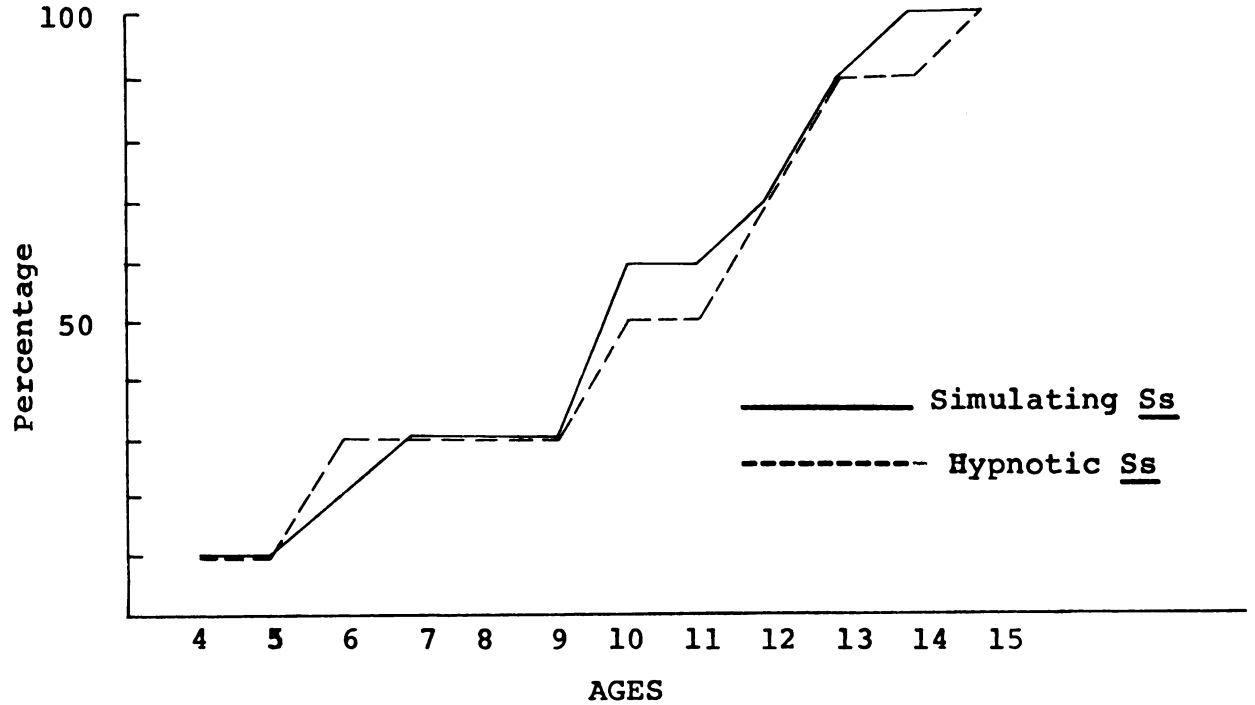

Fig. 2 Cumulative percentage of ages of second regression for hypnotic and simulating Ss.

It was found, however, that the hypnotic and simulating Ss differed significantly in the scale scores achieved under the age regression conditions (Mann Whitney U=15, df=10/10, $p < .02$, two-tailed). Hypnotic Ss achieved higher scale scores than simulating Ss. Thus, the hypothesis was rejected.

In order to assess the age appropriateness of the Ss' responses, it was noted: (1) whether during the age regression procedures S achieved a scale score above or below her waking scale score; and (2) the degree of deviation from her waking scale score. A Wilcoxon Sign Test was calculated for both the hypnotic and simulating Ss. It was found that hypnotized Ss achieved scale scores significantly above their waking scale scores (n=10, $p < .05$, two-tailed) and simulating Ss did not achieve scale scores significantly above or below their waking scale scores (n=8, $p > .10$, two-tailed). A difference score (waking scale score, minus regressed scale score) was calculated for each S. The scores tended to differ between the hypnotic and simulating Ss (Mann-Whitney U=26.5; df=10/10, $p < .10$, two-tailed).

Hypothesis 3: It was hypothesized that the posthypnotic waking protocols of the hypnotized age regressed Ss would show greater repression than the posthypnotic waking protocols of the simulating Ss.

Contrary to Reyher and Shoemaker (1961), an amesia instruction was used in the present study following the age regressed condition. When the amnesia instructions were included in the procedure, its relationship to this hypothesis was not recognized. The amnesia instruction required Ss to

change their waking productions and did not permit a true test of hypothesis 3. Since Ss were told to forget the content of their age regressed productions, all Ss produced, as expected, quite different characters and situations in their waking productions (Tables 4, 5); the changes approached the maximum amount of change permitted by the rating scale. However, Ss were not given an amnesia for the affects associated with the age regressed productions. It should be expected that the AM units for the hypnotic Ss would be greater than the AM units for the simulating Ss, since the AM units were not restricted arbitrarily; they could vary freely with no ceiling on the score. As anticipated, hypnotic Ss produced greater changes in AM than simulating Ss for the Symonds card ($U=27$, $df=10/10$, $p<.05$, two-tailed), but not for the TAT card ($U=48.5$, $df=10/10$, $p>.10$). Hypothesis 3 was thus at least partially supported, given the limitations of the procedures.

TABLE 4

Mean Changes in Waking Productions Following Age Regression Productions: TAT Card

	Mean D Score	Mean Similarity of Character	Mean Similarity of Situation	Mean Affective-Motivational State
Hypnotic Ss	15.50 (5.95)	3.00 (1.33)	3.15 (1.32)	9.30 (4.37)
Simulating Ss	15.20 (6.61)	3.10 (1.29)	3.05 (1.41)	9.10 (5.40)

Note - Numbers represent mean changes for each category. The numbers in parentheses are the standard deviations.

TABLE 5

Mean Changes in Waking Productions Following Age Regression Productions: Symonds Card

	Mean D Score	Mean Similarity of Character	Mean Similarity of Situation	Mean Affective-Motivational State
Hypnotic Ss	14.8 (6.58)	3.10 (1.10)	3.20 (1.14)	8.5 (5.30)
Simulating Ss	10.4 (3.75)	2.95 (1.14)	2.85 (1.20)	4.7 (2.45)

Hypothesis 4: It was hypothesized that the posthypnotic (waking) responses of the hypnotic Ss and simulating Ss, on a test of cognitive functions, would be quivalent.

As above (hypothesis 2), the protocols were mixed and scored by the primary E without the knowledge of the S's group assignment. The scoring standards presented in the WAIS manual were strictly followed.

The mean scale scores for hypnotic and simulating Ss in the waking condition are presented in Table 3. The hypnotic and simulating Ss did not differ significantly in scale scores ($U=38$, $df=10/10$, $p > .10$, two-tailed) and the hypothesis was accepted.

Other findings:

Overt behavior and subjective experience: As noted above, all Ss were tested by E without any knowledge of her group assignment. E did, however, attempt to determine whether or not S was hypnotized, at three different points during the experiment. The results of these attempt are pre-

sented in Table 6. At each stage of the experiment, E was unable to guess accurately whether or not an S was hypnotized. Nearly all Ss were seen as probably hypnotized initially. Later attempts to improve the accuracy of these predictions failed. Simulating as well as hypnotized Ss generally exhibited the classical features of hypnosis: slowness in responding (behaviorally or verbally), lack of voluntary movement, etc. Thus, it was not possible to discriminate correctly group assignment through E's observations of Ss' behavior. The possibility of experimental bias was therefore minimized.

TABLE 6

Predictions of Group Assignments
By The Experimenter

	Percentage of Correct Predictions		
	1[a]	2[b]	3[c]
Hypnotic Ss	90	40	40
Simulating Ss	20	60	60
Total Ss	55	50	50

Note - The expected percentage by chance alone is 50%

[a] Just prior to the initial regression instructions.

[b] Just prior to the second age regression instructions.

[c] Just prior to the awakening.

In Table 7, the degree to which Ss thought they were hypnotized, is presented. Ss in the hypnotized group clearly thought they were hypnotized, while Ss in the simulating group generally thought they were not hypnotized ($\chi^2=9$; df=2; $p<.05$). All of the four Ss (2 from the hyp-

notized group, 2 from the simulating group) who failed to meet the behavioral index required for group assignment - felt that they were hypnotized. The descriptions of the experience for those who thought they were hypnotized, centered around "vivid memories and images" and "strong, vivid feelings," while the descriptions of the experience for those who thought they were not hypnotized, centered around "couldn't remember the past," "not relaxed, felt foolish," and "the experience was not vivid, 3-D."

TABLE 7

Self Reports
Subjects' Experience of Hypnosis

	Number of Ss who generally felt Hypnotized	Number of Ss who were Undecided	Number of Ss who generally Didn't Feel Hypnotized
Hypnotic Ss N=10	9	1	0
Simulating Ss N=10	3	1	6

Grammatical Structure of the stories: The ratios of certain parts of speech were analyzed using the procedures outlined by Kline and Haggerty (1953). The proportion of nouns, pronouns, verbs and adjectives were noted in stories obtained in waking and regressed conditions for both the hypnotic and simulating Ss. The parts of speech were determined by an upper elementary school teacher's ratings; the stories were coded and mixed before rating. Stories shorter than 50 words were arbitrarily discarded from this analysis, since there were not enough words in each of the

categories to make the ratios accurate or meaningful; 16 of the 80 stories did not exceed 50 words (13 of the simulator's stories and 3 of the hypnotic Ss' stories), and were discarded. The results of the ratings are represented in Figure 3. Since the procedures of the present study involved a regression to different ages (below16) for the Ss, the data represents the grouped (regardless of regressed age) proportions of the various parts of speech in the regressed condition. No effort was made to break this grouped data into the various ages, because the number of Ss involved was relatively small; there were only one or two Ss for each regressed age.

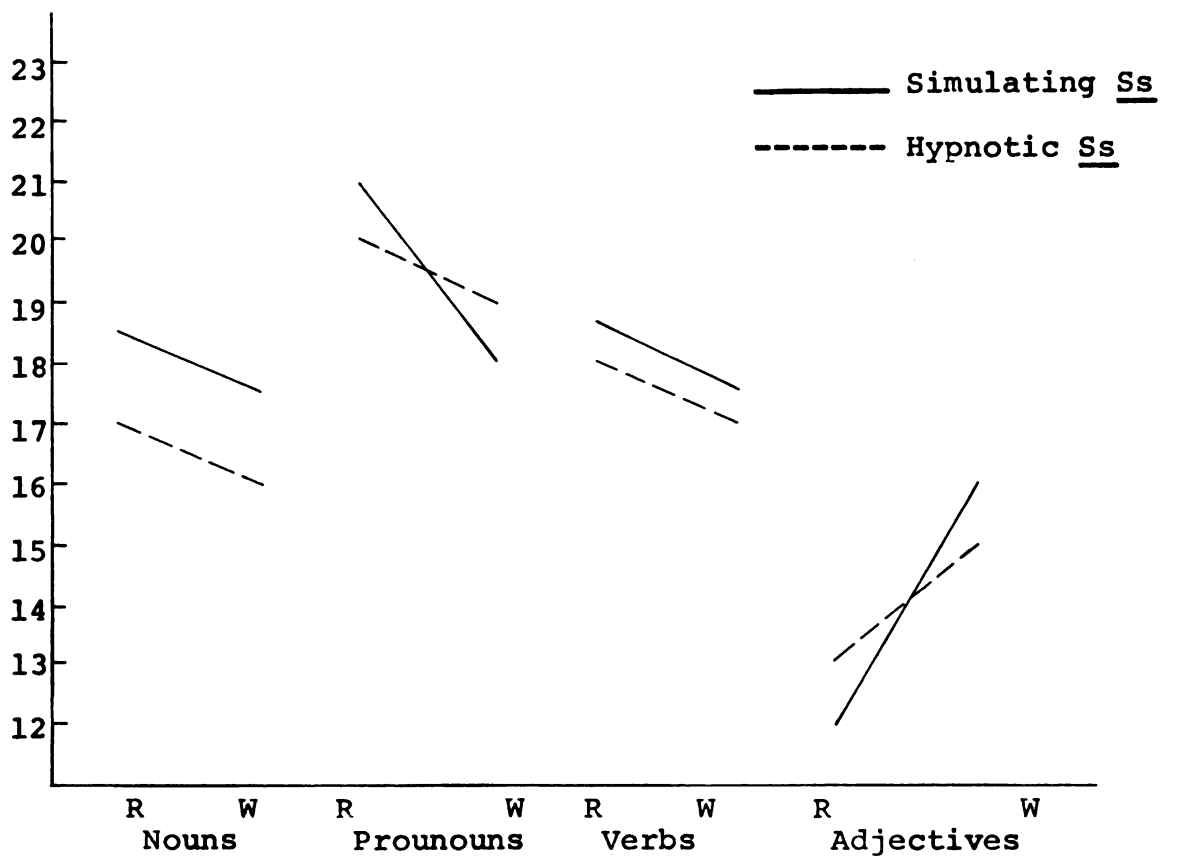

Fig. 3 The percentage of nouns, pronouns, verbs and adjectives in the regressed and waking conditions for the hypnotic and simulating Ss. "R" refers to the regressed condition and "W" refers to the waking condition.

It can be noted by inspection, however, that there was very little difference in the parts of speech of the simulating and hypnotic Ss in either the regressed or waking state. The shifts from the regressed to waking conditions generally conform to normative data, which indicates that children's language contains more nouns and pronouns and fewer verbs and adjectives than the language of older normal subjects (Ellsworth, 1951).

The mean word length of Ss' productions are presented in Table 8. The hypnotic and simulating Ss did not differ in the length of their story in either the age regressed or waking conditions, with either the TAT or Symonds card as the stimuli (Tables 9, 10).

TABLE 8

Length of Productions

	Age Regressed Condition		Waking Condition	
	TAT	Symonds	TAT	Symonds
Hypnotic Ss	97.1	95.9	110.8	106.3
	(82.1)	(45.2)	(38.0)	(41.6)
Simulating Ss	69.9	73.8	103.2	88.5
	(73.5)	(56.0)	(51.6)	(47.9)

Note - The numbers are the mean word length of Ss' productions. The numbers in parenthesis are the standard deviations.

TABLE 9

Analysis of Variance
Length of TAT Card Productions

Source	Ss	df	ms	F	p
Total	1504	39			
Between Subjects	959	19			
Conditions	44	1	44	.866	>.10
Error-b	915	18	50.8		
Within Subjects	545	20			
Trials	37	1	37	1.72	>.10
TrialsXCondition	28	1	28	1.30	>.10
Error-w	480	18	21.6		

TABLE 10

Analysis of Variance
Length of Symonds Card Productions

Source	Ss	df	ms	F	p
Total	874.8	39			
Between Subjects	578	19			
Conditions	35	1	35	1.16	>.10
Error-b	543	18	30.2		
Within Subjects	296.8	20			
Trials	16.3	1	16.3	1.07	>.10
TrialsXCondition	5.0	1	5	.33	>.10
Error-w	275.5	18	15.3		

Intense emotional reactions and problems with the hypnosis: The ancedotal aspects of the study are important, although they were not frequent enough to analyze statistically.

Only hypnotized Ss (3) and one simulating S who accidentally fell into a trance, demonstrated any intense emotional reactions (IER) (crying, hyperventilating, screaming); no simulating S produced this type of response. All such reactions occurred during the hypnotic age regression procedures. For two Ss, IERs occurred only in response to the Symonds card. For the other two Ss, IERs occurred in response to both cards, with more intense and/or revealing responses occurring to the Symonds card than to the TAT card.

Each experience involved sexual material, generally with rather blatant oedipal implications. For example, one S stated (Symonds card):

> (20 sec.) I don't know who I am, but it's not me. (Heavy and rapid breathing)...(What's happening?) I'm walking to the door and I'm all alone and there's a man and he says he knows my Dad. I can see myself, but it's not me. He said to let him in and he'd wait. And I did. And he sat down and he talked to me and he's old...and he...and he sat down. He hurt me. He took my arm and he hurt it. And came in and I was crying. It's not me, it's not me. It's not my mother. (Heavy and rapid breathing) (20 sec.) (What's happening now?) I don't know, I don't know. (Whispering) (How do you feel?) It's not me, it's not me. (When you're through describing these experiences you can raise your right hand). (hand raised).

The story involved the defense of denial, confusion in the identity of the characters and the activation of symptomatology similar to a dissociative reaction. Another S related the following story (Symonds card):

> (Crying, heavy breathing) I feel so guilty. I, it's... Pappa is supposed to love Mamma, but I want him to love me, and he doesn't. (Screams and opens eyes, very heavy breathing).

The full transcripts of all productions with incidents of intense emotional reactions are included in Appendix C.

DISCUSSION

The results of the present study are quite relevant to the current controversy regarding the nature of hypnosis. If hypnosis is nothing more than role-playing, hypnotic and simulating Ss would be expected to produce similar behavior, regardless of the nature of the task, assuming the demand characteristics were identical for both groups of Ss. Alternatively, if hypnotic and simulating Ss differed in behavior, the results could be attributable to differences in Ss' state or condition. It was hypothesized that both groups of Ss would not differ in their responses to a highly cognitive task, but would differ in their thematic productions under conflict arousing suggestions in the age regression and waking conditions.

Although, as predicted, hypnotic Ss generally tended to give more blatant, level I, responses than simulating Ss in the age regressed condition - the numbers of such responses were rather infrequent for both groups.

Two differences in procedure between the Reyher and Shoemaker (1961) study and the present study, may have contributed to the relative infrequency of level I responses. First, unlike the earlier Reyher and Shoemaker (1961) study

in which Ss were intensively questioned about their regressed experiences, E in the present study maintained no interaction with Ss during the regressed (or waking) procedures.[1] This was done deliberately, to minimize the possibility of experimenter bias by using a standard approach to all Ss and to examine the effects of hypnosis alone, not the effects of intensive questioning under hypnosis. Whatever the purpose, however, this procedure may well have had the effect of restoring the hypnotized Ss' defenses by avoiding anxiety producing inquiry by the E and by providing S with a means of terminating the session (i.e. by raising her hand to indicate "the end" of the story). Second, Reyher and Shoemaker used clients as Ss; the primary E was S's therapist. This certainly differs from the present situation in which Ss had not established a relationship with the primary E and were not motivated to produce drive related self disclosure.

In spite of limitations arising from the procedures, the available data supported the hypothesis that hypnotic Ss would produce greater story changes in their waking productions than the simulating Ss. This suggests greater repression on the part of hypnotized Ss than on the part of simulating Ss. Changing the characters and situations did not reduce the anxiety sufficiently enough for the hypnotic Ss;

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[1]The only exceptions to this rule were in cases where productions were very meager or completely lacking in detail. In such instances E's inquiries were designed to simply promote a production (e.g. "what's going on?"), not lead the S or probe certain conflict areas. There were only 4 such interactions among the 80 productions.

the affects and intentions had to be changed more than the simulating Ss on the Symonds cards.

In terms of their general overt behavior, hypnotic and simulating Ss could not be distinguished. This has been observed in previous studies (e.g. O'Connell, et. al., 1970). The finding was particularly expected in view of the "training" sessions in hypnosis provided all Ss in the present study.

Although it was not hypothesized, it was not too surprising that simulating Ss performed on a cognitive task, closer than hypnotic Ss to the reported age during the hypnotic age regression procedures. Some previous studies have found that role-playing Ss performed closer to the suggested level than hypnotized Ss, using a standard intelligence test (Young, 1940; Sarbin, 1950; Barber, 1961) and DAP protocols (Taylor, 1950; Orne, 1951) as a criteria. The difference in performance has been ascribed to the "surrendering of critical attitudes under hypnosis," while the role players "continued to utilize them for more accurate performance" (Young, 1940). The finding clearly supports the view of hypnosis as an "altered state of consciousness" (Kline, 1963) and contradicts the view of hypnosis as simply "role-playing."

The finding that hypnotic and simulating Ss did not differ on a cognitive task in the waking state, was of course expected. Since the Ss were assigned to the group by chance drawing of a group assignment card from an envelope, no differences in scores would be expected.

Thus, the data suggests that hypnotic and simulating Ss

differ in their behavior, depending on the nature of the task. Other observations tend to reinforce this conclusion.

The finding of little difference between the age regressed productions of hypnotic and simulating Ss with respect to certain grammatical features, suggests that simulating Ss are as readily able to produce appropriate shifts in the percentages of parts of speech as hypnotized Ss. However, Kline and Haggerty (1953) earlier have found that a male college student was more able to produce age appropriate ratios of parts of speech in the hypnotically induced age regression condition than in the waking simulation condition. If the suggestions of the present study are confirmed in future, highly controlled research designed to measure more effectively grammatical content, there would be additional evidence for the ability of simulating Ss to produce appropriately regressed behavior when relatively simulable (cognitive) behaviors are observed.

On the other hand, the fact that only hypnotized Ss in the regressed condition produced behaviors readily characterized as intense emotional reactions (crying, hyperventilating, screaming), suggests that there may indeed be more than "demand characteristics" and role-playing involved in hypnotic regression research. Since all Ss were treated identically and since there was an obvious attempt (note regression instructions) to intensify the experience of earlier conflicts, the number of intense emotional responses would be expected to be equal for hypnotized and simulating groups of Ss. In fact, the number of such experiences might have

been predicted to be greater for simulating Ss who presumably have greater possession of their critical attitudes, which could be used to produce the expected behaviors. Clearly, simulating Ss ignored the obvious expectancies of the experimental situation, presumably because of the anxiety producing nature of the task. Since some hypnotized Ss did produce intense emotional reactions, it is likely that at least for those Ss, the hypnotic state brought about a lowering of defenses, enabling rather upsetting experiences to be related.

The finding is consistent with the observations that hypnotic Ss in the age regressed condition tended to give more level I responses than simulating Ss and the observation that hypnotic Ss change their productions more readily than simulating Ss in the waking condition. Under hypnosis, defenses appear to have been lowered, resulting in the more blatant expressions of drive (more level I responses). In the posthypnotic waking condition, hypnotic Ss experienced greater anxiety than simulating Ss and they gathered their defenses to lessen the anxiety (story changes).

As in previous research (o'Connell, et. al., 1970), hypnotized and simulating Ss reported very different subjective experiences. Although this supports the notion of hypnosis as an "altered state of consciousness," an alternative explanation might be proposed. The differences in subjective report may have been a function of instructional effect. As Sheehan (1970) has noted, simulation instructions may promote conservative responding, distancing, among simulating

Ss. In such a case, an emotional response might be viewed by the S as ignoring the instructions, becoming too personally involved. Of course, in the present study, the demand characteristics clearly focused on intense, personal involvement. Simulating Ss did not appear willing or able to meet these expectations.

Two methodological issues may have affected the results of the present study. The subject selection process and the hypnotic age regression procedure probably worked against the hypotheses and minimized the observed differences between hypnotic and simulating Ss.

The subject selection process and criteria for participation in the study apparently differed from that of Reiff and Scheerer (1959) and O'Connell, et. al., (1970). In both earlier studies, student volunteers were generally given a few individual interviews in which their level of susceptibility was assessed. Criteria for inclusion in both studies was the ability to demonstrate consistently complete posthypnotic amnesia, positive and negative hallucinations, and posthypnotic suggestions, as well as many other standard hypnotic tasks. The results of this highly conservative selection process was that only around 5% and 2 1/2% of the original volunteers participated in the Reiff and Scheerer and O'Connell, et. al. studies, respectively.

In the present study, Ss were screened in group induction sessions and selected for the experiment if they successfully followed nearly all of the suggested tasks, and if they

had an amnesia for most of the tasks. Later, in an individual pre-testing session, Ss were given projective story tasks and a practice age regression, as well as a few of the standard tasks. Participation in the experiment required successful completion of each of these suggestions and a complete amnesia for the suggestions, as well as the following of a posthypnotic suggestion for rapid reinduction of the trance state. If Ss passed the criteria, the experiment was immediately continued until completed. The result of this somewhat more liberal selection process, was that around 15% of the original volunteers participated in the study. The Ss' relatively lower susceptibility to hypnosis may have resulted in a minimizing of the differences between the hypnotic and simulating Ss. This would make the findings of the present study all the more significant.

It was anticipated that a procedure using hypnotically aroused conflict, heightened by age regression to earlier periods of emotional conflict, would maximize the differences between hypnotized and simulating Ss, by lowering the defenses of the hypnotized Ss. Unfortunately, the procedure might have had the effect of restoring or maintaining the Ss' defenses, since they were not directly confronted with the threatening material by the E and since they could terminate the anxiety producing situation by simply raising their hand. In other respects, however, the age regression instructions in the study are similar to the clinical use of "Revivification," alluded to by O'Connell, et. al. (1970), except that normal college students were used and it was more highly

controlled (e.g. specific stimulus-pull instructions, etc.) than in the psychotherapeutic applications.

O'Connell, et. al. (1970) have also stated that such procedures are not identical to age regression and that their findings do not challenge "either the therapeutic importance nor the genuineness" of revivification. They seem to imply that affect arousing procedures cannot be appropriately classified as "age regression" procedures. Although the procedure certainly is not identical to those used in laboratory research to date (except for Reyher and Shoemaker, 1961), it should definitely be a part of age regression research. In contrast to the studies of Reiff and Scheerer and O'Connell, et. al., age regression achieves a more complete meaning in its use in this study. The affective quality of the age regression has been largely ignored in these previous studies, in favor of an emphasis on the cognitive aspects. It would seem reasonable to assume that the inclusion of both the affective and cognitive features in the age regression - would produce a more vivid experience. Thus, it is felt that the affective aspects are quite relevant to the study of hypnosis and can be effectively studied in the laboratory. In the present study, it was found that hypnotic and simulating Ss did indeed differ when such variables were considered.

Watkins (1971) has used a therapeutic technique very similar to the technique used in the present study, called the "affect bridge," to break through intellectualization of therapy. Patients' associations are encouraged to move along chains of affects instead of chains of ideas. Clients are

hypnotized and age regressed to the period when the affect was first experienced. Just as regression experiences are made more vivid and real in hypnotherapy, they may also be made more vivid and real in the laboratory situation through the intensification of an affect and the regression to the personally important period or incident.

Two more general methodological issues involve the selection of projective cards to stimulate thematic productions and the use of highly susceptible Ss as simulators.

The effectiveness of an experimental design in testing differences between hypnotic and simulating Ss depends in part upon the stimuli used as well as the procedures used. In the present study, the Symonds card was clearly much more anxiety producing for the Ss, particularly the hypnotic Ss, than the TAT card. The most notable differences between the cards are the lack of extraneous details and the closer proximity of the male and female figures in the Symonds card, compared with the TAT card. These features presumably more directly stimulate conflicts of an oedipal nature.

To avoid confounding subject and treatment differences, the control (simulating) Ss were as highly susceptible to hypnosis as the experimental (hypnotized) Ss. As in an earlier study designed to test highly susceptible Ss' ability to simulate hypnosis (Austin, 1963), it was found that highly susceptible Ss were able to simulate hypnosis without becoming entranced. In the present study and an earlier study by Austin (1963), Ss could not be distinguished in their overt behaviors from hypnotized Ss. They did not experience a post-

hypnotic amnesia and they did not follow posthypnotic cues (the main criteria for Austin). One of the Ss in both studies also stated that the task of simulating was a difficult, somewhat unpleasant one.

It is thus possible to use highly susceptible Ss to simulate hypnosis. With safeguards provided here and outlined earlier by Austin, it can be reliably determined whether or not a simulating S has accidentally fallen into a trance. The use of such a control group is highly desirable, so that confounding treatment and subject effects can be avoided.

Another final methodological issue which has been raised recently, involves the adequacy of the real-simulator design itself. Although the problem of using different populations in the experimental and control group can be overcome by using highly susceptible Ss as simulators - a potential problem remains. The design requires that the two (or more) groups of Ss receive different instructions.

As Reyher (1971) has pointed out, hypnotized and simulating Ss are given different instructions, with the result that the experimental situation is different for both groups. For example, simulating Ss are asked to pretend to be hypnotized, fool an authority figure, etc., while hypnotized Ss assume a passive-dependent regressive manner before an authority figure. The finding of differences, or no differences, between simulating and hypnotized groups of Ss cannot be conclusively attributed to hypnosis or role-playing, since Ss respond to the different instructions (e.g. with guilt, hos-

tility, happiness, etc.) which might affect their performance (e.g. resistance, aggression, passiveness, etc.). A recent study by Sheehan demonstrates this point.

Sheehan (1970) has shown that simulation instructions generate certain treatment effects. Sentence completion and word association tests administered following simulation (or hypnosis) instructions and prior to carrying the instructions out - were compared with an earlier (2 weeks) administration of the tests. Highly insusceptible Ss were used for the simulating group and highly susceptible Ss were used for the hypnotized group. Simulators "showed appreciably less conflict (on the sentence completion tests only) after they received role-playing instructions than they had shown previously before instructions to simulate." Hypnotized Ss however, showed no changes across the testings. According to Sheehan, it appeared that the simulators changed their pattern of test behavior in some respects as a result of the instructions.[1] It was assumed that this change in "set," etc. would affect the outcome of the subsequent treatment conditions. Of course, it is not known whether this treatment effect might be true for susceptible simulators, since such Ss were not used. Perhaps insusceptible Ss are far more affected by the simulation instruction effect than susceptible Ss, preferring to

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[1]Unfortunately, subject and treatment effects were confounded. Do insusceptible Ss change their responses more readily than susceptible Ss apart from hypnosis or simulating instructions? Additional control groups of susceptible and insusceptible Ss could have been given the tests twice - or both groups could have been susceptible or insusceptible.

present a less conflicted, more guarded facade.

Although this study was not designed to assess the effects of simulation instruction, some observations can be made. In the post-session inquiry, simulating Ss reported a wide range of reactions to the instructions and the act of simulating. Some stated that they enjoyed fooling the experimenter. Others reported that they wanted to be hypnotized, and found it difficult to remain awake. Some stated that they tried very hard to be convincing. Still others reported that they felt confused and tired. From these rather general comments, it would appear that highly susceptible Ss have very definite, but different reactions to the instructions and subsequent procedures. These reactions might influence behavior in a variety of unspecified ways. It is not possible to assess the effects of simulation instruction on actual behavior, because the study was simply not designed for that purpose. The small sample size also prohibits a post-hoc correlational analysis between various reported reactions and behavior.

Thus, differing instructions given to hypnotized and simulating Ss, even with the rest of the treatment identical for both groups, may affect the results in some specified way, although this has yet to be shown. Simulating is not simply the absence of hypnosis, it is something, (i.e. role-playing). The different instructions given simulating and hypnotic Ss may result in quite different "sets," transference reactions, etc. and quite different behavior. Interpretations of the results must be cautious, since the con-

tribution of the instructional phase to the simulating and hypnotic Ss' behavior is not known and cannot easily (if at all) be separated from the treatment effects.

Another methodological issue should be raised. The tendency in much of the previous research has been to interpret no difference between simulating and hypnotic Ss as an indication that hypnosis is not an influencing variable. One obvious flaw to such an interpretation is that the studies have been relatively similar in design, usually focusing on cognitive and/or highly simulable tasks. The design of these studies suggest that there has been some confusion of phenotype (behavior) and genotype (motive). As the present study has shown, using other tasks and procedures may, however, result in different findings and interpretations. Thus, the outcome depends on the stimuli, tasks and procedures used, as well as the treatment condition (hypnosis vs. role-playing).

The present study should be replicated with a larger number of Ss, with the Symonds (B 8) card only, and with modification in the regression condition. During the age regression phase of the experiment, inquiries (perhaps structured to lessen the possibility of E bias) should be carried out by the E, in an effort to maximize the S's conflict experience. Ss should also not be told that they can end the experiment by raising their hand; the experience should be terminated by the E after certain undisclosed lengths of silence or after another unannounced criteria has been met.

Two recent suggestions of possible "instruction effect" in the "real-simulator" design, make it advisable to include

an assessment of the effect of simulation vs. hypnosis instructions upon the Ss' "set" and/or upon the actual behavior during the experimental activities. For example, Ss in both the hypnotic and simulating groups can be given three different sessions under either the hypnotic or simulating conditions, with each session providing slightly different instructions (emphasis) within the basic simulation or hypnosis instruction. A Simple Latin square design for the hypnotic group and for the simulating group - would make it possible to separate the treatment effects, from the order effects and the effects of different instructions across the sessions. The changes in methodology noted above should be incorporated into the design for a more effective analysis of treatment effects.

SUMMARY

The study was developed in response to the growing controversy surrounding the nature of hypnosis and particularly in response to the two recent studies by Reiff and Scheerer (1959) and O'Connell, Shor and Orne (1970). Although these studies were designed to determine the role of "demand characteristics" in hypnotic age regression research, they lacked two very significant features. Neither study used highly susceptible Ss to simulate hypnosis and neither study used a task which was a relatively difficult task to simulate (ie. non-cognitive). In the present study, all Ss (hypnotic and simulating) were highly susceptible to hypnosis. In addition to a structured cognitive task (WISC, vocabulary), thematic stimuli were used to hypnotically activate conflict. A "free age regression" procedure (regression to a personally upsetting period or incident), was used to intensify the experience of the conflict. The descriptions of the experiences were compared between the hypnotic and simulating Ss.

It was hypothesized that simulating and hypnotic Ss would not differ in their performance on a highly cognitive, structured task in the regressed or waking conditions. As predicted, it was found that there were no significant differences between the groups in the waking condition. However,

simulating Ss actually produced more age appropriate performance than hypnotic Ss in the regressed condition. Simulating Ss achieved age appropriate vocabulary scale scores (WISC or WPPSI), while hypnotic Ss achieved higher than expected scale scores.

On more subjective measures, however, hypnotic and simulating Ss differed. Compared with simulating Ss, hypnotic Ss: tended to give more direct drive expression responses (level I); produced greater changes in affective-motivational states (from the regressed to waking conditions) on one of the two thematic cards; produced more intense emotional reactions in the age regressed condition; were unable to demonstrate age appropriate cognitive functioning in the age regressed condition; and reported more vivid and emotional experiences during the age regressed condition. The findings taken together strongly support the altered state of consciousness theory of hypnosis, and certainly present some contradictory evidence for the role-playing theory of hypnosis.

Methodological issues were also discussed intensively. The use of highly susceptible Ss was considered a very workable method of controlling for possible differences in personality, in the real-simulator design. However, since some of the procedures of the study may have weakened the effect of the hypnosis, improvements in the design were suggested. The possibility was also considered that instructional differences (simulation vs. hypnosis) may contribute to the differences or lack of them, in behavior during the experi-

ment. A design was suggested which incorporated the methodological changes and provided a more effective analysis of the treatment effects.

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APPENDIX A

APPENDIX A

Compairson of Significance Levels Obtained With Performance Test Measures Between Age-Regressed (Experimental)and One-Age Role Players (Control) Groups In The Studies of O'Connell, et.al. and Reiff and Scheerer[1]

Test	Age	Reiff & Scheerer p	O'Connel et.al. p	Statistics
Hollow Tube Test				
Performance level	10	.05	ns	U
	7	.005	.01	U
	4	ns	ns	U
Left and Right Test				
Performance level	10	ns	ns	U
	4	ns	ns	U
Word Association Test				
Abstract responses	Adult	ns	ns	Kruskal-Wallis analysis of variance
	10	.05	ns	U
	7	.05	ns	U
	4	.05	ns	U
Arithmetic Test				
Performance level	10	ns	ns	U
	7	.005	.001	U
Time	10	.01	.05	U
	7	.01	.001	U
Pledge of Allegiance				
Can write	7	ns	ns	Fisher's exact probability
	4	.01	ns	Fisher's exact probability
Clock Test				
Performance level	7	.005	ns	U
	4	ns	ns	U
Mud and Lollipop Test				
Accept Lollipop	4	.04	ns	Fisher's exact probability

Note: All p values are one-tailed except those for the Adult comparisons which are two-tailed.

[1]From O'Connell, et.al., 1970, p. 17.

APPENDIX B

APPENDIX B

Induction and Deepening Instructions[1]

As you know, this is a hypnosis experiment with individuals (Ss were recently screened in a group hypnosis exercise). Unless you have any questions, we'll get started. I'd like you to begin to relax now...and concentrate on the thumbtack you see on the opposite wall (about eight feet from the S at a 30° angle upward from the S's line of sight).

Keep your eyes on the thumbtack. Look at it as steadily as you can. Should your eyes wander from it, that'll be all right...just bring your eyes back to it. Relax. As you relax more and more, a feeling of heaviness perhaps comes over your body. A feeling of heaviness is coming into your legs and your arms...into your whole body...your whole body feels heavy, heavier and heavier. Your eyelids feel especially heavy...Heavy and tired. You're beginning to feel drowsy, drowsy and sleepy...Your breathing is becoming slow and regular, slow and regular. You are getting drowsy and sleepy, more and more drowsy and sleepy, while your eyelids become heavier and heavier, more and more tired and heavy. Your eyes are tired from staring. The heaviness in your eyelids is increasing...Your eyes are becoming wet from straining.

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[1]Verbation instructions given by E to all Ss.

You're becoming increasingly drowsy and sleepy...Your lids are heavy, heavier, like lead...Pushing down, down, down... Your eyes are blinking, blinking, blinking,..closing... closing...

Please extend your left arm straight out in front of you, up in the air, with the palm of your hand down...Left arm straight out in front of you...palm down...straight out in front of you, palm down...I want you to pay close attention to this hand, the feelings in it, and what is happening to it. As you pay attention to it you are more aware of it than you have been...you notice whether its warm or cool, whether there is a little tingling in it, whether there is a tendency for your fingers to twitch ever so slightly... That's right, I want you to pay close attention to this hand because something very interesting is about to happen to it... It's beginning to get heavy...heavier and heavier... as though a weight were pulling the hand and arm down...you can picture a weight pulling on it...and as it feels heavier and heavier it begins to move...as if something were forcing it down... a little bit down...more and more down...down...and as I count it gets heavier and goes down more and more...one, down... two, down...three, down...four, down, more and more down... five, down...six, down...seven, eight...heavier and heavier, down and more and more...nine...down....ten...heavier and heavier...down more and more.

You are very relaxed. The general heaviness you've felt from time to time you now feel all over your body. Now I want you to pay close attention to your right arm and hand...

Your right arm and hand share in the feeling of heaviness... how heavy your right hand feels...and note how as you think about this heaviness in your hand and arm, the heaviness seems to grow even more...Now your arm is getting heavy... very heavy. Now your hand is getting heavy...so heavy...like lead...perhaps a little later you would like to see how heavy your hand is...it seems much too heavy to lift...but perhaps in spite of being so heavy you could lift it a little, although it may now be too heavy even for that...Why don't you see how heavy it is...Just try to lift your hand up, just try. Just try to lift your hand up, just try.

Please hold both hands up in the air, straight out in front of you, palms facing inward - palms facing toward each other...Hold your hands about a foot apart...about a foot apart...both arms straight out in front of you, hands about a foot apart... Now, I want you to imagine a force attracting your hands toward each other, pulling them together...As you think of this force pulling your hands together, they'll move together...slowly at first, but they'll move closer together, closer and closer together as though a force were acting on them...moving...moving...closer and closer...Lower your hands.

I am sure that you've paid so close attention to what we have been doing that you have not noticed the fly which has been buzzing about you...But now that I call your attention to it you become increasingly aware of this fly which is going round and round about your head...nearer and nearer to you...buzzingly annoyingly...hear the buzz getting louder as it keeps darting at you...You don't care much for this fly...

You would like to shoo it away...get rid of it...it annoys you. Go ahead and get rid of it if you want to...(gesture) There, it's going away, it's gone...and you are no longer annoyed...no more fly...Just relax, relax completely...relax... just relax.

Nod your head if you ever have awakened with a start from a dream that you can't recall (nods head). Shortly after I count from one to three you will have a dream. Shortly thereafter you will awaken from this dream with a start... open your eyes and you will not remember anything about it. Also, you will not remember anything about this session. It will be just like a dream that you can't recall. Afterward, after you've awakened, all I will have to do is have you lean back and by the time I count to ten your eyes will be closed and you will be in an even deeper sleep-like state than you are in now...nod your head if you understand. Remember, when I count to three, you'll have a dream, and shortly thereafter, you'll awaken with a start, open your eyes and not remember anything about it....or anything about this session as well...1, 2, 3...

Well, how do you feel?...Would you like to get up, stretch your legs or get a drink of water? (If no, E will leave for a drink)...(2 min. break)...Is there anything about the session that comes to mind? (10 sec.) Do you remember anything at all about the last session? (30 sec.)... Well lean back and relax, relax...1, 2, 3, 4, 5, 6, 7, 8, 9, 10 - deeply relaxed, eyes closed...

APPENDIX C

APPENDIX C

Transcripts of Intense Emotional Reactions[1]

Subject #18: Symonds Card[2]

My mommy and daddy had been fighting and it scared me because my daddy walked out of the house. And I didn't know where he was (crying) and my mommy took us all in the car and we went some place I didn't know. And I was crying. And I was really scared. Any my brothers were trying to tell me not to cry. But I didn't listen to them because I was really scared (crying).

Subject #22: TAT Card[3]

Daddy (whispering) he said, he said he was going to wait for me and mother left and I'm so alone. It's not me...It's not me. It's not my daddy. (Heavy and rapid breathing)... (What's happening?) I don't know where I am. (Whispering, crying) I don't know where I am. It's not me...(What's happening right now?) It's daddy...Horses...It's not the same... It's not me...(Who is it?)...(heavy and rapid breathing) (What's going on?) I don't understand why I look different. I feel different. It's not me. (You'll be able to raise your hand when you're through describing what's going on)...

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[1]Subjects' behavior and E's comments are in parentheses. Each dot equals a 5 second pause.

[2]Hypnotized subject, retained for the final data analysis.

Subject #22: Symonds Card[1]

...I don't know who I am, but it's not me (heavy and rapid breathing) (What's happening?) I'm walking to the door and I'm all alone and there's a man and he says that he knows my Dad. I can see myself but it's not me. He said to let him in and he'd wait. And I did. And he sat down and he talked to me and he's old..and he..and he sat down. He hurt me. He took my arm and he hurt it. And came in and I was crying. It's not me, it's not me. It's not my mother (heavy and rapid breathing...(What's happening now?) I don't know, I don't know (whispering) (how do you feel?) It's not me, it's not me. (When you're through describing these experiences, raise your right hand)..

Subject #26: TAT Card[2]

(Crying, breathing heavily) I should be going to school and having more friends in my own life but I can't. I'm old enough now to take care of my brothers and sisters, while mommy works. I don't want to. I'm tired of it. I wish they'd go away. (crying).

Subject #26: Symonds Card[2]

(Crying, heavy breathing) I feel so guilty. I, it's.. Pappa is supposed to love Mamma but I want him to love me and he doesn't! (screams, opens her eyes) (hyperventilating, crying). (1 minute) (you have a lot on your mind about

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[1]Simulator who became hypnotized against instructions.
[2]Hypnotized subject, removed from further procedures.

something that happened a year ago)[1] ...I was supposed to get married last June. I was on Upward Bound out here; we couldn't see each other often. And he started seeing a girl at work. Next thing I know he was married - they got pregnant - she lost the baby, etc.[2]

Subject #31: Symonds Card[3]

My father put, he sneaked up on my mother to give her a peck on the neck and tried to hold her, embrace here. And my mother would say "Stop it, not in front of the children!" Wow! Don't you love her? Don't you love him? Ma, don't you love him (crying)?

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[1]The S had reported this during the "sample" regression procedure (go back one year), with some emotion (little crying). My purpose was to divert her attention to this obviously less threatening, though uncomfortable incident, restoring defenses.

[2]She became much more calm. The discussion continued at length (about an hour altogether.) She added later that she was currently in therapy and was feeling bad about being cut back to only one group session per week (from 1 group, 1 individual/week). We discussed her current needs and she decided to seek the additional session - a rather assertive step for this passive girl.

[3]Hypnotized subject, retained for the final data analysis.