

CONTEXT AND COGNITION IN POSTHYPNOTIC AMNESIA¹

JOHN F. KIHLMSTROM^{2,3}

Harvard University

Abstract: Coe's (1978) contextualist analysis of posthypnotic amnesia appears to be predicated on the mistaken assumption that the amnesic S actually remembers the critical material. This position leads Coe to place inappropriate emphasis on the social context in which amnesia takes place and to focus on the social-psychological processes that might lead Ss to say that they do not remember something, be believed by others, and even believe themselves. An alternative view is outlined which affirms the surface similarities between posthypnotic amnesia and other failures of memory. From this vantage point, the investigator seeks to understand the cognitive processes that produce subjectively compelling disruptions of memory retrieval, whether found in association with hypnosis or in other circumstances.

Coe (1978) has offered an analysis of posthypnotic amnesia that is valuable on two counts. First, Coe's paper allows us to see Sarbin and Coe's social-psychological analysis of hypnosis applied to a specific hypnotic phenomenon—a view that is largely obscured in the highly generalized accounts contained in their earlier book (Sarbin & Coe, 1972) and a more recent paper (Coe & Sarbin, 1977). Moreover, Coe's (1978) analysis presents us with a valuable opportunity to gain some conceptual clarity in an important research area. In this paper, I wish to respond to Coe (1978) by approaching posthypnotic amnesia from the standpoint of contemporary cognitive psychology.

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³Reprint requests should be addressed to John F. Kihlstrom, Department of Psychology and Social Relations, Harvard University, William James Hall, 33 Kirkland Street, Cambridge, Massachusetts 02138.

THE CONTEXTUALIST VIEW

My reading of Coe's (1978) argument is as follows. The primary evidence for posthypnotic amnesia is S's verbal report that he cannot remember some past events. However, indices of memory that are not so obviously under volitional control provide evidence that the person's self-report is incorrect: the material is available in memory after all. Therefore, we must examine the hypnotic situation to determine what factors lead Ss to say such counterfactual things about themselves. It is asserted that hypnotic Ss decide to be amnesic, and act as if they were, because that is the plot laid out for the hypnosis session and because they obtain some reinforcement contingent on keeping their memories secret from *E*. These Ss are believed by *E* and other observers, because the wording of their self-reports corresponds to the observers' preconception of a passive *S* who forgets things. Moreover, Ss come to believe their own self-reports because they become highly involved in imagining that they are amnesic, or because the honesty demands implicit in the experimental situation lead them to attribute truth to their false self-reports. When the context changes, either through the development of trust in the hypnotist or after he gives permission to recall, Ss disclose their hitherto secret information. This argument is predicated on a worldview called contextualism (Pepper, 1942), a precursor of Sarbin's (1954) role theory, which views people as interacting with their environment and which attempts to understand psychological phenomena through an analysis of the social context in which they occur (see also Sarbin, 1977).

The alternative analysis presented in this paper concurs with Coe's (1978) analysis on a number of points. First, it is clear that behavior and experience are to be understood in their widest context. People do not perceive events in isolation, or act in a vacuum. Nor is the relevant context restricted to the immediate, explicit environmental surround. The distant personal past, plans for the future, and implicit sociocultural demands all exert powerful effects on behavior and experience. Moreover, it is clear that the person is not a passive victim of biological, historical, or current environmental forces, but rather he is actively engaged with his world, constructing and reconstructing the situation to which he responds as well as being shaped by it. This point of view is not unique to any particular theoretical approach to psychological phenomena, such as role theory, but has a long tradition in cognitive psychology (Bartlett, 1932; Mandler, 1975; Piaget, 1952; Niesser, 1967, 1976).⁴ The present paper draws heavily from this latter tradition.

⁴Coe misconstrues the views of those who are concerned about the impact of demand characteristics on the behavior of experimental Ss (e.g., Orne, 1962, 1970, 1973). This concern arises precisely because of their awareness of the importance of contextual

Of course, this view of psychological phenomena applies to hypnosis as much as it applies to behavior and experience in the usual waking state. There exists a wealth of evidence that the hypnotic *S*'s behavior is shaped by the total context in which it occurs (Orne, 1970, 1973), and that many of the manifest phenomena of hypnosis such as hypermnesia, paramnesia, and age regression represent constructive activity on his part (O'Connell, Shor, & Orne, 1970; Orne, 1951, 1959; Stalnaker & Riddle, 1932). Hypnosis may in fact represent a special state of consciousness, as I believe it does, but that statement does not imply that in hypnosis the laws governing behavior and experience are suspended. The important question is: What laws actually apply? Or, put another way: What scientific psychological formulations are sufficient to account for human behavior and experience, in or out of hypnosis? It is on this point that surface agreement fades to reveal a fundamental disparity between Coe's (1978) analysis and mine. Our world hypotheses are very much alike, but we differ on the variables which we take to be most important.

FORGETTING AND EVIDENCE OF REMEMBERING

In terms of phenomenal experience, posthypnotic amnesia is similar to disruptions of memory encountered every day, such as the difficulty we have in remembering our dreams, or the events of early childhood, or the common experiences of misplacing objects such as car keys, or blocking on someone's name at a cocktail party. Somewhat similar experiences can be studied under controlled laboratory conditions by testing an experimental *S*'s memory for word lists or prose passages that he has previously studied. A brief examination of some of these failures of memory should help us arrive at an appropriate conceptualization of posthypnotic amnesia.

Consider first Coe's (1978, Pp. 218-220) discussion of the results of different methods of testing memory during posthypnotic amnesia. He notes, correctly, that the typical amnesic *S* will report that he cannot remember something, but nonetheless show retroactive inhibition effects that could only be produced by the critical material, or when presented with the material the amnesic *S* will emit an electrodermal response that could only have been established by the prior experience. This apparent contradiction in *S*'s behavior does indeed present the investigator with something of a paradox, as I have discussed elsewhere (Kihlstrom, 1977; Kihlstrom & Evans, in press). Coe's emphasis on the social context in

variables in behavior, and their desire to insure that the experimental context represents the ecology of the "real world" as faithfully as possible. Contextual variables which diminish the ecological validity of experimental procedures are indeed properly construed as nuisance variables, and their effects to be artifacts, by those who are interested in the behavior and experience of individuals outside the confines of the laboratory.

which this apparent contradiction arises forces him to write in terms of S's purposeful modification of his memory report. Accordingly, he imputes a great deal of importance to the discrepancy between responses that are easy to modify volitionally (e.g., verbal report) and those that are more difficult to modify (e.g., retroactive interference or electrodermal response). Other investigators have recently pursued a similar line of argument (e.g., Barber, 1969).⁵

However, there is simply no necessary contradiction between a person's statement that he cannot remember something and the evidence provided by collateral procedures that the memory has indeed been stored and makes contact with other ongoing cognitive processes. Coe (1978, p. 220) errs in confusing ordinary forgetting with the loss of memories from storage or their functional ablation. But studies employing list-learning procedures, for example, have shown that material which S cannot recall can be accessed by means of a recognition test (Mandler, Pearlstone, & Koopmans, 1969), or by presenting S with the name of a taxonomic category to which an unrecalled word belongs (Tulving & Pearlstone, 1966) or some other relevant cue (Tulving & Osler, 1968). The Ss can predict accurately whether they will subsequently recognize an unrecalled item as having been learned (Hart, 1965, 1967) and know a great deal concerning the properties of the target item while they are engaged in an unsuccessful recall attempt (Brown & McNeil, 1966). Even without a shift in the type of memory test, and in the absence of further study of the critical material, recall memory can improve with the passage of both long and short periods of time (Erdelyi, Finkelstein, Herrell, Miller, & Thomas, 1976; Madigan, 1976; Tulving, 1967). These complexities of memory simply show that free recall does not necessarily represent the total amount of material that is available in memory storage. This state of affairs, in turn, is not usually explained in terms of the social context in which the various memory tests took place, keeping of secrets, and the like, but rather in terms of the nature of memory retrieval processes.

Consider now the experience of misplacing one's car keys. Coe (1978, p. 226) rightly asserts that "it would seem ludicrous to suggest that the person forgot where the keys were because he or she slipped into a

⁵Note that the argument relies on a distinction between volitionally controllable and uncontrollable responses that is difficult to maintain in practice. For example, appropriately motivated Ss can successfully control electrodermal responses in lie-detection situations (Orne, Thackray, & Paskewitz, 1972; see also Lykken, 1974, for a logical and empirical critique of "lie detection" by means of psychophysiology). On the other hand, recall and recognition memory reports are equally "verbal" and easy to alter, but it is commonly found that recognition memory is superior to recall memory during posthypnotic amnesia (Barber & Calverley, 1966; Kihlstrom & Shor, 1978; Williamsen et al., 1965).

'trance',” but of course no one is making any such suggestion. Even if the person were hypnotized when he laid the keys down, invocation of hypnosis would not explain anything for the simple reason that hypnosis is a *category* of phenomena, not a *causal agent* (Hilgard, 1969). It should also be clear, however, that the event of forgetting the car keys is not to be understood in the same social-psychological terms that Coe proposes for posthypnotic amnesia. Coe's formulation would imply: (a) that one enacts the role of forgetful person by keeping the location of the car keys a secret from himself, in keeping with the social demands of the situation or, in order to gain some reinforcement; (b) others would believe that he has actually forgotten them because he portrays himself as forgetful rather than admit that he is too lazy or unwilling to look for them, or is avoiding an unpleasant appointment in town; (c) he comes to believe that he actually has forgotten them because he has become deeply involved in the “forgetful” role, or because finding the car keys is particularly important; (d) finally, he locates the keys when he feels that it is safe or appropriate to do so. Such an analysis, while certainly interesting, probably applies to only a few cases of forgetfulness.

Even in cases where the surrounding social context can be shown to be important (as in the common case of a person whose mind is on some other matter, or of two people who meet unexpectedly in an unusual place), it is apparent that a more satisfactory account of the episode would employ the concepts of attention, depth of processing, encoding specificity, retrieval cues and strategies, and the like. These are not esoteric mental processes, although the constructs do represent a level of analysis that is far different from that which Coe (1978) employs.

Why, then, does Coe (1978) insist on the propriety of his account of amnesia in terms of role-enactment within a particular social context? Apparently, because he considers a mere verbal suggestion to be “too benign to explain the response [p. 227].” But amnesias induced by verbal suggestion are not unique to the hypnotic context; rather, they have long been the stock-in-trade of the verbal learning laboratory under the label of “directed forgetting” (Bjork, 1972; Epstein, 1972). In the directed-forgetting paradigm, S receives and acts on a signal to forget certain material that he has learned. The suggestion appears to result in a differential coding of items in memory so that material which is to be forgotten may be functionally separated from that which is to be remembered. Directed forgetting and posthypnotic amnesia appear to be similar in some respects, and both may be presumed to be logical outcomes of the way in which memory is organized and controlled in the cognitive system.

What counts, in the final analysis, as evidence of remembering? Can retroactive inhibition, for example, contradict S's verbal report that he

cannot remember something? Coe (1978, Pp. 218-220, 227) implies that it can. But the term *remembering* refers to the active process of gaining access to some fragment of prior experience and constructing an account of the experience on the basis of the fragment (Bartlett, 1932). A failure to remember something does not mean that the trace of previous experience is not available in memory storage, or that it does not make contact with any other cognitive activities, or that it could not be accessed under other circumstances. A failure to remember simply means that the person cannot *now* gain access to the target memory (Tulving & Pearlstone, 1966) or that he cannot construct a complete account based on what he has accessed (Brown & McNeil, 1966). Electrodermal responses, retroactive inhibition effects, and the like cannot contradict S's verbal report for the simple reason that they do not represent the experience of remembering—at least, not in its final form. Thus we are ultimately thrown back on S's verbal report of memory—not, as Coe (1978) would have it, because it is the only index remaining that gives any evidence of amnesia (p. 220), but because it is the only evidence that is admissible.⁶

A COGNITIVE VIEW

In evaluating verbal reports of memory, it is clearly important to consider such social-psychological factors as expectations and motivation, suppression and neglect, and secret-keeping. These are important elements in any account of apparent memory failure. However, the available evidence (reviewed in Kihlstrom, 1977) appears to indicate that as a rule these sorts of factors are not very important in posthypnotic amnesia. Thus, expectations concerning amnesia do not correlate highly with the actual outcome of hypnotic suggestions (Ashford & Hammer, 1978; Shor, 1971; Young & Cooper, 1972); many Ss who deliberately try to forget the critical material do not become amnesic, while many Ss are amnesic who have not tried to forget (Bodorik & Spanos⁷; Spanos & Bodorik, 1977); marked changes in context—such as special requests for

⁶It is true, as Coe (1978) notes, that a reliance on self-report presents certain methodological difficulties to the investigator, especially if situational demands strongly constrain overt behavioral compliance. If the investigator takes the trouble to develop a situation where subjective conviction is emphasized and failure to respond is legitimized, however, and establishes that he and S understand one another, S's behavior is likely to be an accurate reflection of his inner experience (Bowers, 1967; Orne, 1970; Ruch, Morgan, & Hilgard, 1974; Spanos & Barber, 1968). It is worth remembering that whole sub-disciplines of psychology—such as psychophysics—are predicated on the scientific acceptability of self-reports.

⁷Bodorik, H. L., & Spanos, N. P. Suggested amnesia and disorganization of semantic components of memory in hypnotic and task-motivated subjects. Unpublished manuscript, Carleton University, 1977.

extra effort in recall or candor in reporting—do not alter the expression of amnesia (Bowers, 1966; Kihlstrom, Evans, Orne, & Orne^a); and simulated amnesia, which is correctly identified with motivated secret-keeping, appears to be very different from ordinary posthypnotic amnesia (Barber & Calverley, 1966; Bowers, 1966; Evans, 1971; Johnson, Maher, & Barber, 1972; Williamsen, Johnson, & Eriksen, 1965).

Rather, the usual case of posthypnotic amnesia appears to represent a *subjectively compelling* inability to recollect certain events and experiences, despite *S*'s best effort to do so—a memory failure which surprises and puzzles *S*. Given the assumption that posthypnotic amnesia is to be understood in the same terms that are applied to other failures of remembering, then, it seems that Coe's (1978) version of contextualism may be an unwarranted detour from the business at hand. Once we have analyzed the wider social context and determined the relative importance of contextual variables in amnesia, we must move to another level of analysis to complete our view of the phenomenon. It is the position of this paper that we have now reached that point. Thus, we are led to shift our emphasis from the social context *in which* amnesia occurs to the cognitive processes *by which* it occurs.

Such an analysis begins with the proposition that posthypnotic amnesia reflects difficulties in the use of certain memories, rather than the existence of the memories themselves (Hull, 1933). More specifically, it describes posthypnotic amnesia as a disruption of the retrieval of memories that remain available in memory storage. Although there remain important gaps in our knowledge as well as some vigorous theoretical controversies, a great deal is now known about the process of memory retrieval (for a comprehensive review, see Crowder, 1976). What follows is my own eclectic view of memory retrieval, an interpretation based on the work of a number of investigators who do not always agree with each other about the details of the process.

Long-term memory can be meaningfully separated into two components, semantic and episodic (the mental dictionary and the record of personal experience, respectively; Tulving, 1972), while memory retrieval can be usefully separated into two processes, search and decision (Anderson & Bower, 1972). In search, candidate items are generated or sampled from memory storage; this process is not random but rather begins at a particular entry point and proceeds in an organized, strategic fashion, guided along the way by various cues and attributes with which the memories are tagged. Once a candidate item has been generated, the decision process involves testing its attributes against criteria established at the outset of the search. This cycle of search and

^aKihlstrom, J. F., Evans, F. J., Orne, E. C., & Orne, M. T. Attempting to breach posthypnotic amnesia. Manuscript submitted for publication, 1978.

decision continues until the task is completed, or until further search is deemed futile. It should be noted that the process is not as automatic or mechanistic as the language of this account makes it sound. Under ordinary circumstances, the retrieval process yields only a fragment of the prior experience. Remembering, especially of events in the real world, is largely a constructive activity, and the final product is shaped by the same schemata or cognitive structures that are employed to perceive other aspects of the world (Bartlett, 1932; Jenkins, 1974; Neisser, 1967, 1976).

According to this account of remembering, forgetting can result from a failure at any one or more points in the process of memory retrieval. Search may begin at an inappropriate entry point or the associational network uniting the items stored in memory may not be sufficiently rich to permit access to some target items. The attribute tags attached to the memories may not be appropriate to the search strategy that is employed or relevant to the decision criteria that have been established (obviously, the difficulty can lie either with the attribute tags or with the search strategies and decision criteria, or both). Particularly important is the principle of encoding specificity (Neisser, 1967; Tulving & Thomson, 1973): the schemata with which one approaches the task of retrieval must match those which guided the initial perception of the event and subsequent encoding in memory. This list is not exhaustive of the possible causes of forgetting known at present, and it will certainly expand as we come to better understand the process of memory retrieval. The point is that each of these possibilities can be tested empirically with respect to posthypnotic amnesia. The cognitive viewpoint generates experiments as well as explanations.

Evidence Bearing on the Cognitive View

Some of these experiments have now been completed. Although the cognitive approach was implicit in some earlier work in the area (Blum, 1967; Evans & Thorn, 1966; Williamsen, et al., 1965), only recently has it been stated explicitly and employed systematically to guide research (Evans & Kihlstrom, 1973; Kihlstrom, 1977; Kihlstrom & Evans, in press). What we know already indicates that conventional posthypnotic amnesia affects the episodic but not the semantic components of long-term memory (Evans & Thorn, 1966; Williamsen et al., 1965); and that the locus of memory disruption lies principally in the search component, not the decision component, of retrieval (Kihlstrom & Shor, 1978; Williamsen et al., 1965). We have also uncovered an apparent defect in the temporal organization of recall during amnesia (Evans & Kihlstrom, 1973; for two independent replications, see Kihlstrom & Evans, in press)

*See footnote 7.

and found evidence that this defect reflects S's apparent inability to use certain organizational cues and strategies rather than his simple neglect of them—in Flavell's (1970) terms, a mediational deficiency rather than a production deficiency (Kihlstrom & Evans, in press). Others have found a defect in the organization of recall by taxonomic category (Spanos & Bodorik, 1977; for a replication, see Bodorik & Spanos⁹).

This research has been more thoroughly reviewed elsewhere (Kihlstrom, 1977; Kihlstrom & Evans, in press): the findings of the various experiments raise some questions (as any worthwhile research will) but in general they indicate to us that we are on the right track. Coe (1978), however, finds the results either unconvincing or actually supportive of the contextualist view; his comments cannot be ignored.

Source amnesia. Coe (1978, Pp. 233-236) criticizes the reports of source amnesia on both methodological and empirical grounds. First, he asserts that Evans and Thorn (1966) erred in scoring as instances of source amnesia those cases where S correctly stated the source of the information but appeared to be guessing or deducing it. But Evans and Thorn did not arbitrarily choose to disbelieve their Ss: the criterion was chosen in recognition of the fact that many Ss will (correctly) attribute some unusual self-observation to hypnosis without having any direct awareness that this is the fact. This often occurs in posthypnotic suggestion accompanied by amnesia, but similar cases of indirect reasoning occur outside of hypnosis too, as in the case of one who (correctly) attributes gastrointestinal distress to something he ate without having his stomach pumped and the contents examined under a microscope. We must distinguish between memory and inference: and when we do, the incidence of posthypnotic source amnesia is found to be approximately 10% in an unselected sample—just as is the case for hypnotic deafness, posthypnotic automatic writing, and many other classic hypnotic phenomena. (The comparative rarity of a phenomenon should not make it any less interesting to either cognitive or social psychologists.)

Concerning the phenomenon itself, Coe (1978) suggests that occasionally hypnotic Ss may be surprised by the general-information questions, and thus give the correct answers without thinking; they subsequently attempt to cover up their slips by claiming not to know the source of their knowledge, or confabulating the source. Perhaps—though it is of interest to note that simulating Ss, who clearly *are* trying to enact the hypnotic role by withholding secret information, do not slip in this way (Evans, 1971). It would be of interest to know if source amnesic Ss typically give more than one such response: if S slips once and covers it up, it should be unlikely for him to slip again. Clearly more information is needed on this point.

Finally, Coe (1978) cites Cooper's (1966) finding of an order effect in

testing of spontaneous and suggested posthypnotic amnesia. He is correct when he states that context is of some importance here. If a suggestion is given on the first trial, the implied definition of the phenomenon as suggested makes it extremely unlikely to occur on the second trial unless another specific suggestion is given. But if the explicit demands contained in the suggestion were of overriding importance, the group of Ss which received the opposite order of testing (spontaneous, then suggested) should have shown an increase in source amnesia after the suggestion, compared to what spontaneously occurred on the first trial.

Disrupted retrieval. Coe (1978, Pp. 236-238) discounts the studies which show a disruption in the organization of recall during amnesia. With regard to organization by temporal-sequence cues, it may be said simply that the effect uncovered by Evans and Kihlstrom (1973) has been replicated in two subsequent studies (Kihlstrom & Evans, in press)¹⁰ and no failures to replicate have been reported. The findings of Spanos and Bodorik (1977) concerning clustering by taxonomic category have also been replicated (Bodorik & Spanos¹¹). Both sets of findings, then, are statistically and empirically reliable. In the study of category clustering conducted by Coe and his colleagues (Coe, Taul, Basden, & Basden, 1973), however, Ss were given only three trials to learn a list of 35 words that were presented at a rapid rate; if Ss did not learn the list well to begin with, floor effects may have prevented them from showing any disruption in category clustering during amnesia (the Spanos-Bodorik studies took care to insure that Ss mastered the list). Spanos, Bodorik, and Shabinsky¹² failed to find a similar effect of amnesia on the subjective organization of a list of unrelated words; but subjective organization may not have been highly developed even by the time their Ss met the criterion of list mastery (thus suggesting the spurious influence of floor effects), and the particular measure which they employed to measure subjective organization may not have been sensitive to the retrieval strategies employed by their Ss. This is an important topic for future research, and, with appropriate procedures, subjective organization during amnesia should be found to parallel taxonomic clustering.

Coe (1978) correctly calls attention to the fact that a fair proportion of

¹⁰Comparing hypnotizable and insusceptible Ss by *t* test, the effects reported by Evans and Kihlstrom (1973, Table 3) are clearly significant in two out of three procedures employed, with a strong trend in the third confirmed by a X^2 test (Table 2). In the two replications reported by Kihlstrom and Evans (in press, Table 3), the findings are significant by *t* test in all three comparisons.

¹¹See footnote 7.

¹²Spanos, N. P., Bodorik, H. L., & Shabinsky, M. A. Amnesia, subjective organization, and learning for high- and low-imagery nouns in hypnotic and task-motivated subjects. Unpublished manuscript, Carleton University, 1977.

insusceptible Ss, presumably not even partially responding to the amnesia suggestion, also show a low level of temporal organization in recall during amnesia (Evans & Kihlstrom, 1973, Table 2; Kihlstrom & Evans, in press, Table 4). This result probably reflects the confounding of individual differences in preferred organizational style with the effects of suggested amnesia. It may not occur to some Ss to organize their recall by temporal order, while other Ss may choose not to do so; this may be termed a production deficiency (Flavell, 1970). When Ss are asked to place the recalled items in their proper sequence, however, insusceptible Ss do so readily while hypnotizable Ss continue to manifest relatively poor temporal sequencing (Kihlstrom & Evans, in press); this is the evidence in favor of a mediational deficiency (Flavell, 1970) account of temporal disorganization during amnesia. Further research is clearly necessary to fully document this conclusion.

Coe (1978) suggests that the temporal sequencing effect may not, in fact, be related to partial posthypnotic amnesia—primarily because it is observed in Ss who are only moderately hypnotized. It is important to recognize, however, that the more highly hypnotizable Ss—who tend to show more complete amnesia—must be excluded from consideration by virtue of the measurement procedure that must be employed (the same point holds true for the Spanos-Bodorik studies). Even so, random temporal sequencing during amnesia testing is systematically related to other concurrent aspects of amnesia such as the number of items initially recalled and subsequently reversed, as well as to overall hypnotic susceptibility; it also predicts these same aspects of amnesia and general hypnotizability as they are found on another standardized scale administered to these same Ss at a later date (Kihlstrom & Evans, in press, Tables 5-7). The temporal sequencing effect is relatively small, especially on the Harvard Group Scale of Hypnotic Susceptibility, Form A (Shor & E. Orne, 1962), but it clearly is part and parcel of posthypnotic amnesia.

Evidence Bearing on the Contextualist View

Coe (1978, Pp. 230-233) makes it clear that the heart of the contextualist view is that posthypnotic amnesia is a "doing": that in response to explicit and implicit social demands and cues S withholds his memory report, suppresses his memories, or engages in goal-directed fantasy concerning forgetting. Those who argue for the cognitive point of view recognize the importance of the social context in which amnesia occurs and have been concerned with the extent to which these activities are involved in amnesia. If they are of paramount importance, of course, it makes little sense to inquire further into the cognitive processes that underlie an amnesia that does not exist.

Verbal inhibition. Consider, first, the finding (cited by Coe, 1978, Pp.

232-233) by Spanos and his colleagues (Bodorik & Spanos¹³); Spanos & Bodorik, 1977; Spanos et al.¹⁴) that a substantial proportion of apparently amnesic Ss report postexperimentally that they did not actually forget the words in question, but rather failed to say them—admittedly a puzzling finding. Note, however, that the postexperimental inquiry was carried out by means of a forced-choice: denial by an amnesic S of one option necessarily entailed affirmation of another, with little middle ground allowed. In research in progress, we have posed the identical question to amnesic Ss, while allowing them some freedom of response. Our completely amnesic Ss, like Spanos', do not often report forgetting; but neither do they report verbal inhibition or report suppression. A typical response is: "Obviously I didn't forget the words, because I remember them now; but I didn't remember them then." Apparently many college students identify forgetting with the decay or ablation of memory traces. In that context, and forced to choose, they will not claim that they "forgot" in that sense; but their choice of responses should not be misconstrued, as their clarifying remarks make clear that they could not remember the critical material either. Posthypnotic amnesia, like most instances of ordinary forgetting and most instances of clinical amnesia, represents an inability to gain access to memories that are available in storage.

Neglect and the keeping of secrets. Other evidence comes from the studies on breaching amnesia cited by Coe (1978, Pp. 238-241). In the first of the two studies described, Bowers (1966) found that defining the experiment as over (without cancelling the amnesia suggestion) led simulating Ss to give full memory reports, while the hypnotic Ss maintained their amnesia. Coe criticizes the experiment because Bowers deviated from Orne's (1962) real-simulator design, but in view of Coe's previous criticisms of that same design (Sarbin & Coe, 1972), it is not clear what difference it would have made had Bowers rigidly adhered to Orne's suggested procedures. There is little to gain, say the fact that Bowers' simulators successfully pretended to be amnesic before one E but dropped their pretense under a different set of interpersonal demands; with the same new set of demands, however, the hypnotic Ss maintained their amnesia. Again there is a difference in behavior that suggests that the amnesia of the real hypnotic Ss should not be identified with secret-keeping. It is true that the two groups are different in terms of the original set of demands, in that one had established a hypnotic relationship with the first E; but Coe does not specify how this variable might importantly affect the conclusions of the study.

¹³See footnote 7.

¹⁴See footnote 12.

The study by Kihlstrom et al.¹⁵ may be more germane to this issue, because all Ss were treated in precisely identical fashion up to the point at which the retest, cue, challenge, and honesty demands were given. Thus, there is no question that the context for the initial amnesia response was the same for all groups. After the experimental and control treatments were administered, the second amnesia test revealed two major results which must be puzzling to a contextualist: radically different demands (cue, challenge, honesty) produced identical results—a significant, but partial lifting of the amnesia; and the extent of this lifting of amnesia was no greater than that found in the retest group, for which the demands were not altered at all. While Coe (1978) prefers to interpret these results as showing that all four of the instructions breached amnesia, it is important to remember that one of the groups did not, in fact, receive any special instructions. Because the experimental groups did not produce any increment in recall over and above that shown by the control group, the principles of experimental method force us to the null hypothesis that *the special instructions did not have any effect*. A likely alternative interpretation is that posthypnotic amnesia, at least in inexperienced Ss, remits with time regardless of demands—a new hypothesis that itself is subject to evaluation by controlled experiment. The challenge and honesty demands employed in this experiment were as strong as we felt we could make them. Stronger demands may indeed have different effects, but until someone obtains positive evidence on this point, it seems more reasonable to conclude that posthypnotic amnesia remains robust in the face of demands for extra effort in recall and honesty in reporting, and thus that it does not involve large elements of neglect and secretiveness.

Amnesia as a "doing." Coe (1978, Pp. 232-233) contends that properly motivated Ss typically respond to an amnesia suggestion by deliberately trying to forget the material, often by means of distraction or goal-directed fantasy. The principal evidence cited for this statement is a study by Spanos and Ham (1973) of a type of specific amnesia that is very different from the sort of amnesia under discussion here: losing the digit "4" from one's number system. More recent work by the same investigator, in fact, suggests that these findings may not be highly generalizable. In the study by Spanos and Bodorik (1977), for example, 14 Ss showed at least partial posthypnotic amnesia; but 8 of these (57%) reported that they had *not* actively tried to forget the words; rather, they typically said that they were unable to report the material, found it was hard to remember, or used no strategy at all. Likewise, Bodorik and Spanos¹⁶ found that 11 out of 19 hypnotic Ss (58%) who experienced

¹⁵See footnote 8.

¹⁶See footnote 7.

amnesia had *not* tried to forget the material. Spanos et al.¹⁷ did not collect postexperimental reports of cognitive strategies during amnesia, but the consistency of the figures obtained in the two previous studies strongly suggests what the outcome would have been. Yet these Ss were amnesic.

In passing, it might be noted that in all of these recent studies waking task motivation instructions were not as effective as hypnotic instructions in producing amnesia (Bodorik & Spanos¹⁸; Spanos & Bodorik, 1977; Spanos et al.¹⁹). Bodorik and Spanos²⁰ found the highest incidence of task-motivated amnesia (13 Ss out of 39 Ss, compared to 28 Ss out of 39 Ss in the hypnosis condition), presumably because all Ss had been initially selected on the basis of relatively high hypnotizability. Even so, significantly more task-motivated Ss than hypnotic Ss reported that they deliberately tried to forget the critical material. Apparently, posthypnotic amnesia represents something more than the results of a motivated attempt to keep something out of mind or speech. Obviously, much of hypnosis represents a "doing," in Coe's (1978) terms: S voluntarily enters hypnosis and actively constructs his response to many suggestions. But Coe himself notes that the distinction between "doings" and "happenings" is not always clear—especially in situations such as dreaming which bear a superficial resemblance to hypnosis (1978, p. 231). In fact many hypnotic suggestions, such as amnesia, are experienced by S as "happenings." The Ss are puzzled at finding recall to be vague, inefficient, and unproductive. The cognitive view is primarily concerned with this final state of affairs and seeks to discover the processes that underlie this difficulty in remembering.

Dissociative Processes in Hypnosis and Amnesia

The available evidence, then, tends to offer stronger support for the cognitive than for the contextualist point of view. At present, the research focuses on constructing a theoretical account of posthypnotic amnesia that is based on available models of remembering and forgetting. The question inevitably arises, however: What is it about hypnosis, and the administration of the amnesia suggestion, that allows posthypnotic amnesia to occur? And how does the reversibility cue function to restore access to the critical memories? It is premature to offer any detailed speculations in this regard: we simply do not know enough yet about memory, amnesia, and hypnosis. A few points, however, may give

¹⁷See footnote 12.

¹⁸See footnote 7.

¹⁹See footnote 12.

²⁰See footnote 7.

the flavor of one line of thought, which flows from Neisser's (1967) account of higher mental processes.

Percepts, images, memories, and ideas are constructed on background schemata (Neisser, 1967) which form a spatio-temporal and conceptual framework constituting the person's generalized reality orientation (Shor, 1959). The twin processes of assimilation of new information to these schemata and the accommodation of the schemata to the new information mean that these background cognitive structures are in a constant state of flux, although under ordinary circumstances there remains a large measure of continuity across points in time. Certain biophysical or psychosocial events, however, may produce radical changes in these schemata: falling asleep, ingesting a psychoactive drug, moving from one stage of cognitive development to another, and experiencing a religious conversion are a few examples of such events; becoming hypnotized may be another, by virtue of the narrow focusing of S's attention at the same time that his involvement with the suggestions brings new schemata to bear on the experienced world. The consequent alteration or fading of the generalized reality orientation is what is meant by a change in consciousness: new schemata come into play and the world literally "looks different." In other language, this process represents a shift in the contextual stream of perception, memory, and thought (Hammer, 1961), or in the hierarchies of multiple controls over thought and action (Hilgard, 1977).

This hypothesized shift in cognitive structures has important consequences for memory because successful recall depends on both (a) embedding a new memory in a rich and highly organized framework, and (b) a match between the schemata employed to construct the original percept and initially encode it into memory, and those schemata that are later used to probe memory and reconstruct a memorial account (Craik & Lockhart, 1972; Neisser, 1967; Tulving & Thomson, 1973). When the encoding is impoverished, or there is a discontinuity between the schemata by which hypnotic events were experienced and those that are employed in the subsequent attempt at remembering, recall will fail. A similar account has been offered for childhood amnesia (Neisser, 1962; Schachtel, 1947), and the general thrust of the argument probably applies to the forgetting of dreams, the occurrence of "state-dependent" learning, and other forms of functional amnesia as well as posthypnotic amnesia.

With respect to posthypnotic amnesia, we can provisionally locate two specific sites of this discontinuity. Traces of novel events and experiences occurring during hypnosis, such as the items on a standardized scale of hypnotic susceptibility, are not integrated into the spatio-temporal framework which makes up the autobiographical record: this

is a dissociation of episodic memories from each other. Alternatively, traces of familiar material revived, retrieved, or reconstructed during hypnosis, such as the items on a word list studied during a learning trial, are not tagged by the feature markers which record that revival as an event in time, although the trace remains embedded in its usual conceptual matrix: this is a dissociation between the episodic and semantic components of memory. The two types of dissociation are not mutually exclusive, and the exact nature of the dissociation that occurs will depend on the relative importance of the episodic and semantic features of the memory involved. In this view, the reversibility signal may act as a retrieval cue whose effectiveness derives from the context in which the memories were encoded. Some other amnesias have analogous properties: "state-dependent" learning can be reversed by reingestion of a particular drug (Eich, 1977; Kinsbourne & Swanson, in press), and some dreams can be recalled if the person goes to sleep with the intention that he will remember them in the morning (Cohen, in press; Dement, 1974). The properties of posthypnotic amnesia force us to consider those processes by which a dissociation between schemata can be produced and maintained, and those by which schemata can be reintegrated.

MEMORY AND BELIEF IN POSTHYPNOTIC AMNESIA

The view of posthypnotic amnesia presented above appears to have certain advantages over the one proposed by Coe (1978). First, it is more directly tied to the available experimental data. Coe has constructed an account of amnesia that is predicated on the assumption that the apparently amnesic *S* actually remembers the critical material—an assumption for which there is little or no empirical evidence. The few experiments that have been conducted indicate that amnesic *Ss*' behavior is relatively insensitive to variation in features of the social context (Bowers, 1966; Kihlstrom et al.²¹). The cognitive view, on the other hand, is based on early observations of the various outcomes of different methods of testing amnesia (Williamson et al., 1965) and of source amnesia (Evans & Thorn, 1966). Moreover, its terms are more easily definable and translated into experimental terms than are those of role theory. How does Coe propose to operationalize such concepts as plot (especially *hidden* plot), trust, and belief system? By contrast, it is relatively easy to operationalize the constructs of search, decision, entry point, retrieval cue, and organizational strategy. Such definitions fill the literature on memory, and some degree of consensus has been achieved as to their validity. The availability of operationalized constructs renders the cognitive theory amenable to empirical test in detail. The version of

²¹See footnote 8.

contextualism proposed by Coe (1978) makes no unique predictions but can account for *any* experimental result by reference to the context perceived by S. The failure to deal with the epistemological difficulties created by this post-hoc, historical perspective is the greatest single weakness of the contextualist approach.²² Finally, the cognitive view which has been proposed here for posthypnotic amnesia has wider application in the domain of memory than the alternative social-psychological view. All of these considerations are relevant to the assessment of any theory.

Having stated the above, I wish to underscore the point that the conceptualization of amnesia which has been set out in this paper is compatible, in many respects, with Coe's (1978) perspective. Cognitive psychology has always been centrally concerned with the study of the active, internal processes that guide experience and behavior (Dowling & Roberts, 1974). Moreover, it is the case that cognition takes place in a context of personality, interpersonal, and cultural processes, and there is nothing in this paper that should be interpreted as contradicting this fundamental truth of psychology. The disagreement concerns the best manner in which to approach and understand the particular phenomenon of posthypnotic amnesia.

Coe (1978) prefers to construe amnesia as a matter of *belief*, similar to one's belief that he or she is politically progressive, opposes the construction of nuclear power plants, or supports the women's liberation movement. Accordingly, Coe interprets amnesia in terms of social influence, attribution theory, attitude change, and dissonance reduction. For my part, I construe posthypnotic amnesia as a matter of *memory*, similar to forgetting one's dreams, the events of childhood, or the location of a set of car keys. While a social-psychological analysis can tell us much about such events, eventually a complete psychological theory of forgetting must deal with the organization of schemata at the time of memory encoding and retrieval, search and decision processes, and the like. The contextualist view described by Coe (1978) starts off on the wrong foot by assuming that S *does* remember, and it subsequently focuses on the social processes that lead him to say and believe that he does not, and to be believed by others. The cognitive point of view begins by recognizing the phenotypic similarities between posthypnotic amnesia and other unequivocal failures of memory retrieval—the "fleeting memories" (Pp.

²²Coe (1978, p. 223) criticizes "state theories" of hypnosis (which are not being defended here) for being tautological, a charge which has been effectively refuted by Tellegen (1970). Note, however, that the contextualist view itself dips dangerously close to a circular, tautological position: it is held, for example, that the amnesia response changes because the context changes; and a change in context is inferred whenever a change is observed in posthypnotic amnesia.

224, 229) and difficulty in recall acknowledged but puzzlingly ignored by Coe (1978)—and focuses on the cognitive processes that would produce such a failure whether the person has been hypnotized or not. The choice between the contextual and the cognitive views is in part a matter of taste and emphasis. But only in part: we must also take care to insure that the level of analysis that is applied is appropriate to the phenomenon under study. In this respect, I believe that the cognitive approach comes closer to the mark.

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Kontext und Erinnerungsvermögen bei posthypnotischer Amnesie

John F. Kihlstrom

Abstrakt: Coes posthypnotische Amnesieanalyse (1978), die er aus einem kontextualen Gesichtspunkt entwickelte, scheint auf der irrigen Annahme basiert zu sein, dass die amnestischen Vpn. sich tatsächlich das kritische Material ins Gedächtnis zurückrufen. Diese Stellungnahme führt Coe dazu, übermässiges Gewicht auf den sozialen Kontext zu legen, in dem die Amnesie stattfindet, und die sozialpsychologischen Prozesse in den Brennpunkt zu stellen, die die Vpn. zu den Äusserungen veranlassen können, dass sie sich an einiges nicht erinnern können, sodass andere ihnen Glauben schenken und sie dann schliesslich das selbst glauben. Ein alternativer Standpunkt wird hier vertreten, der die oberflächlichen Gleichartigkeiten zwischen posthypnotischer Amnesie und andern Erinnerungsmängeln bestätigt. In dieser vorteilhaften Stellung versucht der Forscher, die kognitiven Prozesse zu verstehen, die subjektiv überzeugende Unterbrechungen des Erinnerungsvermögens hervorbringen, ob sie entweder in Verbindung mit Hypnose oder andern Zuständen gefunden werden.

Le contexte et la connaissance dans l'amnésie posthypnotique

John F. Kihlstrom

Résumé: L'analyse du contexte de l'amnésie posthypnotique faite par Coe (1978) semble fondée sur le postulat erroné selon lequel le S amnésique se souvient véritablement du matériel critique. Cette attitude amène Coe à placer une emphase inappropriée sur le contexte social dans lequel l'amnésie s'inscrit, et à se concentrer sur les processus socio-psychologiques qui peuvent entraîner les Ss à dire qu'ils ne se rappellent pas de quelque chose, à être crus par les autres, et même à le croire eux-mêmes. L'auteur esquisse une contre-proposition qui affirme les ressemblances superficielles entre l'amnésie posthypnotique et les autres défaillances de la mémoire. De cette position stratégique, il cherche à

comprendre les processus cognitifs qui produisent les perturbations subjectivement contraignantes du rappel mnémorique, qu'elles soient associées à l'hypnose ou qu'elles se manifestent en d'autres circonstances.

El contexto y el conocimiento en la amnesia posthipnótica

John F. Kihlstrom

Resumen: El análisis del contexto de la amnesia posthipnótica de Coe (1978) parece fundada sobre el postulado erróneo según el cual los Ss amnésicos se recuerdan el material crítico. Esta actitud lleva Coe a poner una énfasis inapropiada sobre el contexto social en el cual los amnésicos obran; y a concentrarse sobre los procedimientos socio-psicológicos que pueden llevar los Ss a decir que no se recuerdan algo, a ser creídos de los otros, y a creerlo ellos-mismos. El autor propone una posición alternativa que afirma semejanzas superficiales entre la amnesia posthipnótica y otras faltas de memoria. Saliendo de esta posición estratégica, el presente autor trata de comprender los procedimientos de cognición que producen las perturbaciones subjetivamente constringentes de la memoria mnemónica, sean estas mismas asociadas a la hipnosis o se manifiesten en otras circunstancias.