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A NEODISSOCIATION INTERPRETATION

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THE PROBLEM OF DIVIDED CONSCIOUSNESS:  
A NEODISSOCIATION INTERPRETATION \*

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The unity of consciousness is an illusion, resulting in part from the filling in of the gaps of memory through recognition and recall. Once the continuity of memories is restored after there has been a disruption, consciousness seems to have been continuous and hence integrated all along. It was Pierre Janet, an early practitioner of hypnosis, who did much to introduce the concept of dissociation, implying that consciousness might not be so unified but could go on in more than one stream, with memories not equally available to both streams. The clinical illustrations came from fugues and multiple personalities, but laboratory analogues can be found in automatic writing, posthypnotic suggestions, and other familiar aspects of hypnosis.

Ordinary life is not free of multiple tasks going on at once, as in carrying on a conversation while driving a car. The operation of the car is quite automatic until the traffic snarls, at which time the conversation gets interrupted. A tune may get started and haunt the person throughout the day, even while he is engaged in doing other things and wishing that he could get rid of the tune running through his head. It is very common these days to point out that hypnosis and everyday experiences are not so very different, as is indeed the case. Nearly all the experiences characteristic of hypnosis can be found present on occasions in which no hypnosis, at least no formal hypnosis, has been involved. I have pointed out elsewhere that one of the defining characteristics of a hypnotic situation is that many different experiences associated with hypnosis can be demonstrated in a single short session, and this variety of hypnotic-like behaviors is **never found** except in the context of hypnosis.<sup>1</sup> That could be in part a **matter of social practice** or convenience, however, and the extreme position of those who like to point out the similarity between hypnotic experiences and those of everyday nonhypnotic life is that the concept of hypnosis is useless and expendable.

When so much remains to be found out, controversies over conceptual matters may divert energy from getting on with the task; reformulations are unprofitable unless the new conceptualizations harmonize more data than the old and lead to new discoveries or inventions. My purpose here is to present some recent data that may indeed modify some of the ways we look at hypnosis and that may possibly serve to mediate between controversial viewpoints.

My preference in discussing hypnosis is to refer directly to hypnotic procedures and practices and to use expressions such as *hypnotic responsiveness* to characterize the relatively enduring talent that makes some individuals more

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hypnotizable than others; *hypnotic induction* for the procedures used in inviting a nonhypnotized person to become hypnotized; the established *hypnotic state* for the condition that permits the responsive subject to know that he is hypnotized; and *depth of hypnosis* to refer to the degree of involvement in hypnosis, varying from time to time and readily judged by the subject himself. This language is readily understandable and is appropriate at the descriptive or phenomenal level, for it reflects the findings from measurement and from what the hypnotized person reports to the hypnotist. Fortunately, now that cognitive psychology has overtaken the excesses of behaviorism and the related operationalism, we are freer than we once were to recognize what the subject tells us as a valid source of information. In many instances that is the only useful source, and if cautiously appraised it provides orderly and reproducible data frequently more valid than that read from physiological records.

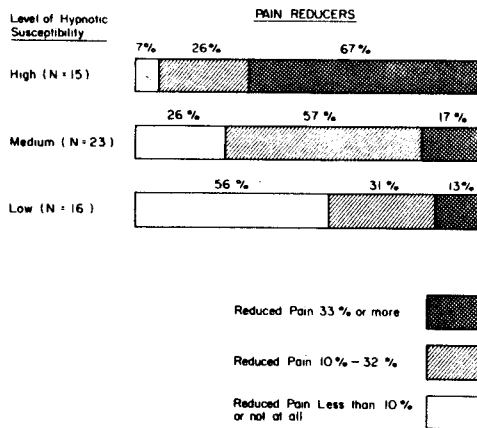


FIGURE 1. Reduction of pain through suggested analgesia as related to susceptibility to hypnosis. The subjects were 54 university students whose prior experience of hypnosis had been limited to standard tests of hypnotic responsiveness following formal induction procedures. By permission of the publishers of *Acta Neuro. Biol. Exp.* (Warsaw).<sup>3</sup>

#### A TWO-COMPONENT INTERPRETATION OF HYPNOTIC PAIN CONTROL

The data that I am about to present bear on hypnotic consciousness when a subject, in the laboratory, is given suggestions to reduce pain. For this purpose I shall limit my remarks to pain produced by the placement of one hand and forearm in circulating ice water for a short time, the so-called cold pressor response. This has been studied a great deal in our laboratory,<sup>2</sup> but I shall be presenting some new data along with that already reported, leading to a two-component interpretation of response to analgesia suggestions.

The importance of hypnotic responsiveness, as a talent the subject brings to the experiment, is well indicated by the results on pain reduction. Only a few can eliminate the pain entirely and feel nothing following hypnotic analgesia suggestions, but a reduction of a third or more suffices to keep the pain at a tolerable level. Even that much pain reduction typically requires a high level of hypnotic responsiveness, as illustrated in FIGURE 1. Success

depends upon degree of hypnotizability, but even in the highest group, as classified here, only two thirds could reduce their pain by a third or more of the normally felt pain.

When pain reduction is indicated as due to analgesia suggestions within hypnosis, a great deal is unmentioned, particularly the active participation of the subject in bringing about the experience. He may, in fact, work hard at it, and it is as much his active participation as the commands of the hypnotist that is responsible for his success. The talent for the behavior that the subject possesses is central to the experience. Those who favor a role interpretation of hypnosis commonly emphasize the compliant behavior of the subject in trying to come up to the expectations of the hypnotist. Such behavior is clearly present, as the evident efforts of the subjects to reduce their pains indicate. It is, however, an insufficient explanation of the success in pain reduction, for without the necessary talent many compliant subjects are unsuccessful. That what the successful persons do may be to satisfy themselves rather than the hypnotist is shown by the frequent use of the pain-reducing techniques for pain reduction in natural settings when there is no hypnotist to please. Had these subjects not experienced genuine pain reduction there would have been no reason for them to try to comfort themselves in emergencies by the techniques that they had been taught, now in circumstances when there was nobody else around to please. A few illustrations will suffice. One male student had an accident on a ski slope, resulting in a compound fracture of his leg. It took a long time for the rescue sled to be brought up the slopes in order to take him to the emergency hospital at the bottom. He hypnotized himself and remained comfortable throughout, and the attendants at the hospital could not understand how someone with such a severe injury could arrive after the protracted delay in an obviously relaxed and comfortable state. Another young man broke a bone in his foot when he was about to appear in a leading part for several performances in a college play requiring vigorous Mexican-style dancing. After having appropriate x rays he discussed with his physician the possibility of permanent damage if he were to use the foot without a cast for the duration of the play. The physician agreed that the bone was not in a position in which placing stress on the foot would do any permanent damage, although putting weight on it would undoubtedly be very painful. Using what he had learned in the laboratory, he eliminated the pain hypnotically during each performance, and fulfilled all his obligations before having the foot placed in a cast until the bone might heal. He reported only a single episode when he felt pain: one of the others in the play stepped on his foot; fortunately, he was able to recover and make it painless again. A young woman student had cut her knee seriously, the repair requiring 38 stitches. Because of an allergy to novocain, she controlled the pain subjectively by blocking everything from her mind, concentrating on breathing, and picturing her head filled with something like foam rubber that would block sensation. This is compliant behavior, but compliant to her own demands for achieving comfort in the face of normally noxious stimulation.

Although in obtaining the results shown in FIGURE 1 the subjects had undergone a prior attempted induction of hypnosis, suggestions of analgesia may be given without such an induction in what is commonly called waking suggestion. Differences in experimenter preference regarding the conception of hypnosis introduce subtle differences in the instructions that are given, with consequent differences in data that may appear to be empirical contradictions

when, in fact, they are readily interpretable. For example, if the experimenter doubts that there is any special hypnotic condition produced by induction, he proceeds to give the waking suggestions of analgesia without saying anything restrictive. If, however, he believes that there are some changes related to the hypnotic condition, when he tests for responsiveness in the nonhypnotic (waking) condition, he tells the subject not to drift into hypnosis, or to arouse himself if he finds himself drifting into hypnosis. That is, you have an alternative of defining hypnosis operationally as what happens to some people following a hypnotic induction, or defining hypnosis as that same condition reached by some people in other ways *whether or not there has been a formal induction*. This makes a great deal of difference, because highly hypnotizable persons readily drift into hypnosis when given any kinds of suggestions, so that a comparison of waking and hypnotic condition is inappropriate if the comparison is made of waking and hypnotic suggestion without correcting for drifting into hypnosis in the so-called waking condition. The question may well be raised whether or not the choice between the two procedures is an arbitrary one, reflecting a difference between two paradigms of hypnosis.

There are some questions about the logic of science that are being considered here. If the purpose is merely reproducibility of data, then the choice between the two procedures is arbitrary; the result of a comparison between waking suggestion and hypnotic suggestion, uncorrected for drifting into hypnosis, repeated by someone else in another laboratory, will find results consistent with the first experiment being replicated. The different results, by those who correct for drifting into hypnosis, can also be replicated. From my point of view, the choice between the two methods of testing the difference between waking suggestion and hypnotic suggestion is not arbitrary, because if one is fair to the phenomena, he is not free to ignore phenomena that present themselves upon inquiry. Because subjects are able to tell when they drift into hypnosis, it is proper to test the independent influence of waking suggestion under conditions in which they are told *not* to drift into hypnosis. Highly hypnotizable subjects become adept at self-hypnosis, and if not advised against it will use their hypnotic abilities when given suggestions in the waking state, especially if confronted with something unpleasant, such as a pain they would like to get rid of and are capable of eliminating through self-hypnosis.

Despite the restriction against drifting into hypnosis, subjects, both hypnotizable and nonhypnotizable, can achieve some measure of pain reduction through analgesia suggestions given in the waking condition. *This reduction, which takes place through diversion of attention, relaxation, and reduced anxiety, is available to all subjects, not only to those with hypnotic talent.* Waking suggestion in our experiment results in an average reduction to about 80% of the normal pain and represents the first component of the two-component interpretation of pain reduction. The fact that this component is available to the nonhypnotizable person who is cooperating with the hypnotist may well account for the belief by some practicing hypnotists that, in principle, everyone is hypnotizable. Therapeutic results may be obtained through hypnotic procedures that do not require any significant degree of hypnotic responsiveness. We often find in our hypnotically unresponsive subjects who have just completed one of our hypnotic susceptibility tests under experimental conditions that they feel very good and marvelously relaxed, and believe that a repetition of the experience would be of benefit to them.

The second component of the hypnotic pain reduction is available only to

those who are hypnotizable and involves an amnesic-like process; it accounts for the much greater successes on the part of the highs as compared with the lows, as previously shown.

The two components are represented for low hypnotizable subjects and high hypnotizable subjects in FIGURE 2. These are based on an interrogation after the experiment by someone not the hypnotist, to be sure that the reports correspond to actually felt pain. The low hypnotizable subjects, when in the hypnotic condition, have simulated hypnosis in order to have whatever advantage comes from playing the role of a hypnotized person as skillfully as to fool the hypnotist; only the honest reports are shown in FIGURE 2.

Note that in waking analgesia the highs and the lows scored essentially alike, reducing the pain to about 80% of normal, some, of course, more and some less. When the analgesia suggestions have been preceded by a hypnotic induction, however, the truly hypnotized reduced their pain to an average level of about 20% of the normal pain, whereas the low hypnotizables *remained at the same level as in waking suggestion*; the second component was not available to them.

The interpretation that there are two components to the pain reduction receives further support from another method in use in our laboratory, which seeks a report of *covert* pain in hypnotic analgesia, compared with the *overt* pain that is reported. Several years ago we introduced a "hidden observer" technique similar to automatic writing in which the subjects in our pain experiments reported covert pain at a hidden or subconscious level that was above that reported overtly, orally, when pain had been reduced by hypnotic analgesia suggestions.<sup>5</sup> Another method that by analogy was called automatic talking yielded the same information in a form that could be discussed with the subject.<sup>6, 7</sup>

The pertinent hypothesis that can be tested with the aid of data from the study of overt and covert pain is this: *If there are two components of pain reduction, one associated with the special capacity of the highly hypnotizable*

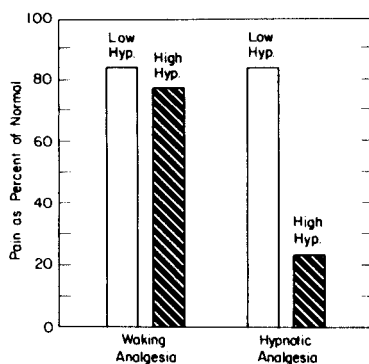


FIGURE 2. Pain reduced through waking suggestion and through hypnotic suggestion in subjects unresponsive to hypnosis and in those highly responsive. Twelve subjects in each group, selected on the basis of prior tests of hypnotic responsiveness. The low hypnotizables in the hypnotic condition were simulating hypnosis, but the data are from their honest reports based on the subsequent inquiry. (By permission of Wiley-Interscience.<sup>1</sup>)

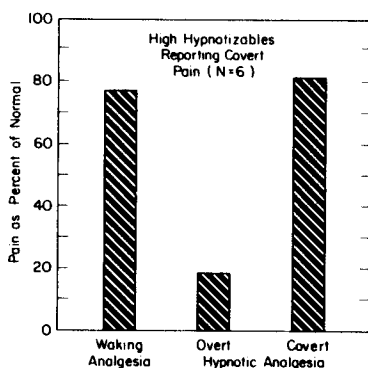


FIGURE 3. Waking analgesia and hypnotic analgesia (overt and covert) as reported by high hypnotizable subjects. The subjects are the 6 from the 12 in FIGURE 2 who reported a difference between overt and covert pain in hypnotic analgesia. Note that the covert hypnotic analgesia equals the waking analgesia. (Unpublished data, Stanford Laboratory.)

for amnesia-related processes, then the covert pain that is reported following hypnotic analgesia should eliminate only the special hypnotic component. Hence, the covert pain should be the normal waking pain as reduced by the first component that is available as well to the hypnotic unsusceptible. In other words, the *covert* pain revealed by the special techniques should equal in magnitude the pain reduced by waking suggestion. For this purpose it is important that the comparisons be made for those who do indeed report covert pain; otherwise, the mean residual pain would be a meaningless mixture of that reduced overtly by those who do not report covert pain and the residual pain of those who have access to a covert report. Such a comparison has been made in FIGURE 3. It can be seen that the results conform to the prediction; the covert pain is indeed equal to that experienced by these subjects in waking analgesia.

The data presented here are new, actually replications of data obtained earlier, from which the two-component interpretation arose, so that the factual situation is well established.

In any experiment on hypnosis the problems of demand characteristics and compliance with the expectations of the hypnotist have to be taken seriously. It is of the essence of hypnosis that the hypnotist communicates his demands to the subject. When the hypnotist tells him to experience a rabbit in his lap, the highly hypnotizable subject is expected to experience a rabbit, not a kitten or a kangaroo. Hence when Orne proposes the use of simulating subjects to determine something about the essence of hypnosis he does not imply that there should be no compliance with the hypnotist's demands.<sup>8</sup> He is particularly interested in what the subject *adds* to the hypnotist's suggestions, and the method that he has designed serves the purpose of showing that what the simulators add may be different from what the reals add to the suggestions they receive. There are many subtle issues here into which I shall not enter, except to point out that when both the simulator and the hypnotic real yield the same behavior it does not mean that hypnosis is discredited. For

example, it is obviously easy to simulate seeing a rabbit in your lap; hence if simulator and hypnotic real both see rabbits, the issue is not that they both report rabbits in their laps. The issue is rather one of the quality of the hallucinated experience. When reporting honestly, the simulator will say that he did not actually see a rabbit, the hypnotic real will say that he did actually see a rabbit, although the hallucinatory experience need not have been that of a flesh-and-blood rabbit. In our two-light test, in which one light is real and one light hallucinated, subjects who actually see two lights commonly know which is real, because the hallucinated light may float above the box or have no reflection in its bright surface. This is the kind of report that distinguishes the experiences of the reals from those of the simulators. Unless one relies on careful verbal reports, simulation of cognitive experiences is too easy to be critical. Of course the simulator often overreacts; this limits Orne's method, because it can be used well only with very highly hypnotizable subjects who do so well that the detection of simulation cannot be made easily on the basis of the overreaction of the simulators. Even compared with very high hypnotizables, simulators still commonly overreact, but one can question just how high the reals have to be in order to make the comparison a strict one. Against randomly selected subjects, simulators of high hypnotizables would *always* tend to overreact. For various reasons the behavioral differences in many instances will be less crucial than the subjectively reported ones, when the simulators and reals are both reporting honestly.

We have compared a group of 12 simulators with 12 reals in the pain experiments of overt and covert pain, and the simulation was remarkably good at both the overt and covert levels of reporting, whereas the high hypnotizables, the reals, were reporting honestly and the low hypnotizable simulators were deceiving the hypnotist by acting as they thought they would if they were high hypnotizables. However, the differences showed up readily when the simulators reported honestly. Some comparisons are given in FIGURE 4.

The first thing to note is the success of the simulators in duplicating the results of the reals, in the overt analgesia and in the covert report. The simulators overreacted as expected, in the overt analgesia, although the difference was barely significant by statistical standards,  $p = .05$ , one-tailed. For example, six of the twelve simulators reported no pain at all, compared with three of the twelve reals. This is one of the difficulties of the method, as already mentioned. Had reals been preselected to yield no pain at all, then the difference might have been reversed. When it came to reporting covert pain, some simulators guessed that reals would have experienced increased pain, others guessed they would not. Those who guessed that covert pain would be reported very sensibly reported the pain that they had actually felt in the experiment while simulating hypnotic analgesia, which turned out to be equivalent to their pain reduced by waking suggestion. Because this was actually what the reals felt, the results for reals and simulators are very much alike. When honest reports were obtained, however, the picture became very different: the reals did not change their reports, for they had been honest all along; the simulators commonly gave an honest report equal to what they had reported as covert pain, but they indicated that this was in fact the pain that they had actually felt while reporting reduced pain in hypnotic analgesia. Hence their honest results conformed to just what would be expected from nonhypnotizable subjects.



As in the case of overreaction to the hypnotic analgesia suggestions, there are many other evidences of differences between the reals and the simulators. For example, half the reals yielded no covert increase in pain, and none of them indicated any change in their honest report; one fourth of the simulators chose to deny a covert increase in pain over their simulated hypnotic analgesia, but all of them reported that they had actually felt pain equivalent to that felt in waking analgesia.

These contrasts were extended in the interviews that followed the experiments. The simulators were very puzzled about the possibility of covert pain experiences, and had simply chosen such reference points as they could, that is, what they had reported in simulated analgesia, or what they actually felt. The reals, who were often surprised or puzzled by their covert reports, had no doubt of the reality of the change between overt and covert reporting.

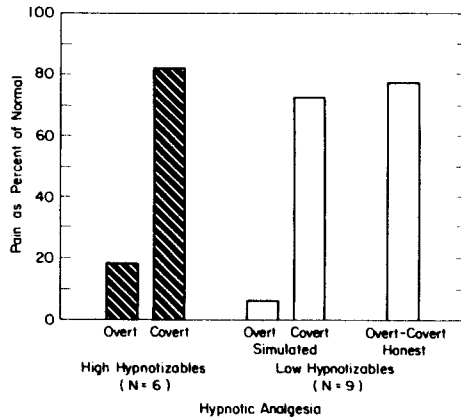


FIGURE 4. Overt and covert pain as reported by "reals" and "simulators" who indicated a difference between overt and covert pain. The results are from 6 of the highly hypnotizable subjects and 9 of the low hypnotizables from FIGURE 2. Because the simulators, when reporting honestly, had experienced only one level of pain, their honest reports are alike for overt and covert pain, as shown in the right-hand column. The reals did not change their reports under honesty instructions. (Unpublished data, Stanford Laboratory.)

The two-component interpretation of pain reduction has implications for hypnotherapy that go beyond problems of pain. As mentioned earlier, the two-component interpretation helps account for some disagreements between experimenters and clinicians. Many practitioners of hypnotherapy believe that everyone is hypnotizable, while experimenters characteristically believe that only a small proportion of the population can be hypnotized sufficiently to yield substantial amnesia, hallucinations, and other evidences of profound hypnotic involvement. The two-component theory points out that therapeutic practices using hypnotic methods can be of benefit to nearly everyone through relaxation, anxiety reduction, diversion of attention, improved self-confidence, even though, in a careful assessment setting, some of those helped would be shown to be barely hypnotizable at all.

If one understands the two-component theory, the less hypnotizable and the more hypnotizable would be treated according to somewhat different therapeutic models. For example, biofeedback, with its emphasis on acquiring voluntary control of the realities of bodily responses—heart rate, blood pressure, muscular relaxation, or hand temperature—differs from hypnosis in that such biofeedback changes are available to those who can use only the first component of hypnotic responsiveness. The setting may be hypnotic, as in autogenic training, which grew out of Schultz's hypnotic experience, but the person treated does not have to be very susceptible to hypnosis. More profound hypnosis commonly involves distortion of the awareness of bodily processes—denying the pains of burns or broken bones—and success here depends on the second component, not available to many who can use feedback successfully. In fact, hypnotizability may make biofeedback contraindicated because of the person's tendency to substitute hallucination for reality when under stress. A lack of correlation between hypnosis and feedback<sup>9</sup> does not, of course, mean that all hypnotizable persons cannot use feedback; all it means is that it is not possible to predict from success in one procedure to success in the other.

#### TOWARD A NEODISSOCIATION INTERPRETATION

Although the detailed data as presented were all obtained from studies of laboratory pain, there are implications beyond this limited sphere. We have been able to demonstrate covert experiences, available through the hidden-observer technique, in a wide variety of hypnotic behaviors, including hypnotic deafness and positive and negative visual hallucinations. The nature of the hidden observer, representing as it does a fractionated part of consciousness, bears on cognitive activities within hypnosis and has led to the development of a neodissociation theory.<sup>4</sup>

#### *Discontinuity in the Distribution of Hypnotic Talent*

If there is a qualitative change that appears when hypnotic responsiveness is present to a high degree, this will bear on the interpretation of the hypnotic consciousness, because something may have to be said that applies to the highly hypnotizable that does not apply to others who respond in some milder form to hypnotic suggestions. Some discontinuity is indicated by the bimodal distributions that are commonly found when large populations are carefully tested for hypnotic susceptibility. The finding is particularly impressive in studies of posthypnotic amnesia,<sup>10</sup> but it is found in more general tests of hypnotizability as well.<sup>11</sup> Studies of suggested hallucination have shown, for example, that many moderately responsive subjects will report some degree of hallucinatory behavior, but only a small fraction of subjects experience hallucinations as genuine, that is, as if they are perceiving external reality, as if something seen is really there or some music is heard as if produced by a real orchestra. A recent experiment has shown again that the reports of hallucinations, both auditory and visual, correlate positively with hypnotizability as measured by the Barber Suggestibility Scale, but the most realistic hallucinatory experience is confined to about two percent of their subject population.<sup>12</sup> Despite the cooperation of the subjects and the strong suggestions to hallucinate,

half the subjects *did not imagine at all*, and another 31% imagined only vaguely. The results are entirely coherent with the interpretation that a fully acceptable auditory or visual hallucination requires a very high order of hypnotic talent. The indifferent hallucinations of the majority of subjects described by them as imagined, rather than as seen or heard, represent what I have called the first component of response to suggestion and require little in the way of hypnotic procedures and talent to produce them. The first component will correlate with hypnotizability, but it is limited as a predictor of the abilities of the truly hypnotizable. The second component, dramatized by the so-called somnambule or the hypnotic virtuoso, as I prefer to describe him, yields the more advanced phenomena, such as the better-established hallucinations, which, when genuine, are typical of a profound hypnotic involvement.

### *The State-Nonstate Issue*

If the phenomena that the experimenter keeps in focus are those of the first component as I have described it, the evidence will favor a nonstate theory, because these phenomena of response to suggestion do not require a change in state. If the phenomena that interest the experimenter are those of the second component, he is more likely to entertain a state conception, in view of what the highly hypnotizable tells him about his experiences within hypnosis and how they differ from his experiences when he is not hypnotized.

Whether or not the bimodality of distribution of hypnotic talent represents a sharp discontinuity, all careful observers can detect a variety of changes in the hypnotic consciousness from essentially no change at all to a profound change associated with deep hypnosis.

I have found a neodissociation interpretation useful as a way of resolving the state/nonstate issue, because dissociation may be interpreted as a matter of degree. For example, there are dissociations associated with both components of the two-component interpretation. In the first component, the modifications that are noted are in executive control systems, without any appreciable change in the total state; that is, modification of controls is in evidence when a voluntary movement cannot be inhibited by an attempt, or when an inhibition of movement cannot be overcome by intentional effort. Such ideomotor modifications are readily produced by waking suggestion and require very little alteration in consciousness. Some simple cognitive processes can also be modified in the first component, as in suggesting that the subject has a taste of salt or sugar in his mouth. The dissociations that are produced for those who have available the abilities associated with the second component are more extensive, as when, in age regression, the person feels himself a child again and, as a child, takes initiative and makes demands on those around him appropriate to the child's age, or, when hallucinating a person, carries on a realistic conversation with that person without doubt of his reality.

The interpretation of these dissociations within hypnosis—and in non-hypnotic experiences as well—I refer to as a neodissociation interpretation because I wish to avoid the excesses that came to be associated with the classical dissociation theory.

The essence of the neodissociation viewpoint can be stated rather simply, since it bears upon hypnosis and the state/nonstate issue.

*First*, a dissociated activity is identified by a shift in cognitive controls rather than by a change in the quality of consciousness. A shift in executive controls is evident when an activity, normally voluntary, becomes involuntary or inaccessible to voluntary management; less frequently, an involuntary activity may be brought under voluntary control. The loss of voluntary control is found not only in motor activity but in the retrieval of memories. A shift in perceptual or observational functions is illustrated by positive and negative hallucinations, departing as they do from the normal realistic, critical observation of events in the external world or in the person's own body.

*Second*, dissociated activities or controls can vary from minor or limited ones to profound and widespread evidences of altered controls. The twitch of a single finger in response to a posthypnotic signal would represent the persistence of a minor dissociation; a fugue lasting several days or weeks would be a massive dissociation.

*Third*, dissociations imply a change of the total state only when they are sufficiently widespread. According to this position, it is futile to argue that a change of state is essential in order to produce responses to suggestion characteristic of the first component in hypnotic responsiveness. There are many simple responses to suggestion that no one would attribute to a hypnotic state. Some natural conditioned responses can be interpreted in this way; for example, it is not hard to demonstrate how easy it is to produce salivation by having a person watch a lemon being squeezed, even though he does not taste the juice. Call it conditioning if you wish, but it is also a simple response to suggestion. The same holds for simple arm movements, which are yielded by almost all subjects who are cooperating in a hypnotic induction. When, however, the dissociations are more massive, as evidenced by the variety of responses yielded by the highly hypnotizable person when hypnotized and by his own self-reports, a description of the change according to a hypnotic state or hypnotic trance is entirely appropriate.

Because dissociations can be partial or widespread, a person does not have to continue in the hypnotic state in order to have an analgesia persist for a day after he is no longer hypnotized; he does not have to reenter hypnosis in order to carry out a simple posthypnotic suggestion. Were this position more widely adopted, we would no longer argue that the behavior of a hypnotized person does or does not depend on his being in a hypnotic trance. Instead, we would inquire as to the degree of hypnotic involvement necessary for the performance under study and the basic hypnotic talent required. Theoretically, the degree of involvement required would be stated according to the pervasiveness of the dissociations required.

#### REFERENCES

1. HILGARD, E. R. 1973. The domain of hypnosis, with some comments on alternative paradigms. *Am. Psychol.* **28**: 972-982.
2. HILGARD, E. R. & J. R. HILGARD. 1975. *Hypnosis in the Relief of Pain*. William Kaufmann, Inc. Los Altos, Calif.
3. HILGARD, E. R. & A. H. MORGAN. 1975. Heart rate and blood pressure in the study of laboratory pain in man under normal conditions and as influenced by hypnosis. *Acta Neuro. Biol. Exp. (Warsaw)*. **35**: 741-759.
4. HILGARD, E. R. 1977. *Divided Consciousness: Multiple Controls in Human Thought and Action*. Wiley-Interscience. New York, N.Y. In press.

5. HILGARD, E. R. 1973. A neodissociation interpretation of pain reduction in hypnosis. *Psychol. Rev.* **80**: 396-411.
6. KNOX, V. J., A. H. MORGAN & E. R. HILGARD. 1974. Pain and suffering in ischemia: The paradox of hypnotically suggested anesthesia as contradicted by reports from the "hidden observer." *Arch. Gen. Psychiat.* **30**: 840-847.
7. HILGARD, E. R., A. H. MORGAN & H. MACDONALD. 1975. Pain and dissociation in the cold pressor test: A study of hypnotic analgesia with "hidden reports" through automatic key-pressing and automatic talking. *J. Abnorm. Psychol.* **84**: 280-289.
8. ORNE, M. T. 1972. On the simulating subject as a quasi-control group in hypnosis research: What, why and how. *In Hypnosis: Research Developments and Perspectives*. E. Fromm and R. E. Shor, Eds. : 399-443. Aldine-Atherton. Chicago, Ill.
9. ROBERTS, A. H., J. SCHULER, J. G. BACON, R. L. ZIMMERMAN & R. PATTERSON. 1975. Individual differences and autonomic control: Absorption, hypnotic susceptibility, and unilateral control of skin temperature. *J. Abnorm. Psychol.* **84**: 272-279.
10. COOPER, L. M. 1972. Hypnotic amnesia. *In Hypnosis: Research Developments and Perspectives*. E. Fromm and R. E. Shor, Eds. : 217-252. Aldine-Atherton. Chicago, Ill.
11. HILGARD, E. R. 1965. *Hypnotic Susceptibility*. Harcourt Brace Jovanovich. New York, N.Y.
12. SPANOS, N. P., N. CHURCHILL & J. D. MCPHAKE. 1976. Experiential response to auditory and visual hallucinations in hypnotic subjects. *J. Consult. Psychol.* **44**: 729-738.