CHAPTER 2

The domain of hypnosis, revisited

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Hypnosis is a process in which one person, designated the hypnotist, offers suggestions to another person, designated the subject, for imaginative experiences entailing alterations in perception, memory and action. In the classic case, these experiences are associated with a degree of subjective conviction bordering on delusion, and an experienced involuntariness bordering on compulsion. As such, the phenomena of hypnosis reflect alterations in consciousness that take place in the context of a social interaction.

2.1. Introduction

I have employed one or another close variant of the above definition of hypnosis at least since 1982 (Kihlstrom, 1982, 1985), and it has also served as the starting-point for the 'consensus' definition and description of hypnosis crafted by the American Psychological Association's Division 30, the Society for Psychological Hypnosis, in 1993 (Kirsch, 1994*a*,*b*; for later definitional developments, see Killeen and Nash, 2003; Green *et al.*, 2005*a*). In this chapter, I reflect on each element of the definition, its historical evolution, and its current status.

2.2. Hypnosis

The term *hypnosis* itself is, of course, something of a misnomer, because the phenomenon in question has nothing to do with sleep. Although the deep roots of hypnosis may reach back to the ancient temples of Aesculapius (Ellenberger, 1970; Gauld, 1992; but see Stam and Spanos, 1982), the immediate historical predecessor of hypnosis is the *animal magnetism* of Franz Anton Mesmer (for a definitive biography, see Pattie, 1994). Or was it? Peter has recently argued that the true ancestor of hypnosis is the exorcism practiced by Johann Joseph Gassner (1729–1779), a Catholic priest who performed exorcisms throughout Europe right before Mesmer came onto the scene (Peter, 2005). Although the similarity between some of Gassner's practices and Mesmer's practices is undeniable, the prize probably should remain with Mesmer. After all, Gassner offered a supernatural theory of illness, while Mesmer at least embraced the principle that disease had natural causes and cures. But Mesmer's theory—that his effects were mediated by a physical force analogous to magnetism—was wrong too, and from a scientific perspective we can now understand both his cures and Gassner's cures as the product of 'imagination'—but no less genuine for that. It is not Mesmer's fault that, in the late nineteenth century, psychology was not permitted the status of a true science.

Mesmer's theory was discredited in 1784, by a French royal commission chaired by Benjamin

Franklin (Bailly, 1784/2002; Franklin *et al.*, 1784/2002; for recent commentaries, see Forrest, 2002; Kihlstrom, 2002; Laurence, 2002; Lynn and Lilienfeld, 2002; McConkey and Perry, 2002; Perry and McConkey, 2002; Spiegel, 2002), but his practices lived on—first as *mesmerism*, a term introduced to English in 1784 by Benjamin Franklin himself (Pepper, 1911), and which lasted long enough to be used by Elliotson (1843/1977) and Esdaile (1846/1977). But while Mesmer's practices were revived in the early nineteenth century, their identification with the man himself must have created a public relations problem; a new label was needed. Puysegur (1807), Deleuze (1813) and others among the second generation of mesmerists proffered the master's own preferred label, *animal magnetism*, a term which persisted almost into the modern era (Binet and Fere, 1888). But this was unsatisfactory—not least because the Franklin Commission had disproved the notion that magnetism had anything to do with the phenomenon.

Of course, a major transition in conceptions of hypnosis had begun in 1784, even before the Franklin Commission had completed its work, when Puysegur magnetized Victor Race, a young shepherd on his estate. Instead of undergoing a magnetic crisis, Victor fell into a sleep-like state in which he was nonetheless responsive to instructions, and from which he awoke with amnesia for what he had done. *Artificial somnambulism*—a term introduced by Puysegur himself—had a double advantage, in eliminating references to both Mesmer and magnetism, and also eliminating the convulsive seizures that were the hallmark of the mesmeric crisis. Here, I think, we have the true predecessor of modern hypnosis: a sleep-like state in which the subject is responsive to the—*to the what? Mesmerist* won't do, nor will *magnetizer*, for the reasons stated. Perhaps *somnambulizer*? Not likely.

The problem was solved once and for all by Braid, who coined the terms *neurypnology* and *neuro-hypnotism*—which quickly—and, as Gauld (1992, p. 281) remarks, 'mercifully'—dissolved into *hypnotism*. Although Puysegur had offered a psychological theory of animal magnetism, in terms of the influence of the magnetizer's will on the subject, Braid (1855) also offered the first psychophysiological theory of hypnosis, involving monoideism—the concentration of attention on a single object. With this one–two punch, renaming the phenomenon and offering a new, more scientifically acceptable theory to explain it, Braid buried Mesmer and animal magnetism once and for all (Kravis, 1988). Although the term *hypnosis* had appeared before Braid's time (Gravitz and Gerton, 1984; Pattie, 1990), Braid gave us the whole vocabulary for hypnosis as we understand it today, offering clear definitions of the terms *hypnotic*, *hypnotize*, *hypnotized*, *hypnotism*, *dehypnotize*, *dehypnotized* and *hypnotist* (Kihlstrom, 1992*b*). According to the *Oxford English Dictionary*, the word *hypnosis* entered the medical dictionary in 1882—although the same entry flirted with *Braidism*.

These terms have stuck with us, through what Gauld (p. xi) aptly termed 'the heyday of hypnotism' in the run-up to the twentieth century (Charcot, Janet, Liebeault, Bernheim, James, Prince and Sidis), through the first systematic experimental work by Young (1925, 1926) and Hull (1933), and into the post-war revival of clinical and experimental hypnosis at the hands of Weitzenhoffer (1953), Gill and Brenman (1959), Orne (1959), Sutcliffe (1960, 1961), E. R. Hilgard (1965), Barber (1969), and Sarbin and Coe (1972). Although some authorities were once so disturbed by the term that they felt compelled to enclose it in scare quotes (e.g. Barber, 1964), that is all over now (Barber, 1999).

Unfortunately, the word *hypnosis* has also been appropriated by anesthesiologists, to refer to the loss of consciousness that is one of the three aspects of 'balanced anesthesia' (the others are areflexia, or the paralysis of the skeletal musculature, and analgesia, or the lack of pain sensation; see Kihlstrom and Cork, 2005). We now know that hypnosis is not anything like sleep, physiologically (Evans, 1979); nor is general anesthesia, for that matter. And although sleep is a frequent metaphor used in hypnotic inductions, and relaxation is a typical accompaniment to hypnosis, we now know that neither is necessary for hypnosis to occur (Banyai and Hilgard, 1976; Alarcon *et al.*, 1999). At this point, then, it is clear that the term *hypnosis* has become functionally autonomous of its origins (Allport, 1937). Nevertheless, the term has long served to label a particular set of phenomena that we are

interested in, of human mental function, and we should just stick with it.

2.3. Process

In the first sentence of previous versions of the definition given at the outset, I described hypnosis as a 'social interaction'—which indeed it is. However, hypnosis is not *just* a social interaction: it also involves certain changes in experience, thought and action. As such, one could just as easily write that 'hypnosis is an altered state of consciousness ...'. Describing hypnosis as a social interaction acknowledges the role that social influence plays in the process, but it also may privilege the social over the cognitive. Accordingly, I now prefer the somewhat more neutral term *process* ('Hypnosis is a process in which one person ...'), in the dictionary sense of a dynamic series of ongoing actions or events. Certainly hypnosis is a process in this sense, beginning with an induction procedure, continuing with whatever transpires while the subject is hypnotized, and ending with the termination of hypnosis and, perhaps, the testing of post-hypnotic suggestions. What goes on in this process—both interpersonally and intrapsychically—is what interests us as hypnosis researchers and as practitioners.

2.4. Hypnotist

The mythical image of the hypnotist is, arguably, the character Svengali in George du Maurier's 1895 novel *Trilby*, and the 1931 film made from it, starring John Barrymore and Marian Marsh (Kihlstrom, 1987): the eyes, the passes with the hands, the rapport with the subject, the undercurrent of sexuality (of course, Svengali is male and Trilby female), the risk of harm and the intimations of the paranormal. More importantly, though, there is the idea that the hypnotist possesses a particular personality, which affords him a special power to control others—for good and for evil. In stark contrast to this image, the literature on hypnotist characteristics, and their effects on hypnosis, is remarkably thin. Partly, I think, this is due to methodological considerations. Simply to investigate the effect of the hypnotist's gender on hypnotizability would require that a fairly large, representative sample of men and women be trained as hypnotists and then turned loose on an even larger group of subjects (Coe, 1976; D'Eon *et al.*, 1979; Banyai, 1991, 1998). It's all a very daunting task.

So far as the laboratory is concerned, we assume that the hypnotist functions much like a coach, or a tutor, whose job is to help subjects to become hypnotized, and to experience hypnotic suggestions. The coach–tutor analogy breaks down, however, in that it is arguably helpful if a tennis coach can play tennis, or if a math tutor knows mathematics. But it does not seem to be important whether the hypnotist is hypnotizable. Ted Barber was, by the accounts of those who knew him, highly hypnotizable; Jack Hilgard was not. It is tempting to speculate on the role these individual differences might have played in designing their programs of hypnosis research, with Barber (1969) believing that hypnotic phenomena were possible for anyone who tried hard enough, and E. R. Hilgard (1965) developing a whole battery of scales for measuring hypnotizability. Surely the most experienced hypnotist of all time is the person whose voice is heard on the standard recording of the Harvard Group Scale of Hypnotic Susceptibility, Form A—a professional radio announcer without any training in psychology or hypnosis (L. Dumas, 1964; Orne, 1964).

In the clinic, things may be different. But even there, the empirical literature—as opposed to folklore—on hypnotist effects is sparse (Diamond, 1984). While anyone can be a hypnotist, it takes special training to use hypnosis appropriately in medicine, dentistry or psychotherapy. Some of that training is in hypnosis, and in an age when hypnotists advertise in the Yellow Pages, consumers naturally wonder how they can ensure that a practitioner is appropriately trained. Fortunately, there are organizations in the USA such as the Society of Clinical and Experimental Hypnosis which provide workshops in various skill areas, and agencies such as the American Board of Clinical Hypnosis to certify competence in the use of hypnosis in medicine, dentistry, psychotherapy and clinical social work. Similar organizations exist around the world, including in Australia and the UK. These organizations and agencies have their place, but when it comes to evaluating a clinical hypnotist the heuristic offered by Martin Orne

(personal communication, frequently repeated) is probably the best: nobody should treat a condition with hypnosis that they are not qualified to treat without hypnosis.

The idea that hypnosis involves two people, a hypnotist and a subject, would seem immediately contradicted by the phenomenon of self-hypnosis, in which there does not seem to be any hypnotist at all. At one level, we can say that there is no contradiction, because in a very real sense all hypnosis is self-hypnosis. The hypnotist can recite an induction procedure and make suggestions for various experiences, but it is the subject who must actively participate in the process; without that active participation, nothing happens. Comparisons of self-hypnosis with more traditional 'hetero'-hypnosis show that they are highly correlated (Shor and Easton, 1973; Orne and McConkey, 1981; L. S. Johnson *et al.*, 1983). It may be more difficult to give oneself a suggestion that there is a fly buzzing annoyingly around one's head, and easier to believe that the fly is there when one does not already know that it is simply a suggestion from a pre-printed script. But it is clear that the overlap between the two forms of hypnosis is considerable.

At the same time, it must be said that much of what passes for 'self-hypnosis', especially in the clinic, more closely resembles a relaxed state of reverie, and imagery, in which subjects are allowed to construct their own experience without any particular direction from the hypnotist (Fromm *et al.*, 1981; Olness, 1981). The relationship of this form of hypnosis to the more traditional 'hetero' form is open to question (Kahn *et al.*, 1989)—as is the question of whether this form of 'self-hypnosis' should really be called hypnosis at all.

2.5. Subject

Surely the main reason that the hypnotist has so little impact on what goes on in hypnosis is, simply, that virtually all the action is in the subject. The importance of individual differences in hypnotic susceptibility has long been recognized (Friedlander and Sarbin, 1938), and the development of the Stanford Hypnotic Susceptibility Scales, Forms A, B and C (SHSS:A, B and C; Weitzenhoffer and Hilgard, 1959, 1962) put the measurement of hypnotizability on a firm quantitative basis (E. R. Hilgard, 1965). By introducing a standardized procedure for subject selection, the Stanford scales made it possible for different laboratories to replicate and extend each other's studies. Moreover, the Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor and Orne, 1962) injected substantial economies of scale into the assessment procedure.

The availability of reliable and valid instruments for measuring hypnotizability makes it possible to examine the personality and cognitive correlates of this cognitive skill. Here, it must be said, the yield has been relatively light. One of the most frustrating aspects of the post-war revival of hypnosis research was the discovery that, while hypnotizability could be reliably measured, hypnotizability simply did not appear to correlate substantially with the sorts of personality characteristics measured by the major personality inventories, such as the Minnesota Personality Inventory (MMPI) and the California Psychological Inventory (CPI; E. R. Hilgard, 1965). Nor does hypnotizability appear to be related to individual differences in 'cognitive style', such as field dependence–independence (A. H. Morgan, 1972).

The mystery was gradually resolved by the discovery that hypnotizability does correlate with scales measuring the tendency to have experiences such as those of hypnosis, but outside the hypnotic situation (Shor, 1960; As, 1962, 1963; As *et al.*, 1962; Shor *et al.*, 1962; J. R. Hilgard, 1965). The strongest correlate of hypnotizability discovered so far is absorption, or the tendency to become absorbed in various sorts of sensory, cognitive and imaginal experiences (Tellegen and Atkinson, 1974; for a review, see Roche and McConkey, 1990). Absorption and imaginative involvement simply were not represented on the scales of the MMPI and CPI; put another way, the individual differences measured by these inventories fall outside the domain of hypnosis. However, absorption is related to at least some facets of openness to experience, one of the 'Big Five' dimensions in the structure of personality (Glisky *et al.*, 1991).

Even the correlation between hypnotizability and absorption is still too small to permit individual levels of hypnotizability to be predicted

with any confidence from personality measures. But at least they tell us that individual differences in the specific domain of hypnosis are connected with individual differences in the wider domain of personality. Still, even openness is multifacted: while hypnotizability is correlated with absorption, it is not correlated with intellectance or liberalism (Glisky and Kihlstrom, 1993).

Other than this, we know remarkably little about hypnotizable individuals. Despite the implications of the Svengali myth, there is no appreciable gender difference in hypnotizability (Weitzenhoffer and Weitzenhoffer, 1958), and any difference there might be should not be taken too seriously, as the literature on gender differences presents a host of interpretive difficulties (Maccoby and Jacklin, 1974; Tavris, 1992; Hyde, 2005). Stereotypically 'feminine' individuals are no more hypnotizable than stereotypically 'masculine' ones (Kihlstrom, 1980).

Part of the difficulty in establishing meaningful correlates of hypnotizability may be methodological. Individual differences in personality are commonly measured by questionnaires, while hypnotizability is measured by work samples of actual performance. Such heteromethod correlations (Cronbach and Meehl, 1955; Loevinger, 1957; Campbell and Fiske, 1959) are usually low. Nevertheless, the typical personality–hypnosis correlation—including the correlation between absorption and hypnotizability—is low even by the standards of Mischel's (1968) 'personality coefficient'. It may be that more interesting results will be obtained when both predictor and criterion are measured by the same performance-based methods. As an example of the sort of work that might be done, Dixon and his colleagues found that hypnotizability was correlated with individual differences in automatic processing, as measured by the Stroop test (Dixon *et al.*, 1990; Dixon and Laurence, 1992). Research of this sort may help link the domain of hypnosis to the wider domain of attention, at both the psychological and neuroscientific levels of analysis.

Hypnotizability shows an interesting developmental trend across the lifespan (Cooper and London, 1971; A. H. Morgan and Hilgard, 1973), but the results of these cross-sectional studies remain to be confirmed by longitudinal research. Moreover, the determinants and correlates of this developmental trend remain largely unexplored (J. R. Hilgard, 1970). For example, little has been done to connect the development of hypnotizability with the development of the theory of mind in young children (Welchross, 1999). Surely, the child's capacity to be hypnotized must be related to his or her ability to appreciate mental states as such, as well as the distinction between reality and imagination. Along the same lines, response to direct and challenge ideomotor suggestions may follow different developmental trajectories, possibly related to the development of the general capacity to inhibit action; a similar point may apply to positive versus negative hallucinations, and to age regression as opposed to amnesia.

Once established, hypnotizability seems to be about as stable as other cognitive skills, such as intelligence (Morgan *et al.*, 1974; Piccione *et al.*, 1989). But how is it established? Some research seems to indicate a genetic contribution to individual differences in hypnotizability (A. H. Morgan *et al.*, 1973), possibly mediated through the attentional system (Raz *et al.*, 2004*a*). Evidence for the acquisition of hypnotizability through experience comes mostly from studies of childhood imaginative involvements (J. R. Hilgard, 1970). Perhaps the most interesting developmental finding to date is of an age-by-gender interaction, such that women of childbearing age tend to be more hypnotizable than their male counterparts (A. H. Morgan and Hilgard, 1973). On the assumption that most of these women were in fact stay-at-home mothers, one interpretation of this finding is that a capacity for hypnosis is sustained in parents—male or female—who participate in their children's imaginative involvements (J. R. Hilgard, 1970). Given the cultural changes that have occurred since the early 1970s, a more balanced test of this hypothesis is now possible.

Although modern theories of individual differences generally assume that personality characteristics are distributed along continuous dimensions (such as the 'Big Five personality traits; Wiggins and Trapnell, 1990) as opposed to discrete categories (such as the classical typology of melancholics, cholerics, sanguines and phlegmatics; Kant, 1798/1978), the notion that individual differences may resolve into more or

less discrete types has currently regained a foothold in the literature (Gangestad and Snyder, 1985; Waller *et al.*, 1996). Perhaps hypnotic virtuosos constitute a discrete type of person, qualitiatively different from those who do not possess a particular talent for hypnosis (Balthazard and Woody, 1989; Oakman and Woody, 1996). For that matter, White (1937) once suggested that there was more than one type of hypnosis. Perhaps the existence of more or less discrete profiles of hypnotic ability (E. R. Hilgard, 1965; Brenneman and Kihlstrom, 2006;) suggests that there may be several different kinds of hypnotic virtuosos.

2.6. Suggestions

Suggestion is central to hypnosis. On the HGSHS:A and SHSS:C, hypnosis is induced by suggestions for relaxation, focused attention and eye closure; and hypnotizability is measured by response to suggestions for arm catalepsy, age regression, auditory hallucination, posthypnotic amnesia, and the like. The connection between hypnosis and suggestion is so strong that the two domains have been concatenated throughout the modern history of the field (Bernheim, 1886/1889; Hull, 1933; Weitzenhoffer, 1953; Braffman and Kirsch, 1999; Kirsch and Braffman, 2001). The concept of *neutral* hypnosis, as a distinct psychological state independent of the subject's response to suggestions, has had its advocates (e.g. Ludwig and Levine, 1965; Kihlstrom and Edmonston, 1971; Edmonston, 1977, 1981). Still, the fact remains that what is perennially interesting about hypnosis is how the hypnotized individual responds to suggestions.

It has to be said, however, that not all suggestions, or forms of suggestibility, belong in the domain of hypnosis (for a detailed analysis, see Tasso and Perez, Chapter 11, this volume). The suggestion that there is a fly in the room, buzzing annoyingly around the subject's head, or that there is a voice coming over a loudspeaker asking the subject questions, is not the same as Joseph's suggestion, recorded in *Genesis* (*xl*, 14) that Pharaoh let him out of prison; or the suggestion, written on a slip of paper deposited in a box provided for this purpose, that the library install wireless Internet access. Eysenck and Furneaux (1945) distinguished between *primary* ideomotor suggestibility, involving direct verbal suggestions for bodily movements, and *secondary* suggestibility, involving indirect, nonverbal suggestions for sensory-perceptual experiences. Although this distinction makes some sense, conceptually, it has not always held up empirically (Evans, 1967).

Moreover, it seems clear that there are forms of suggestibility that go beyond the primary–secondary distinction. For example, Eysenck proposed a category of *tertiary* suggestibility, to cover persuasion effects in attitude change (Eysenck, 1947). Social psychologists have studied aspects of *tertiary* suggestibility involving conformity, persuasion and other forms of social influence (Zanna *et al.*, 1987; Zimbardo and Leippe, 1991; Forgas and Williams, 2001); these appear to be largely unrelated to hypnotizability (Moore, 1964). There is also the placebo effect, and related effects of suggesting to patients that they are receiving medical treatment (Harrington, 1997; Shapiro and Shapiro, 1997; Kihlstrom, 2003). Although placebo responses are mediated by expectation (Kirsch, 2004), and expectation plays some role in hypnosis (Council *et al.*, 1986), hypnotic analgesia appears not to be mediated by the placebo response (Evans, 1967, 1976; McGlashan *et al.*, 1969). Furthermore, expectancies turn out to play only a modest role in hypnotic responsiveness (Shor *et al.*, 1984; Benham *et al.*, 2006). Finally, there is *interrogative* suggestibility, assessed in terms of the responses of eyewitnesses, patients and others to leading questions (Gudjonsson, 1984; Doris, 1991; Eisen *et al.*, 2002; Shobe and Kihlstrom, 2002). This also appears to be independent of hypnotizability (Register and Kihlstrom, 1988). The domain of hypnosis will be defined more clearly as the relationships among the various forms of suggestibility, and their respective underlying mechanisms, receive further study (Gheorghiu *et al.*, 1989; Schumaker, 1991).

Based on present knowledge, hypnotic suggestions most closely resemble primary ideomotor suggestions, suggesting that they belong to overlapping domains (E. R. Hilgard, 1965). Still, the overlap is far from complete: in the first place, indirect suggestions such as those that characterize secondary suggestibility are not

unknown in hypnosis (Yapko, 1983; McConkey, 1984; Lynn *et al.*, 1993). Both hypnosis and primary ideomotor suggestibility entail responses to direct suggestions, but close analysis reveals that hypnotic suggestions are directed toward perceptual-cognitive experiences, rather than overt motor behaviors. We do not suggest to subjects simply that their outstretched arms are rising or falling; rather, we suggest that they are weighted down by a heavy object or being lifted up by helium balloons. In hypnosis, the overt motor behavior follows from the subjective experience—a point to which we shall return.

There are further complexities even within this expanded domain of primary suggestion. In the first place, ideomotor suggestions can be further classified into two types: *direct suggestions* for the facilitation of some motor behavior, such as eye closure or arm catalepsy; and *challenge suggestions* for the inhibition of motor behavior, such as arm rigidity or arm immobilization. Moreover, hypnotic suggestions can affect perceptual and cognitive experiences as well as motor behaviors. Interestingly, these perceptual-cognitive suggestions also come in two forms that roughly parallel direct and challenge ideomotor suggestions. Some cognitive suggestions involve the production of percepts and memories, such as the dream and positive auditory hallucination ('loudspeaker') items of SHSS:C; others involve the inhibition of percepts and memories, such as the negative visual hallucination ('three boxes') and post-hypnotic amnesia items of the same scale. In every case, however, there is a more or less direct suggestion that a state of affairs exists that does not accord with objective reality. The Stanford scales, which assess the subject's response to such suggestions, thus represent a prototype that defines the domain of hypnosis.

The distinctions between direct and challenge ideomotor suggestions, and between ideomotor and cognitive suggestions, has been repeatedly confirmed by multivariate analyses of the Stanford and Harvard scales (e.g. E. R. Hilgard, 1965; Spanos *et al.*, 1980; for a review, see Balthazard and Woody, 1985). Discovery of the multidimensional nature of hypnotic suggestion led to the development of the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II (SPSHS:I and II; Weitzenhoffer and Hilgard, 1963, 1967). Unfortunately, interpreting these three factors is complicated by the fact that their constituent items differ in difficulty levels. Direct suggestions tend to be relatively easy, while challenge and cognitive suggestions tend to be relatively difficult. Accordingly, some theorists (e.g. Coe and Sarbin, 1971) have argued that the apparent factor structure of hypnotic suggestions is actually an artifact of item difficulty, and that, appearances to the contrary, a 'single role-relevant skill' (p. 1) runs through the matrix of item correlations. Untangling content from difficulty level is not easy, because difficulty levels of the items of the Stanford and Harvard scales are fixed by the standardized procedures established for their administration and scoring.

Some progress can be made, however, once it is understood that the difficulty levels of various items, as fixed in the standardized scales of hypnotic susceptibility, are largely arbitrary. For example, the hand-lowering suggestion of HGSHS:A, generally considered a very easy item, can be made more difficult by requiring that the subject's hand drop further, faster, than what is specified in the standardized scale. Similarly, post-hypnotic amnesia, generally considered a difficult item, can be made easier by adopting a looser criterion for initial forgetting or subsequent reversibility (Kihlstrom and Register, 1984). When item difficulty levels are adjusted in this manner, the three-factor structure still emerges (Tellegen and Atkinson, 1976; Kihlstrom *et al.*, 2006). Moreover, a cluster analysis of the original standardization data for SPSHS:I and II uncovered 12 distinct profiles of hypnotic ability, independent of overall level of hypnotic response (Brenneman and Kihlstrom, 2006). A recent, highly sophisticated multivariate analysis confirms that the three basic factors of hypnotizability—direct, challenge and cognitive suggestions—are not an artifact of item difficulty (Woody *et al.*, 2005). The situation is thus roughly analogous to the structure of intelligence, with various group factors collected by a single overarching factor of general hypnotizability. Hypnosis is closely related to primary suggestibility, but the domain of primary suggestibility must be expanded to include perceptual-cognitive effects as well as ideomotor responses.

2.7. Imaginative experiences

Hypnotic experiences take place in the realm of imagination—there isn't *really* a balloon lifting up the subject's hand, or glue holding the subject's hands together, or a loudspeaker on the wall; nor does the age-regressed subject grow smaller in the chair. Nevertheless, the relationship between hypnosis and mental imagery is rather vexed. For example, hypnotizable individuals have no better mental imagery abilities than the rest of us—though here, admittedly, the fault might lie with the scales used to measure mental imagery (Kearns and Zamansky, 1984; K. S. Bowers, 1992; Glisky *et al.*, 1995). Of course, it may simply be that better, more performance-oriented, methods of assessing imagery (Kosslyn *et al.*, 1984) will yield substantial correlations with hypnosis, of a sort that have so far eluded empirical investigation.

On the other hand, examination of the structure of hypnotic suggestions, and of the phenomenology of hypnotic experience, suggests that hypnotic experiences bear only a tangential relationship to mental imagery as we typically experience it. Note, first, that while hypnotic experiences surely take place in imagination, hypnotic suggestions do not typically ask subjects to *imagine* anything. Consider, for example, the Fly Hallucination item (#9) on HGSHS:A. Subjects are not asked to imagine that there is a fly buzzing around the room. Instead, they are informed—it is suggested—that there *is* one. And hypnotic subjects respond accordingly. Hypnotic experiences take place in imagination, but they do not have the same experiential qualities as ordinary mental imagery. Mental images are deliberately, consciously constructed, while hypnotic experiences are generally accompanied by an experience of involuntariness. It is this experience of involuntariness, not the vividness of mental images that gives hypnotic experiences their hallucinatory quality.

There are exceptions, of course, even on HGSHS:A itself. But in general, when hypnotic suggestions use the word *imagine*, they do so in much the same way that they use the word *sleep*. If a mental image is defined as a percept in the absence of a stimulus, then hypnotic suggestions definitely involve imagery. But if a hallucination is defined as a mental image that is out of control, hypnotic experiences are closer to hallucinations than to ordinary mental images. In this respect, just as hypnosis should not be solely identified with suggestion, so hypnosis should not be narrowly identified with imagination. Accordingly, to relabel hypnotic susceptibility as imaginative suggestibility (Braffman and Kirsch, 1999; Kirsch and Braffman, 2001) would be to risk making a category mistake.

2.8. Perception, memory and action

The phenomena of hypnosis are mostly cognitive in nature, involving alterations in perception and memory. Hypnotized subjects perceive things that *aren't* there, and fail to perceive things that *are* there. They experience themselves as if they were young again. They dream even though they are not asleep. They cannot remember what happened to them while they were hypnotized, and they remember things that did not actually happen to them. Even the ideomotor phenomena of hypnosis are cognitive in nature, because the motor behaviors follow from suggestions for perceptual change. In the direct suggestions, subjects *perceive* balloons tied to their wrists, or heavy objects in their hands, and then the limbs move accordingly. In the challenge suggestions, they *feel* their hands glued together, and have difficulty taking them apart; they *feel* their outstretched arms stiffening, and then have difficulty bending them. So too, for post-hypnotic suggestions, the essence of which is not that subjects touch their ankles when the experimenter taps, but that they feel an *urge* to do so, do not *know* why and do not *remember* the suggestion. The behavioral responses by which we measure hypnotizability follow from suggestion-induced changes in perception and memory.

Perceptual-cognitive changes lie at the heart of most hypnotic phenomena, but cognition is not all there is to mental life. As Kant put it, 'there are three irreducible faculties of mind: knowledge, feeling, and desire' (Kant, 1781/1929, p. 14). So what of the other two elements in the 'trilogy of mind' (E. R. Hilgard, 1980)? What role do emotion and motivation

play in the phenomena of hypnosis? These have mostly gone unexamined, but there are hints in the literature that hypnosis can affect emotional and motivational processes as well.

For example, Damaser *et al.* (1963) employed hypnotic suggestion to investigate the physiological correlates of various emotional states. Levitt and his colleagues observed the effects of suggested anxiety, covered by a further suggestion for post-hypnotic amnesia, on various aspects of test performance (Levitt, 1967; Levitt and Chapman, 1979). Similarly, Blum and his colleagues explored the effects of hypnotically suggested arousal on various aspects of performance (e.g. Blum and Porter, 1972). This research, as well as Watkins's clinical work on the 'affect bridge' (Watkins, 1971), set the stage for Bower's use of hypnotically suggested emotions in his pioneering studies of mood-congruent and mood-dependent memory (Bower *et al.*, 1978, 1980; Bower, 1981). The memory effects originally reported by Bower have since been replicated using nonhypnotic methods (e.g. Eich, 1995; Bower and Forgas, 2000). However, difficulties in replicating the original hypnosis experiments have perhaps contributed to a decline in research on hypnotically elicited emotion. This is an area that warrants further investigation—especially as interest in emotion is being revived within psychology, and researchers seek reliable means of manipulating subjects' emotional states (Larsen and Sinnett, 1991; Westermann *et al.*, 1996; Nummenmaa and Niemi, 2004; Goritz and Moser, 2006).

Many of the cognitive effects of hypnosis come in contrasting forms, such as the positive and negative hallucinations, and this may be the case for the emotional effects as well. In the Bower studies, the hypnotic suggestion appears to operate in the manner of a positive hallucination—subjects experience an emotion in the absence of the appropriate stimulus. By analogy to negative hallucinations, Bryant and his colleagues have employed suggestions for 'emotional numbing', which may reduce subjects' conscious awareness of their emotional states (Bryant and Mallard, 2002; Bryant, 2005). Although hypnotic analgesia reduces both the sensory-perceptual and affective components of pain (E. R. Hilgard, 1967; Knox *et al.*, 1974), appropriately worded suggestions can also dissociate them—so that, for example, the hypnotized patient can feel pain but not suffer from it. Interestingly, these suggestions produce different patterns of brain activity: sensory pain activates the primary somatosensory cortex, while suffering activates the anterior cingulate gyrus (Rainville *et al.*, 1997, 1999; Price *et al.*, 2002). Emotional numbing may operate in the manner of a suggestion for analgesia, or amnesia, at the level of conscious awareness. Just as Hilgard's 'hidden observer' studies showed that pain can be represented subconsciously despite the experience of analgesia (Knox *et al.*, 1974; E. R. Hilgard *et al.*, 1975, 1978), so it may be that hypnotically suggested emotional numbing impairs explicit, or conscious, affective experience but spares implicit, or unconscious, representations of emotional state (Kihlstrom *et al.*, 2000).

So far as motivation is concerned, it should be noted that Hilgard's attraction to the field was partly an outgrowth of his longstanding interest in problems of motivation, and in particular the distinction between voluntary and involuntary acts (E. R. Hilgard, 1964). Theorists of a psychodynamic bent have also made use of hypnosis to study problems of unconscious motivation—an enterprise which E. R. Hilgard (1961, 1964) also endorsed. In one prominent line of research, based on a paradigm originally devised by Luria (1932), subjects received suggestions for a paramnesia, or false memory, that they had committed some socially undesirable act—the suggestion itself was covered by a further suggestion for amnesia (Huston *et al.*, 1934; Reyher, 1967; Sommerschield and Reyher, 1973). Alternatively, subjects received suggestions for a variant on age regression, in which they were asked to relive a conflictual, ego-threatening event from childhood (Blum, 1967, 1979). Unfortunately, the demand characteristics of such experiments are fairly clear, making interpretation of the results difficult (Reyher, 1969; Sheehan, 1969, 1971*b*). Nevertheless, the work deserves to be remembered as an important line of experimental research on psychodynamic theory.

Motivation is also relevant to a question that has intrigued investigators ever since the beginning of experimental hypnosis research: whether hypnotic suggestions of various kinds can enhance human performance—what Marcuse

(1959) called 'the generation of hypers' (as in hyperpraxia, or enhanced muscular performance, hyperesthesia, or enhanced sensory acuity, and hypermnesia, or enhanced memory) and the 'wantos' (as in 'Want to make the weak as strong as a lion?'). A vast experimental literature on the hypnotic transcendence of normal voluntary capacity, mostly with variants on the London–Fuhrer paradigm (London and Fuhrer, 1961) in which hypnotizable and insusceptible subjects were tested in baseline, nonhypnotic and control conditions, yielded largely negative results (e.g. Evans and Orne, 1965; Orne, 1966; Sheehan and Perry, 1976). In general, these studies found that appropriately motivated insusceptible subjects performed as well or better on measures of muscular strength and endurance than hypnotizable subjects. Similarly, there is no experimental evidence that hypnosis reliably enhances learning or memory (Council on Scientific Affairs, 1985; Kihlstrom and Eich, 1994; Whitehouse *et al.*, 2005). Finally, provocative evidence that hypnosis could improve visual acuity in myopic subjects (Graham and Leibowitz, 1972) has been called into question by more recent analyses (Raz *et al.*, 2004*b*).

Most of these studies employed direct suggestions and exhortations for improved performance. However, Slotnick *et al.* (1965) obtained different results when they added *involving* instructions to the usual exhortations. In these instructions, subjects were asked not simply to improve their performance, but also to *think* of themselves as 'stronger and more capable'. Under these conditions, exhortation plus involvement yielded a marked improvement in performance over exhortations alone, and this was true even when the involving instructions were administered in a nonhypnotic control condition. Because all the subjects in this experiment were hypnotizable, it seems likely that the effects of the involving instructions were mediated by the capacity for absorption and imaginative involvement that is correlated with hypnotizability. Although it would be useful to replicate this experiment with insusceptible subjects as well, it is possible that *imagining* oneself stronger can in fact make one (a little) stronger, in the manner of the self-fulfilling prophecy (Snyder, 1984), whether that imagination takes place in hypnosis or not.

One motivational application of hypnosis is in sports psychology (Unestahl, 1979; W. P. Morgan, 1980, 2002; Mairs, 1988; Taylor *et al.*, 1993). Unfortunately, field studies in this area have rarely taken advantage of the analytical power of paradigms such as the London–Fuhrer design. As a result, it is often unclear whether any improvements in performance are actually mediated by increased motivation—as opposed to self-distraction, analgesia-like pain relief or even absorption in the athletic performance (i.e. 'flow'; Csikszentmihalyi, 1990; Grove and Lewis, 1996; Pates and Maynard, 2000).

2.9. Classic instance

The effects of hypnotic suggestions—the classic case or instance—are not experienced by, or observed in, everyone who is hypnotized. The phenomena that have enticed theorists from James, Freud and even Pavlov to today are most likely to occur in those subjects who are most highly hypnotizable (Heap *et al.*, 2004). And, as a corollary, there is little point in studying hypnosis in subjects who cannot experience it. Accordingly, hypnosis researchers devote an extraordinary amount of time, effort and resources to assessing the hypnotizability of the subjects who participate in their experiments (for a comprehensive summary of assessment procedures, see Barnier and McConkey, 2004). The optimal screening procedure for hypnosis research is to begin with HGSHS:A, which allows subjects to familiarize themselves with hypnotic procedures, and also provides a first approximation of their hypnotizability. Then, high-scoring subjects can be invited to return for a final assessment with SHSS:C. The Stanford group developed the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II (SPSHS:I and II), to permit more fine-grained assessments of hypnotizability, particularly with respect to different patterns of ability within the high range (E. R. Hilgard *et al.*, 1963; Weitzenhoffer and Hilgard, 1963, 1967; for a review, see McConkey and Barnier, 2004), but these never entered into common use. Instead, SHSS:C can be 'tailored' for special assessment purposes, without losing its value as a standard psychometric instrument (Hilgard *et al.*, 1979).

Nowhere else in psychology, except perhaps in neuropsychology, is so much effort devoted to subject screening and selection prior to formal experimental research. In this respect, hypnosis may serve as a model for individual differences research throughout psychology. Unfortunately, the sheer economics of such a rigorous assessment scheme naturally provides an incentive for investigators to take shortcuts. One of these is a group-administered version of SHSS:C, the Waterloo–Stanford Group Scale of Hypnotic Susceptibility: Form C (WSGC; K. S. Bowers, 1993)—which, while offering some of the same economies as HGSHS:A, eliminates the individual administration that permits detailed inquiry into the subject's experience. Another trend, more disturbing, is reliance on HGSHS:A as the sole screening instrument for hypnosis research. The problem is that HGSHS:A does not contain enough difficult and cognitive items to provide a good assessment of hypnotic abilities; as a result, its ability to identify 'hypnotic virtuosos' is relatively poor (Register and Kihlstrom, 1986). In this respect, SHSS:C remains the 'gold standard' of hypnotizability measures.

Another unfortunate trend is the proliferation of alternative scales to measure hypnotizability, including the Barber Suggestibility Scale (BBS; Barber, 1965), Carleton University Responsiveness to Suggestion Scale (CURSS; Spanos *et al.*, 1983*a*), Creative Imagination Scale (CIS; Wilson and Barber, 1978) and Hypnotic Induction Profile (HIP; Spiegel, 1972; Orne *et al.*, 1979). When different laboratories use different scales to measure hypnotizability, the virtues of standardization are lost, and it becomes all the more difficult for one laboratory to replicate and extend another's work. Some of the newer scales are shorter than HGSHS:A and SHSS:C, and thus arguably more economical to use, but abbreviation comes at the expense of content validity. The CURSS does include assessments of subjective experience and experienced involuntariness, but these can easily be added to the Stanford and Harvard scales without compromising their essential properties (P. Bowers, 1982; Register and Kihlstrom, 1986).

As valuable as the standardized scales have been for research purposes, it is sadly the case that hypnotizability is rarely measured in the clinic. It is not clear why this is the case. Some clinicians, especially those working in the tradition of Milton H. Erickson, may discount the importance of individual differences in hypnotizability (Frankel, 1985). They may fear that a finding of low hypnotizability will reduce a patient's motivation for treatment, but the scant evidence available suggests that this is not the case (Frankel *et al.*, 1979). It would seem obvious that candidates for hypnotherapy, or for hypnosis as an adjunctive treatment, should be screened to determine whether they are, in fact, hypnotizable. While it is true that such assessment takes time, clinicians often take time to administer other instruments, such as the Rorschach and the Thematic Apperception Test, that are less relevant to treatment. In any event, the Stanford group developed a set of abbreviated scales that afford valid assessment of hypnotizability in clinical contexts (A. H. Morgan and Hilgard, 1978–1979*a*,*b*). These should be more widely used in clinical research and practice than they seem to be.

Can anyone become a hypnotic virtuoso? Hull thought of hypnosis as a habit phenomenon, but, while practice may help subjects become hypnotized more readily, it does not seem to make them more hypnotizable. We now think of hypnotizability as a cognitive skill, and we generally think of skills as things that can be acquired, refined and perfected through experience. Nevertheless, attempts to modify hypnotizability have mostly produced ambiguous results (Diamond, 1974, 1977*a*,*b*, 1982; Perry, 1977). More recently, a package known as the Carleton Skills Training Program (CTSP) has been proposed as a means for enhancing hypnotizability (Gorassini and Spanos, 1986; Gorassini *et al.*, 1991; Gorassini, 2004). Here, too, however, the enhancement of hypnotizability appears to be heavily laced with demands for overt behavioral compliance (Bates *et al.*, 1988; Bates and Brigham, 1990; Bates and Kraft, 1991; Bates, 1992). Although this point has been vigorously debated by advocates of the CSTP (e.g. Spanos *et al.*, 1989–1990; Gorassini, 2004), few if any laboratories have abandoned subject selection based on formal measurements of hypnotizability, such as HGSHS:A and SHSS:C, in favor of creating virtuoso subjects wholesale out of unselected subjects with the CSTP.

The phrase *classic instance* can refer to *depth* of hypnosis as well as to hypnotic ability. In the nineteenth century, Braid attempted to characterize the various stages of hypnotic *sleep*, Charcot described catalepsy, lethargy and somnambulism as representing three *stages of hypnosis*, and both Liebeault and Bernheim offered criteria for diagnosing the various stages of hypnosis (for a review, see E. R. Hilgard, 1965). Indeed, some of the very first scales of hypnotizability were actually labeled as scales of hypnotic depth (Friedlander and Sarbin, 1938; LeCron, 1953). However, modern scales of hypnotic depth have usually been offered as supplements to, rather than substitutes for, the assessments of hypnotic ability provided by the conventional standardized scales (e.g. Tart, 1970). Perhaps the simplest measure of hypnotic depth is a 1–10 rating of 'how deeply hypnotized' subjects feel themselves to be (O'Connell, 1964; Register and Kihlstrom, 1986).

Such global depth ratings, based on purely subjective (and probably idiosyncratic) criteria, are likely to reflect little more than the subject's involvement with the hypnotic procedure, and are to be taken with a grain of salt. However depth is measured, there is a definite conceptual difference between depth and ability. Presumably, highly hypnotizable subjects can experience 'lighter' or 'deeper' stages of hypnosis, in much the same way that a virtuoso pianist can play more or less well, depending on the circumstances. Someone who lacks the ability to play the piano, however, can never play really well. Insusceptible subjects, on this model, lack the ability to become deeply hypnotized, no matter how hard they try. The classic instance, the prototype or defining example of the domain of hypnosis, is a hypnotizable person who is deeply hypnotized.

2.10. Subjective conviction

Subjective experience lies at the heart of hypnosis. It is not interesting that a hypnotized subject will lower his outstretched arm when told that it is becoming heavy. What is interesting is that the arm actually begins to *feel* heavy. It is the subject's conviction that the suggested event is really happening that distinguishes a genuine hypnotic experience from overt behavioral compliance. This point was made early on in a series of studies of Barber's 'task motivation' paradigm of hypnosis, which puts very strong pressure on subjects for overt behavioral compliance with suggestions (Barber, 1969, 1972). In one study, Barber and Calverley (1964) reported that subjects in a task motivation control condition gave reports of the 'reality' of suggested hallucinations that were comparable with those given by hypnotic subjects. K. S. Bowers (1967) replicated this finding, but found that the reality ratings of task motivation subjects returned to baseline levels following demands for honesty in reporting. Next, Spanos and Barber (1968) confirmed this finding, but found that the hallucination ratings of hypnotic subjects were not corrected by honesty demands. Finally, K. S. Bowers and Gilmore (1969) found that honesty ratings corrected the hallucination reports of simulating, but not real, hypnotic subjects. The entire cycle of research just summarized underscores the importance of subjective conviction in distinguishing what is hypnosis from what is not and who is genuinely hypnotized from who is not.

Orne's real–simulator design also provides a means to this end. The real–simulator paradigm was intended, largely, to serve as a means to verify the ecological validity of laboratory experiments on hypnosis and other phenomena (Orne, 1959, 1962, 1969, 1970, 1972, 1973). But because Orne's hypnosis research was part of a larger interest in the objective study of subjective states, including sleep and the detection of deception, the real–simulator design was also a vehicle for careful post-experimental inquiry into subjects' private experiences of hypnosis. Similarly, the Experiential Analysis Technique was developed as a means for systematically inquiring into subjects' (retrospective) impressions of hypnotic procedures and their response to them (Sheehan *et al.*, 1978; Sheehan and McConkey, 1982; McConkey and Barnier, 2004). Both procedures have their place in hypnosis research, but they—especially the real–simulator design—can also be expensive to implement.

Although the Stanford-type hypnotizability scales were deliberately constructed with behavioral as opposed to subjective measures of response, assessments of subjective experience

can be easily added to them. For example, subjects can simply be asked whether each suggestion succeeded in producing its intended effect (Register and Kihlstrom, 1986). One comparative study found that ratings of subjective experience corrected the behavioral scores of the BSS strongly downward, but had significantly less effect on scores of the SHSS:A (Ruch *et al.*, 1974). Perhaps the correlations between subjective experience and objective response are high on the Stanford-type scales because the scales themselves put so much emphasis on subjective experience, despite their behavioral scoring. Still, direct assessment of subjective experience makes the point that subjective experience lies at the heart of the domain of hypnosis, and that behavioral responses flow from subjective conviction.

Of course, the subjective experience of hypnosis can go beyond subjective conviction in the suggested effects (Sheehan and McConkey, 1982; McConkey and Barnier, 2004). Following in the tradition of nineteenth-century descriptions of the *depth* or *stages* of hypnosis, a number of modern investigators have proposed that the subjective experience of hypnosis can be assessed along a number of different dimensions. For example, Shor (1962) proposed that hypnotic depth be evaluated along three conceptually independent dimensions: the loss of the generalized reality orientation (Shor, 1959); nonconscious involvement; and archaic involvement. Later, he suggested five additional dimensions on which the phenomenal experience of hypnosis should be assessed (Shor, 1979; Kihlstrom *et al.*, 1989): drowsiness; physical and mental relaxation; mental imagery; absorption in the ongoing experience; and access to normally unconscious ideas and memories. Along the same lines, Field (Field, 1965; Field and Palmer, 1969; Kihlstrom *et al.*, 1989) and Pekala (Pekala *et al.*, 1985; Pekala and Kumar, 2000; Pekala, 2002) have developed questionnaire techniques for assessing a number of subjective experiences thought to be associated with hypnosis.

To some extent, these proposals obviously reflect their originators' theoretical preconceptions concerning the nature of hypnosis. As such, they risk constituting a kind of Procrustean bed into which subjects' experience of hypnosis must be fit at all costs. For example, we now know that hypnosis need not be relaxing, and hypnotized subjects need not be drowsy (Vingoe, 1968; Banyai and Hilgard, 1976; Malott and Goldstein, 1981; Alarcon *et al.*, 1999). Whether subjects are relaxed or active, alert or drowsy, what really belongs in the domain of hypnosis is subjective conviction in the experiences that are suggested to them. As Sutcliffe (1960, 1961) put it, the hypnotized subject is, in some sense, deluded about the actual stimulus state of affairs.

2.11. Experienced Involuntariness

Whether subjects are relaxed or active, alert or drowsy, another element in the subjective experience of hypnosis is the experience of involuntariness in response to hypnotic suggestions. The outstretched arm does not just *feel* heavy: it appears to become heavier *all by itself*, without the subject deliberately constructing the image. The experience of involuntariness is part and parcel of subjective conviction: one cannot believe that one's arm has become light, being pulled up by helium balloons, if one is deliberately imagining that it is so, or voluntarily raising the limb. The experience of involuntariness is what distinguishes a suggestion from an instruction (Weitzenhoffer, 1974, 1980); nonconscious involvement (Shor, 1959, 1962, 1979) is also what distinguishes hypnotic experience from mere behavioral compliance.

In view of the centrality to hypnosis of the experience of involuntariness, it is somewhat surprising that it is so seldom considered in the assessment of hypnotizability. Both HGSHS:A and SHSS:C rely exclusively on observed or self-reported behavioral response, as does the BSS. This general failure to include an inquiry into the experience of involuntariness was criticized by Weitzenhoffer (1980*a*) himself, as part of his analysis of the *classic suggestion effect* (Weitzenhoffer, 1974). Following the argument of Bernheim (1886/1889, p. 125), who asserted that 'The most striking feature of a hypnotized subject is his automatism', Weitzenhoffer asserted that only involuntary responses to suggestion should count as truly hypnotic in

nature (see also Weitzenhoffer, 1980). Thus, at least in principle, assessments of hypnotizability that do not assess involuntariness may be contaminated by mere behavioral compliance. In reply, E. R. Hilgard (1981) argued that the vast majority of subjects experience their response to hypnotic suggestions as involuntary, so that the degree of contamination may not be great.

Of course, the degree of such contamination is an empirical question. K. S. Bowers (1981), examining response to an abbreviated version of SHSS:A, found that 80 percent of passed items were experienced as involuntary behaviors, and only 20 percent as voluntary. Moreover, subjects who experienced their response as involuntary scored higher on SHSS:A, and on a subsequent SHSS:C, than those who did not, regardless of whether they passed the item according to the behavioral criterion. Subsequent studies of scales of the Stanford type also found low rates of voluntary response (P. Bowers, 1982; Farthing *et al.*, 1983; P. Bowers *et al.*, 1988). Such studies indicate that most positive responses to hypnotic suggestions are, in fact, associated with the experience of involuntariness.

Still, the fact that *some* positive behavioral responses are experienced as voluntary suggests that ratings of experienced involuntariness can be of value in the assessment of hypnotizability—a point with which E. R. Hilgard (1981) concurred. For example, in the normative study of the CURSS, which includes subjective and involuntariness scores as well as the usual objective score, requiring subjects to pass both the objective criterion *and* rate the response as at least moderately involuntary, cut the mean score in half and shifted the distribution of scores dramatically to the left (Spanos *et al.*, 1983*a,b,c*). While such findings suggest that the CURSS behavioral scores might be heavily contaminated with compliance, Spanos and his colleagues have argued that contamination extends to the Stanford scales as well (Spanos *et al.*, 1986*a,b*). However, this was clearly not the case in the studies of Kenneth and Patricia Bowers, or in Hilgard's own studies, where honesty demands and involuntariness ratings had little effect on SHSS scores.

Although the published versions of the Harvard and Stanford scales do not contain assessments of experienced involuntariness, these are easily inserted into the procedure. Again, perhaps the simplest procedure is a rating scale, with opposite poles labeled 'Deliberate, Effortful, Voluntary' and 'Automatic, Effortless, Involuntary' (P. Bowers, 1982). However, ratings in the midrange of a continuous dimension of involuntariness remain somewhat ambiguous. While the meanings of high and low ratings on such a scale are fairly clear, intermediate ratings might mean that the subject's response was perceived as partially voluntary and partially involuntary; or a response that began voluntarily might have continued involuntarily. Accordingly, P. Bowers *et al.* (1988) introduced a categorical rating system, which allowed for such alternatives as well as the more extreme alternatives of deliberate versus involuntary responding to suggestion.

It is one thing to assess the experience of involuntariness; it is quite another to explain it. Early authorities, such as Bernheim (1886/1889), really seem to have believed that the hypnotic subject was some sort of automaton. Similarly, Arnold's (1946) theory of ideomotor action held that behavioral responses to hypnotic suggestions occurred automatically whenever the subject vividly imagined some suggested state of affairs.

Beginning in the mid-1970s, cognitive psychologists began to elaborate a technical concept of automaticity, couched in the framework of limited-capacity models of attention and information processing (LaBerge and Samuels, 1974; Posner and Snyder, 1975; Schneider and Shiffrin, 1977). According to this view, automatic processes share four characteristics in common: (1) they are inevitably evoked by the presence of certain stimuli in the environment; (2) once evoked, they are incorrigibly executed, in a ballistic fashion; (3) they are effortless, in the sense that they do not consume cognitive resources; and (4) they are processed in parallel, so that they do not interfere with other ongoing cognitive processes. So defined, automatic processes are involuntary in the same way that reflexes and instincts are involuntary.

Based on this technical definition, however, it appears that hypnotic experiences are not involuntary after all (Lynn *et al.*, 1990). For example, response to post-hypnotic suggestion is sensitive to the context in which the cue is presented (Spanos *et al.*, 1987); even highly

hypnotizable subjects can resist hypnotic suggestions (E. R. Hilgard, 1963); and execution of a post-hypnotic suggestion consumes cognitive capacity, so that post-hypnotic responses can interfere with other resource-demanding processes (Hoyt, 1990). Accordingly, many modern theories of hypnosis incline toward the view that hypnotic experiences are not actually automatic in nature, even though they may be experienced as involuntary. In E. R. Hilgard's (1977) neodissociation theory of divided consciousness, for example, automatic processes running in parallel serve to illustrate the idea of divided consciousness. But the theory itself suggests that the experience of involuntariness occurs because the cognitive module that executes the suggestion does so outside of phenomenal awareness (Kihlstrom, 1992*a*, 1998).

As another example, Spanos's (1986*a*) social-cognitive view of hypnosis explains the experience of involuntariness in terms of self-deception on the part of the subject, who mistakenly attributes his or her response to external rather than internal factors—a mistake encouraged by various features of the social situation in which hypnosis takes place. In both Hilgard's and Spanos's theories, the experience of involuntariness has some of the qualities of an illusion—although for Hilgard the source of the illusion is to be found in the communications among cognitive subsystems, while for Spanos the source is to be found in the structure of suggestions and other features of the social milieu. It should be noted, in passing, that Spanos has elsewhere suggested that reports of involuntariness stem from subjects' strategic attempts to create an impression that they are deeply hypnotized (Spanos *et al.*, 1985). In this view, the experience of involuntariness is no such thing.

In stark contrast, some modern approaches seem to hold that hypnotic experiences actually occur automatically. For example, Woody and Bowers (1994; see also Woody and Sadler, 1998) drew on neuropsychological theories to suggest that hypnosis alters the functioning of executive control systems associated with the prefrontal cortex, with the result that hypnotic responses are truly involuntary even if they are not technically automatic (see also Haggard *et al.*, 2003). And, somewhat paradoxically, Kirsch and Lynn (Kirsch and Lynn, 1998*b*,*c*, 1999; Kirsch, 2001) have revived Arnold's theory of ideomotor responding, suggesting that hypnotic experiences are an automatic consequence of positive response expectancies. It will take some time to sort all of this out, but at present it appears that the theoretical battleground in hypnosis has shifted, from explaining response to hypnotic suggestions in general, and debating the mechanisms of various hypnotic suggestions in particular, to accounting for subjects' experience of involuntariness in response to hypnotic suggestions.

2.12. **Altered state of consciousness**

Over the years, much ink has been spilled over whether, and in what respects, hypnosis represents an altered state of consciousness (Ludwig and Levine, 1965; Chaves, 1968; Spanos, 1970, 1986*b*, 1987*a*,*b*; Spanos and Chaves, 1970; Barber, 1972; Sarbin and Coe, 1972; E. R. Hilgard, 1973*a*,*b*, 1992; Blum, 1978; Kihlstrom, 1992*a*, 2007; Sarbin, 1992; Kirsch and Lynn, 1998*c*; Oakley, 1999*a*, 1999*b*; Kallio and Revensuo, 2000, 2003). Sometimes the debate has been couched in terms of the validity of *trance* or *special-process* theories of hypnosis. Sometimes it has been framed as a conflict between alternative paradigms for the investigation of the phenomenon. Sometimes, it seems to be a local manifestation of a broader conflict over whether *mentalistic entities* such as consciousness have any place in a scientific explanation of behavior.

Nevertheless, the conclusion that hypnosis reflects an altered state of consciousness seems unavoidable (Kihlstrom, 2005). After all, consciousness has two principal aspects (Kihlstrom, 1984): *monitoring* ourselves and our environment, so that objects, events and our internal mental states are accurately represented in phenomenal awareness; and *controlling* ourselves and the environment, through the voluntary initiation and termination of thought and action. And hypnosis alters both of them: hypnotized subjects see things that are not there, and fail to see things that *are* there; they fail to remember things that they just experienced, and they remember things that didn't happen; they

cannot control their bodily movements, and they execute post-hypnotic suggestions without knowing why they are doing so. From this point of view, it would seem that the only way to deny that the phenomena of hypnosis reflect alterations in consciousness would be to deny that the phenomena themselves are genuine—to assert, for example, that hypnotic subjects really do feel pain, and really do remember, despite what they say after they have been given suggestions for analgesia and amnesia.

Perhaps, though, the problem lies in the way that *altered state* is defined. If we believe that every state of consciousness is associated with some unique physiological signature, much as sleep is associated with the absence of alpha activity in the electroencephalogram (EEG) and dreaming with the occurrence of rapid eye movements (REM), then the lack of a physiological indicator for hypnosis may be taken as evidence that hypnosis is not an altered state of consciousness after all. But of course, this puts the cart before the horse. Physiological indices are validated against self-reports, as when Aserinsky and Kleitman (1953) awakened their subjects up during periods of REM and non-REM sleep to ask them if they were dreaming. For this reason, physiological variables have no privileged status over introspective self-reports as indices of consciousness.

Arguably, it would be useful if states of consciousness had distinct physiological correlates. But our present knowledge of mind–body relationships is simply not sufficient to make such correlates a necessary part of the definition. After all, cognitive neuroscience has made very little progress in the search for the neural correlates of ordinary waking consciousness (Metzinger, 2000; Coltheart, 2006*a*,*b*). It is very difficult to infer from a particular pattern of brain activity just what the subject is doing (Poldrack, 2006). How far in the future do the neural correlates of altered states of consciousness, such as hypnosis, await? And even when they become available, how reliably will we be able to determine that subjects have been hypnotized, just by examining their brains?

Even at the psychological level of analysis, it may not be possible to find any unique cognitive or behavioral change associated with hypnosis. Hull (1933) thought that the hallmark of hypnosis was hypersuggestibility; but while hypnosis may—may—enhance suggestibility, at the very least it is clear that suggestibility is something that also occurs in the normal waking state (Weitzenhoffer and Sjuberg, 1961; Braffman and Kirsch, 1999; Kirsch and Braffman, 2001). More recently, Orne (1959) suggested that hypnosis was characterized by *trance logic*, which he described (informally, to colleagues; but, alas, never in print) as a kind of 'peaceful co-existence between illusion and reality'. For example, Orne reported that some hypnotized subjects, hallucinating a companion, saw through their hallucination to the back of the chair on which they sat; or they also saw the real person, sitting nearby; simulators, Orne reported, never did these things. Everyone who has ever worked with a hypnotized subject has observed trance logic; but the implication that trance logic was unique to hypnosis—it's 'essence'—was vigorously challenged by R. F. Q. Johnson (1972; for a critique, see E. R. Hilgard, 1972; for a rejoinder, see R. F. Q. Johnson *et al.*, 1972). Later studies employing a battery of test items confirmed that hypnotizable subjects were more likely to display trance logic than insusceptible subjects (e.g. Peters, 1973; Obstoj and Sheehan, 1977; Perry and Walsh, 1978), but it also became clear that trance logic was observed in other situations as well, such as nonhypnotic imagination (McConkey *et al.*, 1991).

Despite the human species' deep epistemic desire to carve nature at its joints, and slot different states of consciousness into discrete categories, in the final analysis it may be best to treat hypnosis and other altered states of consciousness as *natural concepts*, represented by a prototype or one or more exemplars, each consisting of features that are only probabilistically associated with category membership, with no clear boundaries between one altered state and another, or between altered and normal consciousness (E. R. Hilgard, 1969; Kihlstrom, 1984, 2005). And because we cannot have direct knowledge of other minds, altered states of consciousness must also remain *hypothetical constructs*, inferred from a network of relationships among variables that are directly observable (Garner *et al.*, 1956; Campbell and Fiske, 1959; Stoyva and Kamiya, 1968), much in the manner of a psychiatric diagnosis (Orne, 1977). From this point

of view, the diagnosis of an altered state of consciousness can be made with confidence to the extent that there is convergence among four kinds of variables: an induction procedure; alterations in subjective experience; associated changes in overt behavior; and physiological correlates.

Operationally, an altered state of consciousness can be defined, in part, by the means employed to induce it—or, alternatively, as the output resulting from a particular input (Barber, 1969). Operational definitions of this sort are a residue of functional behaviorism in psychology, but the role of an induction procedure in hypnosis remains open. Certainly an induction procedure helps to define the situation as hypnosis, as opposed to something else, so that the subject has some sense of what to expect and what to do. But it is not sufficient to produce hypnosis: the subject must also be hypnotizable—and then there is the nontrivial fact that any effect elicited while the subject is hypnotized can also be elicited outside hypnosis, by means of post-hypnotic suggestion. And an induction procedure may not be necessary either: highly hypnotizable subjects may not benefit much from an induction, and highly experienced subjects may not need the ministrations of the hypnotist in order to enter hypnosis.

In contrast, introspective self-reports of changes in subjective experience would seem to be central to the definition of any altered state of consciousness. After all, the domain of hypnosis is defined by suggested changes in perception, memory and the voluntary control of behavior—analgesia, amnesia, the experience of involuntariness, and the like. If the hypnotist gives a suggestion—for example, that there is an object in the subject's outstretched hand, getting heavier and heavier—and the subject experiences nothing of the sort, it is hard to say that he or she has been hypnotized.

Of course, self-reports have always made psychologists nervous, even in the heyday of introspectionism (Boring, 1953; Robbins, 2004). Accordingly, another residue of behaviorism is a methodological choice to focus on overt behavior. If a subject hallucinates an object in his outstretched hand, and feels it grow heavier and heavier, eventually his arm ought to drop down to his side. Note, however, that overt behavior is a consequence of the subject's altered subjective experience, and is of no interest in the absence of corresponding subjective experience. There is really no getting away from self-reports; the methodological trick is to collect them under circumstances where subjects believe it is legitimate for them to reflect accurately on their experiences.

Because both self-reports and overt behaviors are under voluntary control, and thus subject to distortion by social influence processes, hypnosis researchers have long been interested in psychophysiological indices of response. Over the years, a number of such indices have been offered, including galvanic skin conductance (O'Connell and Orne, 1968), EEG alpha (R. A. Dumas, 1977) and theta (Crawford and Gruzelier, 1992) activity, and increased activation of both right (MacLeod-Morgan and Lack, 1982) and left (Maquet *et al.*, 1999) cerebral hemispheres, but these have often proved to be artifacts of confounding variables such as relaxation, or otherwise not intrinsic to hypnosis. The ambiguities and controversies surrounding hypnosis were not resolved by psychophysiology, and they are unlikely to be resolved by neuroscience.

Because subjects can have a wide variety of experiences while they are hypnotized, it was probably a mistake to expect that there would be any neurophysiological correlates of hypnosis in general, following an induction procedure but in the absence of any specific suggestions. Investigators who are interested in the neural correlates of hypnosis are more likely to find something interesting when they focus on the correlates of specific hypnotic suggestions—as in brain imaging work that shows specific changes in brain activity corresponding to hypnotic auditory (Szechtman *et al.*, 1998) and visual (Kosslyn *et al.*, 2000) hallucinations, analgesia (Rainville *et al.*, 2002) or agnosia (Raz *et al.*, 2005). Note, however, in these cases, the brain signature associated with the hypnotic effect was not unique to hypnosis. In the Kosslyn *et al.* (2000) study, for example, hypnotized subjects received a suggestion to perceive a grayscale stimulus as colored, and a colored stimulus in grayscale. A positive response to these suggestions was associated with changes in the 'color area' of the occipital cortex, but these

changes were the same as those observed when nonhypnotized control subjects perceived colored or grayscale stimuli, or when they simply *imagined* the stimuli as such. The brain changed with the experience, but the origins of the experience—whether in stimulation, hypnotic suggestion or vivid imagination—did not much matter.

Setting aside the issue of how altered states of consciousness can be defined in general, how can we characterize the alterations in consciousness observed in hypnosis? The clearest answer is that the core phenomena of hypnosis—the ones that really matter, and that distinguish the domain of hypnosis from that of other forms of suggestibility—entail a division in consciousness affecting percepts, memories and other mental contents that are normally accessible to conscious awareness and are instead processed subconsciously (E. R. Hilgard, 1977; Kihlstrom, 1984, 1992*a*, 1998, 2007; K. S. Bowers and Davidson, 1991). In post-hypnotic amnesia, the phenomenon that gave hypnosis its name, explicit memory or conscious recollection is impaired, but priming and other expressions of implicit or unconscious memory (Schacter, 1987) are spared. Post-hypnotic suggestion can likewise be construed as a failure of conscious prospective memory (Einstein and McDaniel, 1990; Graf and Uttl, 2001; Zimmer *et al.*, 2001); the post-hypnotic response is, in this view, an implicit expression of memory for the post-hypnotic suggestion itself. Analgesia suggestions disrupt explicit perception (Kihlstrom *et al.*, 1992) of the pain stimulus, but leave implicit expressions of pain, such as psychophysiological responses, intact. Hilgard's 'hidden observer' is a metaphor for the continuing subconscious representation of the pain stimulus. Dissociations between explicit and implicit memory, and between explicit and implicit perception are not a unique signature of hypnosis: they are also observed elsewhere, in a wide variety of normal and pathological conditions. But they do appear to be the signature of the kind of alteration in consciousness that occurs within the domain of hypnosis.

2.13. Social Interaction

At the very least, hypnosis entails a dyadic relationship between two individuals, the subject and the hypnotist; in the case of self-hypnosis, one person takes on both social roles. Then there is the situation in which hypnosis takes place, including the physical environment (laboratory, clinic), as well as the whole socio-cultural matrix that surrounds the transaction— Mesmer, the Svengali myth, stage hypnosis, Saturday-morning cartoons, *The Manchurian Candidate*, the listings of hypnotists in the telephone directory, advertisements in the newspapers and other media, and all the rest. Hypnosis is linked in the popular mind with persuasion, compliance and other aspects of social influence, including subliminal influence—a link that can reach mythological proportions. A recent Google search on the terms *Hitler* and *hypnotist* yielded 48 000 hits, including 'The George W. Bush Hypnosis File'. And not just in the popular mind: George Estabrooks, a leading authority on hypnosis before its current revival, said of Hitler: 'We can, I think, make out a very convincing case that basically Hitler's emotional domination of the crowd ... was only the attack of the stage hypnotist one step removed' (Estabrooks, 1943/1957, pp. 120–121). But we do not have to go as far as Estabrooks to acknowledge that hypnosis provides much grist for the social-psychological mill.

This was true even before there was a social psychology. The Franklin Commission's studies of the role of imagination in mesmerism are recognized today as the first experiments in psychology (Kihlstrom, 2002). In his chapter on hypnosis in 'Principles of Psychology', James (1890/1980) underscored the role of the subject's expectations and the hypnotist's skill in developing rapport, and suggested that 'the bodily symptoms of the Salpetriere patients', which Charcot attributed to neurological changes, were 'all of them results of expectation and training' (p. 1198). Suggestion, as exemplified by hypnosis, was one of the 'simple and sovereign' concepts (the others were sympathy and imitation) by which pre-experimental social psychologists sought to explain interpersonal behavior (Allport, 1954). Ross's 1908 textbook, the first to have 'social psychology' in its title, attempted to explain all social behavior in terms of suggestion and imitation—terms which he used interchangeably (Ross, 1908). McDougall's text, following only a few months later, offered a more extensive set of principles, but suggestion and submission still played a large role in his

approach (McDougall, 1908). Both made extensive references to the literature on hypnosis, especially the work of the Nancy School of Liebeault and Bernheim (Gauld, 1992).

A fully fledged social-psychological approach to hypnosis had to wait until after the Second World War, when the emergence of social psychology as an experimental discipline coincided with a revival of research interest in hypnosis. Interestingly, Sarbin's (1954) role theory, intended as a general theoretical framework for understanding social behavior, found its most popular application in hypnosis (Sarbin, 1950; Sarbin and Andersen, 1967; Sarbin and Coe, 1972; Coe and Sarbin, 1991). Unfortunately, the theory's reliance on a *dramaturgical metaphor* for behavior led some to conclude that hypnosis was somehow akin to faking. Sarbin and his associates repeatedly disavowed this interpretation—although, to be fair, the theory's reliance on a definition of role-playing as *as-if* behavior certainly encouraged the idea that hypnotized subjects weren't analgesic, amnesic, and so on—they were only behaving *as if* they were. Still, with such concepts as *role perception, role enactment, role location, self-role congruence, role expectations, role skills, role demands, role preparation* and *the audience*, role theory certainly offered a rich vocabulary for the analysis of the interpersonal aspects of hypnosis.

Role theory emerged from a sociological social psychology, which emphasizes explanatory concepts (such as role) that reside in the institutional, societal and cultural context of individual behavior, and that rejects mentalistic constructs. As their labels indicate, two other social-psychological approaches are more explicitly allied with the cognitive traditions in psychological social psychology, which place considerable weight on the individual's internal beliefs, attitudes and explanations. Spanos's *socio-cognitive* perspective (Spanos, 1991) began as a revision of Barber's (1969) task-motivational approach to hypnosis, which emphasized the role of attitudes and expectancies, as well as the subject's willingness to think and imagine with the themes of suggestions (Barber *et al.*, 1974).

Spanos's theory then spent time as a 'cognitive-behavioral perspective' (Spanos and Chaves, 1989*a*,*b*) and as a 'social-psychological interpretation' (Spanos, 1986*a*). In its final form, Spanos's 'socio-cognitive' theory described hypnosis as a strategic enactment shaped by the subject's understanding of task demands, as negotiated with the hypnotist, in the context of specific historical circumstances. For example, Spanos argued that reports of experienced involuntariness were in part misattributions shaped by the structure of the suggestions administered to subjects (Spanos and DeGroh, 1983), as well as a strategy for subjects to present themselves as deeply hypnotized (Spanos *et al.*, 1985). These elaborations of role theory, coupled with a debunking tendency (e.g. Spanos *et al.*, 1982), also left the impression that hypnotic subjects were engaged in something akin to faking.

Despite the similarity in names, a rather different perspective on hypnosis is found in the 'social cognitive' approach to hypnosis offered by Lynn, Kirsch and their colleagues (Kirsch, 1991; Lynn and Rhue, 1991; Kirsch and Lynn, 1995, 1998*b*,*c*)—sometimes with a hyphen, sometimes without. Partly rooted in Rotter's (1954) cognitive-social learning theory of personality, the theory emphasizes the importance of response expectancies as determinants of both behavior and experience (Kirsch, 1985; Kirsch and Council, 1989). The antecedent expectancies are shaped by the usual sorts of interpersonal processes, including all the sorts of interpersonal influence that social psychologists study. But once these expectancies are formed, their causal effect on hypnotic responding is mediated by a process of ideomotor action very similar to that described by Arnold (1946). In this social-cognitive model, social processes shape expectancies and other cognitions; and response expectancies generate responses by a mechanism similar to the self-fulfilling prophecy (Merton, 1948) and other expectancy-confirmation processes (Snyder and Swann, 1978; Darley and Fazio, 1980; Snyder, 1984; Jones, 1986).

The difference between Kirsch and Lynn's social-cognitive approach and Spanos's socio-cognitive approach can be seen in the analysis of experienced involuntariness. Expectancies, shaped by suggestions and other aspects of the social context function like ideas; and the idea of an action leads automatically to its execution. Thus, involuntariness is neither a misattribution nor an element of strategic self-presentation;

instead, it is a subjectively convincing phenomenal experience that follows from the mechanism that links suggestions to responses. Hypnosis is simply a more general case of these basic phenomena of suggestion and ideomotor action (Braffman and Kirsch, 1999; Kirsch and Braffman, 2001). As another contrast with Spanos's position, Kirsch and Lynn, while assuming an appropriate stance of scientific skepticism concerning various claims about hypnosis, apparently feel no need to engage in a program of debunking. Hypnotic effects can be accepted as reflecting genuine subjective experiences, even if these effects are to be attributed to suggestion, not to hypnosis *per se* (Raz *et al.*, 2006).

Still, the social-cognitive approach to hypnosis shares some undesirable features with contemporary work in social cognition, and indeed social psychology generally—which is, frankly, that it is not very social (Carlson, 1984). For all the talk about social-psychological approaches to hypnosis, relatively little experimental work has been devoted to core topics in social psychology. What is the relationship between attitudes towards hypnosis and hypnotic behavior (McConkey, 1986; Capafons *et al.*, 2004)? What actually transpires between the hypnotist and the subject (Sheehan, 1971*a*; McConkey and Sheehan, 1976, 1980, 1982; Baker and Levitt, 1989)? How do hypnosis and other forms of suggestibility relate to susceptibility to other forms of social influence (Moore, 1964; Orne and Evans, 1965; Evans, 1967)? How do individual subjects influence each other in group hypnosis, such as the HGSHS:A? (Evans and Mitchell, 1986)? What cognates of hypnosis can be found in non-Western cultures (Mischel and Mischel, 1958; Kirmayer, 1992)? Consider hypnosis as something that happens between two people, and then scan the table of contents of any introductory survey of social psychology: we have only scratched the surface of the domain of hypnosis.

2.14. Two ways in hypnosis and a third way

Actually, this is true for both aspects of hypnosis—the alterations of consciousness and the social interactions. As hypnosis enters the twenty-first century, we are reminded that, as Hull prepared the monograph summarizing his research program, he also left the field detailed descriptions of 102—not 100, nor 101, but 102—hypnosis experiments that had not been done, and which were, in his view, well worth doing (Hull, 19930*a*,*b*) and some 40 studies of waking suggestibility as well (Hull, 1929). Most of these experiments remain undone, and most of these remain well worth doing. And how much more remains to be done, given that we know so much more about both mental processes and social interactions!

For most of its recent history, the social-psychological approach to hypnosis has defined itself in opposition to those approaches that focused on alterations of consciousness occurring in hypnosis (Ludwig and Levine, 1965; Chaves, 1968; Spanos, 1970, 1986*b*, 1987*a*,*b*; Spanos and Chaves, 1970; Barber, 1972; Sarbin and Coe, 1972; E. R. Hilgard, 1973*a*,*b*, 1992; Blum, 1978; Kihlstrom, 1992*a*, 2007; Sarbin, 1992; Kirsch and Lynn, 1995, 1998*a*,*b*,*c*; Kirsch and Lynn, 1998*c*; Oakley, 1999*a*,*b*; Kallio and Revensuo, 2000, 2003). The result has been to give the literature on hypnosis some of the features of a zero-sum game, in which evidence for the involvement of some social-psychological process, such as variations in the wording of suggestions, is taken as evidence against the involvement of some cognitive process, such as divided consciousness (e.g. Spanos and Hewitt, 1980; Laurence *et al.*, 1983; Spanos, 1983; Green *et al.*, 2005*b*,*c*; Kihlstrom and Barnier, 2005). But it does not necessarily follow that, because interpersonal processes shape hypnosis, hypnosis cannot also involve an alteration in consciousness.

There is a third way, and it has been available to us from the beginning. William James, considering the competing claims of the Salpetriere and Nancy schools concerning the nature of hypnosis, concluded that '*The suggestion-theory may therefore be approved as correct, provided we grant the trance-state as its prerequisite* (James, 1890/1980, p. 1201, italics original). Fifty years later, at the dawn of the modern era of hypnosis research, R. W. White asserted that 'The theory of hypnotism will never prosper until, outgrowing the dialectic dichotomy of "striving" and

"state", it considers the possibility of interaction' (White, 1941, p. 502). Martin T. Orne (1959), White's protégé as both an undergraduate and a graduate student at Harvard, famously tried to distinguish between artifact and essence of hypnosis (Orne, 1959), but a careful reading of his work makes it clear that the demand characteristics that *surround* hypnosis are as important as any 'trance logic' that might arise *within* hypnosis.

R. E. Shor, writing in the first edition of this volume, noted that 'The fundamental problem in hypnosis research is that it is faced with two dangers, which, like the rock and whirlpool of Scylla and Charybdis, are so situated that they must be encountered together, as if they are one' (Shor, 1972, p. 15). Shor thought that the problem was that of simultaneously 'maintaining both the disciplined skepticism of the scientist and the confident persuasiveness of the hypnotist' (p. 15). Today, we can rephrase the problem as follows: that of simultaneously maintaining an interest in the cognitive processes by which consciousness is divided in hypnosis, and an interest in the social context in which hypnosis takes place. Tracing the history of hypnosis in four stages from Mesmer to Hull, Shor asked: 'How well have modern investigators learned to sail between Scylla and Charybdis? To what extent will modern viewpoints be seen through time as true advances—perhaps to a fifth stage of sophistication—and to what extent merely as changes to culturally more acceptable misnomers and disguised returns to old mistakes?' (1972, p. 40).

Shor did not know the answer then, and the answer is not clear even now. But it is clear what we *should* do, which is abandon the stance of *either–or* and adopt a new stance of *both–and*. This 'third way' in hypnosis research construes hypnosis simultaneously as both a state of (sometimes) profound cognitive change, involving basic mechanisms of cognition and consciousness, *and* as a social interaction, in which hypnotist and subject come together for a specific purpose within a wider socio-cultural context. To get beyond the misnomers and mistakes of the past, hypnosis researchers must have a vision as large as the phenomenon they seek to study. And the domain of hypnosis is very large indeed.

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