THE JUNGLE OF HYPNOTIC PSI: PART 1. RESEARCH ON HYPNOSIS RELEVANT TO PSI

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ABSTRACT: Contemporary research efforts have attempted to establish a psi- conducive hypnotic state primarily in terms of hypnotizability and dissociation. Much of this appears to be founded on the early historical association between hypnotic and psi phenomena, a misunderstood meta-analysis, and a number of shared variables. In reality, the state concept of hypnosis is still highly disputed and a review of the 60 years of intensive research on hypnosis indicates hypnosis is best seen as a complex combination of various factors: a "jungle of variables" rather than a unitary state. This implies the search for a specific psi-conducive state may be an illusory venture. However, some of the efforts to reduce hypnosis to unconsciously elicited expectancies or "automaticity" appear to reflect the current trend to denigrate the role of conscious processes. Paradoxically, the more dramatic phenomena of hypnosis may instead illustrate the potency of altered belief systems in effecting major changes in psychological processes.

Keywords: hypnotic state, psi, consciousness, placebo effect.

In a previous paper (Parker & Millar, 2014) the crisis in psi research was related to the failure to deal with the psi-based experimenter effect. The myth here was that by studying psi like any other ability, as a normally distributed variable, progress would be made. The current two-part paper is a companion to this and deals with another apparent myth that exacerbates the crisis: the excessive belief in the historic strength of the association of hypnosis with psi. It will be argued here that research has headed off in wrong directions with the result that it has now lost itself in a forest of findings. Like experimenter effects, a critical review of the evidence suggests there are nevertheless some promising ways forward.

Research on what I call "hypnotic psi" is one of the few consistently active areas of research remaining in contemporary parapsychology Arguably, the revival of interest in using hypnosis to facilitate psi is appealing in psi research circles because it promises a refuge for what appears to be the robust historical association between the two areas.

It will be argued here that poorly financed and ill-equipped ventures of this nature are potentially perilous given the complexity and demands of the issues encountered. Most of the contemporary publications on the topic of hypnotic psi (to be discussed fully in Part 2) have implicitly assumed—actually on little or no evidence—that hypnosis has been established not only as an altered state but also as a psi-conducive one. These current reports of the investigations of hypnotic psi show unfortunately little overt awareness of the complexity of the issues surrounding the nature of hypnosis that have evolved during recent years. Moreover, it will be later argued that in the face of this complexity, the need for maintaining the rigorous research tradition in parapsychology has been neglected. The risk is that the application of a less than state-of-the-art methodology to a heavily disputed area can actually worsen rather than improve the credibility of parapsychology.

The fact of the matter is that the existence or nonexistence of a hypnotic state has been and still is the subject of 60 years of intensive research and debate in which there is little agreement (Accardi, Cleere, Lynn, & Kirsch, 2013; Kallio & Revonsuo, 2003; Kirsch, 2005; McConkey, 2008). What is more disconcerting is that many of the above studies based their claims for hypnosis being a psi-conducive state on the meta-analysis by Stanford and Stein (1994) as having established that such a state probably exists. Stanford

and Stein were however very cautious, especially given the number of methodological flaws that they discovered (along with numerous other problems in the database), to avoid any simple and firm conclusions about the effect of hypnosis above and beyond control groups.

Stanford and Stein were well aware that any procedure that appeared powerful to the participants could thereby have an enabling effect similar to that of a physician administering a placebo or indeed a magician possessing showmanship. The fact that Mesmer was both a physician and a showman did in fact set the stage for future practitioners of the art and prepared the ground for the ensuing controversies over the true nature of hypnosis (Buranelli, 1975). This is not to say that some of these later hypnotists were not reputable and successful practitioners. One of these, the Swedish physician Axel Munthe (best known in parapsychology for being the attending physician at F. W. Myers' death in Rome) lived on until 1949 and left us with a vibrant autobiographical link with the heyday of hypnosis. After an intense dispute with neurologist-hypnotist Jean-Martin Charcot over Charcot's dubious form of hypnosis and exploitation of women patients, Munthe became himself a celebrated high society physician while at the same time maintaining a benevolent practice for treating the destitute. He openly admitted that many of his successes in high society were due to using a mixture of psychological expectancies, placebo effects, and hypnotic-type suggestions (Munthe, 1929).

Munthe's success illustrates how the issue of deciding what is genuine hypnosis is clearly a complex one. The present writer received a memorable reminder of the difficulties inherent in dealing with this complexity following the presentation of his undergraduate research project on hypnosis at the Foundation for Research on the Nature of Man (FRNM). The presentation elicited a redoubtable response from the FRNM's director, J. B. Rhine, that "Using hypnosis to facilitate psi is returning to the jungle of experimentation." So as far Rhine was concerned, hypnosis was not just becoming lost in a forest of findings but in a jungle of variables.

Although these comments may have seemed at the time to be slightly ungracious, especially to a then 19 year old, it can be said with hindsight that they contained an element of truth. It was this element of truth, together with a pragmatic sense for survival (universities might tolerate one controversial area but two controversies easily become "two too many"), that became the impetus for my involvement in the development of the ganzfeld technique. I regarded the ganzfeld as means of incorporating some of the active ingredients in hypnosis without any of the inherent complexity and controversy surrounding the use of hypnosis (Parker, 2003b).

Now, seen with respect to the recent hypnotic revival, some salient questions rightly reassert themselves: Has something been missed in trying to lift out the active features of hypnosis and redact it as the ganzfeld? Do the above recent efforts, despite difficulties, offer the possibility of finding, albeit not a royal road, but at least a promising path through the forest of various findings?

The problem is that it seems more appropriate to rename the forest as "Rhine's jungle," albeit not of vines but of variables. Table 1 lists just some of the major more contemporary ones that we will need to critically examine in some detail before any attempt can be made at finding a way forward. Many of the variables are obviously intimately interrelated. An overview is made easier if we regroup some of these variables under the major alliances, which are those of dissociation theory (encompassing neodissociation, dissociated control, and neurocognitive function) and social-neurocognitive theory (encompassing compliance and expectancy). Seen as such, dissociation theory is the natural heir to the trance and altered-state theory of hypnosis, whereas social-neurocognitive theory has a more reductionist-skeptical orientation. These divisions represent the main contestants involved in what has become at times a full-scale fight among the claimants for the hypnosis territory.

Certainly, there can be no doubt from this list that the current history of hypnosis is highly relevant to research efforts in parapsychology. Many of the variables being dealt with, such as absorption and dissociation, are of mutual concern to psi research and hypnosis. Moreover hypnosis and hypnosis-psi research share not only a common history, but also parallel controversies. These controversies are so perennial and persistent that the cynic might be tempted to say that only the actors change while the issues remain written into the script along with the roles for acting these out. Finally, it should be pointed out that it is my view

that psi does not exists in a vacuum, nor in rational states, but rather in altered states of consciousness (Parker, 2003b).

Table 1
A List of Some Current Variables and Authorities Endorsing the Explanatory Power of Variables for Understanding What Hypnosis Is

Some Variables and Theories of Hypnosis	Some Principal Investigators With Representative Publications
Neodissociation	Hilgard, 1992; Kihlstrom, 2005, 2008
Dissociated control	Bowers, 1992
Fixation of attention plus neurocognitive factors	Rainville & Price, 2003; Gruzelier, 2006
Social role play	Barber, 1969
Suggestibility	Raz, 2007; Halligan & Oakley, 2014
Absorption	Roche & McConkey, 1990
Compliance	Spanos & Coe, 1992; Wagstaff & Cole, 2005
Fantasy proneness	Wilson & Barber, 1983; Lynn & Rhue, 1986
Expectancy and nondeceptive placebo	Kirsch, 1994; Kirsch & Lynn, 1995; Accardi et al., 2013
Mind-wandering influence	McGeown, Mazonni, Vennen, & Kirsch, 2009
Phenomenological state (empowered with causal effects)	Kallio & Revonsuo**,** 2003, 2005

As far as the historical association between psi and hypnosis is concerned, it is true that many of the early classical mesmerists such as Puységur, Elliotson, and Janet believed strongly in the occurrence of the "higher phenomena of mesmerism" (community of sensations and travelling clairvoyance) and they attributed these to the somnambulistic trance stage of hypnosis (Dingwall, 1967; Gauld, 1992). By contrast, Bernheim, the leader of the Nancy school of hypnosis, which was to become the ancestor of the social-neurocognitive theory of hypnosis, declared that he had never witnessed a single genuine case of paranormal experience (Dingwall, 1967; Forrest, 1999). The same dismissal of hypnotic psi was also true of Braid, who coined the term "hypnotism" and whose efforts in relating it to a sleep state established some scientific respectability for hypnosis (Braid, 1852, p. 118).

Little seems to have changed in the polarized attitudes to the subject since then. There are still leading hypnosis researchers who dismiss the claims of hypnotic psi out-of-hand as magical thinking (Nadon & Kihlstrom, 1987) while others give a degree of credibility to the evidence (Uneståhl, personal communication, August, 2003; Wickramasekera, 1989). My own survey suggests that the phenomena, although not particularly welcomed nor sought after, are still observed (Parker, 2003a).

That the issue of whether or not hypnosis facilitates psi still remains largely unsettled is often attributed to the abandonment of the use of hypnosis in the early days of Rhine's laboratory at Duke University. This decision was however not based on a dilettante effort from Rhine's side. Rhine was well aware of the dramatic historical anecdotes of psi associated with hypnosis, and he believed in their suggestive evidential value (Rhine, 1952). Moreover, Rhine had the supreme advantage of a hypnotically versed colleague and professor at Duke, Helge Lundholm, who had emigrated from Sweden, where hypnosis had for a brief period achieved a degree of respectability amongst physicians such as Alfred Backman, Poul Bjerre,

and John Björkhem. Later, Rhine even invited Björkhem to Duke because of his outstanding track record with hypnotic psi, but with the discouraging outcome that Björkhem was unable to reproduce this success during his visit (Pope, 1952; Stolt & Björkhem-Bergan, 2004). There appear to be several possible reasons for this: the language and cultural differences and that Rhine and Björkhem failed to develop a positive working relationship (Johnson, 1998).

There is perhaps a rather ironic explanation of Rhine's abandonment of hypnosis that is revealed in his detailed descriptions of the almost trance-like appearance of high-scoring subjects when they were performing as such in the laboratory. These descriptions suggest that it could well be the case that most of the star ESP performers were already during testing in an induced "state" of high absorption or self-hypnosis. There are striking descriptions of them being fully absorbed in inner experiences and detached from outer stimulation (for a full description see Parker, 2003b, p. 69). If this is so, then it might be the case that formal hypnosis would have become superfluous. This of course begs the question that is of central concern here: Is hypnosis a specifically identifiable altered state of consciousness that facilitates specific abilities?

Is Hypnosis an Altered State?

In further reviewing the hypnosis research, parapsychologists who are despondent over the failure to make headway in the debate over psi can take some comfort in the fact that the 60 years of intensive research into the existence or nonexistence of a trance state has not led to any unequivocal resolution of the issue. It is of course true that there is some tacit agreement as far as recognizing that hypnosis does produce valid experiential and phenomenological changes in the hypnotized person (Kirsch, 2011). Although some authorities might regard this agreement as progress, the cynic might wonder why it took 60 years to reach an apparently self-evident conclusion. Moreover, move beyond this point and an impasse is reached between the so-called "credulous view," in which a participant's testimony is given credibility, and the "skeptical view," in which this testimony is a mere product of the suggestions and the context (McConkey, 2008; compare Kihlstrom, 2003; Kirsch, Mazzoni, & Montgomery, 2007).

The contemporary heir to the traditional trance theory of hypnosis is the theory of neodissociation. The theory maintains that the bizarreness of hypnosis is simply due to the executive decision-making function of the individual being to some degree taken over and directed by the hypnotist—almost as a mild form of possession. Indeed, Hilgard, the originator of this theory, described the residual part of the person metaphorically as the "hidden observer" (Hilgard, 1992). The theory supposes that there is an amnesic barrier for the hypnotic process, which means that actions carried out during it become dissociated from conscious awareness. As a result, these actions are no longer regarded as part of the person's own sense of agency and are experienced as involuntary and alien ones. In order to explain away these actions, the posthypnotically re-established executive self will begin to "invent" or confabulate delusory beliefs in order to explain what happened. It is for this reason that hypnosis provides the ideal means of studying how various disturbances such as alien abductions and dissociated identity disorder arise (Kihlstrom, 2013).

Several variations of the neodissociation theory are now on the market, depending on how all-encompassing the "possession" is deemed to be. One of these, dissociated control theory, focuses on how the lower systems of routine actions, which are relatively easy to elicit by suggestions, surreptitiously bypass executive control (Bowers, 1992). Seen this way, dissociation is an integral part of normal life. Hypnosis becomes then less remarkable, because many actions in normal life are delegated to routine habits and multitasking and may even result in memory recall difficulties that are similar to hypnotic effects.

There is a further contemporary reinterpretation of dissociation theory that is influential and worthy of note. This is in terms of neuropsychology, and forms a program of research by Gruzelier. According to Gruzelier, the fixation of attention and gaze that was featured in classical hypnosis and Hollywood movies works because it reduces the activity of the thalamo-limbic connections to the frontal lobes and inhibits the activity of the anterior cingulate cortex. The anterior cingulate serves as an inner regulator for the focusing of attention, monitoring for errors, and possibly even the production of self-awareness. The hypnotic instructions typically promote a passive form of imagery in highly susceptible individuals, which leads to the activation of the right temporal lobe (Gruzelier, 2005, 2006). This resonates with the historical belief of

hypnosis being linked to the sleep-onset period, now described by Gruzelier in terms of alpha waves being gradually replaced by the theta waves of the sleep-onset period. However, hypnosis is evidently not identical with stage one sleep because none of the other indices, such as k-complexes, are present.

The opposing skeptical position to that of the dissociation theories derives from the well-known work of T. X. Barber describing hypnosis as a form of role-playing. Many, if not all, of the traditional dramatic effects of hypnosis were replicated by Barber with motivated and imagination control groups who had not gone through any formal hypnotic induction. The outcome of the studies of Barber and co-workers is succinctly and poignantly summarized by saying these "have compared hypnotic and control groups in their willingness, amongst other things, to make slanderous remarks, plunge their hands in a beaker containing acid and throw acid at the experimenter, mutilate the bible, cut up the national flag, make homosexual advances, steal, and deal in heroin, and no convincing evidence has emerged that hypnotic subjects are more likely to obey such instructions than control subjects who are subjected to the same demands and pressures" (Heap, 2008, p. 748).

Despite this assertion, there might be some exceptions to the unlimited success of simulators and control groups. One striking example is that given by Evans and Orne (1971) who used the scenario of "the disappearing hypnotist." When the hypnotist was unexpectedly called away, participants who were simulating hypnosis immediately gave up their act, whereas the hypnotized participants continued considerably longer in what seemed to be an oblivious hypnotic state.

Two more general exceptions to the above relate to the involuntary aspect of hypnosis. Both these exceptions taken at face value suggest that hypnosis enables processes to occur that are dissociated from normal consciousness. One of these processes is so-called "trance logic," which means that highly hypnotized participants go along with illogical suggestions such as seeing a person in two places at the same time (McConkey, 2008). The second of these, the Stroop effect, is the automatic interference of color words when they are written in a color contrasting with the word for color, for example the word "red" written in the color blue. Normally it is a difficult task to say the word due to the contradictory meaning of the word reaching our executive functions, but during hypnosis the executive interference can apparently be held in abeyance or enhanced by hypnotic suggestions as a form of cognitive inhibition or disinhibition (Lifshitz, Bonn, Fischer, Kashem, & Raz, 2013). This approximates the standard hypnotic demonstration in which the hypnotized person is successfully instructed to forget a certain number on returning to the normal waking state. Nevertheless, the claim that these effects are exclusive to a hypnotic state has been contested, because waking suggestions can apparently also produce the effect (Raz, Kirsch, & Nitkin-Kaner, 2006). Certainly, there are less dramatic examples of such hypnotic effects that are not hard to find in ordinary life. Most of us have experienced not being able to recall a name and found that the harder we tried to do so the more difficult it became, only to experience later that when "disinhibition" was established, the name came spontaneously into consciousness.

Barber's theory forms a cornerstone to the broad category of the social-neurocognitive theories of hypnosis. The most influential of these is compliance theory, developed by Spanos, who viewed hypnotic role-play as more pervasive than it is in Barber's theory. Spanos believed that the hypnotized person consistently, without formal awareness, takes cues from the social situation as to how to behave. Following "hypnosis," the executive self then disowns the behavior that is irreconcilable with the normal self-image and thus misattributes this as being due to the hypnotic trance (Spanos & Coe, 1992; Wagstaff & Cole, 2005). A fairly strong relationship between compliance and hypnotic suggestibility has been found (Polcyzk & Pasek, 2006).

Compliance theory derives from the well-known work of Milgram, who found that as many as 65% of ordinary individuals would under pressure from an authority figure administer potentially lethal shocks to stooges pretending to be participants in experiments on learning. Although this as a theory of hypnosis naturally gives no credibility whatsoever to the existence of a hypnotic state, it is worth noting that Milgram himself thought that his extraordinary results were due to the "agentic state," by which he meant that the compliant individual preforms an automaticity of actions in an altered state of consciousness (Milgram, 1974, p. 134).

Common sense dictates that it would be necessary to do violence to the limits of such concepts as compliance and role-playing alone in order to get them to explain the extraordinary surgical successes during the mid-1800s of Esdaile in India and witnessed by Elliotson in London. Major surgical amputations were carried out on patients using hypnotically induced anesthesia (reviewed in Gauld, 1992; Playfair, 1987/2011). Even if cultural and historical factors are considered to play a role here, there are contemporary studies indicating that presurgical hypnosis treatment leads to a reduction in the amount of anesthetic needed and promotes more rapid healing (reviewed in Enqvist, 1996; Wobst, 2007). During the 1980s, Finer used hypnotic suggestions prior to surgery instead of an anesthetic. He described clinical hypnosis as a means of creating dramatic placebo effects via the encouragement and training of relaxation and detachment from the pain (Finer, 1988).

It is here, concerning the generality of placebo effects, that one of the most influential social-neurocognitive theories of hypnosis has come to play a decisive role in the research literature. The major contributor in this context is Kirsch, who became internationally known for his work indicating that the effects of antidepressives are largely due to placebo effects (Kirsch, 2009). Working often with Lynn, Kirsch is also one of the most prolific publishers of research papers indicating that hypnosis exploits the same means of making expectancies work as placebos do. The difference is that in the case of hypnosis, the participants are not being deceived but are told directly what they are to believe. This is not to say that the expectancies are consciously formulated, but that they achieve their goals by a form of what Kirsch calls "automaticity"—a form of nonconscious conditioning in fulfilling the demands of the hypnotic situation without the person needing to think (Accardi et al., 2013; Kirsch & Lynn, 1995, 1999; Lynn, Vanderhoff, Shindler, & Stafford, 2002).

As with the perennial debate over psi, it is disillusioning for those holding a belief in the power of science to resolve issues, that 60 years of hypnosis research has failed to settle the basic dispute over the existence or nonexistence of a trance state (Accardi et al., 2013; Kallio & Revonsuo, 2003; Kirsch, 2005; McConkey, 2008). During these 60 years, three major handbooks in the research literature have been published bringing together different theorists who often disagree with one another (Fromm & Nash, 1992; Fromm & Shor, 1972; Nash & Barnier, 2008)**.** As is often the case in psi research, middle positions are seldom tolerated, so that Fromm and Nash in reviewing the research wrote, "The polarization of the field has so tainted the methodologies and the statistical interpretations of these experiments that it impossible to sit comfortably in either of the two camps" (Fromm & Nash, 1992, p. 42). Worse, like the "psi wars," the debate about the hypnotic state has become so intense as to depart from rules of détente. Whereas the critics of parapsychology have been described as "wolverines" for their aggressiveness (Cardeña, 2011), the "skeptics" in the area of hypnosis who dismiss the existence of a hypnotic state have been called "hedgehogs" for their limited perception and unfairness (Kihlstrom, 2003). Also reminiscent of the psi wars, skeptics in the debate readily cite the dictum "extraordinary phenomena require extraordinary proof" (Lynn, Fassler, & Knox, 2005).

Mapping Out the Jungle

Even in the absence of an agreed-upon theory of hypnosis, there is at least a tacit agreement on the gold standards for the instruments needed for mapping out "hypnotizability." These standards take the form of the Stanford Hypnotic Susceptibility Scale (SHSS) and a similar scale developed for group testing, the Harvard Group Scale of Hypnotical Susceptibility (HGSHS). Nevertheless, the influence of the different theories on the instrument of choice is very apparent. In accordance with state theories, a brief hypnotic induction is part of the administration of the SHSS and HGSHS, but other scales exist, such as the Barber Suggestibility Scale, which, in accordance with the belief that trance states do not really exist, skips entirely the hypnotic induction.

One of the major weaknesses of the hypnotic state concept is the tautology of defining hypnosis as a special state in which unusual behavior occurs and then explaining the unusual behavior by means of the hypnotic state. It is for this reason that considerable effort has been put into finding strong correlates of hypnotizablity with known psychological measures.

The most obvious candidate for a strong correlate is suggestibility. Waking suggestibility explains about 64% of the variance in tests of hypnotic suggestibility (Kirsch, 1997, p. 214), but is hypnotic suggestibility the same as hypnotizability? It has been argued that because this value approximates the reliability of hypnotizability tests, waking suggestibility does not contribute to the further understanding of hypnotizability (Kirsch, 1997; Kirsch et al., 2007; Raz, 2007). Moreover, it has been known for some time that there are several diverse types of suggestibility, and it still remains unclear as to how they relate to one another (Halligan & Oakley, 2013, 2014; Tasso & Péerez, 2008). Despite all these misgivings "waking suggestibility" and its responses were agreed upon as the only aspects of the definition of hypnosis that the American Psychological Association and researchers could reach a consensus on (Green, Barabasz, Barrett, & Montgomery; 2005; Kirsch et al., 2011). The underlying problem with any definition of hypnosis is, of course, the ineffability present in defining altered states, as there is no generally accepted definition of normal consciousness.

A further prime candidate for getting a handle on hypnotizability is *absorption* as measured by Tellegen's Absorption Scale (Tellegen & Atkinson, 1974). Absorption is defined rather vaguely as "openness to experience emotional and cognitive alterations across a variety of situations" (Roche & McConkey, 1990, p. 567). The lack of precision is due to absorption being regarded as a personality trait related to openness to inner experience, feelings, and fantasy (Glisky, Tataryn, Tobias, Kihlstrom, & McConkey, 1991; Wild, Kuiken, & Schopflocher, 1995), as well as being a cognitive skill relating to vividness of imagery and attention (Roche & McConkey, 1990). Absorption is estimated to account for about 10% of the variance in hypnotic suggestibility, but even this may be an overestimate because the context in which the tests are given influences such estimates. If participants are expecting hypnosis to follow, they then score higher on the absorption scale (Council, Kirsch, & Hafner, 1986). When the tests are given on separate occasions, the common variance is reported to shrink to about 1% (Dienes et al., 2009). Yet there seems to be an experimenter effect here: Not all researchers have found this to be the case (Nadon, Hoyt, Register, & Kihlstrom, 1991).

A more reliable correlate of hypnotizability than absorption seems to be that provided by a measure derived from Barber and Wilson's concept of *fantasy proneness* (Lynn & Rhue, 1986; Wilson & Barber, 1983). Fantasy proneness offers a moderate relationship accounting for about 9% of the variance. What makes the relationship seem more reliable is that it is apparently maintained even after context effects and similar items common to both scales are eliminated (Green & Lynn, 2008; Lynn, Kirsch, & Hallquist, 2008).

Turning now to Kihlstrom's dissociation theory of hypnosis, dissociation itself should be an obvious contender for a close relationship to hypnotizability. Dissociation is defined as "one or more parallel paths or systems operating outside of awareness and influencing cognition, affect, or behavior" (Kirsch & Council, 1992, p. 275) and is usually measured by a self-report scale, the Dissociation Experiences Scale (DES). The DES was developed as a clinical instrument to identify pathological dissociation, with the result that when it is used on a normal population the data become extremely skewed or even bimodal. Contrary to what might be expected from the altered state theories, the correlations between the DES and measures of hypnotizability have consistently been nonsignificant or small (Silvia & Kirsch, 1992). Worse, this may merely reflect an underlying relationship with absorption, because absorption itself relates independently to both and dissociation and hypnotizability (Whalen & Nash, 1996).

Magnetic Resonance as a Way Out?

As dream research remained in a similar position to hypnosis research until the discovery of neurophysiological correlates, there was much hope that the same thing might revolutionize and legitimatize the hypnosis field. There was already in the 80s and 90s some pioneer work that found relative shifts in activity amongst high hypnotizables from the left to right parieto-occipital areas, along with an increase in theta (Crawford, Clark, & Kitner-Triolo, 1988; Uneståhl & Blundzen, 1996). Unfortunately, the lack of adequate control groups meant that we could never know if the same neural underpinnings could have been found with groups using imagination and relaxation.

There was much anticipation that the application of neuroimaging to hypnosis would provide a more precise form of compass to localize the hypnotic state and transform the area into respected neuroscience (Kihlstrom, 2008, 2013). A landmark in this quest is said to have occurred in 2003 at the Tennessee Conference on Brain Imaging and Hypnosis, where the now much acclaimed findings of Rainville and colleagues were presented. The authors reported that specific changes occurred in cerebral blood flow during deep hypnosis, affecting activity in the anterior cingulate cortex, the thalamus, and the brain stem links with the right occipital cortex. Because these areas involved the noradrenergic system, the changes were interpreted as representing the relaxation and absorption components of the hypnotic state (Rainville, Hofbauer, Bushnel, Duncan, & Price, 2002; Rainville & Price, 2003). The hypnotic state could at last be clearly defined as a state of absorption and relaxation along with a loss of the executive functions of the self, these being held in abeyance until directed by the hypnotist's task suggestions. Several authorities now have the confidence to claim that there is now a solid case for the existence of hypnosis as an altered state (Barabasz & Barabasz, 2007; Kihlstrom, 2013).

The neurocognitive explanation of hypnosis came at a politically optimum time, as it fits with the current collegial interest in "mind-wandering," regarded as the default mode network (DMN) of the brain (Mason et al., 2007). Moreover, a recent fMRI study carried out under the aegis of Kirsch did indeed find that high hypnotizables showed a shift during hypnosis towards deactivation of some parts of the DMN (McGeown et al., 2009). Although the results are open to several interpretations, the favored one is that the high-hypnotizable individuals could *both* eliminate distracting stimuli during relaxation and increase their concentration during the period when specific hypnotic instructions were given (McGeown et al., 2009).

Yet, the question which the endorsers of the viewpoint of this MRI "proof" of hypnosis avoided asking is the one which is recurrent throughout this review: Would the same changes have occurred if hypnotic induction was replaced by induced relaxation and positive expectancies (Oakley, 2008)? If so, this would minimize, if not trivialize, the hypnotic "trance" as being a rather nonspecial state. The above neuropsychological correlates provide little help dealing with this issue. It has been known for many decades that the anterior cingulate cortex is involved in the focusing of attention on tasks, so this aspect is hardly startling or proof of hypnosis being a special state.

It might be thought then that a control group would resolve the issue but there are some inherent difficulties with this solution. Some members of the nonhypnotic control group may have the ability to spontaneously enter or "drift into" an altered state during any relaxation procedure. Although the claim that such spontaneous trances occur has been strongly disputed on empirical grounds (Kirsch et al., 2008; Mazonni, et al., 2009), if these do occur then the use of between-subjects designs as separate control groups would be a potentially misleading way of deciding the issue, because members of the control group might spontaneously drift into trance, thereby more or less nullifying the comparison. Whatever the case, the claim has been sufficiently influential to lead hypnotic state researchers and also hypnotic psi researchers to abandon the usual control groups in favor of designs where participants perform as their own controls, or to compare groups preselected on low versus high hypnotizability scores.

A further issue of concern is that the results of neuroimaging procedures such as the fMRI and PET, unless they are scored blindly, become the modern day equivalent of a Rorschach inkblot test. Several experts on using these techniques in hypnosis research have expressed their reservations about the claims being made from brain-imaging techniques on the grounds that there are often innumerable data points to work with (Mazzoni et al., 2012; Ray & Oathes, 2003; Raz, 2011).

More Illusory Exits?

Many readers may have paused by now and wondered if the above dichotomy of opinion over the existence of a hypnotic state is a false one. Why can the issue not be resolved by giving the "prize" to all the contestants through defining the hypnotic state as changes encompassing relaxation, expectancies, compliance, and imaginal abilities? This is certainly the viewpoint of some state supporters (Kihlstrom, 2005, 2008; McConkey, 2008). Yet for many critics, in particular Lynn and Kirsch, it would be glossing over the disagreement to avoid asking a deeper pertinent question: Is this "phenomenological state" a causal one

specific to hypnosis with its own influences on other psychological processes? In other words is this state merely an incidental epiphenomenon produced by the effects of compliance and suggestion itself, or does it actually have the causal power to steer and facilitate hypnotic behavior?

This was the starting point for what seemed to be a relentless attempt at resolving this deeper issue that came to occupy the journal *Contemporary Hypnosis* between the years 2003 and 2005 and which led to important conceptual developments for future hypnotic psi research. The lead article by Kallio and Revonsuo argued that the historical record indicates that the true altered state is actually a rare phenomenon limited to the so-called "somnambulists" and hardly equivalent to today's students recruited by psychology departments. The authors coined the term "virtuoso" in the search for the contemporary equivalent of the somnambulist (Kallio & Revonsuo, 2003). For the virtuoso, the difference is between hallucinating an experience and merely imagining it, as most participants might do (Kallio & Revonsuo, 2003, p. 130). It was said that if expectations are as powerful as the skeptics claim, when normal people misplace their keys they would see hallucinations of the keys at the place the keys were expected to be. This failed to impress Lynn and his co-workers, who argued that a powerful *context* is first required before we can engage our hallucinatory powers (Lynn et al., 2005). Thus, people occasionally report hallucinations in a religious context but rarely in their own house.

Nevertheless, the rejuvenation of the somnambulists as virtuosos has gained support from an unexpected posthumous source. Theodore Barber in one of his last papers redefined his position by proposing that there are three types of individuals susceptible to hypnotic induction: those prone to expectancy, those prone to fantasy, and those prone to dissociation (Barber, 1999). Some support for this typology was found in a study of highly hypnotizable people who could conveniently be divided into fantasy-prone and dissociation-prone. Whereas the fantasizers appeared to be on the whole a healthy group, many of the high dissociaters had a history of trauma and abuse (Barrett, 2010). In an ironic turn of events, it is now Barber's earlier skeptical position concerning the evidence for hypnosis as an altered state that is being used against this viewpoint: State-skeptics continue to demand comparisons of the performances of virtuosos with those of other individuals who are instructed to succeed by using their imagination (Wagstaff & Cole, 2005).

Before the reader despairs of any progress being possible in the hypnosis field, it now seems appropriate to reveal that in 2011 some progress was actually achieved. This followed an fMRI study of the changes that accompanied suggestions for alterations in color perception that Kirsch and his colleagues carried out. During this procedure highly suggestible participants gave state reports of when they went in and out of hypnosis. The reports coincided with changes in the fMRI that were consistent with alterations in the default or mind-wandering mode of the brain. The observation that these changes were significant only for those high suggestible participants who reported experiencing hypnosis caused Kirsch to admit openly that he had become more "agnostic" as to the existence of the hypnotic state. It was indeed a shift of position but only a small one (Kirsch, 2011). Kirsch and his co-workers continue to regard hypnosis as a form of waking suggestibility and liken hypnosis to a "direct placebo effect" (Accardi et al., 2013).

Is the 60 Years War Over the Hypnotic State an Experimenter Effect?

The reader may recall that the work of Kirsch and his co-workers originally supported the view of hypnosis as being explained solely on the basis of expectancies and the nondeceptive placebo effect (Accardi et al., 2013; Kirsch, 1994). The use of "expectancy" might be thought to have raised a central issue concerning experimenter expectancies as it has done in parapsychology, but instead the issue has been strangely muted in the 60 years of hypnosis research. There is a near absence of any discussion about the possibility that the expectancies of the experimenters themselves can influence the performance of participants to produce phenomena in accordance with the experimenter's theories (Schor, 1972, pp. 39–40 is a singular exception). This is truly remarkable, if not entirely enigmatic, given that demand characteristics and expectancies are a firm part of the hypnosis lore. In view of the proven potency of such experimenter effects and demand characteristics, it seems then that we should not be shy about raising the question of whether an experimenter effect could sometimes be at work.

There is a similar study to that of Kirsch and his co-workers carried out by other researchers who instead of expectancy and placebo effects favored the altered state theory of hypnosis. This study was highly compatible with the placebo study (in which the word placebo was essentially substituted for hypnosis) but here the comparison between two otherwise identical procedures involved one being labeled "relaxation" and the other "hypnosis." On this occasion there was a marked significant difference favoring "hypnosis" (Ghandi & Oakley, 2005).

There is an additional striking example of the apparent contradictory findings, perhaps due to experimenter effects, concerning the phenomenology of hypnosis. This can be crucial, because hypnosis researchers only agree on this one aspect, that participants report a subjective experience of being hypnotized.

How then do highly hypnotized persons describe the hypnotic state? Kirsch and co-workers found that their expert judges could not reliably distinguish the descriptions given by the hypnotic induction group from those given by participants performing imagination and relaxation exercises (Kirsch, Mobayed, Council, & Kenny, 1992). Yet a very similar study by Cardeña using the same Phenomenology of Consciousness Inventory found that "hypnotic virtuosos experience consistent and significant alterations of consciousness, even after controlling for relaxation" (Cardeña, 2005, p. 51). This clearly underscores the need for cooperation between critics and supporters in hypnosis research (as well as in psi research).

Let's return to using the "Rhineland jungle" analogy. When lost in the forest or jungle, the traditional advice is to try three strategies: (a) to attempt to gain a treetop overview of the situation, (b) to follow the outward flow of a stream, and (c) to retrace steps to the starting point and look for missed cues. These symbolic solutions are readily applicable here.

In the case of the first strategy, gaining an overview of the issues can reveal some of the gratuitous assumptions guiding research which turn out to be misleading. Here the overview can reveal the philosophical assumptions influencing the outcome of experiments.

It is also instructive to examine the direction of flow of the "main stream" of research. When this is done in parapsychology, it seems undeniable that the flow of the main "stream," rather than leading out from the forest, has become stagnated by correlational research. The illusion is created where mainstream publications are constantly fed by the flow of correlations that are measuring the interactive force of psi with surrounding factors, whereas on closer examinations, most correlations represent only temporary maelstroms in guessing behavior.

Finally, as was earlier raised in introduction to this topic, some vital clues might be found by retracing our steps seeing what focusing on the ganzfeld and hypnosis exclusively with ordinary psychology students may have lost.

An Overview of Issues

In changing now the perspective to that of how the hypnotic state controversy fits into psychology and neuroscience, one common hindrance to progress stands out. This is the well-recognized difficulty in defining consciousness and its associated altered states in a precise, noncircular, and objective manner (Farthing, 1992). Despite the fact that a chapter on consciousness and its altered states is today regarded as obligatory for any marketable book on psychology, the above difficulty promotes a shyness in psychology for using the term "consciousness" in any explanatory fashion or attributing any phenomena to it in more than a perfunctory manner (Parker, 2014).

Remarkably, the same reluctance does not apply to the use of the term "cognitive unconscious," a concept that Kihlstrom is a major architect of and which recently became popularized by psychology's contemporary Nobel prize winner (Kahneman, 2011), as "system 1"—as opposed to "system 2" which requires conscious steering in order to function**.** One reason for the popularity of the cognitive unconscious is that it is consistent with reductionist neuropsychology.

Today's reductionist neuropsychology owes much of its persuasive power to the discovery that "Bereitschaftspotential" (readiness potential) occurs in the brain prior to conscious decision-making. Data taken from the medial frontal cortex using the fMRI appear to anticipate the conscious decision to make a movement up to 10 s before that decision (Haynes et al., 2007). In neuroscience circles this has been

enthusiastically and perhaps uncritically received, given that the effect is only 10–20% above chance. Nevertheless, taken at face value the claim would mean that unless you believe in backward causation, the belief in conscious decision-making is illusory and largely redundant as a causal psychological explanation. Of course, there are explanations of Haynes' findings that emphasize the imprecision in the process of decision-making. If findings from psi research are taken seriously then the concepts of presentiment and dissociation may also add to the imprecision in identifying the exact timing of mental events.

Whatever the case, the emergence of this neuroscience reductionist ethos may explain some of the diehard resistance towards giving credibility to hypnotic states. The ethos is also consistent with the contemporary effort to redefine hypnosis as a "nondeceptive placebo." The nondeceptive placebo effect was part of a thought-provoking hypnosis study that compared the effect of two induction procedures: One procedure involved a standard hypnotic induction while the other essentially substituted the word "placebo" for the word "hypnosis" and defined placebo as a form of cooperation. Having found that both procedures in effect produced the same results on the Phenomenology of Consciousness Scale, Kirsch and Lynn and their co-workers concluded: "Our research does provide preliminary evidence for the general equivalence of these very different rationales and suggests that it is possible to define hypnosis as a placebo and not risk attenuation of hypnotic responsiveness" (Accardi et al., 2013**,** p. 113).

The apparent paradox in this reformulation of hypnosis is that placebo effects are usually conceived as demonstrating the supreme importance of mental states. Given this, it would then seem almost contradictory that Kirsch should focus on the importance of placebo effects while at the same time denying that hypnosis is a special state that can influence brain and bodily processes. The apparent inconsistency stretches further if we consider that the concept of "automaticity" is used by Kirsch as the explanation of placebo effects. Automaticity refers to expectancies and placebo suggestions, which, after having for the most part circumvented the individual's awareness, gain an implicit power to bring about remarkable changes in behavior (Kirsch & Lynn, 1999). Automaticity as a concept, delivers certain winnings: It may be possible to use it to form an allegiance or even an amalgamation with Kihlstrom's dissociation theory, but its acceptance comes at major cost. It fails to give any recognition to the probable role of heightened states of consciousness and to openness in integrating new beliefs into psychoneuroimmunological processes that are generally conceived of as being central to the placebo effect (Ray, 2014). Moreover, Ogden, a major authority in this area, has drawn attention to the unresolved philosophical contractions implicit in any reductionist theory of placebo effects. She writes: "If an individual's psychological state can influence their health, then perhaps mind and body should not be seen as separate entities but as interacting. This, in part, contradicts dualistic models of the individual. However this interaction still assumes that mind and body are distinct: to interact with each other, they still need to be defined as being separate" (Ogden, 2007 p. 308). A review of the evidence from neuroimaging studies of emotional self-regulation, psychotherapy, and the placebo effect, led Beauregard (2007, p. 233) to an even more explicit conclusion that "by changing our mind we are changing our brain."

It seems clear that there are philosophical differences between major researchers, which appear to be ultimately based on different views of the mind-body relationship. It may then well be the case that research teams have different expectancies when carrying out their studies and these may influence how they deal with participants.

Conclusions

We need to take stock. Given that 60 years of research into settling the issue of whether hypnosis is an altered state issue has made only unsubstantial progress, there remain enormous and seemingly insurmountable difficulties to be surpassed in order to clear the way through the "Rhineland jungle" and find the searched for psi-conducive hypnotic state.

The above overview of the denigration of the importance of altered states in contemporary psychology should discourage any belief or assumption that research has established hypnosis as being a specific altered state of consciousness or indeed as one with state specific effects. Moreover, as we noted above, experimenters with different expectancies concerning the nature of hypnosis when carrying out essentially the

same study often obtain quite different results. In short, hypnosis research is beset with the same problem concerning experimenter effects that has restricted progress in parapsychology (Parker & Millar, 2014).

In dealing with the seemingly intractable issue of what hypnosis is, it becomes impossible to avoid confronting the ultimate problem of the nature of consciousness. A current article co-authored by Lynn (one of Kirsch's most consistent collaborators) expresses a view that seems to tackle this in an arguably more progressive way (compared to previous standpoints). In considering the implications of the hypnosis research for a theory of consciousness, the authors write: "A fundamental assumption of the work on hypnosis is that consciousness is pliable, capable of being perturbed and channeled by suggestions, mental images, memories, and focused associations to achieve therapeutic objectives" (Green, Laurence, & Lynn, 2014, p. 204).

As far as hypnotic psi is concerned, in view of the demonstrable complexity of hypnosis, we may have to face that the search for a specific state or for a set of reliable personality variables, which will relate to psi performances in any predictable and replicable way, may turn out to be a folly initiated by fool's gold. On the other hand, it seems only fair to emphasize that even if a specificity cannot be identified, the more dramatic phenomena of hypnosis seem to illustrate the potency of altered belief systems to effect major changes in psychological processes.

However, it would be premature to reach any conclusion before we have fully explored the two remaining strategies concerning the attempts by research to make progress in the are of hypnotic psi. As was suggested earlier in the context of analogy with the Rhineland jungle, one strategy that is important is to follow and examine the flow formed by the "main stream" of research. The other is to re-track and take a renewed look at some of the historical work on hypnosis for clues that might revitalize research with hypnosis and psi. We continue with a review of these focal points in Part 2.

References

Accardi, M., Cleere, C., Lynn, J., & Kirsch, I. (2013). Placebo versus "standard" hypnosis rationale: Attitudes, expectancies, hypnotic responses, and expectancies. *American Journal of Clinical Hypnosis*, *56,* 103–114.

Barabasz, A. F., & Barabasz, M. (2007). Hypnosis and the brain. In M. R. Nash and A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice.* Oxford, England: Oxford University Press.

Barber, T. X. (1969). *Hypnosis: A scientific approach*. New York, NY: Van Nostrand Reinhold.

Barber, T. X. (1999). A comprehensive three-dimensional theory of hypnosis. In I. Kirsch, A. Capafons, E. Cardeña-Buelna, & S. Amigo (Eds.), *Clinical hypnosis and self-regulation: Cognitive-behavioral perspectives* (pp. 21–48). Washington, DC: American Psychological Association.

Barrett, D. (2010). Dissociaters, fantasizers, and their relation to hypnotizablity. In D. Barrett (Ed.), *Hypnosis and hypnotherapy: Vol 1. History, theory and research* (pp. 77–96). Oxford, England: Praeger.

Beauregard, M. (2007). Mind does really matter: Evidence from neuroimaging studies of emotional self-regulation, psychotherapy, and placebo effect. *Progress in Neurobiology, 81*, 218–236.

Bowers, K. S. (1992). Dissociated control and the limits of hypnotic responsiveness. *Consciousness and Cognition, 1*, 32–39.

Buranelli, V. (1975). *The wizard from Vienna—Franz Anton Mesmer.* New York, NY: Coward, McCann & Geoghegan.

Cardeña, E. (2005). The phenomenology of deep hypnosis: Quiescent and physically active. *International Journal of Clinical and Experimental Hypnosis, 53,* 37–59.

Cardeña, E. (2011). On wolverines and epistemological totalitarianism. *Journal of Parapsychology, 75*, 3–14.

Council, J. R., Kirsch, I., & Hafner, L. P. (1986). Expectancy versus absorption in the prediction of hypnotic responding. *Journal of Personality and Social Psychology, 50,* 182–189.

Crawford, H. J., Clarke, S. W., & Kitner-Triolo, M. H. (1988). EEG activity pattern differences in low and high hypnotizables: Reflections of cognitive strategy differences? Paper presented at the Fourth International Psychophysiology Conference, Prague, Czechoslovakia.

Dingwall, E. (1967). *Abnormal hypnotic phenomena*: *Vol. 1. Hypnotism in France*. London, England: Churchill.

Enqvist, B. (1996). *Pre-surgical hypnosis and suggestions in anesthesia*. (Doctoral dissertation). University of Stockholm, Sweden.

Evans, F. J., & Orne, M. T. (1971). The disappearing hypnotist: The use of simulating subjects to evaluate how subjects perceive experimental procedures. *International Journal of Experimental Hypnosis, 19,* 277–296.

Farthing, G. W. (1992). *The psychology of consciousness*. Englewood Cliffs, NJ: Prentice Hall.

Finer, B. (1988). Hypnosis and anaesthesia. In G. D. Burrows & L. Dennerstein (Eds.), *Handbook of hypnosis and psychosomatic medicine* (pp. 293–305). Amsterdam, Netherlands: Elsevier.

Forrest, D. (1999). *A history of hypnosis.* London, England: Penguin Books.

Fromm, E., & Nash, M. N. (Eds.). (1992). *Contemporary hypnosis research.* London, England: Guildford Press.

Fromm, E., & Shor, R. E. (Eds.). (1972). *Hypnosis—Research developments and perspectives*. Chicago, IL: Paul Elak.

Gauld, A. (1992). *A history of hypnotism.* Cambridge, England: Cambridge University Press.

Ghandi, B., & Oakley, D. A. (2005). Does hypnosis by any other name smell as sweet? The efficacy of "hypnotic" inductions depends on the label "hypnosis." *Consciousness and Cognition, 14*, 304–315.

Glisky, M. L., Tataryn, D. J., Tobias, B. A., Kihlstrom, J. F., & McConkey, K. M. (1991). Absorption, openness to experience, and hypnotizability. *Journal of Personality and Social Psychology, 60*, 263–272.

Green J. P., Barabasz, A .F, Barrett, D., & Montgomery, G. H. (2005). Forging ahead: The 2003 APA Division 30 definition of hypnosis. *International Journal of Clinical and Experimental Hypnosis, 53,* 259–264.

Green, J. P., Laurence, J-R., & Lynn, S. L. (2014). Hypnosis and psychotherapy: From Mesmer to mindfulness. *Psychology of Consciousness: Theory, Research and Practice, 2,* 199–212.

Green, J. P., & Lynn, S. J. (2008). Fantasy proneness and hypnotizablity: Another look. *Contemporary Hypnosis*, *25,* 156–164.

Gruzelier, J. (2005). Altered states of consciousness and hypnosis in the twenty-first century. *Contemporary Hypnosis, 22,* 1–7.

Gruzelier, J. (2006). Frontal functions, connectivity and neural efficiency underpinning hypnosis and hypnotic susceptibility. *Contemporary Hypnosis, 23,* 15–32.

Halligan, P. W., & Oakley, D. A. (2013). Hypnosis and cognitive neuroscience: Bridging the gap. *Cortex, 49*, 359–364.

Halligan, P. W., & Oakley, D. A. (2014). Hypnosis and beyond: Exploring the broader domain of suggestion. *Psychology of Consciousness: Theory, Research, and Practice, 1,* 105–122.

Haynes, J. D., Sakai, K., Rees, G., Gilbert, S., Frith, C., & Passingham, D. (2007). Reading hidden intentions in the human brain. *Current Biology, 17,* 323–328.

Heap, M. (2008). Hypnosis in the courts. In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp. 745–766). Oxford, England: Oxford University Press.

Hilgard, E. R. (1992). Dissociation and theories of hypnosis. In E. Fromm & M. N. Nash (Eds.), *Contemporary hypnosis research* (pp. 69–101**)** London, England: Guildford Press.

Johnson, M. (1998). John Björkhem (1910–1963) In N-O Jacobson (Ed.), *Svensk Parapsykologi* (pp. 71–73). Kristianstad, Sweden: John Björkhem's Minnesfond.

Kahneman, D. (2011). *Thinking fast and slow*. London, England: Penguin Books.

Kallio, S., & Revonsuo, A. (2003). Hypnotic phenomena and altered states of consciousness: A multilevel framework of description and explanation. *Contemporary Hypnosis, 20,* 111–164.

Kallio S., & Revonsuo, A. (2005). Altering the state of the altered state debate: Reply to commentaries. *Contemporary Hypnosis, 22,* 46–55.

Kihlstrom, J. (2003). The fox, the hedgehog, and hypnosis. *International Journal of Clinical and Experimental Hypnosis, 53*, 166–189.

Kihlstrom, J. F. (2005). Is hypnosis an altered state of consciousness or what? *Contemporary Hypnosis, 22,* 34–38.

Kihlstrom, J. F. (2008). The domain of hypnosis, revisited. In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp. 21–52). Oxford, England: Oxford University Press.

Kihlstrom, J. (2013). Neuro-hypnotism: Prospects for hypnosis and neuroscience. *Cortex, 49*, 365–374.

Kirsch, I. (1994). Hypnosis as a non-deceptive placebo: Empirically derived techniques. *American Journal of Clinical Hypnosis, 37,* 95–106.

Kirsch, I. (1997). Suggestibility or hypnosis: What do our scales really measure? *International Journal of Clinical and Experimental Hypnosis, 45*, 212–225.

Kirsch, I. (2005). Empirical resolution of the altered state debate. *Contemporary Hypnosis, 22,* 18–23.

Kirsch, I. (2009). *The emperor's new drugs: Exploding the antidepressant myth*. New York, NY: Basic Books.

Kirsch, I. (2011). The altered state issue: Dead or alive? *International Journal of Clinical and Experimental Hypnosis, 59,* 350–362.

Kirsch, I., Cardeña, E., Derbvshire, S., Dienes, Z., Heap, M., Kallio, S.,. . . Whalley, M. (2011). Definitions of hypnosis and hypnotizablity and their relation to suggestion and suggestibility: A consensus statement. *Contemporary Hypnosis and Integrative Therapy, 28*, 107–115.

Kirsch, I., & Council, J. R. (1992). Situational and personality correlates of hypnotic phenomena. In E. Fromm, & M. N. Nash (Eds.), *Contemporary hypnosis research* (pp. 267–291). London, England: Guildford Press.

Kirsch, I., & Lynn, S. J. (1995). The altered state of hypnosis—Changes in the theoretical landscape. *American Psychologist, 50,* 846–858.

Kirsch, I., & Lynn, S. J. (1999). Automaticity in clinical psychology. *American Psychologist, 54*, 504–515.

Kirsch, I., Mazzoni, G., & Montgomery, G. H. (2007). Remembrance of hypnosis past. *American Journal of Clinical Hypnosis, 49,* 171–179.

Kirsch, I., Mazzoni, G., Roberts, K., Dienes, Z., Hallquist, M. N., Williams, J., & Lynn, S. J. (2008). Slipping into trance. *Contemporary Hypnosis, 25*, 202–209.

Kirsch, I., Mobayed, C., Council, J. R., & Kenny, D. A. (1992). Expert judgments from subjective state reports. *Journal of Abnormal Psychology, 101*, 657–662.

Lifshitz, M., Bonn, N. A., Fischer, A., Kashem, I. F., & Raz, A. (2013). Using suggestion to modulate automatic processes: From Stroop to McGurk and beyond. *Cortex, 49,* 463–473.

Lynn, S. J., Fassler, O., & Knox, J. (2005). Hypnosis and the altered state debate: Something more or nothing more? *Contemporary Hypnosis, 22*, 39–45.

Lynn, S. J., Kirsch, I., & Hallquist, M. N. (2008). Social cognitive theories of hypnosis. In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp.111–139). Oxford, England: Oxford University Press.

Lynn, S. J., & Rhue, J. W. (1986). The fantasy-prone person: Hypnosis, imagination, and creativity. *Journal of Personality and Social Psychology, 51*, 404–408.

Lynn, S. J., Vanderhoff, H., Shindler, K., & Stafford, J. (2002). The effects of an induction and defining hypnosis as a "trance" vs. cooperation: Hypnotic suggestibility and performance standards. *American Journal of Clinical Hypnosis, 44,* 231–240.

Mason, M. F., Norton, M. I., Van Horn, J. D, Wegner, D. M., Grafton, S. T., & Macrae, N. (2007). Wandering minds: The default network and stimulus-independent thought. *Science, 315,* 393–395.

Mazzoni, G., Venni, A., McGeown, W., & Kirsch, I. (2012). Neuroimaging resolution of the altered state hypothesis. *Cortex ,49*, 400–410.

McConkey, K. M. (2008). Generations and landscapes of hypnosis: Questions we've asked, questions we should ask. In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp. 53–80). Oxford, England: Oxford University Press.

McGeown, W. J., Mazonni, G., Vennen, A., & Kirsch, I. (2009). Hypnotic induction decreases default mode activity. *Consciousness and Cognition, 18,* 848–855.

Milgram, S. (1974). *Obedience to authority: An experimental view*. London, England: Harper & Row.

Munthe, A. (1929). *The story of San Michele.* London, England: John Murray.

Nadon, R., Hoyt, I., Register, P., & Kihlstrom, J. (1991). Absorption and hypnotizability: Context effects revisited. *Journal of Personality and Social Psychology, 60*, 144–153.

Nadon, R., & Kihlstrom, J. F. (1987). Hypnosis, psi, and the psychology of anomalous experience. *Behavioral and Brain Sciences, 10,* 597–599.

Nash, M. R., & Barnier, A. J. (Eds.). (2008). *Oxford handbook of hypnosis: Theory, research and practice.* Oxford, England: Oxford University Press.

Oakley, D. A. (2008). Hypnosis, trance and suggestion: Evidence from neuroimaging. In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp. 365–392). Oxford, England: Oxford University Press.

Ogden, J. (2007). *Health psychology*. New York, N.Y.: McGraw Hill.

Parker, A. (2000). A review of the ganzfeld work at Gothenburg University. *Journal of the Society for Psychical Research, 64,* 1–15.

Parker, A. (2003a). Hypnos och paranormala upplevelser: Finns det mer än ett historiskt samband? [Hypnosis and paranormal experiences: Is there more than a historical connection?] *Abstracts of the Nordiske Hypnosekongress / Nordic Hypnosis Congress*, Oslo, Norway.

Parker, A. (2003b). Psi and altered states. In L. Storm & M. Thalbourne (Eds.), *Parapsychology in the 21st century* (pp. 65–89). Jefferson, NC: McFarland.

Parker, A. (2014). Consciousness in mainstream books. Paper in preparation.

Parker, A., & Millar, B. (2014). Revealing psi secrets: Successful experimenters appear to succeed by using their own psi. *Journal of Parapsychology, 78*, 39–85.

Playfair, G. (1987/2011). *Medicine, mind & magic*. Wellinborough, England: Aquarian Press. Republished as *If this be magic.* Guildford, England: White Crow Press.

Polczyk, R., & Pasek, T. (2006). Types of suggestibility: Relationship among compliance, indirect, and direct

suggestibility. *International Journal of Clinical and Experimental Hypnosis, 54,* 392–415.
Pope, D. (1952). A Swedish explorer in parapsychology—Dr. John Björkhem. *Parapsychological Bulletin, 27*, 1–4.
Rainville, P., Hofbauer, R. K., Bushnell, M. C., Duncan, G. H., & Price, D. D. (2002). Hypnosis modulates activity in brain structures involved in the regulation of consciousness. *Journal of Cognitive Neuroscience, 14*, 887–901.
Rainville, P., & Price, D. D. (2003). Hypnosis phenomenology and the neurobiology of consciousness. *International Journal of Clinical and Experimental Hypnosis, 51,* 105–129.
Ray, O. (2014). How the mind hurts and heals the body. *American Psychologist, 59*, 29–40.
Ray, W. J., & Oathes, D. (2003). Brain imaging techniques. *International Journal of Clinical and Experimental Hypnosis, 5,* 97–104.
Raz, A. (2007). Suggestibility and hypnotizability: Mind the gap. *American Journal of Clinical Hypnosis, 49*, 205–210.
Raz. A. (2011). Does neuroimaging of suggestion elucidate hypnotic trance? *International Journal of Clinical and Experimental Hypnosis, 59,* 363–377.
Raz, A., Kirsch, I., & Nitkin-Kaner, Y. (2006). Suggestion reduces the Stroop effect. *Contemporary Directions in Psychological Science, 17*, 91–95.
Rhine, J. B. (1952). Extrasensory perception and hypnosis. In L. M. LeCron (Ed.), *Experimental hypnosis* (pp. 359–368). New York, NY: Macmillan.
Roche, S. M., & McConkey, K. M. (1990). Absorption: Nature, assessment, and correlates. *Journal of Personality and Individual Differences, 59,* 91–101.
Schor, R. E. (1972). The fundamental problem in hypnosis research as viewed from historic perspectives. In E. Fromm & R. E. Shor (Eds.), *Hypnosis—Research developments and perspectives* (pp. 15–42). Chicago, IL: Paul Elak.
Silvia, C., & Kirsch, I. (1992). Interpretative sets, expectancy, fantasy proneness, and dissociation as predictors of hypnotic response. *Journal of Personality and Social Psychology, 63,* 847–856.
Spanos, N. P., & Coe, W. C. (1992). A social-psychological approach to hypnosis. In E. Fromm & M. N. Nash (Eds.), *Contemporary hypnosis research* (pp. 102–130). London, England: Guildford Press.
Stanford, R., & Stein, A. (1994). A meta-analysis of ESP studies contrasting hypnosis and a comparison condition. *Journal of Parapsychology, 58*, 235–270.
Stolt, C-M., & Björkhem-Bergen, L. (2004). Hypnosis in Sweden during the twentieth century—The life and work of John Björkhem. *History of Psychiatry, 15,* 193–200.
Tasso, A. F., & Péerez, N. A. (2008). Parsing everyday suggestibility: What does it tell us about hypnosis? In M. R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis: Theory, research and practice* (pp. 283–310). Oxford, England: Oxford University Press.
Tellegen, A., & Atkinson, G. (1974). Openness to absorbing and self-altering experiences (‘‘absorption’’), a trait related to hypnotic susceptibility. *Journal of Abnormal Psychology, 83*, 268–277.
Uneståhl, L-E., & Blundzen, P. (1996). Integrated mental training—neuro-biochemical mechanisms and psychophysical consequences. *Hypnosis, 23,* 148–158.
Wagstaff, G., & Cole, J. (2005). Levels of explanation and the concept of a hypnotic state. *Contemporary Hypnosis, 22,* 14–17.
Whalen, J. E., & Nash, M. (1996). Hypnosis and dissociation: Theoretical, empirical, and clinical perspectives. In L. K. Michelson & W. J. Ray (Eds.), *Handbook of dissociation* (pp. 191–206). New York, NY: Plenum Press.
Wickramasekera, I. (1989). Is hypnotic ability a risk factor for subjective (verbal report) psi, somatization, and health care costs? In L. Coly & J. D. S. McMahon (Eds.), *Psi and clinical practice*: *Proceedings of an international conference* (pp.184–197). New York, NY: Parapsychology Foundation.
Wild, T. C., Kuiken, D., & Schopflocher, D. (1995). The role of absorption in experiential involvement. *Journal of Personality and Social Psychology, 69,* 569–579.
Wilson, S. C., & Barber, T. X. (1983). The fantasy-prone personality: Implications for understanding imagery, hypnosis, and parapsychological phenomena. In A. A. Sheikh (Ed.), *Imagery: Current theory, research, and application* (pp. 340–390). New York, NY: Wiley.
Wobst, A. (2007). Hypnosis and surgery: Past, present, and future. *Anesthesia and Analgesia, 104,* 1199–1208.

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