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## MAIN PAPER

### UNWANTED EFFECTS OF HYPNOSIS: A REVIEW OF THE EVIDENCE AND ITS IMPLICATIONS

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*This paper is dedicated to Christopher Gates*

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#### Abstract

Growing evidence of unwanted consequences of hypnosis in experimental, clinical and entertainment settings is reviewed. Adverse effects are common, may be physiological or psychological, and are mostly short-lived. Facilitating factors include high hypnotizability and cognitive and personal involvement, although effects secondary to hypnosis such as deactivation and anxiety may cause reactions such as headache. The more serious consequences almost exclusively occur in clinical and entertainment applications and have included chronic psychopathology, seizure, stupor, spontaneous dissociative episodes and the resurrection of memories of previous trauma, typically with age regression. Associated phenomena may include physiological events and may be unconsciously mediated. Two cases of first episode schizophrenia, one following hypnotherapy and one following stage hypnosis, are described, the latter in detail. Evidence of affinities between schizophrenia and hypnosis, beginning with Pavlov but largely ignored since, is revisited in the light of contemporary evidence of the neurophysiological mechanisms of hypnosis and schizophrenia, with implications for screening vulnerable individuals. It is concluded that the responsible scientific attitude is to acknowledge and disclose evidence of unwanted sequelae in order to understand mechanisms, improve safeguards and better educate practitioners. As the context of stage hypnosis does not allow adequate safeguards, and practitioners lack qualifications to address adverse reactions, hypnosis for entertainment should be discontinued.

**Key words:** hypnosis, negative effects, safeguards, schizophrenia, neurophysiology, stage hypnosis, hypnotherapy

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#### Introduction

##### *Unwanted effects of hypnosis: the political context*

The practice of therapies described as complementary to mainstream medicine is increasing. Their use can influence the mind, brain and body in known and unknown ways, just as mainstream medicine does. Such influences have the potential to be beneficial and unwanted, but whereas in the mainstream there are safeguards, such as professional training and research, against untoward effects, this is often not the case with complementary therapies. In the case of hypnosis these concerns are compounded

by its practice as entertainment for commercial gain. Anyone with enterprise and gall – butcher, baker, soldier, sailor, disc jockey, strolling juggler – may become a self-taught stage hypnotist by reading a self-help guide over a weekend (O’Keefe, 1998). That one can become a practitioner of most ‘complementary’ therapies and a stage hypnotist without certification required by law should be of social and scientific concern. One reason why this state of affairs exists is the lack of research and appreciation of adverse effects, let alone the processes by which these may occur. This lack of research is almost total in the case of many complementary therapies, and in the case of hypnosis, where some research does exist, for a diversity of reasons there is a proclivity by some to trivialize, discount, sidestep or ignore it.

At one extreme there is a perspective that has considered hypnosis in the context of protecting human subjects from procedures that have the potential to cause stress and bodily harm (US, Department of Health, Education and Welfare, 1971). Another extreme is exemplified by a brief review in this journal that excluded stage hypnosis from consideration and concluded that evidence for hypnosis being responsible for unwanted effects is lacking (Brentar and Lynn, 1989).

Research into elucidating unwanted effects of hypnosis has by and large been an unwelcome pursuit. For those practitioners of psychotherapy, medicine and dentistry who use hypnosis, untoward reactions may constitute a drawback in persuading patients to engage in hypnotherapy. The same drawback applies to laboratory investigators searching for willing subjects. In hypnotherapy the acknowledgement of negative effects may perhaps be felt to call into question one’s expertise as a therapist. These issues have financial implications. The livelihood of a practitioner may be threatened. Alternatively the field is not without its career sceptics and medicolegal work may be better paid than teaching, research and psychotherapy. At a theoretical level unwanted effects are unwelcome for the sociocognitive school of hypnosis theory, for they could be seen to provide evidence of changes in state. As such, they undermine sociocognitive theory which denies the existence of any change in psychology and neurophysiology with hypnosis that is not commonplace, everyday or self-induced.

As a consequence of the diversity of vested interests, the adverse sequelae of hypnosis represent an under-researched issue. In the clinical context this is also true of other psychological and alternative therapies. Negative effects in all probability may be under-reported by professionals, largely because they go unobserved, for they may occur outside of the experimental, stage and clinical encounter. Numerous factors will militate against the recording of complaints by participants against stage hypnotists, such as ignorance of their nature, embarrassment at disclosure, or the participant may be intimidated by the combative stance of the hypnotist and the financial implications of bringing legal action. Some of these factors will also operate in the clinical context, including concerns about litigation.

That research exists at all is because unwanted effects can happen in close temporal association with hypnotic induction, and sometimes during hypnosis. This has on occasion led to court proceedings against hypnotists, to requirements as in Israel for the accreditation of practitioners, and has led to steps to outlaw stage hypnosis in countries including Israel, Sweden, Switzerland, Denmark, Hungary, Norway, the Netherlands, Belgium, France and states of America and Australia.

#### *Unwanted effects of hypnosis: what might we expect*

What might be anticipated about the nature of negative after-effects of hypnosis? With regard to their generality, it must first be recognized that hypnosis is neither a single process, nor is it an all-or-none process (see Gruzelier, 2000). This may seem

obvious but it is an issue often overlooked in the cause of polemic.

Aside from well-established differences in levels of hypnotizability, there are well-established differences between individuals with the same overall level of susceptibility to types of suggestions – for example, cognitive versus ideomotor. Similarly, not everyone will be expected to manifest the same unwanted response; not everyone exposed to the same stressor will experience, say, a headache. Therefore to be of scientific or social interest a result will not need to be representative of the group as a whole. Brains differ functionally and structurally just as intelligence and personality do – a good reason for using subjects as their own control when comparing hypnosis or different kinds of hypnosis with other procedures (a much neglected issue). Patients with psychopathology, who are often found among participants in the clinic, may be expected to experience on average severer effects than students, the typical laboratory subject.

Effects will also differ according to context. They may vary considerably from the mostly benign laboratory examination, to potentially intrusive therapeutic hypnoanalysis aimed at removing symptoms and altering behaviour permanently, and differ again with stage hypnosis with its potential for prolonged stress, and with entertainment value often proportional to overt embarrassment and humiliation. In each of these contexts instructed behaviour and aims may vary widely.

Unwanted reactions may therefore be expected to differ according to both individual and context. This seemingly obvious point cannot be emphasized enough, for there is a deeply ingrained proclivity exemplified in discussion of unwanted effects for theorists to regard hypnosis as a unitary condition.

### **The nature of unwanted effects in different settings**

With these caveats in mind, the literature on adverse effects in experimental, clinical and stage hypnosis settings will be briefly reviewed. Although this is necessarily a brief review, some instances will be covered in detail in order to obtain insights about the processes involved. Irrelevant to the question of whether hypnosis can cause adverse effects are the side-stepping issues as to whether such effects are specific to hypnosis, or more severe with hypnosis, or more frequent with hypnosis. These issues have deflected consideration of serious questions such as why do they occur and how can they be minimized? *Process* is the most neglected of all aspects in the literature.

The relation between hypnosis and psychosis, overlooked in the contemporary scientific literature, will then be considered in some detail. This can also provide insights about process. A recent tragic and uniquely documented case of first episode schizophrenia, diagnosed as such just a week after stage hypnosis, will be considered along with implications for research on safeguards.

A quote from the book *Hypnosis Complications: Prevention and Risk Management* (MacHovec, 1986) serves as an orientation.

There is a substantial body of published clinical and experimental research documenting mild to severe, unexpected side effects coincident with the use of hypnosis in persons with no prior history of similar medical or mental symptoms. Clinical case histories, empirical studies of observed hypnotic behaviours and post-hypnotic interviews, subject self-reports, and practitioner questionnaires comprise a growing database. It is international in scope and is multidisciplinary, involving medicine, psychiatry, psychology, and dentistry and encompasses the history of hypnosis in its entirety, from Mesmer and Braid to current professional journals. (MacHovec, 1986)

*Experimental hypnosis*

Laboratory surveys and case reports

Beginning with the most benign and episodic of hypnotic applications, one which does not involve treatment – experimental hypnosis in the laboratory, what does the literature tell us? There are rather few experimental investigations to draw on (Hilgard, Hilgard and Newman, 1961; Faw, Sellers and Wilcox, 1968; Hilgard, 1974; Coe and Ryken, 1979; Crawford, Hilgard and Macdonald, 1982; Page and Handley, 1990, 1993).

Hilgard et al. (1961), using college students, were the first formally to survey hypnosis after-effects. Hypnosis involved the Stanford Hypnotic Susceptibility Scale, Form A (Weitzenhoffer and Hilgard, 1959), and care was taken to remove all post-hypnotic suggestions before dehypnosis. Follow-up interviews were provided in the 17 out of 200 (8.5%) cases who reported adverse consequences. Common effects were headaches and regressive dreams having affinities with the hypnotic experience. Responses to the hypnotist's instructions were sometimes delayed until after hypnosis. A childhood adverse reaction to chemical anaesthesia was frequently associated with later adverse effects of hypnosis. Typical adverse reactions to childhood anaesthesia cited in this context included struggling, an excessive amount of anaesthetic, and headaches and nausea after anaesthetic. Notwithstanding individual differences in hypnotic responsiveness, and given that few subjects would have had such a childhood experience, it is noteworthy that the incidence of these events reached a high level of statistical significance ( $p < 0.001$ ). In the one case reported in detail, in an operation at the age of six years the participant heard the countdown with the anaesthetic reach as high as 50, and he was given three times the usual dose of ether. Orne (1965) went on to support the association between adverse reactions to hypnosis and adverse childhood experiences with chemical anaesthesia in some participants.

To shed further light on the possible psychological processes involved, Hilgard et al. provided other case reports. In one of these the subject had a severe headache after hypnosis, felt disorganized for three hours and was amnesic for most of the day, an amnesia that included his name, an item he had passed in the induction. It is noteworthy that he had reported only two previous headaches in his life, one of which was after an earlier attempt at hypnosis. The reliving of an experience in hypnosis was reported by several students. For one student the mosquito hallucination from the induction scale was relived, as was hearing her name called, as had occurred at the beginning of dehypnosis. Another student had a hysterical attack a week or so later, which included parts of her body becoming numb and anaesthetized; these features had been included in the induction. Another 'had an actual physical sensation of shrinking' afterwards. Noteworthy had been the hypnotist's query during age regression whether the participant had become smaller. Another student had cried after closing his eyes at the initiation of the induction, re-evoking a posture that he associated with being cornered and beaten by his mother as a child.

These issues were re-examined in a second study (Hilgard, 1974) that contained two inductions involving a higher loading of cognitive and personal items. One was administered in a group (Harvard Group Scale of Hypnotic Susceptibility, Shor and Orne, 1962) and the second was individualized (Stanford Hypnotic Susceptibility Scale, Form C, Weitzenhoffer and Hilgard, 1962). A higher incidence of unwanted effects was recorded. Thirty-seven of 120 subjects (31%) experienced adverse reactions persisting from five minutes to three hours after hypnosis. Nineteen subjects

had short-term effects lasting for up to an hour. These included drowsiness, cognitive distortion, anxiety and dreams. The same reactions were found among the long-term effects, which were of up to three hours' duration, to which were added headaches, dizziness, nausea and a stiff arm or neck. Drowsiness and autonomic signs were frequently reported: 'I slept after hypnosis and fell asleep later that day in class despite sleeping well the night before – I seldom feel sleepy during the day' (1974: 280). 'I had a headache for 1½ hours, then slept 3 hours, and awoke without the headache' (1974: 291). 'I had a headache during hypnosis and for 2 hours until I took a nap and got rid of it' (1974: 291). Another reported that, 'his heart pounded and he experienced intense anxiety' (1974: 286). Other comments included: 'I felt kind of strange as I walked to my next class . . . like when I just get up in the mornings. Things were blurry; I was somewhat in a daze, not receptive to everything around me yet' (1974: 288). 'I was groggy for about 8 minutes'; '. . . not exactly with it or ready to think'; '. . . drowsy for 19 minutes' (1974: 288).

Cognitive confusion was coupled with drowsiness and autonomic signs. Another reported he was 'confused, anxious . . . walked around in a daze' and 'felt queasy' and he 'tried to remember things but could not'. The confusion 'lasted through the night' and he 'had many vivid dreams' relating to 'embarrassment over mistakes' (1974: 289–90). Another student 'suddenly blanked out' at her typewriter 'which she had never done before' (1974: 290). Another felt 'dizzy and mild nausea for 3½ hours' (1974: 294). Changes of body image were in evidence as in the previous investigation (Hilgard et al., 1961), with one student describing 'feeling apart from myself – my hands were 20 feet away from my body' and 'drowsiness lasting for an hour or so' (1974: 286).

Case studies of Page and Handley (1990) provided further insights and support for Hilgard's pioneering work. They reported two incidents of adverse effects in college students, one that was cognitive and transitory and one that was neurophysiological and the most serious reported in a laboratory context.

In the first a student who was a high scoring susceptible on the Stanford Form C, including the post-hypnotic amnesia item, failed to remember between one and two hours later the telephone numbers of two close friends whose numbers were well known to him. His description was that he '. . . felt weird, like my mind went blank'. In the dream item he had a nightmarish experience suggestive of conflict over a reluctance to relinquish control (Shevrin, 1972). He also had unpleasant experiences in childhood at ages six and nine with chemical anaesthesia which had involved him in a countdown, hating the smell and experiencing nausea afterwards. Page and Handley (1990: 252) hypothesized that:

The similarities of counting, loss of control, feelings of helplessness, smelling an unpleasant odor in the Ammonia item, and possibly even age regression (to ages 7 and 10 in the SHSS:C), may have all contributed to producing the amnesic effect.

In the second case an 18-year-old girl who had a family and personal history of epilepsy, but had been seizure free for seven years, experienced an apparent epileptic seizure while the Stanford Form A was being administered. She had passed the first 10 items. Then midway through the post-hypnotic suggestion/amnesia item, during the passage; 'After you open your eyes, you will feel fine. You will have no headache or other after effects . . .' (1990: 253), a seizure episode took place lasting 45 seconds. This included:

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her eyes opening and rolling upward, her head drawing back and to one side, and muscular rigidity in her arms and torso. As she regained consciousness, she was trembling and perspiring: within seconds she was able to answer questions and seemed somewhat embarrassed by the event. She reported a faint, 'drained-of-energy' feeling (saying she just felt like sleeping), along with abdominal cramps and a slight feeling of nausea. She was given a cool cloth, which she placed on her forehead. Within a few minutes, she insisted she had recovered but was unable to stand unassisted owing to lack of strength. She attributed this partly to the fact that she had eaten only a banana and a candy bar all day (the time was about 3.00pm). (Page and Handley, 1990: 253)

A clinical EEG recorded about two hours later was normal, as has commonly been found in epilepsy inter-ictally. The seizure, although epileptic-like, had features in common with a hysterical fit. Page and Handley hypothesized as one possible mechanism 'a reintegration [sic] of her seizure (but without an organic basis) due to similarities between her earlier unpleasant seizures and some of the items of the SHSS:A' (1990: 254).

## Cognitive versus ideomotor inductions

A formal examination of the influence of the type of hypnotic induction on the nature of unwanted effects was undertaken by Crawford et al. (1982), who compared the Harvard Group Scale, with its mainly ideomotor content, with what became the Stanford Form C, with its strong cognitive loading including a hypnotic dream and age regression, as used by Hilgard (1974). Adverse effects were more common with the more cognitively orientated scale (29%) compared with the ideomotor scale (5%). Higher susceptibility (on both cognitive and ideomotor items) was also associated with cognitive distortions and confusions compared with non-cognitive effects such as drowsiness/sleepiness and headaches/nausea. The latter were associated with lower levels of susceptibility. However, there were exceptions to these generalizations, as was evident from the case studies of Hilgard et al. (1961). As to mechanism, the studies confirmed that adverse cognitive effects could result from personal memories and ideation triggered by specific suggestions.

In conclusion, the proportions of participants experiencing unwanted effects where suggestions were predominantly ideomotor were closely replicated – 7.7% (Hilgard et al., 1961) versus 5% (Crawford et al., 1982), as were the proportions where items were predominantly cognitive – 31% (Hilgard, 1974) versus 29% (Crawford et al., 1982). High hypnotic susceptibility was also associated with the experiencing of unwanted reactions, but low susceptibility did not preclude adverse reactions, particularly autonomic responses such as headache and nausea.

## Hypnosis compared with other college activities

Faw et al. (1968) gave college students three forms of hypnosis in separate sessions to include ideomotor and cognitive effects and in one session a photic driving apparatus thought to enhance hypnosis. The experimental group was compared with a control group who had three lectures on hypnosis in a classroom. The researchers included a follow-up at 90 days with the college counselling centre and infirmary and they also assessed MMPI profiles before and after hypnosis. There was no increase in the use of clinical facilities by either group, with less insomnia in the hypnosis group and one psychiatric referral from the experimental group. For reasons unexplained, 'an improvement in neurotic, psychotic and behaviour problem profiles' on the MMPI

occurred in both groups. In other words, as a result of the hypnosis, or simply attending a lecture on hypnosis, personality was changed. How personality traits could be altered by attending a lecture is obscure and calls into question the validity of the self-report items.

Coe and Ryken (1979) surveyed US college students about positive and negative sequelae of hypnosis with a self-report questionnaire. They stressed that they were motivated by concern over the categorizing of hypnosis by the Department of Health, Education and Welfare among 'at risk procedures having the capacity for creating stress or bodily harm'. Hypnosis (administrations of both the SHSS:A and SHSS:C) was compared with four other situations – a verbal learning experiment, attending a class, an exam, and college life in general over the past two days.

Just under half of their subjects reported negative effects with hypnosis (34/70) and at the same time hypnosis received a higher rating of pleasantness than the other situations. No quantitative data were provided about the different kinds of negative and positive effects in the different subject groups. However, basing their conclusions on a general categorization as to whether or not sequelae were more or less frequent or were the same statistically (with hypnosis compared with the other conditions), they concluded that 'hypnosis is no more bothersome than the comparison activities' (1979: 673). Compared with college life, attending class and an exam, hypnosis and the verbal learning experiment were alike in being less likely to make students anxious, fearful, unhappy and depressed, whereas hypnosis more than the cognitive experiment was associated with headaches, stiff necks, light-headedness, dizziness, drowsiness and a desire to take a nap, although in most cases no more so than the other activities. Susceptibility on the SHSS:C was said to be positively correlated with the cognitive category 'dreams and unusual thoughts', and with positive sequelae.

Aside from the limitation of the opaque nature of the quantitative analysis, there was unfortunately no attempt made to match the groups on susceptibility nor did the researchers report demographic or susceptibility data to indicate whether the groups were comparable in any way. Data relating to the levels of susceptibility achieved would have been helpful for validation given that participants were hypnotized by 15 graduate psychology students with no prior experience of administering hypnosis.

#### Safeguards against unwanted effects

When the classic Stanford and Harvard scales were developed researchers were aware of the possibility of negative reactions to hypnosis and took specific steps to minimize them in the procedures adopted in scale construction (Hilgard, 1965). The original tape recording of the Harvard Group Scale included an extensive preamble which aimed to demystify hypnosis, diffuse negative preconceptions, allay anxieties and build a positive working partnership with the subject. All suggestions on these scales during hypnosis are carefully removed as part of the standardized procedure, even if the subject does not apparently respond, and failure to respond is reframed in a positive fashion. Strong negative emotional reactions to items such as the hypnotic dream and age regression were well known. For this reason the age regression item on the Stanford scales was specifically worded to take the participant back to a nice day, not any day, and to a (usually) benign situation – sitting in class writing or drawing on some paper. Furthermore, both dream and age regression items were constructed to incorporate extensive opportunity for the subject to report the nature of their ongoing experience, despite using behavioural scoring criteria. Responsible researchers were aware of the

need to monitor subjects carefully for untoward responses, and to debrief these reactions appropriately, as well as to arrange for therapeutic follow-up if necessary.

Few formal studies have been published examining further strategies with which to minimize negative sequelae. Only two studies have shared these concerns. In a small-scale study Crawford et al. (1982) incorporated a demystifying lecture and a question and answer session before the induction of hypnosis, and after hypnosis they introduced a stretching exercise in an attempt to alleviate any lowering of arousal. Before this Crawford et al. had asked all subjects to fill out questionnaires and any who acknowledged receiving psychotherapy and counselling had been excluded at the outset. Although no statistical advantage was found, there was a suggestion that fewer of those with the exercise intervention felt drowsy and took naps – 0/5 compared with 5/9 controls. As an aside, adverse effects may be under-represented in Crawford's studies as her work has always been characterized by an extremely thorough approach to assessment of susceptibility, beginning with a group screening with the Harvard scale followed by an invitation to an individualized screening with the Stanford C scale. Often this reduces the number of subjects and it is not unreasonable to assume that one reason that subjects do not proceed to the second screening may be because of negative sequelae.

Page and Handley (1993) set out to minimize unwanted reactions by including a demystifying lecture and by telling the experimental group that no treatment was taking place, which had the implication that no long-term effects were expected. They also removed from the Harvard Group Scale any reference to after-effects – for example, 'you will have no headache or other effects'. Importantly they included subjects of a mature age, they used random assignment, and they obtained a large sample. Subjects ranging in age between 17 and 60 years, with a mean of 22.5 years, were randomly assigned to two groups who were given the HGSHS:A. One was an experimental group who had strategies aimed at removing adverse sequelae (n=347) and the other was a control group without the safeguards (n=340). They also reported an 'ad hoc classroom comparison group' who were given a film and lecture unrelated to hypnosis (n=59).

Regarding the incidence of effects, irrespective of group, 44.1% experienced some unwanted reactions during or after hypnosis. Among after-effects they distinguished *short-term after-effects* (that is, from five minutes up until one hour after hypnosis) from *long-term after-effects* (that is, from one hour up until two days later, the end of their observation period). Some 21.4% of participants reported short-term effects only and a further 16.7% reported both short-term and long-term effects, giving a combined total of 38.1%. The nature of the sequelae covered the range reported by others, although the researchers omitted from their analyses confusion, drowsiness and irritability on the grounds that these were non-specific. Given that specificity is a secondary issue, it is noteworthy that confusion was rated in as many as 35 participants and drowsiness in 105. As in earlier research, previous psychological problems and an unpleasant experience with anaesthesia were associated with negative after-effects but here they were not present in sufficient numbers to be predictive. In support of Coe and Ryken (1979) and Crawford et al. (1982), unwanted reactions were positively associated with levels of hypnotic susceptibility.

In the light of Crawford et al.'s study, Page and Handley's reported incidence of 38.1% of participants who experienced after-effects irrespective of group was all the more noteworthy, considering that they used the dominantly ideomotor Harvard Group Scale. This had produced the relatively low level of 5% in the Crawford et al.



(1982) study, in contrast to the cognitively loaded Stanford induction that Crawford et al. had found to result in an approximately sixfold increase in incidence of unwanted reactions. Page and Handley's high incidence is noteworthy for the additional reason that they omitted from their analyses confusion and drowsiness.

Page and Handley's strategies were successful in reducing unwanted reactions as after-effects, but they did not reduce unwanted reactions concurrent with hypnosis. When the evaluation period included hypnosis and extended from the beginning of the induction up until two days after hypnosis, no differences were reported in adverse effects – 45.6% controls and 43.5% experimental subjects. But when the more stringent criterion was used, there was a trend ( $p=0.10$ ) for the experimental group to report fewer adverse consequences – 35.2% compared with 41.2% of controls. Their strategies were successful for the long-term after-effects – 19.7% for controls versus 13.8% for the experimental group ( $p=0.04$ ), but there was no difference in short-term after-effects. In sum, Page and Handley's strategies had no effect for the period of hypnosis itself and up to one hour following hypnosis, but had some benefit for longer-term after-effects up until the end of the two-day observation period.

Finally, although not a formal study, Orne (1965) offered a commentary on unwanted sequelae and suggestions for safeguards in the experimental context. He recommended that the focus in experimental investigations should be as non-personal as practicable, given the potency of potential association between an unpleasant childhood event and a feature of the induction, commonly age regression. Where possible, personal issues such as age regression and dream induction should be treated in as neutral a manner as possible. However, this is easier said than done, for by the very nature of hypnosis impersonality cannot be assured. Orne's concerns were drawn largely from the clinical uses of hypnosis, where a major concern regarding unwanted reactions at the time was the reliving of previous trauma which could be associated with the appearance of psychosomatic symptoms both during and after hypnosis.

### *Clinical hypnosis*

In view of the essentially personal nature of clinical hypnosis, there has been a greater concern with untoward reactions in the clinic than in the laboratory setting and the severity of reported effects is often greater. This is not unexpected given that in contrast to the episodic time scale and relatively benign nature of experimental hypnosis, hypnotherapy is typically used over a course of sessions, and in order to bring about enduring changes, often in patients with psychopathology and with the aim of addressing psychopathological behaviour directly in an attempt to remove symptoms. Even so, as found in experimental hypnosis, adverse effects have resulted from the induction procedure alone (West and Deckert, 1965). The evidence has been typically reported in the form of case reports or surveys of practitioners.

### Case reports

There is an extensive clinical literature cautioning against precipitating severe anxiety reactions and psychosomatic disturbances in patients with known or suspected psychopathology (Rosen, 1953; Weitzenhoffer, 1957; Gill and Brenman, 1959; Meares, 1960; Orne, 1965). The potential hazards are illustrated by Barber (1995) with the case of an intensive care nurse undergoing treatment for depression, who attended a weekend workshop on clinical hypnosis and subsequently suffered a prolonged abre-active experience. During the workshop she was hypnotized and taken down an imaginary staircase with no untoward reactions at the time. But the next day she

underwent a change in personality. She was agitated and distressed. As she expressed it: 'because something bad was wrong with her mind' (1995: 22). In discussion with Barber the nurse also stated: 'Since then I've been somehow stuck at the bottom of those steps! I'm here, but I'm also there!' (1995: 22) On the rationale that she was expressing a dissociative experience Barber rehypnotized her and invoked in gradual stages a descending staircase scenario. In the course of this she became 'fully absorbed in a powerfully noisy, terribly frightening, emotionally cathartic abreaction experience'. The catharsis related to actual abuse in childhood by her mother. As Barber commented, 'I began to perceive this woman as suffering from a complex dissociative disorder that had been masked until the untoward hypnosis incident the day before' (1995: 22). The case conveys the potency of a delayed traumatic abreaction because of the resurrection of memories of childhood abuse.

The greater historical preoccupation, however, was with the most severe of psychopathologies, psychosis, and schizophrenia in particular. This was undoubtedly because of the mid-20th-century dominance of psychodynamic approaches in psychiatry, which included the practice of hypnotherapy with psychotic patients. In contrast, applications of hypnosis to psychosis over recent decades have been extremely rare, for good reasons. Textbooks and journals, including the *Journal of the American Medical Association*, provided case studies and comprehensive coverage of obvious dangers (Wolberg, 1945, 1948, 1964; Lomas, 1961; Abrams, 1963). These included the development of one of the cardinal symptoms of schizophrenia, delusions of control, a particular hazard of a therapeutic procedure where the hypnotherapist orchestrates the behaviour of the patient (Heyer, 1931; Levine, 1942; Brenman and Gill, 1947; Rosen and Erickson, 1954; Ellis, 1958), and there was the danger of precipitating overt psychosis in borderline paranoid individuals (Mayer, 1952; Lindner, 1956; Raginsky, 1956; Weitzenhoffer 1957; Rosen, 1959, 1960; Meares, 1960; Rosen and Bartemeier, 1961). For the same reasons, in Australia Meares (1960) cautioned against applications of hypnosis with the overly dependent personality type, the pre-psychotic schizophrenic patient, the schizoid personality type and the depressed patient. Hilgard et al. (1961), in their report on adverse reactions following experimental hypnosis, cited 15 cases of severe sequelae from the literature of the previous 12 years which included reactions of psychotic intensity. They also cited a book published in German in which 100 cases of adverse reactions were reported, which included psychotic symptoms (Schultz, 1954). Dick-Read (1959) reported that pre-psychotic obstetric cases became chronically psychotic following hypnotherapy, as could happen following chemical anaesthesia (Lindner, 1956).

Importantly, case studies have included patients with non-psychiatric conditions who, in undergoing treatment with hypnosis, became psychotic. In the textbook *Hypnotherapy in Clinical Psychiatry*, Rosen (1953) described a patient who, after successful treatment for phantom-limb pain with hypnosis, was admitted to psychiatric hospital with an emergent schizo-affective psychosis. There have also been reports of obstetric patients who required psychiatric hospitalization following hypnosis (Tom, 1960), and Rosen and Bartemeier (1961) provided a detailed report of a first episode of psychosis following the removal of neurodermatitis with hypnosis.

An unreported case of first episode schizophrenia following personality change through hypnotherapy

There is also evidence of a patient successfully undergoing hypnotherapy with the aim of altering personality, who subsequently developed acute schizophrenia. This

has not been documented in a scientific journal previously and was provided by a member of the section for Hypnosis and Psychosomatic Medicine of the Royal Society of Medicine, UK. An unmarried man in his early 30s with a withdrawn, introverted and retiring personality lived at home, dominated by his mother. Eventually, to seek some independence and social life outside of the home, he undertook a course of hypnosis. This included instructions for increased self-confidence and assertiveness. After a time his personality changed and he became outgoing and sociable. In standing up to his mother their relationship became overtly conflictual, and soon after his behaviour became disordered until he was hospitalized with a diagnosis of first episode schizophrenia. In sum, the patient successfully underwent a personality change in line with the aims of the hypnotherapy. However, in the face of the stress of the heightened emotional charge of the interpersonal dynamics of the family setting, he succumbed to schizophrenia in keeping with the role of expressed emotion in the precipitation of schizophrenia and relapse (Vaughan and Leff, 1976).

### Surveys

Awareness of the dangers of hypnotherapy has generated a number of surveys that, although they cannot provide reliable statistical evidence of prevalence, are informative about the nature and to some extent the relative incidence of adverse effects. Auerback (1962) reported that 120/414 of Californian psychiatrists who replied to a mailing acknowledged the existence of adverse reactions. Of the 210 incidents reported, just over half (119) concerned the precipitation of a psychotic episode by hypnosis. This high proportion with psychosis will undoubtedly reflect referral policies whereby patients with severe psychiatric sequelae will be referred to psychiatrists for advice. None the less, unambiguous evidence for the potential of hypnosis to trigger psychosis was provided. To quote:

The commonest complication reported was psychosis, precipitated in 119 cases by the use of hypnosis. In 3 cases a hypnotic demonstration, using a subject picked at random from the audience, terminated in a psychotic break; a fourth resulted in a severe anxiety reaction. Hypnotic treatment for obesity, smoking, or the relief of pain triggered paranoid schizophrenic breaks in some instances. (1962: 919)

Again, in addition to patients in whom there was decompensation of an established psychosis after hypnosis, reports included patients who entered their first episode after hypnosis.

In the same year Levitt and Hershman (1963) reviewed a questionnaire from members of the American Society of Clinical Hypnosis and the Society for Clinical and Experimental Hypnosis, to which 301 respondents reported 'unusual, unexpected, and probably alarming reaction to hypnosis either during the state itself or immediately afterward' (1963: 59). The most frequent of these were anxiety, panic and depression (9.63%), followed by headache, vomiting, fainting and dizziness (4.98%), followed by crying and hysteria (2.99%) and finally overt psychosis (1.66%) – found in five cases.

More recently, Judd, Burrows and Dennerstein (1986) surveyed 1086 members of the Australian Society of Hypnosis. In the 202 responses that were received, 88 reports of negative reactions were recorded. It is noteworthy that instances of psychosis being precipitated or worsened made up 15% of the adverse effects. Panic and anxiety (60%) were the most common, followed by difficulties in terminating hypnosis (28%) and 'overdependency' (28%).

Again, surveys of this type can best be regarded as a source of information as to the kinds of complications that can happen rather than as providing reliable quantitative data. In fact, Orne (1965) suggested that the reported incidence may be too low, given that 43% of the best qualified respondents reported adverse effects compared with 23% of less qualified respondents. The latter 'may conduct inadequate follow-ups and may fail to recognise untoward sequelae because of their personal needs'.

### *Stage hypnosis*

Hypnosis for entertainment has long been associated with a higher frequency of unwanted sequelae (Schultz, 1954; MacHovec, 1987, 1988). This is arguably the more widely practised form of hypnosis and one about which most professionals are unanimous in their concerns. It has been outlawed in many places. However, the scientific literature relating to it is sparse and consists of surveys and case reports.

### Surveys

Echterling and Emmerling (1987) reported the results of interviews with 18 students who performed on stage during a three-hour stage hypnosis show at a university campus and a telephone survey of 292 members of the audience. Time in hypnosis for the performers ranged from a few minutes to just under three hours. Of the 18 performers, four viewed the experience as essentially negative, seven had mixed feelings about the show and seven were entirely positive. Five reported specific negative after-effects. One of these recounted that she 'ran out of the auditorium, down the hall and started to cross the field when a security guard caught me' (1987: 151). Another reported 'I didn't sleep for the next 2 days. I hibernated and hid from everybody. It has still left me shook up. I'm going to drop out of school. This has messed up everything. I lost control. This forces me to think about stuff I don't want to' (1987: 152). A third 'behaved in a manic fashion for about 6 hours, was unable to sleep or concentrate, and laughed a great deal. Her residence adviser had to intervene to calm her.' Several days after being hypnotized, a fourth student was 'listening to the radio while studying. When she heard harmonica music she entered into a trance. Later she was awakened by a weather broadcast' (1987: 152). In terms of the audience reaction, 68% viewed it positively and the remainder considered it offensive, exploitative and weird. Some 17% reported positive after-effects and two audience members reported negative ones 'of feeling apprehensive, frightened, and controlled by the hypnotist' (1987: 150).

A second study was undertaken by Crawford et al. (1982) to gain insights about the depth of hypnosis reached in participants, and about positive and negative experiences. They first interviewed in person or by phone 22 students who had participated in campus stage shows. Six had had prior experience with hypnosis and some reported that they went along with the hypnotist and role-played during stage hypnosis. A high level of susceptibility was indicated in the majority. More than 70% of typical hypnosis scale items were passed, as recorded by researcher ratings during the shows and by self-report items afterwards. Eight reported amnesia for some events immediately after the show, which lasted for several days in five subjects. Five subjects believed that the hypnotist had control over their behaviour. Fifteen were then given the SHSS:C, of whom 14 scored above 4 and seven were in the high susceptibility range. On a questionnaire most regarded the experience as positive, eight rated the experience as confusing and as silly, and two rated it as frightening and annoying. One regarded the experience as totally negative and had complete amnesia for the experience.

## Case reports

Turning to case studies, Kleinhauz and colleagues in Israel have documented a number of incidents. Kleinhauz, Dreyfuss, Beran, Goldberg and Azikri (1979) first reported a case where, immediately following stage hypnosis, a 41-year-old woman felt distressed. The hypnotist was unable to alleviate this and she was sent home to sleep it off. The next day she manifested a dissociative state with childish behaviour, derealization and depersonalization. For 11 years afterwards dissociative periods recurred, including regression to childhood behaviour. This included speaking only in French as she had done in her childhood. These symptoms were accompanied by perceptual and motor disturbances. Kleinhauz et al. discovered that there had been incidents in the stage show that had provoked severe anxiety reactions. First, when she had been asked to imagine descending in an elevator from a tenth floor, she was unable to descend lower than the sixth floor. It transpired that some years before the stage show, when scheduled for an operation for myoma, on the way to the operating theatre the hospital lift had jammed on the sixth floor. Second, the hypnotist had gone on to age regress the subject to a lengthy time of trauma that she had endured during the Second World War. These inadvertent associations had led to profound and enduring consequences.

Kleinhauz and Beran (1981) subsequently reported severe after-effects in a medically and socially normal teenage girl. She felt unwell immediately after stage hypnosis, her tongue collapsed and threatened to strangle her, her eyes rolled into their sockets and finally she entered a stupor. All medical tests in hospital were negative except for the loss of the sense of touch. She was brought out of the state a week later by two four-hour sessions of hypnosis. After this she returned to school but relapsed three months later, recovering after two days of hypnosis with a further six months of weekly sessions.

Kleinhauz and Beran (1984) subsequently reported on two instances of complications, one of which involved stage hypnosis. In a show a man was instructed that he was 'a crack shot and the best cowboy in the Wild West'. Following the show he felt restless, confused and, with 'something missing in his head', went out and stole a gun. This was out of character and he had no previous history of antisocial behaviour. In the same year Kleinhauz, Dreyfuss, Beran and Azikri (1984) reported a case of stage hypnosis that was implicated in a participant's psychological distress, including anxiety, depression and episodic psychotic decompensation. The subject had experienced traumatic experiences previously.

In the UK there have been a series of incidents. In one a woman broke her leg during a stage show. She told the hypnotist in the middle of the show that she needed to go to the toilet. He instructed her to do this in the quickest way possible, at which point, in heading for the toilet, she jumped off the stage, breaking a leg. Perhaps the most serious of all was a case of Sudden Death Syndrome which involved a physically healthy mother who was found dead early in the morning following stage hypnosis. Since childhood she had had a phobia of electricity after an accident when she was thrown across the room after touching a live switch. The show had been terminated abruptly by the hypnotist's saying that when he said 'goodnight' the participants would feel 10 000 volts of electricity through the seat of their chairs. At this point audience members described her as 'flying off her chair'. In Germany a participant successfully won damages from a stage hypnotist when, following the human plank routine, she fell on her face 'as stiff as a board' and suffered physical damage (Peter, personal communication, 2000).

### **The nature of unwanted effects reconsidered**

When the full spectrum of applications of hypnosis is reviewed to include experimental, clinical and entertainment fields, it is clear that there is a growing accumulation of evidence that unwanted reactions to hypnosis do occur and are quite common. Although most unwelcome effects are minor and short lived, some give serious cause for concern. This is particularly the case where participants have psychopathological or neurophysiological vulnerabilities, and where the practice of hypnosis does not allow adequate screening for vulnerabilities nor an adequate response by the practitioner should undesirable reactions occur. The review has also disclosed that the amount of research on the topic is meagre, which, given the gravity of occasional reactions, the scientific community has a responsibility to remedy.

It must be kept firmly in mind that most subjects have reported positive effects of hypnosis. There would be no fields of clinical hypnosis or hypnosis for entertainment if this were not the case. In the experimental context, two studies have documented this, showing that 62% and 56.6% of participants reported the experience as pleasant two days later (Hilgard, 1974; Page and Handley, 1993). In the second study, ratings of relaxed/calm and refreshed/energetic were recorded as after-effects in 31.9% of subjects, increasing to 86.2% when the hypnotic induction was included (Page and Handley, 1993). In students, hypnosis has been given higher ratings of pleasantness than a range of college activities (Coe and Ryken, 1979). Crawford et al. (1982), in interviewing 22 students who participated in stage hypnosis, found that only one rated it as totally negative. Most people who have reported unwelcome consequences in experimental studies have regarded the experience as a whole to be positive.

Notwithstanding this, undesirable reactions do occur and only by examining their nature and reasons for occurrence can proper safeguards be brought in place to eliminate or greatly reduce their likelihood. Even in the benign laboratory setting, where the reported hypnotic inductions have largely consisted of the Stanford and Harvard scales, which incorporate some safeguards to minimize adverse reactions, unwanted reactions have been reported in up to one half of subjects. This is a high incidence and is worthy of more consideration than it has been given in recent times.

In the laboratory setting negative after-effects may be regarded as no more than a trivial nuisance for most participants, and may be of little practical consequence, acting merely as a deterrent from participating in a laboratory experiment on hypnosis again. Unwelcome reactions in the laboratory have been episodic and there were no grounds to believe that they have led to enduring sequelae, although rare instances are not out of the question. However, whereas in an experimental context a headache may be only a passing discomfort, in a health context a headache provoked by hypnosis may be enough to put off the practice of self hypnosis at home, say for the purposes of enhancing the immune system by a student before exams or by a patient with a viral disorder (Gruzelier, Clow, Evans, Lazar and Walker, 1997; Fox, Henderson, Barton, Champion, Rollins, Catalan, McCormack and Gruzelier, 1999). More serious though are the tragic instances of pathology that arise from more expendable purposes such as entertainment. A range of issues follow, foremost among which is the question of how to prevent the unwanted effects and what they tell us about the nature of hypnosis. If we had a better understanding of the processes involved we would be better equipped to eliminate them.

*Psychological and physiological processes*

The nature of adverse effects is diverse and may be both psychological and physiological. In the laboratory, psychological reactions have included alterations in awareness such as drowsiness and feeling in a daze, and cognitive experiences such as amnesia, confusion, distortion of body schema, and abreaction to unpleasant life events revived by the content and procedures of the hypnotic induction. Physiological reactions have consisted of somatic and autonomic signs such as headache, nausea, palpitations and stiffness. There is one report of a serious consequence, a seizure. Aside from this exceptional incident, clinical hypnosis and hypnosis for entertainment have been responsible for the more severe conditions, including chronic headache and depression, morbid anxiety reactions, seizure and stupor, resurrecting memories of previous trauma, recurrent spontaneous dissociative episodes, and triggering psychiatric illnesses or producing decompensation, with illnesses ranging from anxiety reactions to psychosis.

Recurring psychodynamic features have included regressive dreams through association with earlier experiences; conflicting motivation, as in a strong desire to experience hypnosis yet antipathy towards authority figures represented by the hypnotist (Page and Handley, 1990); and associations between an unpleasant childhood event and a feature of the induction which has resulted in particularly potent effects if the early event was traumatic, an untoward reaction commonly arising through instructions of age regression (Hilgard et al, 1961; Kleinhauz, Dreyfuss, Beran, Goldberg and Azikri, 1979; Crawford et al., 1982; Page and Handley, 1993; Barber, 1995). In fact, age regression has been described as 'potentially the most risky of hypnosis phenomena' because of 'inadvertently regressing a subject to a traumatic experience' (Weitzenhoffer, 1957). For this reason, when referring to age regression the Stanford Scales of Hypnotic Susceptibility take the participant back to 'a nice day', not any day, and to a specific safe situation 'sitting in class writing and drawing on some paper', not any situation. However, even this is no safeguard against some participants generalizing to unhappy previous experiences. This was disclosed by my first experience with hypnosis (Gruzelier, Brow, Perry, Rhonder and Thomas, 1984; Gruzelier and Brow, 1985) when I was screening subjects for hypnotic susceptibility and two participants had to be excluded because of stressful abreaction in response to age regression. Although these reactions were soon resolved, from that point I decided I could not justify incorporating the age regression item in my experimental studies.

Remembered associations with previous life events need not be cognitive, but may extend to somatic and psychophysiological events or a combination of both. Conceivably, as associations accumulate, the potential for abreaction may increase. This was shown by Hilgard et al.'s (1961) astute analyses disclosing *inter alia* negative experiences in childhood with operations involving the reduction of consciousness with chemical anaesthesia (see also Orne, 1965; Page and Handley, 1993). Both experiences involved countdowns and changes in arousal and awareness. The change in arousal may involve relaxation or a more complex alteration of consciousness, or there may simply be the expectation that an alteration of consciousness will take place. Associations between anxiety or fear reactions and shifts in brain rhythms and their shifts in their topographical reorganization may explain reports of the development and reinstatement of seizure and stupor (Hilgard et al., 1961; Kleinhauz and Beran, 1981).

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Headache, one of the more common negative physiological effects, is a likely consequence of well-documented changes in arousal with hypnosis (for a review, see Crawford and Gruzelier, 1992). Relaxation inductions with hypnosis have been shown to be accompanied by an alteration of brain rhythms to lower frequencies (Sabourin, 1982; Sabourin, Cutcomb, Crawford and Pibram, 1990; Crawford and Gruzelier, 1992; Graffin, Ray and Lundy, 1995; Williams and Gruzelier, 2000) and often a shift in autonomic activity towards reduced sympathetic and increased parasympathetic activity (Gruzelier and Brow, 1985; DeBenedittis, Cigada, Bianchi, Signorini and Cerutti, 1994). Headaches commonly occur with adjustment to shifts in arousal and in the case of migraine these may be in the direction of both raised and lowered activation. In this light the high prevalence of headache with experimental and stage hypnosis is not unexpected because shifts in arousal will occur not only with the induction of relaxation, but also with dehypnosis, and as an aftermath of hypnosis for entertainment through the physically tiring effects of a long performance, mental exhaustion (especially when there are few participants to carry a show), and when stunts are included that depend on dramatic shifts in behavioural arousal at the snap of the hypnotist's fingers.

Changes in arousal may be secondary to instructions of hypnosis as well as primary. Secondary influences are indicated because some alterations in arousal have been shared by low as well as high susceptibles (Williams and Gruzelier, 2000). It was Hilgard et al.'s (1961) seminal report that first drew attention to the fact that in the experimental setting adverse effects were not confined to students with high susceptibility. Ten of the 17 affected students had medium to low susceptibility levels. The variety of contextual factors may be just as important to low as to high susceptibles. Students with low susceptibility may experience anxiety regarding expectations as to the likely consequence of hypnosis, or, depending on the circumstances, may undergo altered arousal through relaxation.

Other influences may be primary given that some changes in neurophysiology have differentiated high from low susceptibles (Gruzelier, 1998; Williams and Gruzelier, 2000). Even so, although a low susceptibility level does not preclude adverse reactions (Hilgard et al., 1961; Crawford et al., 1982), there is a range of evidence that more reactions of both positive and negative valence have been associated with high hypnotizability, in keeping with a primary influence. For example, unwanted reactions have been more frequently associated with cognitive items on susceptibility scales (Coe and Ryken, 1979), with scales having higher loadings of cognitive items that require higher levels of susceptibility compared with ideomotor items (Hilgard, 1974; Crawford et al., 1982), and with the predominantly personal involvement of clinical and stage hypnosis. Alterations in cognition with hypnosis are currently being supported by neurophysiological evidence from electrophysiological, neuropsychological and brain imaging studies (Crawford and Gruzelier, 1992; Gruzelier and Warren, 1993; Gruzelier, 1996b, 1998; Kaiser, Barker, Haenschel, Baldeweg and Gruzelier, 1997; Szechtman, Woody, Bowers and Nahmias, 1998; Rainville, Hofbauer and Paus, 1999; Halligan, Athwal, Oakley and Frackowitz, 2000).

The adequacy of dehypnosis and the adequacy of the removal of suggestions have been related to untoward effects. Although this is undoubtedly the case, conventional dehypnosis procedures have not precluded adverse reactions. Responses to instructions during hypnosis and the reliving of experiences triggered by associations in hypnosis may be delayed over days after hypnosis, whether or not they had been responded to in hypnosis or removed at the end.



Perhaps the most serious and frequently reported of the unwanted sequelae is psychosis (Heyer, 1931; Levine, 1942; Wolberg, 1945, 1964; Brenman and Gill, 1947; Mayer, 1952; Rosen, 1953, 1960; Rosen and Erickson, 1954; Raginsky, 1956; King, 1957; Weitzenhoffer, 1957; Ellis, 1958; Meares, 1960; Tom, 1960; Lomas, 1961; Rosen and Bartemeier, 1961; Auerback, 1962; Abrams, 1963; Levitt and Herschman, 1963; Kleinhauz and Beran, 1981, 1984; Kleinhauz et al., 1984; Judd et al., 1985). Clinical hypnosis and hypnosis for entertainment have triggered psychosis in conditions that were stressful (as on the stage) or non-stressful, where hypnosis has been administered for applications unrelated to psychodynamic factors such as in obstetrics, dermatology and pain relief. Decompensation has resulted in applications with psychotic patients, but hypnosis has triggered first episodes of psychosis, to include patients with no pre-existing personality abnormalities or genetic history. These issues have implications for both the nature of hypnosis and safeguards. As this evidence has been largely ignored in the contemporary literature it will be considered further in some detail.

*The nature of hypnosis and schizophrenia: affinities and contrasts*

As has been indicated above, knowledge about the dangers of precipitating schizophrenia by hypnosis could be said to be commonplace in the 1950s and 1960s. What may be revelatory to the reader, given the rare linking of schizophrenia and hypnosis in contemporary psychiatry, is that before these mid-century concerns there had been intense scientific interest in the application of hypnosis to schizophrenia, and even more surprisingly in affinities between the two. As is often the nature of scientific discovery, there were opposing viewpoints; on the one hand psychosis and hypnosis were considered antithetical and on the other they were considered to share features in common. In fact, it has been forgotten that none other than Ivan Pavlov (1941) went so far as to consider schizophrenia to be a chronic state of hypnosis. Independently of Pavlov, psychoanalysts also concluded that there were affinities between schizophrenia and hypnosis (King, 1957; Bowers, 1961).

Given Pavlov's exceptional and enduring contributions to psychology and his understanding of brain-behaviour relations, his viewpoint is worth considering. In what follows, concepts with contemporary resonance have been italicized. His views were based on extensive experience with experimental hypnosis and experimental neurosis with dogs in the course of his seminal discoveries of the principles of conditioned association, and their later applications to psychiatry. In *Conditioned Reflexes* (1928, 1941) Pavlov first described suggestibility following experiments with dogs as having 'at its basis a *readiness of cortical cells to pass over into inhibition*' (1928: 378; emphasis added). *Emotionality in hysteria and schizophrenia* were viewed as involving a *weakening of cortical integrity and control over subcortical centres*, the latter giving rise to 'a flood of very complicated conditioned reflexes (aggressive, passive-defensive, and other functions of the subcortical centres) with weakening of the cortical control' (1928: 378). For students of schizophrenia, this has a contemporary ring about it. On the basis of brain imaging evidence of focal abnormalities in the form of hypo- and hyper-metabolism, popular contemporary theories have postulated through hypo-frontality a loss of descending, top-down control leading to overactivation of subcortical limbic structures (Weinberger, 1995). Oakley (1999) has provided a unifying model of conversion hysteria and hypnosis around the influences of frontal brain systems on the cingulate.

**Pavlov continued:**

*The basic mechanism of suggestibility is destruction of the normal unification of the activity of the whole cortex. Therefore, the inevitable conclusion is that it arises in the absence of the usual influences, coming from the other parts of the cortex. But if this is so, then schizophrenia is the highest manifestation of such a mechanism. How may we consider the extreme, general weakness of the cortex, its abnormal and pathological fragility? In our inhibitory, hysterical dogs, by applying the functional difficulties presented by our experiments, we can make completely isolated pathological points and foci in the cortex; in schizophrenia, in the same manner, under the influence of various experiences of life, acting on perhaps an already organically pathological condition, gradually and constantly there appear a larger and larger number of such weak points and foci, and by degrees there occurs a breaking up of the cerebral cortex, a *splitting up of its normally unified function*. (1928: 378; emphasis added)*

Contemporary theories of schizophrenia posit disturbances of connectivity, such as between frontal and temporolimbic regions (Friston and Frith, 1995; Fletcher, 1998) and interhemispheric connectivity (Gruzelier, 1999).

In *Conditioned Reflexes*, volume 2 (1941) Pavlov extrapolated further with references to hypnosis and drew analogies between behaviour induced in his experimental dogs and psychotic behaviour including stereotypy, negativism, echolalia, echopraxia, catalepsy, catatonia, hebephrenic childishness as well as capricious and aggressive excitement:

We have definite experimental neuroses in our animals (dogs) and in the same animals what is analogous to human psychoses, . . . My attention rested particularly on the symptoms of apathy, dullness, immobility and stereotyped movements, and, on the other hand, playfulness, unconventionality and in general childish behaviour inappropriate to patients with such illnesses (hebephrenia and catatonia). What is this from the physiological point of view? May not the physiologist group these phenomena, see in them a single general mechanism?

We have also been able to study the intermediate phases between the waking state and complete sleep – the *hypnotic phases*. These phases appear to us, on the one hand, as different degrees of the extent of inhibition, i.e., a more or less spreading of inhibition in the areas of the hemispheres themselves and also in different parts of the brain: and, on the other hand, as different degrees of intensity of inhibition in the form of varying depths of inhibition at one and the same place (1941: 39).

Here there are affinities with contemporary top-down cortical inhibition models of hypnosis and hypnotizability (Gruzelier, 1990, 1998; Woody and Bowers, 1994; Woody and Sadler, 1998; Kallio, Revonsuo, Hamalainen, Markela and Gruzelier, 2000a).

‘Studying the aforementioned schizophrenic symptoms I came to the conclusion that they are the expression of a chronic hypnotic state’; ‘. . . one can hardly doubt that schizophrenia in certain variations and phases actually represents chronic hypnosis’ (Pavlov, 1941: 42).

Independently of both Pavlov and Western thinking that tended to be antithetical to Pavlov (as outlined below), King (1957) provided a descriptive account of parallels between hypnosis and schizophrenia. This is also contemporary in its concepts and only the psychoanalytical interpretation does not transcend the psychodynamic theory of its time. King began by citing evidence of impairment in proverb interpretation in hypnosis interpreted as a loss of a critical faculty. This was well documented at the time and since in a sizeable proportion of schizophrenic patients (Payne, 1960). Adopting Bleuler’s terminology (see Bleuler, 1969), King noted that the four

fundamental symptoms – disturbances of association and affect, autism and ambivalence – were all present in hypnosis, as were the symptoms of hallucinations and delusions. Other disturbances of sensation and perception such as distortions of body image also occur in both, as does thought block. This parallel extended to the more tangential symptom, ‘a staring quality about the eyes’, subsequently documented psychophysiologicaly (Myslobodsky et al., 1983), finding a counterpart in hypnosis where blinking is virtually eliminated (Kallio, Revonsuo and Lang, 2000b).

#### *Hypnotic susceptibility and psychosis*

Contemporaneous to the publication of Pavlov’s thesis there was an opposing Western view that psychotic patients were not suggestible or hypnotizable. This led to an investment in what turned out to be a false trail (not the first or last in research on schizophrenia) – namely, that suggestibility and hypnotic susceptibility may prove diagnostic and differentiate between psychosis (non-hypnotizable) and neurosis (hypnotizable). This was disproved eventually. Lavoie and Sabourin (1980) categorized the 23 studies they reviewed into: (a) studies involving waking suggestibility with body sway tests, (b) early studies on hypnotic susceptibility using the Davis and Husband Hypnotic Susceptibility Scale (Davis and Husband, 1931), and (c) later studies (totalling 723 patients) using standardized instruments such as the Stanford scales. When the data from each of the three categories were considered as a whole the conclusion was the same – the mean scores of the patient (psychosis) groups was lower than controls but the distributions overlapped to such an extent as to make discrimination impossible. Furthermore, the patient groups were older than the control groups and in the one study where the groups were matched for age the patients had higher susceptibility levels than controls (Gordon, 1973).

Numerous methodological factors complicate the conclusions of any one study in this field, as in other fields, of schizophrenia research. One answer, as with many conflictual findings about schizophrenia, lies with the diversity of the clinical condition. Schizophrenia is heterogeneous in behaviour and illness process. Numerous attempts have been made to capture this, replacing the original Kraepelinian subcategories over the years with subdivisions such as acute-chronic, process-reactive, good-poor premonitory, good-poor prognosis, Type I and II, positive versus negative. Features that characterized the more suggestible patients (sometimes highly suggestible) with some consistency, but with some exceptions, in the studies reviewed by Lavoie and Sabourin (1980) included acute rather than chronic, which was the most replicable distinction, paranoid and undifferentiated rather than catatonic, and female rather than male, outpatient more than inpatient. This is a loose constellation of features that often accompanies a positive more than a negative syndrome (Gruzeliier, 1999). Unsurprisingly, negativism, paranoid suspiciousness, withdrawal and uncooperativeness militated against hypnosis. As Lavoie and Sabourin (1980) concluded, ‘The recent data would seem to favour the hypothesis of normal hypnotisability in some samples of schizophrenic patients, provided that relevant variables (age, chronicity, type of volunteering and sex) are properly controlled’ (1980: 391).

#### *Treating psychosis with hypnosis*

Historically, there was another side of the coin. Some highly skilled practitioners who were experienced with both therapeutic applications of hypnoanalysis and the nature of schizophrenia have reported beneficial effects in treating psychosis. These have related to establishing rapport, removal of symptoms, changes of attitude and rehabilitation in the workplace (Bowers, 1961; Abrams, 1963; Erickson, 1964, 1977; Guze,

1967; Wolberg, 1964; Lavoie and Sabourin, 1980). As Guze (1967) has theorized, the ability to manipulate hallucinations and delusions with hypnosis provides a means of reorganizing the interplay between inner and outer reality, a disturbance of which is among the defining characteristics of psychosis. Nevertheless this is clearly not an approach that should be undertaken lightly, and is one requiring great caution.

Perhaps the most successful attempt at treating psychosis was reported by Bowers (1961), who observed 5–12 years of remission in 30 chronic ambulatory cases refractory to other forms of treatment and in whom hypnosis was used as a last resort; no mean achievement. Reminiscent of Pavlov, she remarked:

At times one has the definite feeling that schizophrenics are in a kind of perpetual state of auto-hypnosis. This can be most dramatically seen in the ritualistic rockings, tappings and whirlings of schizophrenic children and in chronic deteriorated schizophrenics in state hospitals, but may also be observed in patients in social remission who are ready to share their secrets with the therapist and will demonstrate their methods in moments of rare confidence (1961: 43).

After describing one such case, she went on: 'These patients seem to have learned the tricks of inducing a state of auto-hypnosis in order to withdraw from the vicissitudes of outer reality' (1961: 43). Historically around the same time, similar theorizing about withdrawal as a protective mechanism had evolved in experimental psychiatry (Wing and Brown, 1970), and theoretically remains to be superseded.

*A case of first episode schizophrenia following stage hypnosis*

In the UK in 1998 a unique case came before the High Court where a patient (CG) who had become schizophrenic for the first time within a week of stage hypnosis brought an unsuccessful case against the hypnotist; a landmark case had the decision gone the other way. CG was a 25-year-old french polisher described as quiet and sociable and in a stable relationship at the time of the incident in 1995. He attended a stage hypnosis show where he was hypnotized for 2¼ hours by a stage and television performer. After the show he had a headache, his memory was hazy and his eyes looked glazed. He was unable to sleep until 4.00am. The next day at work he was regarded as having undergone a personality change, laughing loudly and inappropriately and displaying irrational aggression. He reacted to the announcement of redundancies at work with amusement, all of which was out of character. When going to the pub later that day and the weekend that followed he displayed mood swings and involved himself in other people's conversations inappropriately. At other times he was frightened, aggressive and angry. On the third day he saw a jogger and felt compelled to copy him. Five evenings later when due for his karate lesson he appealed to his girlfriend for help. She found him standing in his karate clothes, staring and looking through her. He seemed frightened, constantly asking for reassurance and on a piece of paper he had written that things were wrong, he was out of control, but knew his girlfriend would help him. The following day he broke down in tears at work.

The hypnotist was contacted and denied responsibility, and on a second contact said that he had been advised by a lawyer not to become involved and that the condition was nothing to do with hypnosis. He recommended a psychotherapist who advised CG to wait longer. He saw a GP who recorded over-awareness and loss of concentration. His behaviour continued to deteriorate and he remarked that he felt he was going to die, thought he could stop cars with his eyes, and felt he was climbing a stairway to

heaven and on reaching the top he would die. On the eighth day he saw a psychiatrist and the following day was admitted to hospital where he remained for a month.

On hospital admission he admitted to ideas of reference and hallucinations that involved hearing voices. His emergent symptoms fulfilled a diagnosis of an acute schizophrenic episode following stage hypnosis (Allen, 1995). Although he responded to treatment with neuroleptic he retained residual difficulties, and returned to work continuing to take low-maintenance doses. Seven months later he relapsed after seeing the same hypnotist on television, when he required significant doses of neuroleptic. He did not return to work and was made redundant two months later. Eight months later his psychotherapist advised stopping medication as he seemed well, but within a month he was thought disordered, with racing thoughts, inability to sleep and lack of insight. Following this he required low-dose neuroleptic treatment to prevent relapse.

The writer acted as an expert witness on behalf of the patient. Although the cut and thrust of the courtroom proceedings, a case which the defendant claimed to have spent £1m defending, is of little scientific value, it is of scientific interest for the light it sheds on the development of schizophrenia, aside from the dangers of hypnosis, and for attitudes to the relation between psychosis and hypnosis.

Heterogeneity in the course and in the precipitating factors of schizophrenia  
Despite what could be described as an avalanche of research, little is known about the precipitation of schizophrenia and other forms of psychosis. For this reason alone the incident provides a unique contribution to contemporary psychiatry. Scientific views have polarized and shifted continually and have ranged from the psychodynamic causation that was popular in the 1960s to causation based on a genetically inherited progressive neurodevelopmental disorder which has been popular more recently. Although the judge was persuaded to adopt the latter concept, neither of these extreme views is likely to be correct. In fact, since the court case there has already been a change of emphasis in the UK with the discovery at the Maudsley Hospital that immigrant West Indian schizophrenic patients who dominate hospital admissions show no evidence of pathology in brain scans. At the same time new reviews have succeeded in drawing attention to the considerable reported evidence of childhood abuse in psychotic patients (Read, Perry, Moskowitz and Connolly, 2000), evidence that has existed in scientific journals but that has been overshadowed by the focus on genetic evidence.

Schizophrenia is a heterogeneous disorder not only in symptomatology but also in the course of the illness. One subclassification that has endured half a century in different formulations is the reactive/process, Type I/II distinction (Crow, 1980). Process or Type II schizophrenia is characterized by progressive deterioration in brain function from adolescence or earlier, with an onset before the end of adolescence, marked by deterioration in cognition, personality and psychosocial functions, and having a poor prognosis and response to medication. Reactive or Type I schizophrenia has no obvious neuropathological signs, has good premorbid function, is often precipitated by life event stressors having a strong emotional charge, and responds to medication. In the reactive subtype of schizophrenia the stress diathesis model of schizophrenia is invoked, where the disorder is triggered by a stressful life event acting on a pre-existing vulnerability. Research has failed to disclose any specificity among stressors common to patients.

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CG's case history fulfils criteria for Type I/reactive schizophrenia on all counts. He had a good premorbid picture through to the time of the incident in adulthood when he was aged 25 years. He had left school at 16 with 7 CSEs with average grades, going on to obtain his City and Guilds qualifications with credits and with a distinction in french polishing. He had been diagnosed dyslexic at school. There was no prior evidence of psychological instability, nor was there a genetic association with schizophrenia. The only evidence of psychopathology in the family was his mother's drinking problem. There was no evidence of any deterioration in personality, cognitive or psychosocial function. In fact he had withstood a number of stressful life events previously, none of which had led to prodromal symptoms of schizophrenia. These included his mother's divorce and her taking up with a boyfriend he did not like (at which point he left home in 1989), a motorcycle accident and a drink/driving offence which troubled him with guilt as he had been instrumental in causing it and after which he lost his driving licence for 18 months. In 1992 there was an acrimonious divorce following the departure of his wife, a divorced mother, who had been repeatedly unfaithful to him. When she said she was leaving him, he punched his hand through a fence, breaking a bone. In fact his premorbid personality and response to stress was characterized by hardiness rather than vulnerability. Since then there was nothing to suggest any form of deterioration; on the contrary, he had a good work record and had been in a stable relationship with his girlfriend for the two years leading up to the show. His girlfriend described him as quiet, dedicated to his work and adaptable socially. He regularly attended classes in martial arts. His clinical recovery on antipsychotic medication also fulfilled the Type I/reactive category. In no respects did CG belong to the poor premorbid, process, Type II form of schizophrenia. Accordingly, in the absence of any sign of deterioration, a low pre-existing vulnerability threshold for stress (such that any stress would do) could in my opinion be ruled out, leaving the spotlight to fall on the nature of the stage hypnosis performance as a causative factor.

The potential of the stage hypnosis show for producing adverse reactions  
From the nature of the stage hypnosis show and in the light of what has been reviewed above about the dangers of hypnosis, what was the likely potential for adverse reactions in this case? There was evidence of a high hypnotic susceptibility level, evinced by CG's 'star' rating by the stage hypnotist. There was evidence of high suggestibility, such that once seated in the theatre he felt altered by the ambient disco atmosphere of low illumination and soft music which he described as 'spooky' and which was designed to create a conducive atmosphere for hypnosis. While waiting for the show to start from the fifth row he focused on blue flickering lights spelling out the hypnotist's name, by which he felt mesmerized. When the hypnotist invited participants to come up on stage 'now', he was first on the stage. He said he felt compelled to obey as if he had been given an instruction by his karate teacher.

Although the court did not consider the show to involve 'a particularly high level of stress' or to cause CG 'serious anxiety' (Toulson, 1998), once on stage CG's experience could be construed to be stressful for a number of reasons. The participant was involved continuously both on stage and during the interval for a total of 2<sup>1</sup>/<sub>4</sub> hours, with full emotional involvement and was acknowledged as a star performance. Aside from instructions to perform various acts – believing himself to be a ballet dancer, to imitate Mick Jagger, to be an interpreter for aliens from outer space, and a contestant taking part in the television show *Blind Date* where his date was with an unattractive

person and so on – some instructions had a degree of conflictual involvement and produced overt signs of emotional distress. To give some examples, he was instructed to believe that he had special glasses that enabled him to view people as if they were naked and that he too could be seen naked by the audience. In response to this he covered his genitals, but his hands were removed each time he made an attempt to cover them. He was instructed to believe that unless he paid £5 his innermost secrets would be told to priests, and he was unable to pay as he had given his money to his girlfriend before coming on stage. He was instructed to believe during the interval of the show that he must reply ‘yes’ to whatever was said to him. In fact he was subjected to intrusive questioning, including whether he was homosexual, about which he voiced distress and humiliation. In response to questioning on stage to think of something, of all things he was reminded of ‘a dead dog’, referring to his pet who he had to have put down. The reviving of such a distressing episode is in keeping with a state of negative affect being generated at that stage of the performance. During the interval another stage participant was overheard vomiting, which may or may not have been a consequence of the stressfulness of the situation.

The only shred of odd behaviour before the stage performance was his feeling while waiting for the show to start of being altered and mesmerized by the ambient conditions and flashing lights. This was accepted by the court as evidence that he was already unwell with schizophrenia. However, this is a standard show business strategy, with the primary aim of facilitating hypnotizability in susceptible subjects. If CG’s reaction to these conditions were to be regarded as a feature of schizophrenia, the whole topic of prodromal symptoms and signs in psychiatry textbooks would need to be rewritten.

The adequacy of the dehypnosis procedure was questionable. Towards the end of the dehypnosis countdown, at the word ‘three’, CG moved about the stage as if it were a martial arts command and as if he were hypnotized. This gave the appearance that he was released prematurely. There were clear negative effects immediately afterwards in the form of headache, amnesia and sleep difficulties. Then from the day afterwards, as in the case reported by Barber (1995), there was a personality change. This was followed by a progressive unfolding of psychopathological behaviour, leading to the eventual manifestation of schizophrenia formally diagnosed on the eighth day. There were overt feelings of hostility towards the hypnotist from the evening of the show and a subsequent breakdown after seeing the hypnotist on television (Allen, 1995). In sum there was evidence of prolonged stress as a result of stage hypnosis and vulnerability for experiencing negative sequelae. That there was not a body of relevant contemporary evidence weighed heavily on the judge’s decision.

#### Implications for the hypnotic process and safeguards

The case of CG, who, without a genetic association with schizophrenia and with good levels of premorbid function including hardiness to stress, succumbed to schizophrenia within eight days of being the star of a stage hypnosis show, revives the mostly forgotten evidence for affinities between hypnosis and schizophrenia. As reviewed above, 40 and more years ago, when psychodynamic theories were uppermost in treatment approaches to psychopathology and hypnotherapy was often invoked to remove psychological symptoms, there was widespread awareness of the possible untoward effects of hypnosis and psychotherapy in general (for example, Heyer, 1931; Levine, 1942; Brenman and Gill, 1947; Wolberg, 1948, 1964; Mayer, 1952; Rosen, 1953, 1959, 1960; Rosen and Erickson, 1954; Raginsky, 1956; King, 1957;

Weitzenhoffer, 1957; Ellis, 1958; Gill and Brenman, 1959; Meares, 1960; Tom, 1960; Lomas, 1961; Rosen and Bartemeier, 1961; Auerback, 1962; Abrams, 1963; Levitt and Herschman, 1963; Kleinhauz and Beran, 1981, 1984; Kleinhauz et al., 1984; Judd et al., 1986). This had provoked surveys about untoward effects of hypnosis, and the dangers of hypnosis in psychotherapy were described in textbooks. The danger of producing psychosis in vulnerable individuals or in leading to decompensation in patients with psychosis was a prevailing theme, with the result that hypnosis was excluded from the armamentarium of treatments for psychosis, except in the hands of a few highly experienced clinicians. Ask any practitioner over the age of 60 years whom they would not administer hypnosis to and top ranking will be given to individuals with a psychiatric vulnerability. It was surely for this reason, and not some benign metamorphosis or transformation of hypnosis following the 1960s, that there was a decline in reported incidences of untoward effects on psychotic patients, leaving reports of incidents with neurotic patients. It is this legacy that has led to the widespread recognition that it would be reckless for people with known psychopathology to participate in hypnosis for entertainment.

The danger exemplified by the case of CG has implications for the nature of aspects of the hypnotic process, the nature of aspects of hypnotic susceptibility, and for methods of strengthening safeguards against unwanted effects of hypnosis. First, similarities have already been drawn between the neurophysiology of schizophrenia and hypnosis. Both involve selective alteration of anterior brain functions, with the outcome of dissociation between anterior brain functions and other brain regions. The alteration of anterior brain mechanisms in the direction of selective hypo-function or inhibition underpins processes such as voluntary control, planning and evaluative functions. Then, unlike experimental and clinical uses of hypnosis, in hypnosis for entertainment a substantive part of the typical show is taken up with the demonstration of hypnotic illusions and of assuming identities of others, all against a background of stress. Of course these processes are not the same as analogous measures in schizophrenia, but the processes are assumed to share a common neurophysiological basis. As Kosslyn, Thompson and Constantini-Ferrando (2000) have shown with positron emission tomography, visual illusions in response to instructions of hypnosis in high susceptibles produce changes in brain function congruent with the illusory perception – changes that would not have occurred if the participants were role playing.

This affinity, not commonality, raises the question of whether the field of research on predisposition to psychosis could be relevant to the nature of hypnotic susceptibility and unwanted sequelae? People with such predispositions may be at risk for unwanted cognitive reactions. Should this be the case, then a methodology would be available for identifying subjects at risk for unwelcome cognitive effects of hypnosis. In seeking to identify such people one relevant field of research concerns the schizotypal personality. The schizotypal personality is conceptualized as lying on a dimension between normality and schizophrenia (Claridge, 1985). Schizotypy, like schizophrenia, is syndromal – having features of unreality described by scales of magical thinking and perceptual aberrations, features of withdrawal such as social anxiety, loneliness and constricted affective expression, and odd, acting out and cognitively disorganized behaviour (Chapman, Chapman and Raulin, 1976; Raine and Allbutt, 1989; Gruzelier, 1996a).

One corollary of the writer's perspective on affinities between hypnosis and schizophrenia is that high hypnotizables should score highly on some features of



schizotypy scales, notably the unreality syndrome consisting of perceptual aberrations and magical thinking. Other features of schizotypy conceivably may militate against hypnotizability. For example, withdrawal and its syndromal component social anxiety may make subjects afraid of complying with instructions of hypnosis and certainly would act as a deterrent for participating in stage hypnosis (and so reduce the likelihood of negative sequelae arising from stage hypnosis).

In fact, Pekala and colleagues, in a programme of research on the phenomenology of altered states of awareness, have provided some direct and indirect support for these hypotheses. Kumar, Marcano and Pekala (1996) found positive correlations between both the subjective and behavioural subscales of the Harvard Group Scale, the Dissociative Experience Scale and Pekala's Phenomenology of Consciousness Scale (PCS) (Pekala, 1991), both of which include features of the unreality syndrome. Considering relations between the Harvard Group Scale and the PCS subscales, the subscale Altered Experience (which included alterations in body image, meaning, perception and time sense and which has parallels with the unreality syndrome) correlated  $r=0.50$  with the Harvard scale (Pekala and Nagler, 1989). Turning to negative relations, in examining the relation between hypnotizability assessed by the Harvard Group Scale and two features of the negative schizotypy syndrome, McCloskey, Kumar and Pekala (1999) found that physical anhedonia correlated negatively with hypnotizability whereas there was no relation with social anhedonia and state and trait depression; my hypothesis would also have predicted a negative association with social anhedonia.

Preliminary neurophysiological research in my laboratory has found parallels in separate experiments with a psychometric measure of schizotypy unreality and with hypnotizability measured by the Harvard Group Scale. This involved the dynamics of the development in cortical evoked potentials of mismatch negativity (MMN) between unattended deviant and standard stimuli. MMN is an index of auditory sensory memory. It is involuntary, with the consequence that it is not amenable to the confound of task demands. In separate groups of medical students there was a delay in the development of MMN both in high hypnotizables when compared with low scorers on the Harvard Group Scale and in high scorers on the schizotypy unreality syndrome scale when compared with low scorers. The same delayed development has characterized schizophrenic patients in our laboratory (Baldeweg, Klugman, Gruzelier and Hirsch, 2000). For the reader unfamiliar with the fields of schizotypy and schizophrenia, measures of unreality in schizotypy are not the same as analogous measures in schizophrenia. The theoretical position of the field is that although they do not share the same identity, the processes are assumed to share a common neurophysiological basis. The same applies to unreality experiences in response to instructions of hypnosis.

In conclusion, whether hypnosis and psychosis shared underlying mechanisms, as also proposed by Pavlov, King, Bowers and Guze, is a question only recently coming within the reach of scientific investigation. This orientation has served to outline a new direction of research that could help identify participants vulnerable to unwelcome cognitive and psychopathological reactions to hypnosis. Whether the sharing of mechanisms in common could also be turned to advantage through the ability of hypnosis to manipulate hallucinations and delusions in order to reorganize the interplay between inner and outer reality, as Guze (1967) theorized, will require consummate therapeutic skill.

**The unwelcome, unwanted effects of hypnosis: acknowledgement and research**

In concluding, it is the writer's persuasion that the responsible contemporary scientific attitude should be to acknowledge that untoward effects of hypnosis do exist, to educate all practitioners about them, to put safeguards in place to minimize their likelihood, and to consider the mechanisms that underlie them in order to facilitate the adoption of safeguards. Recognition is handicapped by the fact that unwanted after-effects are discomfiting for the field of clinical hypnosis and its interface with an increasingly litigious world. They are discomfiting for theoreticians from the sociocognitive school in that explanations of hypnotic behaviour that rely on compliance or goal-directed striving do not sit easily with sequelae such as recurrent headache, seizure and psychosis; sequelae for which explanations in terms of purely psychosocial dynamics such as embarrassment or anxiety fall short.

Education about unwanted effects and safeguards should be a requirement for all practitioners. Recommendations have been advanced on numerous occasions and will not be restated in detail here. MacHovec (1986) made three broad recommendations:

1. The practice of hypnosis requires the demonstration of a level of knowledge, skills and supervised training in therapy approaches relevant to the problem being addressed. Most professions require their members to offer treatment only in those fields in which they have appropriate training. The protection of the patient requires that this limitation be maintained.
2. Adequate training and accreditation procedures need to be in place to ensure the patient is not subject to treatment approaches of which the practitioner does not have adequate understanding.
3. Lay practitioners lacking in the appropriate level of psychological and clinical training are, therefore, more likely to encounter and cause adverse reactions. They are less likely to be able to respond to them therapeutically and ensure the patient's recovery.

Similarly, Kleinhaus and Beran (1981: 149) have observed:

The hypnotist who lacks professional psychiatric, medical, psychological, or dental training will most likely be unable to recognize or perceive messages of distress or emotionally meaningful signs from the subject. Even if he senses signs of distress, he will tend to reject, reinterpret, or ignore these signs, because he lacks the ability to understand or to cope with this distress. Since he lacks the skills based on psychodynamic understanding of the processes involved, he cannot intervene to redirect them or to utilize them in a constructive manner. His own anxiety will be exacerbated by this inability, and he will respond in an anxious way to this perceived helplessness. Meanwhile he will have thrust the subject into what may be the start of a vicious cycle.

Programmatic research on unwanted effects is overdue and will be difficult to achieve. The haphazard and the out-of-the-ordinary life of the more accessible college student subjects makes comparative studies problematical; studies on students may not generalize to the adult population. As a consequence of the failure to address this, aside from other shortcomings, little can be concluded from the two comparative studies that do exist (Faw et al., 1968; Coe and Ryken, 1979), despite their uncritical acceptance by other commentators. A pall of silence over the past

decades of clinical applications, for possible reasons alluded to above, thwarts research on more serious effects in a clinical setting. For similar reasons, hypnosis for entertainment, as long as it continues to exist, is unlikely to present researchers with active collaborators.

Aside from laboratory investigations to monitor psychosocial and psychophysiological effects aimed at elucidating process factors, questionnaires could be developed to identify participants at risk and then be usefully applied in experimental and clinical settings; stage hypnotists will lack the training to use them. Strategies begun by Crawford and colleagues (1982) and Page and Handley (1993) aimed at reducing unwanted effects in the laboratory could be developed further. Crawford's attempt at raising arousal at the end of hypnosis could incorporate extended instructions of mental alertness before dehypnosis to complement the physical stretching exercises and conversation that followed hypnosis. These may help to bring levels of arousal back to normal and so avoid headache, one of the commonest of the less serious negative effects.

MacHovec (1986), who provided a comprehensive review of adverse effects 15 years ago, has estimated that stage hypnosis has produced double the risks of clinical and experimental applications, as did Schultz (1954) much earlier. Undoubtedly, the greatest contribution to eliminating more serious untoward effects of hypnosis would occur through discontinuing any application of hypnosis for entertainment, unless this was restricted to qualified professionals with requirements that conditions be created for rigorous screening, dehypnosis and follow-up practices.

Currently, lack of credentials aside, the context of stage hypnosis does not allow adequate safeguards to be put in place. Without them I concur with Echterling and Emmerling (1987) and Mott (1992), who concluded that stage hypnosis poses risks that are unacceptable and outweigh its potential benefits. In our entertainment-saturated culture, with its craving for 'reality' entertainment, the pleasure of the majority cannot justify the risk of inflicting tragedy on a few.

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