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Mental Control: The War of the Ghosts in the Machine

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Sometimes it feels as though we can control our minds. We catch ourselves looking out the window when we should be paying attention to someone talking, for example, and we purposefully return our attention to the conversation. Or we wrest our minds away from the bothersome thought of an upcoming dental appointment to focus on anything we can find that makes us less nervous. Control attempts such as these can meet with success, leaving us feeling the masters of our consciousness. Yet at other times we drift back to gaze out the window or to think again of the dentist's chair, and we are left to wonder whether mental control is real—and, if it is, how we might exercise it effectively.

THE NATURE OF MENTAL CONTROL

One way to approach this problem is to assume that mental control is a real phenomenon, ask people to exercise it, and see what happens. Some noteworthy regularities in the effects of mental control become evident on following this line of inquiry. This chapter is about experiments we have conducted in which people are asked to control their minds while they are

describing the course of their thoughts. We begin by describing the course of our own thoughts.

A "Tumbling-Ground for Whimsies"

Mental control is connected to two of the most important controversial concepts in psychology—consciousness and the will. Even William James, a champion of the study of things mental, warned that consciousness has the potential to make psychology no more than a "tumbling-ground for whimsies" (1890, Vol. 1, p. 163). Psychology since James has echoed his concern. Although the idea of altogether abolishing consciousness from psychology only held sway at the peak of behaviorism, even after a cognitive revolution there remains a preference for the study of mind through its processes rather than its conscious content. The will, in turn, is relegated to the status of illusion by many—among them Gilbert Ryle, who called it the "ghost in the machine" (1949, p. 15). The question, then, of whether the will can operate upon consciousness is doubly troubling.

James held that we exert our wills by "effort of attention" (1890, Vol. 2, p. 562). He voiced the useful intuition that we do one thing as opposed to another by steering our consciousness. *How* we do this, however, is unclear. We appear to attend to one thing as opposed to another by—well, by just doing so. James's account only indicates that the willful movement of consciousness from one object to another feels like work, and that this movement can be contrasted with those cases in which our attention is drawn, seemingly without our effort, by forces beyond our will. Mental control is, in this light, one of the irreducible elements of conscious experience. This irreducibility is one of the puzzling aspects of mental control that has left those inclined to deal with this issue talking of ghosts and whimsies.

It is possible to study the operation of mental control in a useful way, however, without any further insight into this puzzle. One need only assume that there is a cognitive process responsible for activating and deactivating attentional mechanisms according to priorities that are reflected in conscious thoughts. A scientific understanding of this process does not require that we be able to see into it as we do it, any more than a science of movement requires that we have insight into the enervation of our muscles as we walk like a chicken. It is time to set aside the dissection of the conscious experience of willing, and study instead the observable circumstances and consequences of this experience.

There is one other feature of mental control that has given it a reputation as a phantom of the ganglia. Mental efforts sometimes fail, and we do not know enough about mental control to understand why this happens. Sometimes the right idea will not come, despite furrowed brows, squinted eyes, and all the deliberate concentration one can muster. This may not at first seem strange, because efforts of all sorts frequently fail.

But we find it surprising because whereas the effort to make a thought appear on command sometimes does not work, seemingly similar physical efforts rarely fail in the physically healthy. It is not odd to say that "I couldn't get it out of my mind" or "I couldn't concentrate on the idea," but it seems most peculiar to say that "I couldn't make my finger move."

Even mental control that is initially successful can subsequently falter. Unlike physical effort, which, once initiated, typically suffers few indigenous interferences (i.e., other than from physical restraint), our thoughts seem remarkably capricious. On good days our thoughts are as precise as a hawk gathering small rodents, but more often our thoughts seem like fluttery butterflies that not only fail to stay put for long but are subject to the winds of competing thought. Try as we may, we cannot concentrate on reading a novel or solving an equation when there are interesting distractions nearby. Or we may struggle to make particular thoughts go away in the midst of a sleepless night, only to have them return all too soon. And it is something of a universal tragedy that when we attempt to reject thoughts of hot fudge sundaes from our minds while dieting, we must usually watch as they then march through our imaginations again and again.

The Aims of Mental Control

There are two general goals to which we aspire in controlling our minds: having something in mind, and not having it in mind. Psychology gives us many terms for each. Having something in mind is "thinking," "attending," "retrieving," "perceiving," "encoding," and so on; not having something in mind is "forgetting," "denying," "repressing," "avoiding," "filtering," and so forth. The activities in which we engage when we consciously attempt to achieve one of these states are most generally called "concentration" and "suppression," respectively. Although there are other potential goals for mental control—one, perhaps, for each mental operation people can perform—it is clear that these are most fundamental. If we could not concentrate or suppress, it seems there would be little else we could do to our minds.

Normally, when we are thinking of one thing, we are not thinking of something else. Cognitive psychologists have often held that this dual function of the process of attending suggests the operation of two subprocesses, one that brings items to attention and one that filters out everything else (e.g., Broadbent, 1958). The central idea here is that *both* processes must be operating at all times in order to keep one thing in our conscious attention. If we assume that mental control processes are simply willful versions of such automatic processes, then we can suggest that concentration and suppression are typically associated. In concentrating on X, we suppress not-X; by the same token, in suppressing X, we concentrate on not-X.

By this logic, the two processes are always simultaneous. The reason we have different names for them and experience them as distinct is that we try to do one at a time (and the other follows). So, for instance, we may try to concentrate on writing a book chapter (and suppress thoughts of other things, such as going swimming). Alternatively, we may try to suppress a thought, say, of smoking a cigarette (and concentrate on other things, such as eating). In either case, we are primarily aware of intending only one of the processes, but we nevertheless must use the other process as well in order to fulfill our intention. This is true because both processes are versions of the "effort of attention" described by James, and we cannot move attention toward something without at the same time moving it away from something else.

The simultaneity of concentration and suppression suggests that there are two distinguishable forms of each process. First, there are primary and auxiliary forms of concentration; primary concentration is attending to something because we want to do so, whereas auxiliary concentration is attending to something because we wish to suppress attention to something else. In a similar vein, there are primary and auxiliary forms of suppression. Primary suppression is keeping attention away from something because we want to do so, whereas auxiliary suppression is keeping attention away as a means of concentrating on something else. Primary concentration is thus accompanied by an auxiliary suppression (as when one avoids thinking about the noise down the hall in order to study). And primary suppression brings with it an auxiliary concentration (as when one tries not to think of a broken romance by focusing on a television program).

Our studies of mental control have centered on the case of primary suppression with auxiliary concentration. This is the form of mental control that people appear most anxious to have, in large part because lapses of suppression announce themselves intrusively. We know quite clearly when an unwanted thought returns to consciousness. In a sense, our plan to suppress marks the thought as something of which we must be wary, and its return is thus heralded by an immediate reorientation to the suppression problem. By contrast, when we merely try to concentrate, it is quite possible to lose sight of the plan and mentally drift away, for minutes or perhaps even days. The only sign that we have failed to concentrate occurs if we happen in our mental meandering to stumble across the concentration target. And even then, the concentration target and our earlier failure do not seem to burst into our minds with nearly the force of a returning unwanted thought.

The reason for examining suppression rather than concentration, in short, is not too far removed from the sheer love of sport. When people concentrate, the purpose of mental control is to maintain a line of thought. In a sense, one part of the mind is cheering on another. But when people suppress, the purpose of mental control is to challenge a line of thought.

One part of the mind is set to defeat another. Skirmishes can break out on many mental fields of battle, and the most placid, unsuspecting states of mind can be ambushed from the blue by unwanted thoughts. Thought suppression is thus an occasion for mental conflict, a true war of the ghosts in the machine.

THE CASE OF THOUGHT SUPPRESSION

The fact that we sometimes suppress thoughts because they are painful is no surprise either to introspective laypeople or to readers of Freud. Sometimes mental pain seems as unbearable as its physical counterpart, and one does not have to be a committed hedonist to recognize that painful stimuli are typically avoided. Freud, of course, built much of his theory around such episodes. Although our work has not been much oriented toward Freudian ideas, he offered many masterful insights not only about the unconscious but the conscious part of mental life. We begin by considering his approach, and then turn to the basic problems of why people suppress, how they do it, what effect their efforts have, and how they might do it most competently.

Freud and Forgetting

Unfortunately, Freud was often most vague at the point where he should have been most precise, and it is hard to extract a consistent theory about the mental life from his work. This is especially true in the case of his accounts of suppression and repression. For example, it is commonly assumed that Freud made a sharp distinction between conscious "suppression" and unconscious "repression." In fact, he continuously and throughout his career used the terms interchangeably; furthermore, he never stated explicitly that repression referred only to pushing conscious material into the unconscious (cf. Erdelyi & Goldberg, 1979).

Freud preferred a broad definition of repression: "[T]he essence of repression lies simply in the function of rejecting and keeping something out of consciousness" (1915/1957, p. 105). It is certainly true that many (indeed, most) of the examples he used invoke a stronger and more popular sense of the term, involving the unconscious, but it is also true that he was generally perfectly explicit that removing cathexis (roughly, attention, in this context) from an idea was a sufficient condition for repression, defined as above. As far as we know, the closest he ever came to distinguishing between suppression and repression came in a long footnote in Chapter 7 of *The Interpretation of Dreams*: "For instance, I have omitted to state whether I attribute different meanings to the words 'suppressed' and 'repressed.' It should have been clear, however, that the latter lays

more stress than the former upon the fact of attachment to the unconscious" (Freud, 1900/1953, Vol. 5, p. 606).

Psychoanalysts have now focused for many years on the notion of unconscious repression to the exclusion of simple suppression. Although Freud himself can surely be faulted for promoting this particular line of orthodoxy in psychoanalytic theorizing, his primary concern was in how we keep former ideas from recurring. This activity could involve suppression alone, and certainly need not depend on either unconscious motivation or memory erasure, the central features of classical repression. Each of these features of the concept of repression has served in its own way as a theoretical albatross.

The dogma of unconscious motivation, for example, requires that research on repression must typically arrive at the scene after the fact. We cannot know beforehand exactly what unconscious motive might be energized, nor when that motive might act, nor which particular conscious thought it might choose as a repression target; these things are all deeply unconscious. So, according to psychoanalysis, we must typically wait until after a repression has happened and then bring in the research crew to sift the ashes. For this reason, repression has seldom been approached as a cognitive process, and the research in this area has typically settled instead on the far weaker tactic of isolating individuals who tend to repress, and examining their other personality characteristics. This circuitous avenue of inquiry has met with some success (see, e.g., Davis, 1987), but of course cannot clarify the repression process itself.

Classical repression theory does make the strong prediction that memory can be erased, however, so much research has focused on this claim. It is in this domain that the Freudian notion of repression has received its most stunning disconfirmations. Holmes (1974) reviewed a long list of studies of repression and found no clear evidence for the occurrence of forgetting motivated by ego threat. Erdelyi (1985) sympathetically reviewed a series of his own and others' studies of hypermnesia (the retrieval of more information from memory than was retrievable at an earlier point), and concluded that no fully convincing demonstration had yet been made. Although there are many clinical cases of amnesia (e.g., Breznitz, 1983; Rapaport, 1959), and a variety of indications that physical illness or injury can render memory inaccessible (e.g., Yarnell & Lynch, 1973), there is little indication that the widespread and frequent memory losses Freud envisioned are at all so common in daily life. Studies of hypnotic amnesia (see Kihlstrom, 1983) and directed forgetting (e.g., Geiselman, Bjork, & Fishman, 1983) show instead that certain memory processes under voluntary control (e.g., the avoidance of rehearsal at encoding) may on occasion contribute to the occurrence of motivated forgetting.

What all this means is that the topic of thought suppression per se is relatively neglected and misunderstood. Consciously keeping a thought from consciousness is the task of suppression, and we know comparatively little

about how such an activity proceeds. Do people control their minds, not by forgetting, but by failing to access thoughts that are nonetheless accessible in memory? Such "selective inattention" could perform many of the tasks that psychoanalysts have counted on unconscious repression to accomplish. Indeed, several theorists have argued that inattention is all we need to avoid painful affect (e.g., Klinger, 1982). One need not forget a thought forever, and also forget the forgetting, merely to remove the thought from one's focus of attention. All that is required is thinking of something else, and continuing to do so.

Why Do We Suppress?

There are many possible answers to the question of why a thought might be unwanted. Freud suggested several answers, but offered no unified picture of why people suppress. His most general theme was that those instinctually driven ideas that fail the censor's and/or superego's tests of acceptability will be suppressed. In Freud's earlier writing, he stressed the unacceptability of ideas as a direct motive for repression, whereas in his later work he was more inclined to stress the anxiety aroused by the ideas as the motive force behind repression. In any event, he never suggested (as did many of his followers) that suppression exists only for "dirty" thoughts. Indeed, in his work on dreams and his subsequent theoretical work, he often referred to pain in the broadest possible sense as a motive for repression.

A broad desire to avoid unpleasantness does not account fully, however, for a number of instances in which people tend to engage in suppression. It is possible to refine this global motive into at least three distinct categories (Wegner, 1988, 1989). One general class of such instances involves efforts at *self-control*. When people diet, try to quit smoking, attempt to get more exercise, try to stop using drugs, want to avoid alcohol, resolve to watch less television, or even attempt to break off a destructive or unhappy relationship, they usually find that they desire to suppress thoughts of the unwanted activity as well. Any straightforward definition of "pleasantness" would not class thoughts of food, alcohol, drugs, and the like as unpleasant, especially to the person who is feeling deprived; for this reason, it seems useful to suggest that instances of self-control can make thoughts *unwanted*, even though they may not be strictly unpleasant.

A dedicated psychoanalyst might note that the agonies of self-control are consistent in some respects with the struggles Freud envisioned between id and superego. We would concur with this, but expand this characterization to speak of self-control as a clash between habitual, automatic processes spawned by a history of appetitive contact with an entity, and enlightened, controlled processes attempting to redirect behavior. Mental control, in this analysis, is the first step toward any sort of self-control.

One must avoid thinking of the addictive object in order to stop the instigation of the addictive behavior. The only way to bypass the exercise of mental control in these circumstances is to act precipitously to prevent oneself from ever performing the unwanted behavior—padlocking the refrigerator in the case of food, perhaps, or avoiding alcohol by moving to Saudi Arabia.

A second source of suppression occurs in the need for *secrecy*. There is nothing that can instigate suppression faster than the threat that something normally private might be made public. The prototypical situation occurs when one encounters a person from whom a secret must be kept. With the person present, it is deeply tempting to blurt out the secret whenever it comes to mind—or at least one worries that this will happen. Thus, one makes a special point of suppressing the secret thought whenever the relevant person is around. The range of relevant people differs for different secrets, of course, and at the extreme one may find oneself suppressing a thought whenever anyone at all is present or even imagined.

This cause of suppression is strongly social in origin, forged in large part by the schism that inevitably develops between our private thoughts and our public lives. Self-deception is, in this sense, the child of social deception. We admire someone from a distance, for example, and because we fear our sentiments will not be reciprocated, we keep quiet about our feelings. We must hold this back each time we are in the person's presence, and we become a dithering caricature of ourselves as we work so hard to be normal. Alternatively, there may be some occurrence in our childhood that we have never troubled to tell anyone about. It may not even be particularly traumatic (in the Freudian sense), but the secrecy alone is enough to make us try not to think of it when we encounter potential audiences (Pennebaker, 1988). Other instances occur when we harbor discriminatory opinions of someone and work extra hard at suppressing our usual disparaging thoughts to keep from appearing prejudiced when the person is around to notice (see Fiske, Chapter 8, this volume). The source of our secrets, in sum, can be concern about any social, moral, or personal blunder, but the most socially unacceptable secrets tend to spawn the greatest suppression.

The third wellspring of suppression can best be called a motive to find *mental peace*. Quite simply, we sometimes observe that we are thinking something too often for our liking. A dream is repeated several nights in a row; we notice we keep toying with a lock of our hair; the unnamed pain in our chest reappears each time we feel stressed; or the same worry about our family's safety comes up over and over. The mere repetition of a thought may be sufficient to suggest to us the need for mental control, and we try not to think of it. Such thoughts are not necessarily abhorrent because of any special unpleasantness, although they can be; rather, we hope to suppress them because we have decided we are thinking them too often. The decision that a thought occurs "too often" will often be based, of course,

in some unwanted emotional reaction that the thought engenders. This motive thus can encompass a wide range of what Freud imagined as the beginnings of suppression or repression—all those thoughts that are too disturbing to think because they produce negative affect. For many such thoughts, even one occurrence is too many, and in search of mental peace we put them aside as soon as we can.

These sources of suppression—self-control, secrecy, and mental peace—are not mutually exclusive. Many cases of keeping secrets, for example, can be cast as instances of self-control as well, and the pursuit of mental peace may be the conscious desire that arises during mental control attempts originally set in motion by self-control or secrecy. Partitioning the sources of mental control in this way is not meant to provide an exhaustive system of independent motivational categories. Indeed, these three sources of the urge to suppress could well be seen as subservient to some more general motive, such as esteem maintenance, control, or the like. This partition is useful as a way of highlighting the principal everyday circumstances in which mental control is engaged: when we are dissatisfied with ourselves, when we hide things from others, and when we are not at peace in our minds.

How Do We Suppress?

The strategies people use to suppress unwanted thoughts can be described as either direct or indirect. A direct strategy, as noted earlier, is primary suppression through auxiliary concentration—actively trying to think of something else. The indirect strategies are many; they include such devices as using alcohol, engaging in strenuous physical activity, or performing some palliative action that makes the unwanted thought less intrusive (e.g., coming back home to check whether the stove was really left on). When suppression is auxiliary to the attempt at primary concentration, we may also call the suppression attempt indirect. Many forms of psychotherapy can also be classed as indirect forms of suppression, in that attempts at problem-solving, emotional expression, cognitive restructuring, and the like are commonly addressed toward the elimination of unwanted thoughts. Only “thought stopping” (Wolpe & Lazarus, 1966) verges on a direct therapeutic approach. With this technique, the client is taught to call out “stop” whenever an unwanted thought occurs in a therapeutic session, and is encouraged to continue this procedure covertly outside the session.

When people are asked to describe their own strategies for coping with everyday obsessions and worries, the most frequently mentioned tactic is the perfectly direct one—simple self-distraction (Rachman & de Silva, 1978). Respondents say they try to think about something else. People who report worrying too much appear to point to this tactic as well. They blame their worry on a personal inability to distract themselves, claiming

that for them, worry subsides only in the presence of attention-demanding environmental events (Borkovec, Robinson, Pruzinsky, & DePree, 1983). The accuracy of self-reports of the relative usage of different tactics is debatable, however, because certain tactics may simply be more evident to the self-reporter than others, independent of their actual usage. Suffice it to say that in everyday life, the suppression of thoughts by direct mental control happens enough that people notice it.

In the laboratory, this tactic is easily observed as well. Subjects in our initial study of thought suppression were asked to spend a 5-minute period verbalizing the stream of their thoughts for tape recording (Wegner, Schneider, Carter, & White, 1987, Experiment 1). They were prompted to think aloud, verbalizing every thought, feeling, or image that came to mind, and were assured that the recordings would be completely confidential. The subjects were then asked to continue their reporting, but some were now to follow an additional instruction: "In the next 5 minutes, please verbalize your thoughts as you did before, with one exception. This time, try not to think of a white bear. Every time you say 'white bear' or have 'white bear' come to mind, though, please ring the bell on the table before you."

Subjects given this instruction typically began by describing their plan to suppress: "Okay, then, I'll think about the light switch instead," or "I guess I'll talk about my sister's operation." As a rule, this auxiliary concentration succeeded for some time, as the subject talked on about the chosen replacement for "white bear." But overall, the self-distraction tactic was not very successful: Subjects rang the bell a mean of 6.1 times in 5 minutes and mentioned a white bear a mean of 1.6 times in the period as well. The degree of thinking about a white bear did decrease over the experimental session, however, such that by the final minute of the period most subjects no longer reported more than one occurrence (mention or bell ring).

We made another observation in this study about how people suppress, and though it did not seem important at the time, it has turned out to be a crucial one. Most of the time, people carried out their suppression by concentrating in turn on each of a wide variety of different items; this seemed to be a kind of *unfocused self-distraction*, a wandering of thought to one item after another, seemingly in search of something that might be truly interesting. The flip side of this approach, then, was a tactic of *focused self-distraction*, always turning to one thing as a distracter whenever the unwanted thought intruded. This second sort of distraction is the only thing that psychologists encourage people to do in research on how distraction can dull pain, emotion, and the like (see McCaul & Malott, 1984), so no one has ever really considered the unfocused variety before—despite its apparently greater popularity. As it turned out, the subsequent effects of thought suppression are highly dependent on the difference between the focused and unfocused strategies.

With What Effect Do We Suppress?

The white-bear study was arranged to examine also what happens to thinking when the need for suppression is over. The subjects who were asked to suppress in the experiment were asked in a final time period to continue their stream-of-consciousness reports, this time with the instruction to think of a white bear. These subjects showed a level of thinking about a white bear (15.7 bells and 14.4 mentions) significantly greater than that shown by subjects in a comparison group who were asked from the start (immediately after the practice period) to think about a white bear (11.8 bells and 11.5 mentions). In short, the mere act of avoiding a thought for 5 minutes made subjects oddly inclined to signal a relative outpouring of the thought when thinking about it was allowed. We found not only that the absolute level of thinking of a white bear was greater in this group, but also that there was an accelerating tendency to think of a white bear over time. That is, whereas thinking about a white bear in all the other conditions of the experiment declined over the 5-minute session, in those subjects expressing after suppression, the level of thinking continued to increase.

This pattern suggests a “rebound” effect—an increase in preoccupation with a thought that was formerly suppressed. Much of our work on thought suppression has been prompted by the many parallels between this effect and a wide array of familiar phenomena in psychology. Certainly, Freud (1914/1958) was among the first to point out that an attempt to deny or repress a thought might lead to a subsequent obsession (conscious or unconscious) with that thought. But other observers have remarked on many kindred effects: The suppression of grief following a loss appears to hamper coping and amplify the later grieving that is exhibited (Lindemann, 1944); the suppression of thoughts about a surgery prior to its occurrence foreshadows great anxiety and distress afterwards (Janis, 1958); the suppression of thoughts about eating may be one of the features of dieting that leads to later relapse and binge eating (Polivy & Herman, 1985); the suppression of thoughts about early traumatic occurrences can portend later physical illness and psychological distress (Pennebaker, 1985; Silver, Boon, & Stones, 1983); the failure to express emotions can lead to subsequent emotional problems (Rachman, 1980). In short, the rebound effect in the white-bear study reminded us of many things, and we wondered whether it might provide a laboratory setting within which these phenomena might be explored.

The first step in such exploration must be the development of a theoretical understanding of the phenomenon. Why is it that suppression yields a later rebound of preoccupation? At this point, the distinction we observed between focused and unfocused self-distraction again becomes relevant. If someone spends the entire suppression period in unfocused self-distraction, it is likely that the person will think about many things, both

in the laboratory setting and outside it. Each of these things will be concentrated on for a short time, usually as a replacement for a white-bear thought. All these topics will then become linked to a white bear in the person's mind by virtue of their single common quality—they are *not white bears*. Many different distractors, in short, become associated with the unwanted thought. It makes sense, then, that when these former distractors are encountered once more (say, in the later period when expression is invited), they serve as reminders of the earlier unwanted thought. The rebound may stem, then, from the special way in which people enlist their ongoing thoughts to help distract them from the thought they are trying to suppress.

We have tested this idea in several ways. In our first follow-up on the white-bear study (Wegner, Schneider, Carter, & White, 1987, Experiment 2), we tested this explanation by replicating the original experiment with one exception: Some of the subjects in the group who were asked to suppress white-bear thoughts were given a brief instruction to engage in *focused* self-distraction. They were told after the suppression instruction, "Also, if you do happen to think of a white bear, please try to think of a red Volkswagen instead." This group, when later given the chance to express thoughts of a white bear, did so at a significantly reduced level. Unlike the subjects in this study who were allowed to go their own way (and who typically used the unfocused, "think-about-anything" method), these individuals experienced a noteworthy drop in the rebound of the unwanted thought.

One lesson to be gleaned from this study is that wild-eyed ranging about for distractors is not a good method for thought suppression. True, this may be all that seems possible in the face of a particularly daunting unwanted thought. But it is more likely that one will defeat the rebound effect by choosing one special distractor and turning to it whenever the unwanted thought comes to mind. This tactic presumably prevents all the other things one might think about—whether they arise in memory or are instigated by observation of one's surroundings—from becoming cues to the unwanted thought. The focused distractor becomes the primary cue to that thought, and because it is not especially salient during the later expression period, there is no strong cuing of the unwanted thought to yield a rebound of preoccupation.

We find that in talking to people about this experiment, several have reported using their own versions of focused self-distraction. Often, the single distractor that is chosen in these cases is a religious one—thoughts of God, engaging in prayer, and so on. Others report doing arithmetic in their heads. In any case, we would predict that the single focused distractor might become a fairly strong reminder of the unwanted thought if suppression went on long enough, and thus could itself become unwanted (unless it were somehow absolved of its distressing tone by virtue of pairing with other, more positive experiences). We did not test these kinds of

conjectures in the red-Volkswagen study, but they do suggest an interesting line of inquiry.

A different set of derivations from the observation of unfocused self-distraction was tested, however, in subsequent research (Wegner, Schneider, McMahon, & Knutson, 1989). This research examined the hypothesis that thought suppression in a particular context tends to "spoil" that context for the person; it makes that context an unusually strong reminder of the unwanted thought. This notion follows from the idea that when people engage in unfocused self-distraction, they pick many of the different distracters they will use from their current surroundings. These surroundings, later on, can become reminders of the unwanted thought and so may serve to cue the rebound of preoccupation when expression is allowed.

This research called for some subjects to complete the usual sequence of thought suppression followed by expression (or the comparison sequence of expression followed by suppression) in one context—a laboratory room in which a set of slides on a single theme was being shown. Subjects saw either a slide show of classroom scenes, or one of household appliances. Other subjects participated with different slide shows appearing during the initial and later periods of the experiment. We expected that subjects in this latter group who suppressed in the context of one slide show and then expressed in the context of another would show little of the rebound effect, and this is what happened. The degree to which the participants expressed the thought following suppression in a different context was reliably less than the amount of expression following suppression in a constant context. Therefore, the rebound effect was most pronounced when people distracted themselves by thinking about their surroundings, and then thought of the surroundings again when they were allowed to consider the formerly suppressed thought.

The implications of these findings are quite practical. The results suggest, for example, that residential treatment facilities for addictions, alcoholism, overeating, and the like may have a common benefit. Getting away from home during treatment may help, all by itself. Because people suppress thoughts of their forbidden behaviors in the strange surroundings of the facility, they may come to associate many of the features of the facility with their particular self-control problem. When they leave, however, these reminders are left behind, the rebound of preoccupation is disrupted, and there would seem to be a much greater likelihood of long-term success for the treatment. When we are bothered by unwanted thoughts at home or at work, though, it is tempting to suppress them right there. This strategy is likely to fail, for when we try to divest ourselves of a thought in a place, we seem in a sense to leave it there—only to find it again when we return.

Our work on suppression to date indicates, in sum, that people do not do it very well. The question that begins this section ("With what effect do we suppress?") must be met at this time with a disappointing reply: Apparently, we suppress with only temporary and incomplete suc-

cess. Although our research subjects have been able to reduce their thinking about an innocuous item, a white bear, to relatively low levels in a short time, they nonetheless are not able simply to shut off the thought at will. And once the thought is suppressed, an invitation to return to it appears to have the ironic effect of prompting renewed preoccupation that proceeds at a level beyond what might have occurred had suppression never been started. This effect, too, can be overcome under certain circumstances, but it seems that people's natural proclivities (to use unfocused self-distraction and to stay in the same surroundings) work against them to make the task of long-term suppression most difficult. The effects of thought suppression, it seems, are not usually what we want them to be.

How Might We Suppress More Effectively?

Inevitably, the discussion of thought suppression comes around to home remedies: What should people do when they have unwanted thought? This is one of the great problems of our field, one of the main reasons why clinical psychology and psychotherapy were invented. It should be obvious that our research program is not yet mature enough even to have spawned clinical research, let alone to have yielded solid suggestions for psychotherapy or self-help. With this caveat out of the bag, we feel a bit better about offering our preliminary and untested nostrums.

Our simplest advice would be to avoid suppression, to stop stopping. The work we have conducted and the research by others we have reviewed seems to identify suppression as a strategy that can produce consequences every bit as discomfiting as the unwanted thoughts toward which it is directed. At the extreme, it may be that thought suppression can be the cause rather than the cure of unwanted thoughts, serving over time and in the right circumstances to produce "synthetic obsessions" that can be as painful as those derived from traumas (Wegner, 1988, 1989). Often people use thought suppression to deal with unwanted thoughts when a better strategy would be to work on the unwanted realities that those thoughts represent. We are not recommending that all suppression is nonsense, for there are some junctures at which it seems the only proper solution. When on the brink of a tall building one gets the urge to throw oneself off, it is surely best to suppress the thought. But we do believe that thought suppression is often a mental Band-Aid, a stopgap solution that can create its own problems.

If one must suppress, there are better and worse ways to do it. The research to this point suggests that suppression is likely to be more successful in the long run if we use a limited range of distracters—things we can focus on repeatedly, rather than sorting recklessly through every other thought that might be available. And in this enterprise, it may be best, too, if to do our suppression today, we get away from home or away from the environs we will have to inhabit later. There is the real possibility that the

suppressed thoughts will be cued by the very context in which we suppressed them, climaxing our struggle to suppress with a very disappointing conclusion.

That's it. We hesitate to offer more advice at this point, because we believe there are enough unanswered questions that to offer advice now would be premature. We cannot be certain, after all, that white-bear-type studies capture the same processes that occur when people in everyday life attempt to suppress thoughts. The white-bear experiment adds the artificial requirement that people must report their thoughts aloud, for example, and it deals with thoughts that are not nearly as emotional as the ones people usually attempt to suppress.

Work on these things is currently underway. In one study (Chandler & Wegner, 1987), evidence of a rebound effect was found even when people were not asked to ring bells or report white-bear thoughts. It was arranged instead for them to talk freely "off the top of their heads" about any or all of five different topics written on a page before them. They did this during the usual white-bear experiment design: One group was asked first not to think of a white bear, then to think of it; another group did thinking first and then not thinking. The topics had been scaled ahead of time for their relevance to "white bear" ("iceberg" being very relevant, for example, and "gym shorts" being much less relevant). What we found was that subjects assigned to think of a white bear after suppression, as compared to those assigned to think about it from the outset, talked more about white-bear-relevant thoughts and less about thoughts irrelevant to white bears. So, even without the artificial thought-reporting requirement, an effect very much like the rebound effect was observed.

And in another recent set of experiments, the question of how people suppress more involving and emotional thoughts has been under scrutiny. Wenzlaff, Wegner, and Roper (1988) looked at how depressed and nondepressed people handle unwanted thoughts. Mildly depressed college students (as determined by the short form of the Beck Depression Inventory; Beck & Beck, 1972) and their nondepressed counterparts were asked to read a page-long story and imagine themselves in the starring role of either a very positive incident (e.g., finding a missing child) or a very negative one (e.g., being in a serious car accident). They were then asked to write their ongoing thoughts on three blank pages, and were paced through the pages to allow 3 minutes for each. In a column down the right side of each page, they were to make a check mark each time the thought of the story they had read came to mind.

Some subjects were put up to the task of suppression; they were asked not to think of the story, if they could. Others were not given any special instruction, and were merely told to describe whatever was on their minds. When we counted the marks subjects made, and also their written mentions of the target thought, we found that depressed subjects had a particularly difficult time suppressing negative thoughts. Nondepressed subjects

were generally able to suppress both positive and negative thoughts, and depressed subjects did a fine job of suppressing positive thoughts. But when the depressed people tried to suppress a negative thought, they succeeded at first, only to experience a later resurgence of negative thinking. By the third page of writing, their reporting of the negative thought was back up to the same level as that of depressed subjects who had not even tried to suppress.

Further analyses of this study, and further experiments, have explored how this unusual resurgence takes place. What seems to happen is that depressed people distract themselves from negative thoughts by using *other negative thoughts*. These then serve as strong reminders of the thought that was first unwanted, and so return the depressed persons to the initial problem in short order. Nondepressed people, in turn, use positive distracters to get away from negative thoughts, and so leave the whole arena of negative thinking behind. This suggests again that the nature of the self-distraction strategy people use can be very important in determining how successful their thought suppression will be. So, if there is one last piece of advice we can sneak in, it is to look on the bright side. Positive self-distraction may be a generally useful technique whenever we have negative unwanted thoughts—even if we are not depressed at the time, but particularly if we are.

CONCLUSIONS

We should tie up at least one loose end before we draw the chapter to a close. We should explain the allusion to F. C. Bartlett that occurs in the odd mix of metaphors in the chapter subtitle. His story of the “War of the Ghosts” (1932) was used in his classic research on how people transform information in their minds. Although the story itself is not strictly relevant to our concerns, his general approach to psychology is right on target. One of the ideas that Bartlett championed was the role of motivation and affect in cognition, and that is a basic issue in this chapter.

Mental control must be counted as a central form of motivated cognition. Although motivation may affect our thoughts of many things, coloring our views of others and ourselves (see, e.g., Sorrentino & Higgins, 1986), its influence on thought is seldom held in such sharp relief as when we are motivated to control our thoughts directly. Mental control requires conscious motivation, and its success and failure can often appear in our conscious thoughts as well. So, although certain purists in both the cognitive and motivational camps of psychology would prefer not to use both explanatory networks at the same time in any domain of study, in the case of mental control this is simply impossible. Mental control is just too clear

a case of motivated thought for either the motivation or the thinking to be ignored.

Our studies of thought suppression reveal that people engage in sensible activities when they are asked to suppress a thought in the laboratory. They try to think of other things, and over time they often can succeed. But thought suppression has ironic and troubling effects as well, in that the suppressed thought can return, sometimes to be more absorbing than it was at the start. It is therefore evident that motivated thinking may not have the clear-cut success we sometimes find with motivated physical activities. When we want to brush our teeth or hop on one foot, we can usually do so; when we want to control our minds, we may find that nothing works as it should. A war of the ghosts in the machine, it seems, may leave us with defeated spirits.

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