displaced on to another idea. Repression thus came after the act of will. Freud emphasised that the processes coming after the act of will and before the appearance of the symptom "occur without consciousness" and can "only be presumed, but cannot be proved by any clinico-psychological analysis" (Freud 1894/1962, p. 53).

Freud had to, of course, make other inferences about repression. Why was it that *only* sexual ideas were repressed? The short answer is so dismissed by Erdelyi as an isolated and ambiguous titbit that one sees he has missed its significance: the pull into the unconscious from the repressed contents already there. Simplifying the longer answer, we can say Freud's conceptualisation passed through two stages. First he postulated that the pull in hysteria came from repressed early sexual experiences of an unpleasant kind, and from pleasant ones in obsessions. Later, as part of the extension of his theses on childhood sexuality, he had the pull coming from repressed fantasies based on the erogenous zone components of a perverse childhood sexual drive. Where does Erdelyi recognise this process?

Third, regarding the comparison of Erdelyi's conceptions of repression with laboratory work: The experiments that Erdelyi cites or refers to mainly concern the effects of actively trying to forget an idea, or of the effects of repeated recall. None of the material used in these experiments is especially "unacceptable" to the ego or even particularly affect-laden. Consequently, they are only slightly relevant to Erdelyi's "clinical repression" and not at all to Freud's concept. Further, Erdelyi's parallel between the rebound effect in the "White bear"-type experiments and Freud's "return of the repressed" is misleading because the main thing that returns is the *compromise* formation that is the symptom – not the original unacceptable idea on which the symptom is partly based.

Turning now to Ebbinghaus (1885/1964), we find that he says *nothing* about not thinking about the lists of syllables that were to be tested after the longer intervals. Ebbinghaus had not, as Erdelyi puts it, "intentionally excluded" those lists from consciousness between leaning and recall. Any similarities among the kinds of changes discernable in Ebbinghaus' data and those of Erdelyi and Kleinbard are thus of little significance for Erdelyi's unified concept.

The same point holds for Bartlett (1932), who found exactly the same kinds of distortions in tachistoscopic perception, in responses to inkblots, and in reproductions of simple pictures. Most significantly, Bartlett found the same distortions in both repeated and serial reproduction of drawings and passages of prose – significant because in serial reproduction, the reproductions were made by different individuals after having been passed to them by another subject. One cannot sensibly invoke *individual* repression-like processes in that kind of *social* transmission. All the distortions over the range of mental content Bartlett investigated were caused by the simple process of being fitted into an existing mental representation (roughly Bartlett's *schema*), and had nothing to do with repression.

Finally, regarding the "intersection" of Bartlett with Freud, the similarities are either not there or are misleading. Thus, Bartlett's (1932) *condensation* was simply a shortening (p. 184), but Freud's was a fusing of two or more images and their associated quotas of psychic energy; generally Bartlett's *rationalisation* (pp. 84–89) robbed reproductions of their puzzling elements, whereas for Freud it was a conscious cover for repressed motives; and nothing like Bartlett's *double reversal* (p. 168) – returning to the original – is found in Freud, even though his *reversal* sounds similar. Of the misleading comparisons, *elaboration* is the most striking: for Bartlett (1932, pp. 179–85) it was the subject's attempt to match material to an existing model, whereas for Freud it was the dreamer's attempt to overcome the dream's apparent absurdity.

Here we see a good example of what Wittgenstein called the *charm* of Freud's theorising, a charm deriving from the similarity of his concepts of unconscious processes to those of the conscious counterparts with which everyday life makes us familiar. Perhaps this charm explains the difference between Erdelyi's and Freud's accounts of Freud's "counterwill" patient. For Erdelyi, the patient was in conflict because of wishing and not wishing to feed her baby, whereas Freud's conceptualisation used only an opposition between the very abstract and less readily understandable notions of will and counterwill (Freud 1892-1893/1966). As I have shown (Macmillan 1997, pp. 87–88, 154–155), counterwill was a transitional mechanism, formulated, so to speak, on Freud's journey to a wishful one. Like his conceptualisation of repression, Erdelyi's wishes are here invested with more than a touch of charm.

Overall, it seems that rather than discovering the swan of Freudian repression, Erdelyi has found only a goose.

Let Freud rest in peace

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Abstract: Erdelyi's version of repression – trying successfully not to think about something – is no longer recognizably Freudian. Erdelyi fails to cite directed forgetting experiments involving psychiatric patients that indicate that the motivation to forget threatening material seldom translates into an ability to do so. The *early* Freud of the seduction theory of hysteria did inspire the recovered memory fiasco.

Erdelyi is among the dwindling minority of experimental psychologists who still take Freud's work seriously. Even those who study emotional processing in psychiatric patients seldom cite Freud. Indeed, the classic text in the field of cognition and emotion references 1,314 books, articles, and chapters, but only one publication by Freud (Williams et al. 1997). Clearly, the field has flourished without him.

Erdelyi, however, believes that contemporary research vindicates Freud, especially his concept of *repression*. But to render repression palatable to cognitive scientists, Erdelyi whittles it down to its bare bones essence: trying successfully not to think about something. By doing so, he deprives it of its distinctive psychoanalytic character (Crews 1995, p. 272). Freud did not earn his reputation as a bold and original thinker by blandly affirming that people sometimes try not to think about unpleasant things. He earned it by making all kinds of wild claims about what gets repressed, such as the desire of every little boy to murder his father and have sex with his mother. What distinguishes Freud's *repression* is its connection to other concepts in the system of psychoanalysis, and this system, as Macmillan (1997) has shown, is a conceptual and empirical mess. If *repression*, plucked from the morass of psychoanalytic theory, is to mean nothing more than trying not to think about something unpleasant, then why bother mentioning Freud at all? We can study motivated forgetting without dragging in the discredited conceptual baggage of psychoanalysis.

Erdelyi discusses research on motivated (directed) forgetting as relevant to Freud's repression. The studies he cites concern normal college students who try to forget neutral material devoid of personal emotional significance. Surprisingly, he does not mention similar studies involving psychiatric patients who endeavor to forget material related to threat or trauma (McNally 2005). Operating from Freudian premises, one might assume that the magnitude of forgetting would be much more pronounced for these individuals who are highly motivated to block this material out of awareness. That is, motivation to forget would seemingly increase one's ability to do so.

But research has shown that this is rarely the case. With two exceptions (Moulds & Bryant 2002; 2005), psychologists have consistently failed to confirm this "repression" hypothesis. In these studies, psychiatric patients either fail to exhibit superior ability to forget threatening material, or they exhibit outright impairment

https://doi.org/10.1017/S0140525X06379113 Published online by Cambridge University Press

in the ability to forget it. Disconfirming studies include ones on subjects with panic disorder (McNally et al. 1999), obsessive-compulsive disorder (Wilhelm et al. 1996), posttraumatic stress disorder associated with childhood sexual abuse (CSA; McNally 1998), depression (Power et al. 2000), and borderline personality disorder (Korfine & Hooley 2000). Even adults who report histories of having "repressed and recovered" their memories of CSA fail to exhibit the predicted superiority for forgetting trauma-related material (Geraerts et al. 2006; McNally et al. 2001; 2004; 2005). Merely because individuals are highly motivated to forget something does not mean that they will be able to do so. Indeed, attempts to push unwanted thoughts out of awareness often backfire, *enhancing* their accessibility (e.g., Beck et al. 2006; Shipherd & Beck 1999; Wegner 1994).

Erdelyi attempts to exonerate Freud from the charge of having fathered recovered memory therapy. His eagerness to do so is understandable; this therapeutic approach was the worst catastrophe to befall the mental health field since the lobotomy era. But in his plea for Freud's acquittal, Erdelyi misunderstands one key fact: It is not the *later* Freud of classical psychoanalysis who inspired the recovered memory fiasco; it is the *early* Freud (1896b/1962) of the seduction theory of hysteria who did so (Crews 1995, pp. 191–223). Nearly every feature of recovered memory therapy can be traced to Freud's early work. In his 1896 article on the "aetiology of hysteria," Freud asserted that repressed memories of childhood sexual abuse are the source of his patients' symptoms, and that these memories had to be recovered and emotionally processed for healing to occur. It is little wonder that the primary theorists of "massive repression" of incest memories (Herman & Schatzow 1987, p. 12) described Freud's (1896b/1962) article as "brilliant" (Herman, 1992, p. 13). Finally, contra Erdelyi, Freud's (1896b/1962) patients did not "recollect" sexual abuse memories; Freud interpreted their symptoms as indicating repressed memories of molestation, and he relentlessly tried to foist this interpretation on his patients, as Esterson (1993; 1998; 2001; 2002a; 2002b) has convincingly shown.

Uncritical admiration for Freud abounds in 2006, the 150th anniversary of his birth. Not only have his occasional remarks about the brain earned him praise for envisioning cognitive neuroscience, even psychotherapeutic approaches developed in direct opposition to psychoanalysis, such as cognitive therapy, have somehow been traced to his genius. Informed observers realize that these accolades are seldom warranted (for a review, see Crews 2006). Research on motivated forgetting can best proceed unencumbered by Freud's problematic legacy. Freud is dead. Let him rest in peace.

Learning from repression: Emotional memory and emotional numbing

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Abstract: Erdelyi argues persuasively for his unified theory of repression. Beyond this, what can studying repression bring to our understanding of other aspects of emotional function? Here we consider ways in which work on repression might inform the study of, on one hand, emotional memory, and on the other, the emotional numbing seen in patients with chronic persistent depersonalization symptoms.

We commend Erdelyi on a lively and authoritative survey of the theoretical and experimental literature surrounding repression. His central thesis – that a single model of repression can encompass a range of effects that may appear contradictory when viewed through the prism of earlier models – is persuasively argued, and we will not seek to raise objections to it here. Rather we wish to explore two questions touched on by Erdelyi at different stages in his argument. The first concerns the interactions of emotion and memory – specifically, the effects of emotionality on memory for central and peripheral information (see target article, sect. 2). The second concerns the relevance of theories and studies of repression for the understanding of wider issues of normal and abnormal emotional function. In particular, we discuss abnormalities of emotional experience that characteristically occur in depersonalization disorder.

With regard to the effect of emotion on memory, Erdelyi states that "there is widespread consensus that emotionality enhances memory for *central* elements of stimuli but degrades memory for *peripheral* items" (sect. 3.2.1.1, para. 2). In fact, although the experimental psychology literature has invariably supported the first part of this formula (enhanced central item memory), there is a long history of conflicting results as regards the second part, with some studies finding that memory for peripheral, or contextual, material is also enhanced (for a review, see Burke et al. 1992). The key issue here is likely to be the degree of emotional arousal – as Erdelyi outlines, when central information is highly arousing, as in the case of "weapon focus," it is probable that attentional resources are captured to the point where processing of peripheral information suffers. However, if the central information is less overwhelmingly arousing, and thus less attention-capturing, the emotional enhancement of memory may involve contextual information, too. This is important, as it suggests that contextual information is handled differently depending on the degree of emotional arousal, and implies that different neural circuits are involved in the processing of central and peripheral material. In recent years a number of neuroimaging studies have attempted to address these issues at a neurocognitive level (see e.g., Maratos et al. 2001; Medford et al. 2005a; Smith et al. 2004) – although emphases and methods of these studies vary, it is notable that such studies have mostly examined the functional neuroanatomy of contextual recall that is either enhanced, or, alternatively, not significantly affected, by emotional context. In our laboratory, we have been able to repeatedly demonstrate enhanced contextual recall using a verbal memory paradigm, the effect being robust across various experimental conditions (Brierley et al., in press), while current neuroimaging data provide converging evidence for a specific role for left parahippocampal gyrus in the recall of contextual material encoded in an emotional setting (Medford et al. 2005a).

All this begs the question – what of repression? It seems likely that demonstration of a possible repression effect would require more arousing stimuli, such as that used in the Erdelyi and Appelbaum experiment (described in the target article, sect. 3.2.1.1) – however, as Erdelyi comments, diminished processing of peripheral material cannot be automatically presumed due to repression. Nevertheless, such a study would readily lend itself to adaptation for a functional neuroimaging setting, and could help provide a more complete picture of the functional neuroanatomy of memory–emotion interactions.

Our second point concerns the possibility of applying insights from the study of repression to clinical groups. We have a particular interest in depersonalization disorder (DPD), an unusual psychiatric condition that has been studied relatively little until recently (for an overview of the condition, see Baker et al. 2003; Medford et al. 2005b; and for two recent large case series, see Simeon et al. 2003). In this condition, patients report a pervasive, disturbing sense of unreality in their sense of themselves (depersonalization) and their surroundings (derealization). Very often this is accompanied by a loss or diminution of subjective emotional experience, particularly in emotional responses to other people or external events. A recent analysis of patient responses to a symptom rating scale identified

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