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# Therapeutic Forgetting: The Legal and Ethical Implications of Memory Dampening

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# Therapeutic Forgetting: The Legal and Ethical Implications of Memory Dampening

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*Neuroscientists have made significant advances in identifying drugs to dampen the intensity of traumatic memories. Such drugs hold promise for victims of terrorism, military conflict, assault, car accidents, and natural disasters who might otherwise suffer for many years from intense, painful memories. In 2003, the President's Council on Bioethics released a report, entitled Beyond Therapy: Biotechnology and the Pursuit of Happiness, which analyzed memory dampening in some detail. While the Council acknowledged the potential benefits of memory dampening, some Council members were concerned that it may: (1) discourage us from authentically coping with trauma, (2) tamper with personal identity, (3) demean the genuineness of human life and experience, (4) encourage us to forget memories that we are obligated to keep, and (5) inure us to the pain of others.*

*In this Article, I describe possible legal and ethical implications of memory dampening. For example, I note that traumatic events frequently lead to legal proceedings that rely on memories of those events. Drugs that dampen traumatic memories may someday test the boundaries between an individual's right to modify his memories and society's right to stop him from altering valuable evidence. More broadly, I respond to the Council by arguing that many of its concerns are founded on controversial premises that unjustifiably privilege our natural cognitive abilities. While memory dampening may eventually require thoughtful regulation, broad-brushed restrictions are unjustified: We have a deeply personal interest in controlling our own minds that entitles us to a certain freedom of memory.*

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*Adam J. Kolber\**

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## INTRODUCTION

Suppose we could erase memories we no longer wish to keep. In such a world, the victim of a terrifying assault could wipe away memories of the incident and be free of the nightmares that such memories often cause. Some memories, however, even quite unpleasant ones, are extremely valuable to society and ought not be eliminated without due consideration. An assault victim who hastily erases memory of a crime may thereby impede the investigation and prosecution of the perpetrator. In a world with memory erasure, our individual interest in controlling our memories may conflict with society's interest in maintaining access to those memories.<sup>1</sup>

While true memory erasure is still the domain of science fiction,<sup>2</sup> less dramatic means of dampening the strength of a memory may have already been developed. Some experiments suggest that propranolol, an FDA-approved drug, can dull the emotional pain associated with the memory of an event when taken within six hours *after* the event occurs.<sup>3</sup> Furthermore, by reducing the emotional intensity of a memory, propranolol may be capable of dampening its factual richness as well.<sup>4</sup> Together, the research holds out the

1. For a more plausible version of this scenario, see *infra* Part II.A.1.

2. See, e.g., *ETERNAL SUNSHINE OF THE SPOTLESS MIND* (Focus Features 2004); *PAYCHECK* (Paramount 2003); *MEN IN BLACK* (Sony Pictures 1997); *TOTAL RECALL* (Artisan Entertainment 1990); see also Steven Johnson, *The Science of Eternal Sunshine*, SLATE, Mar. 22, 2004, <http://slate.msn.com/id/2097502>.

3. See *infra* Part I.C.

4. See *infra* text accompanying notes 73-78 (describing an experiment that suggests that propranolol may dampen factual recall of emotionally-arousing events when taken soon *before* those events); see also PHYSICIANS' DESK REFERENCE 3423 (60th ed. 2006) (listing short-term memory loss as a side effect of Inderal LA, the manufacturer's name for a long-acting version of propranolol).

possibility that, under some circumstances, propranolol may dampen both emotional and factual components of memory.

Researchers are now conducting larger studies with propranolol to confirm these preliminary results<sup>5</sup> and to test whether propranolol might alleviate traumatic memories from the more distant past.<sup>6</sup> Meanwhile, even though propranolol was originally granted FDA-approval to treat hypertension, clinicians may already use it to treat traumatic memories because doctors are permitted to prescribe it for off-label purposes.<sup>7</sup> Whether or not further research supports the use of propranolol to treat traumatic memories or focuses on some more potent successor, the quest for drugs to “therapeutically forget” is underway, and the search is starting to show promise.

Those susceptible to posttraumatic stress disorder (“PTSD”), an affliction characterized by invasive, painful memories,<sup>8</sup> stand to gain the most from memory-dampening drugs. Attention to PTSD has increased in recent years as a result of terrorist attacks, military conflicts in Iraq and Afghanistan, and natural disasters like Hurricane Katrina and the Asian tsunami of 2004. These events have left thousands of survivors gripped by traumatic memories. The Department of Veterans Affairs has raised particular concerns about the cost of treating PTSD in soldiers.<sup>9</sup> Veterans received PTSD benefit

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5. See Robin Marantz Henig, *The Quest to Forget*, N.Y. TIMES MAG., Apr. 4, 2004, at 32, 34-36 (describing plans for a larger study supported by the National Institute of Mental Health); E.J. Mundell, *Heart Drugs Could Ease Trauma Memories*, HEALTH DAY NEWS, July 29, 2005, available at <http://www.forbes.com/lifestyle/health/feeds/hscout/2005/07/29/hscout527144.html> (same).

6. For example, researchers have sought to alleviate older traumatic memories by having subjects recall those memories after ingesting propranolol. Marilyn Marchione, *A Pill to Fade Traumatic Memories? Doctors Are Working on It*, Jan. 14, 2006, <http://www.signonsandiego.com/news/science/20060114-0917-traumapill.html>. The theory behind this research, according to neuroscientist Joseph LeDoux, is that “[e]ach time you retrieve a memory it must be restored,” and “[w]hen you activate a memory in the presence of a drug that prevents the restorage of the memory, the next day the memory is not as accessible.” *Id.* (quoting LeDoux).

7. The FDA has indicated that “once a [drug] product has been approved for marketing, a physician may prescribe it for uses or in treatment regimens of patient populations that are not included in approved labeling.” Citizen Petition Regarding the Food and Drug Administration’s Policy on Promotion of Unapproved Uses of Approved Drugs and Devices; Request for Comments, 59 Fed. Reg. 59820, 59821 (Nov. 18, 1994) (quoting 12 FDA Drug Bull. 4-5 (1982)) (alteration in original); see also *Planned Parenthood Cincinnati Region v. Taft*, 444 F.3d 502, 505 (6th Cir. 2006) (“Absent state regulation, once a drug has been approved by the FDA, doctors may prescribe it for indications and in dosages other than those expressly approved by the FDA.”).

8. See *infra* Part I.A.

9. See Editorial, *Care for the Traumatized*, BOSTON HERALD, Jan. 2, 2006, at 16 [hereinafter *Care for the Traumatized*] (“It seems the Department of Veterans’ Affairs and its overseers in Congress worry that disability benefits for veterans diagnosed with post-traumatic stress disorder (PTSD) are becoming a budget buster.”).

payments totaling \$4.3 billion in 2004, up from \$1.7 billion in 1999.<sup>10</sup> Any drug that can consistently and cost-effectively prevent or ease the suffering of PTSD will be of great interest not only to doctors and patients, but also to federal and state governments, private insurers, and pharmaceutical companies.

Despite the potentially huge market for memory-dampening drugs, the subject has received surprisingly little scholarly attention,<sup>11</sup> appearing primarily in brief news articles.<sup>12</sup> It is already clear, however, that people have remarkably divergent intuitions about the desirability of memory dampening. For example, in response to an article on the subject in the *New York Times Magazine*, one mother wrote the following letter to the editor:

Six years ago, I watched both of my teenage boys die, several hours apart, after our car was struck by a speeding patrol car . . . I don't mean to judge the way in which others should treat (or be treated for) their own personal tragedies. But for me, I needed to retain every detail of my memory, not only for the manslaughter trial that followed a year and a half later but also for my own well-being. . . . Although it's painful to relive that night and its aftermath, doing so helps me feel that I am doing something positive with this tragedy. As for erasing the memories of that night, I would never want to take a chance that even an iota of all the positive memories of my wonderful sons would disappear along with the painful ones.<sup>13</sup>

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10. DEPT' OF VETERANS AFFAIRS, OFFICE OF INSPECTOR GEN., REVIEW OF STATE VARIANCES IN VA DISABILITY COMPENSATION CLAIMS vii, REP. NO. 05-00765-137 (2005), available at <http://www.va.gov/oig/52/reports/2005/VAOIG-05-00765-137.pdf>. The numbers in the text are based on the Department's fiscal year which begins October 1 of the preceding calendar year. DEPT' OF VETERANS AFFAIRS, OFFICE OF INSPECTOR GEN., LIST OF PREVIOUS AUDIT & CAP REPORTS, available at <http://www.va.gov/oig/52/reports/mainlist.htm> (last visited Sept. 1, 2006). A Department review found no wide-scale evidence of fraudulent PTSD claims, Press Release, The Honorable R. James Nicholson, Secretary, Dep't of Veterans Affairs, No Across-the-Board Review of PTSD Cases (Nov. 10, 2005), available at <http://www1.va.gov/opa/pressrel/pressrelease.cfm?id=1042>, though it is possible that questionable claims have contributed to the rapid rise in costs, see Sally Satel, Op-Ed., *For Some, The War Won't End*, N.Y. TIMES, Mar. 1, 2006, at A19 (claiming that it is "very likely that some of the veteran baby boomers who have filed claims in recent years did so not out of medical need but out of a desire for financial security in their retirement years").

11. I know of only two essays on the potential societal implications of memory dampening drugs. See David Wasserman, *Making Memory Lose Its Sting*, 24 PHIL. & PUB. POL'Y Q. 12 (Fall 2004); Gilbert Meilaender, *Why Remember?*, 135 FIRST THINGS 20 (2003), available at <http://www.firstthings.com/ftissues/ft0308/articles/meilaender.html>. The subject is also discussed at length by the President's Council on Bioethics. See *infra* Part III.

12. See, e.g., Greg Miller, *Learning to Forget*, 304 SCIENCE 34, 34 (2004); Erik Baard, *The Guilt-Free Soldier*, VILLAGE VOICE, Jan. 22, 2003, at 32; Sharon Begley, *A Spotless Mind May Ease Suffering, But Erase Identity*, WALL ST. J., Aug. 19, 2005, at B1; Henig, *supra* note 5, at 34-36; Scott LaFee, *Blanks for the Memories*, SAN DIEGO UNION TRIB., Feb. 11, 2004, at F1; Marchione, *supra* note 6; Mundell, *supra* note 5; Rob Stein, *Is Every Memory Worth Keeping?*, WASH. POST., Oct. 19, 2004, at A1.

13. Michelle Norton Spicer, *Letter re: Quest to Forget*, N.Y. TIMES MAG., Apr. 18, 2004, at 66.

By contrast, in an online discussion of memory dampening, one participant commented:

I really feel that this could help a lot of people heal . . . the pain that stays in their mind. I for one would go through with it because I can hardly go on through life with all this pain. I have been dealing with multiple traumas in my life and its [sic] going on almost 14 years now.<sup>14</sup>

Another participant added, “[I] have severe [PTSD] and would sell my soul to the devil himself to be rid of my 24/7 hellish flashbacks and night terrors.”<sup>15</sup>

These heartfelt but dramatically different points of view highlight the numerous legal and ethical issues raised by memory dampening. The President’s Council on Bioethics (the “Council”)<sup>16</sup> explored many of these issues in a series of hearings in 2002 and 2003.<sup>17</sup> By and large, the Council was skeptical of the merits of memory dampening,<sup>18</sup> raising concerns that memory dampening may: (1) prevent us from truly coming to terms with trauma, (2) tamper with our identities, leading us to a false sense of happiness, (3) demean the genuineness of human life and experience, (4) encourage us to forget memories that we are obligated to keep, and (5) inure us

14. Posting of Michelle to CogNews, [http://cognews.com/1072217907/index\\_html#1109285564](http://cognews.com/1072217907/index_html#1109285564) (Feb. 15, 2005, 9:48 A.M.).

15. Posting of Lisa to CogNews, [http://cognews.com/1072217907/index\\_html#1109285564](http://cognews.com/1072217907/index_html#1109285564) (Mar. 7, 2005, 5:13 A.M.).

16. In 2001, President George W. Bush created the Council by executive order. Exec. Order No. 13237, 66 Fed. Reg. 59851 (Nov. 28, 2001), available at <http://www.whitehouse.gov/news/releases/2001/11/20011128-13.html>. According to the order, “the Council shall be guided by the need to articulate fully the complex and often competing moral positions on any given issue, rather than by an overriding concern to find consensus.” *Id.* The Council has been renewed by subsequent executive orders. See Exec. Order No. 13316, 68 Fed. Reg. 55255 (Sept. 23, 2003), available at <http://www.bioethics.gov/about/executive2.html>; Exec. Order No. 13385, 70 Fed. Reg. 57989 (Sept. 29, 2005), available at <http://www.bioethics.gov/about/executive2005.htm>. There are currently eighteen members of the Council. See President’s Council on Bioethics, *Members*, <http://www.bioethics.gov/about/members.html> (last visited Oct. 26, 2006); see generally Eric M. Meslin, *The President’s Council: Fair and Balanced?*, 34 HASTINGS CENTER REP. 6 (2004) (describing concerns that President Bush failed to maintain the Council’s ideological diversity).

17. The Council’s hearings on memory dampening have been divided into three parts, although the hearings took place on only two separate days. Citations are to the “printer-friendly” versions available online. See *Remembering and Forgetting: Physiological and Pharmacological Aspects: Hearings Before the President’s Council on Bioethics* (Oct. 17, 2002), <http://bioethics.gov/transcripts/oct02/session3.html> [hereinafter Hearings, Part 1]; *Remembering and Forgetting: Psychological Aspects: Hearings Before the President’s Council on Bioethics* (Oct. 17, 2002), <http://bioethics.gov/transcripts/oct02/session4.html> [hereinafter Hearings, Part 2]; *Beyond Therapy: Better Memories?: Hearings Before the President’s Council on Bioethics* (Mar. 6, 2003), <http://bioethics.gov/transcripts/march03/session4.html> [hereinafter Hearings, Part 3].

18. See *infra* Part III.A. Since the publication of the Council’s report, the Council’s composition and leadership have changed somewhat. Most notably, Edmund Pellegrino has taken over the position of Council chair from Leon Kass, who remains a member of the Council. See Dan Vergano, *Bioethics Hits a Crossroads*, USA TODAY, Sept. 29, 2005, at D1.



to the pain of others.<sup>19</sup> While the Council did not make policy recommendations concerning memory-dampening drugs, one might ask whether the kinds of concerns raised by the Council could justify prohibiting or broadly restricting their use.<sup>20</sup>

In this Article, I analyze the novel legal and ethical issues that could be presented by memory-dampening technology and argue that the Council's concerns do not provide grounds for broad restrictions on its use. In Part I, I provide background on PTSD and the relationship between emotional arousal and strong, recurrent memories. I also describe some of the experiments that suggest that propranolol may dampen memory by making recipients less likely to develop the emotionally-charged memories that often accompany traumatic experience. In Part II, I preview some of the many legal issues that might arise in a world where memories can be dampened. Given how frequently traumatic events like assaults and motor vehicle accidents lead to legal proceedings, drugs that affect memories of such events can have widespread legal implications. I pay particular attention to issues of informed consent, obstruction of justice, and the mitigation of emotional distress damages. Lastly, in Part III, I describe the ethical concerns raised by the President's Council on Bioethics and argue that they are insufficient to justify broad government interference with our ability to dampen memories.<sup>21</sup>

Even if potent memory-dampening drugs are still many years away, the policy questions they raise are very much alive today because drug researchers and manufacturers must decide on a daily basis how they will invest their limited resources. Fear that the successful fruits of their labor could be blocked or heavily restricted by the government may slow their efforts. While the implications of memory dampening must be considered at a very general level until the specific effects of a particular drug are better understood, the debate must begin long before that. I make the case that research into

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19. See *infra* Parts III.B-D.

20. Memory dampening could be restricted in a variety of ways. For example, the FDA could deny approval to a new drug that is labeled for the purpose of memory dampening (perhaps based on broadly-construed safety concerns). States could also seek to prohibit the off-label prescription of an already-approved drug like propranolol. See OHIO REV. CODE ANN. § 2919.123 (West 2006) (prohibiting off-label use of the abortion drug mifepristone, also known as RU-486); *Planned Parenthood Cincinnati Region v. Taft*, 444 F.3d 502, 505-06 (6th Cir. 2006) (discussing same).

21. Because our understanding of memory dampening is still in its early stages, I do not attempt to draw the line between a broad restriction on memory dampening, which I disfavor, and more narrow restrictions on its use in particular contexts, which I readily entertain. Prohibiting any kind of possession of memory-dampening drugs is an example of the former, but requiring that such drugs be prescribed by a physician is an example of the latter. I am content to allow finer gradations to be determined in the future.

memory dampening should be encouraged, free of the fear that it is generally unethical to dampen memories.

If I am right that memory dampening has the potential someday to ease the suffering of millions of people and that heavy-handed government restriction of memory dampening is inappropriate, it follows that we should have some limited right to therapeutically forget. I will suggest that this right is just a small part of a larger bundle of rights to control our own memories that I call our "freedom of memory." This bundle of rights will become increasingly important as neuroscientists develop more powerful ways to manipulate human memory.

## I. MEMORY-DAMPENING TECHNOLOGY

In this Part, I provide background on PTSD, the disorder that has sparked the quest for a means of therapeutic forgetting. I describe how traumatic experiences are believed to generate the painful, recurrent memories that characterize PTSD and how drugs like propranolol may prevent these memories from imprinting as strongly as they would in the absence of the drug. By weakening the emotionality of our reactions to arousing experiences, drugs like propranolol may, in effect, dampen emotional, and perhaps even factual, aspects of memory.

### A. Posttraumatic Stress Disorder

Just as we cannot remember all that we would like to,<sup>22</sup> we cannot, by act of will, decide what to forget.<sup>23</sup> In the short story, "Funes, the Memorious,"<sup>24</sup> Ireneo Funes has a memory so powerful that he renames the whole numbers up to twenty-four thousand and

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22. There is a great deal of interest in developing drugs to enhance human memory. See, e.g., Martha J. Farah, Op-Ed., *Neuroethics*, VIRTUAL MENTOR, AM. MED. ASS'N J. ETHICS, Aug. 2004, <http://www.ama-assn.org/ama/pub/category/print/12727.html> ("[A] huge research effort is now being directed to the development of memory-boosting drugs."); Alok Jha, *Scientists Predict Brave New World of Brain Pills*, GUARDIAN, July 14, 2005, at 7 (describing research on memory enhancement).

There is much debate surrounding other enhancement technologies that also seek to give us abilities that are better than normal. See Carl Elliott, *This is Your Country on Drugs*, N.Y. TIMES, Dec. 14, 2004, at A33; Anjan Chatterjee, Op-Ed., *Cosmetic Neurology: For Physicians the Future is Now*, VIRTUAL MENTOR, AM. MED. ASS'N J. ETHICS, Aug. 2004, <http://www.ama-assn.org/ama/pub/category/print/12726.html>.

23. Bruno S. Frey, "Just Forget It": *Memory Distortions as Bounded Rationality*, 4 MIND & SOC'Y 13, 13-14 (2005).

24. JORGE LUIS BORGES, *Funes, the Memorious*, in FICCIONES 107 (Anthony Kerrigan ed., 1962).

remembers the names he creates. "In place of seven thousand thirteen, he would say (for example) *Máximo Perez*; in place of seven thousand fourteen, *The Train*."<sup>25</sup> And, though "without effort he had learned English, French, Portuguese, [and] Latin," Funes was so awash in details that he became quite depressed, had difficulty sleeping, and, due to his inability to sort through all the detail in his life, "was not very capable of thought."<sup>26</sup>

Reminiscent of Ireneo Funes, neuroscientists have reported on the real-life case of "AJ," who has tremendous powers of recall for autobiographical information.<sup>27</sup> For example, without preparation, she named, almost flawlessly, the calendar date of every Easter from 1980 to 2003 and what she did on those days.<sup>28</sup> Nevertheless, she has some of the same difficulties that afflicted the fictional Ireneo Funes. AJ has written, "Whenever I see a date flash on the television (or anywhere else for that matter) I automatically go back to that day and remember where I was, what I was doing, what day it fell on and on and on and on . . . . It is non-stop, uncontrollable and totally exhausting."<sup>29</sup>

Even with our own more mundane powers of recollection, there are downsides to our limited ability to forget. One cannot easily forget that he owns a counterfeit Picasso painting rather than an original,<sup>30</sup> nor can one easily forget more serious matters that burden the human psyche, like memories of physical or sexual abuse. Oftentimes, trying to forget or ignore information is counterproductive, serving only to etch the information more deeply in memory.<sup>31</sup>

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25. *Id.* at 113.

26. *Id.* at 115.

27. Elizabeth S. Parker et al., *A Case of Unusual Autobiographical Remembering*, 12 *NEUROCASE* 35 (2006).

28. *Id.* at 40-41.

29. *Id.* at 35 (italics omitted).

30. Frey, *supra* note 23, at 14.

31. *Id.* "[A] frequent result of attempts to ignore or disregard certain thought is that individuals become preoccupied with the object of thought such that it becomes more, rather than less, accessible in memory." Kari Edwards & Tamara S. Bryan, *Judgmental Biases Produced by Instructions to Disregard: The (Paradoxical) Case of Emotional Information*, 23 *PERSONALITY & SOC. PSYCHOL. BULL.* 849, 850 (1997); see also Daniel M. Wegner et al., *Paradoxical Effects of Thought Suppression*, 53 *J. PERSONALITY & SOC. PSYCHOL.* 5-13 (1987). Thus, skilled trial lawyers frequently decide not to challenge inadmissible evidence that has already been presented to the jury where the most that can be hoped for is a limiting instruction to disregard whatever putative evidence has already influenced juror opinion. According to Justice Jackson, "The naive assumption that prejudicial effects can be overcome by instructions to the jury . . . all practicing lawyers know to be unmitigated fiction." *Krulwitch v. United States*, 336 U.S. 440, 453 (1949) (Jackson, J., concurring); see also Andrew J. Wistrich et al., *Can Judges Ignore Inadmissible Information? The Difficulty of Deliberately Disregarding*, 153 *U. PA.*

Those with particularly severe, recurrent traumatic memories may have posttraumatic stress disorder. PTSD was officially recognized by the American Psychiatric Association in 1980 when it was added to the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* ("DSM").<sup>32</sup> A person may be diagnosed with PTSD after experiencing at least one traumatic event that has given rise to a cluster of symptoms which typically include "recurrent and painful reexperiencing of the event, phobic avoidance of trauma-related situations and memories, emotional numbing and withdrawal, and hyperarousal."<sup>33</sup> According to a recent, large-scale study, approximately 7% of Americans are expected to develop PTSD within their lifetimes.<sup>34</sup> It is estimated that "a person with PTSD will endure 20 years of active symptoms and will experience almost 1 day a week of work impairment, perhaps resulting in a \$3 billion annual productivity loss in the United States."<sup>35</sup> Rates of attempted suicide among those with PTSD have been reported to be "as high as 19%."<sup>36</sup> According to the DSM, rates of PTSD are particularly high among survivors of rape, combat, and genocide.<sup>37</sup> Approximately one-third to one-half of those in these at-risk populations have or will develop the disorder.<sup>38</sup>

PTSD can be quite debilitating. Those with PTSD have been described as "stuck" on their trauma, "reliving it in thoughts, feelings,

L. REV. 1251, 1251-59 (2005) (finding that judges also have difficulty disregarding inadmissible information).

32. AM. PSYCHIATRIC ASS'N, *DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS* 236 (3d ed. 1980); Jonathan R. T. Davidson, *Recognition and Treatment of Posttraumatic Stress Disorder*, 286 JAMA 584, 584 (2001).

33. Davidson, *supra* note 32, at 584. For more detailed diagnostic information, see AM. PSYCHIATRIC ASS'N, *DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS* 463-68 (IV-TR ed. 2000) [hereinafter DSM IV-TR].

34. Ronald C. Kessler et al., *Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication*, 62 ARCHIVES OF GEN. PSYCHIATRY 593, 595 (2005); cf. Davidson, *supra* note 32, at 584 ("In the US population, lifetime prevalence rates are in the range of 8%, with women affected twice as often as men. However, studies from other countries and studies of high-risk populations have reported widely ranging prevalence rates from a low of 1.3% in Germany to 37.4% in Algeria."). *But cf.* RICHARD J. McNALLY, *REMEMBERING TRAUMA* 282-85 (2003) (discussing controversy as to whether PTSD is, in part, a "social construction"); Benedict Carey, *Most Will Be Mentally Ill at Some Point, Study Says*, N.Y. TIMES, June 7, 2005, at A18 (noting that some experts believe that the data cited in the text rely on overly-inclusive diagnostic standards).

35. Davidson, *supra* note 32, at 584.

36. *Id.*

37. DSM IV-TR, *supra* note 33, at 466.

38. *Id.*; see also Ronald C. Kessler et al., *Posttraumatic Stress Disorder in the National Comorbidity Survey*, 52 ARCHIVES OF GEN. PSYCHIATRY 1053 (1995) ("Sixty-five percent of men and 45.9% of women who reported [being raped] as their most upsetting trauma developed PTSD.").

actions, or images.”<sup>39</sup> They may become physiologically hyperaroused or develop a sense of helplessness, symptoms that can “permanently change how a person deals with stress, alter his or her self-concept, and interfere with his or her view of the world as a manageable place.”<sup>40</sup> Usually, PTSD is associated with “vivid intrusions of traumatic images and sensations,”<sup>41</sup> although some upsetting experiences can lead to a loss of recall.<sup>42</sup>

In recent years, PTSD has received increased attention in the United States as more and more soldiers return from military conflicts with painful, traumatic memories.<sup>43</sup> According to the Army Surgeon General, about 4% to 5% of soldiers returning from the war in Iraq have PTSD.<sup>44</sup> A much larger number show stress-related mental health disorders of some sort.<sup>45</sup>

Current treatments for PTSD rely on antidepressants<sup>46</sup> and a variety of forms of psychotherapy.<sup>47</sup> A common form of therapy gradually exposes patients to stimuli associated with their traumatic

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39. Bessel A. van der Kolk et al., *A General Approach to Treatment of Posttraumatic Stress Disorder* [hereinafter Bessel A. van der Kolk et al., *A General Approach*], in *TRAUMATIC STRESS: THE EFFECTS OF OVERWHELMING EXPERIENCE ON MIND, BODY, AND SOCIETY* 417, 419 (Bessel A. van der Kolk et al. eds., 1995) [hereinafter *TRAUMATIC STRESS*].

40. *Id.*

41. Bessel A. van der Kolk, *Trauma and Memory*, in *TRAUMATIC STRESS*, *supra* note 39, at 279, 283.

42. *Id.*; see also MCNALLY, *supra* note 34, at 186-228 (discussing the nature of traumatic amnesia); Alison Motluk, *Memory Fails You After Severe Stress*, 182 *NEW SCIENTIST* 14, 14 (2004) (reporting a study finding that military personnel subject to intense physiological stress during mock interrogations had great difficulty identifying their mock interrogators a day after the exercise). Though I know of no research on the matter, if drugs like propranolol can help patients avoid extreme forgetting (or perhaps extreme repression), then propranolol could actually have a memory-enhancing effect. For the time being, I disregard this possibility.

43. See Charles W. Hoge et al., *Mental Health Problems, Use of Mental Health Services, and Attrition from Military Service After Returning from Deployment to Iraq or Afghanistan*, 295 *JAMA* 1023 (2006); Han K. Kang & Kenneth C. Hyams, *Mental Health Care Needs Among Recent War Veterans*, 352 *NEW ENGLAND J. MED.* 1289 (2005); Lynne Lamberg, *Military Psychiatrists Strive to Quell Soldiers' Nightmares of War*, 292 *JAMA* 1539 (2004).

44. Associated Press, *Some Troops Reporting Problems*, *FORT WORTH STAR-TELEGRAM*, July 29, 2005, at A6 (quoting U.S. Army Surgeon General Kevin Kiley); Lieutenant General Kevin C. Kiley, M.D., Army Medical Department, Office of the Surgeon General, <http://www.army.medicine.army.mil/leaders/kiley.html> (last visited Sept. 1, 2006) (providing biographical information on Kevin Kiley).

45. According to a 2004 study in the *New England Journal of Medicine*, as many as 17% of those returning from deployment in Iraq meet screening criteria for major depression, generalized anxiety, or PTSD, compared to 9% who meet the criteria prior to deployment. Charles W. Hoge et al., *Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care*, 351 *NEW ENGLAND J. MED.* 13, 13, 19 (2004).

46. Jonathan R. Davidson & Bessel A. van der Kolk, *The Psychopharmacological Treatment of Posttraumatic Stress Disorder*, in *TRAUMATIC STRESS*, *supra* note 39, at 510, 516-20.

47. Bessel A. van der Kolk et al., *A General Approach*, *supra* note 39, at 417-18.

experiences in a controlled manner in hopes of easing their responses.<sup>48</sup> Despite such efforts, however, PTSD is difficult to treat, and the search continues for new therapies. Treatments under investigation include d-cycloserine,<sup>49</sup> MDMA (commonly known as “ecstasy”),<sup>50</sup> transcranial magnetic stimulation,<sup>51</sup> and memory-dampening drugs that are the subject of this article.<sup>52</sup>

### *B. Traumatic Memory and Emotional Arousal*

It has long been understood, at least at an intuitive level, that highly emotional or otherwise arousing experiences can boost memory.<sup>53</sup>

In medieval times, before writing was used to keep historical records, other means had to be found to maintain records of important events, such as the granting of land to a township, an important wedding or negotiations between powerful families. To accomplish this, a young child about seven years old was selected, instructed to observe the proceedings carefully, and then thrown into a river. In this way, it was said, the memory of the event would be impressed on the child and the record of the event maintained for the child's lifetime.<sup>54</sup>

In particular, we tend to remember highly-charged events of great historical, political, or personal significance. For example, we are more likely to remember where we were during the September 11, 2001 attacks on the World Trade Center than where we were the day before.<sup>55</sup> In the 1970s, researchers coined the term “flashbulb

48. See *id.* at 430, 434-35 (describing controlled exposure methods of treatment).

49. U. Heresco-Levy et al., *Pilot-Controlled Trial of D-Cycloserine for the Treatment of Post-Traumatic Stress Disorder*, 5 INT'L J. NEUROPSYCHOPHARMACOLOGY 301, 301-07 (2002).

50. The FDA has approved use of MDMA (methylenedioxymethamphetamine) in medical experiments investigating PTSD treatment. David Adam, *Ecstasy Trials for Combat Stress*, GUARDIAN, Feb. 17, 2005, at 6; see also National Institutes of Health, *A Test of MDMA-Assisted Psychotherapy in People with Posttraumatic Stress Disorder*, <http://www.clinicaltrials.gov/ct/show/NCT00090064?order=1> (last visited Sept. 1, 2006) (describing the Phase II research).

51. Miller, *supra* note 12, at 35.

52. Whether we should treat or seek to prevent PTSD with memory dampening will, of course, depend on the relative efficacy, financial costs, and side effects of the technology compared to the alternatives.

53. The discussion herein focuses on what neuroscientists call “explicit memory.” Explicit memory, also called declarative memory, refers to the kind of memory that enables a person to have “conscious awareness of facts or events that have happened to the individual.” Bessel A. van der Kolk, *Trauma and Memory*, *supra* note 41, at 279, 281. Implicit memory, also called nondeclarative memory, refers principally to the kinds of “memories acquired during skill learning, habit formation, and simple, classic conditioning.” Sharon Gil et al., *Does Memory of a Traumatic Event Increase the Risk for Posttraumatic Stress Disorder in Patients with Traumatic Brain Injury? A Prospective Study*, 162 AM. J. PSYCHIATRY 963, 963 (2005). Traumatic memories can be encoded in the brain both implicitly and explicitly, but subjects are more likely to develop PTSD if they have explicit memories of the traumatic event. *Id.*

54. JAMES L. MCGAUGH, *MEMORY AND EMOTION* ix (2003).

55. Begley, *supra* note 12.

memories” to describe those highly emotional or arousing experiences that tend to persist in memory.<sup>56</sup> While there is much disagreement over the accuracy of such memories, it is relatively uncontroversial that “emotionally significant events create stronger, longer-lasting memories.”<sup>57</sup> Of course, “they are neither *completely* accurate nor, in all cases, *permanently* strong.”<sup>58</sup>

By the early 1990s, much progress had been made in developing biological explanations for these heightened memories. Researchers discovered that emotionally-arousing experiences cause animals to release adrenaline (also known as epinephrine) that enhance the animal’s memory.<sup>59</sup> From an evolutionary perspective, such mechanisms may help us avoid dangerous situations.<sup>60</sup> When encountering a vicious creature in the forest, for example, the same adrenaline that helps you run away from it also helps you remember to avoid that path the next time.<sup>61</sup>

56. Bessel A. van der Kolk, *Trauma and Memory*, *supra* note 41, at 281.

57. MCGAUGH, *supra* note 54, at 90. *But cf. supra* note 42 and accompanying text (discussing loss of recall precipitated by extreme emotional trauma).

58. MCGAUGH, *supra* note 54, at 91.

59. *See, e.g.,* Larry Cahill et al., *β-Adrenergic Activation and Memory for Emotional Events*, 371 NATURE 702, 702 (1994) (“Substantial evidence from animal studies suggests that enhanced memory associated with emotional arousal results from an activation of β-adrenergic stress hormone systems during and after an emotional experience.”); Friderike Heuer & Daniel Reisberg, *Vivid Memories of Emotional Events: The Accuracy of Remembered Minutiae*, 18 MEMORY & COGNITION 496, 496 (1990) (finding in human test subjects “that emotion promotes memory both for information central to an event and for peripheral detail”); Roger K. Pitman et al., *Pilot Study of Secondary Prevention of Posttraumatic Stress Disorder with Propranolol*, 51 BIOLOGICAL PSYCHIATRY 189, 189 (2002) (“Preclinical research has shown that epinephrine, exogenously administered or endogenously released, after a learning task strengthens memory consolidation and fear conditioning.”); Guillaume Vaiva et al., *Immediate Treatment with Propranolol Decreases Posttraumatic Stress Disorder Two Months After Trauma*, 54 BIOLOGICAL PSYCHIATRY 947, 947 (2003) (citing the scientific literature).

Arousing circumstances may, however, enhance certain kinds of memories at the expense of others, perhaps by selectively drawing our attention to certain features of a situation. For example, some studies suggest that eyewitnesses may fixate on the weapon used to perpetrate a crime and pay “less attention to other events and people at the scene.” PETER B. AINSWORTH, *PSYCHOLOGY, LAW AND EYEWITNESS TESTIMONY* 40-41 (1998); *see also* ELIZABETH LOFTUS & JAMES M. DOYLE, *EYEWITNESS TESTIMONY: CIVIL AND CRIMINAL* 30-31 (1997) (describing the “weapon focus” hypothesis). In extreme cases, it is possible that hyperarousal may impair memory more generally. *See* Cahill, *supra*, at 703-04 (“Although there is extensive evidence that high doses of adrenaline can impair memory, it is not known whether endogenous adrenaline released by high levels of emotional arousal can produce memory impairment.” (footnotes omitted)).

60. Miller, *supra* note 12, at 34.

61. *Id.* (reporting comments from psychiatrist Roger Pitman at Harvard Medical School). The memory-enhancing effect of adrenaline is modulated by a small almond-shaped part of the brain, known as the amygdala:

Studies of rats and other animals have shown that injecting a stress-related hormone such as epinephrine (which produces high arousal) immediately after an animal

Building on this research, Larry Cahill and James McGaugh performed an experiment on humans to test whether they have better recall for emotionally-charged memories than for more neutral memories.<sup>62</sup> The researchers divided subjects into two groups and did not inform them that they would subsequently receive a memory test.<sup>63</sup> Both groups were shown a series of twelve identical slides.<sup>64</sup> The slide presentation was accompanied by a short, taped narrative, consisting of one sentence per slide.<sup>65</sup> Both groups heard identical narratives for the first four slides and the last slide.<sup>66</sup> Otherwise, however, the groups heard very different stories.

One story was relatively unemotional.<sup>67</sup> The other told a more emotionally-charged story using exactly the same images in the same order.<sup>68</sup> Two weeks later, researchers tested the subjects' memories.<sup>69</sup> While the two groups had comparable memories for those slides accompanied by identical narrative,<sup>70</sup> for slides where the narrative diverged, subjects who heard the emotionally-charged version remembered more details in those slides than did those who heard the

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learns a task enhances subsequent memory for that task . . . . The amygdala plays a key role in this process. When the amygdala is damaged, injecting stress-related hormones no longer enhances memory. The amygdala, then, helps to regulate release of the stress-related hormones that underlie the memory-enhancing effects of emotional arousal.

DANIEL SCHACTER, *SEARCHING FOR MEMORY: THE BRAIN, THE MIND, & THE PAST* 215 (1997), quoted in President's Council on Bioethics, Staff Working Paper, "Better" Memories? *The Promise and Perils of Pharmacological Interventions*, [http://bioethics.gov/background/better\\_memories.html](http://bioethics.gov/background/better_memories.html) (last visited Sept. 1, 2006).

62. Larry Cahill & James L. McGaugh, *A Novel Demonstration of Enhanced Memory Associated with Emotional Arousal*, 4 CONSCIOUSNESS & COGNITION 410, 410 (1995).

63. *Id.* at 416.

64. *Id.* at 420.

65. *Id.*

66. *Id.*

67. In the neutral narrative, a mother and her son leave home to visit the boy's father, a laboratory technician, at the hospital where the father works. On the way to the hospital, the boy passes a junkyard containing wrecked cars. At the hospital, the staff is preparing for a disaster drill that the boy will watch, and the boy takes particular note of a brain scan machine used as part of the drill. In addition, makeup artists are on hand to give drill participants realistic-looking injuries. At the end of the story, the mother is heading to pick up her other child from pre-school. *Id.*

68. In the emotionally-charged narrative, as before, a mother and son are on the way to visit the father at the hospital where he works. In this story, however, the boy is critically injured along the way in a traffic accident. At the hospital, the staff rush him to the emergency room where a brain scan reveals that he has severe bleeding in the brain. A team of surgeons struggles to save his life. While the father stays with the injured boy, the story ends with the mother, in a state of distress, going to pick up her other child from preschool. *Id.*

69. *Id.* at 412, 416.

70. *Id.* at 418.



neutral version.<sup>71</sup> Thus, the experiment supported the theory that emotional arousal can enhance memory in humans.<sup>72</sup>

### *C. Propranolol as Possible Memory Dampener*

The fact that emotional arousal can create stronger memories led researchers to test whether they could pharmaceutically suppress this mechanism. In 1994, Larry Cahill and fellow researchers demonstrated this possibility using a variation of the previous experiment.<sup>73</sup> One hour before viewing the series of slides described above,<sup>74</sup> subjects ingested either a placebo or propranolol, a kind of "beta-blocker" that, as noted, has been used to treat hypertension.<sup>75</sup> While viewing the slides, the subjects heard one of the narratives described above (either the emotionally-arousing narrative or the neutral narrative). One week later, subjects were given a variety of memory tests. The results showed that, among those who heard the emotional story, those given placebo remembered more slides and could better answer factual multiple choice questions concerning the slides than those given propranolol.<sup>76</sup> By contrast, among those who heard the more neutral story, subjects had similar levels of recall regardless of whether they were given placebo or propranolol.<sup>77</sup> Thus, it has been suggested that propranolol interferes with the natural process by which emotionally-arousing experiences create stronger memories.<sup>78</sup> In effect, propranolol appears to dampen the strength of emotionally-arousing memories relative to what they would have been in the absence of the drug.

More recently, researchers have tested propranolol in experimental clinical settings. In 2002, a group led by Roger Pitman at Massachusetts General Hospital reported results from a double-blind, placebo-controlled pilot study on the use of propranolol to

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71. *Id.*

72. *Id.* at 420.

73. Cahill et al., *supra* note 59, at 702-04.

74. *Id.* at 702.

75. Unlike many beta-blockers, propranolol crosses the blood-brain barrier easily. Pitman et al., *supra* note 59, at 189; see also Anda H. van Stegeren et al., *Memory for Emotional Events: Differential Effects of Centrally Versus Peripherally Acting  $\beta$ -Blocking Agents*, 138 PSYCHOPHARMACOLOGY 305, 309-10 (1998) (demonstrating that nadolol, a beta-blocker that does not easily cross the blood-brain barrier, is unlikely to have the same effects on memory that propranolol has). Propranolol has also been used for many years by professional musicians and others to calm them before performances. See Blair Tindall, *Better Playing Through Chemistry*, N.Y. TIMES, Oct. 17, 2004, at 21.

76. Cahill et al., *supra* note 59, at 702.

77. *Id.*

78. See Pitman et al., *supra* note 59, at 189; Miller, *supra* note 12, at 35.

prevent PTSD.<sup>79</sup> The researchers recruited subjects in the emergency room who had recently experienced a traumatic event,<sup>80</sup> usually a motor vehicle accident.<sup>81</sup> Within six hours of the event, subjects began a regimen of either placebo or 40 mg oral doses of propranolol for a period of less than three weeks.<sup>82</sup> When tested one month later, the subjects in the propranolol group had a lower rate of PTSD symptoms than those in the placebo group.<sup>83</sup> In addition, a 2003 pilot study in France that lacked a placebo control reached results that also support the use of propranolol to treat PTSD.<sup>84</sup> While these studies were too small to generate statistically meaningful conclusions,<sup>85</sup> the results were sufficiently promising to garner funding for several larger studies.<sup>86</sup>

Even if propranolol lives up to its initial promise, the drug does have some substantial drawbacks. First, it appears that propranolol is most effective at preventing PTSD when taken within six hours after a traumatic experience, while the memory of the event is still in the process of consolidating.<sup>87</sup> Unfortunately, it is too early to know during this six-hour period whether any individual patient will go on to develop PTSD. Because less than 30% of trauma victims develop long-term PTSD, many might be treated with propranolol even though they

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79. Pitman et al., *supra* note 59, at 189; *see also* Henig, *supra* note 5, at 34 (describing one woman's decision to participate in Pitman's study after she was injured in an accident with a bicycle messenger).

80. Pitman et al., *supra* note 59, at 189.

81. *Id.* at 190.

82. *Id.*

83. *Id.* at 191. *See also* Fletcher Taylor & Larry Cahill, *Propranolol for Reemergent Posttraumatic Stress Disorder Following an Event of Retraumatization*, 15 J. TRAUMATIC STRESS 433 (2002) (reporting a case study successfully using propranolol to treat reemergent PTSD).

84. Vaiva et al., *supra* note 59, at 947-49.

85. In addition to just their small subject sizes, the studies require further replication under different test conditions. For example, Guillaume Vaiva's study in France, as noted, lacked a placebo control, and Roger Pitman's study in Massachusetts had a high rate of attrition. *See* Pitman et al., *supra* note 59, at 191. Furthermore, given the relatively short time frames in which the experiments were conducted, the evidence they offer relates more to the occurrence of PTSD symptoms than to full-blown diagnoses of the disorder.

86. Henig, *supra* note 5 (describing plans for a larger study supported by the National Institute of Mental Health); Mundell, *supra* note 5 (same); *see also supra* note 6 and accompanying text (describing studies in progress to test propranolol's effects on traumatic memories from the more distant past).

87. *See* MCGAUGH, *supra* note 54, at 68 ("Immediately after learning, the brain is in a state that allows either disruption (retrograde amnesia) or enhancement of the consolidation of the long-term memory."); *see also* Janine Rossato et al., *Retrograde Amnesia Induced by Drugs Acting on Different Molecular Systems*, 118 BEHAVIORAL NEUROSCIENCE 563, 563 (2004) (recognizing research in animals demonstrating that "[m]emories can be modified by pharmacological treatments not only in the immediate posttraining period, but also several hours after training" (citations omitted)).

never would have developed PTSD without it.<sup>88</sup> Second, even though propranolol is a relatively safe drug “with a long track record of use for hypertension,”<sup>89</sup> beta blockers like propranolol “have been reported to induce side effects, including sedation and difficulty in focusing attention in some patients.”<sup>90</sup> Thus, it would be safer and cheaper to avoid using it unnecessarily. Lastly, propranolol “could possibly interfere with the consolidation of highly emotional positive memories as well as negative ones.”<sup>91</sup> As James McGaugh has stated, “I’m sure that Nobel Prize winners remember . . . where they were and what they were doing when they got the call of winners and prizes.”<sup>92</sup> Therefore, even if propranolol proves effective in treating traumatic memories, because of its possible side effects, its limited period of maximum efficacy, and its dampening effects on positive emotional memories, the search is likely to continue for other methods of therapeutic forgetting.

Nevertheless, propranolol may still prove to be a breakthrough in memory research. While there are already many drugs that interfere with memory, most of these drugs impair the formation of *new* memories, hindering recall of events that occur *after* the drug is ingested. Such anterograde amnesia is a well-known side effect of alcohol,<sup>93</sup> as well as benzodiazepines available by prescription, like Valium and Halcion,<sup>94</sup> and illegal benzodiazepines like Rohypnol, a

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88. Henig, *supra* note 5, at 35 (“Pitman’s approach to post-traumatic stress disorder . . . could mean giving a drug to all the people who come to the E.R. after a trauma—at least 70 percent of whom will never develop any long-term problems even if they’re left alone.”); Marchione, *supra* note 6 (“Only 14 percent to 24 percent of trauma victims experience long-term PTSD . . .”).

89. Henig, *supra* note 5, at 35; *see also id.* (“Propranolol is not used much for heart disease anymore; the beta blockers now more commonly prescribed don’t tend to reach the brain and probably don’t have much impact on emotional memories.”).

90. Cahill, *supra* note 59, at 703. *See also* Tindall, *supra* note 75 (citing Dr. Stephen J. Gottlieb for the proposition that “beta blockers should be obtained only after a medical examination, since people with asthma or heart disease could develop problems like shortness of breath or a slowing of the heart rate”). While other side effects that have been associated with propranolol include fatigue, hallucinations, and vivid dreams, PHYSICIANS’ DESK REFERENCE, *supra* note 4, at 3423, “[o]ne-time use of low doses of beta blockers should be safe in healthy people,” Tindall, *supra* note 75 (quoting Dr. Gottlieb).

91. Henig, *supra* note 5, at 34 (referencing comments by Roger Pitman). *See also* Hearings, Part 1, *supra* note 17, at 17 (comments of James McGaugh).

92. Hearings, Part 1, *supra* note 17, at 17 (comments of James McGaugh).

93. S.K.Z. Knowles & T. Duka, *Does Alcohol Affect Memory for Emotional and Non-Emotional Experiences in Different Ways?*, 15 BEHAVIOURAL PHARMACOLOGY 111, 111-12 (2004) (noting alcohol’s ability to impair memories formed after consumption). In some studies, alcohol actually facilitated recall for events prior to its consumption. *See id.* at 111; Kenneth R. Bruce et al., *Alcohol and Retrograde Memory Effects: Role of Individual Differences*, 60 J. STUDIES ON ALCOHOL 130, 130 (1999).

94. Hearings, Part 1, *supra* note 17, at 9, 18-19 (comments of James McGaugh).

notorious date rape drug.<sup>95</sup> Unlike these drugs, however, propranolol is attracting attention because of its *retrograde* amnesic effect, offering greater potential to ameliorate traumatic memories from the recent past.<sup>96</sup> It is this feature of memory-dampening drugs—the possibility that they will enable us to intentionally weaken or forget the memory of an event that has already occurred—that generates the policy questions to which we now turn.

## II. LEGAL ISSUES

While propranolol-style memory dampening is itself sufficiently novel to raise a host of legal and ethical questions, the President's Council on Bioethics focused less on our current capabilities and more on the direction in which further research will take us. The Council is principally concerned with the "psyche-altering agents of the future, devised unlike those of the past on the basis of exact knowledge of the brain [that] will permit more refined and effective interventions."<sup>97</sup> Thus, the Council addresses memory dampening quite broadly, sometimes speaking more dramatically of memory blunting<sup>98</sup> or even memory erasing,<sup>99</sup> without always distinguishing whether the memory degradation applies to the factual content of memory, the emotions we attach to those memories, or some combination of both.

In order to address the Council's concerns, I will follow its lead in broadening the discussion of memory dampening beyond the limits of propranolol-style memory dampening. By not tying the analysis to

95. See, e.g., *Sera v. Norris*, 312 F. Supp. 2d 1100, 1109 (E.D. Ark. 2004) (describing expert testimony on Rohypnol's amnesic effect in the context of a rape prosecution).

96. Propranolol is not the only retrograde amnesic treatment. For example, electroconvulsive therapy can cause patients to forget experiences that precede treatment. Hearings, Part 1, *supra* note 17, at 8 (comments of James McGaugh); Connie Cahill & Chris Frith, *Memory Following Electroconvulsive Therapy*, in *HANDBOOK OF MEMORY DISORDERS* 319, 327-30 (Alan D. Baddeley et al. eds., 1995); Ann Lewis, *She Was Shocked*, *WASH. POST*, June 6, 2000, at Z14 (stating that the author "cannot remember much about the two years leading up to [her] ECT treatments" because "[t]hat period, along with much of the preceding years, is memory . . . lost in exchange for the hoped-for benefits of ECT."). While electroconvulsive therapy clearly has retrograde amnesic effects, it is too dangerous to use solely for the purpose of memory dampening. See BRUCE J. WINICK, *THE RIGHT TO REFUSE MENTAL HEALTH TREATMENT* 90-93 (1997) (citing the scientific literature on the dangers of ECT).

97. PRESIDENT'S COUNCIL ON BIOETHICS, *BEYOND THERAPY: BIOTECHNOLOGY AND THE PURSUIT OF HAPPINESS* 209 (2003) [hereinafter "BEYOND THERAPY"].

98. *Id.* at 276 ("blunting painful memories"); *id.* at 226 ("Use of memory-blunters at the time of traumatic events could interfere with the normal psychic work and adaptive value of emotionally charged memory.").

99. See, e.g., *id.* at 286 ("Many people are probably repelled by the idea of drugs that erase memories . . ."); *id.* at 230 ("If there are some things that it is better never to have experienced at all—things we would avoid if we possibly could—why not erase them from the memory of those unfortunate enough to have suffered them?").

any particular therapy (including the side effects of any real world therapy), we can address more generally the underlying legal and ethical issues that therapeutic forgetting may present. While we do not know the exact nature of these more advanced technologies to come, the Council warns that “if we wish to act responsibly regarding the biotechnical future that we might be, willy-nilly, in the midst of creating for ourselves and our descendants,”<sup>100</sup> we must to some extent anticipate the advances of new biotechnical interventions, so that we have time to consider the pertinent questions raised.<sup>101</sup>

In this Part, I give a brief overview of some of the legal questions that could arise in a world where memories are intentionally dampened or erased. Given how important memory is to so many areas of life and the law, this overview will barely scratch the surface of potential issues. I then address three topics in more detail. Specifically, I discuss issues of (1) informed consent, (2) obstruction of justice, and (3) mitigation of emotional damages. All of these issues are somewhat subordinate to the larger policy question that is the focus of this paper—namely, whether we should prohibit or severely restrict access to memory-dampening drugs—a topic discussed in detail in Part III.

### *A. Overview of Legal Issues*

Memories serve two distinct roles in the legal system. First, they play an indispensable role in fact-finding. We gather memories in depositions, trial testimony, police investigations, lineups, and more to help establish the underlying facts that set the entitlements of disputing parties. We value these memories principally for the information they can provide. Second, memories and their associated affective states can themselves form part of a claim for damages. If you injure me and cause me to have upsetting memories, I can sometimes seek redress for the intentional or negligent infliction of the emotional distress associated with those memories.<sup>102</sup> While the

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100. *Id.* at 209.

101. *Id.*

102. *See, e.g.*, *Henricksen v. State*, 84 P.3d 38, 55 (Mont. 2004) (stating that “where there is a physical manifestation of bodily harm resulting from emotional distress, such as PTSD, this bodily harm is sufficient evidence that the emotional distress suffered by the plaintiff is genuine and severe” enough to count as legally cognizable damage); *Hegel v. McMahon*, 960 P.2d 424, 426, 431 & n.5 (Wash. 1998) (allowing bystander claims for emotional damages if plaintiffs demonstrate “objective symptoms of their emotional injur[ies],” for example, “intrusive memories,” where the collection of symptoms constitutes “a diagnosable emotional disorder” such as “post traumatic stress disorder”). *See generally* Nancy Levit, *Ethereal Torts*, 61 GEO. WASH. L. REV. 136, 139, 140-59 (1992) (tracing “the increasing ‘etherealization’ of tort law . . . from

existence of emotional distress must be proved just like other facts in a cause of action, the memories causing that distress are significant not only for their fact-finding role in assessing liability but also because of the negative feelings attached to them.

### 1. The Informational Value of Memory

Let us turn first to the role of memory as a source of information. There is little evidence so far as to how much, if at all, propranolol affects the informational content of traumatic memories formed before the drug is consumed. Assume, however, that propranolol or a future memory-dampening drug dampens both informational and emotional aspects of memories. If a witness to a recent gruesome crime uses such a drug, it will have two effects: First, it will ease the witness's suffering and help him resume a normal life. Second, it will reduce the socially-valuable information contained in the witness's memories—information that may be vitally important to prosecuting the perpetrator and protecting others from harm. These two effects reveal a tradeoff that memory dampening may pose between our individual autonomy interests in controlling what happens to our bodies<sup>103</sup> and society's interest in preserving evidence that benefits others.<sup>104</sup>

In related contexts, the law tries to strike a balance between these interests. For example, we limit the government's power to recover physical evidence of a crime, a bullet for example, when it is lodged inside a defendant and can only be recovered by invading the defendant's body.<sup>105</sup> More generally, the law balances our obligations to report information that we have with our freedom to control that information. For example, while the government can use the subpoena

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compensating only direct and tangible personal injury and property harms to the relatively modern compensation of emotional and expectancy interests”).

103. Such autonomy interests are frequently noted in important constitutional law cases. *See, e.g.*, *Cruzan v. Director, Mo. Dep't of Health*, 497 U.S. 261, 278 (1990) (“The principle that a competent person has a constitutionally protected liberty interest in refusing unwanted medical treatment may be inferred from our prior decisions.”); *Washington v. Harper*, 494 U.S. 210, 229 (1990) (“The forcible injection of medication into a nonconsenting person's body represents a substantial interference with that person's liberty.”); *Riggins v. Nevada*, 504 U.S. 127, 134 (1992) (quoting *Harper*).

104. *See generally* Christopher Slobogin, *Subpoenas and Privacy*, 54 DEPAUL L. REV. 805, 805-26 (2005) (describing the subpoena power).

105. *See Winston v. Lee*, 470 U.S. 753, 760 (1985) (“The reasonableness of surgical intrusions beneath the skin depends on a case-by-case approach, in which the individual's interests in privacy and security are weighed against society's interests in conducting the procedure.”); *cf. United States v. Crowder*, 543 F.2d 312, 316 (D.C. Cir. 1976) (finding no Fourth Amendment violation when a bullet was surgically removed from the defendant, against his will, where the bullet was superficial and the surgery was comparatively minor).

power to force us to testify about our memories,<sup>106</sup> we are generally not required to report crimes we witness in the absence of a subpoena.<sup>107</sup>

The traditional balance of information control is upset to some degree if memory-dampening drugs give individuals incentives that conflict with society's best interests. Without memory dampening, a crime or car accident victim typically remembers his traumatic experience, and society as a whole can use that information to better protect itself from a dangerous person. Thus, the gains from memory preservation are widely shared. By contrast, the victim, suffering great emotional distress, disproportionately bears the cost of retaining the memory. In a world with memory dampening, however, victims need not bear this disproportionate cost, and so memory dampening might lead to suboptimal levels of memory retention from a societal perspective.<sup>108</sup>

In order to better align individual incentives with societal interests, the government could use new or existing laws to penalize those who dampen socially-valuable memories. For example, numerous civil and criminal provisions already make it illegal to alter evidence. In some cases, tampering with one's memory could be deemed to "spoliate evidence." When evidence is spoliated, the factfinder is typically entitled to presume that the lost or otherwise

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106. See, e.g., *Branzburg v. Hayes*, 408 U.S. 665, 682 (1972) ("Citizens generally are not constitutionally immune from grand jury subpoenas; and neither the First Amendment nor any other constitutional provision protects the average citizen from disclosing to a grand jury information that he has received in confidence.")

107. Gerard E. Lynch, *The Lawyer as Informer*, 1986 DUKE L.J. 491, 492 (1986). Many states do, however, have statutes that require bystanders to report certain kinds of crimes. See, e.g., MASS. GEN. LAWS ANN. ch. 268, § 40 (West 1990) ("Whoever knows that another person is a victim of aggravated rape, rape, murder, manslaughter or armed robbery and is at the scene of said crime shall, to the extent that said person can do so without danger or peril to himself or others, report said crime to an appropriate law enforcement official as soon as reasonably practicable."); OHIO REV. CODE ANN. § 2921.22 (West 1997) (requiring those with knowledge of a felony to report it to law enforcement); WIS. STAT. ANN. § 940.34(2)(a) (West 1991) ("Any person who knows that a crime is being committed and that a victim is exposed to bodily harm shall summon law enforcement officers or other assistance or shall provide assistance to the victim."); Eugene Volokh, *Duties to Rescue and the Anticooperative Effects of Law*, 88 GEO. L.J. 105, 105 n.2 (1999) (listing statutes that require bystanders to report crimes); see also *id.* at 106 n.6 ("[A] duty to tell the police about crimes is not far removed from the traditionally accepted duty to testify in court when subpoenaed. The fact that we consider the duty to testify to be a permissible—even a generally uncontroversial—infringement of personal liberty suggests that duties to report might likewise be permissible infringements.")

108. In some cases, a witness will also have a unique interest in seeing that a perpetrator is punished or that a tortfeasor is held liable, and so his interests may substantially align with those of society more generally.

unavailable evidence was unfavorable to the spoliator.<sup>109</sup> In more severe cases, discussed below, those who dampen a memory may be deemed to have obstructed justice, when they know (or perhaps even when they should have known) that their unadulterated memories would be needed at an upcoming judicial proceeding.<sup>110</sup> However, when a person alters his memory to further a legitimate therapeutic purpose, he may be able to claim a defense of medical necessity.<sup>111</sup>

Assuming that a potential witness has dampened memories, courts will have to decide when to nevertheless permit that witness to testify in court. The Federal Rules of Evidence and similar state laws require testifying witnesses to have “personal knowledge” of the facts about which they testify.<sup>112</sup> Under current law, those with foggy memories usually satisfy the personal knowledge requirement,<sup>113</sup> so except in cases of thorough memory erasure, this requirement is unlikely to prevent admission of memory-dampened testimony. Expert testimony might be permitted, however, to impeach the quality of the

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109. See *Brown & Williamson Tobacco v. Jacobson*, 827 F.2d 1119, 1134 (7th Cir. 1987) (“A court and a jury are entitled to presume that documents destroyed in bad faith while litigation is pending would be unfavorable to the party that has destroyed the documents.”); Dale A. Oesterle, *A Private Litigant’s Remedies for an Opponent’s Inappropriate Destruction of Relevant Documents*, 61 TEX. L. REV. 1185, 1232-39 (1983) (“[A] party’s bad faith destruction of relevant documents is an admission by conduct that he believes his case is weak and cannot be won fairly.”). See generally 2 JOHN HENRY WIGMORE, EVIDENCE § 291 (James H. Chadbourn rev. ed., 1979) (discussing evidence spoliation). Occasionally, spoliation of evidence has been recognized as an independent tort. See *Smith v. Howard Johnson*, 615 N.E.2d 1037, 1038 (Ohio 1993) (recognizing “a cause of action . . . in tort for interference with or destruction of evidence”); James T. Killelea, Note, *Spoliation of Evidence Proposals for New York State*, 70 BROOK. L. REV. 1045, 1048 (2005) (advocating an independent tort to discourage third-party spoliation).

110. See *infra* Part II.B.2.

111. See, e.g., MODEL PENAL CODE § 3.02 (1985) (choice of evils defense); N.Y. PENAL LAW § 35.05 (McKinney 1998) (general justification defense); TEX. PENAL CODE ANN. § 9.22 (Vernon 2003) (necessity defense); cf. *United States v. Oakland Cannabis Buyers’ Coop.*, 532 U.S. 483, 494 (2001) (holding “that medical necessity is not a defense to manufacturing and distributing marijuana” under the Controlled Substances Act). See generally Larry Alexander, *Lesser Evils: A Closer Look at the Paradigmatic Justification*, 24 LAW & PHIL. 611 (2005); Adav Noti, Note, *The Uplifted Knife: Morality, Justification, and the Choice-of-Evils Doctrine*, 78 N.Y.U. L. REV. 1859 (2003).

112. See FED. R. EVID. 602 (“A witness may not testify to a matter unless evidence is introduced sufficient to support a finding that the witness has personal knowledge of the matter.”).

113. “[M]emory gaps and doubts caused by the lapse of time go to the weight to be given the testimony. So long as the witness has some recollection, a jury could reasonably give the testimony some weight and this aspect of the personal knowledge requirement is satisfied.” 27 CHARLES ALAN WRIGHT & VICTOR JAMES GOLD, FEDERAL PRACTICE AND PROCEDURE, EVIDENCE § 6023 (1990) (footnote omitted); see *Tucker v. State*, 721 P.2d 639, 642 (Alaska Ct. App. 1986) (finding it proper to admit testimony in a murder case despite the purportedly defective memory of the witness, stating that “[d]efects in a witness’ recollection are proper subjects for cross-examination and impeachment, but the defects do not generally render the witness’ testimony inadmissible”).



witness's testimony or to suggest that the extent of the witness's purported failure to recall is inconsistent with the use of memory-dampening drugs.<sup>114</sup> In some cases, litigants may seek to record a witness's testimony before his memory is dampened.<sup>115</sup> In such cases, courts will still have to decide under what circumstances to admit the recorded hearsay in a subsequent trial.<sup>116</sup>

There are a variety of ways one might exploit memory dampening to eliminate damaging evidence. For example, the perpetrator of physical or sexual abuse could try to dampen his victim's memory, making it harder for the victim to assist police and provide incriminating testimony.<sup>117</sup> There is already much skepticism about the accuracy of such eyewitness memories;<sup>118</sup> pharmaceutical memory-alteration will only create more doubt. In the particularly dreadful scenario where the victim is a child, memory-dampening drugs could further muddle the much-debated issues surrounding the accuracy, prevalence, and, some would add, existence of repressed childhood memories.<sup>119</sup>

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114. See FED. R. EVID. 702 (allowing expert witness testimony that assists the factfinder where "(1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case").

115. If the time window to commence memory dampening is a short six hours or so, it is unlikely that courts can intervene before dampening must begin. With a longer window, however, litigants might seek to depose witnesses before they begin treatment. In criminal cases, "[a] party may move that a prospective witness be deposed in order to preserve testimony for trial. The court may grant the motion because of exceptional circumstances and in the interest of justice." FED. R. CRIM. P. 15.

116. Such hearsay evidence might be permitted as a recorded recollection, see FED. R. EVID. 803(5) (creating a hearsay exception for "[a] memorandum or record concerning a matter about which a witness once had knowledge but now has insufficient recollection to enable the witness to testify fully and accurately, shown to have been made or adopted by the witness when the matter was fresh in the witness' memory and to reflect that knowledge correctly"). If the declarant is deemed unavailable to testify at trial because of his lack of memory, see FED. R. EVID. 804(a)(3), or because he is deemed to have a mental infirmity, see FED. R. EVID. 804(a)(4), then there may be additional options for admitting the evidence, particularly for oral statements that would not fall under the recorded record exception. See FED. R. EVID. 804(b) (describing hearsay exceptions that apply when the declarant is deemed unavailable).

117. Similar issues may arise in cases of drugged rape. See, e.g., National District Attorneys Association, *The Date Rape Drug: The Difficulty in Obtaining Convictions*, PROSECUTOR, Apr. 31, 1997, at 28 (noting that prosecutions can be difficult in date rape drug cases where victims were not conscious during the crime).

118. See generally AINSWORTH, *supra* note 59, at 40-41 (identifying weaknesses in eyewitness recall); LOFTUS & DOYLE, *supra* note 59, at 30-31 (same).

119. See generally DANIEL BROWN ET AL., *MEMORY, TRAUMA TREATMENT, AND THE LAW* 578-612 (1998) (discussing repressed memory litigation in the courts); *CAPTURING THE FRIEDMANS* (HBO Video 2002) (suggesting that some methods of police interrogation can inadvertently lead children to falsely claim that they were sexually abused).

Furthermore, memory-dampening drugs might be taken, not just by victims and witnesses, but by perpetrators as well. A perpetrator might do so in order to cope with feelings of shame and guilt associated with his crime.<sup>120</sup> Alternatively, a perpetrator might cold-heartedly dampen his memories in order to more convincingly deceive police and a jury. It might be more advantageous to do so than to claim a Fifth Amendment privilege to remain silent and face the negative inference that jurors often draw from that silence.<sup>121</sup> Even without memory-dampening drugs, those accused of a crime frequently claim to have no recollection of committing it.<sup>122</sup> While many of these claims are undoubtedly spurious, the availability of a powerful memory-dampening drug could increase the rate of both genuine and malingered claims of forgetting by criminals.<sup>123</sup> Thus, in order to ease painful memories or to deliberately eliminate damaging evidence, those who dampen memories may degrade our shared pool of socially-valuable information and may require us to strengthen laws governing evidence preservation.

## 2. The Affective Disvalue of Memory

Memory-dampening drugs also raise new legal issues associated with memory's connection to negative emotional states. For example, under some circumstances, doctors could be liable for malpractice for failing to dampen a patient's distressing memory and, perhaps too, for dampening a memory that should have been left alone.<sup>124</sup> If so, we would face difficult questions about how to calculate damages for memories that are tortiously dampened or retained. Furthermore, as I discuss in more detail in the next Section, questions

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120. Wasserman, *supra* note 11, at 14.

121. As a practical matter, criminal defendants may be hesitant to exercise their right to silence for fear that jurors expect an innocent defendant to testify in his own defense. See Anne Bowen Poulin, *Evidentiary Use of Silence and the Constitutional Privilege Against Self-Incrimination*, 52 GEO. WASH. L. REV. 191, 197 (1984) (noting that some juries may improperly deem a defendant's silence to be evidence of guilt). Outside of criminal prosecutions, factfinders may draw negative inferences from silence. See, e.g., *Baxter v. Palmigiano*, 425 U.S. 308, 316-20 (1976) (holding that an adverse inference may be drawn from the invocation of the Fifth Amendment right to silence in prison disciplinary hearings).

122. Among those convicted of homicide, one source estimates that 25% to 45% claim amnesia for the killing. See M.D. Kopelman, *The Assessment of Psychogenic Amnesia*, in HANDBOOK OF MEMORY DISORDERS 427, 428-29 (Alan D. Baddeley et al. eds., 1995).

123. Courts are, not surprisingly, suspicious of defendants' assertions of memory loss. See *Fajeriak v. State*, 520 P.2d 795, 802 (Alaska 1974) ("The potential for fraudulent allegations of memory loss is so great that we would for this reason alone be reluctant to follow amnesia as a ground for a finding of incompetency even if we were otherwise inclined to do so.").

124. See generally BARRY R. FURROW ET AL., HEALTH LAW § 6-2 (2d ed. 2000) (providing an overview of malpractice law).

may arise as to the sorts of disclosures that health professionals must make in order to obtain informed consent to dampen the memories of a recently traumatized person.<sup>125</sup>

In the torts context more generally, courts may have to decide the effect of memory dampening in the already controversial area of damage calculations for emotional distress. In addition to the valuation issues just noted, one thorny problem, discussed in more detail below, concerns whether a person with tortiously-caused physical and emotional trauma fails to mitigate damages if he decides not to dampen.<sup>126</sup> While courts have generally not required plaintiffs to mitigate emotional damages, if indeed memory dampening proved popular and successful, the tendency might change.<sup>127</sup>

Regular clinical use of memory-dampening drugs would also raise a familiar set of concerns over access to and distribution of expensive medical resources.<sup>128</sup> For example: Would the drugs be covered by various forms of health insurance and, if so, to what extent? How would reimbursements for memory dampening compare to those available for other methods of treating traumatic memories, like psychotherapy? While these issues are familiar, they are also unique in this context. If insurance programs were to provide better reimbursement for memory-dampening pharmaceuticals than for more labor-intensive, expensive psychotherapy, patients could feel pressured to dampen memories they would have preferred to keep and wrestle with the old-fashioned way in therapy. Thus, policy questions over insurance coverage will implicate deeper questions about how people should deal with psychic distress and how much freedom they should have to select the form of their mental health treatments.

If we liberate ourselves entirely from existing technology and look to the distant future, we can imagine a number of interesting, if fanciful, scenarios for courts to decide. For example, the invasion of privacy tort has been used to recover damages for "unreasonable intrusion upon the seclusion of another."<sup>129</sup> It has been used in suits against those who install hidden video cameras in bathrooms<sup>130</sup> or

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125. See *infra* Part II.B.1.

126. See *infra* Part II.B.3.

127. See *id.*

128. See, e.g., Mark A. Hall, *Rationing Health Care at the Bedside*, 69 N.Y.U. L. REV. 693 (1994); Maxwell J. Mehlman, *Rationing Expensive Lifesaving Medical Treatments*, 1985 WIS. L. REV. 239 (1985).

129. RESTATEMENT (SECOND) TORTS § 652A (1977); see also *id.* § 652B & cmt. A.

130. See, e.g., *Harkey v. Abate*, 346 N.W.2d 74, 76 (Mich. Ct. App. 1983) (holding that the installation of hidden viewing devices "can itself constitute a sufficient wrongful intrusion" into a plaintiff's seclusion to permit recovery).

listening devices in the bedroom of a married couple.<sup>131</sup> In such cases, damages can be awarded for emotional distress, but one can never take away the voyeuristic memories the defendant retains. Never, that is, unless one has very sophisticated memory-erasing technology along with very few protections of our rights to be free from forced memory dampening.<sup>132</sup>

Many of the issues raised by memory dampening, science fiction or otherwise, implicate some provision of the Constitution,<sup>133</sup> and the risk of constitutional violations would be particularly high if the government forced a person to dampen memories.<sup>134</sup> Weaker forms of coercion might also violate the Constitution, if, for example, a municipality tried to save money by requiring its police, firefighters, and paramedics to use memory dampeners to prevent the formation of traumatic memories on the job. As government employees, they could claim that certain pressures to dampen are unconstitutional conditions of employment.<sup>135</sup> Much more can be said about the broad liberty interests implicated by intentional memory manipulation, and I briefly return to the subject at the end of Part III.

131. *Hamberger v. Eastman*, 206 A.2d 239, 241-42 (N.H. 1965).

132. Similar science fiction scenarios could be crafted to remedy trade secret violations or to untaint juries that have been inadvertently exposed to lurid and prejudicial inadmissible evidence.

133. This is a vast topic in itself. To offer just an example, the First Amendment could be construed to protect us against certain kinds of government interference with memory. *See, e.g., Stanley v. Georgia*, 394 U.S. 557, 565 (1969) (“Our whole constitutional heritage rebels at the thought of giving government the power to control men’s minds.”); Charles Fried, *Perfect Freedom, Perfect Justice*, 78 B.U. L. REV. 717, 735-36 (1998) (“The First Amendment as freedom of thought . . . protects against government interfering with the process of judgment itself, the judgment by which we may conclude that all the other commitments we make are wise or not.” (footnote omitted)); Bruce J. Winick, *The Right to Refuse Mental Health Treatment: A First Amendment Perspective*, 44 U. MIAMI L. REV. 1, 17-19 (1989) (arguing that the First Amendment limits intrusive forms of government interference with our mental processes). Government authority over memory dampening may also implicate privacy protections of the Fourth, Fifth, Ninth, and Fourteenth Amendments, as well as the Eighth Amendment protection against cruel and unusual punishment.

134. *See, e.g., supra* note 103 (citing cases recognizing limited rights to refuse medical treatment); *cf. Sell v. United States*, 539 U.S. 166, 169, 179 (2003) (holding that the government can constitutionally force a defendant to use psychoactive drugs to render him competent to stand trial “if the treatment is medically appropriate, is substantially unlikely to have side effects that may undermine the fairness of the trial, and, taking account of less intrusive alternatives, is necessary significantly to further important governmental trial-related interests”).

135. *But cf. Greenawalt v. Indiana Dep’t of Corr.*, 397 F.3d 587, 589-90 (7th Cir. 2005) (holding that requiring a state employee to take an invasive psychological test as a condition of employment does not unconstitutionally burden her Fourth Amendment right to be free from unreasonable searches and seizures).

### *B. Some Specific Legal Issues*

In this Section, I address three legal issues in greater detail. First, I address the claim, raised by Council member Gilbert Meilaender and echoed by the Council in its report on memory dampening, that it may be difficult or impossible to obtain informed consent from patients to undergo propranolol-style memory dampening. Second, I describe how existing obstruction of justice provisions may criminalize memory dampening in certain cases. Lastly, I discuss the mitigation of emotional damages in tort to show how the doctrine requires us to establish norms of behavior in the memory-dampening context.

#### 1. Informed Consent

The doctrine of informed consent, in both its legal and ethical formulations, is typically understood to require healthcare personnel to make certain disclosures to patients prior to beginning medical procedures and to obtain the patient's permission to proceed.<sup>136</sup> Such disclosures should include "the nature of the pertinent ailment or condition, the risks of the proposed treatment or procedure, and the risks of any alternative methods of treatment, including the risks of failing to undergo any treatment at all."<sup>137</sup>

The doctrine has formed the basis of a criticism particular to propranolol-style memory dampening. As noted earlier, memory dampening using propranolol is currently thought most likely to be effective in the first six hours after a traumatic event while the memory is still in the process of consolidating.<sup>138</sup> During this period, however, we cannot accurately predict whether a given patient will eventually develop PTSD or otherwise develop severe traumatic memories. This means that doctors would have to prescribe propranolol and seek informed consent to the treatment before they can predict with confidence whether a particular patient would go on to develop PTSD in the absence of the drug.

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136. See, e.g., *Canterbury v. Spence*, 464 F.2d 772, 786-87 (D.C. Cir. 1972) ("[T]he test for determining whether a particular peril must be divulged is its materiality to the patient's decision: all risks potentially affecting the decision must be unmasked."); *Schloendorff v. Soc'y of N.Y. Hosp.*, 105 N.E. 92, 93 (N.Y. 1914) ("Every human being of adult years and sound mind has a right to determine what shall be done with his own body and a surgeon who performs an operation without his patient's consent . . . is liable in damages.")

137. W. PAGE KEETON ET AL., *PROSSER AND KEETON ON THE LAW OF TORTS* 190 (5th ed. 1984).

138. See *supra* note 87 and accompanying text.

In an essay on memory dampening,<sup>139</sup> Council member Gilbert Meilaender suggests that the time limitation on propranolol-style memory dampening makes it difficult, if not impossible, for patients to give their informed consent to the treatment because they would not yet know the role that their painful memories would ultimately play in their lives.<sup>140</sup> The Council elaborates on the same point:

[I]n the immediate aftermath of a painful experience, we simply cannot know either the full meaning of the experience in question or the ultimate character and future prospects of the individual who experiences it . . . . Will he be cursed forever by unbearable memories that, in retrospect, clearly should have been blunted medically? Or will he succeed, over time, in "redeeming" those painful memories by actively integrating them into the narrative of his life?<sup>141</sup>

The quality of informed consent to propranolol-style memory dampening can thus be challenged on two grounds. First, almost by definition, traumatized patients will have some level of psychological disturbance that may cloud their decision to consent. Second, as Meilaender suggests, even if they are capable of making sound medical decisions, they will only have limited information as to the relative costs and benefits of undergoing the therapy. Given that propranolol is not risk-free (because it may cause side effects<sup>142</sup> and because some patients may regret having used it to dampen their memories), it would be preferable to allow patients and psychiatrists time to determine the scope and severity of a patient's traumatic memories before deciding to dampen them.<sup>143</sup>

Despite these concerns, the doctrine of informed consent does not pose a general obstacle to the use of propranolol-style memory dampening. We frequently use preventative medicines on people who are unlikely to develop the illnesses we seek to prevent. We make such decisions by weighing expected costs and benefits, even when these decisions dramatically alter people's lives. For example, some women with a known genetic predisposition to develop breast cancer opt for preventative mastectomies even though many of them would never

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139. Meilaender, *supra* note 11. The essay was written in Meilaender's individual capacity and does not speak for the Council. *Id.* at 21.

140. *Id.* (asking whether recently traumatized patients contemplating memory dampening could "know or decide in that moment whether doing so was wise? Is that the moment in which to decide whether one wants to carry such painful memories along throughout life or to erase them?"); see also Hearings, Part 3, *supra* note 17, at 8 (comments by William May noting the informed consent issue).

141. BEYOND THERAPY, *supra* note 97, at 227.

142. See *supra* note 90 and accompanying text.

143. As noted, researchers are testing propranolol's efficacy when taken more than six hours after a traumatic experience. See *supra* note 86. Future forms of memory dampening may not have the limitations that propranolol-style memory dampening appears to have.

have actually developed the disease.<sup>144</sup> Part of the role of physicians is to inform patients of the costs and benefits of medical interventions, particularly when the outcome of a proposed intervention is uncertain. Thus, physicians prescribing propranolol have obligations to obtain their patients' consent after describing the probabilistic costs and benefits of treatment. Assuming they do so, the fact that the treatment involves probabilistic decisionmaking is otherwise irrelevant.

Furthermore, while it is true that many of those asked to consent to memory dampening, having just recently suffered emotional trauma, will not have the full benefit of their faculties of contemplative reflection, we ordinarily require no such thing before commencing serious medical treatments. For example, suppose a person is severely injured in a motor vehicle accident and is rushed to the emergency room, conscious and aware but emotionally shaken. Suppose further that the patient must decide whether to have part of a limb amputated to reduce the probability of amputating the entire limb later on. Despite the patient's emotional turmoil, both from the accident itself and the prospect of amputation, if the patient satisfies rather minimal standards of competence,<sup>145</sup> health professionals will seek the patient's consent to the operation.<sup>146</sup>

Assume now that this same patient must decide not only whether to amputate but also whether to dampen his memory of the accident. If he can consent to the amputation by making a probabilistic determination after recently suffering trauma, then he can make the same sort of determination about memory dampening.<sup>147</sup>

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144. Timothy R. Rebbeck et al., *Bilateral Prophylactic Mastectomy Reduces Breast Cancer Risk in BRCA1 and BRCA2 Mutation Carriers: The PROSE Study Group*, 22 J. CLINICAL ONCOLOGY 1055, 1055 (2004); see also Carl T. Hall, *Surgery Cuts Risk of Breast Cancer: Study Supports Use of Preventive Mastectomies*, S.F. CHRON., Feb. 24, 2004, at A2 ("The first major study of preventive breast-removal surgery in women with a high genetic risk for breast cancer showed the radical step may reduce cancer risk by 90 percent.").

145. "[N]o general agreement exists concerning the appropriate legal standard for ascertaining competency to provide informed consent." WINICK, *supra* note 96, at 349. "Some courts simply describe a valid choice as 'informed,' 'reasoned,' or 'rational,' without specifying any particular decisionmaking process. Most courts, however, do indicate that the patient must understand essential information." Elyn R. Saks, *Competency to Refuse Treatment*, 69 N.C. L. REV. 945, 978 (1991) (footnotes omitted); see also *In re Schiller*, 372 A.2d 360, 367 (N.J. Super. Ct. Ch. Div. 1977) (stating that "[t]he mental capacity to give consent to a surgical procedure is the same as that required to enter into a contract," requiring examination of whether a patient "possesses sufficient mind to understand, in a reasonable manner, the nature, extent, character, and effect of the act or transaction in which he is engaged.").

146. Similarly, parents who are emotionally traumatized from witnessing their children's traumatic injuries can ordinarily still give informed consent to their children's medical treatment.

147. As Bruce Winick has noted:

While memory dampening is a more novel and unfamiliar therapy than is amputation, every significant medical innovation is novel and unfamiliar for some period of time, and that is not ordinarily enough to vitiate the quality of patient consent.<sup>148</sup> In any event, a patient's state of trauma cannot be a complete hindrance to obtaining his informed consent, for if we truly thought a patient incompetent to consent, we typically still seek consent from close relatives or the courts.<sup>149</sup>

## 2. Obstruction of Justice

As noted earlier, there are already a variety of laws that, in effect, limit our rights to dampen memories. Under certain circumstances, for example, use of a memory-dampening drug that affects factual recall could constitute obstruction of justice.<sup>150</sup> Obstruction of justice refers to a "medley of crimes"<sup>151</sup> with a variety of names in federal and state statutes, such as "tampering with a witness" or "tampering with physical evidence." Among the federal government's obstruction statutes, an omnibus clause in 18 U.S.C. §

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[I]f the decision process is sufficiently free of coercion and undue influence, a patient . . . who receives sufficient information concerning the possible risks and side effects of a proposed therapy and alternative approaches, and who is sufficiently competent and intelligent to comprehend the information, may choose whether to participate in the proposed treatment. Such an informed consent allows treatment to be administered and constitutes a defense to any subsequent legal action asserting violation of the right to refuse treatment.

WINICK, *supra* note 96, at 346.

148. In addition, as Meilaender himself acknowledges, those who have the greatest likelihood of experiencing traumatic events—rescue workers, for example—can be informed in advance about the pros and cons of memory dampening and need not address the issue for the first time while experiencing the immediate aftermath of a traumatic event. See Meilaender, *supra* note 11, at 21 (noting that rescue workers could consent before they are traumatized, but asking rhetorically whether one can "actually think this through knowledgeably in advance of the experience").

149. See, e.g., *Strunk v. Strunk*, 445 S.W.2d 145, 145, 149 (Ky. Ct. App. 1969) (authorizing a kidney transplant, with parental approval, from "an incompetent ward of the state" to his brother). See generally Stewart G. Pollack, *Life and Death Decisions: Who Makes Them and By What Standards*, 41 RUTGERS L. REV. 505 (1989); John Robertson, *Organ Donations by Incompetents and the Substituted Judgment Doctrine*, 76 COLUM. L. REV. 48 (1976). In general, emotionally traumatized patients are competent to consent to treatment. In cases where a traumatized patient is incompetent, however, it would indeed be difficult to reach family members and virtually impossible to commence meaningful judicial proceedings within the preferred six-hour window to begin propranolol-style memory dampening.

150. See generally *United States v. Buckley*, 192 F.3d 708, 710 (7th Cir. 1999) ("The term 'obstruction of justice' refers to efforts to impede the processes of legal justice."); *United States v. Cihak*, 137 F.3d 252, 262 (5th Cir. 1998) ("Obstruction of justice involves any attempt to impede the due administration of justice."); Sarah Roadcap, *Obstruction of Justice*, 41 AM. CRIM. L. REV. 911 (2004) (surveying the law of obstruction of justice, particularly federal law).

151. *Buckley*, 192 F.3d at 710.



1503 provides for the imprisonment of anyone who “corruptly or by threats or force, or by any threatening letter or communication, influences, obstructs, or impedes, or endeavors to influence, obstruct, or impede, the due administration of justice.”<sup>152</sup> The catchall nature of the clause is intended to prohibit “novel and creative schemes”<sup>153</sup> to obstruct justice that are not listed by name in § 1503’s more specific prohibitions.<sup>154</sup>

In some cases, memory dampening could be one of those novel and creative schemes. Long before our recent interest in memory dampening, it was held to be obstruction of justice to intentionally get a witness drunk in order to prevent the witness from testifying in court.<sup>155</sup> By analogy, one may obstruct justice by pharmaceutically tampering with another’s memory in order to prevent that person from testifying in court. If a rapist forces his victim to consume a memory-dampening drug so that the victim cannot later testify as a witness when the rapist is on trial, then, among his crimes, the rapist might be convicted of obstruction under the broad language of § 1503.

A potentially more common scenario could occur as follows: The victim of an armed robbery takes a powerful memory-dampening drug to ease his painful memories of the incident. He regrets that doing so will greatly diminish the value of his testimony at an upcoming judicial proceeding against the perpetrator, but he does not want to bear the full strength of his painful memories in the interim. Under these circumstances, let us assume, the victim is well-aware that the drug will impede the administration of justice, though this is not his goal. In the language of the Model Penal Code, the victim has “knowledge” that his conduct will impede the administration of justice, though this is not his “purpose.”<sup>156</sup>

While courts have not established a uniform mental state requirement to convict a defendant for obstruction under § 1503, it is

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152. 18 U.S.C. § 1503 (2006); *see also* *United States v. Brenson*, 104 F.3d 1267, 1275 (11th Cir. 1997) (“[T]he omnibus clause is broad enough to cover any act committed corruptly, in an endeavor to impede or obstruct justice.” (quoting *United States v. Brand*, 775 F.2d 1460, 1465 (11th Cir. 1985))).

153. *United States v. Tackett*, 113 F.3d 603, 607 (6th Cir. 1997).

154. *See United States v. Griffin*, 589 F.2d 200, 206-07 (5th Cir. 1979) (“The obstruction of justice statute was drafted with an eye to the variety of corrupt methods by which the proper administration of justice may be impeded or thwarted, a variety limited only by the imagination of the criminally inclined.” (citation and internal quotations marks omitted)); *United States v. Cueto*, 151 F.3d 620, 630 (7th Cir. 1998) (citing *Griffin* and *Tackett*).

155. *State v. Holt*, 24 A. 951, 952 (Me. 1892) (holding that it is obstruction of justice to “[i]ntentionally and designedly . . . get a witness drunk, for the express purpose of preventing his attendance before the grand jury, or in open court”); *see also* *Commonwealth v. Berry*, 133 S.W. 212, 213 (Ky. Ct. App. 1911) (quoting *Holt*); *State v. Jones*, 48 P.2d 403, 405 (N.M. 1935) (same).

156. *See* MODEL PENAL CODE § 2.02 (1985).

clear that a defendant can be convicted even when it is not his purpose to obstruct. For example, in *United States v. Neiswender*,<sup>157</sup> Neiswender told the attorney of a criminal defendant in a high profile case that, for the sum of \$20,000, he could ensure the defendant's acquittal because he had one of the jurors in that case under his control.<sup>158</sup> It appears that Neiswender was merely seeking to extract money from the attorney, as there was no evidence that Neiswender actually had communicated or intended to communicate in any way with any member of the jury.<sup>159</sup> Nevertheless, the government charged Neiswender with obstruction of justice, arguing that "[h]ad Neiswender convinced [the attorney] that he had a juror under his control and induced [the attorney] to participate in the scheme, the natural consequence would have been to reduce [the attorney's] efforts in defending his client."<sup>160</sup> In reply, Neiswender argued that he had absolutely no intent to obstruct justice. In fact, he claimed that his "motivation was directly at odds with any design to obstruct justice since a guilty verdict would have revealed [his] fraud."<sup>161</sup> The Fourth Circuit upheld Neiswender's conviction, stating that Neiswender "need only have had knowledge or notice that success in his fraud would have likely resulted in an obstruction of justice."<sup>162</sup> Similarly, in *United States v. Silverman*,<sup>163</sup> the court stated that "[t]he government is not required to prove . . . that the defendant harbored the specific purpose of obstructing the due administration of justice; all the government has to establish is that the defendant should have reasonably foreseen that the natural and probable consequence of the success of his scheme would achieve precisely that result."<sup>164</sup>

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157. 590 F.2d 1269 (4th Cir. 1979).

158. *Id.* at 1270.

159. *Id.* at 1271.

160. *Id.* at 1272.

161. *Id.* at 1272-73.

162. *Id.* at 1273; *see also* *United States v. Buffalano*, 727 F.2d 50, 54 (2d Cir. 1984) ("[W]hile the statutory term 'corruptly endeavors' requires intent, such intent may be inferred from proof that defendant had knowledge or notice that his corrupt actions would obstruct justice then actually being administered.").

163. 745 F.2d 1386, 1389-95 (11th Cir. 1984) (holding that a criminal defense attorney obstructed justice when he told his client that, for the sum of \$25,000, he could pay "some very powerful people" at the Department of Justice to "fix" the client's case and secure favorable sentencing after a guilty plea).

164. *Id.* at 1393; *see also* *United States v. Cueto*, 151 F.3d 620, 630-31 (7th Cir. 1998) ("The government only has to establish that the defendant should have reasonably seen that the natural and probable consequences of his acts was the obstruction of justice."). *But cf.* *United States v. Aguilar*, 515 U.S. 593, 599 (1995) ("[I]f the defendant lacks knowledge that his actions are likely to affect the judicial proceeding, he lacks the requisite intent to obstruct.").

To add to the hodgepodge treatment of obstruction mens rea, some courts hold that defendants can only be convicted if they impeded justice with a corrupt motive. *See, e.g.*, *United*

Such cases aside, it seems unlikely that a prosecutor would consider it obstruction to use memory dampening in good faith to alleviate traumatic memories. Nevertheless, if courts merely require that defendants have knowledge or reasonably foresee that their acts will impede justice, the memory-dampened robbery victim described above could be convicted under § 1503 (assuming he has no necessity defense)<sup>165</sup> because he knew that he drastically devalued his future testimony when he chose to dampen his memory.

### 3. Mitigation of Emotional Distress Damages

Many share the intuition that the government should not limit our freedom to control something as deeply personal as our own minds and, hence, that the government should not be in the business of regulating our control over our memories.<sup>166</sup> While this intuition may provide answers to many public policy questions, even if it is correct, it does not resolve all of the wide-ranging legal issues that could arise in a world with memory dampening. Even if the government allows people to make dampening decisions for themselves, the law would still need to establish background expectations about the reasonableness of decisions to dampen or to refuse to do so.

The tort doctrine of damage mitigation illustrates how expectations as to the reasonableness of dampening could seep into the law. Consider an easy case first. Suppose that a defendant negligently drives his car into the plaintiff such that the plaintiff is hospitalized with both physical and emotional damages. Suppose further that when the plaintiff enters the hospital, for whatever reason, he refuses to allow the medical staff to set his leg in a cast for a week. As a result, the plaintiff needs more medical attention prior to the setting of his leg and more physical therapy afterward. These additional costs, however, need not be compensated by the defendant. Under longstanding principles of damage mitigation, the defendant need not compensate the plaintiff for damages that could have been

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States v. Thomas, 916 F.2d 647, 651 (11th Cir. 1990) (“Although the government is not required to prove that the defendant had the specific purpose of obstructing justice, it must establish that the conduct was prompted, at least in part, by a ‘corrupt motive.’” (citation omitted)).

165. See *supra* note 111.

166. See, e.g., Richard Glen Boire, *Forget About It?*, <http://www.corante.com/brainwaves/20030801.shtml> (last visited Sept. 1, 2006). According to Boire, a director of the Center for Cognitive Liberty and Ethics, “[t]he right to cognitive liberty posits that the power to enhance, erase, or otherwise modify one’s own memory ought to be an individual decision; something that is neither compelled nor prohibited by laws.” *Id.* He further states that “[g]overnment may rightfully police our actions, but it does not, and should not, have the power to police our minds.” *Id.*

prevented had the plaintiff taken reasonable steps after the commission of the tort to avoid them.<sup>167</sup>

A more difficult case would arise if the plaintiff failed to mitigate the emotional, rather than the physical, aspect of his injuries.<sup>168</sup> Thus, suppose that the plaintiff promptly attended to his physical injuries but declined a psychiatrist's reasonable advice to dampen his memories. In such a case, the defendant could assert that, according to general principles of mitigation, the plaintiff's recovery for emotional damages should be reduced by whatever portion of those damages is attributable to the plaintiff's failure to dampen his memories.

The plaintiff might argue in response that he has a deeply-held interest in not altering his memory. In an arguably related context, however, such arguments have largely failed to persuade courts. In cases where plaintiffs have refused medical treatment on religious grounds, where, for example, a Jehovah's Witness refuses to undergo surgery to correct an injury caused by the defendant, the prevailing approach refuses to compensate the religious plaintiff for damages that would have been avoided by a reasonable person who lacked those religious beliefs.<sup>169</sup> Even though the religious plaintiff has a

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167. See generally RESTATEMENT (SECOND) OF TORTS, § 918(1) (1979) (stating the general rule that "one injured by the tort of another is not entitled to recover damages for any harm that he could have avoided by the use of reasonable effort or expenditure after the commission of the tort"); KEETON ET AL., *supra* note 137, § 65, at 458 (stating that recoveries are denied to defendants "for any damages which could have been avoided by reasonable conduct on the part of the plaintiff").

168. See Kevin C. Klein & G. Nicole Hininger, *Mitigation of Psychological Damages: An Economic Analysis of the Avoidable Consequences Doctrine and Its Applicability to Emotional Distress Injuries*, 29 OKLA. CITY U. L. REV. 405, 439 (2004) (arguing that "[a]s courts increasingly recognize psychological injuries and give more weight to psychological evidence, the case for requiring plaintiffs to minimize psychological damages gets stronger"); Eugene Kontorovich, Note, *The Mitigation of Emotional Distress Damages*, 68 U. CHI. L. REV. 491, 492, 513-20 (2001) (describing how "courts can reduce the moral hazard inherent in emotional distress damages without a mitigation rule").

169. See *Williams v. Bright*, 658 N.Y.S.2d 910, 912-16 (N.Y. App. Div. 1997) (requiring a jury to consider whether a "reasonably prudent person" would have undergone hip and knee surgery to mitigate damages rather than considering whether a reasonably prudent Jehovah's Witness would have done so); see also *Munn v. Algee*, 924 F.2d 568, 574-75 (5th Cir. 1991) (finding no First Amendment violation where the mitigation of damages doctrine was applied without an exemption for a religiously-motivated failure to mitigate); *Corlett v. Caserta*, 562 N.E.2d 257, 262 (Ill. App. Ct. 1990) ("[W]hen a physician's negligent act causes a patient to suffer life-threatening injuries, and the patient exercises his fundamental and religious right to refuse a reasonable life-saving medical procedure and subsequently dies, the patient's estate must bear a proportionate share of tort liability for the patient's wrongful death, to the extent that the patient's death was proximately caused by the patient's refusal of the reasonable life-saving treatment."). But cf. Comment, *Medical Care, Freedom of Religion, and Mitigation of Damages*, 87 YALE L.J. 1466, 1468 (1978) (arguing that prevailing approaches violate the First Amendment).

deeply-held interest in following his religious tradition—the free exercise of which is constitutionally protected<sup>170</sup>—the damage mitigation doctrine does not consider his idiosyncratic interests, deeply held as they may be. Thus, the plaintiff in our example is not likely to get much help for his argument by appealing to the mitigation doctrine in the context of plaintiffs who refuse medical care on religious grounds.

Fortunately for our hypothetical plaintiff, courts are disinclined to require plaintiffs to treat their emotional injuries. While courts have not categorically held that emotional damages need not be mitigated, most courts do not reduce plaintiffs' emotional distress damages when plaintiffs fail to adequately treat them.<sup>171</sup> Only on rare occasions have courts mitigated emotional damages where plaintiffs fail to undergo psychotherapy<sup>172</sup> or refuse to take recommended antidepressants.<sup>173</sup> As mental health treatments become more effective, however, a plaintiff's failure to use them may appear more unreasonable, and courts may become more willing to penalize plaintiffs who fail to mitigate emotional damages.

Assuming that memory dampeners were part of mainstream medical practice, courts would be asked to decide whether and under what circumstances a plaintiff could be put to the choice of either dampening painful memories or else forgoing compensation for the pain attached to those memories that could have been dampened.

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170. U.S. CONST. amend. I ("Congress shall make no law . . . prohibiting the free exercise of religion.").

171. For example, most courts do not require plaintiffs to treat their emotional injuries with psychiatric medication. In *Baker v. Dorfman*, the plaintiff was erroneously informed that he was HIV-positive. No. 97 Civ. 7512, 1999 WL 191531, at \*1 (S.D.N.Y. Apr. 5, 1999), *aff'd*, 239 F.3d 415 (2d Cir. 2000). While misinformed, he was in a state of emotional distress and received psychiatric attention but refused psychiatric medication. *Id.* at \*6. The court refused to mitigate damages because "[t]he jury could have reasonably concluded that [the plaintiff] did what he could to alleviate his distress." *Id.* This issue was not pursued on appeal. 239 F.3d 415, 418 n.1 (2d Cir. 2000). See also *Demary v. United States*, 982 F. Supp. 1101, 1111-12 (D.S.C. 1997) (holding that the decision not to take antidepressants by plaintiff-flight-attendant who was physically and emotionally scarred in a plane crash was not a "wholly unreasonable choice" and was not a failure to mitigate damages given that "[h]e has, instead, made major efforts in other ways"); *Salas v. United States*, 974 F. Supp. 202, 211-12 (W.D.N.Y. 1997) (finding no failure to mitigate where plaintiff received psychiatric treatment but refused to take certain psychiatric medications that caused negative side effects).

172. See *Skaria v. State*, 442 N.Y.S.2d 838 (N.Y. Ct. Cl. 1981) (mitigating rape-victim-plaintiff's recovery because she failed to follow her psychologist's advice to continue treatment after moving to a new city).

173. See *Neal v. Director*, No. CIV.A.93-2420, 1995 WL 517249, at \*15 (D.D.C. Aug. 9, 1995) (reducing plaintiff's award for front pay where mental health specialists "agreed that medication would probably improve [plaintiff's] mental state to a significant degree" and that, were plaintiff "to take therapeutic doses of one of the currently available medications, such as Prozac, it is likely she could return to work in four to six months").

Whatever the best solution may be, the issue cannot be resolved simply by saying that individuals should be free to decide whether or not to dampen memories. For even if they were free to choose, we would still have to make societal determinations (or, at least, court and jury determinations) as to the reasonableness of such decisions.

Of course, the issue of damage mitigation in the memory-dampening context is largely mooted if plaintiffs must maintain their memories in order to effectively prepare and pursue their claims. Some jurisdictions help amnesic plaintiffs by creating a presumption that they were exercising due care at the time of an accident;<sup>174</sup> it is doubtful, however, that courts would apply such a presumption to a plaintiff who *intentionally* dampened memories. Therefore, as a practical matter, the mitigation issue might only arise if plaintiffs can dampen emotional aspects of their memories without affecting their evidentiary content. Alternatively, plaintiffs may dampen memories when those memories are not needed to prove a cause of action or when plaintiffs are able to adequately record their memories prior to dampening for purposes of future litigation. Such wrinkles demonstrate, however, that the principal roles that memory plays in the law—an evidentiary role and an affective role—may be hard to separate if some plaintiffs are effectively forced to preserve a memory's emotional pain in order to preserve its evidentiary value.

I have only scratched the surface of the many legal issues that might confront us in a world with effective ways of deliberately forgetting. These issues are not so terribly complicated or invidious that they require broad legal restrictions on memory dampening. The President's Council on Bioethics, however, has articulated a series of ethical concerns that could arguably form the basis for such restrictions. I will, therefore, focus my analysis on the relative merits of these concerns.

### III. ETHICAL ISSUES

In this Part, I describe some of the major ethical concerns about memory dampening that have been raised by the President's Council on Bioethics and by its individual members. I argue that many of these concerns are rooted in controversial premises about

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174. See, e.g., *Brown v. Connolly*, 398 P.2d 596, 597 (Cal. 1965) ("Under ordinary circumstances if a party cannot testify because of amnesia induced by injuries suffered in the accident involved in the litigation, he is entitled to a presumption that he acted with due care."); *Anderson v. Schulz*, 527 P.2d 151, 152 (Wyo. 1974) (finding error in a grant of summary judgment on the basis of contributory negligence where the plaintiff, a passenger in the car defendant was driving, did not recall the facts surrounding the accident).

whether it is prudent to modify our natural abilities to remember and, as such, they do not offer widely-shared reasons to broadly restrict memory dampening. Other concerns expressed by the Council can be addressed with only modest regulation.

*A. Report of the President's Council on Bioethics*

The President's Council on Bioethics was established by executive order in November 2001 to "advise the President on bioethical issues that may emerge as a consequence of advances in biomedical science and technology."<sup>175</sup> In October 2002 and again in March 2003, the Council held hearings on ethical issues raised by memory-altering drugs.<sup>176</sup> Not surprisingly, part of these hearings concerned efforts to increase memory retention, either to help those with memory disorders, like Alzheimer's disease, or to give healthy people extraordinary powers of recall.<sup>177</sup> More importantly for our purposes, the Council also heard testimony concerning the current state of research on memory dampening and the direction it may take in the future.<sup>178</sup>

In October 2003, the Council released a report, *Beyond Therapy: Biotechnology and the Pursuit of Happiness*,<sup>179</sup> which addressed a variety of ethical issues presented by new technologies designed to enhance human performance. The report adds to the significant literature addressing the rough distinction between traditional therapies that return us to a normal state of health and enhancement techniques that make us "better than well."<sup>180</sup> A substantial part of the report concerns pharmaceuticals that enhance our brains, including those that dampen memories. Although it may seem counterintuitive that memory dampening can be a method of enhancement, indeed, it can be because it increases our ability to forget what we otherwise could not.

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175. Exec. Order No. 13237, 66 Fed. Reg. 59851 (Nov. 28, 2001), available at <http://www.whitehouse.gov/news/releases/2001/11/20011128-13.html>.

176. See *supra* note 17 and accompanying text.

177. See Hearings, Part 1, *supra* note 17.

178. See *id.*; Hearings, Part 2, *supra* note 17; Hearings, Part 3, *supra* note 17.

179. See *BEYOND THERAPY*, *supra* note 97.

180. CARL ELLIOTT, *BETTER THAN WELL: AMERICAN MEDICINE MEETS THE AMERICAN DREAM* (2004); see also *BEYOND THERAPY*, *supra* note 97, at 13-17; Henry T. Greely, *The Social Effects of Advances in Neuroscience: Legal Problems, Legal Perspectives*, in *NEUROETHICS: DEFINING THE ISSUES IN THEORY, PRACTICE, AND POLICY* 245, 255-56 (Judy Illes ed. 2006); Elliott, *supra* note 22; Jha, *supra* note 22; Chatterjee, *supra* note 22; Farah, *supra* note 22. See generally Adam Kolber, *Neuroethics & Law Blog*, <http://kolber.typepad.com> (last visited Sept. 1, 2006) (blogging about cognitive enhancement and other issues in neuroethics).

The Council does not have the power to make policy, and in the report, the Council did not make policy recommendations.<sup>181</sup> In fact, the report is presented as an “ethical inquiry” designed to raise challenging questions without necessarily resolving them.<sup>182</sup> Council members clearly disagreed on a number of issues.<sup>183</sup> By and large, however, the tone of the Council’s report is skeptical of the benefits of technologies that go beyond therapy, including memory dampening.<sup>184</sup> While the Council likely endorses the use of memory dampening to treat or prevent PTSD, it never makes an unreserved statement to that effect.<sup>185</sup>

Individual members of the Council have voiced more explicit opposition to memory dampeners. At a hearing, psychiatrist and Council member Paul McHugh stated that he was “very concerned about anything that’s going to try to eliminate the memory of [a] traumatic event”<sup>186</sup> and that, while he would be happy to use traditional methods to help the recently traumatized, he does not “want to take the memory away.”<sup>187</sup> And Council member Gilbert Meilaender has written that, if we use drugs that erase memory, we “risk losing what is essential to being human.”<sup>188</sup> While the Council never advocates, nor even much discusses, the possibility of legally restricting memory dampening, the question is plausibly raised by the nature of the concerns of the Council and of some of its individual members.

181. In other contexts, the Council has voted on particular policy recommendations. For example, in 2002, the Council voted unanimously to recommend a ban on human reproductive cloning. Michael Gazzaniga, *All Clones Are Not the Same*, N.Y. TIMES, Feb. 16, 2006, at A33.

182. BEYOND THERAPY, *supra* note 97, at xx-xxi (comments of Leon Kass in the preface).

183. *Id.* at xx (“Not every Member shares every concern here expressed . . . and a few disagreements on particular points are noted in the text.”).

184. *See id.* at 299-300 (summarizing the Council’s concerns about enhancement technologies and stating that our efforts to obtain human perfection “may turn out to be at best but passing illusions, at worst a Faustian bargain that could cost us our full and flourishing humanity”).

185. The Council states that, “at first glance,” memory dampeners “seem ideally-suited for the prevention of PTSD” but later adds that “the prospect of preventing (even) PTSD with beta-blockers or other memory-blunting agents seems to be, for several reasons, problematic.” *Id.* at 225. The problematic reasons focus, however, on the widely-agreed upon limitations of propranolol-style memory dampening and might not extend to other methods. *See id.* at 225-26. Also, at least one commentator thinks that the Council “unequivocally endorse[s]” the use of memory dampeners to treat PTSD. *See Wasserman, supra* note 11, at 11.

186. Hearings, Part 3, *supra* note 17, at 11-12 (comments of Paul McHugh).

187. *Id.*; *see also id.* at 12 (“Would I want to eliminate a painful memory from somebody? Not really. I would like to relieve the pain if I could, make it less, but I want people to have the gist of their memories, and then they may need help in shaping them in ways that continue to make them feel they still have mastery over their future.”).

188. Meilaender, *supra* note 11, at 24.



### *B. Prudential Concerns*

One series of concerns set forth by the Council suggests that memory dampening will in some way damage the psychological well-being of patients or otherwise degrade or dehumanize the quality of their lives. The Council claims, for example, that the old-fashioned process of dealing with negative memories has adaptive effects on the individual and that pharmaceutical solutions may sever our connection with real world experiences and weaken or otherwise damage our sense of identity. I call these the Council's "prudential concerns," because, though they are presented as ethical concerns, they focus on ways in which memory dampening may prevent a particular individual from leading a meaningful, flourishing life. They are not quintessentially ethical concerns because the Council does not argue that we have ethical obligations *to other people* to lead our lives in the ways that the Council finds meaningful and fulfilling.<sup>189</sup>

I will argue that this set of concerns serves principally to offer guidance to individuals and medical professionals about the proper instances to use memory dampening. Taken as advisory comments, the Council's prudential concerns may prove helpful to those who accept the widely disputed premises on which they are based. More importantly, however, because they are founded on widely disputed premises, they fail to carry sufficient force or to be of sufficient generality to justify broad-brushed restrictions on memory dampening.

#### 1. Specific Responses to the Prudential Concerns

##### *a. The Tough Love Concern*

The Council claims that memory dampening, by offering us a solution in a bottle, allows us to avoid the difficult but important process of coming to terms with emotional pain. There are two ways to understand the concern. The first is that there is something false or undeserved about the manner in which memory dampening eases distress. Gilbert Meilaender makes this point in his essay on memory dampening where he claims that, rather than erasing traumatic experiences, "it might still be better to struggle—with the help of

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189. On the distinction between prudential value and ethical value, see, for example, Richard J. Arneson, *Human Flourishing Versus Desire Satisfaction*, 16 SOC. PHIL. & POL'Y 1, 2 (1999) ("[A] life that is altruistic and perfectly moral . . . could be a life that is pure hell for the person who lives it . . .").

others—to fit them into a coherent story that is the narrative of our life.”<sup>190</sup> “Our task,” according to Meilaender, “is not so much to erase embarrassing, troubling, or painful moments, but, as best we can and with whatever help we are given, to attempt to redeem those moments by drawing them into a life whose whole transforms and transfigures them.”<sup>191</sup>

People have divergent views, however, about what it means to transform and transfigure our experiences into “a coherent story.”<sup>192</sup> It seems quite plausible that one could craft a coherent life narrative that is punctuated by periods of dampened memories. Moreover, it is open to debate how important it is that one’s life story be coherent or otherwise neatly packaged. Some recent research suggests that those with narcissistic, self-enhancing personalities tend to be particularly resilient after traumatic experiences.<sup>193</sup> Yet, while such personality traits may make it easier to cope with traumatic events, they do not necessarily do well for us in other aspects of our lives.<sup>194</sup> Thus, it is at least a complicated matter whether we should seek to develop those aspects of our personalities that help us rebound after trauma.

Furthermore, even if one shares Meilaender’s preference to redeem and transform our experiences without memory dampeners, two additional responses are suggested. First, many experiences are simply tragic and terrifying, offering virtually no opportunity for redemption or transformation. For example, after a 1978 plane crash in San Diego, desk clerks and baggage handlers were assigned to retrieve dead bodies and clean up the crash site.<sup>195</sup> Emotionally unprepared for this task, many of them were so distraught that they were unable to return to work.<sup>196</sup> In such cases, it seems unlikely that

190. Meilaender, *supra* note 11, at 21-22.

191. *Id.* at 22.

192. *Id.* at 21.

193. See George A. Bonanno, *Loss, Trauma, and Human Resilience*, 59 AM. PSYCHOLOGIST 20, 25-26 (2004); George A. Bonanno et al., *Self-Enhancement Among High-Exposure Survivors of the September 11<sup>th</sup> Terrorist Attack: Resilience or Social Maladjustment*, 88 J. PERSONALITY & SOC. PSYCHOL. 984, 985-86, 994 (2005) [hereinafter Bonanno et al.]; Marianne Szegedy-Maszak, *Balanced Life: Self-Absorbed Handle Trauma Best*, U.S. NEWS & WORLD REPORT, June 23, 2005, available at <http://www.usnews.com/usnews/health/articles/050623/23balance.htm> (reporting on the self-enhancement study in Bonanno et al., *supra*).

194. “[B]ehaviors or dispositions that help people to cope with unusual and extremely aversive events might also carry with them a serious cost.” Bonanno et al., *supra* note 193, at 985. Those with a self-enhancing bias, although they appear to be particularly resilient to trauma, “score highly on measures of narcissism . . . and with repeated contacts, tend to evoke negative impressions in unfamiliar peers.” *Id.* (citations omitted).

195. This example was raised by James McGaugh at the Council’s Hearing. See Hearings, Part 2, *supra* note 17, at 23-24; see also James N. Butcher & Chris Hatcher, *The Neglected Entity in Air Disaster Planning*, 43 AM. PSYCHOLOGIST 724, 728 (1988) (describing the incident).

196. Hearings, Part 2, *supra* note 17, at 23 (comments of James McGaugh).

the traumatized employees should, in Meilaender's words, "redeem those moments by drawing them into a life whose whole transforms and transfigures them."<sup>197</sup> Most would agree that such employees should not have participated in the cleanup in the first place, and, hence, they should not be required or expected to bear the emotional burden of having done so.<sup>198</sup>

Second, even if it is better to weave traumatic events into positive, life-affirming narratives, many people are never able to do so. Memory-dampening drugs may enable such people to make life transformations that they would be *incapable* of making in the absence of the drugs. For others, pharmaceuticals may drastically shorten the time it takes to recover from a traumatic experience. Suppose a person spends ten years coming to terms with a traumatic event that he could have come to terms with in two years with pharmaceutical assistance. While he might be viewed as heroic by Meilaender, others might view him as extremely obstinate. Therefore, even in those instances when positive human transformation should accompany traumatic experience, there may well be a role for memory dampening to facilitate the process.

The more modest version of the "tough love" concern merely states that "[p]eople who take pills to block from memory the painful or hateful aspects of a new experience will not learn how to deal with suffering or sorrow."<sup>199</sup> This concern, however, merely fights the hypothetical existence of effective memory-dampening drugs. If a memory-dampening drug increases the overall psychological distress of patients, by being addictive or by otherwise leading them to make poor life choices, it will be unappealing to doctors and patients, not as a matter of ethics, but as a matter of science. Such drugs would not be deemed effective psychiatric tools. To even launch the interesting policy questions related to memory dampening, we must assume the existence of a drug that is not highly addictive and that satisfies basic requirements of medical efficacy and safety.

Assuming that we identify such a drug, legitimate but manageable concerns may arise about overuse. If the drug is used

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197. Meilaender, *supra* note 11, at 22.

198. The Council acknowledges that if "bitter memories are so painful and intrusive as to ruin the possibility for normal experience of much of life and the world," the "impulse" to dampen those memories is "fully understandable." BEYOND THERAPY, *supra* note 97, at 230. The Council quickly retreats, however, adding: "And yet, there may be a great cost to acting compassionately for those who suffer bad memories, if we do so by compromising the truthfulness of how they remember." *Id.*

199. *Id.* at 291; *id.* at 208 (asking, "What qualities of character may become less necessary and, with diminished use, atrophy or become extinct, as we increasingly depend on drugs to cope with misfortune?").

principally for victims of motor vehicle accidents and violent crimes, the drug is not likely to be used often by the same people. Furthermore, many of those with good coping skills have never had a motor vehicle accident nor been the victim of a violent crime; thus, working through these experiences cannot be critical to the development of these skills. If, however, a person frequently dampens his memory for comparatively insignificant events, then the Council's fear seems more plausible. Yet, virtually every medication runs a risk of overuse, and barring evidence that a medication is addictive, we usually manage that risk with our ordinary restrictions on prescription medications.

### *b. The Personal Identity Concern*

Memory and identity are closely linked.<sup>200</sup> We feel a special connection to our past selves largely because we remember having our past experiences. For example, when I get out of bed in the morning, I consider myself the same person who went to sleep there the night before, in part, because I remember doing so. Those with extreme memory disorders, like advanced Alzheimer's disease, may lack such memories and may lose a stable sense of self.<sup>201</sup> While memory is not the sole constituent of personal identity, it creates much of the psychological continuity that makes us aware of our continuing existence over time.<sup>202</sup>

John Locke deemed memory and identity to be so closely connected that he claimed that we should not punish a person for a crime he no longer remembers committing.<sup>203</sup> According to Locke, the person who cannot recall the crime is a different person than the perpetrator because the two lack an essential connection through memory, and the former should not be punished for the crime of the

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200. On the relationship between memory and identity, see DEREK PARFIT, *REASONS AND PERSONS* 199-345 (1984). See also *PERSONAL IDENTITY* (John Perry ed., 1975) (collecting essays); Rebecca Dresser, *Personal Identity and Punishment*, 70 B.U. L. REV. 395 (1990) (applying Parfit's reductionist approach to personal identity to theories of criminal punishment).

201. Cf. Agnieszka Jaworska, *Respecting the Margins of Agency: Alzheimer's Patients and the Capacity to Value*, 28 PHIL. & PUB. AFF. 105 (1999) (arguing that we should respect the autonomy interests of those Alzheimer's patients who retain a capacity to value even after they have lost a coherent life narrative).

202. PARFIT, *supra* note 200, at 208.

203. John Locke, *Of Identity and Diversity*, in *PERSONAL IDENTITY*, *supra* note 200, at 33, 48 ("[I]n the great day, wherein the secrets of all hearts shall be laid open, it may be reasonable to think, no one shall be made to answer for what he knows nothing of . . ."); see also PARFIT, *supra* note 200, at 205 ("Locke claimed that someone cannot have committed some crime unless he now remembers doing so.")

latter.<sup>204</sup> While courts have not accepted Locke's overstated conclusion,<sup>205</sup> some courts have held that a genuine inability to recall participation in a crime (even if one had full mental faculties at the time of the crime) will support a finding of incompetence to stand trial.<sup>206</sup> Rather than absolving a defendant of responsibility, however, courts considering a defendant's competence may simply deem it procedurally unfair to require a defendant to stand trial if his memory loss makes him unable to "assist properly in his defense."<sup>207</sup>

204. Locke, *supra* note 203.

205. See *Pennsylvania ex rel. Cummins v. Price*, 218 A.2d 758, 761 (Pa. 1966) ("Amnesia does not absolve or exculpate the defendant from any of his criminal acts or from total criminal responsibility. [Defendant's] circumscribed amnesia, if it exists, occurred after the crime, and therefore had no effect on his motives or conduct or behavior or criminal acts at the time of the killing."); *id.* at 401 ("For over 100 years, lack of memory in murder cases has been a common and frequent defense. . . . [I]t has never hitherto been sustained by any Court . . .").

Derek Parfit has aptly criticized Locke's view as follows:

We can understand a reluctance to punish people for crimes that they cannot remember. But, taken as a view about what is involved in a person's continued existence, Locke's claim is clearly false. If it was true, it would not be possible for someone to forget any of the things that he once did, or any of the experiences that he once had. But this *is* possible. I cannot now remember putting on my shirt this morning.

PARFIT, *supra* note 200, at 205.

206. A defendant is incompetent to stand trial if he suffers "from a mental disease or defect rendering him mentally incompetent to the extent that he is unable to understand the nature and consequences of the proceedings against him or to assist properly in his defense." 18 U.S.C. 4241(a) (2006); see also *Dusky v. United States*, 362 U.S. 402, 402 (1960) (finding defendant competent to stand trial where he "has sufficient present ability to consult with his lawyer with a reasonable degree of rational understanding" and "has a rational as well as factual understanding of the proceedings against him").

Decisions sympathetic to claims that an amnesic defendant may be incompetent to stand trial include: *Wilson v. United States*, 391 F.2d 460, 463-64 (D.C. Cir. 1968) (remanding to the district court for further factfinding as to whether defendant's permanent retrograde amnesia for the events surrounding his alleged participation in a robbery interfered with his due process right to present an adequate defense) and *State v. McIntosh*, No. 87-2215, 1988 Wisc. App. LEXIS 875, at \*23-24 (Wis. Ct. App. Aug. 25, 1988) (relying on *Wilson* to find that defendant did not receive a fair trial where there was a "real possibility that the amnesia may be 'locking in' exculpatory information").

207. Such claims are usually unsuccessful, however, as the consensus view is that "loss of memory due to amnesia is not alone an adequate ground upon which to base a finding" of incompetence. WAYNE R. LAFAYE, *CRIMINAL LAW* § 8.01(a) (4th ed. 2003); see also *United States v. Doke*, 171 F.3d 240, 248 (5th Cir. 1999) ("[A]mnesia by itself does not render a defendant incompetent; rather, the 'circumstances of each individual case' must be considered."); *United States v. Stevens*, 461 F.2d 317, 318-21 (7th Cir. 1972) (holding that defendant's claim that he has sporadic amnesia from long-term drug use was insufficient alone to demonstrate incompetence); *State v. Peabody*, 611 A.2d 826, 833 (R.I. 1992) (holding that defendant's amnesia surrounding his participation in a murder, without more, was insufficient to support a finding of incompetence to stand trial for that murder). See generally Note, *Amnesia: A Case Study in the Limits of Particular Justice*, 71 *YALE L.J.* 109, 111-12 (1961); Kim Cocklin, Note, *Amnesia: The Forgotten Justification for Finding an Accused Incompetent to Stand Trial*, 20 *WASHBURN L.J.* 289, 294-95 (1981).

Nevertheless, a glimmer of the Lockean view may be found in various places in the law of insanity where we are disinclined to hold people responsible for actions taken by their psychologically discontinuous alter egos. For example, in a case of dissociative identity disorder (formerly known as multiple personality disorder),<sup>208</sup> the court held that the defendant—more specifically, the dominant personality of the defendant—could not be held responsible for the crimes of an alternate personality when the dominant personality was unaware of those crimes at the time they were committed, even if the alternate personality was legally sane.<sup>209</sup> In addition, the Supreme Court has held it unconstitutional to execute an insane death row inmate, even if the inmate was sane at the time of the murder.<sup>210</sup> Our unwillingness to execute the insane may recognize, in some measure, the psychological discontinuity between an insane inmate and his sane counterpart who committed the crime.<sup>211</sup>

Recognizing the important connection between memory and identity, the Council suggests that memory dampening may weaken our sense of identity by dissociating memories of our lives from those lives as they were actually lived. Selectively altering our memories, according to the Council, can distort our identity, “subtly reshap[ing]

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208. See generally DSM IV-TR, *supra* note 33, at 526-29 (discussing diagnosis of dissociative identity disorder). “Multiple personality disorder was renamed to dissociative identity disorder in the *DSM-IV* and for the first time required the ‘inability to recall important personal information that is too extensive to be explained by ordinary forgetfulness.’” John J. B. Allen & William G. Iacono, *Assessing the Validity of Amnesia in Dissociative Identity Disorder*, 7 PSYCHOL. PUB. POL’Y & L. 311, 311 (2001) (quoting AM. PSYCHIATRIC ASS’N, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS 487 (IV ed. 1994)).

209. *United States v. Denny-Shaffer*, 2 F.3d 999, 1016 (10th Cir. 1993) (ordering retrial with an insanity instruction where the defendant presented sufficient evidence that her dominant personality was not in control during the offense and was not aware that another personality was controlling her physical actions). See generally Elyn R. Saks, *Multiple Personality Disorder and Criminal Responsibility*, 10 S. CAL. INTERDISC. L.J. 185, 190 (2001); Walter Sinnott-Armstrong & Stephen Behnke, *Criminal Law and Multiple Personality Disorder: The Vexing Problems of Personhood and Responsibility*, 10 S. CAL. INTERDISC. L.J. 277 (2001).

210. *Ford v. Wainwright*, 477 U.S. 399, 399, 410 (1986).

211. Such a view is far from explicit, however, in the Court’s decision in *Ford v. Wainwright*, which notes that there is no “[u]nanimity of rationale” behind the rule. *Id.* at 408. Among the reasons on offer, the Court deemed it “abhorrent . . . to exact in penance the life of one whose mental illness prevents him from *comprehending* the reasons for the penalty or its implications.” *Id.* at 417 (emphasis added). While part of the requisite “comprehension” refers to the inmate’s understanding of the criminal justice system, it might also refer to the inmate’s ability to understand that it is *he* who is deemed to have committed the crime for which he is to be executed. A sane but amnesic murderer is still capable of comprehending the reasons for his execution, at least at a detached cognitive level. Yet, given that the amnesic will not identify himself with his crime in the ordinary manner and may perhaps be incapable of fully appreciating the relationship between his crime and his punishment, those sympathetic to Locke’s view might find that capital punishment is also inappropriate for those who genuinely cannot remember the crimes for which they are to be executed.

who we are, at least to ourselves.”<sup>212</sup> “[W]ith altered memories,” the Council writes, “we might feel better about ourselves, but it is not clear that the better-feeling ‘we’ remains the same as before.”<sup>213</sup>

Yet, even in the absence of memory dampeners, we cannot help but selectively remember. Memories have a natural rate of decay and are far more a synthesis and reconstruction of our past than a verbatim transcript.<sup>214</sup> Just to process the tremendous amount of information that is presented to our senses, we must constantly abstract away from the “real” world.<sup>215</sup> As the Council acknowledges, “individuals ‘naturally’ edit their memory of traumatic or significant events—both giving new meaning to the past in light of new experiences and in some cases distorting the past to make it more bearable.”<sup>216</sup> In fact, such selective reconstruction of our lives seems to be at the very heart of the creation of a coherent life story that Gilbert Meilaender advocates.<sup>217</sup> Nevertheless, we do not worry whether our better-feeling naturally reconstructed selves remain the same as before.

It is, thus, not at all clear why we ought to revere the selective rewriting of our lives that we do without pharmaceuticals, yet be so skeptical of pharmaceutically-assisted rewriting.<sup>218</sup> In fact, memory dampening may strengthen our sense of identity. By preventing traumatic memories from consuming us, memory dampeners may allow us to pursue our own life projects, rather than those dictated by bad luck or past mistakes. As David Wasserman has noted, “pharmacologically-assisted authorship may strengthen rather than reduce narrative identity,”<sup>219</sup> by allowing one to “edit his autobiography, instead of having it altered only by the vagaries of

212. BEYOND THERAPY, *supra* note 97, at 211-12.

213. *Id.* at 212.

214. See MICHAEL GAZZANIGA, THE ETHICAL BRAIN 120-42 (2005) (describing myriad ways in which memory can fail to accurately represent past experience).

215. See, e.g., Toshihiko Hosoya et al., *Dynamic Predictive Coding by the Retina*, 436 NATURE 71, 71 (2005) (describing how visual perception relies on inferences about our surroundings).

216. BEYOND THERAPY, *supra* note 97, at 217 n.\*.

217. See *supra* text accompanying notes 190-91.

218. The Council’s preference for natural changes in memory can be seen in the following:

[We] live through memorable experiences that we would never have chosen—experiences we often wish never happened at all. To some extent, these unchosen memories constrain us; though we may regret the shadows they cast over our pursuit of happiness, we cannot simply escape them while remaining who we really are. And yet, through the act of remembering—the act of discerning and giving meaning to the past as it really was—we can shape, to some degree, the meaning of our memories, both good and bad.

BEYOND THERAPY, *supra* note 97, at 216.

219. Wasserman, *supra* note 11, at 14.

neurobiology.”<sup>220</sup> Thus, to the extent that people voluntarily make changes to their mental processes, such changes may be perceived as bolstering self-identity. In fact, many people who begin taking antidepressants report feeling like themselves for the first time.<sup>221</sup> This suggests that some deliberate shifts in identity may not seem alienating at all.

*c. The Genuine Experiences Concern*

The Council also worries that a memory-dampened life, chemically-altered as it is, is somehow a less genuine life.<sup>222</sup> According to the Council, “we might often be tempted to sacrifice the accuracy of our memories for the sake of easing our pain or expanding our control over our own psychic lives. But doing so means, ultimately, severing ourselves from reality and leaving our own identity behind.”<sup>223</sup> This, according to the Council, “risks making us false, small, or capable of great illusions.”<sup>224</sup> It also risks making us “capable of great decadence or great evil.”<sup>225</sup>

Unfortunately, the Council never explains what makes a life genuine and truthful (nor how leading a life that is otherwise makes us capable of great evil). Is a memory-dampened life thought less genuine simply because some of the memories associated with it decay at a faster rate than they otherwise would have? Given that memories never precisely replicate our past experiences, do undampened memories provide a standard of genuineness? How important is it to lead a “genuine” life, whatever that means?<sup>226</sup>

220. *Id.*

221. Peter Kramer quotes a patient who, after starting the SSRI antidepressant Prozac, said she felt “as if I had been in a drugged state all those years and now I am clearheaded.” PETER KRAMER, *LISTENING TO PROZAC* 8 (1993). Eight months after beginning Prozac, the same patient stopped the treatment and said she felt like “I am not myself.” *Id.* at 18. Some have argued that SSRI antidepressants have little, if any, efficacy that cannot be explained as a placebo effect. See Joanna Moncrieff & Irving Kirsch, *Efficacy of Antidepressants in Adults*, 331 *BMJ* 155, 157 (2005). Whatever personality changes Prozac patients experience, however, whether caused by placebo pathways or serotonin pathways, these patients frequently identify more closely with their pharmaceutically- or placebo-influenced new selves than their former selves.

222. See *BEYOND THERAPY*, *supra* note 97, at 213 (“[B]y disconnecting our mood and memory from what we do and experience, the new drugs could jeopardize the fitness and truthfulness of how we live and what we feel . . .”).

223. *Id.* at 233-34.

224. *Id.* at 234.

225. *Id.*

226. Robert Nozick’s famous “experience machine” thought experiment is often taken to show that we want our lives to be closely connected to reality. See ROBERT NOZICK, *ANARCHY, STATE, & UTOPIA* 42-45 (1974). Nozick asked us to imagine that:



In the case of those who are emotionally traumatized, memories of the trauma can be overwhelming and trigger exaggerated responses to harmless stimuli associated with a traumatic memory. Such overreactions are themselves divorced from reality. Memory dampeners, by preventing people from being overtaken by trauma, may actually make them more genuine, more true to what they take their lives to be, than they would be if they were gripped by upsetting memories.

Furthermore, we are not always troubled by discrepancies between our perceptions and the world as it "genuinely" is. It has been widely observed that in many areas of life, people systematically overestimate their abilities and prospects relative to others:

People (nondepressed people, at least) rate themselves as better—friendlier, more likely to have gifted children, more in control of their own lives, more likely to quickly recover from illness, less likely to get ill in the first place, better leaders, and better drivers—than they really are . . . There is evidence associating the above sorts of positive illusions with increased happiness, "ability to care for others", "motivation, persistence", and "the capacity for creative, productive work."<sup>227</sup>

Superduper neuropsychologists could stimulate your brain so that you would think and feel you were writing a great novel, or making a friend, or reading an interesting book. All the time you would be floating in a tank, with electrodes attached to your brain. Should you plug into this machine for life, preprogramming your life's experiences? . . . Of course, while in the tank you won't know that you're there; you'll think it's all actually happening.

*Id.* at 42-43. According to Nozick, we would not choose to spend our lives connected to such a machine because we value not just particular experiences but particular *genuine* experiences. *Id.* at 43-45. At best, however, Nozick's example only shows that we value *some* connection to the real world, not that we are opposed to having *any* illusory beliefs or perceptions (for example, the drug-induced, trauma-relieving perception that one has not witnessed some atrocity that, in fact, one has).

Furthermore, even Nozick's limited conclusion that we value some connection to the real world is not robustly demonstrated by the thought experiment. The thought experiment would be more convincing if those already connected to an experience machine would also choose to disconnect from it in order to lead more genuine but substantially less enjoyable lives than they do while connected. Consistent with all available evidence, we might be connected to experience machines right now, yet I question whether we would choose to disconnect from the simulacra of our current lives, if given the choice. As I argue elsewhere, the fact that we are more willing to remain connected to an experience machine than to connect in the first place suggests that our initial intuitions about the experience machine may not be entirely trustworthy. See Adam Kolber, *Mental Statism and the Experience Machine*, 3 BARD J. SOC. SCI. 10 (Winter 1994/1995).

227. Adam Elga, *On Overrating Oneself . . . and Knowing It*, 123 PHIL. STUDIES 115, 117 (2005); see also Jonathon D. Brown, *Evaluations of Self and Others: Self-Enhancement Biases in Social Judgments*, 4 SOC. COGNITION 353 (1986); Darrin R. Lehman & Shelley E. Taylor, *Date with an Earthquake: Coping with a Probable, Unpredictable Disaster*, 13 PERSONALITY & SOC. PSYCHOL. BULL. 546 (1987); Shelley Taylor & Jonathon Brown, *Illusion and Well-Being: A Social Psychological Perspective on Mental Health*, 103 PSYCHOL. BULL. 193 (1988); Shelley Taylor & Jonathon Brown, *Positive Illusions and Well-Being Revisited: Separating Fact from Fiction*, 116 PSYCHOL. BULL. 21 (1994); *supra* notes 193-94 and accompanying text.

Suppose there were a pill that eliminated these systematic self-enhancing biases. On the one hand, one could argue, those who took such pills would lead less genuine lives, as they would no longer understand the world in the way that they would in the absence of the pill. Their lives would be less genuine in the sense that they would lack a characteristically human understanding of the world. On the other hand, those who took the pill might lead more genuine lives, freed from the ruby-colored lenses that nature has given us.

At a March 2003 hearing, then-Council member Michael Sandel raised a related example.<sup>228</sup> At a class on child-bearing, Sandel was told that the memory women have of the pain of childbirth is dulled through natural processes and that because of this, women are less likely to be deterred from having children in the future.<sup>229</sup> Whether or not this folklore is true,<sup>230</sup> Sandel suggested (and most would agree) that if it were true, we would not be troubled by this natural process of memory dampening, even if the memory of the pain were, in some sense, less representative of the pain as it was actually experienced.<sup>231</sup>

No doubt, as a general life strategy, we do well to firmly commit ourselves to reality and to discovering the truth about ourselves and the world around us. Yet, such a strategy might, at times, be worse for us all things considered; or, at least, the Council has not shown otherwise. To make the case that memory-dampening drugs will harmfully affect our lives, the Council must be much more specific about what makes a life genuine, how these drugs make lives less genuine, and why that should matter so much to us that we ought to suffer in distress to preserve our unadulterated memories.

228. Hearings, Part 3, *supra* note 17, at 17.

229. *Id.*

230. See Catherine A. Niven & Tricia Murphy-Black, *Memory for Labor Pain: A Review of the Literature*, 27 BIRTH 244, 248-49, 252 (2000) (finding little scientific evidence to support folklore that memory of labor pain is quickly forgotten); C.A. Niven & E.E. Brodie, *Memory for Labor Pain: Context and Quality*, 64 PAIN 387, 388 (1996) (characterizing several studies as "reveal[ing] that the accuracy of memory for the intensity of labor pain is modest in accord with conclusions relating to memory for pain of diverse aetiology").

231. Sandel notes:

[T]he objection to altering memory, whether to blot out traumatic memories or to increase our ability to remember certain things on either direction might be seen as part of what we do anyhow when we take in the world, and it might be odd to think that the way we just happen to take in the world unaltered from either direction is the past . . . . Why should we think that that's necessarily going to lead us to the truest life story?

Hearings, Part 3, *supra* note 17, at 4.

## 2. General Response to the Prudential Concerns

In the preceding Section, I argued that many of the Council's concerns about memory dampening are founded on controversial premises. Not all of us will agree with the Council about how we ought to cope with emotional pain, what changes to our memory will damage our sense of self, and what makes one set of experiences more genuine and, therefore, better than another. While the concerns expressed by the Council and some of its members may prove insightful to like-minded patients or medical professionals, they are insufficiently developed to provide a basis for broad restrictions on memory dampening.

Each of the concerns presented reflects a bias for our natural, pharmaceutical-free mechanisms of responding to trauma. The Council implicitly or explicitly defended: (1) our natural ability to surmount difficult life obstacles, (2) our natural memories as the desirable basis for our sense of identity, and (3) our natural memories as more genuine and more desirable than those that are pharmaceutically altered.

There are two reasons commonly given for this preference for the status quo. The first is that we doubt that human intervention can improve upon our natural endowments when it comes to responding to difficult memories. We generally do an astonishingly good job of remembering what we need to remember and forgetting what we can do without. This delicate balance, some claim, has been optimized by evolution, such that "[w]hat looks to be an improvement could have hidden downsides."<sup>232</sup> The Council reflected a similar sentiment, stating that "[t]he human body and mind, highly complex and delicately balanced as a result of eons of gradual and exacting evolution, are almost certainly at risk from any ill-considered attempt at 'improvement.'"<sup>233</sup> If millions of years of evolution have tended to select for brains that optimally balance retained and deleted memories, then we may find it very difficult indeed to improve upon our natural endowment.

However, while evolution has made the human brain remarkably adept at balancing our needs to retain and to forget memories, it surely did not lead each of us to an optimal balance. The conditions and needs of modern society differ substantially from those during most of our evolution. Furthermore, some people have better memories than others, and some are more susceptible to PTSD than

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232. Kate Douglas et al., *11 Steps to a Better Brain*, 186 NEW SCIENTIST 28, 28-29 (2005) (referencing comments by Gary Lynch).

233. BEYOND THERAPY, *supra* note 97, at 287.

others. It is very unlikely that we each have a brain optimized for our individual needs, especially because our needs can change during the course of a lifetime. And as a general matter, pharmaceutical tinkering with memory is not always counterproductive, as witnessed by the millions of people being treated for Alzheimer's disease.

The Council is surely correct that it is difficult to improve upon our natural endowments, and for this reason, we are justifiably skeptical that any particular drug will constitute an improvement. It is certainly possible, however, to improve on our endowments and to suggest otherwise, rather than resolving the interesting policy issues raised by memory dampening, merely avoids or postpones them.

A second reason to defend our natural balance of retention and forgetting is that, with such a balance, we lead distinctively human lives and perhaps doing so is itself valuable. This notion is reflected in writer Andrew Solomon's comment that "[o]bliterating something that makes us human is . . . a terrifying prospect."<sup>234</sup> In a concluding section of its report, the Council expresses a similar sentiment, acknowledging that its concerns with memory dampening and certain other new technologies "may have something to do with challenges to what is naturally human, what is humanly dignified, or to attitudes that show proper respect for what is naturally and dignifiedly human."<sup>235</sup>

A running theme in the Council's report is that memory dampening dehumanizes us by giving us too much control over our life experiences. According to the Council, "We are not free to decide everything that happens to us; some experiences, both great joys and terrible misfortunes, simply befall us. These experiences become part of who we are," part of our lives "as truthfully lived."<sup>236</sup> The Council stated:

Acknowledging the giftedness of life means recognizing that our talents and powers are not wholly our own doing, nor even fully ours, despite the efforts we expend to develop and to exercise them. It also means recognizing that not everything in the world is open to any use we may desire or devise. Such an appreciation of the giftedness of life would constrain the Promethean project and conduce to a much-needed humility.<sup>237</sup>

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234. Begley, *supra* note 12 (quoting Andrew Solomon, author of a popular book on depression).

235. BEYOND THERAPY, *supra* note 97, at 286-87. Leon Kass (the former chairman of the Council) and Francis Fukuyama (a member of the Council until recently) have each written extensively about the importance of preserving human dignity in the face of challenges to it from allegedly dehumanizing new technologies. See FRANCIS FUKUYAMA, OUR POSTHUMAN FUTURE: CONSEQUENCES OF THE BIOTECHNOLOGY REVOLUTION (2002); LEON KASS, LIFE, LIBERTY AND THE DEFENSE OF DIGNITY (2002).

236. BEYOND THERAPY, *supra* note 97, at 233.

237. *Id.* at 288.

Yet the Council acknowledges exactly what makes this view so unpersuasive: "The 'giftedness of nature' also includes smallpox and malaria, cancer and Alzheimer [sic] disease, decline and decay."<sup>238</sup> Surely we are not expected to accept everything in the world that is "given." The Council, however, offers no principled basis for deciding when to intervene, insisting that a "respectful attitude toward the 'given' " is "both necessary and desirable as a restraint,"<sup>239</sup> even though "[r]espect for the 'giftedness' of things cannot tell us which gifts are to be accepted as is, which are to be improved through use or training, which are to be housebroken through self-command or medication, and which opposed like the plague."<sup>240</sup> At some point, one must wonder whether this distinction actually serves to distinguish. Indeed, what is "given" may itself be dynamic, for our "given" nature might be to transcend our boundaries and constantly improve ourselves. At one point, the Council makes exactly that suggestion.<sup>241</sup> It is, therefore, very difficult to understand why human enhancement should be restrained by our "given" nature.

The weaknesses of a status quo preference can be illustrated by imagining a world called Dearth, where the inhabitants are very much like us except that, on average, they are less likely than we are to suffer from traumatic memories. Perhaps Dearthlings are less emotionally aroused by traumatic experiences than humans typically are. One day, the government of Dearth establishes a commission that holds hearings on an emerging technology, called traumatic memory *enhancement*. Using memory-enhancing drugs, Dearthlings can make their traumatic memories more vivid, more persistent, and otherwise more like those of typical humans.<sup>242</sup> Ought Dearthlings enhance their responses to trauma to make them more like the responses of typical humans?

With limited facts, it is difficult to say. Without the drug, Dearthlings suffer less; on the other hand, they might, in some sense, experience a richer, more meaningful life with the drug. Most would agree, however, that a Dearthling should not be forced to take a drug that will create a significant risk that he will develop upsetting

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238. *Id.* at 289.

239. *Id.*

240. *Id.*

241. *Id.* at 291 n.\* ("By his very nature, man is the animal constantly looking for ways to better his life through artful means and devices; man is the animal with what Rousseau called 'perfectibility.'").

242. In our world, David Wasserman has observed that such affect-enhancing memory drugs could someday be used to punish criminals by forcing them to reflect more intensely on their criminal behavior. See Wasserman, *supra* note 11, at 14-15.

memories from a recent traumatic experience. Similarly, a human being with a significant risk of developing upsetting memories from a recent traumatic experience should be permitted to use memory-dampening drugs to prevent those memories from forming. The only difference between a Dearthling at risk from traumatic-memory-enhancement and a human at risk from refraining from memory dampening is whether the risk comes from taking a pill or from not taking it. If the Dearthling is permitted to avoid a bad state of affairs by not taking a pill, the human should be able to avoid that same bad state of affairs by taking one. Otherwise, the preference for the status quo begins to seem like an unprincipled taboo on pill taking.<sup>243</sup>

Some Council members might respond by saying that there is a very important difference between these two individuals—namely, one is a human and one is a Dearthling—and the human ought to deal with traumatic memories in characteristically human rather than Dearthling ways. In response, however, I must present the scary news that there are Dearthlings among us, for some humans are quite resilient in the face of traumatic experiences while others are prone to PTSD.<sup>244</sup> In fact, one sibling may be quite sensitive to trauma while another is the human equivalent of a Dearthling. Given the amount of variation among humans, appeals to human nature tell us little about whether we must respond to trauma like a Dearthling or like a statistically-typical human.

At this point, the Council might reiterate that our human nature may require each of us to accept his own personal “given” response to trauma whatever it might be. Yet, the Council encourages us to change our “given” response to traumatic memories so long as we do so the old-fashioned way. It is difficult, however, to see why the method of change matters if it leads to the same end point. Perhaps the Council doubts that a pharmaceutical intervention will get us to the same end point as a non-pharmaceutical intervention. That, however, would merely serve as a critique of some particular imperfect form of memory dampening rather than a critique of memory dampening in general.

To recap, two potential reasons were considered for preferring our status quo methods of dealing with trauma to those using memory

243. Nick Bostrom and Toby Ord have recently offered a more generalizable version of the Dearthling thought experiment. See Nick Bostrom & Toby Ord, *The Reversal Test: Eliminating Status Quo Bias in Applied Ethics*, 116 *ETHICS* 656 (2006).

244. See *supra* notes 193-94 and accompanying text (describing those with self-enhancing biases as less affected by traumatic experience); see also Henig, *supra* note 5, at 36 (reporting evidence from twin studies showing that “a small hippocampus is a marker for susceptibility to post-traumatic stress disorder”).

dampening. The first was that our status quo methods are simply the best methods possible. I argued that this is highly implausible as an empirical matter. The second was that our status quo methods are best because they are, in some sense, given to us as part of our human nature. I argued that there is little reason to prefer some state of affairs simply because it is the status quo, and it is virtually impossible to determine when human nature dictates that we leave some state of affairs alone and when it dictates that we do whatever we can to change it.

Another reason why the Council's concerns about memory dampening do not translate well into legal restrictions on memory dampening is that the concerns discussed so far are not quintessentially ethical in nature. For example, the Council advises each of us to lead a genuine life because such a life is valuable to the person living it. To the extent that there is an ethical obligation to lead such a life, it is an obligation one has to one's self. Yet the notion of having an obligation to one's self is controversial. If A has an obligation to B, then, ordinarily, B can choose to release A from that obligation. Now suppose that A has an obligation to himself. Can A release himself from an obligation to himself? If so, it is not clear that A is obligated in any meaningful way.<sup>245</sup>

While it may be possible to resurrect the notion of having an obligation to one's self, as a matter of legal regulation, we are more reluctant to restrict an individual's liberty to interfere with his own well-being than with another's. Thus, even if we were uniformly convinced of the strength of the three prudential concerns presented in this Section, for the purposes of our investigation here, some additional argument would be needed to justify broad restrictions on memory dampening.<sup>246</sup>

Restrictions based on what I call the Council's prudential concerns are paternalistic in nature. Paternalistic limitations on our freedom may "serve[] the reflective values of the actor," or "impose[] values that the actor rejects."<sup>247</sup> The "soft" paternalism that is

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245. See Marcus G. Singer, *On Duties to Oneself*, 69 ETHICS 202, 202-03 (1959) ("[A] duty to oneself, then, would be a duty from which one could release oneself at will, and this is self-contradictory. A 'duty' from which one could release oneself at will is not, in any literal sense, a duty at all."). *But cf.* Daniel Kading, *Are There Really "No Duties to Oneself"?*, 70 ETHICS 155 (1960) (raising some objections to Singer's position).

246. Such arguments typically suggest that individuals are incapable of making appropriate decisions, perhaps because the behavior at issue is addictive or because individuals do not have the information they need to decide appropriately. I discussed the latter issue in more detail in the context of informed consent. See *supra* Part II.B.1.

247. Kent Greenawalt, *Legal Enforcement of Morality*, 85 J. CRIM. L. & CRIMINOLOGY 710, 718 (1995).

consistent with our own values is usually thought less invasive and more respectful of individual autonomy than the “hard” paternalism that imposes values foreign to the actor. To the extent that I have shown that the Council’s concerns in the last Section are founded on controversial premises and do not reflect quintessentially ethical obligations, I have thereby suggested that interventions based on those concerns are of the more suspect variety.

The Council’s prudential concerns provide little ground for doubting the ability of individual patients and their doctors to collectively decide when to use memory-dampening drugs, much as they would collectively decide to use any other physical or psychiatric medical treatment. The possibility remains, however, that the concerns described here could be reconfigured in terms of the effects that they would have on others. In that case, perhaps one could formulate non-paternalistic reasons for restrictions.<sup>248</sup> Indeed, in the next two sections, I describe concerns of the Council that I take to be somewhat stronger because they do identify more widespread societal effects of memory dampening.

### C. Obligations to Remember

In the Supreme Court’s most influential “right to die” case, *Cruzan v. Director, Missouri Department of Health*,<sup>249</sup> Nancy Cruzan’s family failed in its effort to obtain a court order to disconnect Nancy from the artificial feeding and hydration equipment that kept her alive in a persistent vegetative state.<sup>250</sup> Writing in dissent, Justice John Paul Stevens emphasized that “[e]ach of us has an interest in the kind of memories that will survive [us] after death.”<sup>251</sup> Stevens dissented, in part, because Nancy Cruzan may have had “an interest

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248. Even drugs which merely affect an individual’s own psychological functioning can have a wide range of effects on others. To offer one perhaps fanciful example, imagine if a person developed reasons to suspect that some of his memories had been erased, including the memory of having his memories erased. If so, he would not know what memories had been lost, nor the scope of his life over which his memories had been altered. This could be quite devastating to his psychological stability. Furthermore, this individual need never have actually had his memories tampered with, for the mere widespread existence of the ability to erase memories could make his suspicions plausible. While this sort of precision memory erasure is highly unlikely, I proceed to discuss how weaker forms of memory dampening can still have widespread societal effects.

249. 497 U.S. 261 (1990).

250. *Id.* at 261. The Court held that the state of Missouri could constitutionally require “clear and convincing evidence” of Cruzan’s desire to be removed from life support and refused to overturn the Supreme Court of Missouri’s determination that this standard was unmet. *Id.* at 284-85.

251. *Id.* at 356 (Stevens, J., dissenting); see also *id.* at 343-44 (Stevens, J., dissenting) (stating that the most famous declarations of Nathan Hale and Patrick Henry “bespeak a passion for life that forever preserves their own lives in the memories of their countrymen”).



in being remembered for how she lived rather than how she died," and he feared that "the damage done to those memories by the prolongation of her death is irreversible."<sup>252</sup>

Stevens suggests that people have strong interests in being remembered in certain ways for who they are and what they do. If Stevens is correct, then we may have obligations to satisfy these interests by appropriately remembering people and events.<sup>253</sup> Because memory dampeners may facilitate violations of these obligations, we arguably have grounds to heavily restrict their use. In this Section, I will suggest otherwise. First, I will describe the concerns of Council members that memory dampening may violate obligations to remember. Then, I will argue that even if we sometimes have ethical obligations to others to remember, these obligations cannot, by themselves justify broad restrictions on memory dampening.

Council member Gilbert Meilaender suggests, albeit meekly, that we may have ethical obligations to remember those "treated unjustly . . . to remember the evil done them," which "might be necessary not just for the sake of the victims themselves but for our common humanity."<sup>254</sup> While Meilaender merely "suspect[s] we can imagine circumstances in which we might think that there is indeed an obligation not to forget,"<sup>255</sup> I think that such obligations, at least where understood as *prima facie* obligations, are quite common, stemming perhaps from interests in respect, honor, or justice.<sup>256</sup>

In a world without memory dampening, it may seem that one cannot possibly be responsible for failing to remember, as we have limited control over our memories,<sup>257</sup> and voluntary control is often thought to be a prerequisite to responsibility.<sup>258</sup> On further

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252. *Id.* at 353 (Stevens, J., dissenting). Stevens also noted that her surviving family members have "an interest in having their memories of her filled predominantly with thoughts about her past vitality rather than her current condition." *Id.* at 356.

253. Such may have been the view of the mother mentioned in the introduction who watched her two teenage sons die hours after the three were in a car accident together. She expressed her desire to remember the accident at virtually all costs, in part, perhaps, because she felt an obligation to preserve the memory on behalf of her deceased children. *See supra* note 13 and accompanying text.

254. Meilaender, *supra* note 11, at 22.

255. *Id.*

256. *See generally* AVISHAI MARGALIT, *THE ETHICS OF MEMORY* (2002).

257. On whether and how we may be responsible for states of affairs beyond our control, see MORAL LUCK (Daniel Statman ed., 1993). For an argument against the existence of genuine moral luck, see Adam J. Kolber, *The Moral of Moral Luck* (Apr. 29, 1996) (unpublished senior thesis, Princeton University) (on file with author).

258. In the criminal law, we require that every offense contain either a voluntary act or an omission to act when there is a duty to do so. This requirement prevents us from punishing people merely on the basis of thoughts beyond their control. *See, e.g.*, *Proctor v. State*, 176 P. 771 (Okla. Crim. App. 1918); HERBERT L. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 73-79

examination, however, we clearly hold people responsible for failing to remember. For example, we blame those who forget an important birthday or anniversary, and we penalize those who forget to file a timely tax return.<sup>259</sup> Some of the most tragic instances of failed memory occur when parents unintentionally cause the death of their young children by leaving them stranded in the backseats of automobiles on hot days,<sup>260</sup> sometimes leading to criminal punishment.<sup>261</sup>

The nature of our obligations to remember are radically underexplored, however, partly because, prior to the realistic possibility of memory dampening, there was relatively little one could do to consciously alter one's memories, and there was correspondingly little one could do to consciously fulfill or escape obligations to remember. One explanation for the observation that we do, in fact, hold people responsible for forgetting is that, in the examples given above—failing to commemorate a special occasion, to file tax returns, and to care for one's children—we are actually faulting people, not for their involuntary forgetfulness, but for some intentional failure at an earlier point in time.<sup>262</sup> For example, perhaps the neglectful taxpayer intentionally decided not to record his filing deadline on his calendar or made other deliberate choices not to develop those attributes that would have prevented his memory failure. In a world with memory-altering drugs (either enhancing or dampening), we would have more opportunities to consciously alter our inclinations to remember or forget, leading perhaps to more responsibility for whatever memories we keep or discard.

Even if we can have obligations to remember, however, it is easy to overestimate the strength of these obligations. Perhaps the

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(1968). In the case of omissions, however, we may, in effect, punish people for failing to have certain thoughts that they should have had. *See, e.g., State v. Williams*, 484 P.2d 1167 (Wash. Ct. App. 1971) (affirming the manslaughter conviction of parents who failed to recognize the seriousness of their child's illness and obtain proper medical attention).

259. *See* 26 U.S.C. § 6651 (2006) (setting forth penalties for failure to file a timely tax return). Of course, one may fail to file a timely tax return for reasons other than forgetfulness.

260. *See* Minerva Canto, *Kids' Death in Hot Cars Is a Curse for Parents*, ORANGE COUNTY REGISTER (Oct. 5, 2004), [http://www.ocregister.com/ocr/2004/10/06/sections/local/local\\_columns/article\\_264470.php](http://www.ocregister.com/ocr/2004/10/06/sections/local/local_columns/article_264470.php); Suzette Hackney, *County Won't Charge Father: Neglect Not Criminal in Son's Death in Van*, DETROIT FREE PRESS, July 28, 1999, at A1.

261. Before pursuing such cases, prosecutors generally require an extreme kind of forgetfulness that evidences gross negligence. *See, e.g., Kelly v. Commonwealth*, 592 S.E.2d 353, 355-57 (Va. Ct. App. 2004) (affirming the manslaughter conviction of a father who left his 21-month-old daughter unattended in a hot van for approximately seven hours where there was evidence that the father had stranded children in automobiles in the past).

262. *See* Mark Kelman, *Interpretive Construction in the Substantive Criminal Law*, 33 STAN. L. REV. 591, 593-94, 600-16 (1981) (describing the "arational choice between narrow and broad time frames" in the criminal law).

Council does so when it states that it may have been inappropriate for those with firsthand experiences of the Holocaust to dampen their traumatic memories:

Consider the case of a person who has suffered or witnessed atrocities that occasion unbearable memories: for example, those with firsthand experience of the Holocaust. The life of that individual might well be served by dulling such bitter memories, but such a humanitarian intervention, if widely practiced, would seem deeply troubling: Would the community as a whole—would the human race—be served by such a mass numbing of this terrible but indispensable memory? Do those who suffer evil have a duty to remember and bear witness, lest we all forget the very horrors that haunt them?<sup>263</sup>

There is something harsh about expecting trauma sufferers to bear the additional burden of carrying forward their traumatic memories for the benefit of others. The Council, recognizing this, goes on to soften its perspective somewhat, stating that “we cannot and should not force those who live through great trauma to endure its painful memory *for the benefit of the rest of us.*”<sup>264</sup> Yet, even for those who suffer from the most tragic of memories, the Council is ambivalent about the ethics of pharmaceutical dampening:

[A]s a community, there are certain events that we have an obligation to remember—an obligation that falls disproportionately, one might even say unfairly, on those who experience such events most directly. What kind of people would we be if we did not “want” to remember the Holocaust, if we sought to make the anguish it caused simply go away? And yet, what kind of people are we, especially those who face such horrors firsthand, that we can endure such awful memories?<sup>265</sup>

According to the Council, we are sometimes obligated to remember some person or set of events because doing so pays respect to that person or set of events.<sup>266</sup> For example, we may have obligations to remember great sacrifices that others make on our behalf, not because these memories will guide our actions, but rather

263. BEYOND THERAPY, *supra* note 97, at 230-31 (footnotes omitted).

264. *Id.* at 231.

265. *Id.* (footnotes omitted). The Council fears that memory dampening will encourage a shallow kind of human solidarity:

[T]hose who suffer terrible things cannot or should not have to endure their own bad memories alone. If, as a people, we have an obligation to remember certain terrible events truthfully, surely we ought to help those who suffered through those events to come to terms with their worst memories. Of course, one might see the new biotechnical powers, developed precisely to ease the psychic pain of bad memories, as the mark of such solidarity . . . . But such solidarity may, in the end, prove false: for it exempts us from the duty to suffer-with (literally, to feel *com*-passion for) those who remember; it does not demand that we preserve the truth of their memories; it attempts instead to make the problem go away, and with it the truth of the experience in question.

*Id.* at 231-32.

266. *See id.*

because retaining the memory demonstrates a kind of respect or concern for these others.

The case for legally restricting memory dampening is particularly weak when it comes to such “homage” memories. What makes the retention of a traumatic homage memory significant is that the person who bears the traumatic memory has chosen to identify with it in some way. In fact, memory-dampening drugs, by giving us the opportunity to consciously choose to keep a memory intact, may actually facilitate our identification with it. On the other hand, if an individual retains an homage memory simply because he has no choice—because the tragic memory was indelibly imprinted into his brain by stress hormones or because memory dampening has been prohibited—the holding of the homage memory loses much of its significance. Such memories are not truly homages at all.<sup>267</sup>

Nevertheless, we can easily imagine situations where our obligations to remember are much stronger. For example, suppose a bystander is the only person to see the face of a serial rapist fleeing the home of his latest victim. Though the bystander may find the memory of the perpetrator’s appearance quite upsetting, virtually everyone would agree that the bystander ought to retain the memory if doing so will ultimately help prosecute the perpetrator and protect potential future victims. Such a conclusion would be much less likely, however, if we consider instead the point of view, not of a mere bystander-witness, but of the traumatized victim who, let us now suppose, is the only one to see the perpetrator’s face. In that case, we might still expect the victim to experience even this more intense trauma for, say, an hour until a police sketch artist can preserve the memory. It is much less clear, however, if the victim should be obligated to wait more than six hours to begin memory dampening in a world (like ours today, perhaps) where memory dampening would no longer be effective. At a minimum, however, it is clear that some people have obligations to remember because there are strong societal interests in preserving certain memories.

Translating ethical obligations to remember into legal restrictions on memory dampening is no simple matter.<sup>268</sup> Memory dampening is a kind of medical treatment, and we do not ordinarily

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267. The analysis is complicated, however, by the inability to recover a previously dampened or erased memory. At one point in time, a particular memory could be merely homage-like, held only because one has no choice. With age and understanding, perhaps, the memory could become a genuine homage if the individual voluntarily identifies with the memory. By allowing people to erase homage-like memories, we cut off the subsequent opportunity to embrace the memory. This is a variation of the view described earlier by Gilbert Meilaender. See *supra* Part III.B.1.

268. See *supra* Part II.A.1.

limit a person's access to medical resources simply to further police investigations.<sup>269</sup> On the other hand, memory dampening can destroy evidence, and we have plenty of laws prohibiting that.<sup>270</sup> It, therefore, seems plausible that some balancing of interests should occur when a person wishes to dampen memories that hold substantial instrumental value to society.

Yet, even if we sometimes have ethical obligations to retain memories that ought sometimes be backed by legal sanctions, there is little reason to think that broad restrictions on memory dampening are needed. So, for example, an expansion of obstruction of justice statutes could further limit the use of memory-dampening drugs when patients have memories that are needed to protect societal interests in justice and safety.<sup>271</sup> Alternatively, physicians could be required to make certain inquiries before prescribing memory-dampening drugs and could perhaps be obliged to notify authorities if a patient seeks to dampen or erase memories, where doing so may endanger someone else's life.<sup>272</sup> Limited restrictions like these derive from concerns about memory dampening that, unlike those previously discussed, are based on ethical obligations we have to others and do not rely on much-disputed conceptions of human nature or controversial preferences for what is deemed natural.

#### *D. Coarsening to Horror*

The Council also expressed concern that memory dampening will coarsen our reactions to horror and tragedy. If we see the world from a chemically-softened, affect-dulled perspective, we may grow inured to trauma and its associated distress, "making shameful acts seem less shameful, or terrible acts less terrible, than they really are."<sup>273</sup> As an example, the Council describes a hypothetical witness to a violent crime who dampens his memory and eventually perceives the

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269. According to psychiatrist Roger Pitman, if a crime victim has severe physical pain requiring the administration of morphine, we do not restrict it even though morphine can interfere with the victim's memory. See Catherine Dupree, *Cushioning Hard Memories*, 106 HARV. MAG. 9, 9-10 (2004), available at <http://www.harvardmagazine.com/on-line/070467.html> (stating a claim made by Pitman).

270. See *supra* Parts II.A.1 & II.B.2.

271. See *supra* Part II.B.2.

272. Cf. *Tarasoff v. Regents of Univ. of Cal.*, 551 P.2d 334, 340 (Cal. 1976) ("When a therapist determines, or pursuant to the standards of his profession should determine, that his patient presents a serious danger of violence to another, he incurs an obligation to use reasonable care to protect the intended victim against such danger.").

273. BEYOND THERAPY, *supra* note 97, at 228.

crime as less severe than he would have without pharmaceutical assistance:

Imagine the experience of a person who witnesses a shocking murder. Fearing that he will be haunted by images of this event, he immediately takes propranolol (or its more potent successor) to render his memory of the murder less painful and intrusive. Thanks to the drug, his memory of the murder gets encoded as a garden-variety, emotionally neutral experience. But in manipulating his memory in this way, he risks coming to think about the murder as more tolerable than it really is, as an event that should not sting those who witness it. For our opinions about the meaning of our experiences are shaped partly by the feelings evoked when we remember them. If, psychologically, the murder is transformed into an event our witness can recall without pain—or without any particular emotion—perhaps its moral significance will also fade from consciousness.<sup>274</sup>

One concern suggested by this example is that memory dampening will make it more difficult to accurately convey evidence and other kinds of information to each other. According to the Council, the person described above “would in a sense have ceased to be a genuine witness of the murder,” and when later asked about the event, “he might say, ‘Yes, I was there. But it wasn’t so terrible.’”<sup>275</sup> Though the Council asks whether this person was a “genuine witness of the murder,” the implicit reference to the natural is more appropriate here than it was with respect to the Council’s prudential concerns. If this person were to appear before a jury, his description of the events surrounding the murder will be interpreted by listeners against a backdrop of *natural* linguistic conventions that help connect a speaker’s affect to the events he describes. Similarly, in the military context, some worry that memory-dampened soldiers will come back from battle with unnatural affect-reduced descriptions of their experiences, making combat seem less horrific than it would otherwise.<sup>276</sup> Against a standard backdrop of communicative conventions, we would understandably be puzzled by a flat, lifeless description of human tragedy.

Indeed, if memory dampening has a tendency to alter our perceptions and our understanding of events in the world, then, as the Council’s example suggests, it may affect more than just the ways we communicate. A deeper concern is that memory dampening will

274. *Id.* at 229.

275. *Id.* As a preliminary observation, the example may overstate the case. According to the Council, this individual can recall what happened “without pain—or without any particular emotion.” *Id.* Yet, this seems like an instance of overmedication, for there may be little reason to make absolutely horrific events seem quite ordinary.

276. *See id.* at 154-55 (“Even if they existed, and even in times of great peril, we might resist drugs that eliminate completely the fear or inhibition of our soldiers, turning them into ‘killing machines’ (or ‘dying machines’), without trembling or remorse.”); Wasserman, *supra* note 11, at 17-18 (discussing how our willingness to engage in actions, like combat, may be affected by expectations that one can engage in “emotional amnesia”).

coarsen our feelings and make us less willing to respond to tragic situations. Along these lines, one can imagine a would-be-famous civil rights leader in the 1960s who, in order to combat the memory of childhood injustices, would have gone on to revolutionize our social institutions but, due to his use of memory dampeners, instead pursues a more mundane life plan and is never so much as mentioned in the history books.

Not only might our coarsened emotions disincline us to take positive action, it has been suggested that memory dampeners could reduce our inhibitions to engage in socially destructive action. Thus, violent criminals could use memory dampeners to ease feelings of guilt, making them more likely to recidivate.<sup>277</sup> In addition, it has been claimed, memory-dampened soldiers, freed from burdens of conscience, may be more effective at killing.<sup>278</sup> Council member Paul McHugh asks, "If soldiers did something that ended up with children getting killed, do you want to give them beta blockers so that they can do it again?"<sup>279</sup> The question is lacking in some important details but, more importantly, these examples suggest that fear and remorse or expectations of fear and remorse inhibit certain antisocial behaviors and that memory dampening may interfere with this desirable control mechanism. While this concern is far from universal,<sup>280</sup> it may warrant studying whether any proposed memory-dampening agent actually has such effects.

Even if there is some empirical basis for these concerns, however, it is important not to overstate their importance. For even if memory dampening does make some trauma *seem* less horrible, this happens in part because memory dampening can *actually make* trauma less horrible. That is, much of what is bad about traumatic experience is that it traumatizes those who survive it. So, for example, to the extent that we can ease the traumatic memories of those involved in military conflict (without leading to a significant increase in total military conflict), then memory dampening makes combat somewhat better than it would otherwise be. Furthermore, when

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277. Cf. BEYOND THERAPY, *supra* note 97, at 224 (noting that memory dampeners could be used "to dull the sting of one's own shameful acts").

278. See *id.* at 154 (describing the remorse-free soldier as a "killing machine"). At the Council's hearings, James McGaugh testified that "stimulants have been given to soldiers for years to make them implicitly, and I think explicitly in some cases, to make them better soldiers." Hearings, Part 1, *supra* note 17, at 13.

279. Mundell, *supra* note 5 (quoting McHugh).

280. *Id.* (quoting psychiatrist Margaret Altemus as saying, "I think Dr. McHugh may have been assuming that what prevents soldiers from committing atrocities is this overwhelming fear . . . I've never been in a war, but my guess is that they do these things because they are really angry, or through some group attitude.").

soldiers are injured in battle, we heal their physical wounds using advanced technology, even if doing so makes war seem less horrible; so it is unclear why their emotional wounds should be treated any differently.<sup>281</sup>

While the coarsening concern is far from overwhelming, it at least shows how the widespread use of memory dampeners can potentially affect the lives of those who do not use them. Nevertheless, this concern cannot alone justify broad restrictions on memory dampening, at least not if such restrictions are consistent with our typical policies of drug regulation. For example, people consume alcohol to relieve themselves of the pain of traumatic events. Whether or not this leads to some general inurement to tragedy in society (which seems doubtful), most would not address the problem with a comprehensive prohibition of alcohol. Similarly, even if antidepressants are used for relief from the pain of traumatic experiences, we would not generally prohibit them for fear that society will be less compassionate. Likewise, the world may benefit from the inspired artwork of a Vincent van Gogh, yet few would deprive a tortured soul of antidepressants in order to foster artistic creation.

We likely permit the use of such drugs, despite whatever minimal effects they may have on our reactions to tragedy, because their costs are outweighed by other benefits. So even if data someday support the Council's concern that memory-dampening drugs can have negative effects on soldiers' battlefield reactions or on societal reactions more generally, we can surely tailor limits on their use in particular contexts. And if the testimony of memory-dampened witnesses has a different emotional tone than that of ordinary witnesses, experts can explain the differences to jurors.<sup>282</sup>

While memory dampening has its drawbacks, such may be the price we pay in order to heal intense emotional suffering. In some contexts, there may be steps that ought to be taken to preserve valuable factual or emotional information contained in a memory, even when we must delay or otherwise impose limits on access to memory dampening. None of these concerns, however, even if they

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<sup>281</sup> James McGaugh, speaking of a hypothetical injured soldier who has killed during battle, asks:

Do you just let him lie there and bleed to death because he needs to suffer the consequences of having killed another human being in battle? We give him first aid, pain medication, we do everything can. But if he's having an emotional disturbance because of that trauma, we can't do anything about that because that would change the nature of who they are. Doesn't losing a leg change the nature of who they are?

Jeanie Lerche Davis, *Forget Something? We Wish We Could*, WebMD, Apr. 9, 2004, <http://www.webmd.com/content/article/85/98584> (quoting McGaugh).

<sup>282</sup> See *supra* note 114 (stating rules governing admission of expert witness testimony).



find empirical support, are strong enough to justify broad-brushed restrictions on memory dampening.

### *E. Freedom of Memory*

I have argued that concerns over memory dampening are insufficient to justify broad restrictions on the therapy. Furthermore, having the choice to dampen memories supports our interests in self-determination and in avoiding mental illness and upset, and, as noted, enables us to identify more strongly with memories that we decide to keep. Given the potential that memory dampening has to ease the pain of so many people, and that, at a minimum, memory dampening ought not be entirely prohibited, it follows that we should have some right to dampen our memories.

Such a right can be thought of as just a piece of a much larger, as-yet-poorly-defined bundle of rights to control what happens to our memories. For example, we may have some right to be free from forced memory dampening were the government to try to make us forget a trade secret or a voyeuristic memory.<sup>283</sup> Neuroscientists are also hard at work developing drugs to enhance memory retention to treat Alzheimer's disease, as well as less severe age-related memory problems.<sup>284</sup> In the context of memory enhancement, we might have rights to enhance the emotions we attach to our memories (perhaps to increase affect attached to positive memories) as well as rights to enhance the factual content of the memories we store (to avert memory disorders or, more controversially, to perform better in school). We may also have rights to prevent forced enhancement of the factual richness of our memories by those who would make us better spies, soldiers, students, or employees or to prevent forced enhancement of our memory-related affect by those who think doing so would make us more responsive to conscience and less likely to violate social norms.<sup>285</sup>

In addition to enhancing and dampening memories, we may have rights to keep memories private. Such a right is already circumscribed by the government's subpoena power—the power to demand that we answer (or at least try to answer) certain questions,

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283. See *supra* notes 103 and 134 and accompanying text.

284. See MCGAUGH, *supra* note 54, at 68-79 (describing a variety of drugs that may enhance memory). Interestingly, nicotine has been shown to enhance memory in laboratory animals. Hearings, Part 1, *supra* note 17 (comments of James McGaugh).

285. See Wasserman, *supra* note 11, at 14 ("Some might suggest that for particularly heinous crimes, enhancement of guilt-ridden memory could serve as a form of punishment, a kind of forced internalization.")

under oath, about the content of our memories.<sup>286</sup> Advances in neuroscience, however, have led to the creation of neuroimaging technologies, like functional magnetic resonance imaging (“fMRI”), that will make questions about the privacy of memory even more important. For example, neuroscientists are trying to develop brain imaging techniques to determine if an experimental subject recognizes a person in a photograph (that is, has a memory of that person) using brain imaging alone, without relying on the subject’s own (possibly deceptive) report.<sup>287</sup> The emergence of such technologies recently led one group of researchers to make the controversial claim that “[f]or the first time, using modern neuroscience techniques, a third party can, in principle, bypass the peripheral nervous system—the usual way in which we communicate—and gain direct access to the seat of a person’s thoughts, feelings, intention, or knowledge.”<sup>288</sup>

Related to the right to keep memories private is the right to make memories public. One such “publicity right,” if it may be called such, concerns the means by which we can voluntarily demonstrate the content of our memories in court. In *Harrington v. State*,<sup>289</sup> convicted murderer Terry Harrington sought to offer unconventional evidence of his memories in the form of so-called “brain fingerprinting,”<sup>290</sup> a kind of electroencephalography.<sup>291</sup> The brain

286. See generally Slobogin, *supra* note 104, at 805-26 (describing the subpoena power).

287. See Sean Kevin Thompson, Note, *The Legality of the Use of Psychiatric Neuroimaging in Intelligence Interrogation*, 90 CORNELL L. REV. 1601, 1602 (2005) (suggesting that neuroimaging could someday be used to detect whether a person being interrogated recognizes the subject of a photograph). See generally Charles N.W. Keckler, *Cross-Examining the Brain: A Legal Analysis of Neural Imaging for Credibility Impeachment*, 57 HASTINGS L.J. 509 (2006); Nicholas Wade, *Improved Scanning Technique Uses Brain as Portal to Thought*, N.Y. TIMES, Apr. 25, 2005, at A19.

288. Paul Root Wolpe et al., *Emerging Neurotechnologies for Lie-Detection: Promises and Perils*, 5 AM. J. OF BIOETHICS 39, 39 (2005); see also Yukiyasu Kamitani & Frank Tong, *Decoding the Visual and Subjective Contents of the Human Brain*, 8 NATURE NEUROSCIENCE 679, 679 (2005) (using fMRI as a method of “mind-reading” to enable investigators to determine the orientation of images shown to subjects). The reason the claim in the text is controversial is that it is not clear that one can ever, even in principle, have direct access to these features of another’s mind.

289. 659 N.W.2d 509, 515 (Iowa 2003) (seeking post-conviction relief). Harrington was convicted of first degree murder in the late 1970s, *State v. Harrington*, 284 N.W.2d 244 (Iowa 1979), and was then sentenced to life imprisonment without possibility of parole, *Harrington*, 659 N.W.2d at 512, 515-16.

290. The “brain fingerprinting” technique used in the case was developed by Lawrence Farwell. It may be more hype than substance, as the technology is proprietary and has not been subjected to rigorous peer review. See Wolpe et al., *supra* note 288, at 44 (raising concerns about the reliability of the studies examining Farwell’s technique because they had small sample sizes and potential conflicts of interest). See generally Deborah Denno, *Crime and Consciousness: Science and Involuntary Acts*, 87 MINN. L. REV. 269, 331-35 (2002); U.S. GEN. ACCOUNTING OFFICE, FEDERAL AGENCY VIEWS ON THE POTENTIAL APPLICATION OF “BRAIN FINGERPRINTING,” REP. NO. GAO-02-22 (2001), available at [http://www.cognitiveliberty.org/pdf/goa\\_bfp.pdf](http://www.cognitiveliberty.org/pdf/goa_bfp.pdf); Nell

fingerprinting results purportedly showed that Harrington did not have memories of the crime scene that the actual perpetrator would have had and that Harrington did have memories that supported his alibi.<sup>292</sup> The Iowa District Court, ruling for the first time on the admissibility of such evidence,<sup>293</sup> found some of the brain fingerprinting results to be admissible,<sup>294</sup> but, for a variety of reasons, dismissed Harrington's petition for a new trial.<sup>295</sup> When Harrington appealed to the Supreme Court of Iowa, his conviction was vacated on due process grounds unrelated to his evidentiary claim, and the court never ruled on the admissibility of his brain fingerprinting evidence.<sup>296</sup> In the lower court, however, Harrington did win a narrow right to admit unconventional evidence related to his memory, setting the stage for future battles in this arena.<sup>297</sup>

Before these new neuroscience imaging techniques and pharmaceuticals appeared on the horizon (distant as it may still be), it

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Boyce, *Truth and Consequences: Scientists Are Scanning The Brain for Traces of Guilty Knowledge*, U.S. NEWS & WORLD REP., Jan. 15, 2001, at 40; Chris Clayton, "Brain Fingerprints" As Defense?, NAT'L L.J., Nov. 20, 2000, at A4.

291. Electroencephalograms measure brain signals known as "event related potentials" that can be detected "on the scalp 300-500ms after the subject is exposed to a stimulus." Wolpe et al., *supra* note 288, at 41. Farwell's brain fingerprinting technique is supposed to use electroencephalography to determine whether a subject is exposed to a familiar or unfamiliar stimulus by measuring event related potentials that are "associated with novelty and salience of incoming stimuli." *Id.*

292. *Harrington*, 659 N.W.2d at 516 n.6.

293. Denno, *supra* note 290, at 331; *cf.* *Harrington v. State*, No. PCCV 073247, at 5 (Iowa Dist. Ct. Mar. 5, 2001) (stating in an order denying Harrington's motion for a new trial that the technology Harrington sought to introduce "has not yet been received as evidence in any state or federal court").

294. *Harrington*, No. PCCV 073247, at 9. Nevertheless, the court noted that Farwell's application of the technology "is not well accepted in the scientific community" and considered the evidence insufficient to warrant a new trial. *Id.* at 9, 19.

295. *Id.* at 19.

296. *Harrington*, 659 N.W.2d at 512, 516; *see also* *Slaughter v. State*, 108 P.3d 1052, 1054 (Okla. Crim. App. 2005) (finding that the issue of brain fingerprinting "could have been previously raised in the direct appeal" and that there was "insufficient evidence to support a conclusion that brain fingerprinting, based solely upon the MERMER effect, would survive a *Daubert* analysis"). Farwell claims that brain fingerprinting has confirmed the guilt of one individual as well. *See* Beth Dalbey, *Brain Fingerprinting Testing*, FAIRFIELD LEDGER, <http://www.brainwavescience.com/FairfieldLedger.php>. (last visited Sept. 1, 2006).

297. One company, "No Lie MRI" has already begun selling fMRI-based lie detection services and another, "Cephos Corp.," plans to do so soon. *See* No Lie MRI, Inc., <http://www.noliemri.com> (last visited Sept. 21, 2006); Cephos Corp., <http://www.cephoscorp.com> (last visited Sept. 21, 2006); *see also* Associated Press, *Your Lying Brain: Scanners Dig for Truth from Deep Inside the Mind*, CHI. TRIB., Jan. 30, 2006, at 26; Emily Saarman, *New Lie Detection Technology Too Much Like Scientific Mind Reading, Ethicist Says*, STANFORD REPORT, May 3, 2006, available at <http://news-service.stanford.edu/news/2006/may3/lies-050306.html>.

made little sense to speak of a “freedom of memory.”<sup>298</sup> There was simply too little we could do as human beings to affect our own memories to warrant clarifying our rights. In light of these developing technologies, however, we can begin to envision a bundle of rights associated with memory, including perhaps: rights to dampen memories; rights to enhance memories or memory-retention skills; rights to keep memories private (or to allow us to publicize them in court); and rights to be free of certain invasions of our memories by forced enhancement, forced dampening, or even the secret implantation of false memories.<sup>299</sup>

### CONCLUSION

Recent research suggests that primitive methods of therapeutic forgetting may be close at hand. Early methods have focused on efforts to dampen the affective qualities of memory but even such methods may have collateral effects on the recall of factual matters. Given how important memory is to the law, if even primitive forms of memory dampening enter widespread use, it will not take long for such drugs to raise interesting legal questions.

If it turns out that effective forms of memory dampening are on the more distant horizon, then many of the legal issues such therapies raise are less pressing. Nevertheless, the overarching policy issue—namely, whether or not to prohibit or severely restrict access to memory dampening—is already present because researchers must decide how to invest their limited resources and are less likely to explore memory dampening if they fear that legal restrictions will make research into the technology unprofitable. While any definitive conclusions about memory dampening must await more data on the effects of some particular memory-dampening agent, I have argued that there is no reason to broadly prohibit the therapy, absent some more compelling concerns than those expressed by the Council and its members.

The mere possibility of memory dampening raises fundamental questions about who owns our memories and how we should balance the rights of memory-holders against society as a whole. Answers to

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298. There are no court opinions on Westlaw containing the phrase “freedom of memory,” although the somewhat broader concept of “freedom of mind” appears in a number of opinions, principally in the area of First Amendment law.

299. Elizabeth Loftus and her research team have implanted so-called false memories into experimental subjects under a variety of conditions. See Elizabeth Loftus, *Our Changable Memories: Legal and Practical Implications*, 4 NATURE REVIEWS NEUROSCIENCE 231 (2003); Elizabeth Loftus, *Make-Believe Memories*, 58 AM. PSYCHOLOGIST 867 (2003).

such questions will ultimately shape the contours of our freedom of memory, a bundle of rights that will take on greater importance and develop greater coherence as we confront new neuroscience technologies that improve our ability to manipulate memory. While each of these technologies will implicate somewhat different concerns, the central issues discussed here will constantly reappear, for all of these technologies will raise questions about the social value of memory and our willingness as a society to restrict individual control over intimate features of the mind.