

Helping the Postmodern Ajax: Is Managing Combat Trauma through Pharmacology a Faustian Bargain?

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Abstract

War causes trauma that can undo a warrior's character. Sophocles' Ajax is a good example of a traumatized warrior and some Afghanistan and Iraq veterans see striking parallels between contemporary conflicts and the Trojan War. With the United States increasingly facing asymmetrical enemies, there are now many traumatized soldiers and vets, not only suffering from posttraumatic stress disorder (PTSD) but also committing suicide. Combat stress, being central to warfare, has until now been incurable. Today, advanced military R&D projects aim to find a "magic pill" to forestall PTSD. Propranolol may be such a drug, as it could be used to prevent PTSD by "erasing" emotional memories. However, this attempt at pharmacoprevention raises many ethical questions. Most importantly, it threatens to instrumentalize away the existential element of war and to push warfare into a posthuman age. To better understand the challenges we are facing today, it is important not only to read Aldous Huxley's *Brave New World* but also to go back to the Greeks.

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Escape from heaven-sent madness is none.

Sophocles, *Ajax*

When, in December 2004, Carter Ham, an elite US Army four-star general, returned home from Iraq, he was not the same man who went to war. Before his homecoming, a suicide bomber blew himself up at a US base, killing twenty-two people. Ham arrived soon after the attack and saw a catastrophic picture. After this horrific experience, he suffered from sleep disturbance, hypervigilance, and mood swings. He screened himself for combat stress trauma and the test was positive. Also positive was the example he gave to all servicemen: there was nothing shameful in acknowledging one's mental problems and seeking help—even for a four-star general. Ham explains: “it certainly doesn't mean you're a bad soldier.”¹ It means that you are normal, it means you are very human. Trauma is a common reaction to a horrible event; it is not something psychopaths suffer from. It is, in a way, “normal psychopathology.”²

The Madness-Infected Mind

War inevitably causes the kind of trauma that can often undo a warrior's character. The long-term effects of battle experience destroy the peace of mind of some soldiers and veterans, because evolution did not prepare the human body for enduring and stressful mobilization. In 1980, the American Psychiatric Association recognized the condition as posttraumatic stress disorder (PTSD). In 2000, it was described as “the reexperiencing of an extremely traumatic event accompanied by symptoms of increased arousal and by avoidance of stimuli associated with the trauma.”³ Among its most acute symptoms are: intrusive thoughts, flashbacks, nightmares, the avoidance of reminders of trauma, sleep disturbance, impulsivity, depression, hypervigilance, and maladjustment.⁴ PTSD can appear soon after a traumatic event or develop later. The traumatized cannot get fully involved in real life because they are imprisoned by memories.

Descriptions of traumatized behavior in war can easily be found in literature. It was already recorded in ancient times: in early Chinese literature, by Homer in the *Iliad* and the *Odyssey*, by Xenophon in *Anabasis*, and also by Sophocles in his *Ajax*. Today, psychiatrists would diagnose some of the greatest Greek heroes both fictional and real as suffering from PTSD. This would probably be the fate of Homer's Achilles, Xenophon's Clearchus and Sophocles' Ajax.⁵

Let me look at one of many the examples of a traumatized warrior—Ajax, as portrayed by Sophocles. After Achilles' death, the Greek commanders award his armor to Odysseus. Because Ajax, the second greatest hero after Achilles, justly believes

that it was he who deserved the armor, he feels deeply dishonored, betrayed by the generals and rejected by the society for which he fought. He experiences a violation of *themis*—of moral order, of the ethical code of behavior. Today, we would say that his understanding of “what’s right” was ruthlessly abused.⁶ Miled by Athena, the goddess of war, Ajax, full of rage, slaughters all the cattle captured by the Greeks, believing that he is killing his fellow generals, who have violated *themis*. When he eventually comes to his senses, honor and pride force him to take his own life. Christopher Coker comments that “The key word in Sophocles’s play is *atimos*—humiliation. Ajax is humiliated by turning his vengeance on animals, not men. . . . There is no apology for his deeds, only an overwhelming frustration, a belief that he has been penalized by divine intervention.”⁷ Today, we would rather use the language of late modernity and say that “he has been paralysed by the invisible wounds of war”. Sophocles depicts a warrior who breaks down in a tragic way after experiencing the severe stress of combat. According to Lawrence Tritle, “Ajax’s perception of betrayal corresponds well with the diagnosis of PTSD, particularly that aspect of it that focuses on the destruction of the capacity for social trust.”⁸

But who in the military reads the classics nowadays? Soldiers thrilled by an old-fashioned heroic image of war sometimes do, like the Marine in Anthony Swofford’s famous Gulf War memoirs *Jarhead* (2003). Sitting in his Humvee, he reads Homer’s *Illiad*, looking for inspiration on how to be the ideal warrior whom, contrary to his desires, he will not (be allowed to) become. On the postmodern battlefield, there is no longer a place for the premodern Homeric warrior. New US military technologies and strategic paradigms produce a severe “existential crisis” in which soldiers, who still feel the warrior’s spirit, are often not even permitted to fire at and kill the enemy. The story goes: a jarhead “approaches my vehicle and says, ‘What the fuck are you reading?’ ‘*The Illiad*.’ . . . He says, ‘That’s some heavy dope, sniper. Cool.’ . . . For the sniper, dope is anything that helps him acquire a target.”⁹ In *Jarhead*, we find “just an emptiness that mirrors an empty battlefield: not ‘a field of honour’ so much as an empty landscape devoid of any of the contours that would have been familiar to Homer.”¹⁰ Reading the classics is not useless, because it might help soldiers to understand war, with its grammar and consequences, but also to grasp their own emotions. Most importantly, it can assist them in dealing with one of the most severe costs of war: trauma.

In the opening paragraphs of his Vietnam memoirs, *A Rumor of War* (1977), Philip Caputo describes his book as a story “about the things men do in war and *the things war does to them*.”¹¹ The changing character of war apart, “these things” have not changed much over the centuries. What Sophocles wrote about in the fifth century B.C. seems familiar nowadays, because the profound effects of war on the warrior’s psyche have remained very similar since the mythological Trojan War. In this sense, a Navy chaplain deployed to Iraq, James Johnson, is perfectly right when he says that “War really hasn’t changed in 2,500 years, whether the troops are in chariots or Humvees.”¹² This is a good reason for getting back to the classics, to “some heavy dope” written by Homer, Sophocles, Thucydides, Xenophon, and others.

This is exactly what a remarkable project called “Theatre of War” does. Sponsored by a 3.7 million dollar Pentagon grant, it aims to remove the stigma surrounding the psychological damages of war.¹³ Seeking to familiarize the audience with the trauma of wars in Afghanistan and Iraq, the project looks back at two of Sophocles’ dramas. His *Ajax* and *Philoctetes* are read by a group of actors to help (ex)soldiers to deal with trauma by showing how essentially normal and universal their emotions and troubles are. The director, Bryan Doerries, was inspired by Jonathan Shay, who in his two seminal books—*Achilles in Vietnam* (1994) and *Odysseus in America* (2002)—looked back to the Greeks, Homer in particular, to explore the psychological tolls of the Vietnam war. For Shay, the Greeks used theater as a means of alleviating the pains of homecoming. Drama was a way of reintroducing returning warriors back into society. Theater was a ritualistic linkage between war and social life, a purification therapy. It was a decisive form of community catharsis, because “Greek drama was theatre for combat veterans by combat veterans.”¹⁴ By showing that some of the greatest Western warriors experienced combat trauma, Doerries hopes “to destigmatize psychological injury.”¹⁵ This is important, because in military culture PTSD is still seen as a sign of weakness, as a very unmanly and dishonoring behavior. “Theatre of War” was performed over 100 times in 2009–10, attracting more than 20,000 US service members and their families.

Postmodern Ajaxes

Some Afghanistan and Iraq veterans acknowledge that there are striking parallels between these conflicts and the Trojan War. Eduardo Leardo, who fought in Fallouja, admits that “The combat stress, the inner conflicts, the loss of yourself, all are the same.”¹⁶ Tom Hall, who served on both missions, declared after listening to the reading of Sophocles that “Ajax was infantry, just like me. The kinds of moral and ethical decisions he was facing are just the same as what Marines are going through now.”¹⁷ Unfortunately, although usually not motivated by humiliation or anger, an alarming number of soldiers also follow Ajax and slaughter themselves. With the United States facing irregular enemies fighting asymmetrically, there are far too many traumatized soldiers, unable to live any longer with horrible images and memories that persistently torture them. Nonorthodox adversaries have perfected the very lethal tactics of suicide attacks, roadside bombs, and sniper assaults. Due to the new types of improvised explosive devices, a phenomenon pictured by Kathryn Bigelow in her Oscars-winning movie *The Hurt Locker* (2008), rates of traumatic brain injury are exceptionally high. The nature of irregular war, urban warfare, the absence of front lines, and the extremely stressful character of missions put increased pressure on military personnel. Today, the rates of major mental health disorders among US soldiers returning from Afghanistan and Iraq are distressingly high and range from 11 to 17 percent, respectively.¹⁸ Overall, in April 2008, there were approximately 303,000 Afghanistan and Iraq veterans suffering from PTSD or major depression.¹⁹

Killing in the warzone is one of the key factors producing PTSD. High-tech weapons enable distance killing, which is said to be easier; however, as Dave Grossman reminds us, “The killing is always traumatic. But when you have to kill women and children. . . the horror appears to transcend description or understanding.”²⁰ The conditions of irregular warfare, which blur the distinction between combatants and noncombatants, often make soldiers kill civilians. According to a seminal study by Hoge and colleagues, 77–87 percent of combat soldiers in Iraq reported shooting or directly firing at the enemy, 48–65 percent were responsible for the death of an enemy combatant, while 14–28 percent killed civilians.²¹ These figures are crucial, because killing is “a risk factor for combatant-related psychiatric and social disturbances.”²²

Social rejection also increases the risk of PTSD. A frequent reason for soldiers redeploying is their inability to readapt to the society to which they return. Homecoming soldiers suffer because there is always a huge gap between the truth about war, which they know, and their society’s delusions about it. Ernest Hemingway masterfully portrayed the tormenting experience of homecoming in his short story “Soldier’s Home.”²³ Harold Kerbs, who returns from World War I as a transformed person, is unable to fit back into American society. Hemingway describes a problem that is painfully familiar to many contemporary vets. It is, in fact, the universal soldiers’ experience, first captured by Homer in Odysseus’ archetypal ten-year journey back home to Ithaca. Since the society does not understand and often rejects soldiers, many cannot find any better idea for living their lives than to return to the warzone. This is exactly what Sergeant William James, the main character in *The Hurt Locker*, does. In one of the most stirring scenes of the movie, back in the United States James feels lost in a shop, because a normal life in an affluent society is no longer “his” life. By redeploying, he goes back to his “real” life, and his real, sapper’s identity. Hemingway’s Kerbs also runs away from his family, from the social norms he cannot conform to and leaves for Kansas City.

Some, like Kerbs, escape by moving to another city; others, like James, redeploy, but some literally escape from life. Suicide is the most tragic effect of PTSD and today there are an alarming numbers of “dead Ajaxes” among US servicemen. The suicide rate in the Army has exceeded statistically “normal” levels and is increasing, despite urgent efforts to strengthen prevention programs (Suicide Prevention Task Force, special lifeline, more therapists and psychiatrists, exercises with actors, etc.). In 2007, there were 115 Army confirmed suicides and in 2009 there were 165, while through to August 2010 at least 125 active Army soldiers killed themselves.²⁴ These are the highest monthly total rates since the Army began counting suicides in 1980. The worst month so far was June 2010, during which, statistically, soldiers killed themselves at the rate of one per day.²⁵ And these are the official statistics of confirmed suicides only. Responding to the problem, the Pentagon has initiated the most comprehensive program of treatment for PTSD and traumatic brain injury yet. In 2007, Congress allocated the unprecedented sum of 301 million dollars for medical military research, for the development of innovative treatment methods for PTSD.

Oblivion beyond Reach?

Preventing mental breakdown has been on commanders' priority lists. Traditional methods for avoiding combat trauma have been: screening the manpower for the candidates most resistant to mental collapse, realistic training and limiting the time a soldier is exposed to combat.²⁶ Because none of these has proven effective, the military has looked for a chemical solution—a sort of antianxiety drug. Therefore, apart from diverse psychotherapies, pharmacotherapy has been widely used to ameliorate the symptoms and make the life of traumatized patients a little more tolerable. The records of the Department of Veterans for the fiscal year 2004 reveal that 80 percent of all patients suffering from PTSD received some psychotropic medications.²⁷ In most cases, pharmacotherapy has a positive, though temporary, effect.²⁸ None of the drugs, however, has the potential to heal, simply because a complete recovery from PTSD through pharmacotherapy alone is currently beyond reach. Today advanced research programs desperately aim to find a magic antidote for combat madness, which would enable the pharmacological management of mental disorders.

“Therapeutic Forgetting”: PTSD Will Not Take Place

Recent developments in neurobiology have shown that PTSD has an identifiable biological component. It has been found that certain neurobiological systems might be alerted when exposed to severe stress, leading to a pathological outcome. These discoveries led to a paradigm shift toward the pharmacoprevention of PTSD. Through neuropharmacology, scientists and the military would like to gain a similar effect to the one that the characters of Jean Giraudoux's play, *The Trojan War Will Not Take Place* (1935), want to achieve. The action takes place in the city of Troy the day before the beginning of the Trojan War. Giraudoux shows how desperately Hector, who struggles to avoid conflict with the Greeks, fights to prevent what the audience knows is inevitable. Today, scientists struggle to find a way to prevent combat trauma, which has so far been “as inevitable as gunshot and shrapnel wounds in warfare.”²⁹ They might be more successful than Giraudoux's Hector. Neurobiologists and psychopharmacologists are writing their own play, the title of which could be: *PTSD will not take place*. Let's be clear, we have as yet merely entered this path toward prophylaxis. However, the latest discoveries might be crucial not only for averting battlefield trauma but also for reshaping future soldiers and changing the character of combat altogether.

Stress initiates a series of biochemical processes in the body aimed at activating its natural defensive mechanism. It has been observed that adrenaline, when administered soon after a learning task, reinforces the memory consolidation process. “This seems to be an adaptive mechanism whereby the significance of an experience facilitates its remembrance.”³⁰ As Arieh Shalev notes, “traumatic events are followed by a critical period of increased brain plasticity, during which irreversible neuronal changes may occur in those who develop traumatic stress disorders.”³¹

Simply put, the more adrenaline, the stronger the memory consolidation of traumatic events. Yet, overconsolidation produces deeply inbuilt *emotional memories* which might generate symptoms of anxiety disorder or PTSD.

People discovered relatively early that there must exist some close connection between emotions and memories. James McGaugh recalls a medieval practice prior to the introduction of written records, when “a young child . . . was selected, instructed to observe the proceedings [of important events] 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.”³² This inhumane method of using a traumatized child as a living history notebook reveals that a long time ago people had learned that emotionally meaningful events produce stronger and enduring memories. Thanks to recent scientific breakthroughs we now better understand the process of memorizing. When stimulated by adrenaline, peripheral β -receptors in the brain play a crucial role in the process. Their activation during the triggering of the body’s fear response mechanism strengthens the memory of the event, which becomes deeply written in the amygdala—the part of the brain’s limbic system, which regulates emotions and the memory of emotional reactions. Roger Pitman bluntly explains: “adrenaline helps you cope with the traumatic situation, but also makes the memory of the situation stronger.”³³ Thus, the knowledge of the etiology of stress disorder might allow its avoidance, because the ability to manipulate stress hormones and to block β -adrenergic receptors at the time of the release of the stressor, can suppress the creation of bad memories and, subsequently, avoid anxiety disorders. But how to achieve this? How to avoid abnormalities of brain chemistry? Drugs which activate a β blockade— β -adrenergic receptor antagonists—can offer a solution.

One of the β -blockers, propranolol, might be a wonderful drug for “erasing” disturbing memories. Propranolol was invented in the late 1950s by the Scottish academic and pharmacologist, Sir James Black (1924–2010) and launched in 1964 as *Inderol*. Because it corrects heart rhythm abnormalities by blocking β -adrenergic receptors in the heart, it has been commonly used in the treatment of high blood pressure and arrhythmia.³⁴ However, since it also blocks β -adrenergic receptors in the brain, it has found some off-label applications. Since the late 1970s, professional musicians have been commonly using it to combat anxiety and improve performance. Since 1987, when a survey disclosed that 27 percent of musicians in the largest American symphony orchestras took propranolol, it has become almost omnipresent. The drug, which helps to manage stage fright, has developed into “a seemingly permanent part of the classical music world.”³⁵

Propranolol turned out to have yet another amazing effect. When administered during or immediately after a traumatic incident, it can block the process of memory consolidation and consequently forestall PTSD. Pilot studies proved its preventive effects.³⁶ Propranolol does not erase memories but it renders them emotionally toothless by detaching strong emotions from them. With β -blockers a soldier will remember the killing, will remember the dead and the maimed bodies, but he will

not experience “the smell of death.” He will remember but feel nothing about it. The “window of opportunity,” when the memory of a traumatic event is consolidated and when the first pill must be given, is not precisely known, but experiments demonstrate it to be between a mere few and several dozen hours. For this reason, the best solution could be to distribute propranolol among potential victims prior to a probable trauma.

By decreasing blood pressure, propranolol prevents stroke; by softening and altering memories it could also prevent trauma. It was Jean Baudrillard, who writing on the Gulf War provocatively proclaimed: “first safe sex, now safe war.”³⁷ War has become safer for the soldier’s physical body. Now it seems that the military think it is time to make it safer for his psyche as well. In the future, pharmacology will play an increasingly important role in this process. Extending Baudrillard’s analogy to sex, consuming propranolol can be compared to a morning-after contraception pill. Although research is not yet conclusive as to the drug’s effectiveness in combat-stress prevention, this off-label application generates a vivid neuroethical debate which should be seen as a part of the general discussion on the pharmacoprevention of PTSD, be it with propranolol or any other marvelous drug yet to be discovered.

A Moral Puzzle

Because the brain is the seat of consciousness and identity, neuroscientific intervention has exceptional ethical implications, which are much more complex and fundamental than interventions in other organs of the body. I will now turn my attention to these fundamental ethical dilemmas surrounding the pharmacologization of war.

Blessing: Propranolol as a Magic Bullet

Advocates of the pharmacological manipulation of memory see propranolol as a great opportunity to free individuals from the horrible and, so far, unavoidable side effects of combat. Soldiers are young people whose experience of dreadful events might stamp the rest of their lives with the terrible psychological toll of war. Worse still, trauma can be transmitted intergenerationally, hence military families suffer as well.³⁸ PTSD proves to be similar to acute physical pain as an obstacle to ordinary life. Thus, pharmacotherapy, by making war less distressing, becomes another step in the general process of making it more humane.³⁹ Because Western governments measure war in individual lives, the reduction of soldiers’ suffering is one of the priorities built into the *casualty aversion* paradigm. The psychopharmacological approach to reducing the human cost in war is part of a larger attempt by postmodern militaries to avoid casualties for their side. The growing use of unmanned vehicles, drones in particular, is another part of the very same process.

The fundamental question raised by the supporters of pharmacological stress management is this: “Can we condemn our soldiers and their families to suffer from horrible psychological wounds while there is a preventive cure at hand?” Would

sentencing them to being victims of war be ethical? More Vietnam veterans suffering from mental health problems committed suicides than US soldiers were killed in action in Indochina. Imagine that in the 1960s and 1970s, an antisorrow drug had been available, but due to the moral dilemmas was not issued. Would bioethicists have taken responsibility for the lives of those vets who killed themselves, often long after the war was over? This is a serious argument because what is at stake is individual human life. Without being pathetic, let's ask the next question: "Will contemporary bioethicists take responsibility for the future soldiers and veterans who could not fight their demons of war and commit suicide?" The argument goes that there should be no hesitation concerning the preventive use of drugs, if only pharmacotherapy proves to be effective, because "therapeutic forgetting" would save lives.

This basic humanitarian argument apart, there are more reasons for taking an enthusiastic stance on pharmacoprevention. First, why should the efforts to protect soldiers' minds generate objections, while the military constantly develops better and safer uniforms to protect their bodies? In fact, advances in body armor and medicine mean that more soldiers survive injuries which would have caused them death in past conflicts. Ironically, at the same time the number of injured minds is on rise. Why is preventing physical wounding highly valued and supported, while avoiding psychological wounds is a matter for concern? James McGaugh, the scientist who discovered propranolol's effects in diminishing emotional memories, speculates about an injured soldier who has killed an enemy: "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 we 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?"⁴⁰ Supporters of memory blockers argue that we should resolutely attempt to prevent both types of wound.

Second, β -blockers might have a tremendous tactical advantage. Avoiding traumatic memories is not only a key criterion for training good military personnel; it could also be crucial in turning them into "perfect killers." This is what conditioning through military training has long been about. By repeating the simulation of killing, the soldier learns about denial and the defense mechanism. When he finally kills a real enemy, he should be able to "deny to himself that he is actually killing another human being," and be convinced that "he has only 'engaged' another target."⁴¹ Because training aims to program soldiers to kill without emotion, reflection, and guilt, β -blockers would help in professionally dispassionate killing just as they assist musicians in perfect playing. At the same time, we should not worry about pep-pilled soldiers turning into psychopathic, unrestrained killers; it simply does not work that way.

Third, propranolol is not only effective but also cheap. A random search of online pharmacies shows that a package of ninety tablets of 40 mg drug costs 57 dollars, making a single pill only 63 cents. Stronger doses are slightly more expensive but a single pill costs not more than one dollar, which makes it "less expensive than a single bullet."⁴² Thus, "by comparison with hours of psychological intervention

of doubtful efficacy, a seven-day course of a drug of low toxicity seems trivial."⁴³ It is estimated that the US government spends more than 4 billion dollars a year on payments to (ex)soldiers with diagnosed PTSD.⁴⁴ The real socioeconomic costs, resulting mostly from the lost productivity of vets and their families, are even greater, since "two-year post-deployment costs to society resulting from PTSD and major depression for 1.64 million deployed service members (as of October 2007) could range from \$4.0 to \$6.2 billion (in 2007 dollars)." Over 2 years, the average cost per soldier/veteran with PTSD is between \$5,904 and \$10,298.⁴⁵ From a strategic point of view, β -blockers would lower the general costs of war in terms of treating and reusing soldiers. Being exceptionally cost-effective, preventive pharmacology would therefore save not only lives but also public money.

Finally, the drug, which has been in use for many years for other health problems, is well tolerated. It is not only safe, but its potential side effects are well known (mainly fatigue, dizziness, constipation, nausea, insomnia, impotence, and short-term memory loss).⁴⁶ Because the preventive use of β -blockers in the military would require taking it for a finite period of time (usually up to a few weeks), the risk of side effects would be reduced.⁴⁷ Furthermore, having predictable and mild side effects, propranolol might diminish the need to use more hazardous drugs for treating symptoms of PTSD. In general, it brings more benefits than risks.

Curse: Propranolol as Faustian Bargain

One veteran expressed his determination: "[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."⁴⁸ In fact, therapeutic forgetting might prove to be a Faustian bargain.

Opponents of pharmacoprevention often follow the concerns expressed by President George W. Bush's Council on Bioethics (hereafter the Council), chaired by Leon Kass. The first crucial objection to the use of memory-altering drugs is that by eliminating guilt, β -blockers might increase the inclination for evildoing. No bad memories would mean no feeling of wrongdoing and no moral responsibility. The Council suggests that desensitized people might commit the worst atrocities. The My Lai massacre was made public not only thanks to journalists, Seymour Hersh in particular, but basically because the soldiers involved in the killing of Vietnamese villagers felt guilty and began to talk about it. Let us imagine that everybody in Lieutenant William Calley's company was given β -blockers before or just after this dreadful action. Propranolol would have erased their feeling of guilt, so they would probably have not gone public and the massacre might have been kept secret. Theoretically, such a scenario seems plausible. Those committing atrocities are usually aware of the price of the painful memories they may finally have to pay. Imagine what people may be capable of doing if they no longer have to pay such a price in psychological retribution.

The Council rightly assumes that without bad memories humans would lack an important opportunity for moral learning. In his 1983 book *Elements of Episodic*

Memory, Endel Tulving noted that the human ability to call on memories of the past is fundamental to our moral development.⁴⁹ Once we deprive ourselves of emotional memories, we lose the chance to learn how to act in similar situations in the future. Emotional memory is a typical human way of remembering. Thucydides reminds us that “war is a violent teacher,” because it painfully teaches nations and armies and also individual soldiers.⁵⁰ Historic oblivion implies stagnation. On this point, the Council is perfectly right: “sometimes our most valuable memories are of events that were painful when they occurred, but that on reflection teach us vital lessons.”⁵¹ Emotional memory is thus crucial for human growth and the effect of trauma on the human psyche is not exclusively negative. The idea of *positive posttraumatic growth* (PTG) assumes that extreme experience may lead to “a reevaluation of one’s life goals, greater self-reliance, increased empathy, increased social support, increased levels of intimacy, and spiritual development.”⁵² Traumatic events may sometimes turn out to be a landmark experience of one’s humanity. Disabled Vietnam veteran, Barry Roma believes that even bad memories are important: “One of the things I’m proud of is that I feel guilty for the bad things I did.”⁵³ While preventing bad effects (PTSD), pharmacotherapy might also block good outcomes (PTG). Some of the greatest works of art have not been the products of “shiny happy people” as in the R.E.M. song; on the contrary, they have been the creations of unhappy and tragic individuals fighting their inner demons. Take Van Gogh as an example. Use preventive pharmacology and you might rob civilization not only of masterpieces but also of true art.

In his book *No More Heroes* (1987), Richard Gabriel warned that the discovery of a drug which he called “nondepleting neurotrop” would, if furnished to soldiers before battle, produce armies of dangerous sociopaths. “A sociopathic personality is one who clearly *knows* what he is doing to another person but cannot *feel* or appreciate in an emotional sense the consequences of his actions.”⁵⁴ Gabriel’s concerns deserve even closer attention today. Pharmacologically assisted soldiers, freed from emotional memories, would meet these criteria of sociopathic behavior. There is again the question of guilt, and one commentator went as far as to remark that “therapeutic forgetting” may allow society and government “to avoid taking responsibility for future conflicts by making them less risky or consequential.”⁵⁵

Second, when the individual modifies her memories, she might deny the society the right to know. The position of the Council, is unequivocal: “there are certain events that we have an obligation to remember.”⁵⁶ Like it or not, the argument goes, being a member of a community means you do not have total freedom of memory. We are all Aristotelian *zoon politikon*s, gaining our identity and humanity only within and through the society in which we live. Without individual memories there could be no collective memory, hence the society has an interest in preserving access to our recollections. What is at stake here is the social value of individual memories. Yet, soldiers are not ordinary members of the society; they not only represent the community and its values, but they protect and preserve them. Paul Outka makes an important argument on trauma’s historical, social, and political testimony. Pharmacology threatens to eliminate “the symbiotic and representational relationship

between individual and communal trauma". In fact, "the trauma that veterans endure after the war is carried back to the larger society, becoming a central part of the war's subsequent history and a testimony or monument to the terrible pain and suffering that comprised the conflict. Those of us who were not there, especially, learn something invaluable from the ongoing suffering of those who were. . . ." ⁵⁷

Closely related is the question of legal responsibility. Memories are important for the state legal system because they are constantly referred to during fact finding, be it in police investigation or in court. Therefore, manipulating memories could make soldiers useless as a source of information as their credibility would be diminished. Although so far there is hardly any evidence that the drug affects the informational content of memories (it dampens the emotional aspect only), we cannot be sure that propranolol and its future iterations do not turn out to upset the informational dimension as well. Adam Kolber warns that the use of a drug "that affects factual recall could constitute obstruction of justice" and be recognized as an illegal changing of evidence. ⁵⁸ Still, it would be the state feeding its soldiers with these drugs, so who should be held responsible? No responsibility. . . ? Remember John Locke, for whom memory and identity were so closely related that he went on to claim that "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 latter." ⁵⁹ Such a thesis—that if you cannot remember committing a crime, you are innocent—sounds absurd today; however, it only adds to the worried arguments against pill-popping soldiers.

The third major concern is about the further medicalization of society. What used to be considered a "normal" and inherent part of the war experience has been medicalized and is now regarded as pathological. The same was the case, for example, with children's hyperactivity (attention deficit hyperactivity disorder), and erectile dysfunction, which are now treated pharmacologically with *Ritalin* and *Viagra*, respectively. Social understanding of what consists of normal behavior is historically dependent and culturally constructed. Pharmaceutical companies are transformers of social norms, who "construct" new pathological conditions for profit. Even one of the most zealous proponents of prophylactic pharmacology, Michael Henry, recognizes the risk of overmedicalization, which "gives pharmaceutical companies the ability to capitalize on human suffering and exploit insecurities and unhappiness in order to increase drug sales." ⁶⁰ Moreover, such a threat is greater with medicine that is used preventively. Although most people exposed to trauma have some PTSD symptoms, only 15–25 percent develop a chronic or complex stress disorder. ⁶¹ However, in order to be successful in preventing PTSD, every soldier would have to be administered propranolol for a few weeks on each occasion. Thus, prevention means immense overmedicalization, which implies exploitation by the pharmaceutical industry.

Fourth, some assessments based on experimental studies of β -blockers' influence on decision making are now available and raise new concerns. Rogers et al. found that propranolol "significantly reduced the discrimination between large and small possible losses when the probability of winning was relatively low and the

probability of losing was high.”⁶² Because the drug causes less cautious behavior in specific gambling-style tasks, it might encourage soldiers to adopt less rational and more risky behavior. Administered before a battle, propranolol might have an ironic effect: while preventing soldiers from developing psychological wounds, it may put them in a greater risk of physical injuries, by encouraging bravado and restraining the natural survival instinct. Walter Glannon comments on such humane intentions leading to inhumane consequences: “soldiers could end up being wounded or killed because they would have lost their normal fight or flight response. What was intended as a prophylactic intervention to prevent harm could unwittingly result in harm.”⁶³ Evolution has developed a defensive survival mechanism: learning from experience. The very same adrenaline that makes you run away from a hazard also helps you avoid a dangerous confrontation in the future due to strong emotional memories. By no means would propranolol turn soldiers into warriors who courageously go beyond their formal duties. Their behavior would cease to be heroic; it would simply be irrational and irresponsible.

Finally, we get to the most fundamental ethical objection. Stress and anxiety are natural reactions on the battlefield. They are very human and in some instances they may even be the essence of humanity. Trauma “is not only a measure of pathology, but a measure of normality.”⁶⁴ We remember traumatic events not only because they are traumatic but also because they are meaningful. They are built into and form our identity, our soul, ourselves. In some cases, these experiences are so grave that they deprive our minds of peace. But is not this precisely human? After all, memories of the past determine who we are. Our agency is built on what we have experienced and how we remember. Medication may change an individual’s identity; it may affect what we believe is true about the world and about ourselves. Taking propranolol might result in a simulated reality, a pharmacologically (re)constructed perception of the world. The human ability to remember even the most painful experiences allows us to feel empathy and compassion, and this is what makes us fully human. Soldiers are no exception, because “in using propranolol, a soldier may come to remember and believe that he did not really want to kill the enemy when, in fact, he lusted after killing.”⁶⁵ Modify beliefs and you modify the soldier.

Jennifer Bell reminds us that “it is not only normal to experience some shock, anxiety, helplessness and grief after a stressful situation, but . . . it is a necessary part of the human experience.”⁶⁶ The pharmacological management of soldiers’ bad memories raises doubts strikingly similar to the reservations about the use of β -blockers by musicians. Those who reject the idea of enhancing the performance of artists talk about “soulless and inauthentic,” chemically assisted concerts played by disconnected and “programmed” musicians. Technically speaking, they are perfect; but the essence of music, its spontaneity and sensitivity, might be missing. Music, being chemically disenchanting, is becoming soulless. How about war? Coker answers this question well: “Like life war involves a mixture of heroism and cowardice, sorrow and misery, exultation as well as pain. In cauterizing unhappiness, in removing grief and pain from the equation, we would be in danger of making it

‘soulless’.”⁶⁷ While pharmacologically assisted musicians might be devoid of “particular excitement,” pharmacologically assisted soldiers may be missing the existential element of war. Alfred de Vigny got close to the understanding of this existential dimension of combat, saying that soldier is both victim and executioner.⁶⁸ Soldiers not only kill, injure, and traumatize others, but they themselves become victims—get killed, injured, and traumatized. The victimizer becomes a victim—such is the dialectical nature of soldiering. War victimizes soldiers, as well, by changing their psyche. Propranolol-style memory dampening hopes to turn soldiers into executioners only, to devictimize them by freeing them from combat trauma. Once this proves achievable, the existential element of war will not be merely further transformed, but ultimately eliminated. After all war is, as Carl von Clausewitz teaches us, not a science but an art . . . , and the art of war in the West is being continually disenchanting.

Conclusion: Toward Posthuman War?

Victor Davis Hanson reminds us that the origins of the Western military art go back to the Greeks.⁶⁹ Also, our understanding of what it means to be human derives from their philosophy and art. To better see the challenges posed both to warfare and to humanity by contemporary scientific developments, it is valuable to look back to the Greeks. We will not find easy answers to our large bioethical questions, but we may better see the problems and notice how far we have departed from the Greeks. At some point, the gap is immense. By instrumentalizing war, the West deprived its homecoming soldiers of a social healing mechanism which over the centuries had helped warriors in their transition back to a civilian life. Traditional societies practiced special purification ceremonies because they understood that war affects society as a whole. These rituals were a way to tell the soldier that what he did was good, and that “his community of sane and normal men welcomed him back.”⁷⁰ This ceremonial cleansing helped warriors to deal with stress, guilt, and sorrow. Certainly, there were warriors suffering from what we call PTSD, but this condition “was treated as a communal rather than an individual problem.”⁷¹ Today, in the post-military societies which have divorced citizenship from soldiering and which deny purification rituals, PTSD is the veteran’s individual problem. Antidepressants, tranquilizers, and sleeping pills, liberally prescribed by military doctors in Afghanistan and Iraq,⁷² cannot heal emotional scars and soul wounds. Soldiers need to be provided with comprehensive professional mental health support: psychotherapies, counseling, and spiritual direction (for many chaplaincy would be of great importance). However, military psychiatrists, psychologists, and social workers often lack sufficient qualifications. A survey of 133 military mental health providers conducted in 2003–05 revealed that 90 percent of them had no formal training in four PTSD therapies recommended by the Department of Defense and Department of Veterans Affairs.⁷³ What we need, apart from pharmacotherapy (*instead of* is no longer realistic), is a postmodern “equivalent of Athenian tragedy,”⁷⁴ a sort of communal

psychotherapy. The best way of curing trauma is storytelling, through which soldiers reexperience the horrors of war, now in a secure environment, and heal themselves. Therefore, the “Real Warrior” project launched by the Pentagon in 2009 under the inspiration of the “Theatre of War” program might be a good initial step in providing potential remedy for the moral pain that combat leaves on soldiers. The project’s idea is to offer service members an opportunity to talk about and listen to the stories of traumatized veterans. However, these types of initiatives, which should be high at the agenda, are few and far between, because the best solution that postindustrial society can think of is to pharmacologically manage the risks of trauma. By doing so, it seeks to instrumentalize away emotional memories. Have we arrived, then, at the edge of a Huxleyan brave new memory of brave new soldiers fighting in brave new wars for a brave new world?

The *Brave New World* view of life is becoming less and less science fictional. A happy society fed with a chemical compound called *soma* knows no inconveniences, no fears, and no pain. In Huxley’s world, *soma* has no side effects and prevents maladjustment without reducing human efficiency. Importantly, it is a political institution—we see “the systematic drugging of individuals for the benefit of the State. . . .”⁷⁵ Replace *soma* with β -blockers and you get a brave new army.

Research findings as to the success of propranolol in preventing trauma, although promising, remain as yet inconclusive. For example, the most recent study by Hoge et al. did not find the β -blocker effective in blocking trauma and did not recommend its use at this point.⁷⁶ Nevertheless, we have entered a path leading to therapeutic forgetting. Despite the cries of many bioethicists, there is no way back. The Pentagon has already issued several million dollar grants for investigating effective alternatives to propranolol. Drugs which are already in use for the treatment of various health problems will be tested for new off-label purposes. Brand new drugs will also be invented. In the future, veterans will probably have no serious problems with combat trauma—they will not suffer from it in the first place. There might be no Ajaxes in the future, since Ajax taking propranolol ceases to be Ajax. Drugs might destroy the existential element of war, which for the Greeks was as important as the instrumental one. For them, the ability to control one’s fears was the acme of bravery. Heroes could manage their fear beyond the limits of ordinary men. They could do something that normal men could not be expected to do. Coker captures the essence of humanity in war when he writes that “the weakness of the body is not something to be ‘overcome’ but something to be respected. Likewise inner states of mind such as fear are not there to be got rid of but to be controlled, or directed, or channelled to more creative purposes through training and education, neither of which is the same as ‘programming’.”⁷⁷ Nonetheless, new technologies are seen today as panaceas for human weaknesses. Pill-popped soldiers with β -blockers would be, in fact, preventively preprogrammed.

Warfare has not only turned out to be postheroic,⁷⁸ it is now approaching the edge of becoming posthuman. Let me quote Huxley at this point: “In the past you could only accomplish these things by making a great effort and after years of hard moral training. Now, you swallow two or three half-gramme tablets, and there you are.

Anybody can be virtuous now.”⁷⁹ A brave new war—a war without fears, stress, and trauma, a risk-free war—that is what β -blockers seem to be offering. It might, however, be a risky transmutation. In Greek military culture human qualities were always given priority over technical solutions. Men were more important than their tools. The echoes of this humanism could still be found in the 1944 US *Field Service Regulations*, which expressed confidence that despite advances in technology, the value of a single man would still be decisive.⁸⁰ This humanistic optimism is becoming increasingly difficult to uphold as technology increasingly alienates soldiers. Pharmacology threatens to destroy our respect for human weakness, for our . . . humanity.

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