

Reinvigorating *Actus Reus*: The Case for Involuntary Actions by Veterans with Post-Traumatic Stress Disorder

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Matthew Sepi, a 20-year-old combat veteran who had been deployed in Iraq, headed out to a local convenience store in Las Vegas in 2005 concealing an AK-47 under his clothing in case it was necessary to protect himself in the neighborhood that was known for violence and crime.¹ At one point a man and a woman approached him in a dark alley, ordering Sepi to leave the area. Feeling he was being ambushed by enemy troops, Sepi instinctively reacted by “engag[ing] his targets” and shooting at them. Once the individuals appeared immobilized from the gunshots, Sepi followed training protocol in “breaking contact” with the enemies and retreating. Both individuals were shot and one of them died of gunshot wounds. Sepi was charged with murder and attempted murder.

I. INTRODUCTION

Criminal culpability rests on two basic elements: the defendant’s state of mind, or *mens rea*, and a voluntary act, or *actus reus*. While much of the litigation in criminal cases involves the applicable *mens rea*,² rarely is there much focus on the existence of *actus reus*. This remains true despite the fundamental principle of criminal law that “the general doctrine of the voluntary act”³ means that “liability requires that the

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¹ Deborah Sontag & Lizette Alvarez, *Across America, Deadly Echoes of Foreign Battles*, N.Y. TIMES, Jan. 13, 2008, at A1.

² See generally Jeremy M. Miller, *Mens Rea Quagmire: The Conscious or Consciousness of Criminal Law?*, 29 W. ST. U. L. REV. 21 (2001).

³ H.L.A. HART ET AL, PUNISHMENT AND RESPONSIBILITY 90 (1968).

activity in question be voluntary.”⁴ A review of case law, provided herein, indicates that the voluntary act doctrine appears a weak doctrine, ignored in fact in many cases. In order to adhere to longstanding doctrine, a general need exists to reengage the *actus reus* requirement as a necessary element of criminal responsibility. This paper offers an exceptional opportunity to reconsider the *actus reus* requirement: by utilizing the modern neuropsychiatric doctrine of Post-Traumatic Stress Disorder (“PTSD”) and the relatively unique nature of modern warfare, it provides a contemporary focus to the *actus reus* issue. A 2008 New York Times article noted it had uncovered 121 cases, including that of Michael Sepi mentioned above,⁵ in which Iraq and Afghanistan veterans were allegedly involved in a homicide after returning to the United States.⁶ In many of the cases it appeared that combat trauma and other deployment stresses were background factors that “appear[ed] to set the stage for” these homicides.⁷ The relationship between PTSD and criminal offending is considered to be so significant that the president of the National Veterans Federation, who has authored a book on PTSD, warns that the criminal justice system is facing an epidemic of veterans with PTSD being charged with crimes.⁸

PTSD is a disorder in which a person who experiences a traumatic event develops symptoms of re-experiencing (flashbacks), hyperarousal (extreme responsivity), and hypervigilance (acute awareness), which are connected to deficits in neuropsychological,

⁴ WAYNE R. LAFAVE & AUSTIN W. SCOTT, CRIMINAL LAW § 3.2(c), at 208 (2d ed. 1986).

⁵ There was some evidence that might have supported a self-defense claim since the victims were known gangmembers and one of whom was armed at the time. However, there were no witnesses other than Sepi and the surviving wounded party that could substantiate the facts or identify who was the initial aggressor. As the survivor of the shooting had a criminal background and would be subject to impeachment if she testified and the victims’ families did not push for prosecution, the state agreed to a proposal to drop the murder charges if Sepi successfully completed PTSD rehabilitation programming offered by a Veteran’s Administration facility. Sontag & Alvarez, *supra* note 1, at A1.

⁶ Sontag & Alvarez, *supra* note 1, at A1.

⁷ *Id.* (compiling the data from news reports, official records, and interviews with defendants, lawyers, families, and officials).

⁸ Kim Murphy, *Did War Make Him Do It?*, L.A. TIMES, Nov. 28, 2009, at A1.

autonomic, and brain processing functions.⁹ These symptoms and the correlative functional deficits can manifest in automatic and hyperresponsive reactions to threatening stimuli.¹⁰ Modern military training reinforces reflexive responses to threat and normalizes killing. The uniquely stressful circumstances of the wars in Iraq (Operation Iraqi Freedom) and Afghanistan (Operation Enduring Freedom) regarding enemies using terroristic tactics of improvised explosive devices, suicide bombers, and civilian murders have left many combat veterans suffering from PTSD. After returning stateside, many of them have been involved in violent encounters which appear to be the result of PTSD-based cognitive impairments in which they automatically respond to perceived threats or suffer dissociative flashbacks to being in combat. Indeed, the United States Department of Veterans Affairs acknowledges a potential relationship between PTSD and impulsive reactions to cognitively-based feelings of being threatened.¹¹

This article outlines a theory in which a PTSD-afflicted veteran's automatistic behavior or dissociative state can negate the *actus reus* element such that the veteran is not engaged in a voluntary act and therefore not criminally culpable. The argument takes the following path: Section II explains the theoretical principles that historically underlie the *actus reus* element in criminal law and how this element has generally been ignored or misconstrued in case law. Section III discusses the reasons PTSD is the signature injury of soldiers serving in the Iraq and Afghanistan wars, and synthesizes the scientific basis for understanding how PTSD can invoke automatistic responses through impairments of physiological and neurological functioning brought on by physical and mental adaptations to traumatic stress. A plausible theory of how PTSD can explain a veteran's automatism that negates the voluntary act element is then provided in Section IV. Free will enthusiasts likely will counter that PTSD-related behaviors ought to best be considered instead under the rubric of *mens rea*, insanity, or possibly diminished capacity, but this redirection seems contrary to upholding the common law requirement of

⁹ Erin M. Falconer et al., *Developing an Integrated Brain, Behavior and Biological Response Profile in Posttraumatic Stress Disorder (PTSD)*, 7 J. INTEGRATIVE NEUROSCI. 439, 440 (2008).

¹⁰ See *infra* Section III(B).

¹¹ U.S. DEP'T OF VETERANS AFFAIRS, CRIMINAL BEHAVIOR AND PTSD: AN ANALYSIS (2011), <http://www.ptsd.va.gov/professional/pages/criminal-behavior-ptsd.asp>.

a voluntary act for criminal culpability.¹² An exploration of the historical and philosophical foundations for the voluntary act doctrine, applicable in all cases, therefore, follows.

II. THE PRINCIPLE ELEMENT OF *ACTUS REUS* IN CRIMINAL LAW

Eminent criminal law scholars often note that the common law requirement of *actus reus*, also referred to as a voluntary act, is a foundation of criminal culpability.¹³ Together with *mens rea*, the *actus reus* was developed in English common law from the principle enunciated by Edward Coke referring to *actus non facit reum nisi mens sit rea*, which means “an act does not make a person guilty unless their mind is also guilty.”¹⁴ This conveys that criminal culpability requires blameworthiness of both mind and behavior. In a simplistic conceptualization, *mens rea* is conceived as the internal component of criminal liability while the *actus reus* is the external component.¹⁵

Criminal law theorists conceptualize an involuntary act as one that is without blame, and thus not deserving societal condemnation or punishment.¹⁶ Oliver Wendell Holmes stated that it would be unfair to “make a [person] answerable for harm, unless he might have chosen otherwise.”¹⁷ Drafters of the Model Penal Code concurred that

¹² In the end, the author declines to propose any special treatment for PTSD or for combat soldiers in the criminal justice system. Instead, the potentially empathetic qualities of this modern phenomenon offer a reason simply to revisit the issue that the voluntary act element is fundamental for criminal culpability.

¹³ Paul H. Robinson, *A Functional Analysis of Criminal Law*, 88 NW. U. L. REV. 857, 862 (1994) (referring to the voluntary act as being a minimum condition for condemning the actor); see also *infra* sources in notes 14, 15, 25, and 43.

¹⁴ EDWARD COKE, THE THIRD PART OF THE INSTITUTES OF THE LAW OF ENGLAND 107 (1644).

¹⁵ George P. Fletcher, *Criminal Theory in the Twentieth Century*, 2 THEORETICAL INQUIRY L. 265, 269 (2001). Still, *actus reus* is conceptualized herein as also containing some minimal mental element that is not synonymous with *mens rea*. See *infra* notes 31-35 and accompanying text.

¹⁶ Model Penal Code 2.01 cmt. at 214-5; see also Adam Candeub, *Consciousness & Culpability*, 54 ALA. L. REV. 113, 114 (2002) (contending that only a person who “can be expected to consciously respond to reason can be morally and legally culpable”); Anders Kaye, *Resurrecting the Causal Theory of the Excuses*, 83 NEB. L. REV. 1116, 1117 (2005) (explaining the voluntary act doctrine using causal theory which presumes that conduct caused by forces beyond the actor’s control is not blameworthy).

¹⁷ OLIVER WENDELL HOLMES, JR., THE COMMON LAW 54 (1881).

the sense of personal security would be undermined in a society where [involuntary] movement [] could lead to formal social condemnation of the sort that a conviction necessarily entails. People whose involuntary movements threaten harm to others may present a health or safety problem, calling for therapy or even custodial commitment; they do not present a problem of correction.¹⁸

The *actus reus* element as a necessary condition for criminal culpability also fulfills the philosophical tenets of both utilitarians and retributivists. Per H.L.A. Hart, these theorists collectively view punishment based on crime reduction.¹⁹ For utilitarian theorists like Jeremy Bentham,²⁰ there is little deterrence value to punishing one who is not acting voluntarily.²¹ The retributivist ideology espoused by Immanuel Kant²² would view punishment as not deserved for an individual who has not freely chosen to violate societal rules.²³ Traditional common law treated the voluntary act element as separate from the *mens rea* element, though there must be a concurrence between the two.

A. Various Conceptualizations of Actus Reus

Despite the basic philosophical tenet of *actus reus*, no general agreement exists on exactly what is meant by a voluntary act.²⁴ Joshua Dressler notes in his popular criminal law treatise that “there is no single accepted definition.”²⁵ Another commentator argues that the confusion

¹⁸ Model Penal Code 2.01 cmt. at 214-15.

¹⁹ HART, *supra* note 3, at 26-27.

²⁰ JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION 83-84 (John Bowring ed., 1843).

²¹ Julian Hermida, *Convergence of Civil Law and Common Law in the Criminal Theory Realm*, 13 U. MIAMI INT’L & COMP. L. REV. 163, 197-98 (2005).

²² IMMANUEL KANT, THE METAPHYSICAL ELEMENTS OF JUSTICE (John Ladd trans., Bobbs-Merrill Co. 1965) (1797).

²³ Hermida, *supra* note 21.

²⁴ Douglas Husak, *Rethinking the Act Requirement*, 28 CARDOZO L. REV. 2437, 2458 (2007) (concluding that theorists on criminal responsibility are not in agreement on basic principles underlying the voluntary act requirement); *see generally* Kevin W. Saunders, *Voluntary Acts and the Criminal Law: Justifying Culpability Based on the Existence of Volition*, 49 U. PITT. L. REV. 443, 455-460 (1988) (discussing debates among the philosophers John Austin and Oliver Wendell Holmes on the intricacies of the voluntary act requirement).

²⁵ JOSHUA DRESSLER, UNDERSTANDING CRIMINAL LAW 91 (4th ed. 2006).

has resulted in “a judicial exercise in inclusion and exclusion” as to what does or does not constitute a voluntary act.²⁶ Such exertions by the judiciary in conceptualizing a voluntary act, as explored further below, have arisen since neither common law nor modern statutory codifications substantively or holistically define a voluntary act. A common referential point is not itself very illuminating. The Model Penal Code, while affirming that a voluntary act is a “preliminary requirement of culpability,”²⁷ does not define the element of voluntary action in any affirmative manner; instead it describes what are not to be considered voluntary acts. It describes involuntary actions as including:

- (a) a reflex or convulsion; (b) a bodily movement during unconsciousness or sleep; (c) conduct during hypnosis or resulting from hypnotic suggestion; (d) a bodily movement that otherwise is not a product of the effort or determination of the actor, either conscious or habitual.²⁸

A renowned scholar reflects that “[t]he law is not affirming that some conduct is the product of the free exercise of conscious volition; it is excluding, in a crude kind of way, conduct that in any view is not.”²⁹ A critic thus describes the Model Penal Code’s definition of a voluntary act (or, what it is not) as “scanty” with a “looseness regarding the concept of an action.”³⁰

Still, there is strong support for the notion, implicit within the Model Penal Code’s reference to the actor’s effort or determination, that a voluntary act requires more than a mere physical exertion. An external action is not enough without some internal component, plus a causal connection between them.³¹ This helps explain why a typical criminal law example would distinguish between “X’s arm went up” and “X raised his arm.”³² The former does not, without more, qualify as a voluntary act as

²⁶ Robert C. Hauhart, *The Involuntary Action Defense to a Criminal Indictment*, 11 N. KY. L. REV. 321, 322 (1984).

²⁷ Model Penal Code § 2.01 cmt. at 216 (Official Draft and Revised Comments 1985).

²⁸ Model Penal Code § 2.01 (Official Draft 1962).

²⁹ HERBERT PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 76 (1968).

³⁰ L.A. Zaibert, *Philosophical Analysis and the Criminal Law*, 4 BUFF. CRIM. L. REV. 101, 122 (2000); see also Deborah Denno, *Crime and Consciousness: Science and Involuntary Acts*, 87 MINN. L. REV. 269, 288 (2002) (referring to the Model Penal Code’s voluntary act definition as providing little guidance).

³¹ Deborah Denno, *supra* note 30, at 275-76.

³² Michael S. Moore, *Responsibility and the Unconscious*, 53 S. CAL. L. REV. 1563, 1567-68 (1980).

it could have simply been through an external force or reflex, yet the latter, with its implicit concurring mental element, appears to qualify.³³ Without the internal element, the individual is simply the instrument by which the events occur.³⁴ The relevance of this internal component may help explain why legal discussion in common law countries about the voluntary act requirement generally falls along three sometimes distinguishable, and other times overlapping, lines: consciousness, will, and control.³⁵

Comparably with the Model Penal Code, authorities often refer to the voluntary act in connection to consciousness,³⁶ explaining that “[a]n ‘act’ committed while one is unconscious is in reality no act at all” for criminal culpability.³⁷ Yet, many courts and commentators recognize that the involuntary act element does not require total unconsciousness; rather some sort of semi-consciousness may suffice.³⁸ For example, one court described an involuntary act as when “the individual's conscious mind has ceased to operate and his actions are controlled by the subconscious or subjective mind.”³⁹ Another conceptualization is that it is “behavior performed in a state of *mental* unconsciousness.”⁴⁰ The key is whether there is an absence of the internal component of the *actus reus*, which is also often discussed in terms relating to mental will and control.⁴¹

³³ *Id.*

³⁴ Jeremy Horder, *Pleading Involuntary Lack of Capacity*, 52 CAMBRIDGE L.J. 298, 313 (1993); see also *State v. Eaton*, 229 P.3d 704 (Wash. 2010) (noting that one cannot be punished for what another does to him if he has no capacity to choose); P. Simester, *On the So-Called Requirement for Voluntary Action*, 1 BUFF. CRIM. L. REV. 403, 406 (1997-1998) (noting that an individual is “morally responsible for an outcome unless the occurrence of that outcome is involuntary vis-à-vis that person”).

³⁵ Stephen Gault, *Dissociative State Automatism and Criminal Responsibility*, 28 CRIM. L. J. 329, 333 (2004).

³⁶ *State v. Mercer*, 165 S.E.2d 328, 336 (N.C. 1969).

³⁷ *State v. Utter*, 479 P.2d 946, 950 (Wash. Ct. App. 1971); *State v. Deer*, No. 63737-1-I, 2010 WL 5059822, at *3 (Wash. Ct. App. Dec. 13, 2010) (citing *Utter*).

³⁸ *Fulcher v. State*, 633 P.2d 142, 148 (Wyo. 1981); see also Paul H. Robinson, 2 CRIMINAL LAW DEFENSES § 171 (2010) (noting that a focus on consciousness would improperly limit the concept by excluding uncontrollable reflex actions).

³⁹ *People v. Sameniego*, 4 P.2d 809, 812 (Cal. Ct. App. 1931).

⁴⁰ BLACK'S LAW DICTIONARY 134 (6th ed. 1990) (emphasis added).

⁴¹ Robinson, *supra* note 13, at 898 (contending that the voluntary act requirement may only require substantial, but not total, impairment of one's control over their actions).

Oliver Wendell Holmes long ago conceptualized such an external and internal connection, indicating that “[a]n act is always a voluntary muscular contraction, and nothing else,”⁴² and further explaining that “[a]n act . . . imports intention. . . . A spasm is not an act. The contraction of muscles must be willed.”⁴³ Another leading author on *actus reus*, Michael Moore, indicates that the “best interpretation” of the *actus reus* “doctrine is to require what metaphysically is an act (on my theory, a volitionally caused bodily movement).”⁴⁴ Similarly, another criminal law scholar explains that “[o]ccurrences which take place independently of the will must be classed as ‘events’ rather than ‘acts.’”⁴⁵

Others discuss the aspect of will in terms of control, such as having the capacity⁴⁶ or ability to choose.⁴⁷ A slightly different conceptualization acknowledges that even if the individual otherwise appears to be acting volitionally, the voluntary act is negated and one is not culpable if he had no ability to control his behavior⁴⁸ or otherwise could not have avoided the action.⁴⁹ As a result, even muscle movements that must be managed by impulses from the brain (and otherwise seem to be voluntary in its common usage) may not necessarily prove a voluntary act. An older case involving sleepwalkers deemed to be acting unconsciously posited the following:

⁴² HOLMES, *supra* note 17, at 81.

⁴³ *Id.* at 54; *see also* 1 JOHN AUSTIN, LECTURES ON JURISPRUDENCE 293 (R. Campbell ed., 1874) (“To desire the act is to will it.”); PAUL H. ROBINSON, CRIMINAL LAW DEFENSES 260 (1984) (observing that an actor is not criminally culpable if his “conduct is not a product of the actor’s effort or determination”).

⁴⁴ MICHAEL S. MOORE, ACT AND CRIME 350 (1993).

⁴⁵ R. PERKINS, CRIMINAL LAW 549-550 (2d ed. 1961).

⁴⁶ *State v. Deer*, 244 P.3d 965, 968 (Wash. Ct. App. 2010).

⁴⁷ *McClain v. State*, 678 N.E.2d 104, 107 (Ind. 1997); Michael Corrado, *Is There an Act Requirement in the Criminal Law?*, 142 U. PA. L. REV. 1529, 1560 (1994) (contending that the voluntary act component includes the person’s ability to choose to do otherwise). Nonetheless, some would presume that an act is the result of one’s choice to act. Nita A. Farahany & James E. Coleman, *Genetics and Responsibility: To Know the Criminal from the Crime*, 69 LAW & CONTEMP. PROBS. 115, 138 (2006) (contending that “[j]ust as legal free will imputes agency to individuals, the criminal law assumes that when an individual acts, he reveals his choice to have acted”).

⁴⁸ Husak, *supra* note 24, at 2458; ROBINSON, *supra* note 43, at 897-98; *see also* P. Simester, *On the So-Called Requirement for Voluntary Action*, 1 BUFF. CRIM. L. REV. 403, 415 (1997-1998) (“Whether she was conscious or unconscious, what is essential to the denial of responsibility for a defendant’s involuntary behavior is that she was unable deliberately to control that behavior and to prevent it from occurring.”).

⁴⁹ Simester, *supra* note 48.

Not only is the power of locomotion enjoyed, as the etymology of the term signifies, but the voluntary muscles are capable of executing motions of the most delicate kind. Thus, the somnambulist will walk securely on the edge of a precipice, saddle his horse, and ride off at a gallop; walk on stilts over a swollen torrent; practice airs on a musical instrument; in short, he may read, write, run, leap, climb, and swim, as well as, and sometimes even better than when fully awake.⁵⁰

Analogous to the argument that an act committed when one is unconscious deserves no punishment is the notion that an act that occurs without will or control is really no act for which criminal culpability is appropriate.⁵¹

Still, there is a temporal aspect to the internal element of *actus reus*. An act is not involuntary just because afterward one cannot remember having done it.⁵² Correspondingly, just because one does retrospectively recall one's action does not necessarily mean that one was not unconscious at the time of the act; even a somnambulist may afterward be aware of his prior behavior while asleep.⁵³

B. Case Law Treatment of the Element of Actus Reus

Notwithstanding the purportedly central role that *actus reus* inhabits in criminal law philosophy, it remains a relatively insignificant issue in case law. Instead, for the vast majority of criminal cases, litigants and judges appear to presume the voluntary act element exists, with any dispute involving other issues, such as *mens rea* or the existence of formal defenses (e.g., insanity, self-defense, necessity) to culpability.⁵⁴ As Professor H.L.A. Hart noted, the *actus reus* "doctrine has only rarely been

⁵⁰ Bradley v. State, 277 S.W. 147, 148-49 (Tex. App. 1925).

⁵¹ PERKINS & BOYCE, CRIMINAL LAW 611 (1982) ("If a person engages in conduct that would otherwise be criminal but does so without any exertion of will then there is no act.").

⁵² Schlatter v. State, 891 N.E.2d 1139, 1143 n.1 (Ind. Ct. App. 2008); People v. Rogers, 141 P.3d 135, 180 (Cal. 2006); 2 WAYNE R. LAFAVE, SUBSTANTIVE CRIMINAL LAW § 9.4(b), at 35 (2d ed. 2003).

⁵³ Candeub, *supra* note 16, at 119.

⁵⁴ State v. Simpson, 53 P.3d 165, 169 (Alaska Ct. App. 2002) ("Although the voluntariness of a defendant's conduct is rarely disputed, it remains an implicit element of all crimes.")

considered by the courts” and thereby he is “not convinced that the courts actually do accept [this] general doctrine.”⁵⁵

Even when a voluntary act is expressly mentioned in a criminal case, courts are inconsistent on how they treat *actus reus* as an element. A few courts have formally recognized *actus reus* as a required element of any criminal offense, with the burden of proof being affirmatively placed on the prosecution.⁵⁶ A notable explanation one court gives for this stance draws upon the U.S. Supreme Court’s holding in *In re Winship*⁵⁷ that the Due Process Clause of the Fourteenth Amendment requires the prosecution to prove beyond a reasonable doubt every element of the crime charged.⁵⁸ Based on *In re Winship*, the court held that every crime includes the elements of *mens rea* and *actus reus*.⁵⁹

However, most cases in which *actus reus* is mentioned as a relevant issue have managed to obscure its traditional place as an element to be proven by the prosecution.⁶⁰ These cases exhibit a few common avoidance tactics. Some courts provide a jury instruction that a person is presumed to be conscious if they act as if they were conscious.⁶¹ Using a similar tactic, other courts invoke a presumption that the prosecution need not prove a voluntary act absent a factual foundation for involuntariness.⁶² Without such a foundation, generally for which the

⁵⁵ H.L.A. Hart, *Acts of Will and Legal Responsibility*, in FREEDOM AND THE WILL 38, 41 (D. Pears ed. 1963); see also Birthe S. Christensen, *The Wyoming Supreme Court’s Confusion on Voluntary Act: Automatic Jury Instruction on the Voluntary Act Requirement?*, 9 WYO. L. REV. 625, 633 (2009) (“In effect, courts have repeatedly rejected consciousness as an essential element, but clearly view consciousness and voluntariness as fundamental conditions to criminal liability.”).

⁵⁶ *People v. Hardy*, 198 P.2d 865, 873 (Cal. 1948); *State v. Mishne*, 427 A.2d 450, 458 (Me. 1981); *Falater v. Schiro*, No. CV 07-0262-PHX-PGR, 2008 U.S. Dist. LEXIS 115128, at *14 (D. Az. May 13, 2008); *State v. Tyson*, 672 N.E.2d 700, 703 (N.C. 2009).

⁵⁷ 397 U.S. 358 (1970).

⁵⁸ *Id.*

⁵⁹ *State v. Deer*, 244 P.3d 965, 968 (Wash. Ct. App. 2010).

⁶⁰ Corrado, *supra* note 47, at 1554 (noting courts treat these inconsistently, sometimes as affirmative defenses, other time as involuntary, and often just by ignoring it).

⁶¹ *People v. Nihell*, 77 P. 916, 917 (Cal. 1904); *State v. Weatherford*, 416 N.W.2d 47, 55 (S.D. 1987); *State v. Jones*, 527 S.E.2d 700, 707 (N.C. Ct. App. 2000).

⁶² *Miller v. Sullivan*, Case No. 08-CV-1675-JLS, 2010 U.S. Dist. LEXIS 87111, at *55 (S.D. Cal. Feb. 23, 2010); see also *People v. Babbitt*, 45 Cal.3d 660, 693 (1988) (holding that unconsciousness is not an element of murder that the prosecution must prove “even though unconsciousness negates the elements of voluntariness and intent”); *State v. Weatherford*, 416 N.W.2d 47, 54 (S.D. 1987) (“Consciousness is necessarily

defense has the burden of production,⁶³ courts refuse to give a jury instruction requiring an affirmative finding on the existence of the voluntary act element.⁶⁴ An explanation offered for this burden is that the defendant “is the only person who knows his actual state of consciousness.”⁶⁵ On the other hand, there are instances in which the voluntary act requirement is entirely recharacterized. For example, some judges view it as not a fundamental element of a criminal offense, but as an affirmative defense, with the concomitant burden of proof on the defendant.⁶⁶ At least one court allows the defense to offer evidence of an

included or implied within the specific intent element of a first degree murder charge but does not constitute an actual statutory element of the offense.”); *Davidson v. State*, 849 N.E.2d 591, 594 (Ind. 2006) (ruling on policy grounds that voluntariness is not an element of murder in the context of defendant’s argument that his intoxication negated voluntary conduct).

⁶³ *Gokey v. State*, 314 S.W.3d 63, 68 (Tex. Ct. App. 2010); *People v. Rogers*, 39 Cal. 4th 826, 887 (2006); *United States v. Axelson*, 65 M.J. 501, at *49-50 (A. Ct. Crim. App. 2007); *State v. Andrews*, 572 S.E.2d 798, 801 (N.C. Ct. App. 2002).

⁶⁴ *Corder v. Commonwealth*, 278 S.W.2d 79 (Ky. 1955); *State v. Lara*, 183 Ariz. 233, 234 (1995); *Sellers v. State*, 809 P.2d 676, 686-67 (Okl. Ct. Crim. App. 1991); *see also* *Brown v. State*, 955 S.W.2d 276, 280 (Tex. Crim. App. 1997) (ruling that a jury instruction on the issue of voluntariness is only necessary when there is evidence that makes it an issue and the defendant so requests); *People v. Rogers*, 141 P.3d 135, 180 (Ca. 2006) (noting that an instruction on unconsciousness is necessary either sua sponte if the defendant is relying upon it as a defense or if there is substantial evidence of it and it is not inconsistent with the defendant’s theory of the case). A few courts, though, also ruled that the burden would shift such that once the defense establishes a foundation, it was the prosecutor’s burden to show the voluntary act. *State v. Hinkle*, 489 S.E.2d 257, 263 (W. Va. 1996); *State v. Simpson*, 53 P.3d 165, 169 (Alaska Ct. App. 2002).

⁶⁵ *Fulcher v. State*, 633 P.2d 142, 147 (Wyo. 1981) (citing *Hill v. Baxter*, [1958] 1 All E.R. 193).

⁶⁶ *State v. Caddell*, 215 S.E.2d 348, 363 (N.C. 1975); *State v. Jones*, 527 S.E.2d 700, 706 (N.C. Ct. App. 2000); *State v. LaFreniere*, 621 N.E.2d 812, 818 (Ohio 1993); *see also* *Babbitt*, *supra* note 62. By placing the burden on the defendant, the voluntary act requirement functionally works in those cases, then, as an excuse to escape culpability. *Robinson*, *supra* note 13, at 896. An excuse defense generally exculpates for the lack of a voluntary act, even though the offense was committed, when a disability causes an abnormal mental, physical, or emotional condition that undermines the individual’s control of his conduct. *Robinson*, *supra* note 38; Steven Yannoulidis, *Excusing Fleeting Mental States: Provocation, Involuntariness and Normative Practice*, 12 PSYCHIATRY, PSYCHOL. & L. 23, 24 (2005); *contra* *Hermida*, *supra* note 21, at 217 (contending that an involuntary act should not be considered a defense but an absence of *actus reus*).

involuntary act only if the defendant concedes he physically committed the acts.⁶⁷

In other cases, evidence of involuntary acts is conceptualized as relevant only to the element of *mens rea*,⁶⁸ or an insanity defense to negate responsibility based on a mental disability that prevents a rational understanding of what one is doing or of the moral quality of the act.⁶⁹ The basic flaw with these conceptions is that they effectively abolish the *actus reus* doctrine without engaging philosophical and historical bases for it. The common law requirements of *mens rea* and *actus reus* inherently signify they are, to large degree, independent elements. Analyzing the voluntary act principle solely through a *mens rea* lens obfuscates the fundamental distinction. At the same time, merging the voluntary act with an insanity defense has significant negative consequences to a defendant. Not all jurisdictions recognize any type of insanity defense,⁷⁰ while others that do often invoke strict limitations such that commonly recognized types of involuntary acts, such as epilepsy, sleepwalking, or reflex, likely would not qualify without an additional disease or defect of mind.⁷¹ Further, the consequence of indefinite treatment in a mental health facility as a result of a successful insanity defense may be inappropriate to many involuntary act defendants who are not in need of mental health treatment.

In sum, contemporary criminal law appears to have deviated from the long-standing voluntary act doctrine. Yet the philosophical and moral

⁶⁷ Peavey v. State, 248 S.W.3d 455 (Tex. Ct. App. 2008) (referring to Sanford H. Kadish, *Excusing Crime*, 75 CAL. L. REV. 257, 259 (1987)).

⁶⁸ United States v. Campos, 37 M.J. 894, 901 (A. Ct. Mil. Rev. 1984) (noting defense counsel arguing that automatism brought on by claustrophobia negates *mens rea*); Virgin Islands v. Smith, 278 F.2d 169, 174 (3d Cir. 1960) (noting defense counsel's argument that unconsciousness from epilepsy negated *mens rea*); State v. Houser, 1994 Ohio App. LEXIS 728, at *10 (Feb. 17, 1994) (ruling that it is defendant's burden to establish involuntary action and noting that the lack of consciousness negates *mens rea*).

⁶⁹ Tibbs v. Commonwealth, 128 S.W. 871, 874 (Ky. 1910) (disbelieving that evidence of sleepwalking "would constitute any defense other than that embraced in the plea of insanity"); Bradley v. State, 277 S.W. 147, 149 (Tex. Crim. App. 1925) (indicating evidence of sleepwalking was "a species of insanity"); United States v. Harvey, 66 M.J. 585, 588 (U.S.A.F. Ct. Crim. App. 2008) (ruling that unconsciousness was a mental condition that was relevant only to an insanity defense).

⁷⁰ Dressler, *supra* note 25, at 363.

⁷¹ Emily Grant, *While You Were Sleeping or Addicted: A Suggested Expansion of the Automatism Doctrine to Include an Addiction Defense*, 2000 U. ILL. L. REV. 977, 1004 (2000).

purposes underlying the doctrine have not been much debated, much less effectively undermined, in modern times. Consistency in criminal law and concerns of moral culpability are better served by a reinvigoration of the *actus reus* as a required element of every crime and for which the prosecution has the burden of proof.⁷² In likely the vast majority of cases the existence of the *actus reus* element will not be contested such that the prosecution can easily meet its burden. Nonetheless, the benefits of strict adherence to the fundamentals of criminal law demand reverence to the *actus reus* element. Assuming this perspective to be valid, an exploration of automatism follows.

C. Automatism As an Involuntary Act

Automatistic actions are generally accepted as a category of involuntary act for purposes of abrogating criminal culpability.⁷³ A difficulty common to automatism cases is that the individual appears to be acting in a deliberate way,⁷⁴ even performing complex tasks.⁷⁵ While some inapposite comments regarding automatism and unconsciousness as direct synonyms exist,⁷⁶ the better view is that both are types of

⁷² Dressler, *supra* note 25, at 93 (stating that characterizing the voluntary act as a defense is inappropriate as it is an “element of every criminal offense”).

⁷³ Michael J. Davidson, *United States v. Berri: The Automatism Defense Rears its Ugly Little Head*, 1993 ARMY LAW. 17, 26 (describing automatism as “a recognized, albeit ill-defined, defense”); *contra* *United States v. Axelson*, 65 M.J. 501, at *49-50 (A. Ct. Crim. App. 2007) (affirming conviction despite defendant’s challenge regarding *actus reus* because automatism is not a defense in military courts); *Haskell v. Berguis*, 695 F.Supp. 2d 576, 592 (E.D. Mich. 2010) (finding no precedence as to whether automatism was a defense under state law and declining to find a constitutional violation for failing to recognize it as negating criminal responsibility).

⁷⁴ Barbara Hannan, *Depression, Responsibility, and Criminal Defenses*, 28 INT’L J. L. & POL’Y 321, 327 (2005).

⁷⁵ Roy G. Beran, *Automatism: Comparisons of Common Law and Civil Law Approaches – a Search for the Optimal*, 10 J. L. & MED. 61, 63 (2002); Gault, *supra* note 35, at 329; *see also* *Fulcher v. State*, 633 P.2d 142, 145 (Wyo. 1981) (“While in an automatistic state, an individual performs complex actions without an exercise of will.”); *but see* *People v. Furlong*, 79 N.E. 978, 982 (N.Y. 1907) (indicating that multiple and detailed preparations sufficiently showed consciousness of acts).

⁷⁶ *Fulcher v. State*, 633 P.2d 142, 145 (Wyo. 1981); *People v. Grant*, 360 N.E.2d 809, 814 (Ill. App. 1977); *State v. Connell*, 493 S.E.2d 292, 296 (N.C. Ct. App. 1997); Daniel Burgess et al., *Reviving the “Vietnam Defense”: Post-Traumatic Stress Disorder and Criminal Responsibility in a Post-Iraq/Afghanistan World*, 29 DEV. MENTAL HEALTH L. 59, 71 (2010).

involuntary acts, but not identical or entirely overlapping.⁷⁷ This is because automatistic behavior can occur in individuals who are conscious, as meaning being awake and aware (which in common parlance would signify consciousness), but their actions are otherwise involuntary for criminal law purposes.⁷⁸ To explain this, the reference earlier to the internal component of *actus reus* is relevant. When one is acting automatistically, he is engaged in action in the literal sense.⁷⁹ The mental concepts of will, choice, and control are instrumental here. Only by including a mental element in the voluntary act element can cases be explained in which the *actus reus* is negated when defendants' actions involve some type of a conscious state, such as somnambulism, convulsion, epileptic seizure, or reflex.⁸⁰ Hence, commentators have sensibly demonstrated that any assumption of a dichotomous division between conscious and unconscious states is flawed since there are multitudinous degrees of consciousness for purposes of determining whether one is exercising will and control.⁸¹ When one acts reflexively, he

⁷⁷ Bernadette McSherry, *Claims of Provocation and Automatism in "Intimate" Homicides*, 29 MELBOURNE U. L. REV. 905, 921 (2005) ("While there have been some cases where automatism has been equated with a complete lack of consciousness, because automatism is related to the concept of involuntariness rather than consciousness, a degree of awareness or cognitive function is not necessarily fatal to automatism being accepted by the trier of fact."). The differentiation of automatism and unconsciousness is implicit in definitions of the involuntary act as providing alternatives such as a reflex or convulsion or the product of unconscious impetus. Model Penal Code. § 2.01; *Rogers v. State*, 105 S.W.3d 630, 638 (Tex. Crim. App. 2003); *People v. Soe*, 805 N.Y.S.2d 262, 265 (N.Y. Just. Ct. 2005); Hermida, *supra* note 21, at 197; *see also* Mike Horn, *A Rude Awakening: What to Do with the Sleepwalking Defense?*, 46 B.C.L. REV. 149, 161 (2004) ("Legal scholars use the term 'automatism' to classify states of involuntary bodily movement, and 'unconsciousness' to describe states of temporary mental incapacity.").

⁷⁸ Michael Corrado, *Automatism and the Theory of Action*, 39 EMORY L.J. 1191, 1191 (1990); Neil Levy & Tim Bayne, *Doing without Deliberation: Automatism, Automaticity, and Moral Accountability*, 16 INT'L REV. PSYCHIATRY 209, 210 (2004) (noting there is no clear distinction between consciousness and automatic actions).

⁷⁹ Patricia E. Gould, *Automatism: The Unconsciousness Defense to a Criminal Action*, 15 SAN DIEGO L. REV. 839, 853 (1978).

⁸⁰ *McClain v. State*, 678 N.E.2d 104, 106 (Ind. 1997); *see generally* Eunice A. Eichelberger, Annotation, *Automatism or Unconsciousness as Defense to Criminal Charge*, 27 A.L.R. 4TH (2009).

⁸¹ Deborah W. Denno, *Criminal Law in a Post-Freudian World*, 2005 U. ILL. L. REV. 601, 621 (2005) (arguing that the dichotomous nature of voluntary/involuntary and conscious/unconscious obscures gradations in levels of awareness); Michael S. Pardo &

may be consciously aware of his body movements but without having the ability to control them. For example, when a doctor uses a rubber instrument to sharply tap a patient's patellar tendon as his lower leg is loosely hanging, the patient may consciously observe—but cannot control—the knee jerk in a reflexive action. The muscular reflex results from the autonomic nervous system rather than a movement triggered by mental will.⁸² The point is that the phenomenology of control (the feeling of controlling one's actions) is lacking.⁸³ Automatism has thus been more appropriately defined as the “performance of acts by an individual without his awareness or conscious volition.”⁸⁴ Perhaps, then, the better view is that automatism does not require complete unconsciousness but rather a sufficiently impaired consciousness.⁸⁵

There has been doctrinal confusion in other common law countries about whether to differentiate, for criminal culpability purposes, based on the source of the automatism at issue. Automatism may result from physical conditions such as epilepsy, organic brain disease, concussion, hypoglycemia, or from a mental condition such as an acute emotional disturbance.⁸⁶ Common law countries outside the U.S. have distinguished between sources by what has been termed sane automatism from insane automatism.⁸⁷ The following description is indicative of the differentiation:

Dennis Patterson, *Philosophical Foundations of Law and Neuroscience*, 2010 U. ILL. L. REV. 1211, 1250 (2010) (suggesting that part of the problem may be in confusing the brain and mind as synonymous and that while the mind requires a working brain, no brain activity is per se necessary to show voluntary conduct).

⁸² William Wilson, *Impaired Voluntariness: The Variable Standards*, 6 BUFF. CRIM. L. REV. 1011, 1016 (2003).

⁸³ Levy & Bayne, *supra* note 78, at 213-14.

⁸⁴ *Haynes v. United States*, 451 F. Supp. 2d 713, 724 (D. Md. 2006) (quoting WEBSTER'S ENCYCLOPEDIA UNABRIDGED DICTIONARY OF THE ENGLISH LANGUAGE 101 (1994)); *see also* *Bratty v. Attorney-General for Northern Ireland*, 3 W.L.R. 965, 972 (Ir. 1961) (defining automatism as “connoting the state of a person who, though capable of action, is not conscious of action, and it is a defense because the mind does not go with what is being done”). An exception exists when the automatism results from involuntary intoxication. *Schlatter v. State*, 891 N.E.2d 1139, 1143 (Ind. Ct. App. 2008).

⁸⁵ Bernadette McSherry, *Voluntariness, Intention, and the Defence of Mental Disorder: Toward a Rational Approach*, 21 BEHAV. SCI. & L. 581, 587 (2003).

⁸⁶ *People v. Grant*, 360 N.E.2d 809, 814 (Ill. App. 1977).

⁸⁷ Beran, *supra* note 75, at 65-66.

[S]ane automatism occurs when the mind is disordered by an external factor such as an injection of insulin, a blow on the head, or the injection of an anesthetic. An “insane” automatism occurs when the mind is disordered due to an intrinsic factor which leads to a situation that is proven to recur and may result in violence. Thus any organic condition of the brain or the body resulting in a disorder of the mind, even if temporary, is an “insane” automatism.⁸⁸

The results of this distinction have been inconsistent. For instance, sleepwalking has been characterized as being of the sane automatism type in Canada⁸⁹ but of the insane type in the United Kingdom;⁹⁰ dissociation triggered by a traumatic marriage breakup has been viewed as sane automatism in Australia and insane automatism in Canada.⁹¹ Nonetheless, the result of the differentiation in those countries is critical. A successful use of sane automatism leads to complete acquittal and freedom while insane automatism requires commitment to a mental hospital.⁹² This distinction has also been criticized for being

⁸⁸ P. Fenwick, *Epilepsy, Automatism and the English Law*, 16 MED. LAW. 349, 357 (1997); see also *Rabey v. The Queen*, 37 CCC (2d) 461, 477 (Can. 1977) (“The distinction . . . is between a malfunctioning of the mind arising from a cause that is primarily internal to the accused, having its source in his psychological or emotional make-up, or in some organic pathology, as opposed to a malfunctioning of the mind which is the transient effect produced by some specific external factor such as, for example, concussion.”). With this view, post-traumatic automatism may be seen as a sane automatism since it resulted from an external factor, being a traumatic event. P. McCrory, *The Medicolegal Aspects of Automatism in Mild Brain Injury*, 35 BRIT. J. SPORTS MED. 288, 288 (2001). An alternative prong has also been recognized to categorize a defense as insane automatism, almost regardless of this internal/external distinction, is the continuing danger theory in which medical institutionalization is seen as necessary to prevent harm from future automatistic actions. McSherry, *supra* note 85, at 588.

⁸⁹ *R. v. Parks*, 2 SCR 871 (1992).

⁹⁰ *R. v. Burgess*, 2 W.L.R 1206 (Eng. 1991); see also *R. v. Charlson*, 1 W.L.R. 317 (Eng. 1955) (finding cerebral tumor and epilepsy as sane automatisms); *R v. Kemp*, WLR I QB 399 (Eng. 1957) (finding arteriosclerosis as a disease of the brain to be insane automatism); *Bratty v. Attorney-General for Northern Ireland*, A.C. 386 (Eng. 1963) (epilepsy as an insane automatism).

⁹¹ Bernadette McSherry, *Getting Away with Murder? Dissociative States and Automatism*, 21 INT’L J. L. & PSYCHIATRY 163 (1998).

⁹² Peter Fenwick, *Automatism, Medicine and the Law*, 17 PSYCHOL. MED. (Mongr. Supp.) 1, 9 (1990). Some have suggested, then, alternatives to remedy the conundrum.

“nonsensical” at times; for example, it seems to be illogical to differentiate when a violent act is a result of insulin being injected into the body (sane automatism) from when the insulin is produced by a pancreatic tumor (insane automatism).⁹³

American courts have generally not adopted the sane versus insane automatism categorization *per se*, though there is some recognition that automatism may have internal (mental, or emotional) origins, or may be externally caused.⁹⁴ As one court noted, automatism “does not necessarily arise from a mental disease or defect . . . but always contain[s] a mental component in the form of loss of cognitive functioning.”⁹⁵ However, American courts at times seem confused by the mental component to the voluntary act element. The confusion appears when defendants offer evidence to negate *actus reus* but the courts recharacterize the offer as being relevant only to the *mens rea* issue.⁹⁶ As

S.M. Beck, *Voluntary Conduct: Automatism, Insanity and Drunkenness*, 9 CRIM. L.Q. 315, 319 (1966) (arguing that one way to avoid the conundrum is to permit an automatism defense that results in acquittal plus probation and compulsory treatment); Eliezer Lederman, *Non-Insane and Insane Automatism: Reducing the Significance of a Problematic Distinction*, 34 INT'L & COMP. L.Q. 918 (1985) (suggesting the mental hospital commitment versus acquittal result should not be dichotomous but that a range of measures could be considered depending on the risk of future danger, including lifestyle restrictions or supervision, or commitment in a non-mental hospital).

⁹³ Fenwick, at 357; *see also* John Hannan, *The Act Requirement*, 20 VICTORIA U. WELLINGTON L. REV. 35, 40 (1990) (discussing the distinction being “capricious on occasion”); *R v. Quick*, (Eng. 1973) Q.B. 910 (noting that hyperglycemia resulting from an insulin overdose would be an external cause resulting in sane automatism but the result would be an insane automatism if produced by the patient’s diabetes); *R. v. Hennessy*, 1 W.L.R. 287 (Eng. 1989) (noting that diabetes would be an internal disease of the mind if caused by the failure to take insulin).

⁹⁴ *Fulcher v. State*, 633 P.2d 142, 145 (Wyo. 1981) (“Automatism may be caused by an abnormal condition of the mind capable of being designated a mental illness or deficiency. Automatism may also be manifest in a person with a perfectly healthy mind.”); *State v. Hinkle*, 489 S.E.2d 257, 262 (W. Va. 1996) (“[U]nconsciousness does not necessarily arise from a mental disease or defect. Although always containing a mental component in the form of loss of cognitive functioning, the causes and conditions are diverse; examples include epilepsy, concussion, gunshot wounds, somnambulism, coronary episodes, and certain brain disorders.”); Hermida, *supra* note 21, at 217 (noting that automatism could be from a “mental or physical condition that deprives the act of its voluntary character”).

⁹⁵ *State v. Hinkle*, 489 S.E.2d 257, 262 (W. Va. 1996).

⁹⁶ *People v. Higgins*, 159 N.E.2d 179, 179, 180 (Ct. App. NY 1959) (referring to defense counsel arguing that the defendant’s epileptic attack negated *mens rea*); *State v. Mercer*, 165 S.E.2d 328, 335 (N.C. 1969) (contending that a jury finding of the *mens*

with the earlier discussion of cases in which involuntary act evidence was viewed as a proffer of insanity, many American courts conflate automatism with an insanity defense.⁹⁷ It may be that “competing notions of nonresponsibility versus societal protection from potentially dangerous automatons” encourage the anomalous conflation of automatism with insanity, somewhat like other common law countries’ sane versus insane automatism distinction.⁹⁸

Fortunately, sources endure that correctly compartmentalize the *actus reus* as separate from the issues of *mens rea*⁹⁹ or an insanity defense.¹⁰⁰ As one case explains it:

rea of intent necessarily means they found the defendant to have acted consciously); United States v. Wright, CCA LEXIS 496, at *8-9 (A. Ct. Crim. App. July 29, 2005) (finding that automatism is relevant to negating *mens rea*); Reed v. State, 693 N.E.2d 988, 992 (Ind. Ct. App. 1998) (ruling that defendant’s evidence of small stroke as resulting in unconscious, involuntary behavior was relevant to negate *mens rea*); United States v. Murphy, 556 F. Supp. 2d 1232, 1237 (D. Colo. 2008) (holding that the Vietnam War veteran defendant’s proffer of expert evidence to support his claim of PTSD to negate the voluntary act requirement is inadmissible because testimony regarding mental illness is only relevant to specific intent crimes and would otherwise be confusing in the prosecution of a general intent crime).

⁹⁷ State v. Wilson, 514 P.2d 603 (N.M. 1973); People v. Higgins, 159 N.E.2d 179 (N.Y. 1959); Cook v. State, 271 So.2d 232 (FL App. 1973); Starr v. State, 213 S.E.2d 531 (Ga. App. 1975); see also People v. Grant, 377 N.E.2d 4 (Ill. 1978) (finding that an insanity instruction in the case of epilepsy sufficed so that it was not error to fail to instruct on the voluntary act requirement); People v. Nihell, 77 P. 916, 917 (Cal. 1904) (ruling that an insanity instruction was equivalent to the defense’s theory of unconsciousness due to a combination of epilepsy and alcohol); United States v. Campos, CMR LEXIS 238 (A.C.M.R. June 30, 1993) (confirming convictions of disobeying a noncommissioned officer and aggravated assault despite defendant’s argument that a panic attack brought on by feeling confined in military vehicles negated *actus reus*, but also suggesting courts evaluate an automatism defense using two factors: motivation behind the behavior and whether the defendant was suffering from a condition that affected the ability to reason); Burgess, *supra* note 76 (arguing that an unconsciousness defense is practically synonymous to proving insanity plus the additional burden of proving automatism).

⁹⁸ Kenneth H. Blumberg, *The Criminal Defense of Automatism: Is There a Place for It?*, 35 MED. TRIAL TECH. Q. 450, 451 (1989); see also McSherry, *supra* note 85, at 583 (2003) (criticizing the confusing nature of the law in which evidence of a mental disorder often is used both to prove an insanity defense and to negate voluntariness).

⁹⁹ Fulcher v. State, 633 P.2d 142, 147 (Wyo. 1981); State v. Hinkle, 489 S.E.2d 257, 262 (W. Va. 1996); Sellers v. State, 809 P.2d 676, 687 (Okla. Ct. Crim. App. 1991).

¹⁰⁰ Smith v. State, 663 S.E.2d 155, 157 (Ga. 2008) (ruling that defendant’s theory that a physiological sleep disorder caused him to murder his wife without being aware of what he was doing correctly is a defense that does not amount to insanity); McClain v.

Unless the plea of automatism, separate and apart from the plea of mental illness or deficiency is allowed, certain anomalies will result. For example, if the court determines that the automatistic defendant is sane, but refuses to recognize automatism, the defendant has no defense to the crime with which he is charged. If found guilty, he faces a prison term. The rehabilitative value of imprisonment for the automatistic defendant who has committed the offense unconsciously is nonexistent. The cause of the act was an uncontrollable physical disorder that may never recur and is not a moral deficiency.

If, however, the court treats automatism as insanity and then determines the defendant is insane, he will be found not guilty. He then will be committed to a mental institution for an indefinite period. The commitment value of an automatistic individual to a mental institution for rehabilitation has absolutely no value.¹⁰¹

Another case likewise clarified the distinction, indicating that automatism “disorders tend to be acute, unlike most cases of insanity which are typically chronic,” meaning that automatistic actions are temporary and the actors not generally in need of institutionalization.¹⁰²

Two common types of automatistic actions, those resulting from reflex and those from a dissociative state, are relevant to a PTSD-related involuntary act.¹⁰³ Reflexes are considered involuntary because the

Indiana, 678 N.E.2d 104 (Ind. 1997) (holding that an automatism defense by a defendant claiming sleep deprivation is not synonymous with insanity); *Virgin Islands v. Smith*, 278 F.2d 169, 174 n.5 (3d Cir. 1960) (distinguishing epilepsy from insanity and indicating epilepsy does not require proof of mental illness); *People v. Freeman*, 142 P.2d 435, 439 (Cal. Dist. Ct. App. 1943) (rejecting government’s argument that for the defendant to rely upon an unconsciousness defense he must plead insanity); *State v. Mercer*, 165 S.E.2d 328, 334 (N.C. 1969) (noting unconsciousness and insanity as separate “exemptions from criminal responsibility”).

¹⁰¹ *Fulcher v. State*, 633 P.2d 142, 146 (Wyo. 1981); *see also McClain v. State*, 678 N.E.2d 104, 109 (Ind. 1997) (noting that merging automatism and insanity would unnecessarily result in depriving one’s liberty interest despite being sane and without a mental disorder); Janet Hoover Bassitt, *Automatism: An Involuntary Act Defense*, 68 ILL. BAR J. 740, 743 (1990) (noting that it is “unthinkable” to punish automatistic acts the defendant cannot resist or to declare him insane for what may be an organic defect).

¹⁰² *State v. Hinkle*, 489 S.E.2d 257, 263 (W. Va. 1996).

¹⁰³ Black’s Law Dictionary defines automatism as an “[a]ction or conduct occurring without will, purpose, or reasoned intention, such as sleepwalking; behavior carried out

individual has no mental control over them. For example, a case discussing *actus reus* notes that

the autonomic nervous system controls involuntary bodily functions. The heart muscle pumps without our intervention. Our lungs can ingest air without thought. Our eyes shut reflexively when the ophthalmologist tests us for glaucoma. These are the sorts of bodily movements that would not be ‘performed consciously and as a result of effort and determination.’¹⁰⁴

Other cases also recognize that a reflex is an act over which the person has no control.¹⁰⁵ Reflexive action for purposes of negating *actus reus* need not be limited to those that are genetically determined from birth but can be learned.¹⁰⁶

Those courts that accept a dissociative state-type of automatism inherently accept the idea that the involuntary act is not restricted to a full state of unconsciousness.¹⁰⁷ The American Psychiatric Association defines a dissociative state as “a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment.”¹⁰⁸ “During dissociative states, the individual may act without conscious will or engage in overlearned behaviors that have come

in a state of unconsciousness or mental dissociation without full awareness” (9th ed. 2009).

¹⁰⁴ State v. Lara, 183 Ariz. 233, 234 (1995).

¹⁰⁵ State v. Mishne, 427 A.2d 450, 458 (Me. 1981); see also Model Penal Code § 2.01 (Official Draft 1962).

¹⁰⁶ E. Michael Coles, *Scientific Support for the Legal Concept of Automatism*, 7 PSYCHIATRY, PSYCHOL. & L. 33, 46 (2000) (describing automatism as applying to “inherited, ‘instinctive’ or reflexive pattern of behavior (hard wired), or a well-learned habit (soft-wired)”).

¹⁰⁷ People v. Moore, 5 Cal. App. 3d 486, 492 (1970) (determining a jury instruction on finding a voluntary act was required based on evidence that the defendant was in a “schizophrenic fugue state” when he shot the victim and that his acts were “an automatic reaction without consideration;” as, “in a dream without any thought”); Williams v. Gupton, 627 F. Supp. 669, 671 n.1 (W.D. N.C. 1986) (approving a definition of automatism that would include either consciousness or semi-consciousness) (citing State v. Mercer, 165 S.E.2d 328 (N.C. 1969)); Stanley Yeo, *Clarifying Automatism*, 25 INT’L J. L. & PSYCHIATRY 445, 449 (2002) (arguing that automatism should not be limited to cognitive defects but should also include the lack of control over conduct that may arise from a more volitional deficit such as would arise from a dissociative state).

¹⁰⁸ AM. PSYCHOL. ASSN., DSM-IV 477 (2000).

to be stimulus or situation bound.”¹⁰⁹ Another expert describes it as the mind creating states of “consciousness that alternatively define reality and allow conclusions that what exists does not actually exist and what does not exist does.”¹¹⁰ Hence, one may be engaging in automatistic action while not really being unconscious, as the actor may be responding to a stimulus and have some understanding but otherwise “seems to be someone else.”¹¹¹ There has also recently been recognition that to negate the involuntary act requirement, the defendant’s dissociative state need not be linked to a recognized mental disorder.¹¹² As an example, another commentator suggests that:

Limiting automatism to cases where the actor was totally unconscious would seem to be too restrictive, for there are cases, for example, following a blow, where the actor is in a dreamlike state, partially aware of what is going on but incapable of consciously controlling his/her conduct in relation thereto.¹¹³

The following summary aptly describes criminal cases in which dissociative state automatism may negate the voluntary act requirement: Dissociation can manifest as

pathological failures to integrate thoughts, feelings, memories and actions into a unified consciousness. Dissociation is thought to occur for a number of reasons. It has been viewed as a psychological defence mechanism driven by intolerable emotional conflict or external stress, or as a disruption of integration caused by intense arousal or lack of selective focus. The most common form of dissociation takes . . . is where the accused become completely unaware of performing the relevant act. In

¹⁰⁹ Hamish J. McLeod et al., *Automatism and Dissociation: Disturbances of Consciousness and Volition from a Psychological Perspective*, 27 INT’L J.L. & PSYCHIATRY 471, 477 (2007).

¹¹⁰ Ralph Slovenko, *The Watering Down of PTSD in Criminal Law*, 32 J. PSYCHIATRY & L. 411, 426 (2004).

¹¹¹ Corrado, *supra* note 47, at 1553.

¹¹² Bernadette McSherry, *Claims of Provocation and Automatism in “Intimate” Homicides*, 29 MELB. U. L. REV. 905, 921 (2005) (contending that for dissociation the result may be based on whether the condition upon which it is based is recognized as a mental disorder).

¹¹³ EDWIN A. TOLLEFSON & BERNARD STARKMAN, MENTAL DISORDER IN CRIMINAL PROCEEDINGS 57 (1993).

some cases the accused becomes *depersonalised* – a form of dissociation in which the person experiences an altered sense of self. In either case the sense of self as acting agent is either completely lost or radically altered by the dissociation.¹¹⁴

These two types of automatism—reflex and dissociation—are relevant to PTSD-related voluntary act issues experienced by combat veterans. The next section further explores PTSD as a psychiatric diagnosis and delineates the background of neurological, physiological, and behavioral explanations for automatistic acts by PTSD-afflicted combat veterans.

III. PTSD AND COMBAT VETERANS

Post-Traumatic Stress Disorder has been applied to a variety of traumatic experiences causing repeated stress, such as battered women's syndrome, battered child syndrome, and rape trauma syndrome, as well as to survivors of the Holocaust and to combat veterans.¹¹⁵ Notably, the PTSD connection to combat veterans is significant as the recognition of PTSD as a disorder is widely credited as deriving from the military context.¹¹⁶ Soldiers returning from battle in World War I reportedly suffered "shell shock" and "soldier's heart" as a result of their involvement in violent skirmishes.¹¹⁷ Similar post-traumatic anxiety reactions were later widely observed in returning Vietnam veterans.¹¹⁸ Specifically, researchers found a common occurrence among Vietnam veterans of re-experiencing trauma and engaging a survivor mentality which, in turn, induced a dissociative reaction to ideational or environmental stimuli; dissociative states were "characterized by an altered state of consciousness, hyperalertness, hypervigilance, excessive autonomic nervous system arousal, and the use of survival skills and

¹¹⁴ Stephen Gault, *supra* note 35, at 331.

¹¹⁵ Matthew J. Friedman et al., *PTSD: Twenty-Five Years of Progress and Challenges*, in *HANDBOOK OF PTSD: SCIENCE AND PRACTICE* 3, 4 (Michael J. Friedman et al. eds., 2007).

¹¹⁶ Burgess et al., *supra* note 76; F. Don Nidiffer, *To Hell and Back: Evolution of Combat-Related Post Traumatic Stress Disorder*, 29 *DEV. MENTAL HEALTH L.* 1, 4 (2010).

¹¹⁷ Slovenko, *supra* note 110, at 411-412.

¹¹⁸ JULIAN D. FORD, *POSTTRAUMATIC STRESS DISORDER: SCIENTIFIC AND PROFESSIONAL DIMENSIONS* 12 (2009).

cognitive capacities learned in combat in Vietnam.”¹¹⁹ Growing recognition of these manifestations of trauma-induced re-experiences led Vietnam veterans groups to lobby the psychiatric profession to formally recognize the disorder and consider appropriate treatments.¹²⁰ In sum, lobbying efforts highlighting this common Vietnam veteran experience are generally credited as influencing the American Psychiatric Association to initially incorporate PTSD as a diagnosis in the third edition of the institution’s professional bible, the Diagnostic and Statistical Manual of Mental Disorders (DSM-III), in 1980.¹²¹ A recitation of the current version (in DSM-IV) of the diagnostic criteria underlying a PTSD diagnosis follows.

A. Basics of the Psychiatric Diagnostic Criteria of PTSD

In DSM-IV, the latest version of the American Psychiatric Association’s diagnostic manual,¹²² PTSD is a diagnosis requiring the existence of five criteria, labeled Criteria A through E. Criterion A is the initiating event, demanding exposure to a traumatic event requiring both that “the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury,

¹¹⁹ John P. Wilson & Sheldon D. Zigelbaum, *The Vietnam Veteran on Trial: The Relation of Post-Traumatic Stress Disorder to Criminal Behavior*, 1(3) BEHAV. SCI. & L. 69, 73 (1983). Hypervigilance refers to “an increase in attention to threatening, potentially threatening, or trauma-relevant stimuli.” Matthew O. Kimble et al., *Eye Tracking and Visual Attention to Threatening Stimuli in Veterans of the Iraq War*, 24 J. ANXIETY DISORDERS 293, 297 (2010) (empirically showing a high correlation between attentional bias and hypervigilance with severe PTSD symptoms in a group of combat veterans). It can manifest as “constant visual scanning for suspicious behavior in public places, an alertness for unusual sounds, noting of entrances and exits in enclosed places, constant checking of locks inside the home, or investigation of circumstances that seem out of the ordinary.” *Id.* at 293.

¹²⁰ Bessel A. van der Kolk, *The History of Trauma in Psychiatry*, in HANDBOOK OF PTSD: SCIENCE AND PRACTICE 19, 30 (Michael J. Friedman et al. eds., 2007).

¹²¹ Slovenko, *supra* note 110, at 412; Edgar Jones & Simon Wessely, *A Paradigm Shift in the Conceptualization of Psychological Trauma in the 20th Century*, 21 J. ANXIETY DISORDERS 164, 172 (2007). For a history of the development of PTSD in the DSM, see generally Mary Tramontin, *Exit Wounds: Current Issues Pertaining to Combat-Related PTSD of Relevance to the Legal System*, 29 DEV. MENTAL HEALTH L. 23 (2010).

¹²² Slovenko, *supra* note 110, at 421.

or a threat to the physical integrity of self or others” and “the person’s response involved intense fear, helplessness, or horror.”¹²³

After being exposed to the Criterion A triggering stressor event, a PTSD diagnosis requires the person experience symptoms within three cluster areas. These include re-experiencing the traumatic event (Criterion B), avoidant and numbing behaviors (Criterion C), and hyperarousal symptoms (Criterion D).¹²⁴ For Criterion B, the person persistently re-experiences the traumatic event in one or more of the following ways:

1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions;
2. recurrent distressing dreams of the event;
3. acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated);
4. intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event;
5. physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.¹²⁵

Criterion C requires “[p]ersistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following”:

1. efforts to avoid thoughts, feelings, or conversations associated with the trauma;
2. efforts to avoid activities, places, or people that arouse recollections of the trauma;
3. inability to recall an important aspect of the trauma;
4. markedly diminished interest or participation in significant activities;
5. feeling of detachment or estrangement from others;

¹²³ AM. PSYCHIATRIC ASS’N, DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS 467-68 (4th rev. ed. 2000).

¹²⁴ *Id.*

¹²⁵ *Id.*

6. restricted range of affect (e.g., unable to have loving feelings);
7. sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span).¹²⁶

A minimal temporal element is included in Criterion D. For this cluster, the individual must experience for more than one month persistent symptoms of increased arousal involving two or more of the following:

1. difficulty falling or staying asleep;
2. irritability or outbursts of anger;
3. difficulty concentrating;
4. hypervigilance;
5. exaggerated startle response.¹²⁷

In addition, Criterion E requires that the condition cause the individual “clinically significant distress or impairment in social, occupational, or other important areas of functioning.”¹²⁸

B. Explaining the Prevalence of PTSD in Iraq and Afghanistan Veterans

With the initial requirement of experiencing a traumatic stressor (Criterion A) for a PTSD diagnosis—and its express inclusion of one involving an event threatening severe bodily harm or death—it appears evident why there would exist a potential connection between PTSD and veterans having served in recent overseas conflicts.¹²⁹ The actual prevalence of American combat veterans returning stateside with PTSD is of concern. Estimates of the presence of PTSD in service members serving in Iraq and Afghanistan range from five¹³⁰ to thirty-three

¹²⁶ *Id.*

¹²⁷ *Id.*

¹²⁸ *Id.* Changes within these Criteria are being developed and expected to be incorporated into the next version, DSM-V, in 2013. AM. PSYCHIATRIC ASS'N, DSM-V DEVELOPMENT: POSTTRAUMATIC STRESS DISORDER, PROPOSED REVISION (2010), available at

<http://www.dsm5.org/ProposedRevisions/Pages/proposedrevision.aspx?rid=165>.

¹²⁹ See *infra* text at notes 165-166.

¹³⁰ Rajeev Ramchand et al., *Disparate Prevalence Estimates of PTSD Among Service Members Who Served in Iraq and Afghanistan: Possible Explanations*, 23 J. TRAUMATIC STRESS 59, 63 (2010).

percent.¹³¹ While the statistics vary because of differing study samples and the diagnostic criteria applied, the estimates generally cluster toward the higher figure.¹³² Nevertheless, these estimates may understate the prevalence considering the stigma that a mental health diagnosis may convey and the existence of other barriers to effective diagnosis that veterans face.¹³³

¹³¹ J. Sundin et al., *PTSD After Deployment to Iraq: Conflicting Rates, Conflicting Claims*, 40 *PSYCHOL. MED.* 367 (2010) (listing the various results of 19 studies); see also K.H. SEAL ET AL, *TRENDS AND RISK FACTORS FOR MENTAL HEALTH DIAGNOSES AMONG IRAQ AND AFGHANISTAN VETERANS USING DEPARTMENT OF VETERANS AFFAIRS HEALTH CARE, 2002-2008*, 1651 (2009) (finding approximately a 22% PTSD rate for Iraq and Afghanistan veterans); Shira Maguen et al., *The Impact of Reported Direct and Indirect Killing on Mental Health Symptoms in Iraq War Veterans*, 23 *J. TRAUMATIC STRESS* 86, 88 (2010) (finding a 22% PTSD rate in a study of soldiers deployed to Iraq); Rajeev Ramchand et al., *Prevalence of PTSD, Depression, and TBI among Returning Servicemembers*, in *INVISIBLE WOUNDS OF WAR: PSYCHOLOGICAL AND COGNITIVE INJURIES, CONSEQUENCES, AND SERVICES TO ASSIST RECOVERY* 54 (Terri Tanielian & Lisa H. Jaycox eds., 2008), http://www.rand.org/pubs/monographs/2008/RAND_MG720.pdf (listing studies finding the prevalence ranging from 5% to 15%); Stephanie Booth-Kewley et al., *Correlates of Posttraumatic Stress Disorder Symptoms in Marines Back from War*, 23 *J. TRAUMATIC STRESS* 69, 73 (2010) (finding that 17% of a sample of Marines deployed in Iraq and Afghanistan screened positive for PTSD); M. Tracie Shea et al., *Posttraumatic Stress Disorder Symptoms and Functional Impairment among OEF and OIF National Guard and Reserve Veterans*, 23 *J. TRAUMATIC STRESS* 100, 103 (2010) (finding a 14% PTSD rate among a small sample of National Guard and Reserve veterans); Bret A. Moore, *Drug Studies Show Some Promise for Preventing PTSD*, *ARMY TIMES*, Jan. 17, 2011, at 13 (referring to a one in five rate of PTSD in Iraq and Afghanistan veterans). PTSD may take a period of time after the initial stressor to develop. Cynthia A. LerdMann et al, *Baseline Self Reported Functional Health and Vulnerability to Post-Traumatic Stress Disorder after Combat Deployment: A Prospective US Military Cohort Study*, 338 *BRIT. MED. J.* 338 (2009) (finding an additional 7% of deployed soldiers developed new onset PTSD during an approximately three-year follow-up period; those at baseline with low mental health scores were over 3 times as likely to report new onset of PTSD while those with low physical health scores were over 2 times as likely to experience new onset of PTSD; those with three or more combat exposures were twice as likely to have new onset symptoms at follow-up).

¹³² Ramchand et al., *supra* note 130, at 66.

¹³³ JoAnn Difede & Jack D. Barchas, *Psychiatric and Neurologic Aspects of War: An Overview and Perspective*, 1208 *ANN. N.Y. ACAD. SCI.* 1, 5 (2010); J. Sareen et al., *Combat and Peacekeeping Operations in Relation to Prevalence of Mental Disorders and Perceived Need for Mental Health Care: Findings from a Large Representative Sample of Military Personnel*, 64 *ARCH. GEN. PSYCHIATRY* 843 (2007). The Department of Defense has, for instance, changed its policies to encourage soldiers to seek behavioral

Various explanations underlie the uniquely high incidence of stress-related problems linked to the recent military operations and why PTSD has been referred to as a “signature” injury of the Iraq and Afghanistan wars for returning veterans.¹³⁴ From a broad perspective, the general character of these recent conflicts provides context.¹³⁵ The OIF/OEF conflicts have been unparalleled, as a whole, from an historical perspective for American forces at war overseas. Singular geographic fronts that typically indicate to soldiers that they were crossing battle lines into conflict are virtually nonexistent; therefore it has been extremely difficult for soldiers to distinguish combat zones from safe areas.¹³⁶ There are issues with differentiating between enemy troops and peaceful citizens, as well.¹³⁷ Enemy combatants are not limited to traditionally enlisted members of the countries’ formal armed forces but also frequently are civilians who have embraced militant ideologies and tactics and/or criminals and mercenaries who seek to profit from the chaos.¹³⁸ In sum, distinguishing combat zones and those who pose a danger has been extraordinarily challenging for the troops sent to Iraq

health counseling by reducing the associated stigma. Memorandum from Lt. Gen. Robert W. Cone, Army, to See Distribution (Nov. 2, 2009) (on file with author) (listing subject as “Commanders Guidance to Reduce Stigma of Behavioral Health Assistance and Protect the Rights of Soldiers for Behavioral Health Evaluations”).

¹³⁴ J. Altmire, Testimony before the Subcommittee on Health of the House Committee on Veterans’ Affairs, April 26, 2007; J. Sundin et al., *supra* note 131, at 367. The Department of Defense has taken notice of the problem of veterans with PTSD and has thereby substantially expanded healthcare screening, the availability of mental health resources during and following employment, and research resources. Brian P. Marx, *Posttraumatic Stress Disorder and Operations Enduring Freedom and Iraqi Freedom: Progress in a Time of Controversy*, 29 CLINICAL PSYCHOL. REV. 671, 672 (2009).

¹³⁵ U.S. DEPT. OF ARMY, FM 3-24 COUNTERINSURGENCY 3-18 (Dec. 15, 2006) [hereinafter *Counterinsurgency*] (referring to the Iraq and Afghanistan combatants as waging asymmetrical warfare using unconventional means for political purposes); Jennifer J. Vasterling et al., *PTSD Symptom Increases in Iraq-Deployed Soldiers*, 23 J. TRAUMATIC STRESS 41, 49 (2010) (finding that soldiers deployed to Iraq suffered significant increases in PTSD symptoms post-deployment than non-deployed soldiers due to significant war-zone stressors).

¹³⁶ Bruce B. Dohremwend et al., *The Psychological Risks of Vietnam for U.S. Veterans: A Revisit with New Data and Methods*, 313 SCI. 979, 982 (2006).

¹³⁷ *Id.*

¹³⁸ *Counterinsurgency*, *supra* note 135, at ix, 1-9.

and Afghanistan,¹³⁹ requiring them to spend almost their entire tours in a state of constant vigilance amongst the instability.¹⁴⁰

Further, the Iraq and Afghanistan conflicts have engendered a new type of warfare for American troops where unidentifiable enemies, whether traditional military or civilian, commonly resort to guerilla warfare and terrorism. These enemies employ lethal tactics of surprise such as the profligate use of roadside bombs, improvised explosive devices (“IEDs”), and suicide attackers.¹⁴¹ The United States Army formally acknowledges the enemies’ novel approach, explaining that America’s “overwhelming conventional military superiority . . . has pushed its enemies to fight U.S. forces unconventionally, mixing modern technology with ancient techniques of insurgency and terrorism.”¹⁴² Globalization and technology have additionally aided the enemies in exploiting these unconventional tactics by permitting them to wage battles within and across international borders and to perpetuate mass murders of civilians for great political effect.¹⁴³ In the context of borderless fighting without traditional rules of military engagement, it becomes understandable why these deadly surprise assaults are not limited to military zones but are strategically employed in areas otherwise normally occupied by civilian populations.¹⁴⁴

Another reason the current conflicts have produced a high rate of PTSD is that, despite facing the enemies’ unpredictable use of deadly devices, physically wounded soldiers today are much more likely to physically survive due to advances in medical care and body-shielding

¹³⁹ *Counterinsurgency*, *supra* note 135, at 1-2 (noting that modern warfare involves tactical decisions by enemy combatants in not fighting U.S. forces in open battle and hiding their intentions).

¹⁴⁰ Morgan T. Sammons & Sonja V. Batten, *Psychological Services for Returning Veterans and Their Families: Evolving Conceptualizations of the Sequelae of War-Zone Experiences*, 64 J. CLINICAL PSYCHOL. 921, 922 (2008).

¹⁴¹ Terri Tanielian et al., *Introduction to INVISIBLE WOUNDS OF WAR: PSYCHOLOGICAL AND COGNITIVE INJURIES, CONSEQUENCES, AND SERVICES TO ASSIST RECOVERY* 5 (Terri Tanielian & Lisa H. Jaycox eds., 2008), http://www.rand.org/pubs/monographs/2008/RAND_MG720.pdf; *Counterinsurgency*, *supra* note 135, at 1-4, 1-10.

¹⁴² *Counterinsurgency*, *supra* note 135, at ix.

¹⁴³ Brigadier General H.R. McMaster, *Remaining True to Our Values: Reflections on Military Ethics in Trying Times*, 9 J. MIL. ETHICS 183, 184 (2010).

¹⁴⁴ *Counterinsurgency*, *supra* note 135, at 1-28 (noting the current battles involve insurgents killing innocent civilians).

devices,¹⁴⁵ while also bearing psychological scars.¹⁴⁶ The combination of physical and psychological impairments is relevant to PTSD: official sources estimate that almost 20 percent of troops engaged in active combat in Iraq and Afghanistan have suffered traumatic brain injury from IED blasts,¹⁴⁷ and researchers have found a strong correlation between traumatic brain injury and PTSD in combat soldiers.¹⁴⁸ Researchers estimate that over 40% of soldiers who suffered mild traumatic brain injury also experienced PTSD.¹⁴⁹

¹⁴⁵ Tramontin, *supra* note 121; Difede & Barchas, *supra* note 133, at 1.

¹⁴⁶ Commanding Army officers have formally noticed the potential combination of traumatic brain injury (TBI) and PTSD by issuing orders for education and responsiveness with referrals for assistance following traumatic events. Memorandum from PTC Washington DC to ALARACT (All Army Activities) (July 2007) (on file with author) (bearing subject line “Interim Guidance – Army Mild Traumatic Brain Injury (MTBI)/Post Traumatic Stress Disorder (PTSD) Awareness and Response Program”).

¹⁴⁷ Terry L. Schell & Grant N. Marshall, *Survey of Individuals Previously Deployed for OEF/OIF*, in *INVISIBLE WOUNDS OF WAR: PSYCHOLOGICAL AND COGNITIVE INJURIES, CONSEQUENCES, AND SERVICES TO ASSIST RECOVERY* 96 (Terri Tanielian & Lisa H. Jaycox eds., 2008),

http://www.rand.org/pubs/monographs/2008/RAND_MG720.pdf; A traumatic brain injury occurs “when an external force has significantly disrupted brain function as indicated by any of the following: a period of loss of consciousness or alteration in consciousness (e.g., confusion, disorientation, loss of memory (amnesia) for events immediately before or after the injury); neurological deficits (e.g., weakness, loss of balance, change in vision); or intracranial lesion.” Katherine H. Taber & Robin A. Hurley, *OEF/OIF Deployment-Related Traumatic Brain Injury*, 21 PTSD RES. Q. 1, 1 (2010), <http://www.ptsd.va.gov/professional/newsletters/research-quarterly/v21n1.pdf>.

¹⁴⁸ Eric B. Elbogen et al., *Correlates of Anger and Hostility in Iraq and Afghanistan War Veterans*, 167 AM. J. PSYCHIATRY 1051 (2010). The neuro and psychiatric repercussions and correlates that explain each of PTSD and TBI and their potential relationship between each other is the subject of current interest in interdisciplinary medical and scientific circles. See e.g., Murray B. Stein & Thomas W. McAllister, *Exploring the Convergence of Posttraumatic Stress Disorder and Mild Traumatic Brain Injury*, 166 AM. J. PSYCHIATRY 768 (2009); Kathleen F. Carlson et al., *Psychiatric Diagnoses among Iraq and Afghanistan War Veterans Screened for Deployment-Related Traumatic Brain Injury*, 23 J. TRAUMATIC STRESS 17, 22 (2010) (indicating that the likely relationship between TBI and psychiatric disorders are because of “neuropathological changes associated with brain injury, adjustment difficulties often encountered after a traumatic injury, and the psychological trauma associated with the combat experiences that also precipitated the TBI”).

¹⁴⁹ Charles W. Hoge et al., *Traumatic Brain Injury in U.S. Soldiers Returning from Iraq*, 358 N.E. J. MED. 453 (2008). The Veterans Health Administration has coined the term “polytrauma” to refer to the occurrence of physical injuries soldiers in the Middle East

Along with the increased chance of survival despite experiencing violent assaults, another unique characteristic of the conflicts is the frequency of multiple deployments of individual soldiers to those wars. Recent research has indicated that repeated deployments, with the inherent increase of risk in the severity and number of traumatic events experienced, are empirically related to substantially increasing the risk of screening positive for PTSD.¹⁵⁰ Similarly, cumulative exposure to traumatic stressors, or retraumatization, has shown to increase the risk of developing PTSD and the severity of PTSD symptoms.¹⁵¹

The unpredictable nature of Iraqi and Afghanistan citizens has been substantially traumatic to the psychiatric health of soldiers in other ways, too. Numerous modern military training practices render combat troops as potentially more vulnerable to long-term psychiatric consequences. “For the first time in history, the number of psychological casualties resulting from combat has far outstripped the number of physical injuries or deaths resulting from battle.”¹⁵² Military indoctrination fundamentally encourages and sustains feelings of self-reliance and reliance upon comrades.¹⁵³ The core values for U.S. Army personnel, for instance, are loyalty, duty, respect, selfless service, honor, integrity, and personal courage.¹⁵⁴ In war, these values necessarily lead to deadly encounters, which can be stressful in many ways. For instance, military officials in the last few decades have specifically worked to overcome recruits’ otherwise natural disinclination to kill.¹⁵⁵ Indeed, the warrior culture of combat soldiers normalizes killing as morally and ethically imperative to protecting themselves and others.¹⁵⁶ Yet the act

now survive, which includes “two or more injuries to physical regions or organ systems, one of which may be life threatening, resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability.” Henry L. Lew, *Prevalence of Chronic Pain, Posttraumatic Stress Disorder, and Persistent Postconcussive Symptoms in OIF/OIF Veterans*, 46 J. OF REHABILITATION RES. & DEV. 697, 697 (2009).

¹⁵⁰ Anna Kline et al., *Effects of Repeated Deployment to Iraq and Afghanistan on the Health of New Jersey Army National Guard Troops: Implications for Military Readiness*, 100 AM. J. PUB. HEALTH 276 (2010).

¹⁵¹ Ford, *supra* note 118, at 88.

¹⁵² Sammons & Batten, *supra* note 140, at 923.

¹⁵³ Tramontin, *supra* note 121.

¹⁵⁴ McMaster, *supra* note 143, at 188.

¹⁵⁵ Tramontin, *supra* note 121.

¹⁵⁶ Brett T. Litz et al., *Moral Injury and Moral Repair in War Veterans*, 29 CLINICAL PSYCHOL. REV. 695, 697 (2009); *see also* McMaster, *supra* note 143, at 189 (noting the

and consequence of committing homicide is widely recognized as a highly stressful event.¹⁵⁷ Consistent with this view, a study of Iraq-deployed soldiers found that killing during combat was a significant predictor of PTSD, anger, and alcohol abuse.¹⁵⁸ Indeed, there is a high co-occurrence between PTSD and substance abuse in soldiers sent to Iraq and Afghanistan, estimated at 25 to 50 percent.¹⁵⁹ Intoxicants play a role in often being depressive substances that can be coping devices for those re-experiencing traumatic events. PTSD has unique corollaries for combat troops, too, as they not only witness trauma but may also suffer from what has been called combat-guilt in exposing others to trauma.¹⁶⁰ The corollary of survivor guilt carries its own stressful consequences.¹⁶¹

Despite the indoctrinated norms of self-reliance and reliance upon others, soldiers experience significant feelings of helplessness and lack of control. Soldiers who are rigorously trained to honor and protect fellow soldiers and their country more than themselves¹⁶² concomitantly have ceded some identity, personal agency, and free will.¹⁶³ In long-term deployments within war zones involving horrific, dynamic, and stressful environments,¹⁶⁴ it makes sense that soldiers feel as if they lack full control over what happens to themselves, fellow soldiers, or civilians. A study of combat soldiers deployed in Iraq and Afghanistan showed that the strongest positive correlations between combat-related stress and PTSD were factors related to feeling vulnerable to being killed at any

warrior ethos involves taking risks and sacrificing oneself to “accomplish the mission, protect fellow soldiers, or safeguard innocents”).

¹⁵⁷ Marci Feldman Hertz et al., *Homicide Survivors*, 29 AM. J. PREVENTIVE MED. 288 (Issue 5) (2005); Ford, *supra* note 118, at 64.

¹⁵⁸ Maguen et al., *supra* note 131, at 89.

¹⁵⁹ Suzy B. Gulliver & Laurie E. Steffen, *Towards Integrated Treatments for PTSD and Substance Abuse Disorders*, 21 PTSD RES. Q. 1, 1 (2010); Elbogen et al., *supra* note 148.

¹⁶⁰ Alicia Ottati & F. Richard Ferraro, *Combat-Related PTSD Treatment: Indications for Exercise Therapy*, 6 PSYCHOL. J. 184, 187 (Issue 4) (2009).

¹⁶¹ Tramontin, *supra* note 121.

¹⁶² For example, the objective of martial arts training for military personnel is described as the “synergy of mental, character and physical disciplines” which fosters “warriors” in their “development of the combat mindset and the study of the art of war” to achieve character traits of “honor, courage and commitment.” Memorandum from Commandment of the Marine Corps to Distribution List (Nov. 15, 2010) (on file with author) (concerning the Marine Corps Martial Arts Program).

¹⁶³ Tramontin, *supra* note 121.

¹⁶⁴ *Id.*

time and the risk of an IED exploding nearby.¹⁶⁵ Similarly, substantial majorities of deployed forces, even those operating in supposedly non-combat, support roles, report terrifying experiences with incoming hostile fire and witnessing others being seriously wounded or killed.¹⁶⁶ In other studies, soldiers report conflicting stressful reactions regarding those countries' citizenry: stress is felt, on the one hand, by observing civilians begging for food and their homes being destroyed,¹⁶⁷ while, on the other, in being confronted with civilians' hostile reactions to their presence.¹⁶⁸

Overall, then, in the context of the current conflicts, the ability to psychologically heal from the foregoing stressors is often ineffectual: "For deployed troops, the wartime environment promotes the chronic expectation of a hostile encounter and these individuals are more likely to experience repeated combat events (multiple major stressors) with little time to process the trauma before returning to the battlefield."¹⁶⁹ In sum, initial analyses indicate that the higher rate of PTSD from the Iraq and Afghanistan conflicts is because of the borderless war with its unpredictability, longer tours of duty in direct combat zones, and repeated deployments.¹⁷⁰

C. PTSD and the Automatic Fear Response

Despite PTSD generally being conceived within the domain of the psychiatric profession, scientific research underscores that PTSD is not limited to any individual physical or mental condition. Certainly, modern neuroscience makes clear that an individual's behavior is

¹⁶⁵ Booth-Kewley et al., *supra* note 131, at 72; *see also* U.S. GOV'T ACCOUNTABILITY OFF., ACTIONS NEEDED TO FURTHER IMPROVE THE CONSISTENCY OF COMBAT SKILLS TRAINING PROVIDED TO ARMY AND MARINE CORPS SUPPORT FORCES I (2010), <http://www.gao.gov/new.items/d10465.pdf> ("In conventional warfare conditions, support forces would normally operate in rear areas away from the front lines of a battlefield. However, the current combat environments in Iraq and Afghanistan have demonstrated that there are no clear distinctions between the front lines and rear support areas, and support forces are, therefore, at times exposed to hostile fire without support from combat arms units.").

¹⁶⁶ Christopher J. Phillips et al., *Risk Factors for Posttraumatic Stress Disorder Among Deployed US Male Marines*, 10 BMC PSYCHIATRY 52 (2010).

¹⁶⁷ Jennifer J. Vasterling et al., *Neuropsychological Outcomes of Army Personnel Following Deployment to the Iraq War*, 296 J. AM. MED. ASSOC. 519 (2006).

¹⁶⁸ Booth-Kewley et al., *supra* note 131, at 72.

¹⁶⁹ Ottati & Ferraro, *supra* note 160, at 187.

¹⁷⁰ William B. Brown, *Another Emerging "Storm": Iraq and Afghanistan Veterans with PTSD in the Criminal Justice System*, 5 JUST. POL'Y J. 10 (2008).

substantively interconnected with his brain and his body. PTSD is better conceptualized in a holistic, psychopathological model involving multiple human systems with interactions between the individual's stress, psychophysiological reactivity, neurohormonal responses, and musculoskeletal adaptations.¹⁷¹ While it is beyond the scope of this article to fully explore the growing literature on PTSD from the various interested fields of biology, neurology, and psychiatry, among others, a somewhat simplistic summary may be useful to support the thesis of this paper: a case may be made that instances exist whereby a combat veteran's PTSD renders him as acting in an automatistic manner—that is cognitively, physiologically, and muscularly responding intuitively to a perceived threat—and therefore he is not engaged in a voluntary act for the purposes of criminal law.

In general, experts characterize PTSD as a “stress-induced fear circuitry disorder” related to reflex-like responses,¹⁷² such as those in which traumatic, fear-inducing stimuli produce autonomic changes via the sympathetic and parasympathetic neural systems¹⁷³ and functional abnormalities in the brain that impede information processing.¹⁷⁴ An author discussing a PTSD-inflicted combat veteran provides an apt synthesis of the interconnecting processes that will be outlined further below:

At a neuroanatomical level, the part of this veteran's brain (the amygdala) which instantly responds to perceptions of danger by triggering the body's fight or flight response (i.e., hyperarousal) has hijacked his behavior and induced a series of physiologic reactions (rapid heart rate, palpitations, sweating, increased blood flow to large muscle groups) which are entirely appropriate for dealing with actual threats to one's survival. For a person

¹⁷¹ Alexander C. McFarlane, *The Long-Term Costs of Traumatic Stress: Intertwined Physical and Psychological Consequences*, 9 *WORLD PSYCHIATRY* 3 (2010); Seymour Levine, *Stress: An Historical Perspective*, in *HANDBOOK OF STRESS AND THE BRAIN* 3, 4 (Thomas Steckler et al. eds., 2005); Alexander Neumeister et al., *Neurocircuitry and Neuroplasticity in PTSD*, in *HANDBOOK OF PTSD* 151, 152 (Matthew J. Friedman et al. eds., 2007).

¹⁷² Thomas Steckler, *The Neurophysiology of Stress*, in *HANDBOOK OF STRESS AND THE BRAIN* 25, 26 (Thomas Steckler et al. eds., 2005).

¹⁷³ Neumeister et al., *supra* note 171, at 153.

¹⁷⁴ Lisa M. Shin & Kathryn Handwerker, *Is Posttraumatic Stress Disorder a Stress-Induced Fear Circuitry Disorder?*, 22 *J. TRAUMATIC STRESS* 409, 414 (2009).

suffering from PTSD, it takes much longer than normal for the part of his brain (the hippocampus) that rationally assesses the situation and synthesizes data about the environment to override the amygdala and restore a feeling of personal safety.¹⁷⁵

As for the relevance of the nervous system, trauma and stress can corrupt neural structure and function because of the nervous system's adaptive qualities in interpreting and responding to dangerous or capricious signals.¹⁷⁶ In neurological terms, stress is any challenge to homeostasis (internal stability) that requires an adaptive response.¹⁷⁷ It normally involves a stimulus input, an evaluation of the information, and a response output.¹⁷⁸ However, "[u]nder certain conditions, automated responding will be advantageous over more slow cognitive processing of stimuli."¹⁷⁹ Hence, a "stress response [] can be induced in a relatively simple, reflex-like manner, in which case it does not necessarily require an evaluation of the situation by the subject."¹⁸⁰ The reflexive stress response is adaptive because the achievement of homeostasis requires allostasis, the body's flexibility to counter potential threats by alterations in physiological functions, such as heart rate and respiration.¹⁸¹ The nervous system thereby learns from previously successful reactions that promoted survival and thereby further adapts to counter future traumatic stresses that appear to be of similar ilk.¹⁸²

Overall, traumatic stress, particularly when it induces fear, disrupts the individual's psychophysiology with potentially disabling physical, emotional, and mental consequences.¹⁸³ Scientists define fear as a physiological alarm reaction that reflexively induces the fight or flight response, if possible, with neurons playing a role in generating the

¹⁷⁵ Stuart L. Lustig, *Symptoms of Trauma Among Political Asylum Applicants*, 31 HASTINGS INT'L & COMP. L. REV. 725, 731-32 (2008).

¹⁷⁶ Debra Niehoff, *Invisible Scars: The Neurobiological Consequences of Child Abuse*, 56 DEPAUL L. REV. 847 (2007).

¹⁷⁷ McFarlane, *supra* note 171.

¹⁷⁸ Lustig, *supra* note 175, at 25.

¹⁷⁹ *Id.* at 35.

¹⁸⁰ *Id.* at 26.

¹⁸¹ Niehoff, *supra* note 176.

¹⁸² *Id.* at 851.

¹⁸³ McFarlane, *supra* note 171.

reflexive response.¹⁸⁴ Studies of PTSD have shown corresponding neuropathological deficits, including abnormal serotonin, abnormal noradrenergic function, and dysfunction of the hypothalamic-pituitary-adrenal axis, all of which disrupt the return to homeostasis.¹⁸⁵

These alterations in the nervous system and the resulting physiological disruptions are, then, linked to abnormalities in extinguishing a learned fear response. Researchers found that PTSD patients bore physiological impairments in being unable to inhibit a conditioned fear response to perceived danger even under safe conditions.¹⁸⁶ Such body arousal mechanisms become impaired when reminders of traumatic events cause the autonomic nervous system to hyperreactively respond¹⁸⁷ to stimuli with a bias toward perceiving it as threatening.¹⁸⁸ Thus, what originally could have been an appropriate survival response to danger may be repeated later when the neural changes from the prior event mean that benign stimuli are misconstrued as threatening, thereby requiring the body to make a quick response to survive.¹⁸⁹ In addition, with systemic deficits in the stress response rendered by PTSD, the adaptations may make the individual hypervigilant and hyperreactive. PTSD correlates with hyperactive sympathetic nervous system responses to threats, but with the decreased ability to regulate the sympathetic nervous system's response thereto.¹⁹⁰ Indeed, when an individual with PTSD re-experiences a traumatic

¹⁸⁴ Christian Grillon, *Models and Mechanisms of Anxiety: Evidence from Startle Studies*, 199 PSYCHOPHARMACOLOGY 421, 422, 424 (2008).

¹⁸⁵ Mark A. Rogers et al., *Smaller Amygdala Volume and Reduced Anterior Cingulate Gray Matter Density Associated with History of Post-Traumatic Stress Disorder*, 174 PSYCHIATRIC RES.: NEUROIMAGING 210, 210 (2009); see also Kimble et al., *supra* note 119, at 297 (observing that a consequence of PTSD is that these nervous system allostatic adaptations to threatening cues make the individuals substantially unable to disengage from fixating on stimuli thought to be threatening, thereby exacerbating the stressful condition and preventing the return to homeostasis).

¹⁸⁶ Tanja Jovanovic et al., *Fear Potentiation is Associated with Hypothalamic-Pituitary-Adrenal Axis Function in PTSD*, 35 PSYCHONEUROENDOCRINOLOGY 846 (2010).

¹⁸⁷ Ford, *supra* note 118, at 119-20.

¹⁸⁸ Jacques Dayan & Bertrand Olliac, *From Hysteria and Shell Shock to Posttraumatic Stress Disorder: Comments on Psychoanalytic and Neuropsychological Approaches*, 104 J. PHYSIOLOGY 296, 300 (2010).

¹⁸⁹ *Id.*

¹⁹⁰ Nnamdi Pole et al., *Prospective Prediction of Posttraumatic Stress Disorder Symptoms Using Fear Potentiated Auditory Startle Responses*, 65 BIOLOGICAL PSYCHIATRY 235 (2009).

memory, the original stress response is triggered, and over time the cycle may progressively enhance the person's vigilance and reactivity.¹⁹¹ Over time, too, a range of stimuli may remind the individual of the traumatic event leading to a generalized overreactivity.¹⁹²

In combat, hyperactivity can be protective of a soldier's survival by sustaining his physical and emotional alertness and enabling quick physical responses.¹⁹³ But, the physiological hyperreactivity may not be extinguished after battle because of PTSD-linked brain impediments. An important scientific basis for PTSD is that the autonomic nervous system can override and impair the functional integrity of the brain.¹⁹⁴ Traumatic events can refocus the brain and body from normal learning functions to survival; in PTSD this is noted as the *survival brain* dominating the *learning brain*.¹⁹⁵ The "*survival brain* relies on rapid automatic processes that involve primitive portions of the brain . . . while largely bypassing areas of the brain that are involved in more complex adaptations to the environment (i.e. learning)."¹⁹⁶ Thus, the *survival brain* fixates on automatic non-conscious scanning for threats, but by doing so alters the brain's normal ability to cognitively process the information in terms of making the appropriate response (or nonresponse).¹⁹⁷

The holistic perspective underlying actions also considers that neurological and physiological functioning have correlates with physical abnormalities in the brain. Modern scientific knowledge highlights that brains are malleable; not only are brains instrumental in behavior, correspondingly, behaviors can alter the structure and function of

¹⁹¹ McFarlane, *supra* note 171, at 4.

¹⁹² *Id.* at 5.

¹⁹³ Mario Enrique Molina et al., *Basal Cerebral Glucose Distribution in Long-Term Post-Traumatic Stress Disorder*, 11 WORLD J. OF BIOLOGICAL PSYCHIATRY 493, 499 (2010).

¹⁹⁴ Ford, *supra* note 118, at 119.

¹⁹⁵ *Id.* at 127-28 (indicating the survival brain "seeks to anticipate, prevent or protect against the damage caused by potential or actual dangers, driven and reinforced by a search to identify threats and an attempt to mobilize and conserve bodily resources in order to maintain this vigilance and defensive adjustments to maintain bodily functioning" while a learning brain is "engaged in exploration (i.e. the acquisition of new knowledge and neuronal/synaptic connections) driven and reinforced by a search for an optimal balance of novelty and familiarity").

¹⁹⁶ *Id.* at 129.

¹⁹⁷ *Id.*

brains.¹⁹⁸ Brain studies and neuroscience research show the multiple impacts that PTSD can generate in organic brain matter and brain function. Researchers have found that brains of PTSD-diagnosed combat veterans are smaller in volume, thickness, and area compared to control samples.¹⁹⁹ Scientists theorize that as stressful stimuli involve increasingly complex defensive responses, a greater number of brain areas are affected.²⁰⁰ The brain structures that are most affected by trauma include the amygdala, the hippocampus, and the frontal cortex.²⁰¹

The amygdala is responsible for the formation and storage of memories associated with emotional events, such as traumatic stressors.²⁰² Thus, the amygdala is instrumental in fear circuitry such that abnormalities in amygdala pathways may impair fear conditioning.²⁰³ For example, an exaggerated response in the amygdala has been linked to heightened responsiveness to a potential threat stimulus²⁰⁴ and impaired processing of safety signals.²⁰⁵ Neuroimaging studies have found that smaller amygdala volume correlate significantly with PTSD.²⁰⁶

¹⁹⁸ Steven K. Erickson, *Neuroscience: Blaming the Brain*, 11 MINN. J. L. SCI. & TECH. 27, 32 (2010); see also Falconer, *supra* note 9, at 439 (finding deficits in neuropsychological, autonomic, and brain processing in PTSD-diagnosed sample compared to a non-trauma-exposed group in a matched pairs design).

¹⁹⁹ Steven H. Woodward et al., *Smaller Global and Regional Cortical Volume in Combat-Related Posttraumatic Stress Disorder*, 66 ARCH. GEN. PSYCHIATRY 1373, 1379 (2009).

²⁰⁰ Steckler, *supra* note 172, at 35.

²⁰¹ Shin & Handwerker, *supra* note 174, at 409.

²⁰² Niehoff, *supra* note 176.

²⁰³ Thomas W. McAllister & Murray B. Stein, *Effects of Psychological and Biomechanical Trauma on Brain and Behavior*, 1208 ANN. N.Y. ACAD. SCI. 46, 49 (2010).

²⁰⁴ Jennifer J. Vasterling et al., *Mild Traumatic Brain Injury and Posttraumatic Stress Disorder in Returning Veterans: Perspectives from Cognitive Neuroscience*, 29 CLINICAL PSYCHOL. REV. 674 (2009); see also Molina et al., *supra* note 193, at 499 (brain imaging showed abnormal metabolic reactivity in the amygdala in a sample of war veterans with PTSD compared to a matched control group of asymptomatic soldiers, which result “may be originated in the reduction of discriminative inhibitory signals from prefrontal and limbic regions, which have been depressed in favour of sensorial and cerebellar performance”); Kimble et al., *supra* note 119, at 297 (finding significant pupil dilation in combat veterans with PTSD when shown Iraqi images, indicating amygdala activation and autonomic arousal).

²⁰⁵ Tanja Jovanovic et al., *Impaired Fear Inhibition Is a Biomarker of PTSD but Not Depression*, 27 DEPRESSION & ANXIETY 244, 249 (2010); McAllister & Stein, *supra* note 203, at 49 (finding that in PTSD patients the ability to extinguish hyperreactive responses is nullified).

²⁰⁶ Rogers et al., *supra* note 185.

The hippocampus is crucial to memory storage and retrieval, and with traumatic stress in a PTSD patient, the hippocampus can fail to properly encode the traumatic memory.²⁰⁷ A hippocampal deficit may thereby impair the individual's appreciation of safety cues²⁰⁸ and is partly responsible for an inappropriate physiological response to stress.²⁰⁹ The traumatic event affects cells in the hippocampus such that the fear response fails to turn off.²¹⁰ A neuroimaging study also showed signs that PTSD was related to suppressing the creation of new brain cells in the hippocampus that may have otherwise operate to ameliorate the impaired function.²¹¹

In addition to deficits in the amygdala and hippocampus, PTSD patients also bear impaired functioning of the frontal cortex, which would otherwise mediate the extinction of hyperreactivity to stimuli that are actually not threatening.²¹² As an example, frontal lobe damage can interfere with normal balancing between an individual's plan-driven willed behavior and environmental cues.²¹³

On the whole, PTSD is not simplistically a mental health issue. It represents a multi-systemic consequence to traumatic stress that can easily overwhelm an individual's ability to control hyperreactive stress responses. Scientific evidence strongly supports a theory that PTSD-affected combat veterans may be automatically/reflexively responding to threats of danger based on neuropsychological survival adaptations begot by wartime experiences.

IV. A THEORY OF A PTSD-RELATED INVOLUNTARY ACT NEGATING CULPABILITY FOR COMBAT VETERANS

At the outset, it should be noted that any theory that seeks to exculpate a person from criminal culpability, particularly when the person's own physical deed caused the harm, is likely to clash with free

²⁰⁷ Ford, *supra* note 118, at 118-19.

²⁰⁸ McFarlane, *supra* note 171, at 5.

²⁰⁹ Norbert Schuff et al., *Patterns of Altered Cortical Perfusion and Diminished Subcortical Integrity in Posttraumatic Stress Disorder: An MRI Study*, 54 *NEUROIMAGE* S62, S62 (2011).

²¹⁰ Moore, *supra* note 131, at 13.

²¹¹ Zhen Wang et al., *Magnetic Resonance Imaging of Hippocampal Subfields in Posttraumatic Stress Disorder*, 67 *ARCH. GEN. PSYCHIATRY* 296, 300 (2010).

²¹² Rogers et al., *supra* note 184; McFarlane, *supra* note 171, at 4-5.

²¹³ Neil Levy & Tim Bayne, *A Will of One's Own: Consciousness, Control, and Character*, 27 *INT'L J. OF L. & PSYCHIATRY* 459, 460 (2004).

will enthusiasts. Representing the traditional philosophical perspective on culpability, in a case in which the defendant claimed that his stress-induced reaction was unconsciously motivated, is one court's representative stance:

For protection of society the law accepts the thesis that all men are invested with free will and capable of choosing between right and wrong. In the present state of scientific knowledge that thesis cannot be put aside in the administration of the criminal law. Criminal blameworthiness cannot be judged on a basis that negates free will and excuses the offense, wholly or partially, on opinion evidence that the offender's psychological processes or mechanisms were such that even though he knew right from wrong he was predetermined to act the way he did at that time because of unconscious influences set in motion by the emotional stresses then confronting him. In a world of reality such persons must be held responsible for their behavior.²¹⁴

While the foregoing observation is contrary to the thesis of this paper, the court's statement correctly implies that judgments of criminal culpability should consider societal interests and values. Hence, it is important to recognize that "how much lack of capacity is necessary to find the agent not responsible is a normative moral, social, political, and ultimately legal issue."²¹⁵ It appears that this type of free will argument is more about eliminating the voluntary act doctrine itself. If so, then their proposition ought to be more directly put forth in a public debate about the existence of the *actus reus* requirement itself. It would be more transparent to jettison the element outright than to shift involuntary-type facts to being considered under alternative theories, such as *mens rea*, insanity, or diminished capacity.

Still, before making a normative and social argument to support this paper's theme, a quick review is provided of the historical status in criminal cases of combat veterans whose offending may have been related to PTSD. Legal literature contains some discussion about PTSD offering

²¹⁴ State v. Sikora, 210 A.2d 193, 202 (N.J. 1965) (assuming, though, that psychiatric evidence of unconscious action was potentially relevant to *mens rea*, without discussing *actus reus*).

²¹⁵ Stephen J. Morse, *The Non-Problem of Free Will in Forensic Psychiatry and Psychology*, 25 BEHAV. SCI. & L. 203, 206 (2007).

a defense for former service members, though this scholarship has mostly focused on a potential insanity defense.²¹⁶ Nonetheless, such literature has generally highlighted the obstacles to successfully applying insanity to a PTSD-related disorder.²¹⁷ For example, it is posited that the difficulties veteran defendants face in convincing a jury of a PTSD-based insanity defense are that it is self-serving in nature and that juries are generally not convinced that PTSD fully deprived the veteran defendant of the ability to act in a predetermined manner.²¹⁸ The application of PTSD to negate the involuntary act element is rarely noted, but those commentators who have mentioned it as a potential issue almost universally and summarily discount the ability of combat veterans to successfully use PTSD to negate the voluntary act requirement of *actus reus*.²¹⁹ This tendency is

²¹⁶ Jim McGuire & Sean Clark, *PTSD and the Law: An Update*, 22(1) PTSD RES. Q. 1, 1 (2011).

²¹⁷ Michael J. Davidson, *Post-Traumatic Stress Disorder: A Controversial Defense for Veterans of a Controversial War*, 29 WM. & MARY L. REV. 415, 421 (1988); Erin J. Gover, *Iraq as Psychological Quagmire: The Implications of Using Post-Traumatic Stress Disorder as a Defense for Iraq War Veterans*, 28 PACE L. REV. 561, 575 (2008); Thomas L. Hafemeister & Nicole A. Stocky, *Last Stand? The Criminal Responsibility of War Veterans Returning from Iraq and Afghanistan with Posttraumatic Stress Disorder*, 85 IND. L. J. 87, 94 (2010); Slovenko, *supra* note 110, at 430; Thomas Barnard & James Ewing, *Pretrial Advice for Representing Mentally Ill Criminal Defendants in the Military Justice System*, 35 N.E. J. ON CRIM. & CIV. CONFINEMENT 337, 343 (2009); Ira K. Packer, *Post-Traumatic Stress Disorder and the Insanity Defense: A Critical Analysis*, 11 J. PSYCHIATRY & L. 125, 126-127 (1983); Heathcote W. Wales, *Causation in Medicine and Law: The Plight of the Iraq Veterans*, 35 N.E. J. ON CRIM. & CIV. CONFINEMENT 373, 394 (2009) (contending that PTSD-related insanity defenses are rarely successful); *People v. Lisnow*, 151 Cal. Rptr. 621, 624 (Sup. Ct. CA 1978) (overturning conviction where Vietnam veteran defendant had a right to present evidence of PTSD to rebut the element of consciousness even though it also suggests insanity).

²¹⁸ Corrado, *supra* note 47, at 1552 (noting also, though, that an insanity defense involving PTSD is merely “plausible”); It may also be true in a PTSD veteran’s case that the jury’s disbelief is no doubt compounded when a defendant mounts a defense based on PTSD, since no one but the defendant himself is able to recount and describe the symptoms and behavior that resulted from PTSD and led to the criminal conduct. In many cases a defendant’s substance abuse, which is often a byproduct of PTSD itself, serves to undermine the defendant’s credibility and to enable prosecutors to point to a cause of the defendant’s behavior apart from his mental illness. Constantina Aprilakis, *The Warrior Returns: Struggling to Address Criminal Behavior by Veterans with PTSD*, 3 GEO. J. L. & PUB. POL’Y 541, 561 (2005).

²¹⁹ Jonathan I. Bisson, *Automatism and Post-Traumatic Stress Disorder*, 163 BRIT. J. PSYCHIATRY 830, 831-32 (1993) (noting the possibility that a veteran’s PTSD may trigger a dissociative state that may comprise automatism but opining it is unlikely);

consistent with the observation made earlier that case law often fails to adequately respect this basic criminal law element.

Nonetheless, a few legal practitioners recently have noted the general importance that PTSD can have in defending veterans in criminal cases in terms of negating culpability altogether or mitigating responsibility for a lesser sentence.²²⁰ For instance, a scholar has argued for a per se exclusion of combat veterans with PTSD from the death penalty, arguing that the connection between the PTSD and combat service make them less personally culpable and not representative of the worst of the worst offenders for which death is proportionate.²²¹ The Supreme Court itself has suggested that failing to present service-related PTSD evidence in the sentencing phase of a capital case involving a veteran defendant may breach the defendant's constitutional rights because the defendant's service career and resulting impairments to functioning would appear to be mitigating evidence from a moral culpability perspective.²²²

The idea from the latter perspectives is, therefore, that normatively the culpability of the individual should not be isolated from

Hafemeister & Stocky, *supra* note 217, at 112 n.150-51 (noting that PTSD may establish an automatism defense only in "extreme cases" where the defendant exhibits "a physiological reaction to external or internal cues or after experiencing dissociative flashback episodes and reenactments"); Gover, *supra* note 115, at 562-63 (contending that veterans with PTSD may only succeed with an automatism defense if in a dissociative state); Burgess et al., *supra* note 76 (arguing that only PTSD with a dissociative reaction can "theoretically" negate the *actus reus*).

²²⁰ Timothy P. Hayes, *Post-Traumatic Stress Disorder on Trial*, 190 MIL. L. REV. 67, 104 (2006/2007); Andrea Friel et al., *Posttraumatic Stress Disorder and Criminal Responsibility*, 19 J. FORENSIC PSYCHIATRY & PSYCHOL. 64, 78-80 (2008); Brown, *supra* note 170; *see also* C. Peter Erlinder, *Vietnam on Trial*, 52 GUILD PRAC. 65, 82 (1985) ("In a very real sense, veterans and others affected by PTSD who have not had that fact presented at trial or sentencing have not had their day in court."); Marcia G. Shein, *Post-Traumatic Stress Disorder in the Criminal Justice System: From Vietnam to Iraq and Afghanistan*, 57 FED. LAW. 42, 49 (2010) (encouraging lawyers with veteran clients with PTSD to introduce that fact at trial or sentencing to show reduced culpability); Peyton Cooke, *Post-Traumatic Stress Disorder & the Military Justice System*, 79 MISS. L. J. 485 (2010) (supporting a combination punishment and rehabilitation model for violations of minor disciplinary infractions committed by PTSD-diagnosed soldiers).

²²¹ Anthony E. Giardino, *Combat Veterans, Mental Health Issues, and the Death Penalty: Addressing the Impact of Post-Traumatic Stress Disorder and Traumatic Brain Injury*, 77 FORDHAM L. REV. 2955 (2009).

²²² *Porter v. McCollum*, 130 S.Ct. 447 (2009).

the broader context because of the unique scenario posed by the current wartime conflicts. A commentator has suggested that permitting PTSD evidence in a veteran's criminal trial should be considered another cost of war when the government chooses a policy of invading a sovereign country involving guerrilla warfare and killing civilians.²²³ With inadequate services and tools for combat veterans to safely reintegrate into the civilian population, our societal obligations may include a reconceptualization of the criminal justice system's response to combat veterans whose PTSD is related to their automatic actions that result in what would otherwise be considered criminal harm.²²⁴ Similarly, in placing servicemen in structural combat conditions in which they may be responsible for mistakenly killing a civilian thought to be an insurgent, "[w]e are doing a disservice to our service members and veterans if we fail to conceptualize and address the lasting psychological, biological, spiritual, behavioral, and social impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations, that is moral injury."²²⁵ It has also been recognized that "[t]he disproportionate number of our ex-service personnel suffering from stress, psychological problems, drink and drug dependency who find themselves homeless on the streets or serving jail sentences speaks volumes about our failure to provide an effective safety net of care and support."²²⁶ Thus, the idea that PTSD can validly be considered to impact the normative culpability judgment is presented here as particularly appropriate to the situation of war veterans considering that the combat-related triggers of PTSD would not have occurred "but for

²²³ Erlinder, *supra* note 220; *see also* Wales, *supra* note 217, at 395 ("There is also a normative political question. The Iraq War was sold to voters in part by statements about how cheap it would be. If the electorate is to make informed choices about matters as consequential as war, a greater transparency in the true costs of war would seem to be progress.").

²²⁴ Nidiffer, *supra* note 116 (urging a societal consideration of whether the high incidence of PTSD by war veterans ought to be a consideration in reassigning culpability for criminal offenses when the military's training and reintegration failures are behind stateside PTSD-related offending).

²²⁵ Litz et al., *supra* note 156, at 696 (discussing, though, the more general social obligation to provide services and a safety net to veterans).

²²⁶ David Pratt, *Psychological Time Bomb That Could Be Lasting Legacy of War*, HERALD (GLASGLOW), Jan. 21, 2011, at HS-15.

government action in the form of training them to kill and sending them to war.”²²⁷

Though some of the foregoing comments suggest that combat veterans be treated specially in the eyes of the criminal law, the thesis of this paper does not rely upon any differential treatment *per se*. Rather, a fundamental common law principle is that criminal law requires the presence of the *actus reus* for criminal culpability. Without it, there is no philosophical or moral basis for condemnation or punishment. The role of the country and the military in producing PTSD-afflicted war veterans is relevant here to establishing a basis for reinvigorating *actus reus* as a necessary element of criminal offenses. It is a timely concurrence of events that allows a rich perspective on automatism and how automatic acts deprive the conduct of its criminal nature. Attention recently placed upon the high prevalence and explanations for PTSD in combat veterans in the news media, scholarly publications, and legal circles serves this pursuit of modernizing and strengthening the principle of *actus reus*.

The correlating connections between military duties, PTSD, and automatic reactions related to war-based trauma are evident. Combat training emphasizes muscle memory and automatically reacting to threats.²²⁸ Certainly, automatic physical responses to aggressive stimuli are highly adaptive behaviors to survive combat and benefit the military’s objective.²²⁹ A recent Army Field Manual provides that “[t]o survive, the soldier in combat must be able to deal with any situation that develops. His ability to adapt any nearby object for use as a weapon in a win-or-die situation is limited only by his ingenuity and resourcefulness.”²³⁰ The fact that military training stresses hypervigilance with reactionary conduct that involves lethal force also is related to PTSD.²³¹ Recent research on Iraq and Afghanistan veterans shows that their experiencing PTSD-related hyperarousal symptoms is highly correlated with measures of

²²⁷ Giardino, *supra* note 221, at 2961.

²²⁸ Tramontin, *supra* note 121. The Army Field Manual provides training suggestions on developing “instinctive reflexes in hand-to-hand combat.” DEPT. OF THE ARMY, ARMY FIELD MANUAL NO. 3-25-150, at 7-9 (Jan. 18, 2002).

²²⁹ David M. Benedek & Thomas A. Grieger, *Post-Development Violence and Anti-Social Behavior: The Influence of Pre-Deployment Factors, Warzone Experience, and Posttraumatic Stress Disorder*, 3(3) PRIMARY PSYCHIATRY 51, 52 (2006); *see also* Steckler, *supra* note 172, at 35 (recognizing that automatic responses by the brain in responding may be more advantageous than cognitively processing stimuli).

²³⁰ DEPT. OF THE ARMY, ARMY FIELD MANUAL NO. 3-25-150, at 7-29 (Jan. 18, 2002).

²³¹ Nidiffer, *supra* note 116.

aggressive impulses, difficulty managing anger, and problems controlling violence.²³² As discussed in the prior Section, the correlation between PTSD and impulsive aggression is likely the result of the arousal and emotional deficits in neurobiological functioning.²³³ Other recent studies also support connections between combat-related PTSD and aggression. A study of Iraq and Afghanistan veterans found significantly higher levels of anger and hostility and a higher likelihood to have endorsed aggression than veterans without PTSD.²³⁴ The anger and hostility may be a coping mechanism to the stressful re-experience of the traumatic event, which for soldiers was likely one involving the threat of lethal violence.²³⁵ Anger and hostility can also explain how an aggressive response may be triggered by the instinctive fight impulse instilled in combat soldiers.²³⁶ Veterans with PTSD commonly report such manifestations of hypervigilance after returning stateside of constantly scanning for potentially threatening individuals and weapons and otherwise being alert for changes in driving conditions, obstructions ahead, suspicious noises, and suspecting anything else out of place.²³⁷ The foregoing helps contextualize the link between PTSD and post-deployment violent behavior in combat veterans.²³⁸

The dissociative type of automatism is a commonly reported symptom of combat-related PTSD.²³⁹ Understandably, flashbacks are a main cause of dissociative violence for combat veterans.²⁴⁰ The dissociative state can involve automatic behavior in combat veterans in

²³² Elbogen et al., *supra* note 148.

²³³ Andra L. Teten et al., *Characterizing Aggression and Its Association to Anger and Hostility Among Male Veterans with Post-Traumatic Stress Disorder*, 175 MIL. MED. 405, 409 (2010).

²³⁴ Matthew Jakupcak et al., *Anger, Hostility, and Aggression Among Iraq and Afghanistan War Veterans Reporting PTSD and Subthreshold PTSD*, 20 J. TRAUMATIC STRESS 945, 949 (2007).

²³⁵ *Id.* at 946.

²³⁶ Aprilakis, *supra* note 218, at 543.

²³⁷ Kimble et al., *supra* note 119, at 298.

²³⁸ *Id.*

²³⁹ Andrew Moskowitz, *Dissociation and Violence: A Review of the Literature*, 5 TRAUMA, VIOLENCE, & ABUSE 21, 31 (2004); Chris R. Brewin & Trishna Patel, *Auditory Pseudohallucinations in United Kingdom War Veterans and Civilians with Posttraumatic Stress Disorder*, 71 J. CLINICAL PSYCHIATRY 419, 424 (2010) (observing, too, a connection between PTSD, dissociation, and hearing voices, both negative and positive in message).

²⁴⁰ Moskowitz, *supra* note 239, at 31.

reengaging their role as soldiers and drawing upon conditioned training.²⁴¹ More specifically, the more combat exposure and the greater stresses experienced in combat are correlated to the severity of PTSD and resulting hostile actions which mimic combat-related violence.²⁴² Dissociative states are observed in returning combat veterans who reengage a “battlefield mindset.”²⁴³ A dissociative flashback enlists the veteran’s survivor modality by focus on protecting oneself and others, with the reflexive-oriented training of aggressive responses available.²⁴⁴ Flashbacks and emotional numbing, such as feeling detached and isolated, are common in PTSD.²⁴⁵ Dissociation can be a positive and adaptive psychological tactic by providing an emotional buffer to trauma and otherwise being a self-protective mechanism.²⁴⁶

In thereby making the theoretical case for the potential for an automatism-based negation of criminal culpability regarding combat-induced PTSD, two obvious criticisms must be addressed. First, there is the fear that allowing a full defense (actually a failure of a necessary element of crime) to someone based upon the consequences of a mental condition undermines public safety if the person continues to pose a risk of harm to others.²⁴⁷ Though some would describe a defense based on PTSD as an excuse, even an “entitlement to commit violence,”²⁴⁸ this

²⁴¹ Burgess et al., *supra* note 76.

²⁴² *Id.* at 81.

²⁴³ Tramontin, *supra* note 121.

²⁴⁴ Davidson, *supra* note 217, at 429.

²⁴⁵ Moskowitz, *supra* note 239, at 24.

²⁴⁶ Ford, *supra* note 118, at 35-36; *see also* Richard A. Bryant, *Does Dissociation Further our Understanding of PTSD?*, 21 J. ANXIETY DISORDERS 183, 187 (2007) (indicating also that the relationship between PTSD and dissociative states is mediated by fear of death and loss of control).

²⁴⁷ Nidiffer, *supra* note 116 (noting that failing to hold veterans culpable for the crimes they commit will disincentivize them from embracing more socially acceptable behavior which will be counterproductive in making them more isolated with less social support); Bassitt, *supra* note 101, at 741 (contending that automatism may lead some to deal with it under the rubric of insanity if there is fear that the person will again experience the state that prompted the previous automatistic behavior); *Pruett v. Thompson*, 771 F. Supp. 1428, 1448 (E.D. VA 1991) (approving defense counsel strategy not to highlight veteran’s PTSD as it could instead be used by the prosecution to support the dangerousness of the defendant).

²⁴⁸ Sonia Grover, *It’s a Crime: Reexamining the Successful Use of Posttraumatic Stress Disorder as a Legal Defense to Child Sexual Assault in the Canadian Case of R. v. Borsch*, 9 ETHICAL HUM. PSYCHOL. & PSYCHIATRY 5, 12 (2007) (“It is not helpful . . . when the

perspective does not undermine the thesis of this paper: if by virtue of the fundamental tenets of a common law-influenced criminal law a person is not criminally culpable because of the absence of a material element, here being the lack of *actus reus*, then no crime was perpetuated and no excuse necessary.²⁴⁹ Neither revenge nor retribution is a legitimate reason for punishment for actions that are not voluntary.²⁵⁰ A prominent legal theorist on *actus reus* reflected recently on the philosophical musings of a nineteenth century English scholar on criminal law: “an agent whose body moves purely as a result of mechanism, say, a reflex or a spasm produced by a neurological abnormality, has not acted at all and cannot be punished if the movement caused harm. This was entirely uncontroversial then and is so today.”²⁵¹ A similar philosophical principle applies when criminal responsibility is not assigned (and moral condemnation by society not justified), despite the occurrence of a social harm, based on the lack of any other required element of an offense, such as the requisite *mens rea*. The potential threat that otherwise involuntary actors pose is insufficient:

The goal of nipping every potential threat in the bud, combined with the impossibility of its achievement, sets in motion a continuing expansion of preventive measures, an infinite regress along the causal chain toward the origin of threats, the heart of darkness.²⁵²

As for moral condemnation, in automatism, the person’s action does not reflect their moral character; indeed they are estranged from their

courts—without scientific basis—reify PTSD as a causative factor that dictates and explicates choices that involve the violation of another’s fundamental human rights.”).

²⁴⁹ The involuntary act doctrine is theoretically explained by the causal explanation of law whereby it is improper to punish someone for forces beyond their control. Kaye, *supra* note 16, at 1126 (contrasting causal theory with compatibilist theory). It has been suggested that a possible alternative to addressing the continuing risk argument is to utilize a preventive detention model. See Christopher Slobogin, *A Jurisprudence of Dangerousness*, 98 NW U. L. REV. 1, 43-44 (2003) (contending that defendants who successfully establish a defense of unconsciousness should still be subject to preventive detention, such as civil commitment, if the underlying reason, such as automatic reactions triggered by memories of past traumatic events, renders them a continued threat because they cannot be deterred).

²⁵⁰ LaFave, *supra* note 52.

²⁵¹ Stephan J. Morse, *Thoroughly Modern: Sir James Fitzjames Stephen on Criminal Responsibility*, 5 OHIO ST. J. CRIM. L. 505, 515 (2008).

²⁵² Markus Dirk Dubber, *Policing Possession: The War on Crime and the End of Criminal Law*, 91 J. CRIM. L. & CRIMINOLOGY 829, 842 (2001).

morality.²⁵³ Automatic behaviors may actually be contrary to one's normal character.²⁵⁴

To the extent that PTSD increases the risk that veterans pose a danger to others, there are alternatives outside the criminal justice system.²⁵⁵ Considering that the incidence of PTSD and the correlative factors are now better known, the government and social services can improve upon preventive methods and work on a rehabilitative model. From a public safety perspective, it is important that PTSD is now generally considered treatable.²⁵⁶ Recent studies indicate that various treatments have shown strong effectiveness in reducing PTSD manifestations, such as cognitive behavioral therapy,²⁵⁷ prolonged exposure,²⁵⁸ eye movement desensitization,²⁵⁹ and pharmacological treatment.²⁶⁰ A recent report of the United States Department of Veterans Affairs reports that expanded coverage and availability of veterans' healthcare has resulted in a "high level of service use" of mental

²⁵³ Horder, *supra* note 34, at 317.

²⁵⁴ Levy & Bayne, *supra* note 77, at 212; Kaye, *supra* note 16, at 1161.

²⁵⁵ LaFave, *supra* note 52.

²⁵⁶ Tramontin, *supra* note 121.

²⁵⁷ Kathleen M. Chard et al., *Comparison of OEF and OIF Veterans and Vietnam Veterans Receiving Cognitive Processing Therapy*, 23 J. TRAUMATIC STRESS 25, 29 (2010).

²⁵⁸ Mark B. Powers et al., *A Meta-Analytic Review of Prolonged Exposure for Posttraumatic Stress Disorder*, 30 CLINICAL PSYCHOL. REV. 635 (2010); Afsoon Eftekhari et al., *Do you Need to Talk About It? Prolonged Exposure for the Clinical Treatment of Chronic PTSD*, 7 BEHAV. ANALYST TODAY 70 (2006); *see also* Sheila A.M. Rauch et al., *Prolonged Exposure for PTSD in a Veterans Health Administration PTSD Clinic*, 22 J. TRAUMATIC STRESS 60 (2009) (indicating prolonged exposure therapy includes psychoeducation, in vivo exposure, and imaginal exposure).

²⁵⁹ John G. Carlson et al., *Eye Movement Desensitization and Reprocessing (EMDR) in Combat-Related Posttraumatic Stress Disorder*, 11 J. TRAUMATIC STRESS 3 (1998); *but see* Michael L. Macklin et al., *Five-Year Follow-Up Study of Eye Movement Desensitization and Reprocessing Therapy for Combat-Related Posttraumatic Stress Disorder*, 41 COMPREHENSIVE PSYCHIATRY 24 (2000) (finding that positive gains after eye movement desensitization and reprocessing therapy soon after treatment were lost after a five-year period).

²⁶⁰ Marcelo Mello, *A Randomized, Double-Blind, Placebo-Controlled Trial to Assess the Efficacy of Topiramate in the Treatment of Post-Traumatic Stress Disorder*, 9 BMC PSYCHIATRY 28 (2009).

health and general medical care among veterans with PTSD.²⁶¹ In addition, many combat veterans pose little threat. Unlike other psychiatric disorders, PTSD is extremely variable in severity, the manifestations are not constant, its onset may not occur until years after the traumatic event, and once it does develop remission is also common.²⁶²

The second issue is a criticism that a PTSD diagnosis is subjective in nature and reliant upon the individual's own accounts.²⁶³ To the extent critics argue that this will encourage defendants to defraud the courts with nefarious claims of automatism,²⁶⁴ this conundrum of problematic evidence and credibility concerns is certainly nothing new to criminal law. The entire doctrine of the *mens rea* necessarily is inherently enigmatic in terms of proof since there is no reliable method of ascertaining an individual's particular mental state at the time of his potentially criminal action, much less done in retrospect at trial. Despite this, prosecutors regularly are successful in offering sufficient proof to permit a jury to determine—beyond a reasonable doubt—the defendant's particular mental state. Further, the criminal trial bar is experienced with defensive attempts to negate an element of the crime charged, whether it regards the *mens rea*, *actus reus*, or some other element, with evidence that is known only to the defendant or can be otherwise supported by expert testimony. As examples, evidence is commonly at issue involving the potential role of intoxicants, mental disorders, and health issues. The criminal law is beset with issues of

²⁶¹ U.S. Dep't of Veterans Affairs, *Health Services Use in the Department of Veterans Affairs Among Returning Iraq and Afghan War Veterans with PTSD*, 22(2) PTSD QUARTERLY 1, 2 (2011).

²⁶² William J. Koch et al., *Empirical Limits for the Forensic Assessment of PTSD Litigants*, 29 LAW & HUM. BEHAV. 121 (2005).

²⁶³ Burgess et al., *supra* note 76; Landy F. Sparr, *Mental Defenses and Posttraumatic Stress Disorder: Assessment of Criminal Intent*, 9 J. TRAUMATIC STRESS 405, 411 (1996); David Zuchino, *More Veterans Are Using PTSD as Defense in Criminal Cases*, L.A. TIMES, Sept. 14, 2001; *see also* Slovenko, *supra* note 110, at 415 (likening a PTSD diagnosis to the generally inadmissible lie detector).

²⁶⁴ *State v. Hinkle*, 489 S.E.2d 257, 264 n.26 (W. Va. 1996) (noting that fears of a "flood of false and manufactured unconsciousness defenses" have led some courts to require substantial corroboration to enable the defendant to bring an unconsciousness defense); Michael McGrath Duran, *Nothing New: Unwrapping the Packaging of Post-Traumatic Stress Disorder*, 33 LOY. L. REV. 1076, 1098 (1988) (suggesting that judges and jurors will continue to be wary of fraud in claims of PTSD considering the "subtle diagnostic criteria" and reliance upon defendants' self-reports).

evidence but thrives nonetheless. It is the jury's central role to consider and weigh the validity of evidence and the veracity of witnesses, whether lay or expert. Besides, criminal law and evidentiary standards need not, indeed should not, stagnate. When advances in science allow new understandings of human will and behavior, society's moral values may be better served by evolving standards of criminal culpability.²⁶⁵

Embracing new science does not mean shedding the values that provide the mainstay of our culture and the criminal law—just the reverse is true. There is no clear morals-science division; the two have long influenced each other. Scientific evidence can constrain a wrong-minded legal and moral doctrine in the same way that morals can constrain a wrong-minded legal foray into science. The issue becomes how science, values, and law work together and the joint product they create.²⁶⁶

It is also suggested that when it is an external causative agent that overcomes the internal aspect of the *actus reus*, true involuntariness is more likely convincing if there is a “long-standing public, professional, or scientific acceptance of the causative agent,”²⁶⁷ such as is the case now with PTSD and soldiers. And unlike other psychiatric diagnoses, PTSD is relatively unique in the DSM by including an external, environmental criterion as a causal factor.²⁶⁸

Further, juries need not be left on their own to ferret out the scientific bases for PTSD-related deficits as negating the involuntary act

²⁶⁵ Grant, *supra* note 73; Jeffrey L. Kirchmeier, *A Tear in the Eye of the Law: Mitigating Factors and the Progression Toward a Disease Theory of Criminal Justice*, 83 OR. L. REV. 631, 688 (2004).

²⁶⁶ Deborah W. Denno, *supra* note 81, at 608; *see also* Kaye, *supra* note 16, at 1172 (noting that advances in understanding human behavior should inform moral judgments of conduct, which conflicts with the compatibilist view of criminal law).

²⁶⁷ Hauhart, *supra* note 26, at 325; *see also* N. Wright et al, *Automatism Re-visited: Post-traumatic Automatism as a Defense to a Serious Criminal Charge*, 35 MED. SCI. L. 328, 332 (1995) (contending that a blow to the head type of post-traumatic automatism should theoretically negate responsibility although the neuropsychiatry behind the potential of brain dysfunction is not fully understood); Horn, *supra* note 77, at 152-56 (using evidence from medical and psychological sciences to support the idea that behaviors done while sleepwalking may not be considered entirely voluntary acts for legal purposes).

²⁶⁸ Wales, *supra* note 216, at 385; *see also* Erlinder, *supra* note 218, at 71 (contending that unlike many other psychological disorders the requirement of external factors as a causal link makes PTSD less a “leap of faith”).

element. Mental health, neurological, and physiological experts can educate courtroom players about the processes that reflect upon an individual's culpability in ways that may help bridge the gap in legal decisions and are also consistent with scientific theory.²⁶⁹ With respect to questionable diagnoses, studies have shown improved ability of experts to correctly distinguish malingerers from those who validly suffer from PTSD.²⁷⁰ Better scientific confirmation processes involving integrating measures of brain, cognitive/behavioral, and autonomic measures,²⁷¹ are now available to help confirm diagnoses of PTSD.²⁷² Specifically, neuroimaging is a notable tool with great promise to delineate the etiologies of organic brain injuries.²⁷³

V. CONCLUSION

The orienting principle of this article is that the *actus reus* (voluntary act) element be reinvigorated as a criminal law principle that actually has substance and meaning.²⁷⁴ The normative and moral inquiry

²⁶⁹ Anthony Samuels et al., *When Killing Isn't Murder: Psychiatric and Psychological Defenses to Murder When the Insanity Defense is Not Applicable*, 15 AUSTRALASIAN PSYCHIATRY 474 (2007).

²⁷⁰ Kenneth R. Morel, *Development of a Validity Scale for Combat-Related Posttraumatic Stress Disorder: Evidence from Simulated Malingerers and Actual Disability Claimants*, 19 J. FORENSIC PSYCHIATRY & PSYCHOL. 52, 59 (2008); see also Bruce B. Dohremwend et al., *supra* note 136, at 982 (finding little evidence that prior studies on the rate of PTSD in Vietnam veterans were falsified or inflated). Suggestions have been offered for legal practitioners on how to present PTSD-related information through lay and expert testimony in trials. See generally Mary Lizbeth Ross, *Tips for Persuasive Criminal Defense of Your Client Suffering from Post-Traumatic Stress Disorder* (2008), http://www.fd.org/pdf_lib/PTSD_Atlanta2.pdf.

²⁷¹ Erin M. Falconer, *supra* note 9, at 439, 441.

²⁷² A.P. Georgopoulos et al., *The Synchronous Neural Interactions Test as a Functional Neuromarker for Post-Traumatic Stress Disorder (PTSD): A Robust Classification Method Based on the Bootstrap*, 7 J. NEURAL ENG. 1 (2010); Neumeister et al., *supra* note 171, at 155.

²⁷³ McLeod et al., *supra* note 109, at 475 (noting difficulties in evidentiary proof that dissociation negates automatism where medical concepts do not always fit well within legal doctrine); Steven K. Erickson, *The Myth of Mental Disorder: Transsubstantive Behavior and Taxometric Psychiatry*, 41 AKRON L. REV. 67, 75 (2008) (noting the tension whereby psychiatry cannot scientifically measure the legal concept of free will, but that recent developments in biological psychiatry have successfully shown that certain psychiatric disorders can erode normal brain operation).

²⁷⁴ As a practical matter, a voluntary act is not likely to be a contested element in a substantial majority of criminal cases, but instead the prosecution will meet its burden

of criminal culpability from philosophical and legitimacy perspectives requires no less. While there may be a rational basis for presuming individuals have free will and can internally choose what they do, modern scientific advances can properly be informative where there is evidence that the actor actually is not freely choosing or controlling his actions. Strengthening the voluntary act requirement here utilizes, as a current and provocative example, the issue of combat veterans as criminal defendants, individuals whom society recognizes as having morally served societal interests by going to war to protect their country. Yet, the unorthodox nature of the Iraq and Afghanistan conflicts have resulted in a high prevalence of PTSD in soldiers with negative consequences continuing after their service. Empirical evidence substantially supports the perspective that the stress of war trauma has impaired the cognitive, physiological, and behavioral functioning of veterans with PTSD to the extent that some of their aggressive actions may be deprived of any internal component of voluntariness, will, or control. If this is true in a particular case, the failure of the voluntary act element to be proven means there is no moral or legal basis for criminal culpability.

as a matter of course by providing sufficient evidence of an act of will from which the factfinders can infer the *actus reus*. Yet the fact it may be relevant in only a minority of cases is an insufficient reason to neglect such a fundamental basis for the criminal law's moral condemnation. Besides, the potential uncommonness of it as an issue means that requiring its proof as an element will not pose a significant nor regular burden on the prosecution, while at the same time serving the interests of upholding basic principles of criminal culpability that have long served in common law. *See supra* notes 13-22 and accompanying text.