



MILITARY LAW REVIEW

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A NUTS AND BOLTS APPROACH TO LITIGATING THE SHAKEN BABY OR SHAKEN
IMPACT SYNDROME

Lieutenant Colonel Matthew D. Ramsey

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THE TENTH HUGH J. CLAUSEN LECTURE ON LEADERSHIP

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BOOK REVIEWS

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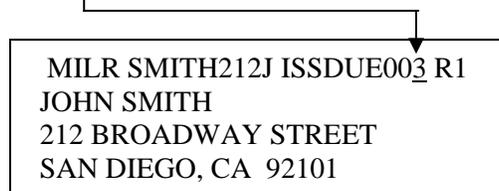
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A NUTS AND BOLTS APPROACH TO LITIGATING THE SHAKEN BABY OR SHAKEN IMPACT SYNDROME

*Lieutenant Colonel Matthew D. Ramsey**

“Did he fall, or has he suffered inflicted injury?” is a question faced frequently by clinicians caring for infants and toddlers with traumatic brain injury. Published court cases, with widely divergent medical opinions, illustrate the dilemma of distinguishing between inflicted and accidental causes, especially when there are no other signs of abuse but just an uncorroborated, alleged accident, often [a] fall. Although there has been resistance to diagnose abuse there may also be over enthusiasm to do so, although there is an increasingly prevalent opinion that short falls can never cause serious injury; this, too is still open to debate.¹

I. Introduction

One of the most difficult cases for counsel to litigate is one involving an infant or toddler alleged to have died as a result of violent, non-

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¹ Barry Wilkins, *Head Injury-Abuse or Accident?*, 76 ARCHIVES OF DISEASES IN CHILDHOOD 393 (1997).

accidental shaking or shaking in connection with some form of cranial impact. Often referred to as the “shaken baby syndrome”² (SBS) or “shaken impact syndrome”³ (SIS), these cases not only contain the emotional turmoil of a dead child, but must also be tried using evidence that is highly dependent on complex circumstantial medical data. Interpretation of this highly complex data is typically dependent on expert testimony and is extremely vulnerable to subjective interpretations. Consequently, practitioners often find themselves easily overwhelmed and in a highly-charged atmosphere where emotions and the personal agendas of the purported experts can run roughshod over logic, science, and the law.⁴

The purpose of this article is to provide trial and defense counsel with a basic foundation for use when preparing to litigate a case where SBS or SIS is alleged. A comprehensive guide covering every conceivable nuance of a SBS/SIS case is beyond the scope of this article. Instead, this article will define SBS/SIS as it is most commonly regarded by the medical and legal community, outline the medical terminology and definitions common to such cases, provide a framework for requesting expert assistance and using and challenging expert testimony at trial, and conclude with a discussion of several of the current controversies surrounding SBS/SIS.

II. The Starting Point

A review of recent military cases involving SBS/SIS reveals that it is most often one of the parents or primary caretakers, typically the male parent or caretaker, that is suspected and charged with perpetrating the

² John Caffey, *The Whiplash Shaken Infant Syndrome: Manual Shaking by the Extremities with Whiplash Intracranial and Intraocular Bleeding, Links with Residual Permanent Brain Damage and Mental Retardation*, 54 PEDIATRICS 396 (1974) [hereinafter Caffey, *Whiplash*] (Although Dr. Caffey actually referred to his theory as whiplash shaken infant syndrome, virtually all medical and legal practitioners drop the term whiplash and refer to it as shaken baby syndrome.); see also John Caffey, *On the Theory and Practice of Shaking Infants*, 124 AM. J. DISEASES IN CHILDHOOD 161 (1972) [hereinafter Caffey, *Theory and Practice*].

³ Ann-Christine Duhaime et al., *The Shaken Baby Syndrome, a Clinical, Pathological, and Biomechanical Study*, 66 J. NEUROSURGERY 409 (Mar. 1987).

⁴ James LeFaun, *Letter to the Editor-Patterns of Presentation of the Shaken Baby Syndrome*, 328 BRIT. MED. J. 767 (Mar. 27, 2004).

alleged abuse.⁵ Regardless of the alleged perpetrator's gender, the relationship between a parent or caretaker and a child is private in nature.⁶ As a result, it is not uncommon for there to be no witnesses, other than the accused parent or caretaker, to the suspected abuse.⁷ Absent any eyewitnesses, practitioners rely heavily on medical evidence (e.g., medical reports, autopsy reports, etc.), medical expert assistance and medical expert testimony (e.g., forensic neuropathologist, etc.) to either prove or disprove that traumatic brain injury was caused by SBS/SIS.⁸ Therefore, the first step for any practitioner is to become intimately familiar with the medical terminology found in such evidence. To assist the reader, a non-exhaustive list of medical terms frequently used by the medical and legal community when addressing cranial injuries or SBS/SIS is found at Appendix A.

In addition to being intimately familiar with the medical terms associated with these types of cases, the following hypothetical may also help the practitioner understand the information presented in this article:

Hypothetical: A Soldier presents his near comatose infant child at the emergency room. A computer tomography scan reveals a large subacute subdural hematoma. The child is placed on a respirator but dies two weeks later. A subsequent autopsy reveals diffuse axonal injury. There is nothing in the autopsy to suggest that the child suffered any form of recent blunt force trauma (i.e., no current contusions or external bleeding).

⁵ See *United States v. Buber*, No. 20000777 (Army Ct. Crim. App. Jan. 12, 2005) (unpublished) (finding father guilty of unpremeditated murder of his son by means of SBS; murder conviction overturned due to insufficient evidence); *United States v. Bresnahan*, 62 M.J. 137 (2005) (finding father guilty of involuntary manslaughter of his infant son by means of SBS); *United States v. Davis*, 53 M.J. 202 (2000) (finding father guilty of involuntary manslaughter of his daughter by means of SBS); *United States v. Wright*, No. 32089, 1998 CCA LEXIS 177 (A.F. Ct. Crim. App. Mar. 13, 1998) (unpublished) (finding mother guilty of negligent homicide of her infant son by means of SBS). Interestingly, in the *Bresnahan* case, the court allowed the trial counsel to question the defense's expert witness concerning two studies: one claiming that seventy-nine percent of SBS cases are perpetrated by males and another claiming that seventy percent of SBS cases are perpetrated by males. *Bresnahan*, 62 M.J. at 146.

⁶ John Plunkett, *Fatal Pediatric Head Injuries Caused by Short-Distance Falls*, 22 AM. J. FORENSIC MED. & PATHOLOGY 1 (2001).

⁷ *Id.*

⁸ See J.F. Geddes & John Plunkett, *The Evidence Base for Shaken Baby Syndrome*, 328 BRIT. MED. J. 719 (Mar. 27, 2004), available at <http://bmj.bmjournals.com/cgi/content/full/328/7442/719>.

The cause of death is cerebral edema. Because a subdural hematoma and diffuse axonal injury are found, the doctor concludes the infant was shaken to death. The father admits to briefly shaking the child one day prior to bringing him to the emergency room, but claims that he did not hit the child, nor did the child's head hit anything. The day the father shook the child is the same day he returned from being in the field for three weeks. Subsequent to the child's death, the child's sister admits that the week before she dropped the child in the porcelain bathtub while babysitting when "mommy was at work and daddy was in the field."

Should the government immediately file charges for unpremeditated murder or involuntary manslaughter against the Soldier in this case? The answer requires a close look at the available evidence.

III. Shaken Baby Syndrome/Shaken Impact Syndrome—What Is It?

*Guard well your baby's precious head; Shake, jerk and
slap it never; Lest you bruise his brain and twist his
mind; Or whiplash him dead forever.*⁹

Shaken Baby Syndrome/Shaken Impact Syndrome is generally defined as traumatic brain injury consisting of "a combination of subdural hematoma (brain hemorrhage), retinal hemorrhage, and diffuse axonal injury (diffuse injury of nerve cells in brain and/or spinal cord)"¹⁰ in infants and toddlers with little to no evidence of external cranial trauma, the effects of which cause death or significant physical injury.¹¹ Referred to within the medical community as the "triad of diagnostic criteria,"¹² medical practitioners who find at least two of these symptoms

⁹ Caffey, *Whiplash*, *supra* note 2, at 403 (quoting a proposed national educational campaign poem used by Dr. Caffey to close the referenced article).

¹⁰ Harold E. Buttram, Woodland Healing Research Center, *Shaken Baby/Impact Syndrome: Flawed Concepts and Misdiagnosis*, Sept. 3, 2002, <http://www.woodmed.com>.

¹¹ G.F. Gilliland & Robert Folberg, *Shaken Baby—Some Have No Impact Injuries*, 41 J. FORENSIC SCI. 114 (Jan. 1996).

¹² Buttram, *supra* note 10.

often conclude that the child has suffered intentional abuse as opposed to some form of accidental injury.¹³

IV. Shaken Baby Syndrome/Shaken Impact Syndrome—The Clash of the Experts

In recent years, the term battered baby has given way to the term shaken baby as a label for infants or young children who have apparently suffered inflicted injuries at the hands of parents, caregivers, or others. The assertion is broadly held by many physicians that the physical act of shaking an infant may, by itself, cause serious or fatal injuries but may be accompanied by impacts, referred to by some as the “shaken impact” syndrome Currently, there are wide differences of opinion regarding the supposed syndrome within the medical and legal communities.¹⁴

A. The Majority and Minority Views

There are generally two primary schools of thought concerning the degree and type of force needed to cause the above-mentioned injuries.¹⁵ The majority view believes shaking alone is sufficient to cause traumatic brain injury, whereas the minority view posits that shaking plus some form of cranial impact is required to cause traumatic brain injury.¹⁶ Military practitioners, however, should be aware that within the military justice system, the terms associated with each are sometimes used interchangeably despite their different implications.¹⁷ Such an

¹³ *Id.*

¹⁴ Jan Leestma, Case Analysis of Brain-Injured Admittedly Shaken Infants in 54 Cases, 1969–2001, 26 AM. J. FORENSIC MED. & PATHOLOGY 199 (Sept. 2005).

¹⁵ John Plunkett, *Letter to the Editor-Author’s Reply*, 101 AM. ACAD. PEDIATRICS 200 (Feb. 1998) (“The majority opinion (the specificity of retinal and subdural hemorrhage for inflicted trauma, non-lethality of short distance falls, and absence of lucid interval in ultimately fatal head injury) is certainly on their side. I wrote the article to encourage consideration of a minority view supported by biomechanical analysis and nontautologic reasoning.”).

¹⁶ *Id.*; Ronald Uscinski, *Shaken Baby Syndrome: Fundamental Questions*, 16 BRIT. J. NEUROSURGERY 217 (2002).

¹⁷ *See, e.g.*, United States v. Allen, 59 M.J. 515, 526 (2003) (noting government experts used both SBS and SIS as bases for their opinions—e.g., “Lastly, as for CPT Craig, she

oversimplification or generalization of an otherwise complex syndrome ignores the critical nuances of each view—nuances that may well determine the guilt or innocence of an accused.

1. The Majority View—Shaking Alone

The majority view holds that most adults possess sufficient strength to shake an infant or toddler to the point of causing intracranial injuries that can ultimately cause death or grievous bodily harm without any form of cranial impact or blunt force trauma.¹⁸ This view first gained a foothold within the medical community in 1974 when Dr. John Caffey postulated the “whiplash shaken baby syndrome” theory, stating that shaking alone could produce the forces sufficient to cause both subdural hematomas and retinal hemorrhages in small children.¹⁹ Dr. Caffey then took his theory one step further and opined that finding a subdural hematoma and retinal hemorrhages in an infant with no external signs of cranial trauma was pathognomonic²⁰ (i.e., absolutely and exclusively diagnostic) of child abuse.²¹

In order to support his theory, Dr. Caffey relied primarily on a 1968 biomechanical study conducted by Dr. Ayub Ommaya.²² In his study, Dr. Ommaya used primates strapped into a piston-activated rail chair to specifically simulate rear-end collision whiplash (i.e., no head impact)

too opined that CJ’s injuries were the direct result of shaken baby or shaken-impact syndrome.”).

¹⁸ Plunkett, *supra* note 15, at 200; Uscinski, *supra* note 16, at 217-18; Elaine W. Sharp, *The Elephant on the Moon*, WARRIOR MAG.-J. TRIAL LAW. C., Fall 2003, at 31 (“that another human being, by violently shaking a baby, can inflict one or more of the following injuries”).

¹⁹ Caffey, *Whiplash*, *supra* note 2, at 396.

²⁰ Mark Donohoe, *Shaken Baby Syndrome (SBS) and Non-Accidental Injuries (NAI)*, <http://www.whale.to/v/sbs.html> (last visited Sept. 11, 2006) (Dr. Donohoe states “The term pathognomonic implies a two-way relationship between the symptoms and signs on one hand, and the disease in question on the other hand. Pathognomonic symptoms or signs not only allow recognition of the disease, but differentiate it from all other diseases or disorders.”).

²¹ Caffey, *supra* note 2, at 397.

²² Ronald Uscinski, *The Shaken Baby Syndrome*, 9 J. AM. PHYSICIANS & SURGEONS 76 (Fall 2004); see Ayub K. Ommaya, *Whiplash Injury and Brain Damage: An Experimental Study*, 20 JAMA 285 (1968) (Dr. Ommaya’s tests were designed to determine what threshold or quantitative force (i.e., measurable amount of force) was necessary to cause certain types of internal brain injuries such as subdural hematomas.).

injuries.²³ Through this landmark study, Dr. Ommaya determined two things. First, he determined that when the primate's head was subjected to sufficient angular or rotational acceleration (e.g., whiplash) force, traumatic brain injury would occur regardless of whether or not skull impact occurred.²⁴ Second, he determined that traumatic brain injury, subdural hematomas, or diffuse axonal injury did not occur until the primate experienced approximately 155 gs²⁵ of acceleration force.²⁶ In other words, Dr. Ommaya "demonstrated the concept of an injury threshold for neural tissue."²⁷ In postulating his whiplash shaking theory, however, some experts argue that Dr. Caffey relied solely on Dr. Ommaya's finding that cranial injuries occurred without impact, while specifically ignoring the amount or degree of force Dr. Ommaya (i.e., 155 "g" forces) determined necessary to actually cause traumatic brain injury.²⁸

²³ Ommaya, *supra* note 22, at 285-86.

²⁴ *Id.*

²⁵ "The term g force or gee force refers to the symbol *g*, the force of acceleration due to gravity at the earth's surface" Wikipedia, The Free Encyclopedia, Acceleration Due to Gravity, <http://www.factbook.org/wikipedia/en/g/ge/gee.html> (last visited Sept. 11, 2006) ("The acceleration due to gravity denoted *g* (also *gee*) is a non-SI unit of acceleration defined as exactly 9.80665 m/s⁻² or 9.80665 m/s^{^2} (almost exactly 32.174 ft-s⁻²).") *Id.* (Gravity due to the earth is experienced the same as being accelerated upward with an acceleration of 1 g. The total g-force is found by vector addition of the opposite of the actual acceleration (in the sense of rate of change of velocity) and a vector of 1 g downward for the ordinary gravity (or in space, the gravity there.)) *Id.*

²⁶ Werner Goldsmith & John Plunkett, *A Biomechanical Analysis of the Causes of Traumatic Brain Injury in Infants and Children*, 25 AM. J. FORENSIC MED. & PATHOLOGY 89, 91 (June 2004) (stating that Dr. Ommaya measured force in units of angular acceleration using the formula radians per second-per second. Goldsmith and Plunkett convert this measurement to "g" forces which, arguably, is more recognizable by both legal practitioners and juries.).

²⁷ Uscinski, *supra* note 22, at 76-7.

²⁸ Faris Bandak, *Shaken Baby Syndrome: A Biomechanics Analysis of Injury Mechanisms*, 151 FORENSIC SCI. INT'L 71, 76 (2005) ("Caffey translated Ommaya's results without considering injury biomechanics, into an explanation for a confession of shaking."); Sharp, *supra* note 18, at 35.

Caffey concluded that just as acceleration-deceleration without an impact (i.e., free shaking or 'whiplash') damaged the monkeys' brains, this also explained how parents inflicted brain injuries on their babies. [Caffey] actually telephoned Ommaya to thank him for the article. Today, Ommaya is adamant that he told Caffey that acceleration-deceleration forces involved in the monkey experiment were much greater than he believed could be generated by a human.

Id.

For roughly the next fifteen years, Dr. Caffey's shaking-alone theory circulated through both the medical and legal communities and went virtually unchecked without the benefit of any significant peer review.²⁹ As a result, Dr. Caffey's theory became firmly ingrained as an accepted medical syndrome.³⁰

2. *The Minority View—Shaking Plus Impact*

It was not until approximately 1987 that the first skeptics began questioning the accuracy of Dr. Caffey's study and his theory.³¹ One of the first to question Dr. Caffey's theory was Dr. Ann-Christine Duhaime who observed that "[w]hile the term 'shaken baby syndrome' has become well entrenched in the literature of child abuse, it is characteristic of the syndrome that a history of shaking in such cases is lacking."³² As a result of her observation, Dr. Duhaime conducted a biomechanical study to determine whether an adult could, by means of shaking alone, exert sufficient force to produce traumatic brain injury in

²⁹ Sharp, *supra* note 18, at 35.

³⁰ Uscinski, *supra* note 22, at 76 ("Two further papers by Caffey over the next two years emphasized shaking as a means of inflicting intracranial bleeding in children. After publication of these papers, shaken baby syndrome became widely accepted as a clinical diagnosis for inflicted head injury in infants."); Letter from John Plunkett, M.D., forensic pathologist, Regina Medical Facility, to American Journal of Forensic Medicine and Pathology, *Shaken Baby Syndrome and Other Mysteries* (Spring 1998) (on file with author) [hereinafter Plunkett Letter].

I suspect that Caffey and others evaluating head injuries in the '40s, '50s and '60s asked a number of caretakers if the infant had been 'shaken' and were told 'yes' in at least some cases. The caretakers were never asked about an 'impact' because direct trauma was not part of the theory. Scientific theory was quickly accepted as scientific fact: Subdural hemorrhage and retinal hemorrhage in an unconscious or dead child is a shaken infant; there is no need to 'prove otherwise,' only a fall from a two story building or a motor vehicle accident could cause such an injury, if it was not due to shaking. Studies critically evaluating the biomechanics of rotational brain injury and a subdural hematoma, available from experiments performed for (among others) the automotive industry and the space program, were forgotten, not sought or ignored.

Id.

³¹ Duhaime et al., *supra* note 3, at 409, 414.

³² *Id.* at 409.

infants.³³ Using infant models, Dr. Duhaime and her team subjected proportionately correct models to a series of shaking events, some of which were followed by an impact.³⁴ Using Dr. Ommaya's 155 gs as the threshold for when traumatic brain injuries (e.g., subdural hematoma, retinal hemorrhages, diffuse axonal injury) manifest themselves, Dr. Duhaime observed that shaking alone produced at most only 9.3 gs³⁵ of force, a mere fraction of the force Dr. Ommaya determined was required to cause subdural hematomas, retinal hemorrhages, or diffuse axonal injury. However, when the "shakers" were asked to create an impact by "slamming" the models' heads into a fixed object, Dr. Duhaime observed that the force produced was equivalent to almost 428 gs, an increase fifty-times greater than that of shaking alone.³⁶ As a direct result, Dr. Duhaime and her team concluded that "severe head injuries commonly diagnosed as shaking injuries require impact to occur and that shaking alone in an otherwise normal baby is unlikely to cause the shaken baby syndrome."³⁷ As a result of this questioning, the minority view—the shaken-impact syndrome—emerged.³⁸

³³ *Id.*

³⁴ *Id.* at 409-11.

³⁵ *Id.* at 413.

³⁶ *Id.* at 413.

³⁷ *Id.* at 409.

It is our conclusion that the shaken baby syndrome, at least in its most severe acute form, is not usually caused by shaking alone. Although shaking may in fact be part of the process, it is more likely that such infants suffer blunt impact. The most common scenario may be a child who is shaken, then thrown into or against a crib or other surface, striking the back of the head and thus undergoing a large, brief deceleration. This child has both types of injuries-impact with its resulting focal damage, and severe acceleration-deceleration effects associated with impact causing shearing effects on the vessels and parenchyma.

Id. at 414.

³⁸ Ann-Christine Duhaime, et al., *Nonaccidental Head Injury in Infants-The "Shaken Baby Syndrome,"* 338 NEW ENG. J. MED. 1822 (1998) ("Thus, the term 'shaking-impact syndrome' may reflect more accurately than 'shaken-baby syndrome' the usual mechanism responsible for these injuries.").

B. The Emerging View—Shaking Without a Corresponding Neck Injury Proves Shaking Plus Impact

In recent years, numerous published medical studies have strongly supported the minority position.³⁹ In 2002, Dr. Ommaya published an article postulating that if it were possible for an infant to suffer traumatic brain injury by shaking alone, the infant would also suffer a significant corresponding neck injury.⁴⁰ He further concluded that the “[a]bsence of cervical spinal cord injury would indicate a component of impact in the presence of hemorrhagic brain lesions.”⁴¹ In February 2005, Dr. Bandak, using Dr. Ommaya’s injury threshold criteria, postulated that if an infant was shaken hard enough to cause traumatic brain injury, the infant would almost certainly have some form of significant neck injury.⁴² Or to put it plainly, absent a corresponding neck injury, the child was not shaken to the point of traumatic brain injury.⁴³

C. Why Practitioners Should Know the Divergent Views

Practitioners should be aware of the minority and emerging views for two primary reasons. First, an understanding of the medical literature in this area will assist practitioners in effectively questioning witnesses. Second, understanding the minority or emerging views may assist defense counsel in making a motion to request expert assistance, to disqualify a proffered government witness from being considered an expert, or to challenge the scientific basis upon which an alleged expert is relying.⁴⁴

³⁹ See Leestma, *supra* note 14; Bandak, *supra* note 28; Ayub Ommaya, Werner Goldsmith, & L. Thibault, *Biomechanics and Neuropathology of Adult and Pediatric Head Injury*, 16 BRIT. J. NEUROSURGERY 220 (2002).

⁴⁰ Ommaya et al., *supra* note 39, at 220-21.

⁴¹ *Id.* at 228-29 (“At these levels of inertial loading, induced impulsively without contact, the neck torque in the infant would cause severe injury to the high cervical cord and spine long before the onset of cerebral concussion.”).

⁴² Bandak, *supra* note 28, at 71 (“We have determined that an infant head subjected to the levels of rotational velocity and acceleration called for in the SBS literature, would experience forces on the infant neck far exceeding the limits for structural failure of the cervical spine.”).

⁴³ *Id.*

⁴⁴ See MANUAL FOR COURTS-MARTIAL, UNITED STATES, R.C.M. 703(d) (2005) [hereinafter MCM]; MANUAL FOR COURTS-MARTIAL, UNITED STATES, MIL. R. EVID. 702 (2002); see also *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579 (1993); *United States v. Warner*, 62 M.J. 114 (2005); *United States v. Houser*, 36 M.J. 392 (C.M.A. 1993). These resources are the starting point for seeking expert assistance or expert witness testimony.

V. Types of Injuries Caused by SBS/SIS

Experts differ regarding the degree and type of force (i.e., shaking alone or shaking plus impact) necessary to trigger traumatic brain injury.⁴⁵ Regardless of their biases concerning injury thresholds, however, most experts agree on the types of injuries shaking or impact can inflict. These injuries are generally broken down into the following two categories: primary injuries and secondary injuries.⁴⁶

Primary cranial injuries consist of subdural hematomas, epidural hematomas, subarachnoid hemorrhage, retinal hemorrhages, and diffuse axonal injury.⁴⁷ In cases involving cranial impact, the following injuries may also be present: external scalp bruising under the point of impact, extravasated blood under the point of impact (i.e., blood within the epidural layer (scalp)), skull fracture(s), coup contusions (i.e., bruising or injury beneath the site of impact), and contra-coup contusions (i.e., bruising or injury directly opposite the impact).⁴⁸ Secondary injuries consist of brain hypoxia (i.e., insufficient oxygen flow to the brain), brain ischemia (i.e., insufficient blood flow to the brain), and cerebral edema (i.e., swelling of the brain).⁴⁹ With the exception of diffuse axonal injury, the primary injuries listed above usually do not cause death.⁵⁰ A significant primary injury, however, may trigger a secondary injury (e.g., such as cerebral edema), which *can* cause death.⁵¹

“Primary injury occurs at the time of impact, either by a direct injury to the brain parenchyma or by an injury to the long white matter tracts through acceleration-deceleration forces The secondary injury is represented by systemic and intracranial events that occur in response to the primary injury and further contribute to neuronal damage and cell death.”⁵² Put another way, a primary injury is the injury that is caused by or directly results from the act inflicting the trauma, whereas a secondary injury is the injury that results from or is the byproduct of the primary

⁴⁵ See Leestma, *supra* note 14; Plunkett, *supra* note 15; Uscinski, *supra* note 22; Goldsmith & Plunkett, *supra* note 26; Bandak, *supra* note 28.

⁴⁶ Lieutenant Colonel Kent Hymel, *Abusive Head Trauma? A Biomechanics-Based Approach*, 3 CHILD MALTREATMENT 116-17 (May 1998).

⁴⁷ *Id.*

⁴⁸ *Id.* at 117, 119; *see also infra* app. A.

⁴⁹ Bandak, *supra* note 28, at 79; *see also infra* app. A.

⁵⁰ Wilkins, *supra* note 1, at 394.

⁵¹ Hymel, *supra* note 46, at 118.

⁵² Arabela Stock, Emedicine-Access to the Minds of Medicine, *Head Trauma* (Sept. 15, 2004), <http://www.emedicine.com/ped/topic929.htm>.

injury. Consider the following example: Joe is punched in the face and his jaw is broken. As a result, Joe's mouth swells up and blocks his airway. The broken jaw is the primary injury which, in turn, caused the secondary injury of the blocked airway.

VI. Why the Lesson in Primary and Secondary Injuries?

The legal practitioner must be able to recognize and distinguish primary versus secondary injuries for two important reasons. First, primary injuries can be linked to their biomechanical origins (i.e., their direct causes),⁵³ whereas secondary injuries generally cannot.⁵⁴ Thus, certain injuries are indicative of specific acts, such as an epidural hemorrhage being specifically indicative of an impact.⁵⁵ A secondary injury, however, may have many different causes and is not indicative of any specific, telltale act, origin, or cause.⁵⁶ For example, cerebral edema is a secondary injury. Cerebral edema can occur with blunt force trauma, with whiplash, because a large subdural hematoma displaces the brain cutting off oxygen and causing it to swell, or from extended attachment to or reliance upon a respirator.⁵⁷ None of these examples, however, indicate the specific act or incident that caused the primary injury which, in turn, triggered the cerebral edema (the secondary injury).

Second, in addition to identifying the cause of the injury, primary injuries can, to a certain degree, often be used to date or time stamp when an injury occurred.⁵⁸

A subdural hematoma (SDH) is classified by the amount of time that has elapsed from the inciting event, if

⁵³ Ayub Ommaya, *Head Injury Mechanisms and the Concept of Preventive Management*, 12 J. NEUROTRAUMA, 527-28 (1995); Bandak, *supra* note 28, at 72.

⁵⁴ Bandak, *supra* note 28, at 72 ("Primary injuries are those caused directly by the mechanical insult and secondary injuries result as part of the pathophysiological progression following primary injury.").

⁵⁵ Telephone Interview with John M. Plunkett, Forensic Pathologist and Coroner, Regina Medical Facility (Dec. 4, 2005) [hereinafter Plunkett Telephone Interview].

⁵⁶ Bandak, *supra* note 28, at 72, 78-9.

⁵⁷ SBSDefense.com, "Shaken Baby Syndrome"- A Tutorial and Review of the Literature, http://www.sbsdefense.com/SBS_101.htm (last visited Sept. 12, 2006) [hereinafter SBSDefense.com] (noting that some experts claim prolonged use of a respirator can mask or mimic the finding of diffuse axonal injury).

⁵⁸ Grant Sinson & Tim Reiter, Emedicine, *Subdural Hematomas*, Jan. 12, 2002, <http://www.emedicine.com/med/topic2885.htm>.

known, to the diagnosis. When the inciting event is unknown, the appearance of the hematoma on [computed tomography or CT] scan or [magnetic resonance imaging or MRI] can help date the hematoma. Acute SDHs are less than 72 hours old and are hyperdense compared to the brain on CT scan. Subacute SDHs are 3-20 days old and are isodense or hypodense compared to the brain. Chronic SDHs are older than 20 days and are hypodense compared to the brain.⁵⁹

VII. Putting It All Together

Should the Soldier in the hypothetical be charged with the death of the child? When the medical evidence is applied to the facts, perhaps not. First, the child taken to the emergency room showed no current signs of cranial impact or neck injury. An expert subscribing to the minority or emerging view would likely state that the child was not shaken to the point of traumatic brain injury. One must also remember that several experts are of the opinion that prolonged use of a respirator can either mimic diffuse axonal injury or mask or taint a finding of diffuse axonal injury.⁶⁰ As such, a strong argument can be made that because of the respirator, the diffuse axonal injury is not conclusive (i.e., pathognomonic) of either the drop in the tub or the shaking.⁶¹ Thus, the diffuse axonal injury cannot indicate anything other than that the child's brain suffered some form of injury.⁶² Most experts, however, will agree as to the timing of a subdural hematoma.⁶³ In this hypothetical, the doctor concluded that the subdural hematoma was subacute, meaning between three and twenty days old.⁶⁴ Thus, since the father was in the field during this period, the evidence tends to suggest that the drop in the tub caused the fatal injury instead of the father's shaking of the child.

There is much more investigation and evidence collection that must occur, however, before a charging decision can be made in the above

⁵⁹ *Id.*

⁶⁰ SBSDefense.com, *supra* note 57.

⁶¹ Sharp, *supra* note 18, at 38 ("It's critical to note that in forensic medicine, the finding of axonal pathology is 'non-specific,' meaning that one cannot infer anything about its origin or cause.").

⁶² *See id.*

⁶³ Sinson & Reiter, *supra* note 58.

⁶⁴ *Id.*

hypothetical. For example, was the child displaying symptoms of a serious injury, such as lethargy or vomiting, after the drop in the tub? Based upon the above information, the practitioner should now be generally familiar with the signs to look for, questions to ask, evidence to collect, and issues to resolve before charging the Soldier with murder.

As can be seen from the hypothetical, understanding these nuances is essential to preparing a SBS/SIS case. Doing so allows the practitioner to critically review and challenge the purported experts' conclusions concerning both the causation of an injury and its respective timing. In addition, appreciating the differences between primary and secondary injuries and their respective timing will aid either the defense counsel in corroborating his client's version of the facts or the trial counsel in ascertaining the actual sequence of events.

VIII. Expert Assistance or Expert Consultation for the Defense

A. Acquiring Expert Assistance

Due to the medical complexities inherent in any case where SBS/SIS is alleged, both trial and defense counsel should consider retaining an expert consultant for "evaluating, identifying, and developing evidence" and "to test and challenge" the opposing party's case.⁶⁵ Further, because traumatic brain injuries can manifest themselves differently in children than in adults,⁶⁶ counsel should pursue the assistance of highly-

⁶⁵ United States v. Warner, 62 M.J. 114, 118 (2005).

One important role of expert consultants is to help counsel develop evidence. Even if the defense-requested expert consultant would not have become an expert witness, he would have assisted the defense in evaluating, identifying, and developing evidence. Another important function of defense experts is to test and challenge the Government's case.

Id.

⁶⁶ Due to the developing nature of children's brains and skulls, a head injury can manifest itself differently in a child when compared to the brain and skull of an adult. Also, practitioners should appreciate the differences between highly-specialized physicians and general practitioners. For example, a pediatrician is typically trained only to diagnosis and treat a child's injury. A forensic pediatrician, however, is trained to diagnose and treat the injury and to assess and determine the underlying causation and mechanics of the injury. Further, whereas a radiologist will have some basic knowledge of how to interpret a child's MRI or CT scan, a neuro-pediatric radiologist will have

specialized experts as opposed to generalists.⁶⁷ For example, counsel should consider using a forensic pediatrician instead of a general pediatrician or using a pediatric-neuro radiologist in lieu of a general radiologist.⁶⁸

For defense counsel, however, acquiring a government-funded expert consultant, much less a highly-specialized expert consultant, can be difficult and burdensome. The defense is not entitled to a government-funded expert consultant by merely “noting that the prosecution has employed expert assistance to prepare its case.”⁶⁹ Rather, as held by the Court of Military Appeals in *United States v. Robinson*, the “Equal Protection Clause, the Due Process Clause, and the Manual for Courts-Martial provide that servicemembers are entitled to expert assistance when necessary for an adequate defense.”⁷⁰ In elaborating on this entitlement, the Court of Appeals for the Armed Forces (CAAF) in *United States v. Bresnahan* stated:

An accused is entitled to an expert’s assistance before trial to aid in the preparation of his defense upon a demonstration of *necessity*. But necessity requires more than the mere possibility of assistance from a requested expert. The accused must show that a reasonable probability exists both that an expert would be of assistance to the defense and that denial of expert assistance would result in a fundamentally unfair trial.⁷¹

As the court stated in *Gonzalez*, “There are three aspects to showing necessity. First, why the expert assistance is needed. Second, what would the expert assistance accomplish for the accused. Third, why is the defense counsel unable to gather and present the evidence that the

specific, detailed training on neural imaging diagnostics in children and will be significantly better suited to interpreting an MRI or CT scan involving a child’s brain or head. See Plunkett Telephone Interview, *supra* note 55.

⁶⁷ See *United States v. McAllister*, 55 M.J. 270, 275 (2001) (noting that “[w]ith the growth of forensic-science techniques, it has become increasingly apparent that complex cases require more than generalized practitioners.”); see also *Warner*, 62 M.J. at 114 (discussing, among other things, the value of a specialist as opposed to a generalist).

⁶⁸ Plunkett Telephone Interview, *supra* notes 55, 66.

⁶⁹ *United States v. Washington*, 46 M.J. 477, 480 (1997).

⁷⁰ *United States v. Robinson*, 39 M.J. 88, 89 (C.M.A. 1989).

⁷¹ *United States v. Bresnahan*, 62 M.J. 137, 143 (2005) (emphasis added).

expert assistant would be able to develop.”⁷² When requesting expert assistance and in meeting this necessity test, counsel should, at a minimum, specifically address the following factors set forth by the court in *Allen*:

In particular, the defense must show what it expects to find, how and why the defense counsel and staff cannot do it, how cross-examination will be less effective without the services of the expert, how the alleged information would affect the government’s ability to prove guilt, what the nature of the prosecution’s case is, including the nature of the crime and the evidence linking him to the crime, and how the requested expert would otherwise be useful.⁷³

Within the realm of SBS/SIS, a defense counsel attempting to meet the necessity test outlined above could, by way of example, argue that expert assistance is needed to understand or rebut an autopsy report, to determine whether the medical evidence supports the medical examiner’s findings and conclusions, or to adequately evaluate medical records that the defense has neither the experience nor the expertise to properly assess.

A defense request for government-funded expert assistance should first be submitted to the convening authority and, at a minimum, should include a “complete statement of reasons why employment of the expert is necessary.”⁷⁴ Rule for Courts-Martial 703(d) does not specifically require the request to demonstrate how or why counsel feels the “necessity test” outlined in *Gonzalez* and *Allen*⁷⁵ has been met. It is good practice, however, to draft any request as if it was going before the court since “a request denied by the convening authority may then be renewed before the military judge who shall determine whether the assistance of the expert is necessary and, if so, whether the Government has provided or will provide an adequate substitute.”⁷⁶ Accordingly, tactical

⁷² *United States v. Gonzalez*, 39 M.J. 459, 461 (1994) (citing *United States v. Allen*, 31 M.J. 572, 623 (N.M.C.M.R.), *aff’d*, 33 M.J. 209 (C.M.A. 1991)).

⁷³ *United States v. Allen*, 31 M.J. 572, 623-24 (N.M.C.M.R.), *aff’d*, 33 M.J. 209 (C.M.A. 1991); MCM, *supra* note 44, R.C.M. 703(d).

⁷⁴ MCM, *supra* note 44, R.C.M. 703(d).

⁷⁵ *Gonzalez*, 39 M.J. at 461; *Allen*, 31 M.J. at 623-24.

⁷⁶ *United States v. Ndanyi*, 45 M.J. 315, 320 (1996) (citing MCM, *supra* note 44, R.C.M. 703(d)).

considerations notwithstanding, counsel should put forth his best necessity argument from the very beginning. Doing so should not jeopardize the defense theory of the case since communications between a lawyer and any expert consultant assigned to assist counsel in both preparing for trial or during trial are considered protected.⁷⁷

B. The Dreaded “Adequate Substitute” Rule—Not So Dreaded Anymore!

A “request for the services of a consultant differs from a request that a specific expert witness be produced for the defense” because the defense “has no right to demand that a particular individual be designated.”⁷⁸ That is, if the convening authority or court agrees that expert assistance is necessary for the defense, the Government may deny the specific requested expert “if [the government] provides an adequate substitute.”⁷⁹

The “Government in general, and . . . trial counsel in particular, . . . play key roles” in selecting and proffering an adequate substitute.⁸⁰ Thus, it is the government and not the defense who, for all intents and purposes, selects the adequate substitute. This “absence of . . . parity opens the military justice system to abuse” by providing the government an opportunity to “obtain an expert vastly superior to the defense’s.”⁸¹

United States v. Warner, a recent SBS/SIS case, dealt directly with this disparity issue.⁸² In *Warner*, the government secured the assistance of “one of the Air Force’s preeminent experts concerning shaken baby syndrome as its own witness.”⁸³ Both the convening authority and the military judge, however, denied the defense’s request for the appointment of a specific civilian expert consultant whom the defense

⁷⁷ MCM, *supra* note 44, MIL. R. EVID. 502; *see infra* pt. IX, § A.

⁷⁸ *United States v. Tornowski*, 29 M.J. 578, 579 (A.F.C.M.R. 1989) (citing *Ake v. Oklahoma*, 470 U.S. 68, 83 (1985) (holding a criminal defendant’s right to a competent psychiatrist does not include “a constitutional right to choose a psychiatrist of his own personal liking”)).

⁷⁹ *United States v. Warner*, 62 M.J. 114, 118 (2005) (quoting *United States v. Ford*, 51 M.J. 445, 455 (1999) (citing MCM, *supra* note 44, R.C.M. 703(d)).

⁸⁰ *Id.* at 120.

⁸¹ *Id.*

⁸² *Id.* at 114.

⁸³ *Id.* at 118.

felt had the requisite qualifications.⁸⁴ In his stead, the government proffered and the military judge appointed an alleged adequate substitute who, according to the defense, had some knowledge of SBS, but vastly inferior qualifications when compared to those of the government expert.⁸⁵

Agreeing with the defense, the CAAF found that the appointed adequate substitute was a “generalist with no apparent expertise” in the area of SBS, whereas the government had secured the “leading shaken baby expert for the prosecution team.”⁸⁶ The government, however, argued it had met its due process obligation of providing an adequate substitute, asserting that all it is required to provide the defense is a competent, not “comparable,” expert.⁸⁷

Disagreeing with the government, the CAAF noted that while “[p]roviding the defense with a ‘competent’ expert satisfies the Government’s due process obligations . . .”, doing so, however, “may nevertheless be insufficient to satisfy Article 46 if the Government’s expert concerning the same subject matter area has vastly superior qualifications”⁸⁸ Relying on the plain wording of Article 46 of the Uniform Code of Military Justice (UCMJ),⁸⁹ the court went on to hold “Article 46 requires that an ‘adequate substitute’ . . . have qualifications reasonably similar to those of the Government’s expert”⁹⁰

Although the court did not define what it meant by “reasonably similar” qualifications, it did offer some parameters counsel should consider when seeking a comparable expert. Specifically, the court noted:

Article 46 is a clear statement of congressional intent against Government exploitation of its opportunity to obtain an expert vastly superior to the defense’s. Requiring that an “adequate substitute” for a defense

⁸⁴ *Id.* at 117.

⁸⁵ *Id.*

⁸⁶ *Id.* at 117-18.

⁸⁷ *Id.* at 119.

⁸⁸ *Id.*

⁸⁹ *Id.* at 115 (citing UCMJ art. 46 (2005), which states in part “trial counsel, defense counsel, and the court-martial shall have equal opportunity to obtain witnesses and other evidence”).

⁹⁰ *Id.* at 119.

requested expert have professional qualifications at least reasonably comparable to those of the Government's expert is a means to carry out that intent where the defense seeks an expert dealing with subject matter similar to a Government expert's area of expertise and where the defense expert is otherwise adequate for the requested purpose.⁹¹

The CAAF's holding in *Warner* is a shot across the bow for any trial counsel or military judge who attempts to leave the "defense without the adequate tools to analyze and possibly challenge or rebut the opinion" of a government expert.⁹² Accordingly, when submitting a request for expert assistance, defense counsel, in addition to addressing the *Gonzalez* necessity test,⁹³ should consider explaining why their requested expert has "reasonably comparable qualifications" when compared to the government expert. Providing this explanation may secure the services of the requested expert instead of a government selected adequate substitute. At a minimum, by including a "reasonably comparable qualifications" argument in the initial request for expert assistance, counsel may convince either the convening authority or the military judge that only a specialist, as opposed to a generalist, will suffice as an adequate substitute.⁹⁴

IX. Expert Witnesses

As this article has demonstrated, complex medical evidence is an indispensable part of litigating a SBS/SIS case. Accordingly, the use of an expert witness at trial may assist counsel in explaining or presenting these complexities to the fact-finder or, for the defense, in presenting an alternate theory of the case. When acquiring and using expert witnesses, counsel should consider the following two important issues: how to request an expert witness and how to introduce testimony from that expert witness.

⁹¹ *Id.* at 120.

⁹² *See id.* at 123.

⁹³ *United States v. Gonzalez*, 39 M.J. 459, 461 (1994).

⁹⁴ *United States v. Warner*, 62 M.J. 114, 118-19 (2005).

A. Acquiring Expert Witnesses

The methodology for requesting an expert witness is virtually identical to requesting an expert consultant. There are, however, two critical distinctions worth noting. First, as with an expert consultant, the government has the opportunity to offer an “adequate substitute” for the defense requested expert witness.⁹⁵ In doing so, however, the proffered “adequate substitute” must not only have “similar professional qualifications” as that of the requested expert, but must also be able “to testify to the same conclusions and opinions” as the defense requested expert.⁹⁶ “[W]here there are divergent scientific views, the Government cannot select a witness whose views are very favorable to its position and then claim that this same witness is ‘an adequate substitute’ for a defense-requested expert of a different viewpoint.”⁹⁷ Second, unlike an expert consultant, there is no privileged or protected communication between counsel and their expert witness,⁹⁸ meaning an expert witness is subject to interview and cross-examination by the opposing counsel.⁹⁹

B. Introducing the Testimony of Expert Witnesses

Prior to an expert being permitted to testify, the judge must be satisfied that the testimony is both relevant and reliable to the proceedings. There are numerous Military Rules of Evidence (MRE) to consider when determining relevance and reliability.

The primary rules governing the relevance and reliability of expert witnesses are Military Rules of Evidence (MRE) 104, 401, 402, 403, 702, 703, and 704. MRE 401 defines relevant evidence, MRE 402 states that relevant evidence is admissible, and MRE 403 establishes the test for balancing the probative value of

⁹⁵ United States v. Guitard, 28 M.J. 952-53 (N.M.C.M.R. 1989).

⁹⁶ *Id.* at 954 (citing United States v. Robinson, 24 M.J. 649, 652 (C.M.A. 1989) (citing Ake v. Oklahoma, 470 U.S. 68 (1985))).

⁹⁷ United States v. Van Horn, 26 M.J. 434, 439 (N.M.C.M.R. 1988); *see also* Major Christopher Behan, *Expert Testimony & Expert Assistance*, in THE JUDGE ADVOCATE GENERAL'S SCHOOL, 54TH GRADUATE COURSE CRIMINAL LAW DESKBOOK A-21 (2005) (citing United States v. Robinson, 24 M.J. 649, 652 (N.M.C.M.R. 1987) and United States v. Van Horn, 26 M.J. 434 (N.M.C.M.R. 1988)).

⁹⁸ United States v. True, 28 M.J. 487-88 (C.M.A. 1989).

⁹⁹ *Id.* at 488-89; *see also* United States v. McAllister, 55 M.J. 270, 273 (2001).

evidence against its prejudicial impact. MRE 702 has three requirements for expert testimony: 1) the testimony must be based upon sufficient facts or data; 2) the testimony must be the product of reliable principles and methods; and 3) the expert must have applied the principles and methods reliably to the facts of the case. MRE 703 discusses the basis for an expert's testimony and MRE 704 establishes the scope of the testimony.¹⁰⁰

The thrust of any expert analysis, however, is the second or reliability prong of MRE 702. When determining if the proffered testimony is the product of reliable scientific principles and methods, counsel must validate the expert's qualifications by establishing the following six factors from *United States v. Houser*:

(1) the qualifications of the expert; (2) the subject matter of the expert testimony; (3) the basis for the expert testimony; (4) the legal relevance of the evidence; (5) the reliability of the evidence; and (6) that the probative value of the expert's testimony outweighs the other considerations outlined in M.R.E. 403.¹⁰¹

Concerning the first *Houser* factor, MRE 702 specifically states that an expert may be qualified by his or her "knowledge, skill, experience, training, or education,"¹⁰² allowing a person to qualify as an expert under numerous foundational bases (e.g., work experience, professional memberships, publications).¹⁰³ The key to the second *Houser* factor—the subject matter of the expert testimony—"is whether or not the testimony would assist or be helpful to the fact finder."¹⁰⁴ The third *Houser* factor "concerns itself with the expert's methods as applied to the facts of the case."¹⁰⁵ That is, the expert must have an adequate basis (e.g., "is this the type of information that other experts in the field rely on," etc.) to render an opinion, as opposed to "just a bare opinion with no

¹⁰⁰ Major Christopher Behan, *Determining Admissibility of Expert Testimony* (2005) (working paper on file with Criminal Law Department, The Judge Advocate General's School and Legal Center).

¹⁰¹ *United States v. Billings*, 61 M.J. 163, 166 (2005) (citing *United States v. Houser*, 36 M.J. 392, 397-00 (C.M.A. 1993)).

¹⁰² MCM, *supra* note 44, MIL. R. EVID. 702.

¹⁰³ *See* Behan, *supra* note 100.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

relationship to the facts of the case.”¹⁰⁶ With regard to the fourth *Houser* factor, “before expert testimony is admitted, the military judge must determine that the evidence is relevant . . . to the case at hand.”¹⁰⁷ In other words, the evidence “must have a connection to the theory of the case.”¹⁰⁸

The fifth *Houser* factor requires the military judge to conduct a reliability analysis to determine if the expert’s “testimony is the product of reliable principles and methods.”¹⁰⁹ The reliability analysis is contingent on the type of expert proffered—nonscientific¹¹⁰ or scientific. The Supreme Court in *United States v. Daubert* provided the following nonexclusive list of factors the judge should consider when evaluating the reliability of scientific evidence:¹¹¹

- (1) whether the theory or technique can be or has been tested;
- (2) whether the theory or technique has been subjected to peer review and publication;
- (3) the known or potential rate of error in using a particular scientific technique and the standards controlling the technique’s operation;
- and (4) whether the theory or technique has been generally accepted in the scientific field.¹¹²

As noted, these factors are nonexclusive.¹¹³ The military judge, as the “gatekeeper” of the evidence, has a great deal of discretion in

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ MCM, *supra* note 44, R.C.M. 702.

¹¹⁰ *Kumho Tire v. Carmichael*, 526 U.S. 137 (1999).

Daubert’s general holding—setting forth the trial judge’s general “gatekeeping” obligation—applies not only to testimony based on “scientific knowledge,” but also to testimony based on “technical” and “other specialized” knowledge. We also conclude that a trial court may consider one or more of the more specific factors that *Daubert* mentioned when doing so will help determine that testimony’s reliability. But, as the Court stated in *Daubert*, the test of reliability is “flexible,” and *Daubert*’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case.

Id. at 141.

¹¹¹ *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579 (1993).

¹¹² *United States v. Billings*, 61 M.J. 163, 168 (2005).

¹¹³ *Daubert*, 509 U.S. at 593.

conducting the reliability analysis and can generally use any factor that will help determine the expert's reliability.¹¹⁴ This broad discretion may help those counsel seeking to introduce expert testimony, while hindering those counsel seeking to exclude testimony.

The sixth and last *Houser* factor states that “[l]ogically relevant and reliable expert testimony ‘may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the members.’”¹¹⁵ A deceptively simple argument, counsel seeking to exclude damaging expert testimony should not dismiss or overlook this factor.

X. Using MRE 702 and *Daubert* to Question the “Reliability” of the Scientific Evidence Upon which SBS/SIS is Premised

*If the law has made you a witness, remain a man of science. You have no victim to avenge, no guilty or innocent person to ruin or save. You must bear witness within the limits of science.*¹¹⁶

As amended, MRE 702 requires “expert testimony be the product of reliable principles and methods that are reliably applied to the facts of the case.”¹¹⁷ To determine the reliability of the proffered testimony, the “[C]ourt in *Daubert* set forth a non-exclusive checklist for trial courts to use in assessing the reliability of scientific expert testimony.”¹¹⁸ Thus, in an SBS case, the question for the court is whether or not the majority view of SBS is based upon reliable scientific principles and means.

Recent military caselaw seems to support the majority view of SBS.¹¹⁹ Consider, for example, the CAAF's recent assertion in *United*

¹¹⁴ See *supra* text accompanying note 110.

¹¹⁵ *United States v. Houser*, 36 M.J. 392, 400 (C.M.A. 1993) (citing MCM, *supra* note 44, MIL. R. EVID. 403).

¹¹⁶ John Plunkett, *Shaken Baby Syndrome and the Death of Matthew Eappen*, 20 AM. J. FORENSIC MED. & PATHOLOGY 17 (1999) (quoting Paul H. Broussard, Chair of Forensic Medicine, Sorbonne, 1897).

¹¹⁷ STEPHEN SALTZBURG ET AL., MILITARY RULES OF EVIDENCE MANUAL 185 (4th ed. 1997 & Supp. 2002); see also *supra* notes 100-02.

¹¹⁸ SALTZBURG, *supra* note 117, at 181; see also *supra* notes 111-14.

¹¹⁹ See generally *United States v. Westbrook*, ACM 35615, 2005 CCA LEXIS 378 (A.F. Ct. Crim. App. Nov. 9, 2005) (unpublished) (finding child's injury due to SBS, not a short fall); *United States v. Stanley*, 62 M.J. 622 (2004) (finding child's death due to

States v. Stanley: “[T]he specific diagnosis was shaken baby syndrome (SBS). This is an established medical diagnosis typically involving very small children who are violently shaken. According to experts who testified at trial, SBS involves a constellation of injuries to the bones, eyes, and brain.”¹²⁰ In light of the published material that significantly undermines the shaking alone theory,¹²¹ however, it is difficult to ascertain why the SBS majority view still prevails to the exclusion of other more current and sound medical theories.

The persistence of the majority view as the prevailing view may be explained by the military’s penchant for providing an adequate substitute, which typically translates into a military expert who is a generalist instead of the requested civilian expert who typically is a specialist.¹²² The continued reliance on generalist experts may limit practitioners’ exposure to the minority and emerging views. Although the holding in *Warner* will open the doors to equalizing this disparity,¹²³ one can still argue that the use of adequate substitutes with less experience or exposure than specialists has resulted in the military courts being slower to embrace the minority or emerging views of SBS/SIS. As noted by Dr. Plunkett, perhaps this is because “scientific theories die slowly.”¹²⁴

Regardless of possible explanations, the military community’s acceptance of the majority view can be problematic for the defense when attempting to introduce either the minority or emerging view as an alternate theory of the case. Counsel seeking to introduce the minority or emerging view of SBS/SIS, however, should recognize that MRE 702 and *Daubert* are as much tools for the defense as they are for the government. Under *Daubert*, the judge, as the gatekeeper, must conduct a “reliability assessment” in each case where counsel seeks to introduce expert scientific testimony.¹²⁵ Thus, a defense counsel well versed in the minority and emerging views may be able to use the *Daubert* hearing as

shaking as defined by SBS); *United States v. Allen*, 59 M.J. 515 (N.M.C.M.R. 2003) (noting how expert “indicated that shaken baby syndrome was the only reasonable explanation” for the child’s injuries).

¹²⁰ *Stanley*, 62 M.J. at 622-23 (2004).

¹²¹ *See supra* pt. IV, §§ A2, B.

¹²² *United States v. Warner*, 62 M.J. 114, 117-19 (2005).

¹²³ *Id.* at 119.

¹²⁴ Plunkett Letter, *supra* note 30.

¹²⁵ *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579, 594 (1993); *see also supra* notes 109-14 and accompanying text.

a means to preclude a government expert who strictly adheres to the majority view of SBS.

Recall that the first *Daubert* prong asks whether or not the preferred scientific theory has been tested.¹²⁶ A review of the medical studies presented herein calls into debate whether or not the majority view of SBS actually meets this threshold. To the contrary, armed with the biomechanical studies of the minority and emerging views,¹²⁷ counsel could demonstrate that the underlying scientific basis or premise of the shaking alone theory (i.e., that humans have sufficient strength to shake an infant to the point of traumatic brain injury) is “falsifiable.”¹²⁸ Remember, as demonstrated by Dr. Duhaime in her landmark study, when Dr. Caffey’s theory was tested, it was falsified.¹²⁹

The second *Daubert* prong asks whether or not the theory has been published in peer-reviewed journals.¹³⁰ The majority view, and more recently the minority and emerging views, have all enjoyed moderate to widespread publication.¹³¹ Publication, however, belies two critical points with regard to the majority view. First, “it is significant that in all four previously cited original papers regarding the hypothesis of shaking, both Guthkelch and Caffey refer to a single paper by Ommaya published in 1968 as biomechanical justification for this concept.”¹³² The implication, of course, is that the cornerstone upon which the majority theory is premised is flawed. A theory built on a flawed premise is itself flawed regardless of the number of times it has been published. Second, as noted by the court in *Daubert*, “publication is not the sine qua non of admissibility; it does not necessarily correlate with reliability.”¹³³ To the

¹²⁶ *Daubert*, 509 U.S. at 593.

¹²⁷ *See supra* pt. IV, §§ A2, B.

¹²⁸ Genie Lyons, *Shaken Baby Syndrome: A Questionable Scientific Syndrome and a Dangerous Legal Concept*, 2003 UTAH L. REV. 1109, 1115; *see also Daubert*, 509 U.S. at 593 (“The criterion of the scientific status or theory is its falsifiability, or refutability, or testability.”). Falsifiable is defined as capable of being tested (verified or falsified) by experiment or observation. WordReference.com, English Dictionary, <http://www.wordreference.com/definition/falsifiable> (last visited Sept. 13, 2006).

¹²⁹ Duhaime et al., *supra* note 3, at 409, 414.

¹³⁰ *Daubert*, 509 U.S. at 593.

¹³¹ *See generally supra* pt. IV& V.

¹³² Uscinski, *supra* note 22, at 76-7 (referring to the following studies that are considered the genesis of the shaking alone theory: Annan Guthkelch, *Infantile Subdural Hematoma and Its Relationship to Whiplash Injuries*, 2 BRIT. MED. J. 430 (1971); John Caffey, *The Parent-infant Traumatic Stress Syndrome*, 114 AM. J. ROENTGENOLOGY 217 (1972); Caffey, *Whiplash*, *supra* note 2; Caffey, *Theory and Practice*, *supra* note 2).

¹³³ *Daubert*, 509 U.S. at 593.

contrary, “submission to the scrutiny of the scientific community is a component of ‘good science’ in part because it increases the likelihood that substantive flaws in methodology will be detected.”¹³⁴ Arguably, the present situation is just the type of “scrutiny” the court in *Daubert* envisioned, with the minority and emerging views pointing out and critically addressing the “substantive flaws” in the majority view.¹³⁵

The third *Daubert* factor inquires as to the “potential rate of error” regarding a proffered scientific theory.¹³⁶ Other than the separate biomechanical studies performed by Doctors Ommaya,¹³⁷ Duhaime,¹³⁸ Goldsmith, Plunkett,¹³⁹ and Bandak,¹⁴⁰ which support the minority and emerging views, there are virtually no other quantifiable studies from which to deduce an error rate. In an attempt to determine the quality of the science supporting SBS, Dr. Mark Donohoe conducted an exhaustive review of the SBS literature from 1968 to 1998.¹⁴¹ Dr. Donohoe “found the scientific evidence to support a diagnosis of shaken baby syndrome to be much less reliable than generally thought.”¹⁴² More precisely, Dr. Donohoe opined that “the evidence for shaken baby syndrome appears analogous to an inverted pyramid, with a very small database (most of it poor quality original research, retrospective in nature, and without appropriate control groups) spreading to a broad body of somewhat divergent opinions.”¹⁴³ As such, defense could argue that the lack of an error rate means that the majority view of SBS fails this *Daubert* prong.

The fourth *Daubert* prong asks if the proffered theory is generally accepted within the scientific field.¹⁴⁴ Granted, the majority view of SBS is generally accepted; however, “respect for precedent does not require courts to ignore flaws in logic. The law must adapt when prior scientific theories are undermined by scientific logic.”¹⁴⁵ The minority and

¹³⁴ *Id.*; Lyons, *supra* note 128, at 1129.

¹³⁵ Lyons, *supra* note 128, at 1129.

¹³⁶ *Daubert*, 509 U.S. at 594.

¹³⁷ Ommaya, *supra* note 22.

¹³⁸ Duhaime et al., *supra* note 3.

¹³⁹ Goldsmith & Plunkett, *supra* note 26.

¹⁴⁰ Bandak, *supra* note 28.

¹⁴¹ Geddes & Plunkett, *supra* note 8, at 719.

¹⁴² *Id.*

¹⁴³ *Id.* at 719-20 (citing Mark Donohoe, *Evidence-Based Medicine and the Shaken Baby Syndrome, Part I: Literature Review: 1966-1998*, 24 AM. J. FORENSIC MED. & PATHOLOGY 239 (2003)).

¹⁴⁴ *Daubert v. Merrell Dow Pharms. Inc.*, 509 U.S. 579, 594 (1993).

¹⁴⁵ Lyons, *supra* note 128, at 1132.

emerging views have clearly undermined the scientific logic of the premise upon which the majority view of SBS is based.¹⁴⁶ The more these theories gain a foothold within the medical community, the more opportunities counsel have to argue that the majority view of SBS has lost its “general acceptance” within the medical community.

Understanding the experts’ biases is critical. In this article’s hypothetical, a government expert adhering to the majority view would likely opine that it was the shaking that either caused or significantly aggravated the subdural hematoma, which then caused the brain to swell and the child to die. Defense counsel, however, would want to contest the expert’s opinion since such testimony would put his client at the scene of the crime at the time the government is likely to allege the incident causing the traumatic brain injury occurred. Faced with this challenge, counsel need not capitulate when confronted with a government expert who strictly adheres to the majority view of SBS to the exclusion of other sound theories. Instead, counsel can seek to disallow an expert who refuses to consider either the minority or emerging view by demonstrating how the majority view of SBS may fail each of the *Daubert* criteria and, consequently, the reliability prong of MRE 702.

XI. Current Controversies within the Realm of SBS

There are numerous sub-controversies within the realm of SBS that cannot be neatly pigeonholed into the majority, minority, or emerging views. Such controversies include, but are not limited to the following: whether falls from short-distances can be fatal; whether diffuse axonal injury can be caused by events other than SBS/SIS (i.e., can being on a respirator for a prolonged period cause, mimic, or mask diffuse axonal injury); whether a preexisting, yet benign subdural hematoma, can re-bleed and turn fatal due to a subsequent, yet minor head injury; and whether certain vaccinations can mimic those injuries normally associated with SBS/SIS.¹⁴⁷ Two of these sub-controversies merit further discussion: whether short falls can or do kill and whether a preexisting

¹⁴⁶ See *supra* pt. IV.

¹⁴⁷ SBSDefense.com, Forensic Truth Foundations, Shaken Baby Syndrome for Beginners: Shaken Baby Syndrome-Questions and Controversies, <http://www.sbstruth.com/Questions%20and%20controversies.htm> (last visited Sept. 14, 2006) [hereinafter SBSDefense.com Controversies].

or chronic subdural hematoma can re-bleed due to a subsequent or second impact.

Some experts assert that traumatic brain injury cannot be caused by short falls (e.g., fall out of a crib, fall off of a swing, fall off a kitchen stool, etc.).¹⁴⁸ Rather, a repeated theme proffered by these experts is that traumatic brain injury can only be caused by “significant force . . . such as major motor vehicle crashes, falls from a second-story window, or inflicted severe blunt force trauma.”¹⁴⁹ Any expert subscribing to this theory would automatically dismiss or discredit any alternate theory of a case where the defendant is claiming the injury occurred because of some form of short fall. In recent years, however, several credible studies have been published that question the theory that traumatic brain injury cannot be caused by short falls.¹⁵⁰ In one such study, “the author reviewed the January 1, 1988 through June 30, 1999 United States Consumer Product Safety Commission database for head injuries associated with the use of playground equipment.”¹⁵¹ The author’s stated objective was to determine if there were any “witnessed or investigated fatal short-distance falls that were concluded to be accidental.”¹⁵² The study noted eighteen head injury fatalities from falls off of playground equipment ranging in height from “0.6 to 3 meters (2–10 feet).”¹⁵³ Of the eighteen fatal falls, twelve were “directly observed by a noncaretaker” witness.¹⁵⁴ As a result, the author concluded “that an infant or child may suffer a fatal head injury from a fall of less than 3 meters (10 feet).”¹⁵⁵ Armed with this information, traumatic brain injury resulting from a drop in the tub certainly seems more plausible than previously thought.

Another controversy surrounding SBS is the “re-bleed” or “second impact” theory. The re-bleed theory purports that an otherwise non-

¹⁴⁸ Plunkett, *supra* note 6, at 1-2, tbl. 1.

¹⁴⁹ United States v. Buber, No. 20000777, at 8 (Army Ct. Crim. App. Jan. 12, 2005) (unpublished); Goldsmith & Plunkett, *supra* note 26, at 95 (“There has been sworn testimony in courts of law by expert witnesses who state that trauma caused by shaking is equivalent to a fall from a two-story (or higher) window on to the pavement. . . . This analogy of a “shaking” injury to a two-story fall is not justifiable.”).

¹⁵⁰ SBSDefense.com Controversies, *supra* note 147; Goldsmith & Plunkett, *supra* note 26, at 95-96.

¹⁵¹ Plunkett, *supra* note 6, at 1.

¹⁵² *Id.* at 2.

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

lethal previous head injury may be exacerbated by a second, yet trivial, head injury, which leads to death.¹⁵⁶ A practical application of this theory would, for example, be a case where a child falls and suffers a minor subdural hematoma. Before the minor subdural hematoma either dissipates or is reabsorbed by the body, the child suffers another minor head injury. This second injury aggravates the preexisting subdural hematoma causing it to re-bleed, resulting in a fatal secondary injury (e.g., cerebral edema).¹⁵⁷ The crux of this theory is not whether re-bleeds occur, but what amount of force is needed to cause the re-bleed,¹⁵⁸ and whether the subsequent or second impact has to be proximate to the original subdural hematoma.¹⁵⁹ That is, does the force have to be extreme, indicating violence or a non-accident, or can it be from something as simple as a parent and child bumping heads while playing a game of football?¹⁶⁰ Several experts believe “there is no evidence to support the concept that re-bleeding of an older subdural hematoma can result from trivial injury and cause an infant to suddenly collapse and die.”¹⁶¹ The emerging re-bleed theory, however, reasons that subsequent trauma does not have to be proximate to the original subdural hematoma¹⁶² and that the amount of force required to initiate a re-bleed can be de minimus.¹⁶³ Applying the re-bleed theory to the hypothetical, if the drop in the tub caused a subdural hematoma, then perhaps the father’s brief shaking of the child caused the original subdural hematoma to re-bleed. The question for the court then becomes whether or not the father’s actions were in any way criminally negligent. For example, did he shake the child forcefully and violently such that it could be considered an assault, or did he softly shake the child (e.g., playing or trying to wake child up, etc.) in such a manner that no reasonable person would have expected an injury to occur.

¹⁵⁶ United States v. Buber, No. 20000777, at 9 (Army Ct. Crim. App. Jan. 12, 2005) (unpublished); SBSDefense.com Controversies, *supra* note 147.

¹⁵⁷ See “edema” *infra* app. A.

¹⁵⁸ SBSDefense.com Controversies, *supra* note 147.

¹⁵⁹ Goldsmith & Plunkett, *supra* note 26, at 97.

¹⁶⁰ *Buber*, No. 20000777, at 9 (noting that “testimony from the government experts failed to exclude the reasonable possibility that Ja’lon might have accidentally suffered a previous head injury during a fall down the stairs, which was exacerbated by a second injury, caused while playing football.”). *Id.*

¹⁶¹ Robert M. Reece & Robert H. Kirschner, *Shaken Baby Syndrome/Shaken Impact Syndrome*, http://dontshake.com/Audience.aspx?categoryID=9&PageName=SBS_SIS.htm (last visited Sept. 14, 2006).

¹⁶² Goldsmith & Plunkett, *supra* note 26, at 97.

¹⁶³ SBSDefense Controversies, *supra* note 147.

As has been demonstrated through the hypothetical, there are no clear-cut answers in cases where SBS/SIS is alleged. As such, understanding these controversies may help counsel in shaping the theory of their case, in challenging an opposing expert during a *Daubert* hearing, or both.

XII. Conclusion

*If the issues are much less certain than we have been taught to believe, then to admit uncertainty sometimes would be appropriate for experts. Doing so may make prosecution more difficult, but a natural desire to protect children should not lead anyone to proffer opinions unsupported by good quality science. We need to reconsider the diagnostic criteria, if not the existence, of shaken baby syndrome.*¹⁶⁴

Should one automatically conclude that a child who shows symptoms of traumatic brain injury without any form of external cranial trauma is suffering from SBS? Does the average adult have sufficient strength to shake a child to the point of causing traumatic brain injury? Or, are there other sound medical explanations for a child who has traumatic brain injury but no corresponding external cranial trauma? The answers to these questions are nebulous and, as demonstrated, have divided the best minds of the medical community. As such, it is incumbent upon military practitioners faced with a potential SBS/SIS case to fully and independently educate themselves on the controversies surrounding SBS so as to ensure the administration of justice is based on fact and vetted scientific theories, instead of conjecture merely masked as such. As succinctly noted by Dr. Uscinski, “[W]hile the desire to protect children is laudable, it must be balanced against the effects of seriously harming those who are accused of child abuse solely on the basis of what is, at best, unsettled science.”¹⁶⁵

¹⁶⁴ Geddes & Plunkett, *supra* note 8, at 720.

¹⁶⁵ Uscinski, *supra* note 22, at 77.

Appendix A

When familiarizing themselves with the medical terms defined below, practitioners should pay particular attention to the specific causation element or triggering mechanism of each type of injury.

Coup Contusion: “Coup contusions occur beneath a site of cranial impact. Skull imbedding from cranial impact may cause direct injury to the brain and its surface. Brain contusions may occur at multiple sites remote from the point of cranial impact under some circumstances.”¹⁶⁶

Contra-coup Contusion: “Contra Coup injuries occur when there is an injury to the opposite side of the head from the impact site. Contra coup injuries are generally thought to be an indicator of a moving head hitting a stationary, unyielding force or object.”¹⁶⁷ A contra-coup injury is a contusion directly opposite the impact.

Diffuse Axonal Injury:

[S]evere primary diffuse brain injury may manifest clinically as immediate loss of consciousness with prolonged traumatic coma without mass lesions. This clinical presentation is frequently associated with widespread structural damage to the axons – a condition known as diffuse axonal injury. Diffuse axonal injury is the result of deep acceleration strain within the brain parenchyma. Histological evidence of diffuse axonal injury includes axonal swelling and axonal retraction balls.¹⁶⁸

[Diffuse axonal injury] is a type of diffuse brain injury, meaning that damage occurs over a more widespread area than in focal brain injury. Diffuse axonal injury, which refers to extensive lesions in white matter tracts, is one of the major causes of unconsciousness and persistent vegetative state after head trauma (Wasserman, 2004). The major cause of damage in diffuse axonal injury is the tearing of axons, the neural

¹⁶⁶ Hymel, *supra* note 46, at 119.

¹⁶⁷ SBSDefense.com, *supra* note 57.

¹⁶⁸ Hymel, *supra* note 46, at 120.

processes that allow one neuron to communicate with another.¹⁶⁹

Edema (cerebral): “[G]eneralized swelling caused by changes in vascular permeability and autoregulation.”¹⁷⁰

Cerebral edema is an increase in brain volume caused by an absolute increase in cerebral tissue water content. Diffuse cerebral edema may develop soon after head injury. Cerebral herniation may occur when increasing cranial volume and ICP overwhelms the natural compensatory capacities of the CNS. Increased ICP may be the result of posttraumatic brain swelling, edema formation.¹⁷¹

In layman’s terms, swelling of the brain can cause death by starving the brain of oxygen or blood, or by herniating the brain by pushing it through the brain stem.¹⁷² (see “Herniation” for a description of the relationship between edema and herniation).

Epidural Hematoma: “Epidural hematoma is a traumatic accumulation of blood between the inner table of the skull and the stripped-off dural membrane. The inciting event often is a focused blow to the head, such as that produced by a hammer or baseball bat.”¹⁷³

Extravasted Blood: “Bruising and/or free blood within the epidural layer (scalp).”¹⁷⁴ Not as serious as an epidural hemorrhage; usually attributable to some form of impact (can occur from minor trauma).¹⁷⁵

¹⁶⁹ Wikipedia, The Free Encyclopedia, Diffuse Axonal Injury, http://en.wikipedia.org/wiki/Diffuse_axonal_injury (last visited Sept. 14, 2006).

¹⁷⁰ Mary E. Case et al., *Position Paper on Fatal Abusive Head Injuries in Infants and Young Children*, 22 AM. J. FORENSIC MED. & PATHOLOGY 112, 118 (2001).

¹⁷¹ Library of the National Medical Society, Brain Edema and Cerebra Edema, http://www.medical-library.org/journals2a/brain_edema.htm (Oct. 2, 2005).

¹⁷² Plunkett Telephone Interview, *supra* note 55.

¹⁷³ Daniel Price & Sharon Wilson, *Epidural Hemorrhages*, EMEDICINE, <http://www.emedicine.com/EMERG/topic167.htm> (Jan 13, 2004).

¹⁷⁴ Brain Injury Association of America, Types of Brain Injury, http://www.biausa.org/Pages/types_of_brain_injury.html (last visited Sept. 14, 2006) [hereinafter BIAA].

¹⁷⁵ Plunkett Telephone Interview, *supra* note 55.

Fractures (skull):

Skull fractures are caused by a deformation of the skull due to impact of some kind. The likelihood that a child will suffer a skull fracture depends on the force, location of the impact, age of the child, and biologic/mechanic characteristics/properties of the skull at the point of impact. Children with open sutures and more flexible skulls are not as likely to fracture in short falls as are older children with fully developed enclosed skulls.¹⁷⁶

Herniation:

A brain herniation is the displacement of brain tissue, cerebrospinal fluid, and blood vessels outside the compartments in the head that they normally occupy. A herniation can occur through a natural opening at the base of the skull (called the foramen occipitalis) or through surgical openings created by a craniotomy procedure. Herniation can also occur between compartments inside the skull, such as those separated by a rigid membrane called the ‘tentorium’. A brain herniation occurs when pressure inside the skull (intracranial pressure) increases and displaces brain tissues. This is commonly the result of brain swelling from a head injury. . . . Brain herniations are the most common secondary effect of expanding masses in the brain.¹⁷⁷

Hypoxia: “A hypoxic brain injury results when the brain receives some, but not enough, oxygen.”¹⁷⁸

Ischemia: “Hypoxic ischemic brain injury, also called stagnant hypoxia or ischemic insult-brain injury occurs because of a lack of blood flow to the brain because of a critical reduction in blood flow or blood pressure.”¹⁷⁹

¹⁷⁶ SBSDefense.com, *supra* note 57.

¹⁷⁷ University of Pennsylvania Health System, Encyclopedia, Brain Herniation, <http://pennhealth.com/ency/article/001421.htm> (last visited Sept. 14, 2006).

¹⁷⁸ BIAA, *supra* note 174.

¹⁷⁹ *Id.*

Second Impact Syndrome:

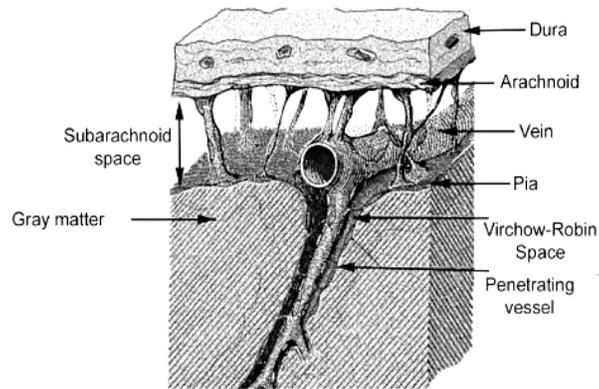
Second Impact Syndrome, also termed ‘recurrent traumatic brain injury,’ can occur when a person sustains a second traumatic brain injury before the symptoms of the first traumatic brain injury have healed. The second injury may occur from days to weeks following the first injury. Loss of consciousness is not required. The second impact is more likely to cause brain swelling and widespread damage. Because death can occur rapidly, emergency medical treatment is needed as soon as possible.¹⁸⁰

Subdural Hematoma:

Is a collection of blood that pools under the dura. The dura is a relatively tough connective tissue (collagenous) membrane, about the thickness of parchment paper. It is firmly attached to the under surface of the skull and in the spinal canal it is separated from the bony structure by a layer of fatty tissue. The inner underside of the dura is applied to a much thinner, transparent membrane, the arachnoid, that overlies the brain and subarachnoid space. This interface is easily separated, forming the subdural space. The subdural space is referred to as a “potential space” because a space is not generally created unless a subdural hematoma or another space occupying mass is formed. When a subdural hematoma forms, it is generally an indicator of a broken vein on the underlying surface of the brain. If one or more of these veins that “bridge” the dura are injured, bleeding occurs into the subdural “space” causing a subdural hematoma (clot).¹⁸¹

¹⁸⁰ *Id.*

¹⁸¹ SBSDefense.com, *supra* note 57.



Subdural Hematomas, Types Of (acute, sub-acute, and chronic):

A subdural hematoma (SDH) is classified by the amount of time that has elapsed from the inciting event, if known, to the diagnosis. When the inciting event is unknown, the appearance of the hematoma on CT scan or MRI can help date the hematoma. *Acute SDHs* are less than 72 hours old and are hyper-dense compared to the brain on CT scan. *Subacute SDHs* are 3-20 days old and are isodense or hypodense compared to the brain. *Chronic SDHs* are older than 20 days and are hypodense compared to the brain.¹⁸²

When the dura is cut and removed a subdural hematoma may be seen. This blood will appear bright red if it is “acute” and the color of port wine or “crank case oil” if it is older. The pathologist should note if the blood is red/black, brownish, yellowish-orange, ‘machine oil’ or straw colored (or combinations of all of these). The pathologist should weigh (volume), sample and photograph this blood. “Chronic” or old subdurals will be darker in color and may leave an iron stain on the dura the color of port wine, brown or yellow.¹⁸³

¹⁸² Sinson & Reiter, *supra* note 58 (emphasis added).

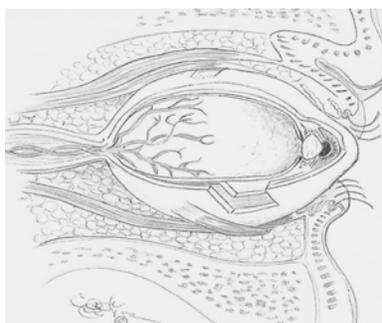
¹⁸³ SBSDefense.com, *supra* note 57.

Subarachnoid Hemorrhage:

Subarachnoid hemorrhage arises from tearing of arachnoid vessels at the same time bridging veins are torn, because the bridging veins are surrounded by an arachnoid sheath as they cross the subdural space to enter the inner dural layer and finally the dural sinuses. Tearing of bridging veins usually produces both subdural and subarachnoid hemorrhages.¹⁸⁴

Retinal Hemorrhages:

Retinal Hemorrhages are small hemorrhages on the back of the eye. Most experts do not agree as to the pattern, number, location, or type of retinal hemorrhages that point to a diagnosis of SBS or other non-accidental trauma. The mechanism(s) behind retinal hemorrhages in infancy in the context of alleged head trauma are unknown. Most research points to a mechanism involving rapid increases in intracranial pressure, cerebral venous spasm or increased venous pressure, and possibly hypoxia. . . . Sometimes the retinal hemorrhages are accompanied by nerve sheath damage or bleeding in the subdural space of the optic nerve. This finding has been considered an indicator of a greater degree of damage. . . .¹⁸⁵



¹⁸⁴ Case et al., *supra* note 170, at 116.

¹⁸⁵ SBSDefense.com, *supra* note 57.

Appendix B

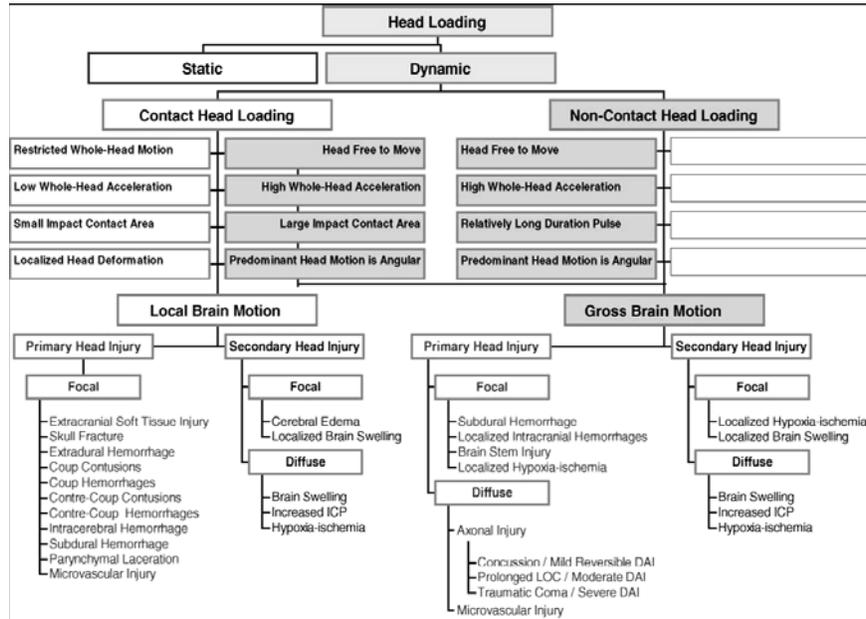


Fig. 1. Biomechanical classification of head injuries.¹⁸⁶

¹⁸⁶ Bandak, *supra* note 28, at 73.

**TIME FOR ANOTHER HAIRCUT: A RE-LOOK AT THE USE
OF HAIR SAMPLE TESTING FOR DRUG USE IN THE
MILITARY**

*Major Keven Jay Kercher**

I. Introduction

The Army's urinalysis program has made great strides in reducing drug use in the military ranks.¹ However, the current military operational tempo and the prevalence of illegal drugs in local communities² warrant a more comprehensive approach to eliminating drug use in the service.³ An annual national drug survey by the U.S. Department of Health and

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¹ See *United States v. Bickel*, 30 M.J. 277, 284 (C.M.A. 1990) (recognizing urinalysis deterrent effects); Sergeant First Class Kathleen T. Rhem, *A Look at Drug Use and Testing Within the Military*, AMERICAN FORCES PRESS SERVICES, <http://usmilitary.about.com/od/theorderlyroom/l/bldrugtests3.htm> (last visited Oct. 23, 2006) (highlighting a twenty percent drop in servicemembers admitting drug use from 1983 to 1998). The article references admitted drug use by servicemembers as the basis for this statistic. *Id.*

² U.S. Department of Health & Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies, *Results from the 2004 National Survey on Drug Use and Health: National Findings*, <http://www.drugabusesstatistics.samhsa.gov/NSDUH/2k4NSDUH/2k4results/2k4results.htm#8.3> (last visited Oct. 23, 2006) [hereinafter SAMHSA 2004 National Drug Survey] (providing report highlights on the first couple pages of the report). This web site contains any updates to the original, published report. *Id.*

³ See Rhem, *supra* note 1 (reflecting the military's zero tolerance policy toward drug use); Gerry J. Gilmore, *DOD Urinalysis Test (Drug Test) Results*, AMERICAN FORCES PRESS SERVICES, <http://usmilitary.about.com/od/theorderlyroom/l/bldrugtests2.htm> (last visited Oct 23, 2006) (discussing the 2002 Department of Defense's (DOD) anti-drug policy).

Human Services' Substance Abuse and Mental Health Services Administration reflects the gravity of the drug problem in America.⁴ According to the 2004 survey, 19.1 million Americans, age twelve and over, currently use illegal drugs.⁵ Seventy-five percent of the 16.4 million drug users, aged eighteen and older, had current employment.⁶ Since those serving in our armed forces are a cross-section of society as a whole, commanders can expect servicemembers to have easy access to people who use drugs and to people who sell drugs.

Also, increased servicemember usage of popular "club drugs", especially ecstasy, has left commanders wondering whether current urinalysis programs sufficiently ensure good order and discipline in their units.⁷ Several dilution products, cleansing products, chemical adulterants, and prosthetic devices (e.g., an artificial penis) currently exist to assist servicemembers in avoiding a positive urinalysis test result.⁸ An Internet Google search using the words "beat a drug test" provided over 1,200,000 hits.⁹ Many of these sites offer to provide pills or chemical solutions that counter urinalysis tests.¹⁰ These products claim to help avoid a positive drug test result by flushing drugs out of a person's urine prior to a test.¹¹

⁴ SAMHSA 2004 National Drug Survey, *supra* note 2, § 2.

⁵ *Id.* The survey asked whether the person had used an illegal drug in the month prior to the survey. *Id.*

⁶ *Id.* at Highlights.

⁷ See generally Rhem, *supra* note 1 (highlighting the concern over ecstasy use by military members); Gilmore, *supra* note 3 (noting a modest increase in club drug use by servicemembers).

⁸ See *Kits to Circumvent Drug Tests: Testimony Before the Comm. on House Energy and Commerce Subcomm. on Oversight and Investigations*, 109th Cong. (2005) [hereinafter *Testimony*] (statement of Robert L. Stephenson II, Director of the Division of Workplace Programs at the Center for Substance Abuse Prevention in the Substance Abuse and Mental Health Services Administration of the U.S. Department of Health and Human Services), available at LEXIS, Federal Document Clearing House Congressional Hearing Summaries (defining the different methods to avoid testing positive on a drug test).

⁹ See *id.* (describing the results of an internet search for products available to avoid testing positive on a drug test). The author attempted the same internet search as described in the Stephenson testimony which produced similar results.

¹⁰ E.g., Pass the Drug Test, <http://www.passthedruggtest.com/> (last visited Oct. 30, 2006) (providing consumers with information on how to avoid testing positive on a drug test); MB Detox Website, <http://www.mbdetox.com> (last visited Oct. 23, 2006) [hereinafter MB Detox Website] (selling drug detoxification products).

¹¹ See MB Detox Website, *supra* note 10 (referencing their products ability to flush drugs from a person's body).

Additionally, a urinalysis can only detect, for most drugs, drug use occurring a few days prior to the test.¹² This inherent testing limitation greatly reduces a urinalysis's ability to catch drug users. As a result, servicemembers could easily avoid testing positive by abstaining from drug use for a short period of time prior to an expected test.¹³

Drug testing of a servicemember's hair sample serves as a viable addition to a commander's current arsenal of tools to combat continued drug use among the ranks. Commanders should utilize drug testing of hair samples to curtail servicemember drug use for several reasons. Drug testing of hair samples: (1) increases the drug detection "window" to several months;¹⁴ (2) satisfies any Fourth Amendment concerns;¹⁵ (3) provides commanders with reliable results;¹⁶ and (4) requires only minor adjustments to current military drug testing programs.¹⁷ Accordingly, this article advocates the wide spread implementation of hair testing as a much needed and complementary addition to the military's current urinalysis program.

II. A Forensic Overview of Hair Sample Testing (The Science)

An understanding of the scientific concepts of hair drug testing will assist commanders and military lawyers in successfully utilizing hair drug testing.¹⁸ The concepts include: how drugs deposit in the hair; how authorities collect hair samples; and how laboratories analyze these samples.¹⁹ These concepts will highlight hair drug testing's advantages and disadvantages by explaining the biological process behind the test.²⁰

¹² See *DOD Urinalysis (Drug Test) Program*, <http://usmilitary.about.com/od/theorderly/http://usmilitaryroom/1/bldrugtests.htm> (last visited Oct 23, 2006) [hereinafter *DOD Urinalysis Program*] (providing drug detection windows for urine testing).

¹³ See *id.*; see also *infra* Part II.D (comparing the drug detection windows of urine and hair). For example, a servicemember could smoke crack cocaine on Thursday night of a four-day weekend, knowing that by Tuesday morning the cocaine would have been flushed from his urine. See *id.*

¹⁴ See *infra* Part D.

¹⁵ See *infra* Part III.

¹⁶ See *infra* Parts IV, V.

¹⁷ See *infra* Part VI.

¹⁸ See generally Robert W. Vinal, *Admissibility and Reliability of Hair Sample Testing to Prove Illegal Drug Use*, in 47 AM. JUR. PROOF OF FACTS 3D 203, §§ 1-9 (2005) (providing a general overview of the technical background of hair drug testing).

¹⁹ *Id.* §§ 3-9.

²⁰ See generally *infra* Parts II.D, E (describing the advantages and disadvantages of hair testing).

A. Dynamics of Drug Deposits in the Hair

When a servicemember ingests a drug by injecting, snorting, smoking, or other methods, the body metabolizes the drug.²¹ The drug and its metabolites then enter the servicemember's blood stream and circulate throughout his body.²² As the blood brings nutrients to the hair, the blood also deposits the drug and drug metabolites in the hair follicles.²³ The drug metabolites and actual drug traces come to rest permanently in the hair strand.²⁴

As the hair grows, the hair section containing the drug deposit grows beyond the skin's surface.²⁵ Normally, a hair must grow for five to seven days before the hair containing the drug deposit emerges from the skin's surface.²⁶ Hair grows at an average rate of about 1/2 inch (approximately 1.3 centimeters) per month.²⁷ Chronic drug use creates a band-like pattern of drug deposits within the exposed hair, similar to rings in a raccoon's tail.²⁸ The hair continues to grow until it becomes dormant and eventually falls out of the head.²⁹

²¹ See Tom Mieczkowski et al., *Testing Hair for Illicit Drug Use*, in NAT'L INST. OF JUST. 1, 2 (Jan. 1993) (explaining the body's breakdown of drugs).

²² Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. 19673, 19675 (Apr. 13, 2004); Mieczkowski, *supra* note 21, at 2 (defining metabolites as the "biochemical products of the breakdown of drugs within the body"). For example, the metabolite for marijuana is delta-9-tetrahydrocannabinol-9-carboxylic acid (THCA), and the metabolites for cocaine are benzoylecgonine, norcocaine, and cocaethylene. Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. at 19675.

²³ Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. at 19675. Sweat from sweat glands and sebum from sebaceous glands can also deposit drugs and drug metabolites on the hair shaft. *Id.*

²⁴ *Id.*; Tom Mieczkowski, *Hair Analysis as a Drug Detector*, in NAT'L INST. OF JUST. 1, 1 (Oct. 1995).

²⁵ See Mieczkowski, *supra* note 21, at 2.

²⁶ E-mail from Dr. Donald J. Kippenberger, Deputy Program Manager for Forensic Toxicology, United States Army Medical Command (MEDCOM), Fort Sam Houston, Texas, to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Oct. 25, 2005, 18:18 EST) [hereinafter Dr. Kippenberger E-mail, Oct. 25, 2005] (on file with author); E-mail from Mr. William Thistle, Senior Vice President and General Counsel, Psychomedics Corp., to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Nov. 3, 2005, 12:29 EST) [hereinafter Mr. Thistle E-mail, Nov. 3, 2005] (Psychomedics Corp. is the industry-leading hair testing company.) (on file with author).

²⁷ Mieczkowski, *supra* note 21, at 2.

²⁸ 69 Fed. Reg. at 19675. The drug amount in each band is proportionate to the amount of drug in the blood at the time of deposit. *Id.* A drug laboratory can estimate the

B. Forensic Collection Procedures

Based on a hair growth rate of 1/2 inch per month, hair collection procedures usually require a 1 1/2 inch long hair sample,³⁰ with this sample size covering a three-month period.³¹ The back of the crown of the head is the primary area used for sample collection.³² The hair is collected using a pair of sterilized scissors, using a 1/2 inch wide hair sample taken as close to the scalp as possible.³³ Keeping the hair root ends of the sample aligned, the collector then deposits the hair sample into a foil packet.³⁴ Next, the collector places the foil packet into a sealed envelope secured with an integrity seal.³⁵ Finally, the collector mails the sample and accompanying paperwork to the designated laboratory.³⁶

C. Analyzing the Test Results

Upon arrival at the laboratory, technicians subject the hair sample to rigid procedures.³⁷ First, the technicians inspect the hair sample and accompanying paperwork for any existing discrepancies that may upset the integrity of the sample.³⁸ Next, the technicians wash the hair.³⁹ The washing procedures eliminate any drugs or oils that may have attached to the hair strands through external exposure.⁴⁰ The technicians then cut the

approximate time of drug ingestion by measuring the band's distance from the skin's surface. *Id.*

²⁹ See Dr. Kippenberger E-mail, Oct. 25, 2005, *supra* note 26 (explaining hair dormancy).

³⁰ PSYCHEMEDICS CORP., SAMPLE COLLECTION TRAINING MANUAL 12 (2003) [hereinafter PSYCHEMEDICS TRAINING MANUAL] (The phone contact for Psychemedics Corp. Client Services Department is 1-800-522-7424.).

³¹ See Vinal, *supra* note 18, § 4.

³² See PSYCHEMEDICS TRAINING MANUAL, *supra* note 30, at 6-7.

³³ *Id.* at 7-8 (providing pictures).

³⁴ *Id.* at 8. The intent is to keep the hair strand ends that are taken closest to the scalp together. *Id.* The laboratory will need to know what end of the hair sample was next to the scalp to establish a drug use chronology. See *infra* Part II.C (analyzing the hair sample).

³⁵ See PSYCHEMEDICS TRAINING MANUAL, *supra* note 30, at 8-9.

³⁶ *Id.* at 11.

³⁷ See Vinal, *supra* note 18, § 5 (describing initial intake procedures).

³⁸ *Id.*

³⁹ *Id.* § 6.

⁴⁰ *Id.* (The technicians generally use a solvent that will not swell the hair to remove any external contamination from the hair strands.) But see David A. Kidwell & David L. Blank, *Environmental Exposure—The Stumbling Block of Hair Testing*, in DRUG TESTING

hair strands into 1/2 inch segments for separate testing.⁴¹ Segmentation establishes a monthly drug history; each segment represents roughly thirty days of hair growth.⁴² If a laboratory finds drug metabolite in a segment, the laboratory will then know that the drug use occurred within that thirty-day window.⁴³

After segmentation, the lab combines each hair sample segment with an enzymatic solution that breaks down the hair.⁴⁴ This procedure converts the hair into liquid form for testing.⁴⁵

The laboratory technicians then further subject the hair solution to a radioimmunoassay (RIA) screening test and a subsequent gas chromatography/mass spectrometry confirmatory (GC/MS) test.⁴⁶ The laboratory reports the drug results of both the RIA and GC/MS tests in nanograms per ten milligrams (NPM) of hair⁴⁷ or in picograms per one milligram of hair.⁴⁸ Each laboratory has established drug cut-off levels for each drug.⁴⁹ Although laboratory differences in drug cut-off levels for

IN HAIR 17, 52 (Pascal Kintz ed., 1996) (questioning the ability of decontamination procedures to remove external contamination).

⁴¹ See Vinal, *supra* note 18, § 2.

⁴² See Mieczkowski, *supra* note 21, at 2 (describing hair drug testing's ability to create a "time line" of drug use).

⁴³ *Id.* The laboratory could also use smaller segments to create a more defined timeline. *Id.* A point to remember is that although the drug deposits create bands in the hair, the laboratory must dissolve the hair to determine the hair's drug contents. See Vinal, *supra* note 18, § 7. Therefore, segmentation provides the only way that a laboratory can create a drug-use timeline. *Id.*

⁴⁴ See *id.* § 7.

⁴⁵ *Id.*

⁴⁶ *Id.* §§ 8-9. The DOD laboratories use the same tests to check urine for illegal substances. See U.S. DEP'T OF DEFENSE, INSTR. 1010.16, TECHNICAL PROCEDURES FOR THE MILITARY PERSONNEL DRUG ABUSE TESTING PROGRAM paras. E1.5 & E1.6 (9 Dec. 1994) [hereinafter DOD DIR. 1010.16].

⁴⁷ See Vinal, *supra* note 18, §§ 8-9.

⁴⁸ Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. 19673, 19697 (Apr. 13, 2004) (providing proposed drug detection cut-off levels for hair drug testing).

⁴⁹ See generally E-mail from Dr. Donald J. Kippenberger, Deputy Program Manager for Forensic Toxicology, United States Army Medical Command (MEDCOM), Fort Sam Houston, Texas, to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Oct. 27, 2005, 10:23 EST) (noting that laboratories can currently set their own cut-off levels for the amount of drug needed to reflect a positive test) (on file with author). see also E-mail from Mr. William Thistle, Senior Vice President and General Counsel, Psychemedics Corp., to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Jan. 19, 2006, 10:36 EST) [hereinafter Mr. Thistle E-mail, Jan. 19, 2006] (on file with author). Mr.

hair do exist, the DOD Coordinator for Drug Enforcement Policy and Support would likely ensure uniform drug cut off levels for hair sample testing across the DOD.⁵⁰ The cut off levels require the hair sample to contain an amount of drug or drug metabolite at or above the drug cut-off level before a laboratory will report a positive test result for that particular drug.⁵¹

D. Advantages of Hair Sample Analysis

The long drug detection window of hair drug testing represents the greatest advantage of hair drug testing over the currently used urine testing method.⁵² The average hair sample allows for the detection of drug use within the past three months, while the detection window for urine testing is generally only a few days.⁵³ If the command tested a servicemember's urine for cocaine, a urine test would only expose illegal cocaine use occurring in the past seventy-two hours.⁵⁴ In contrast, a hair drug test could show cocaine use over a three-month period.⁵⁵ As a

Thistle explained that the hair industry established cut-off levels through research and instrumentation limitations. *Id.* He also noted that ninety percent of workplace hair testing utilizes the same cut-off levels. *Id.* A hair testing working group of experts and critics established the hair cut-off levels in the Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs. *Id.*; Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. at 19697.

⁵⁰ See *supra* note 46, DOD DIR. 1010.16, paras. E1.5.3 & E1.6.2 (requiring the DOD Coordinator for Drug Enforcement Policy and Support to set the DOD cut off levels for initial and confirmatory urinalysis testing).

⁵¹ *Drug Testing in the Workplace: Drug Test Cut-off Levels*, http://www.ipassedmydrugtest.com/drug_cutoff_levels.asp (last visited Oct. 23, 2006).

⁵² *The Department of Health and Human Services' Policy for Federal Workplace Drug Testing Programs: Hearing Before the Subcomm. on Oversight and Investigations of the H. Comm. on Commerce*, 105th Cong. 21-23 (1998) [hereinafter *Hearing on the Federal Workplace Drug Testing Program*] (prepared statement of Christine Moore, Laboratory Director, U.S. Drug Testing Laboratories).

⁵³ *Id.* at 22; Vinal, *supra* note 18, § 4; PSYCHEMEDICS TRAINING MANUAL, *supra* note 30, at 12 (noting that the Psychemedics laboratory only tests the first 1.5 inches of the hair sample).

⁵⁴ See *DOD Urinalysis Program*, *supra* note 12 (providing the drug detection window for cocaine).

⁵⁵ See *Cutting Edge Issues in Drug Testing and Drug Treatment: Hearing Before the Subcomm. on National Security, International Affairs, and Criminal Justice of the H. Comm. on Gov't Reform and Oversight*, 105th Cong. 10-11 (1998) [hereinafter *Hearing on Drug Testing and Drug Treatment*] (statement of Robert L. Dupont, President, Institute for Behavior and Health) (explaining hair's ability to create a ninety-day drug use history).

result, the typical hair test would give the command a three-month “snapshot” of the servicemember’s drug use.⁵⁶ The hair drug test, like a urinalysis, cannot reveal exact dates of drug use, but the hair drug test can indicate low, moderate, or chronic use.⁵⁷

In addition to a long drug detection window, hair drug testing also provides several other advantages.⁵⁸ First, testing of hair samples taken from the head is less of an invasion of the servicemember’s privacy than a urine test, which requires direct observation of the urine flow.⁵⁹ Second, hair drug testing does not have the potential inherent adulteration problems of urine testing such as dilution or usage of prosthetics.⁶⁰ Third, the command can easily transport and store hair samples.⁶¹ In austere environments, the command would not have to worry about crushed samples, contaminated samples, or the effects of extreme heat or cold.⁶² For example, the current conflict in Iraq

⁵⁶ *Id.*

⁵⁷ *See id.* at 94-95 (statement of Tom Mieczkowski, Ph.D., Professor, University of South Florida) (explaining hair’s ability to quantify drug use).

⁵⁸ *See Hearing on the Federal Workplace Drug Testing Program, supra* note 51, at 22 (listing advantages).

⁵⁹ *See id.* at 21; U.S. DEP’T OF ARMY, REG. 600-85, ARMY SUBSTANCE ABUSE PROGRAM (ASAP) para. E-5(l) (24 Mar. 2006) [hereinafter AR 600-85] (requiring observer to watch urine leave the body and enter the collection cup). A privacy concern may arise when the test subject does not have enough head hair for a proper sample. The collector would then need to seek hair from alternate body locations. *See PSYCHEMEDICS TRAINING MANUAL, supra* note 30, at 6 (explaining that a hair sample can come from alternate body sites). These alternate sites, especially the pubic region, would raise the level of intrusion. The author proposes a strict collection protocol to reduce this intrusiveness. *See infra* p. 36 (discussing collection procedures). The author also notes that pubic hair collection does not require the subject to expose his genitals to the collector or an observer. E-mail from Mr. William Thistle, Senior Vice President and General Counsel, Psychemedics Corp., to Major Keven Kercher, Student, The Judge Advocate General’s Legal Center and School, U.S. Army (Jan. 4, 2006, 15:39 EST) [hereinafter Mr. Thistle E-mail, Jan. 4, 2006] (on file with author).

⁶⁰ *Hearing on the Federal Workplace Drug Testing Program, supra* note 52, at 22; *id.* at 9 (testimony of Harry F. Connick, District Attorney, City of New Orleans) (commenting on hair drug testing’s ability to defeat adulteration and substitution methods associated with urinalysis testing). For example, individuals can consume solutions to dilute the drug concentration in their urine or use prosthetic devices that appear like real human anatomy (e.g. an artificial penis) to provide a clean sample. *See Testimony, supra* note 8 (providing different methods to avoid testing positive on a drug test).

⁶¹ *See Mieczkowski, supra* note 21, at 2 (noting that hair samples require no special storage conditions); *Hearing on the Federal Workplace Drug Testing Program, supra* note 52, at 21.

⁶² *See Mieczkowski, supra* note 21, at 2 (noting a hair sample’s physical advantages over a urine sample).

represents such an environment, where the extreme heat could cause the drug concentrations in urine samples to decrease.⁶³ The intense heat could also stimulate rapid bacteria growth in the urine sample.⁶⁴ Fourth, the command could obtain another similar hair sample if the laboratory indicated a problem with the original hair sample.⁶⁵ Fifth, hair drug testing can help discriminate heroin users from codeine users or poppy-seed consumers, which urine testing allegedly cannot do.⁶⁶

E. Limitations of Hair Analysis

Although hair drug testing has many advantages, it cannot detect a use that occurred only a few days prior to a drug test.⁶⁷ After a servicemember consumes an illegal drug, the actual drug and drug metabolite must circulate through the blood to reach the hair.⁶⁸ Once the drug reaches the hair root, the hair must then grow long enough to

⁶³ See E-mail from Dr. Donald J. Kippenberger, Deputy Program Manager for Forensic Toxicology, United States Army Medical Command (MEDCOM), Fort Sam Houston, Texas, to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Jan. 26, 2006, 10:23 EST) [hereinafter Dr. Kippenberger E-mail, Jan. 26, 2006] (on file with the author). The author proposed a question to Dr. Kippenberger, asking about the actions the Army takes to protect urine samples from extreme heat, especially in Afghanistan and Iraq. *Id.* Dr. Kippenberger responded that currently the Army does not take any additional protection measures for these types of samples. *Id.* The servicemember simply gets the benefit of reduced drug concentrations in his urine sample. *Id.*

⁶⁴ See E-mail from Mr. William Thistle, Senior Vice President and General Counsel, Psychomedics Corp., to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Mar. 1, 2006, 14:20 EST) (explaining that urine samples need refrigeration to prevent bacteria growth (fermentation) which could affect the samples' chemical makeup) (on file with author).

⁶⁵ See Mieczkowski, *supra* note 21, at 2 (noting the ease of retesting hair); *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 21 (noting the ability to obtain another hair sample for testing if testing the original hair sample produces problems).

⁶⁶ *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 22. *Id.* at 2 (statement of the Honorable Joe Barton, Chairman of the House Subcommittee on Oversight and Investigations). Mr. Barton explained that ninety percent of the time, urine testing incorrectly identifies the consumption of poppy seeds or the consumption of certain prescription drugs as heroin use. *Id.* He also noted that hair sample testing can identify a particular heroin component that urine testing cannot. *Id.* As a result, hair drug testing can distinguish between the consumption of poppy seeds or medical prescriptions and the consumption of heroin. *Id.*

⁶⁷ See Vinal, *supra* note 18, § 2.

⁶⁸ See *supra* Part II.A (explaining how drugs deposit in the hair).

expose the drug deposits above the skin's surface.⁶⁹ Consequently, a commander would have to wait almost a week to obtain a hair sample reflecting present-day drug use.⁷⁰

Hair drug testing also might not detect a one-time use based upon selected, drug detection, cut-off levels.⁷¹ For example, the average amount of cocaine ingested during one use is 125 mg.⁷² A hair sample test would require the user to ingest approximately 200 mg of cocaine to return a positive result.⁷³ However, if a servicemember ingested several 125-mg "lines" of cocaine at one time, sometimes called "binge" use, the hair test would detect that use.⁷⁴ Hair drug testing can also estimate the number of one-time drug uses over a period of time because the lab analyzes the cumulative amount of drug deposits in a segment of hair.⁷⁵ This limitation represents one negative aspect associated with hair drug testing.

III. The Fourth Amendment & Military Rule of Evidence (MRE) 313

Beyond the technical benefits of hair drug testing, it also satisfies the legal requirements of the Fourth Amendment, which protects persons from unreasonable government searches and seizures.⁷⁶ Unless an exception applies, the government actor must operate with a proper warrant issued upon probable cause to conduct a search or a seizure.⁷⁷

⁶⁹ *Id.*

⁷⁰ *Id.* (noting that drug deposits in the hair follicle will normally take about five to seven days to emerge from the skin's surface).

⁷¹ Mr. Thistle E-mail, Nov. 3, 2005, *supra* note 26.

⁷² *Id.*

⁷³ *Id.*

⁷⁴ *Id.*; see also *United States v. Bethea*, 61 M.J. 184, 184-88 (2005) (involving hair analysis and "binge" drug use).

⁷⁵ See Werner A. Baumgartner & Virginia A. Hill, *Hair Analysis for Organic Analytes: Methodology, Reliability, and Field Studies*, in *DRUG TESTING IN HAIR* 223, 225 (Piscal Kintz ed., 1996). From the amount of drug found in each segment, a laboratory can estimate the amount of uses during a particular thirty-day window. *Id.* Hair sample analysis has the ability to distinguish between "heavy, intermediate, and light drug use". See generally *Mieczkowski*, *supra* note 21, at 2 (describing segmentation of the tested hair sample). For example, if the laboratory starts at the root end of a hair sample and cuts the hair into 1/2 inch segments, each segment will represent about thirty days of hair growth. *Id.* When the laboratory tests each segment, the laboratory will determine the amount of drugs trapped in each segment. *Id.*

⁷⁶ U.S. CONST. amend. IV.

⁷⁷ *Id.*

Specifically, the Fourth Amendment applies to situations where a government actor intrudes into an area where a person has a reasonable expectation of privacy.⁷⁸ Hair drug testing raises three areas of Fourth Amendment concern: (1) the seizure of the servicemember to obtain the hair;⁷⁹ (2) the seizure of the hair;⁸⁰ and (3) the search of the hair for illegal substances.⁸¹

The Supreme Court has established certain tests for the lower courts to use in determining when a government official's actions will trigger Fourth Amendment protections.⁸² In *Katz v. United States*, the Supreme Court created a two-part test to determine when an individual has a reasonable expectation of privacy in his person or in a particular place or item.⁸³ The Court will find a reasonable expectation of privacy: (1) if the person believes he has a subjective expectation of privacy; and (2) if society accepts that expectation of privacy as objectively reasonable.⁸⁴ If a reasonable expectation of privacy exists, the government must possess a valid search authorization⁸⁵ or a search authorization exception prior to searching and/or seizing a particular person or item or prior to searching a particular place.⁸⁶

When applying these rules to hair drug testing, three questions emerge. First, does a servicemember have a reasonable expectation of privacy in his hair?⁸⁷ Second, if the servicemember does have an

⁷⁸ See *Katz v. United States*, 389 U.S. 347, 351 (1967) (noting that Fourth Amendment application focuses on a person's intent to keep items and activities private).

⁷⁹ See *United States v. Dionisio*, 410 U.S. 1, 8 (1973) (explaining Fourth Amendment applications when collecting physical evidence from a person's body); cf. *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 136 (3rd Cir. 1982) (noting that a grand jury summons is not a Fourth Amendment seizure).

⁸⁰ *Dionisio*, 410 U.S. at 8.

⁸¹ *Id.*

⁸² See *Katz*, 389 U.S. at 347 (1967) (determining when a person has an expectation of privacy protected by the Fourth Amendment).

⁸³ *Id.* at 361 (Harlan, J., concurring) (explaining the test).

⁸⁴ *Id.*

⁸⁵ See MANUAL FOR COURTS-MARTIAL, UNITED STATES, MIL. R. EVID. 315(a), (b)(1), (b)(2) (2005) [hereinafter MCM] (explaining how the military utilizes search authorizations instead of search warrants). In the context of this article, the use of the term "search authorization" will also encompass the term "search warrant."

⁸⁶ U.S. CONST. amend. IV; see *Vernonia School Dist. 47J v. Acton*, 515 U.S. 646, 652-53 (1995) (discussing the "reasonableness" concept of the Fourth Amendment and noting that a reasonable search does not always need a warrant or probable cause).

⁸⁷ See *Katz*, 389 U.S. at 361 (Harlan, J., concurring); *United States v. Dionisio*, 410 U.S. 1, 14 (stating that a person does not have a reasonable expectation of privacy in his facial characteristics or in the physical characteristics of his voice).

expectation of privacy in his hair, does the government actor taking the hair sample have a search authorization based upon probable cause,⁸⁸ or does an exception to the search authorization requirement exist?⁸⁹ Third, is the manner in which the government actor collected the hair sample reasonable?⁹⁰ Hair drug testing must satisfactorily navigate these legal checkpoints before military counsel may use hair sample results in court.⁹¹

A. Reasonable Expectation of Privacy

Controversy over whether an individual has a reasonable expectation of privacy in his hair currently exists in both federal and state courts.⁹² If an individual does not have an expectation of privacy in his hair, law

⁸⁸ *E.g.*, *United States v. Bethea*, 61 M.J. 184, 188 (2005) (finding probable cause for a hair sample search authorization).

⁸⁹ *E.g.*, *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 619-20 (1989) (utilizing the "special needs" exception to the warrant requirement for urine testing of railroad employees).

⁹⁰ *See Schmerber v. California*, 384 U.S. 757, 768-72 (1966) (analyzing the manner of the search); *Bouse v. Bussey*, 573 F.2d 548, 550-51 (9th Cir. 1977) (holding that the forcible removal of pubic hair without a warrant violated the defendant's Fourth Amendment rights).

⁹¹ *See Katz*, 389 U.S. at 361 (Harlan, J., concurring) (creating a two-part test for determining a reasonable expectation of privacy); *see also Schmerber*, 384 U.S. at 768 (recognizing the "proper manner" test for obtaining body evidence).

⁹² *See Coddington v. Evanko*, 112 F. App'x 835, 835-38 (3rd Cir. 2004) (finding no reasonable expectation of privacy in hair); *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 139 (3rd Cir. 1982) (concluding no expectation of privacy in hair that is on public display); *see also United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *2 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (raising an argument of no reasonable expectation of privacy in a hair sample); *United States v. De Parais*, 805 F.2d 1447, 1456 (11th Cir. 1996) *overruled on other grounds* by *United States v. Kaplan*, 171 F.3d 1351 (11th Cir. 1999) (recognizing the debate); *United States v. Bullock*, 71 F.3d 171, 176 n.3 (5th Cir. 1995) (recognizing Fourth Amendment issues associated with hair sample testing). The courts in the following cases found a reasonable expectation of privacy in hair but allowed the hair sample collection under an exception to the Fourth Amendment requirement. *See United States v. D'Amico*, 408 F.2d 331, 332-33 (2nd Cir. 1969) (holding that clipping hair is considered a seizure, but is reasonable); *Knight v. Evanco*, No. 02-CV-1748, 2003 U.S. Dist. LEXIS 23734, at *16 (E.D. Pa. 2003) (finding "no viable claim of an illegal search under the Fourth Amendment" because a "special needs" exception applied); *Ohio v. Coyle*, No. 99CA2480, 2000 Ohio App. LEXIS 1079, at *9-14 (Ohio App. 2000) (taking a hair sample from a suspect in custody is a seizure but reasonable as incident of a lawful arrest); *State v. Sharpe*, 200 S.E. 2d 44, 49 (N.C. 1973) (finding a seizure but no Fourth Amendment violation).

enforcement officials could conduct a warrantless seizure of it.⁹³ The courts often analyze whether a hair sample is more akin to a handwriting or voice sample, or to a blood or urine sample.⁹⁴ The Supreme Court has found that a person has no reasonable expectation of privacy in a handwriting sample⁹⁵ or a voice sample.⁹⁶ However, the Court has held that a person does have an expectation of privacy in a blood sample⁹⁷ and a urine sample.⁹⁸ The question then becomes where a hair sample seizure would fall on this spectrum.

Military appellate courts have not yet addressed the question of whether a servicemember has a reasonable expectation of privacy in his hair.⁹⁹ In *United States v. Ruiz*, government counsel argued that the accused did not have an expectation of privacy in his drug-tested hair sample.¹⁰⁰ However, the Air Force Court of Criminal Appeals (AFCCA) found that a valid search authorization existed in the case.¹⁰¹ Therefore, the Air Force court avoided confronting the privacy issue.¹⁰² In comparison, the same court in *United States v. Pyburn* held that a forcible taking of an uncooperative servicemember's hair to compare the hair to a crime scene hair sample did not violate the Fourth

⁹³ See *Katz*, 389 U.S. at 361 (Harlan, J., concurring) (explaining that the Fourth Amendment protects places where people have an expectation of privacy). See generally *Coddington*, 112 F. App'x at 838 (finding no reasonable expectation of privacy in hair); *Sharpe*, 200 S.E. 2d at 47-49 (holding that a police seizure of head and underarm hair without a warrant does not violate the Fourth Amendment).

⁹⁴ See *In re Mills*, 686 F.2d at 139 (concluding "that there is no greater expectation of privacy with respect to hair which is on public display than with respect to voice, handwriting or fingerprints"). In *Mills*, a grand jury ordered Mr. Mills to provide facial and head hair to compare with hairs found in a robber's abandoned mask. *Id.* at 136. Mr. Mills refused to provide the sample unless the grand jury obtained a valid search warrant. *Id.* at 139. Mr. Mills filed a complaint with the district court to vacate the grand jury order. *Id.*

⁹⁵ *United States v. Mara*, 410 U.S. 19, 21-22 (1973).

⁹⁶ *United States v. Dionisio*, 410 U.S. 1, 14 (1973).

⁹⁷ *Schmerber v. California*, 384 U.S. 757, 767 (1966).

⁹⁸ *Nat'l Treasury Employees Union v. Von Raab*, 489 U.S. 656, 678-79 (1989) (finding the collection of a urine sample for chemical analysis a search); *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 617 (1989).

⁹⁹ At press, the author's extensive research in military case law revealed no military case at the appellate level that addressed the reasonable expectation of privacy issue for hair sample drug testing.

¹⁰⁰ *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *2 (A.F. Ct. Crim. App. July 26, 1999) (unpublished).

¹⁰¹ *Id.* at *3.

¹⁰² *Id.*

Amendment.¹⁰³ At the time of the hair seizure, the military police had Pyburn in custody, but did not have a search authorization.¹⁰⁴

Pyburn highlights the distinction between and consequent implications of a hair sample obtained for drug testing purposes, with one obtained for comparison purposes.¹⁰⁵ A hair sample seized to compare to another hair sample more closely aligns with the expectation of privacy analysis associated with the taking of a handwriting sample.¹⁰⁶ However, a hair sample seized to chemically analyze the sample for drugs arguably correlates more to a seizure of a urine sample.¹⁰⁷ Therefore, even if military courts find no reasonable expectation of privacy in a hair sample, the defense could still argue for the courts to bifurcate hair sample testing into two separate “expectation of privacy” categories.¹⁰⁸ One category, “drug testing”, would create a reasonable

¹⁰³ *United States v. Pyburn*, 47 C.M.R. 896, 907 (A.F.C.M.R. 1973). *Pyburn* reflects a problem created by *United States v. Katz*, 389 U.S. 347 (1967). In *Katz*, the Supreme Court focused on an individual’s reasonable expectation of privacy in a particular place or item. 389 U.S. 347, 361 (1967). However, *Pyburn* focused on the “reasonableness” of obtaining the hair sample and did not examine if the individual had a reasonable expectation of privacy in his pubic hair. *Pyburn*, 47 C.M.R. at 907. Justice Black highlighted this distinction in his dissenting opinion in *Katz*. 389 U.S. at 373-74. He argued that the majority opinion in *Katz* inappropriately incorporated “right to privacy” language into the Fourth Amendment instead of simply interpreting the language of the Constitution, which prohibits “unreasonable” searches. *Id.* He feared the Court had given itself broad power to determine what constitutes a reasonable expectation of privacy instead of limiting itself to what the Constitution allowed. *Id.* at 374; *see also* *Minnesota v. Carter*, 525 U.S. 83, 97-98 (1998) (Scalia, J., concurring) (labeling the *Katz* test as the Court’s “self-indulgent test”). This distinction creates the problem of what language a court should apply to a hair seizure: (1) should the court examine whether the person had an expectation of privacy in his hair sample? or (2) should the court determine whether the seizure was “reasonable” under the language of the Fourth Amendment?

¹⁰⁴ *Pyburn*, 47 C.M.R. at 904 (considering the search incident to a lawful apprehension).

¹⁰⁵ *See id.* at 907 (stating that the expectation of privacy associated with the taking of a hair sample falls somewhere between that associated with obtaining a fingerprint and bodily fluids).

¹⁰⁶ *See In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 139 (3rd Cir. 1982) (comparing a hair sample used for comparison purposes to a fingerprint, a handwriting sample, and a voice sample and finding no reasonable expectation of privacy).

¹⁰⁷ *See generally* *Skinner v. Ry. Labor Executives Ass’n*, 489 U.S. 602, 617 (1989) (considering a urine test a search).

¹⁰⁸ *See generally* *Ohio v. Coyle*, No. 99CA2480, 2000 Ohio App. LEXIS 1079, at *9 n.3 (Ohio App. 2000) (analyzing the seizure and subsequent testing of the accused’s hair based solely on the police’s limited usage of the sample for comparison purposes). In this case, the defendant argued that the authorities seized his hair sample for DNA testing instead of only a hair comparison. *Id.* Since the authorities only obtained and used the hair sample for comparison purposes, the court only analyzed the seizure for the purpose of comparing hairs. *Id.*

expectation of privacy. The other category, “comparison testing”, would not involve a reasonable expectation of privacy.

Separate from the test’s purpose, the hair sample removal site may also play a role in assessing intrusiveness.¹⁰⁹ Removing hair from a person’s head differs in level of intrusiveness from removing hair from the body, especially from the pubic region.¹¹⁰ The seizure of a pubic hair sample could push a court to apply Fourth Amendment protection, where the seizure of a hair sample taken from the head would not.¹¹¹ This difference could create difficulties for commanders who have servicemembers with short or shaved haircuts.¹¹² A commander may counter this problem by first seizing hair from a servicemember’s chest or underarm.¹¹³ A commander could also require a servicemember to grow out the hair on his head.¹¹⁴ This order would flow from the same logic that allows a commander to order a servicemember to drink water to provide a sample pursuant to a urinalysis.¹¹⁵

¹⁰⁹ See *Bouse v. Bussey*, 573 F.2d 548, 549-50 (9th Cir. 1977) (recognizing that clipping a few hairs from the defendant’s head implicates less privacy concerns than taking a hair sample from the defendant’s pubic region).

¹¹⁰ Compare *Bouse*, 573 F.2d at 549-51 (pulling of a pubic hair), with *United States v. D’Amico*, 408 F.2d 331, 332-33 (2d Cir. 1969) (cutting a few strands of head hair).

¹¹¹ *Bouse*, 573 F.2d at 549-51; *D’Amico*, 408 F.2d at 332-33; cf. *United States v. Millar*, No. 32222, 1997 CCA LEXIS 30 (A.F. Ct. Crim. App. Jan 8, 1997) (arguing unsuccessfully that law enforcement’s photographing of pubic hair collection constituted pre-trial punishment).

¹¹² See *Coddington v. Evanko*, 112 F. App’x 835, 836 & 838 (3rd Cir. 2004) (obtaining hair sample from a person with short hair).

¹¹³ See *PSYCHEMEDICS TRAINING MANUAL*, *supra* note 30, at 6 (explaining that a hair sample can come from alternative sites); cf. Mr. Thistle E-mail, Jan. 4, 2006, *supra* note 58 (explaining that obtaining a pubic hair sample does not require a person to expose his or her genitals).

¹¹⁴ See *United States v. Mitchell*, 15 M.J. 654 (N.M.C.R. 1983), *rev’d*, 16 M.J. 95 (C.M.A. 1983) (involving an order to drink water for a urinalysis). The order would focus on servicemembers who have hair that is close to the required collection length. In these cases, a couple of weeks of additional growth would prevent the commander from having to collect hair from an alternative location. The command could also randomly pick servicemembers at the present date for a future hair sample test. The commander would then inform the servicemembers of their selection and require them to maintain or grow the required length of hair by the test date. However, this practice would nullify the surprise element of the hair test and likely catch only chronic users.

¹¹⁵ *Id.* In *Mitchell*, the command randomly selected Petty Officer Flint as part of a unit urinalysis. *Id.* at 654-55. Since Petty Officer Flint could not provide a urine sample, the command directed her to the command’s library and told her to drink water until she could provide a urine sample. *Id.* at 655. Petty Officer Flint eventually provided a urine sample which tested positive. *Id.* The trial judge suppressed the urinalysis results based on an improper application of Military Rules of Evidence (MRE) 315 and 312, which

The method of hair collection method may also affect the reasonable expectation of privacy analysis.¹¹⁶ In *Coddington v. Evanko* the Third Circuit Court of Appeals examined the hair collection method used.¹¹⁷ The court held that Officer Coddington did not have a reasonable expectation of privacy in his head, neck, and back hair because the government official clipped hair that was in plain view.¹¹⁸ The *Coddington* court found no reasonable expectation of privacy in a hair sample that was “above the body surface and on public display.”¹¹⁹ However, the court noted that plucking the hair from the root may raise an expectation of privacy.¹²⁰ Consequently, the court created an expectation of privacy for subsurface hair but not for surface hair.¹²¹ The court equated the clipping of hair to obtaining fingerprints or handwriting exemplars and the plucking of hair to obtaining blood samples or fingernail scrapings.¹²²

would require a search authorization in order to compel a servicemember to ingest a substance to find evidence of a crime. *Id.* On a government interlocutory appeal, the United States Navy-Marine Corps Court of Military Review (NMCMR) agreed with the government that MRE 313 provided the correct legal standard. *Id.* The court’s opinion implied that MRE 313 would support the command’s order. *Id.* However, the NMCMR did not reverse the trial judge’s decision but relied on the court’s opinion to put the judge on notice of his legal error. *Id.* at 655-56. The government then petitioned the COMA which reversed the NMCMR. *United States v. Mitchell*, 16 M.J. 95 (C.M.A. 1983).

¹¹⁶ See *Coddington*, 112 F. App’x at 838 (shaving head and body hair); *Bouse*, 573 F.2d at 550-51 (pulling pubic hair).

¹¹⁷ *Coddington*, 112 F. App’x at 838. In *Coddington*, the appellant served as a member of the Pennsylvania State Troopers. *Id.* at 836. Based upon information from confidential informants that Officer Coddington used cocaine, Coddington’s superior officers ordered him to provide a hair sample for drug testing. *Id.* Since Officer Coddington had short hair, a police sergeant had to shave hair from Coddington’s head, neck, and back. *Id.* at 836, 838. Officer Coddington argued that this method of hair sample collection violated his Fourth Amendment right to privacy. *Id.* at 837. However, the court found nothing wrong with the hair collection method because Officer Coddington did not have sufficient hair on his head to provide a cut sample. *Id.* at 838.

¹¹⁸ *Id.* (noting that the hair was in plain view).

¹¹⁹ *Id.*

¹²⁰ See *id.* at 837-38; see also *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 140 (3rd Cir. 1982) (noting that cutting a hair sample from the head versus pulling a hair sample from the root may result in different constitutional outcomes). *But see State v. Sharpe*, 200 S.E. 2d 44, 47, 49 (N.C. 1973) (holding that plucking hairs from defendant’s head and arm incident to a lawful arrest did not violate the Fourth Amendment).

¹²¹ *Coddington*, 112 F. App’x at 838.

¹²² *Id.* at 837-38 (citing *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 139 (3rd Cir. 1982)).

Consequently, a legal window is currently open for military counsel to argue that a servicemember does not have a reasonable expectation of privacy in his hair.¹²³ This argument, if successful, could preserve evidence from a command-directed hair collection regardless of whether sufficient probable cause exists.¹²⁴ Additionally, a commander could order a hair drug test based on less than probable cause and still have the results admitted.¹²⁵

For example, assume a commander hears rumors that three of his servicemembers consumed illegal drugs over the past weekend.¹²⁶ However, the commander does not have probable cause for a search authorization. Unfortunately, a last minute inspection would raise subterfuge concerns that the inspection is only a quest for evidence which the Manual for Courts-Martial prohibits.¹²⁷ In consultation with his legal advisor, the commander might decide to order a fitness-for-duty urinalysis test.¹²⁸ Unfortunately, this test triggers the Army's limited use policy, which prohibits the commander's use of the results of the urinalysis for judicial and nonjudicial punishment.¹²⁹

If servicemembers had no expectation of privacy in their hair, a hair sample test might legally sidestep the limitations of the Army's limited

¹²³ *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *2-3 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (raising but not addressing the issue of whether a servicemember has a reasonable expectation of privacy in his hair for drug testing purposes). The author's extensive research in military case law revealed no other military case at the appellate level that addressed the reasonable expectation of privacy issue for hair sample testing.

¹²⁴ *See id.* at *1-3 (giving a "no reasonable expectation of privacy" argument as a backup position to a sufficient probable cause argument).

¹²⁵ *See United States v. Dionisio*, 410 U.S. 1, 4-5, 13-15 (1973) (disagreeing with the lower court's position that requiring a voice recording on less than probable cause violated the Fourth Amendment). The Court found that an individual did not have a reasonable expectation of privacy in his voice. *Id.* at 14-15. Therefore, the probable cause protections of the Fourth Amendment did not apply. *Id.*

¹²⁶ *See generally United States v. Taylor*, 41 M.J. 168, 168-69 (C.M.A. 1994) (involving an anonymous tip reporting drug use in the unit).

¹²⁷ *See id.* at 168-72 (deciding whether a commander's urinalysis inspection constituted a subterfuge for a search); MCM, *supra* note 84, MIL. R. EVID. 313(a), (b).

¹²⁸ *See U.S. DEP'T OF DEFENSE, DIR. 1010.1, MILITARY PERSONNEL DRUG ABUSE TESTING PROGRAM* para. 3.3.6 (9 Dec. 1994) (describing the competence-for-duty urine test); *see also AR 600-85, supra* note 59, para. 6-4(a)(1).

¹²⁹ *See AR 600-85, supra* note 59, para. 6-4(a)(1) (explaining the limited use policy as the policy applies to command-directed biochemical testing).

use policy.¹³⁰ The limited use policy covers “results of a command-directed biochemical testing that [are] inadmissible under the Military Rules of Evidence.”¹³¹ However, MRE 311 only makes the evidence of a search inadmissible if “the accused had a reasonable expectation of privacy in the person . . . searched.”¹³² A hair sample test could occur under the same premise used to justify an order to a servicemember suspected of wrongful entry to provide fingerprint samples for possible comparison.¹³³ In both cases, the evidentiary rule would not preclude introduction of the evidence since the servicemembers would have no reasonable expectation of privacy in their fingerprints or in their hair.¹³⁴

Even if a commander had valid ground to seize the hair, a commander would not be authorized to conduct the hair sample test in a dragnet fashion.¹³⁵ A finding of no reasonable expectation of privacy in the hair would justify only the seizure of the hair and the search of the hair.¹³⁶ The Fourth Amendment would still require a legitimate reason for temporarily detaining a servicemember temporarily to obtain a hair sample, such as pursuant to a law enforcement investigation.¹³⁷ A commander must be able to articulate a reasonable suspicion about a

¹³⁰ See MCM, *supra* note 85, MIL. R. EVID. 311(a)(2); AR 600-85, *supra* note 59, para. 6-4(a)(1). The limited use policy would need to allow for a hair analysis exception for competency-for-duty tests. AR 600-85, *supra* note 59, para. 6-4(a)(1).

¹³¹ AR 600-85, *supra* note 59, para. 6-4(a)(1).

¹³² MCM, *supra* note 85, MIL. R. EVID. 311(a)(2).

¹³³ See *United States v. Fagan*, 28 M.J. 64, 64-66 (C.M.A. 1989) (upholding a commander’s order to provide fingerprint samples). The Court noted that “people ordinarily do not have enforceable expectations of privacy in their physical characteristics.” *Id.* at 66.

¹³⁴ See *id.*

¹³⁵ See *Davis v. Mississippi*, 394 U.S. 721, 722-28 (1969) (finding that a police dragnet sweep of African-American males for fingerprinting violated the Fourth Amendment); *Fagan*, 28 M.J. at 66 (distinguishing between the Fourth Amendment applications of holding an individual to obtain physical evidence and of actually obtaining the physical evidence).

¹³⁶ *United States v. Dionisio*, 410 U.S. 1, 8 (1973).

¹³⁷ See *id.*; *Davis*, 394 U.S. at 727-28 (1969) (holding that law enforcement did not have proper legal authority to detain young African-American men for fingerprinting purposes); *Fagan*, 28 M.J. at 64-70 (upholding commander’s order to require Marines to provide fingerprints to law enforcement despite the commander’s lack of probable cause). Wrongful entries had occurred at the enlisted barracks of 1st Battalion, 12th Marines, located at Marine Corps Air Station, Kaneohe Bay, Hawaii. *Id.* at 64-65. The entries happened while the unit conducted off-island training. *Id.* at 65. The investigating agents did not have any evidence pointing to a particular Marine. *Id.* Therefore, the commander decided to fingerprint all of the Marines, approximately 100, who had not attended the training and who had remained on the island. *Id.*

certain servicemember,¹³⁸ or at least possess a reasonable belief that a hair sample test would identify a perpetrator.¹³⁹

Additionally, the hair sample seizure must utilize reasonable collection procedures.¹⁴⁰ In *Bouse v. Bussey*, the Ninth Circuit Court of Appeals held that a hair sample collection violated the Fourth Amendment.¹⁴¹ The Ninth Circuit found that two police officers acted inappropriately when they subdued a pretrial detainee, unzipped his trousers, and forcibly pulled a pubic hair sample.¹⁴² The court found that these actions exceeded the “minor intrusions upon privacy and integrity that . . . are not generally considered searches or seizures.”¹⁴³ “[W]hat is reasonable depends upon all of the circumstances surrounding the search or seizure and the nature of the search or seizure itself.”¹⁴⁴

In sum, military appellate courts have not ruled on the threshold question of whether a servicemember has an expectation of privacy in his hair for drug testing purposes.¹⁴⁵ However, commanders should always try to obtain samples of hair from the head instead of the body to

¹³⁸ See generally *Knight v. Evanco*, No. 02-CV-1748, 2003 U.S. Dist. LEXIS 23734, at *2, 19-20 (E.D. Pa. 2003) (involving a Pennsylvania State Police regulation requiring a commander to have a reasonable suspicion of drug use by a police officer prior to ordering the police officer to submit to a hair drug test).

¹³⁹ See *Fagan*, 28 M.J. at 68 (C.M.A. 1989) (requiring a commander to at least have knowledge that fingerprints may lead to perpetrator’s identity).

¹⁴⁰ See *Davis*, 394 U.S. at 727-28 (1969) (noting that warrantless fingerprinting by law enforcement might survive Fourth Amendment scrutiny if law enforcement follow “narrowly circumscribed procedures”); *Bouse v. Bussey*, 573 F.2d 548, 549-50 (9th Cir. 1977) (finding police seizure of pubic hair sample as unreasonable).

¹⁴¹ *Bouse*, 573 F.2d at 550-51.

¹⁴² *Id.* at 550. Mr. Bouse had filed a claim under 42 U.S.C.S. § 1983 (LEXIS 2006) that the police officers had violated his Fourth Amendment rights when the officers allegedly obtained his pubic hair sample. *Id.* at 549. The district court dismissed the complaint on grounds that the alleged conduct did not constitute a Fourth Amendment violation. *Id.* The appellate court reversed the lower court, holding that Mr. Bouse would have a Constitutional claim based upon his allegations. *Id.* at 549, 551.

¹⁴³ See *id.* at 550 (distinguishing between “reasonable” and “unreasonable” searches as envisioned by the language of the Fourth Amendment).

¹⁴⁴ *United States v. Montoya De Hernandez*, 473 U.S. 535, 537 (1985); cf. *Rochin v. California*, 342 U.S. 165 (1952) (establishing a “shock the conscious” due process test for improper police action).

¹⁴⁵ See *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *2 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (raising but not addressing the issue of expectation of privacy in one’s hair).

minimize any intrusiveness concerns.¹⁴⁶ Commanders should also obtain hair samples using cutting, not plucking, methods.¹⁴⁷ These techniques will strengthen the government's argument that a servicemember does not have a reasonable expectation of privacy in his seized hair.¹⁴⁸ Finally, the commander should be able to articulate a basis for seizing hair from the servicemember and should follow established collection procedures.¹⁴⁹

B. Search Authorization

Although military appellate courts have not yet addressed the expectation of privacy issue for hair drug testing, they have routinely upheld search authorizations for hair samples.¹⁵⁰ Witness observations and positive urinalysis results usually provide the facts necessary to

¹⁴⁶ See *Coddington v. Evanko*, 112 F. App'x 835, 837-38 (3rd Cir. 2004) (finding no reasonable expectation of privacy for hair on "public display"); *Bouse*, 573 F.2d at 550-51 (involving the collection of pubic hair).

¹⁴⁷ *Coddington*, 112 F. App'x at 838; see also *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 140 (3rd Cir. 1982) (cutting a hair sample from the head versus pulling a hair sample from the root may result in different constitutional outcomes). But see *State v. Sharpe*, 200 S.E. 2d 44, 47, 49 (N.C. 1973) (holding that plucking hairs from defendant's head and arm incident to a lawful arrest did not violate the Fourth Amendment).

¹⁴⁸ See *Coddington*, 112 F. App'x at 837-38 (finding no expectation of privacy in hair exposed to public view).

¹⁴⁹ See *United States v. Dionisio*, 410 U.S. 1, 8 (1973) (stating that the Fourth Amendment applies both to the seizure of a person and then to the seizure and search of the person's body evidence); *United States v. Fagan*, 28 M.J. 64, 68-70 (C.M.A. 1989) (examining the "seizure" of a servicemember to collect body evidence).

¹⁵⁰ See *United States v. Bethea*, 61 M.J. 184, 184-86, 188 (2005) (finding probable cause for search authorization to collect a hair sample); *United States v. Cravens*, 56 M.J. 370, 370-75 (2002) (upholding magistrate's decision to grant search authorization); *United States v. Bush*, 47 M.J. 305, 308-09 (1997) (finding a proper search authorization without requiring an agent to apply a "precise mathematical limitation to the length of the hair obtained" from the accused); *United States v. Adams*, No. 33055, 2000 CCA LEXIS 196, at *1-7 (A.F. Ct. Crim. App. Aug. 4, 2000) (unpublished) (supporting the magistrate's probable cause determination despite minor errors in the agent's affidavit); *United States v. Johnson*, No. 33134, 2000 CCA LEXIS 18, at *1-5 (A.F. Ct. Crim. App. Jan. 27, 2000) (unpublished) (denying defense claim that agent's information to magistrate about hair drug testing was erroneous); *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *2-11 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (involving Air Force Office of Special Investigations (AF OSI) agents obtaining a search authorization for a hair sample test based upon observations of the accused snorting a white substance); *United States v. Millar*, No. 32222, 1997 CCA LEXIS 30, at *1-3 (A.F. Ct. Crim. App. Jan. 8, 1997) (involving a search authorization to obtain pubic hair).

support a probable cause determination.¹⁵¹ In several military cases, however, the defense challenged the commander or magistrate's probable cause determination based on inaccurate information provided by witnesses about the capabilities of hair sample testing.¹⁵²

For example, *United States v. Bethea* involved confusion over the ability of hair sample testing to detect a one time drug use.¹⁵³ When a Criminal Investigation Division (CID) special agent confronted the accused with a positive urinalysis test, the accused denied using cocaine.¹⁵⁴ The special agent then sought a magistrate's search authorization for a hair sample.¹⁵⁵ The special agent's affidavit stated that hair sample testing analysis could detect only chronic or binge drug use.¹⁵⁶ The defense argued that the positive urinalysis result lacked probable cause for a second test that could detect one time use.¹⁵⁷ Therefore, the defense claimed the magistrate lacked probable cause to order a follow-up hair test because the hair test could only detect multiple uses.¹⁵⁸

Even if a hair sample analysis might not detect all one time uses,¹⁵⁹ the Court of Appeals for the Armed Forces (CAAF) stated that this possible limitation did not invalidate the search authorization.¹⁶⁰ The court held that because a urinalysis could detect not only a one time use but also multiple uses,¹⁶¹ a urinalysis could provide sufficient probable

¹⁵¹ See *Johnson*, 2000 CCA LEXIS 18, at *1-5 (basing hair sample authorization on results of urinalysis test); *Ruiz*, 1999 CCA LEXIS 219, at *2-11 (establishing probable cause for hair sample test based upon witness observation of drug use).

¹⁵² See *Bethea*, 61 M.J. at 184-86 (challenging agent's affidavit); *Johnson*, 2000 CCA LEXIS 18, at *1-5 (rejecting defense claim that the magistrate's reliance on the case agent's and hair consultant's statements did not support probable cause for a hair test); see also Major Charles Pede, *New Developments in Search and Seizure and Urinalysis*, ARMY LAW., Apr. 1998, at 86-88 (analyzing agent's failure in *United States v. Bush*, 47 M.J. 305 (1997), to provide a commander with sufficient information about defendant's hair sample).

¹⁵³ *Bethea*, 61 M.J. at 184-86.

¹⁵⁴ *United States v. Bethea*, No. 35381, 2004 CCA LEXIS 175, at *2 (A.F. Ct. Crim. App. July 20, 2004), *aff'd*, *United States v. Bethea*, 61 M.J. 184 (2005).

¹⁵⁵ *Id.*

¹⁵⁶ *Bethea*, 61 M.J. at 185.

¹⁵⁷ *Id.* at 185-86.

¹⁵⁸ *Id.*

¹⁵⁹ See *supra* Part II.E (addressing hair testing's ability to detect a one-time use).

¹⁶⁰ *Bethea*, 61 M.J. at 187-88. The CAAF noted that its opinion did not address whether hair testing could detect a one-time use. *Id.* at 186 n.3.

¹⁶¹ *Id.* at 187.

cause for a hair sample test.¹⁶² The court effectively dodged the one time use issue by focusing on a urinalysis's ability to detect multiple drug uses.¹⁶³

Betha represents the problems that lack of precise wording in affidavits can create in the search authorization process.¹⁶⁴ Law enforcement officers and special agents should always contact hair sample analysis experts prior to executing an affidavit that is geared toward seizure of a hair sample.¹⁶⁵ This simple step can help ensure commanders and magistrates obtain accurate hair drug testing information prior to being confronted with a probable cause determination.

C. Military Rule of Evidence 313

Although a proper search authorization complies with the Fourth Amendment, a commander's inspection authority provides a lawful exception to Fourth Amendment requirements.¹⁶⁶ Military Rule of Evidence 313 outlines the legal standards applicable to a command inspection.¹⁶⁷ These standards provide guidance on inspection procedures and regulate the admissibility of evidence collected pursuant to an inspection.¹⁶⁸ Hair drug testing complies with these standards because it satisfies the rule's underlying "special needs" exception to the Fourth Amendment's warrant clause.¹⁶⁹ Hair drug testing also mirrors the rules urinalysis exception criteria because the rationale used to justify hair drug testing can be analogized to that used with urinalysis testing.¹⁷⁰

¹⁶² *Id.* at 187-88.

¹⁶³ *Id.*

¹⁶⁴ *Id.* at 184-88.

¹⁶⁵ *See generally id.* at 185 (noting that the special agent on the case contacted a forensic science consultant and the National Medical Services Laboratory).

¹⁶⁶ U.S. CONST. amend. IV; MCM, *supra* note 85, MIL. R. EVID. 313.

¹⁶⁷ MCM, *supra* note 85, MIL. R. EVID. 313.

¹⁶⁸ *Id.* at MIL. R. EVID. 313(a), (b).

¹⁶⁹ *See Skinner v. Ry. Labor Executives Ass'n*, 489 U.S. 602, 618-34 (1989) (using the special need exception to the Fourth Amendment to uphold urine testing of certain railway employees); *Nat'l Treasury Employees Union v. Von Raab*, 489 U.S. 656, 665-79 (1989); *United States v. Bickel*, 30 M.J. 277 (C.M.A. 1990) (applying the special need exception to the military urinalysis program); *see also infra* Part III.C.1 (analyzing the special need exception).

¹⁷⁰ *See infra* Part III.C.2.

Adhering to these proscribed requirements also helps prevent subterfuge inspections.¹⁷¹

1. The “Special Needs” Exception

The Supreme Court has created a “special needs” exception to the Fourth Amendment’s probable cause and warrant requirement to deal with unique government interests.¹⁷² A compulsory urinalysis ordered pursuant to MRE 313 already complies with this exception both in the rule’s text and supportive case law.¹⁷³ The “special needs” exception permits a suspicionless, warrantless search into an area in which a person has a reasonable expectation of privacy if the government interest or “special need” outweighs that person’s privacy rights.¹⁷⁴ “In limited circumstances, where the privacy interests implicated by the search are minimal, and where an important governmental interest furthered by the intrusion would be placed in jeopardy by a requirement of individualized suspicion, a search may be reasonable despite the absence of such suspicion.”¹⁷⁵

The Supreme Court has analyzed the “special needs” exception in five separate cases.¹⁷⁶ These cases developed factors the Court applies in

¹⁷¹ *Id.*

¹⁷² See *Skinner*, 489 U.S. at 618-34 (addressing the special needs exception); *Von Raab*, 489 U.S. at 665-79.

¹⁷³ See *Bickel*, 30 M.J. at 281-86 (remaining “convinced that the [compulsory urinalysis] testing of servicemembers authorized by MRE 313 pursuant to an ‘inspection’ rationale is constitutionally valid” in light of the *Skinner v. Ry. Labor Executives’ Ass’n*, 489 U.S. 602 (1989), and *Nat’l Treasury Employees Union v. Von Raab*, 489 U.S. 656 (1989) decisions).

¹⁷⁴ See *Ferguson v. City of Charleston*, 532 U.S. 67, 78 (2001); *Skinner*, 489 U.S. at 618-20.

¹⁷⁵ *Skinner*, 489 U.S. at 624; see also *Von Raab*, 489 U.S. at 665-79. A “suspicionless” search refers to a search without a warrant or probable cause. See generally *Von Raab*, 489 U.S. at 665-66.

¹⁷⁶ See *Ferguson*, 532 U.S. at 69-86 (finding that police and prosecution involvement in a public hospital’s drug testing of pregnant mothers removed the testing from the special needs exception); *Chandler v. Miller*, 520 U.S. 305, 308-23 (1997) (finding no special need exception for drug testing of Georgia political candidates); *Vernonia School Dist. 47J v. Acton*, 515 U.S. 646, 648-66 (1995) (approving of school district’s random drug testing of student athletes as a special need); *Skinner*, 489 U.S. at 602, 633-34 (upholding Federal Railroad Administration regulations requiring urinalysis testing for certain railroad employees); *Von Raab*, 489 U.S. at 659-79 (upholding special need of United States Customs Service to drug test employees seeking promotion to positions involving drug interdiction or involving firearm use); see also John B. Wefing, *Employee Drug*

articulating a special governmental need and in weighing that need against a person's privacy interests.¹⁷⁷ First, the Court will not find a special need that serves simply as a pretext for criminal prosecution.¹⁷⁸ Second, the Court will look favorably upon a special need that does not subject an individual to arbitrary testing.¹⁷⁹ Third, the Court will give great weight to the deterrent effect of the government tests when the Court finds a special need.¹⁸⁰ Fourth, the Court will consider the temporal applicability of the government test—whether the test can prevent destruction of evidence or determine immediate impairment.¹⁸¹

Additionally, the Supreme Court prefers a special need that minimally intrudes on a person's privacy.¹⁸² When analyzing a unit drug testing program, the Court will consider the intrusiveness of the collection procedures.¹⁸³ The Court will also examine the amount of restriction the test places on a person's freedom of movement.¹⁸⁴ The nature of the person's employment will also receive close review by the Court.¹⁸⁵ The Court has found that an employee has a lower expectation of privacy in a heavily regulated work environment.¹⁸⁶

In *United States v. Bickel*, the Court of Military Appeals (COMA) found a special need for the military's urine testing program.¹⁸⁷ The *Bickel* court identified several distinctions between the Supreme Court's

Testing: Disparate Judicial and Legislative Responses, 63 ALB. L. REV. 799, 800-14 (2000) (providing an overview of Supreme Court, federal, and state cases applying the special need exception).

¹⁷⁷ See *Skinner*, 489 U.S. at 620-32 (identifying special need factors).

¹⁷⁸ See *Ferguson*, 532 U.S. at 82-86 (finding no special need due to extensive law enforcement involvement in the drug testing program); *Skinner*, 489 U.S. at 620-21 & 621 n.5.

¹⁷⁹ See *Skinner*, 489 U.S. at 621-22 (1989) (favoring limited discretion by persons who authorize the drug testing).

¹⁸⁰ See *id.* at 629-30 (recognizing that a program preventing drug use will not work if employees have no fear of discovery).

¹⁸¹ *Id.* at 623, 631-32.

¹⁸² See *Ferguson*, 532 U.S. at 77-78 (weighing the amount of intrusion into the person's individual privacy against the importance of the government's special need).

¹⁸³ *Skinner*, 489 U.S. at 626-27.

¹⁸⁴ *Id.* at 618, 624-25.

¹⁸⁵ See *id.* at 627 (noting that a heavily regulated industry to ensure employee health, fitness, and safety supports a lower expectation of privacy among the industry's employees).

¹⁸⁶ *Id.*

¹⁸⁷ *United States v. Bickel*, 30 M.J. 277, 281-86 (C.M.A. 1990) (finding drug testing, pursuant to an inspection, as constitutionally valid).

“special needs” drug cases and the military urinalysis inspections.¹⁸⁸ First, the court recognized that the military used the test results in criminal prosecutions but that the Supreme Court favored an administrative use of the results.¹⁸⁹ Second, the court noted that the military required direct observation of a servicemember providing a urine sample while the Supreme Court emphasized no such observation.¹⁹⁰

Despite these differences, the *Bickel* court “remain[ed] convinced that the testing of servicemembers authorized by [MRE 313] pursuant to an ‘inspection’ rationale [was] constitutionally valid.”¹⁹¹ The COMA identified several reasons to support its decision: (1) the effects of drugs on a servicemember’s ability to accomplish the military mission;¹⁹² (2) a servicemember’s use of firearms;¹⁹³ (3) the legislative intent of Congress in criminalizing drug use and drug possession under the Uniform Code of Military Justice;¹⁹⁴ (4) a reduced expectation of privacy in the military;¹⁹⁵ (5) a dramatic reduction in positive test results;¹⁹⁶ (6) proper notification to servicemembers about the program;¹⁹⁷ and (7) the administrative purpose of the urinalysis program.¹⁹⁸

Applying the Supreme Court factors and the COMA rationale, hair drug testing satisfies the “special needs” exception. First, since hair drug

¹⁸⁸ *Id.* at 281-82.

¹⁸⁹ *Id.* The COMA recognized that the Federal Railroad Administration in the *Skinner v. Railway Labor Executive’s Association* conducted the drug testing for safety reasons and had not provided the results to law enforcement. *Id.* at 281 (citing *Skinner v. Ry. Labor Executives Ass’n*, 489 U.S. 602, 639 (1989)).

¹⁹⁰ *Id.* at 281-82. The COMA referenced Justice Kennedy’s note in *Skinner v. Ry. Labor Executive’s Ass’n*. *Id.* at 282. In *Skinner*, Justice Kennedy pointed out that the railroad’s drug testing regulations did not require a monitor’s direct observation of sample collection. *Skinner v. Ry. Labor Executives’ Ass’n*, 489 U.S. 602, 626-27 (1989).

¹⁹¹ *Bickel*, 30 M.J. at 282. The court countered the “prosecution” concern by highlighting the military’s frequent use of urine test results in adverse administrative proceedings. *Id.* at 285. Also, the court supported the direct observation requirement with the need to prevent sample adulteration. *Id.* at 286.

¹⁹² *Id.* at 282-83 (highlighting that even a servicemember with a routine task may have to act quickly to perform a military mission).

¹⁹³ *Id.* at 283.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *Id.* at 284.

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 285 (noting the military’s priority in ensuring the mental and physical fitness of the force).

testing and urine testing employ similar analysis procedures¹⁹⁹ and generally yield similarly accurate results,²⁰⁰ hair drug testing uses the same justification criteria identified in *Bickel*.²⁰¹ Second, hair drug testing involves a faster and less intrusive collection procedure than urinalysis testing.²⁰² Even if the command needs to obtain body hair, the monitor can collect the hair sample quickly.²⁰³ The hair collection procedure also eliminates the pressure of having to urinate under direct observation.²⁰⁴ Third, the command can easily incorporate hair drug testing into current urinalysis programs and thereby avoid arbitrary application.²⁰⁵

Finally, hair drug testing, in conjunction with urine testing, will subject servicemembers to a testing program that can reveal drug use over a period of several months.²⁰⁶ Commanders can use this information to identify patterns of drug use in their units and respond

¹⁹⁹ Compare PSYCHEMEDICS TRAINING MANUAL, *supra* note 30 (describing hair collection procedures) with AR 600-85, *supra* note 59, app. E (providing standard operating procedures for urine collection).

²⁰⁰ Compare Vinal, *supra* note 18, §§ 8-9 (noting the laboratory tests performed on hair), with DODI 1010.16, *supra* note 46, paras. E1.5, E1.6 (identifying the military laboratory tests performed on urine).

²⁰¹ See *Bickel*, 30 M.J. at 282-85 (providing several reasons why the military urinalysis program meets the special needs exception).

²⁰² See *Nat'l Treasury Employees Union v. Von Raab*, 489 U.S. 656, 680 (1989) (Scalia, J., dissenting) (noting that urine testing is "destructive to privacy and offensive to personal dignity"); Mr. Thistle E-mail, Jan. 4, 2006, *supra* note 59 (noting that clipping hair from a person's body is less intrusive than watching them urinate into a cup). Mr. Thistle noted that "in this country it is not unusual for people to get their hair cut in front of plate glass windows at the mall. It is quite unusual if someone urinates in front of a plate glass window at the mall." *Id.* Mr. Thistle also stated that a hair collection only takes a few minutes and a hair collector can obtain a pubic hair sample without having the individual expose his or her genitals. *Id.*

²⁰³ See Mr. Thistle E-mail, Jan. 4, 2006, *supra* note 59 (stating that a collector needs only a few minutes to obtain a hair sample from a person).

²⁰⁴ See *Bickel*, 30 M.J. at 286 (justifying the direct observation requirement in the military's urinalysis program).

²⁰⁵ See *infra* Part VI (implementing a hair analysis program); see *Bickel*, 30 M.J. at 285 (noting that the military's extensive urinalysis regulations and extensive urinalysis policies help avoid arbitrary application of the urinalysis test).

²⁰⁶ See *supra* Part II.D (discussing hair drug testing's drug detection window); see also *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 8-10 (testimony of Harry F. Connick, District Attorney, City of New Orleans) (explaining how hair testing's long drug detection window helped reduce recidivism in drug use offenders and helped decrease high school student drug use).

with appropriate administrative measures.²⁰⁷ This increased deterrent effect compensates for hair drug testing's lack of temporal application.²⁰⁸ Hair drug testing's long drug detection window is not significantly different from current urinalysis testing's one to three week window for detecting marijuana use.²⁰⁹ Although hair drug testing cannot identify immediate drug impairment, the military's need to identify "recent" drug use and prevent future drug use justifies a "special needs" application for hair drug testing.²¹⁰

2. *Applying the Language of MRE 313*

The strong similarities between hair drug testing and urine testing support hair drug testing analysis's ability to meet the textual requirements of MRE 313. The text of MRE 313 clearly recognizes the military urinalysis program as a valid inspection.²¹¹ Hair drug testing employs the same RIA screening test and GC/MS confirmatory test as a

²⁰⁷ See generally *Hearing on Drug Testing and Drug Treatment*, *supra* note 55, at 10-11 (statement of Robert L. Dupont, President, Institute for Behavior and Health) (explaining the hair's ability to create a ninety-day drug use history).

²⁰⁸ See *supra* Part II.E (noting the inability of hair drug testing to detect immediate drug use, because hair must grow for several days to expose the hair containing the drugs above the skin's surface); see also *Bickel*, 30 M.J. at 283 (recognizing the deterrent effect of drug testing).

²⁰⁹ See *DOD Urinalysis Program*, *supra* note 12 (providing the DOD drug detection window for marijuana).

²¹⁰ See *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 631-33 (1989) (emphasizing that even information about "recent" employee drug use can help an employer identify how a particular accident occurred). Opponents of hair testing could argue that hair testing's lack of temporal application violates MRE 313 because they view MRE 313 as ensuring the "immediate" fitness of servicemembers. See generally MCM, *supra* note 85, MIL. R. EVID. 313. They might argue that MRE 313 supports an inspection before a unit deploys or conducts maneuvers but not an inspection that involves activities that occurred months prior to the inspection. Although the COMA did not directly discuss the temporal applicability of urine testing in *Bickel*, the court did provide some insight on drug testing for immediate impairment. See *Bickel*, 30 M.J. at 283. The court recognized that servicemembers's duties could require the use of a weapon at a moments notice. *Id.* The court then stated "[i]n such an event there would probably not be sufficient time to test a member's fitness to handle weapons; hence our more sweeping rule allowing random testing of all hands." *Id.* Under the same rationale, the military's unique environment would also support the larger drug detection window of hair testing.

²¹¹ See MCM, *supra* note 85, MIL. R. EVID. 313(b) (stating that "[a]n order to produce body fluids, such as urine, is permissible in accordance with this rule").

urinalysis.²¹² Both hair testing and urine testing also use comparable collection methods.²¹³

Additionally, MRE 313's text prevents a commander from using his inspection authority as a subterfuge for a search.²¹⁴ The government will need to prove by clear and convincing evidence that the commander did not subvert the search authorization requirement if the commander: (1) orders a urinalysis inspection directly following a report of drug use in the unit; (2) targets certain servicemembers during the inspection; and/or (3) subjects the servicemembers to "substantially different intrusions" during the same inspection.²¹⁵

A subterfuge issue often arises when a commander seeks to drug test particular unit members based on rumors that these members use drugs.²¹⁶ The rumors frequently do not provide the commander with probable cause for a command-directed urinalysis.²¹⁷ Nevertheless, the commander may still want to take immediate action before the drugs process out of the servicemember's body. Therefore, the commander sometimes decides to rely on his inspection authority.²¹⁸ Consequently, if the commander specifically uses his inspection authority to avoid the probable cause requirement, the government cannot use the positive urinalysis results in court.²¹⁹

Instead, a commander could rely on the long drug detection window of a previously scheduled hair drug test to avoid a subterfuge search.²²⁰ For example, in February 2006 a commander schedules a hair sample test for 31 March 2006. On 1 March 2006 the commander becomes aware of

²¹² See *supra* note 199.

²¹³ See *supra* note 198.

²¹⁴ MCM, *supra* note 85, MIL. R. EVID. 313 (outlining inspection requirements); *United States v. Taylor*, 41 M.J. 168, 168-71 (C.M.A. 1994) (finding that a headquarters company commander's urinalysis inspection did not constitute a subterfuge for a search despite allegations of drug use by servicemembers in the personnel section); *United States v. Campbell*, 41 M.J. 177, 178-82 (C.M.A. 1994) (finding an improper urinalysis inspection where command selected the accused for the inspection based solely on suspicions of drug use).

²¹⁵ MCM, *supra* note 85, MIL. R. EVID. 313(b); *Campbell*, 41 M.J. at 178-82.

²¹⁶ *Campbell*, 41 M.J. at 178-82 (selecting certain servicemembers for an illegal urinalysis "inspection" after the commander heard rumors of drug use in the unit).

²¹⁷ *Id.* at 182-83.

²¹⁸ See *id.* at 178-82 (finding an improper urinalysis inspection).

²¹⁹ *Id.* at 181-82.

²²⁰ See *supra* Part II.D (discussing hair sample analysis's long drug detection window).

rumors of recent drug use in the unit. Instead of conducting a urinalysis on 1 March 2006, the commander could rely on the previously scheduled 31 March 2006 hair sample test.²²¹ The commander would receive the benefit of testing the time period of the suspected drug use without unlawfully ordering a urinalysis directly following rumors of drug use. Also, when the commander schedules a hair sample test, he could require 100% unit participation to avoid targeting specific servicemembers.²²²

Additionally, a commander could avoid subjecting servicemembers to “substantially different intrusions” during the inspection by obtaining primarily hair from the head, and by articulating strict guidelines for obtaining hair from the body.²²³ If possible, the commander should first attempt to obtain a head hair sample from the servicemember.²²⁴ If the servicemember cannot provide a sample of hair from his head, then the commander should follow clearly defined procedures for obtaining hair from the body.²²⁵ As a result, the commander’s inspection procedures would uniformly subject each servicemember to the same collection protocol.²²⁶

²²¹ See *id.* (noting that most hair sample test results encompass a three-month window).

²²² See *United States v. Bickel*, 30 M.J. 277, 286 (C.M.A. 1990) (noting that a commander cannot “pick and choose the members of his unit who will be tested for drugs and then . . . use the resulting evidence to obtain a criminal conviction”).

²²³ See *id.* (requiring a urinalysis to follow established guidelines).

²²⁴ See PSYCHEMEDICS TRAINING MANUAL, *supra* note 30, at 6-7 (noting that head hair provides the easiest site for hair collection).

²²⁵ See *Bickel*, 30 M.J. at 286 (emphasizing the need for set guidelines and defined policies to regulate military drug testing to avoid arbitrary application of the tests by the command); PSYCHEMEDICS TRAINING MANUAL, *supra* note 30, at 6 (describing body hair collection).

²²⁶ See *Bickel*, 30 M.J. at 286 (requiring a urinalysis to avoid arbitrary application). Lieutenant Colonel Mark Jamison, Professor, The Judge Advocate General’s School, Charlottesville, Virginia, and Major Jennifer Santiago, Professor, The Judge Advocate General’s School, Charlottesville, Virginia, raised a concern about the disparate treatment hair testing could have on female servicemembers. Their concern involves the use of alternative hair collection sites for a female servicemember who does not have sufficient head hair to provide an adequate hair sample. As noted in the text above, this article proposes the use of alternative hair sites according to an established protocol. The protocol would require the collector to first seek head hair, then body hair (e.g., arm and chest hair), and as a last resort pubic hair. Nevertheless, the vast majority of female servicemembers, if not all, would likely not have alternative body hair other than pubic hair. Therefore, this lack of body hair creates an argument that female servicemembers would face a more intrusive hair collection protocol than male servicemembers. Although female servicemembers would likely not have alternative body hair, this should not prevent hair drug testing for several reasons. First, the author’s casual observance of female servicemembers’s hair seems to indicate that very few female servicemembers would have insufficient head hair for a hair sample. See *generally* U.S.

IV. Reliable and Relevant Results

Besides surviving Fourth Amendment scrutiny, hair sample tests have also defeated reliability arguments and relevancy challenges in the courts over the last fifteen years.²²⁷ Prior to 1990, military appellate courts had only addressed hair sample testing in the context of comparing a hair sample taken from a person whose identity was known, to a crime scene sample.²²⁸ Since 1990, military courts have allowed hair sample results into evidence.²²⁹ The recent CAAF opinion in *United*

DEP'T OF ARMY, REG. 670-1, WEAR AND APPEARANCE OF ARMY UNIFORMS AND INSIGNIA paras. 1-8 (a)(2), (3) (3 Feb. 2005) (allowing female servicemembers to have longer hair than male servicemembers). Second, pubic hair collection is less intrusive than current urine collection methods because pubic hair collection does not require observation of the genitals. See Mr. Thistle E-mail, Jan. 4, 2006, *supra* note 59. Third, use of trained female collectors for female servicemembers would reduce the emotional impact of hair collection. See AR 600-85, *supra* note 59, E-4(d) (requiring a commander to designate same sex observers for tested Soldiers). Furthermore, military regulations already account for differences in gender physiology and in gender anatomy when appropriate. For example, while not completely analogous to this situation, male servicemembers could argue that lower physical fitness test standards for female servicemembers results in unequal treatment for male servicemembers. See U.S. DEP'T OF ARMY, FIELD MANUAL 21-20, PHYSICAL FITNESS TRAINING 14-3 to 14-7 (1 Oct. 1998) (providing the fitness test point scales for male and female Soldiers); U.S. DEP'T OF ARMY, REG. 600-8-19, ENLISTED PROMOTIONS AND REDUCTIONS para. 3-47(b) & tbl. 3-21 (10 Jan. 2006) (linking promotion points to physical fitness test scores). Nevertheless, the author argues that the military supports these different standards based on physiological and anatomical differences, not on gender alone. The hair collection protocol would create the same distinction—a distinction based upon biological differences and not upon a servicemember's gender status. As a result, hair drug testing does not create a male-female distinction, but instead creates a hair-no hair distinction, regardless of gender. In the author's opinion, the few servicemembers (male or female) who would have to give body hair or pubic hair would suffer no more embarrassment or intrusion than the few servicemembers (male or female) who could not provide a urine sample due to the anxiety of urinating under direct observation.

²²⁷ See *United States v. Medina*, 749 F. Supp. 59, 61-62 (E.D. N.Y. 1990) (setting precedent for hair analysis reliability); *United States v. Bush*, 47 M.J. 305, 310 (1997) (rejecting defense argument that hair drug testing is only reliable as a confirmatory test).

²²⁸ See Major Samuel Rob, *Drug Detection by Hair Analysis*, ARMY LAW., Jan. 1991, at 14 (noting that the author's case law research could not find a single case where the military appellate courts had admitted hair drug test results at trial); *United States v. Pyburn*, 47 C.M.R. 896, 904-07 (A.F. C. M. R. 1973) (comparing hair samples).

²²⁹ See *United States v. Bethea*, 61 M.J. 184, 184-88 (2005) (upholding search authorization for hair samples); *United States v. Brewer*, 61 M.J. 425, 427 (2005) (noting that the trial court allowed hair drug test results into evidence); *United States v. Cravens*, 56 M.J. 370, 370-75 (2002) (affirming lower court's ruling on the admissibility of a hair sample obtained under a search authorization); *United States v. Bush*, 47 M.J. 305, 306-12 (1997) (upholding hair analysis evidence); *United States v. Will*, No. 9802134, 2002 CCA LEXIS 218, at *12-18 (N-M Ct. Crim. App. Sept. 27, 2002) (unpublished) (finding

States v. Bethea demonstrates the military judicial system's continuing acceptance of hair drug testing results.²³⁰

During this fifteen-year period, federal courts have also recognized the reliability of hair drug testing.²³¹ *United States v. Medina* provided an on-point analysis of hair drug testing's reliability in detecting cocaine use.²³² The *Medina* court referred to extensive scholarly writing on hair drug testing to support its conclusion.²³³

A. Evidentiary Reliability

Ironically, military appellate courts' first review of hair drug testing originated with the defense.²³⁴ In *United States v. Nimmer*, the defense sought to enter a hair sample that tested negative for drug use into evidence to counter a positive urinalysis test.²³⁵ The trial court and the Navy-Marine Corps Court of Military Review denied admissibility of the hair sample test.²³⁶ Counsel often cite this case as authority for

that the trial court should have allowed the defense to submit a hair sample testing negative for the presence of drugs into evidence); *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *3-11 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (involving AF OSI agents obtaining a search authorization for a hair sample test based upon observations of the accused snorting a white substance); *see also* *United States v. Webb*, No. 32521, 1998 CCA LEXIS 270, *6 (A.F. Ct. Crim. App. June 12, 1998) (unpublished) (mentioning an order to provide a hair sample to test for cocaine); *United States v. Millar*, No. ACM 32222, 1997 CCA LEXIS 30, at *2-7 (A.F. Ct. Crim. App. Jan. 8, 1997) (claiming pretrial punishment because an agent took photographs of pubic hair collection); *United States v. Baker*, 45 M.J. 538, 539-41 (A.F. Ct. Crim. App. 1996), *aff'd*, *United States v. Baker*, 50 M.J. 223 (1998) (challenging accused's consent to a hair test).

²³⁰ *Bethea*, 61 M.J. at 184-88.

²³¹ *See also Medina*, 749 F. Supp. at 61-62 (accepting the reliability of a hair sample analysis report).

²³² *Id.* at 60-62.

²³³ *Id.* at 61. As a starting point for their case research, counsel can refer to *American Jurisprudence Proof of Facts 3d* to find multiple references on hair drug testing. *See Vinal*, *supra* note 18.

²³⁴ *See United States v. Nimmer*, 41 M.J. 924 (N.M.C.M.R. 1994), *remanded by* *United States v. Nimmer*, 43 M.J. 252 (1995).

²³⁵ *Id.* at 926.

²³⁶ *Id.* at 927-28. The judge found that the scientific community generally did not accept the ability of a hair test to detect one-time use. *Id.* at 927. The Navy-Marine Court of Military Review (NMCMR) agreed with the trial judge and concluded that hair analysis needed more scientific study. *Id.* at 928-29.

challenging the reliability of hair drug testing.²³⁷ However, on appeal, the CAAF remanded the case to the trial court to apply the “new” *Daubert* guidance on admissibility of expert scientific evidence.²³⁸ Since the *Nimmer* case, the military court system has accepted hair sample test results as reliable evidence under MRE 702.²³⁹

Additionally, hair drug testing also survives relevancy challenges under MRE 401 and 403.²⁴⁰ In *United States v. Will*, the Navy-Marine Court of Criminal Appeals (NMCCA) upheld the logical relevance of a hair sample analysis test to rebut a charge of drug use.²⁴¹ In *United States v. Cravens*, the CAAF upheld the legal relevance of a hair sample analysis.²⁴² The CAAF deferred to the trial judge’s decision that hair sample analysis results were not too confusing to be at issue before the court.²⁴³ As a result, commanders should feel comfortable relying on hair sample test results.

²³⁷ See *United States v. Bush*, 47 M.J. 305, 309 (1997) (citing the decision of the NCMCMR in *United States v. Nimmer*, 39 M.J. 924 (1994)).

²³⁸ *United States v. Nimmer*, 43 M.J. 252, 260 (1995). Between the time of the trial and the CAAF ruling on the case, the Supreme Court had decided *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *Id.* at 256-60. *Daubert* provided a non-exclusive list of factors to assist a trial judge in determining the admissibility of scientific evidence. *Id.* at 256.

²³⁹ See *Bush*, 47 M.J. at 309-12 (upholding a trial judge’s ruling under MRE 702 to admit hair drug testing results after the judge conducted a *Daubert* hearing). Military Rule of Evidence 702 states “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” MCM, *supra* note 85, MIL. R. EVID. 702.

²⁴⁰ See *United States v. Cravens*, 56 M.J. 370, 376 (2002) (confirming the trial judge’s decision to admit hair sample evidence under MRE 401 and 403); *United States v. Will*, No. 9802134, 2002 CCA LEXIS 218, at *15 (N-M Ct. Crim. App. Sept. 27, 2002) (unpublished decision, this opinion does not serve as precedent). The United States NMCCA uses the phrase “as an unpublished decision, this opinion does not serve as precedent” on all of its unpublished decisions. See UNITED STATES NAVY-MARINE CORPS COURT OF CRIMINAL APPEALS RULES OF PRACTICE AND PROCEDURE para. 6-4 (C1, 15 Feb. 2002). Although the Navy-Marine court does not give these cases precedential value, the court still allows counsel to cite to the cases as persuasive authority. *Id.*

²⁴¹ *Will*, 2002 CCA LEXIS 218, at *15; see also Major Charles H. Rose III, *New Developments: Crop Circles in the Field of Evidence*, ARMY LAW., Apr./May 2003, at 49-52 (providing an overview and analysis of *United States v. Will*).

²⁴² *Cravens*, 56 M.J. at 376.

²⁴³ *Id.* (noting that the trial judge “specifically considered and admitted this hair analysis evidence under Mil.R.Evid. 401 and 403”).

B. Value of the Results²⁴⁴

Although hair drug testing emerged recently as a reliable drug use test method, hair drug testing has existed for several decades.²⁴⁵ Since the 1950s, authorities have tested hair for arsenic or lead.²⁴⁶ Despite hair sample testings's extensive track record, experts have raised concern over the interpretative variability hair drug testing.²⁴⁷ These experts do not question the ability of hair drug testing to detect drugs, but instead question what a positive result reveals about drug use.²⁴⁸ Environmental contamination and racial bias have surfaced as the predominant areas of concern.²⁴⁹

1. Environmental Contamination

Congressional hearings on drug testing in the summer of 1998 examined the environmental contamination controversy.²⁵⁰ As explained in the hearings, the environmental contamination issue involves hair drug testing's ability to distinguish between intentional drug use and innocent environmental exposure to drugs.²⁵¹ Some experts argue that illegal

²⁴⁴ The author acknowledges that researchers (medical and legal) have written hundreds of articles about hair sample analysis and the interpretative concerns of hair analysis results. *See, e.g.*, DRUG TESTING IN HAIR (Pascal Kintz ed., 1996) (providing a compilation of articles, including references, about hair analysis). A complete analytical review of all of the hair analysis writings is well beyond the scope of this article. However, the following subsections provide the author's view of the current status of these concerns.

²⁴⁵ *See* Tom Mieczkowski, *New Approaches in Drug Testing: A Review of Hair Analysis*, in 521 ANNALS AM. ACAD. POL. & SOC. SCI. 132, 135 (1992).

²⁴⁶ *See* United States v. Bush, 44 M.J. 646, 651 (A.F. Ct. Crim. App. 1996), *aff'd*, United States v. Bush, 47 M.J. 305 (1997) (noting that hair drug testing for heavy metals and arsenic had existed for fifty to sixty years at the time of the case).

²⁴⁷ *See* Theresa K. Casserly, *Evidentiary and Constitutional Implications of Employee Drug Testing Through Hair Analysis*, 45 CLEV. ST. L. REV. 469, 473-77 (1997) (discussing some scientists' concerns over external drug contamination and hair drug absorbency rates).

²⁴⁸ Interview with Charles Guenzer, Forensic Toxicologist, Federal Bureau of Investigations Laboratory, in Quantico, California (Oct. 5, 2005) [hereinafter Mr. Guenzer Interview].

²⁴⁹ *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 21-22.

²⁵⁰ *See id.* at 20, 25, 27-28, 33, 63, 85 (providing testimony and prepared statements from various experts in the hair testing field on environmental contamination); *Hearing on Drug Testing and Drug Treatment*, *supra* note 55, at 10-11.

²⁵¹ *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 21-22; Tom Mieczkowski, *Distinguishing Passive Contamination from Active Cocaine*

drugs could innocently infiltrate a person's hair through sweat absorption or smoke penetration.²⁵² The drugs presence would then create a "false" positive test result.²⁵³

For example, the Naval Research Laboratory conducted several studies which indicate that drugs can absorb into a person's hair.²⁵⁴ The studies also indicate that continuous exposure to crack smoke could appear in hair drug testing results.²⁵⁵

However, additional studies prove that metabolite identification and proper wash procedures can eliminate external contamination.²⁵⁶ External contamination would leave traces of the actual drug on the hair, while ingestion results in the deposit of drug metabolites within the hair.²⁵⁷ A hair sample test's detection of these metabolites would tend to

Consumption: Assessing the Occupational Exposure of Narcotics Officers to Cocaine, 84 FORENSIC SCI. INT'L 87, 108 (1997) (discussing "passive contamination" of hair in narcotics officers); *see also* United States v. Bush, 47 M.J. 305, 307 (1997) (noting that the appellant routinely suggested "passive" exposure of his hair sample to drug smoke as a defense).

²⁵² *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 21; Wen Ling Wang & Edward J. Cone, *Testing Human Hair for Drugs of Abuse. IV. Environmental Cocaine Contamination and Washing Effects*, 70 FORENSIC SCI. INT'L 39, 49 (1995) (finding cocaine deposits in hair exposed to crack cocaine smoke and hair exposed to cocaine-filled solutions); Kidwell & Blank, *supra* note 40, 28-29 (addressing the effects of passive exposure on hair testing).

²⁵³ *See* Wang, *supra* note 252, at 49 (discussing how false positives can ruin a testing methodology's validity).

²⁵⁴ *Hearing on Drug Testing and Drug Treatment*, *supra* note 55, at 141 (statement of David Kidwell, Ph.D., Naval Research Laboratory). The Naval Laboratory conducted hundreds of laboratory tests where the laboratory soaked hair in drug solutions. *Id.* Within five minutes, the experiment indicated that some drugs had absorbed into the hair. *Id.*

²⁵⁵ *Id.* (describing the Naval Research Laboratory's studies). The Naval Research Laboratory conducted a study of the hair of children living with cocaine-smoking mothers. *Id.* The study found that the children's hair had similar cocaine levels as their mother's hair. *Id.*

²⁵⁶ *See* Virginia Hill et al., *Removing and Identifying Drug Contamination in the Analysis of Human Hair*, 145 FORENSIC SCI. INT'L 97, 108 (2004); Mieczkowski, *supra* note 251, at 108 (assessing the effects of wash procedures on narcotic officer hair samples).

²⁵⁷ *See* Mr. William Thistle, *Accounting for Environmental Contamination*, Pyschemedics Corp. (2004) (available by contacting Mr. Thistle at billt@psychemedics.com or 1-800-522-7424) (describing metabolites as "unique compounds created by the body's processing of the drugs"). Mr. Thistle works as the Senior Vice President and General Counsel of Psychemedics Corporation.

expose drug use versus mere drug exposure.²⁵⁸ The results of these studies also showed that laboratory hair wash procedures effectively removed external drug deposits.²⁵⁹

In comparison, hair may also have a stronger resistance to drug penetration than the lungs and the gastrointestinal tract.²⁶⁰ This difference would make urine samples and breath samples more susceptible to external contamination than a hair sample.²⁶¹

Forensic laboratories have begun to set drug detection cut-off levels high enough to eliminate concerns over innocent exposure.²⁶² These cut-off levels originate from scientific studies research,²⁶³ making it possible

²⁵⁸ *Id.*

²⁵⁹ See Hill, *supra* note 256, at 97-99, 108 (combining in-depth wash procedures and detailed wash criteria to effectively identify contamination). The authors used a wash criterion that subtracted the amount of drug left in the wash solution from the amount of drug found in the hair segment to further prevent false positives. *Id.* at 99. See Gideon Koren et al., *Hair Analysis of Cocaine: Differentiation between Systematic Exposure and External Contamination*, 32 J. CLINICAL PHARMACOLOGY 671, 674 (1992). The researchers placed volunteers in a 2.5 x 3 x 2.5 meter unventilated room and exposed them to crack cocaine smoke. *Id.* at 672. The researchers also placed hair samples in closed beakers and exposed the hair to the equivalent of 5 - 5000 "lines" of cocaine (100mg per line). *Id.* After exposure, the researchers washed the hair using ethanol. *Id.* All cases of contaminated hair tested negative after washing except for the highest amount- 5000 cocaine lines. *Id.* at 673.

²⁶⁰ See Dr. Kippenberger E-mail, Jan. 26, 2006, *supra* note 63 (estimating that the lungs and the gastrointestinal tract would absorb drugs more easily than hair). "The cortex of hair is surrounded by a protective layer of epithelia cells called the cuticle. The cuticle cells overlap in a shingle arrangement, holding the cortex together and serving as a protective barrier to the environment." Wang, *supra* note 252, at 40.

²⁶¹ See generally Dr. Kippenberger E-mail, Jan. 26, 2006, *supra* note 63 (estimating that the lungs and the gastrointestinal tract would absorb drugs easier than hair).

²⁶² See *United States v. Fuller*, No. 35058, 2004 CCA LEXIS 182, at *4 (A.F. Ct. Crim. App. June 23, 2004) (referencing Associated Pathologies Laboratories, Las Vegas, Nevada, cut-off's levels for cocaine in hair); Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. 19673, 19697 (Apr. 13, 2004) (providing cut-off concentrations—i.e., 500 pictograms of cocaine metabolites for 1 milligram of hair); FLA. STAT. ANN. § 112.0455 (13)(b)(1)(b) (LEXIS 2005) (establishing a cut-off level for cocaine of 5 nanograms of drug per 10 milligrams of hair). Cut-off levels exist for both the initial drug screening test and the subsequent drug confirmatory test. See *id.* § 112.0455 (13)(b)(1)&(2) (creating screening cut-off levels and confirmatory cut-off levels).

²⁶³ See Mr. Thistle E-mail, Jan. 19, 2006, *supra* note 49 (explaining how approximately 90% of the hair testing industry uses the same cut-off levels based upon instrument limitations and scientific research); E-mail from Mr. Tom Mieczkowski, Ph.D., Professor and Chair of the Department of Criminology, University of South Florida, to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S.

for commanders to use hair drug test results without great concern over possible claims of false test results due to “innocent” exposure.

2. Racial Bias

In addition to environmental contamination, experts have also raised concerns that hair drug testing results in disproportionate treatment between races.²⁶⁴ The experts argue that hair drug testing can detect lower levels of a drug in African-American hair than in Caucasian hair,²⁶⁵ which has the potential to create a disproportionate population of criminal prosecutions for African-Americans, versus Caucasians.²⁶⁶ Some studies attribute the difference in detection and drug absorbency rates due to variances in hair color, curvature, and structure.²⁶⁷

Although these differences do exist, the statistical differences between the races are not significant enough to support a racial bias claim.²⁶⁸ Any test that examines servicemembers’ biological processes

Army (Jan. 24, 2006, 10:46 EST) (on file with author) (stating that extensive writing and extensive testimony by toxicologists and members of the drug testing industry formed the basis for the cut-off levels in the *Proposed Revisions to Mandatory Guidelines for the Federal Workplace Drug Testing Program*).

²⁶⁴ See *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 7-8, 21, 26 (providing statements from experts about racial bias in hair testing); Letter from Theodore F. Shults, Chairman, American Association of Medical Review Officers, to Walter F. Vogt, Division of Workplace Programs, Substance Abuse and Mental Health Services Administration, Comments to Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Program, 69 Fed. Reg. 19673-01 (June 30, 2004), available at <http://workplace.samhsa.gov/DrugTesting/comments/Public%20Comment%208400121.doc> (questioning hair analysis). *But see* Mr. Thistle E-mail, Jan. 19, 2006, *supra* note 49 (attacking Mr. Shults’ comments about hair testing).

²⁶⁵ See David A. Kidwell et al., *Cocaine Detection in a University Population by Hair Analysis and Skin Swab Testing*, 84 FORENSIC SCI. INT’L 75, 83-84 (noting that a “selection” bias may exist).

²⁶⁶ See *Hearing on Drug Testing and Drug Treatment*, *supra* note 55, at 152 (statement of the Honorable Mark Souder) (grappling with the racial bias concern of hair testing).

²⁶⁷ See Thomas M. Mieczkowski, *Effect of Color and Curvature on the Concentration of Morphine in Hair Analysis*, 3 FORENSIC SCI. COMMUNICATIONS 4 (Oct. 2001), available at <http://www.fbi.gov/hq/lab/fsc/backissu/oct2001/mzkowski.htm> (providing a synopsis of studies concerning the relationship of hair characteristics to hair drug test results).

²⁶⁸ See Tom Mieczkowski & Richard Newel, *Statistical Examination of Hair Color as a Potential Biasing Factor in Hair Analysis*, 107 FORENSIC SCI. INT’L 13, 36 (2000) (finding no “distinction between black and brown hair on the basis of drug concentration”). Mieczkowski and Newel examined 2791 hair tests from previous hair analysis studies. *Id.* at 35. Using statistical analysis, they compared the significance of a hair sample’s color to the various drug concentration levels found in the sample. *Id.* at

will have some degree of variation in the test's results due to the servicemembers's unique physiological makeup.²⁶⁹ For example, if two servicemembers consume the same amount of cocaine at the same time, their bodies will not metabolize the cocaine in exactly the same time.²⁷⁰ The fact that some servicemembers may have a longer drug detection window than other servicemembers does not invalidate the testing because the exposure differences are considered minimal.

Research demonstrating the difference between genders when testing for the presence of alcohol helps highlight the minimal impact of race on hair sample test results. Studies have shown that women's bodies generally retain more alcohol in their blood than men.²⁷¹ Consequently, a breathalyzer could return different results for a man and a woman, even when both drank the same amount of alcohol and have the same body weight.²⁷² However, police routinely enforce the same blood alcohol concentration (BAC) limit with both genders.²⁷³ Apparently, the metabolizing difference between genders is not great enough to require different BAC levels for each gender.²⁷⁴ This same analysis applies to hair drug testing cut-off levels for differing races.

V. Commander's Use of the Results

The reliability of hair drug testing should give commanders confidence to use hair sample results involving servicemembers who test

15. They concluded that although some drugs may bind to melanin (the substance that gives hair its color), this binding effect does significantly affect the overall amount of drug retained in the hair. *Id.* at 35-36.

²⁶⁹ See Avitar, Inc. Website, *Drug Detection Windows*, <http://www.avitarinc.com/Resources/drug-detection-windows.cfm> (last visited Oct. 23, 2006) (explaining how differences in a person's metabolic rate, body mass, age, overall health, drug tolerance, and urine pH can affect the length of time a drug remains in the person's body).

²⁷⁰ See *id.*

²⁷¹ *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 34 (prepared statement of Dr. Carl Selavka, Director of the Massachusetts State Police and a Consultant to the Department of Health and Human Services) (noting that women generally have more fat and less muscle than men, which causes women to absorb less alcohol and thus have more alcohol in their blood).

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ See *generally id.* "In the end, either laboratories need to start correcting for all possible physiological, morphological and behavioral differences among test subjects, or the administrators of drug testing programs, and the regulatory agencies involved, must accept that *bias is a reality of every broad testing program.*" *Id.*

positive for drug use. School districts,²⁷⁵ prisons,²⁷⁶ and businesses²⁷⁷ have already used hair drug testing to effectively curtail drug use within their organizations. The United States Food and Drug Administration has approved hair drug testing kits for the commercial marketplace.²⁷⁸ Specifically, the long drug detection window inherent in hair drug testing will improve enforcement of suspension conditions,²⁷⁹ confirm or deny urinalysis results,²⁸⁰ and provide a new command inspection tool.²⁸¹

A. Suspension Actions

Military regulations allow an appropriate level commander to use his discretion to suspend a separation action,²⁸² an article 15 punishment,²⁸³ and a court-martial sentence for illegal drug use.²⁸⁴ As a condition of the suspension, the servicemember is often required to refrain from further illegal drug use. Witness reports of the servicemember's continued drug use and urinalysis tests provide the only way for the commander to ensure compliance with this suspension requirement.²⁸⁵

²⁷⁵ See *Hearing on the Federal Workplace Drug Testing Program*, *supra* note 52, at 10 (curtailing drug use at a New Orleans high school through hair drug testing).

²⁷⁶ See Thomas E. Feucht & Andrew Keyser, *Reducing Drug Use in Prisons: Pennsylvania's Approach*, NAT'L INST. JUST. J. 10, 11-14 (Oct. 1999) (describing the effective use of hair drug testing as part of a prison anti-drug program).

²⁷⁷ See CBS NEWS Website, SCI-TECH, *Feds Eye New Kinds of Drug Tests*, Jan. 15, 2004, <http://www.cbsnews.com/stories/2004/01/15/tech/main593356.shtml> (noting that Kraft Foods Inc., Anheuser-Busch, and MGM Mirage use hair drug testing); *see also* Nevada Employment Sec. Dep't v. Holmes, 914 P.2d 611, 612-15 (Nev. 1996) (finding that a hair analysis provided "substantial evidence" to deny the respondent unemployment benefits).

²⁷⁸ See United States Food and Drug Administration Website, *New Device Clearance: Psychomedics Corporation Opiate Assay—K000851*, <http://www.fda.gov/cdrh/mda/docs/K000851.html> (last visited Oct. 23, 2006) (approving the commercial marketing of a hair test for heroine use).

²⁷⁹ See *infra* Part V.A.

²⁸⁰ See *infra* Part V.B.

²⁸¹ See *infra* Part V.C.

²⁸² See U.S. DEP'T OF ARMY, REG. 635-200, ACTIVE DUTY ENLISTED ADMINISTRATIVE SEPARATIONS para. 1-18 (6 June 2005) (allowing commanders to suspend execution of a servicemember's administrative separation).

²⁸³ See U.S. DEP'T OF ARMY, REG. 27-10, MILITARY JUSTICE para. 3-24 (16 Nov. 2005) [hereinafter AR 27-10] (allowing a commander to suspend execution of Article 15 punishment).

²⁸⁴ See MCM, *supra* note 85, R.C.M 1108, 1109 (authorizing a convening authority to suspend execution of a sentence and to vacate the suspension of a sentence).

²⁸⁵ Cf. AR 27-10, *supra* note 283, para. 3-24 (stating that an Article 15 suspension action "automatically includes a condition that the Soldier not violate any punitive article of the

Unfortunately, a servicemember's body can quickly flush most drugs from his urine,²⁸⁶ greatly reducing the urinalysis's ability to catch a servicemember violating his suspension requirements. As a result, the commander may not support a suspension because he cannot monitor a servicemember's compliance with suspension conditions.

In contrast, hair drug testing could give the commander a greater ability to allow for suspension actions. First, hair drug testing provides a long drug detection window.²⁸⁷ For example, two hair sample tests during a six-month suspension would identify any drug use over the entire length of the suspension.²⁸⁸ A commander could also use the results of a hair sample test to ensure a servicemember's compliance with a drug rehabilitation program.²⁸⁹ Therefore, hair drug testing promotes a greater willingness on the part of commanders to consider suspension options because it increases a commander's visibility of a servicemember's drug habits during a suspension period.²⁹⁰

B. Confirmatory Compatibility

The long drug detection window inherent to hair drug testing allows a commander to confirm positive urinalysis results despite an accused's denials, or corroborate an accused's confession.²⁹¹ For example, if the

[Uniform Code of Military Justice] UCMJ"). Punitive Article 112a prohibits the wrongful use of an illegal substance. UCMJ art. 112a. (2005).

²⁸⁶ See *DOD Urinalysis Program*, *supra* note 12 (listing the drug detection windows for a urinalysis); *United States v. Medina*, 749 F. Supp. 59, 60 (E.D. N.Y. 1990) (discussing urine's short drug retention window).

²⁸⁷ See *supra* Part II.D.

²⁸⁸ See *Hearing on Drug Testing and Drug Treatment*, *supra* note 55, at 10-11 (statement of Robert L. Dupont, President, Institute of Behavior and Health) (explaining how a typical hair drug test covers a ninety-day drug detection window).

²⁸⁹ See AR 600-85, *supra* note 59, para. 4-7(a)(2) (noting that commanders should assess drug rehabilitation progress by considering further incidents of drug abuse).

²⁹⁰ See generally *Medina*, 749 F. Supp. at 60 (using hair drug testing to prove noncompliance with probation terms). *Medina*, a probationer, denied that he had used drugs while on probation. *Id.* During probation hearings, the court ordered *Medina* to provide a hair sample to test for drugs. *Id.* *Medina's* hair sample tested positive for cocaine. *Id.*

²⁹¹ See *United States v. Bethea*, 61 M.J. 184, 185-88 (2005) (finding probable cause to seize and search a hair sample after defendant challenged positive urinalysis results); *United States v. Cravens*, 56 M.J. 370, 370-75 (2002) (finding probable cause to seize and search a hair sample after defendant admitted using drugs); see also Lieutenant Colonel Michael R. Stahlman, *Fourth Amendment and Urinalysis Update: "A Powerful*

accused challenges a positive urinalysis test, the commander could use a hair drug test to confirm the urinalysis results.²⁹² Since commanders often have to wait weeks for urinalysis results, hair drug testing will allow them to test the same time period covered by the urinalysis test.²⁹³ The commander could use this reach back capability to confirm any witness observations of servicemember drug use.²⁹⁴ This capability could also help a commander corroborate a servicemember's admission of drug use outside of the urinalysis drug detection window.²⁹⁵

C. The Inspection Case

In addition to hair drug testing's confirmatory capability, hair drug testing alone can provide sufficient evidence to result in a criminal drug use conviction.²⁹⁶ In *United States v. Bush*, the defendant avoided the urinalysis test by filling his specimen bottle with a saline solution.²⁹⁷ The altered urine test forced the command to then conduct a hair sample test, which tested positive for cocaine.²⁹⁸ The government offered the positive test results and testimony about the faulty urine sample.²⁹⁹ Based on this evidence, panel members convicted the defendant of

Agent is the Right Word." ARMY LAW., Apr./May 2003, at 139-40 (providing a synopsis of *United States v. Cravens*).

²⁹² See *Bethea*, 61 M.J. 184, 184-88 (finding probable cause for seizing a hair sample based upon evidence of a positive urinalysis).

²⁹³ See *Mieczkowski*, *supra* note 21, at 2 (explaining the long drug detection window of hair sample analysis); see also *Bethea*, 61 M.J. at 185-88 (using a hair drug test to confirm or deny the results of a urinalysis test). When the commander finally receives the urinalysis results, the illegal substance will have already processed out of the servicemember's urine. See *supra* Part II.D (comparing the drug detection windows of urine and hair). However, the servicemember's hair will still contain the illegal substance. *Id.*

²⁹⁴ See *United States v. Ruiz*, No. 33084, 1999 CCA LEXIS 219, at *5-7 (A.F. Ct. Crim. App. July 26, 1999) (unpublished) (basing search authorization for hair sample on agent observations that occurred a few months prior to the search authorization request).

²⁹⁵ See *Cravens*, 56 M.J. at 372-73 (using a hair test to confirm a drug-use admission because too much time had expired to obtain a search authorization for a urinalysis).

²⁹⁶ See *United States v. Bush*, 47 M.J. 305, 312 (1997) (upholding a drug conviction based solely on hair test results).

²⁹⁷ *Id.* at 306, 312.

²⁹⁸ See *id.* at 306-07, 312. The command did not know about the altered urine test until after the laboratory notified the command of the adulteration several weeks after the test. *Id.* at 307. By this time, the servicemember's body had already processed the illegal drugs out of the servicemember's urine. *Id.* Consequently, Staff Sergeant Bush's actions forced the command to result to a hair drug test. *Id.* at 307, 312.

²⁹⁹ *Id.* at 306-07.

dereliction of duty for tampering with his urine sample and of the wrongful use of cocaine.³⁰⁰

In *United States v. Bethea*, the CAAF upheld a conviction for wrongful use of cocaine.³⁰¹ The case involved hair sample analysis results.³⁰² The hair sample analysis provided the only evidence for charging a specification of drug use on “divers” occasions.³⁰³ The AFCCA has also allowed hair sample analysis to support specifications of divers drug use in two other cases.³⁰⁴

Although the *Bush* and *Bethea* decisions primarily involve search authorizations,³⁰⁵ these decisions suggest that the results from a proper hair inspection alone could support a conviction. Since hair drug testing uses similar collection procedures and laboratory testing methods as urine testing, a hair sample test arguably meets the same legal requirements.³⁰⁶ Trial counsel can rely on the permissive inference of wrongful use reconfirmed by *United States v. Green* for urinalysis cases when offering hair sample test results into evidence.³⁰⁷ Drug testing laboratories can provide a urinalysis-like litigation packet to the prosecution.³⁰⁸ As a result, commanders should incorporate hair drug testing into their arsenal of inspection tools.

³⁰⁰ *Id.* at 307-08.

³⁰¹ See *United States v. Bethea*, 61 M.J. 184, 184-88 (2005) (involving cocaine use on “divers” occasions over a one-month period).

³⁰² *Id.* at 184-85.

³⁰³ *Id.* at 184.

³⁰⁴ *United States v. Fuller*, No. 35058, 2004 CCA LEXIS 182, at *1-6 (A.F. Ct. Crim. App. June 23, 2004) (unpublished), *cert. granted*, *United States v. Fuller*, 60 M.J. 424 (2004); *United States v. Brewer*, No. 34936, 2004 CCA LEXIS 136 (A.F. Ct. Crim. App. Apr. 28, 2004) (unpublished), *rev'd on other grounds*, *United States v. Brewer*, 61 M.J. 425 (2005). In the *Brewer* case, the CAAF did not hold that the hair sample test results could not support the conviction. *Brewer*, 61 M.J. at 426-32. Instead, CAAF found that the exclusion of defense witnesses and the military judge's instruction to the court members on the permissive inference of wrongful use violated the accused's constitutional due process rights. *Id.*

³⁰⁵ *Bethea*, 61 M.J. at 184-88; *Bush*, 47 M.J. at 306-09.

³⁰⁶ See *supra* note 198 (comparing collection methods); see also *supra* note 199 (comparing laboratory testing methods).

³⁰⁷ See *United States v. Green*, 55 M.J. 76, 77-81 (2001) (finding that a positive urinalysis test result, in conjunction with expert testimony about the test, can support a permissive inference that the accused knowingly and wrongfully used an illegal controlled substance).

³⁰⁸ See *United States v. Adens*, 56 M.J. 724, 726 (Army Ct. Crim. App. 2002) (referencing a hair analysis litigation packet prepared by a toxicology laboratory).

VI. Implementing a Hair Analysis Program

Given the benefits of hair drug testing, the Army should conduct a feasibility study on implementing hair drug testing into the Army's substance abuse program (ASAP).³⁰⁹ Suggested changes to the Federal Workplace Drug Testing Program and the recently enacted Florida Drug-Free Workplace Act provide guidance on procedures to implement a hair drug testing program,³¹⁰ including information on employee notification, laboratory standards, quality control, and cut-off levels.³¹¹ A complete review of the laboratory changes and policy updates needed to implement Army-wide hair drug testing goes beyond the scope of this article, however, a brief examination of *Army Regulation 600-85, The Army Substance Abuse Program (AR 600-85)* and unit drug policies provides some insight.

A. Adjusting *Army Regulation 600-85*

Currently, *AR 600-85* contains the Army's program for urine sample testing.³¹² The regulation's text refers to biochemical testing instead of urine testing alone.³¹³ Also, the regulation defines biochemical testing as including the "identification of alcohol or other drug abuse through the testing of blood, urine, breath, or *other bodily substance*."³¹⁴ Therefore, the regulation's language could easily incorporate hair drug testing with minimal changes to the regulation's overall text.

³⁰⁹ See generally *AR 600-85, supra* note 59 (governing the Army's drug abuse program); see also U.S. ARMY EUROPE, REG. 27-10, MILITARY JUSTICE para. 13 (30 Mar. 2005) (prohibiting units in Europe from using random hair analysis to test for the use of illegal drugs without commanding general approval). The implementation of a military-wide hair testing program would eliminate the need for this restriction. Interestingly, the regulation does not restrict the use of hair analysis to test for illegal substances when probable cause exists to support the hair test. *Id.*

³¹⁰ Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. 19673, 19675-76, 19679, 19682, 19697, 19705 (Apr. 13, 2004); FLA. STAT. ANN. § 112.0455 (LEXIS 2005).

³¹¹ Proposed Revisions to Mandatory Guidelines for Federal Workplace Drug Testing Programs, 69 Fed. Reg. at 19675-76, 19679, 19682, 19697, 19705; § 112.0455.

³¹² *AR 600-85, supra* note 59, paras. 8-1 to 8-5.

³¹³ See *id.* (using the term "biochemical testing" throughout the regulation).

³¹⁴ *Id.* para. 6-2(a) (emphasis added).

The most significant changes to the regulation would need to occur in the appendices.³¹⁵ Appendix E provides a standard operating procedure for urine collection and urine sample processing.³¹⁶ The Army would need to add additional information describing the standard operating procedures for hair sample collection and processing.³¹⁷

B. Local Policy Memoranda

In the short term, commanders could implement hair drug testing through local policy memoranda, which would need to notify servicemembers of the implementation of hair drug testing.³¹⁸ The notification would support the special needs exception by putting servicemembers on notice of a reduced privacy interest in their hair.³¹⁹ The memoranda would also need to designate hair collection procedures to prevent disparate treatment of servicemembers during testing.³²⁰ Each servicemember would then face the same collection protocol. The protocol would prevent the servicemembers from experiencing “substantially different intrusions.”³²¹

C. Cost-Benefit Analysis

The DOD should examine the cost of providing the DOD laboratories with the equipment and personnel necessary to conduct hair sample testing, which they do not currently perform.³²² Consequently,

³¹⁵ See *id.* apps. A-F.

³¹⁶ *Id.* app. E.

³¹⁷ See *generally id.* apps. A-F (ending appendices at letter F).

³¹⁸ See *United States v. Bickel*, 30 M.J. 277, 284-85 (C.M.A. 1990) (noting that “[t]he extensive notice that has been given to servicemembers about the drug-testing program is another circumstance tending to establish that compulsory drug tests are reasonable searches” under the Fourth Amendment).

³¹⁹ See *id.*; see also *supra* Part III.C.1 (analyzing the special need exception to the Fourth Amendment).

³²⁰ See *Bickel*, 30 M.J. at 285 (highlighting that “detailed regulations and policies . . . reduce the occasion for arbitrariness and abuse of discretion” by the authorities implementing the test).

³²¹ See MCM, *supra* note 85, MIL. R. EVID. 313(b) (requiring the prosecution to prove by “clear and convincing evidence” that an inspection was not a subterfuge for a search when the command subjects servicemembers to “substantially different intrusions during the same examination”).

³²² See E-mail from Edmund Tamburini, Forensic Science Coordinator, United States Army Criminal Investigation Laboratory (USACIL), Forest Park, Georgia, to Major

the military would need to either contract with private companies or, on rare occasions, request support from Federal Bureau of Investigation laboratories, for example, to meet the military's hair drug testing needs.³²³ The military's ability to perform in-house hair sample testing would likely help counter the costs of testing by reducing processing costs, eliminating expert fees, and reducing the military's current volume of urine tests.³²⁴

Currently, the cost for a hair sample test ranges from \$40 to \$100, as compared to a urine test for which the cost for an individual test is approximately \$8.50 per test.³²⁵ The differing drug detection windows for hair sample testing and urine testing help eliminate this cost discrepancy.³²⁶ For example, a urine sample has a detection window for cocaine of three days.³²⁷ Conversely, a hair sample has a drug detection window for the same drug of approximately three months.³²⁸ A commander would need to conduct thirty consecutive urinalysis tests to encompass the same drug detection window one hair sample test, and

Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Aug. 30, 2005, 8:33 EST) (stating that USACIL and the other DOD Laboratories do not perform hair toxicology testing) (on file with author).

³²³ *Id.* (stating that USACIL has to contract hair toxicology tests with commercial laboratories); Mr. Guenzer Interview, *supra* note 248 (stating that in limited circumstances the FBI Laboratory has conducted hair analysis for military prosecutors).

³²⁴ The author acknowledges that only an in-depth cost-benefit analysis of hair drugtesting could identify all the financial costs and financial benefits associated with hair drug testing, which is beyond the scope of this article. Nevertheless, the military's ability to process a high volume of hair samples appears more cost effective than contracting with several private laboratories throughout the country. Of course, the cost-benefit analysis would need to determine whether outsourcing hair drug testing or expanding in-house laboratory capabilities would provide the most cost effective way to proceed in both the short and long term. A pilot hair drug testing program at the brigade level would assist in this analysis.

³²⁵ E-mail from Dr. Donald J. Kippenberger, Deputy Program Manager for Forensic Toxicology, United States Army Medical Command (MEDCOM), Fort Sam Houston, Texas to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Sept. 19, 2005, 11:31 EST) (stating the cost of a urinalysis test equals \$8.50 while a hair sample test costs over \$100) (on file with author); E-mail from Mr. William Thistle, Senior Vice President and General Counsel, Psychomedics Corp., to Major Keven Kercher, Student, The Judge Advocate General's Legal Center and School, U.S. Army (Sept. 27, 2005, 11:44 EST) (stating that hair drug testing costs between \$40 and \$100 dollars per sample) (on file with author).

³²⁶ See *supra* Part II.D (addressing drug detection windows).

³²⁷ *Id.*

³²⁸ *Id.*

these multiple urine tests would be \$225, as compared to one \$100 hair sample test.

Additionally, fewer drug tests per year would save a military unit many hours of labor. The replacement of several urinalysis tests by one hair sample test would decrease the ASAP's impact on military operations.³²⁹ A commander could reduce the amount of time his servicemembers miss in training due to urinalysis' requirements.³³⁰ Hair sample testing's deterrent effect and long drug detection window more than justify the additional costs associated with the test.

VII. Conclusion

Besides fighting insurgents in Iraq and Afghanistan, the military also faces a drug "insurgency" within the ranks.³³¹ The Army's current biochemical testing program supposedly provides commanders with an effective tool to identify drug use, deter future drug use, and monitor drug rehabilitation.³³² Unfortunately, the urinalysis's short drug detection window severely limits a commander's ability to effectively accomplish these objectives.³³³ In order to identify drug users, the short detection windows force commanders to rely on creative drug test scheduling instead of the test itself.³³⁴

³²⁹ See *id.* (describing the typical three-month hair test).

³³⁰ The commander would save the time of the servicemembers participating in the drug test and the time of the servicemembers administering the test. In the Army, command-designated servicemembers oversee the collection of the urine samples during a urinalysis inspection. See AR 600-85, *supra* note 59, para. 1-26 & app. E (detailing the personnel requirements for executing a urinalysis program).

³³¹ See SAMHSA 2004 National Drug Survey, *supra* note 2 (noting that 19.1 million Americans currently use illegal substances); Rhem, *supra* note 1 (highlighting the concern over ecstasy use by military members); Gilmore, *supra* note 3 (noting an increase in club drug use by servicemembers); see also AR 600-85, *supra* note 59, para. 1-31(a) (recognizing that the illegal drug use is "inconsistent with Army values and the standards of performance, discipline, and readiness necessary to accomplish the Army's mission").

³³² See AR 600-85, *supra* note 59, para. 8-1 (listing the objectives of the Army's biochemical testing program).

³³³ See *DOD Urinalysis Program*, *supra* note 12 (showing that urine testing can only detect drug use for most illegal drugs that occurred a few days prior to the test).

³³⁴ See AR 600-85, *supra* note 59, para. 8-3 (encouraging commanders to use "unpredictable testing pattern[s]" and to test during "non-traditional times").

Consequently, the need for another type of drug test exists in the military. Hair drug testing will meet this need because it: (1) extends a commander's ability to identify drug use to several months;³³⁵ (2) involves a lawful search and seizure;³³⁶ (3) provides relevant and reliable information;³³⁷ and (4) easily complements current urinalysis programs.³³⁸

The hair's ability to permanently trap drug deposits provides hair drug testing with its greatest benefit.³³⁹ This characteristic differs from the limitations of urine sample testing, which will only temporarily reveal drug traces.³⁴⁰ A normal hair sample test can identify drug use over several months while a urinalysis may only identify drug use during the past few days.³⁴¹ Therefore, commanders should augment their current urinalysis programs with hair drug testing.

Additionally, over the last decade, military appellate courts have admitted hair drug test results into evidence and supported convictions based solely on hair sample analysis results.³⁴² Improvements in laboratory hair washing procedures and promulgated cut-off levels have reduced concerns over innocent exposure to drugs and concerns over racial bias.³⁴³ Also, current unit policies and Army regulations could easily accommodate hair drug testing with only a few minor modifications.³⁴⁴ As a result, commanders could quickly implement hair drug testing into their existing complement of drug programs, knowing that hair sample tests would provide them with reliable information.

³³⁵ See *supra* Part II.D (advantages of hair testing); see also *supra* Part V.A (showing how hair testing's long drug detection window can support suspension actions).

³³⁶ See *supra* Part III.

³³⁷ See *supra* Parts IV, V.

³³⁸ See *supra* Part II.E (noting that hair testing, unlike a urinalysis, cannot detect immediate drug impairment); Part V.B (addressing hair testing's ability to confirm urinalysis results); Part VI.A (incorporating hair drug testing into the Army's current biochemical testing program).

³³⁹ See *supra* Part II.A (examining drug deposits in hair); see also *supra* Part II.D (advantages of hair testing).

³⁴⁰ See *DOD Urinalysis Program*, *supra* note 12 (providing drug detection windows for urine testing).

³⁴¹ See *supra* Part II.D (explaining hair drug testing's drug detection window).

³⁴² See cases cited, *supra* note 229 (listing military cases involving hair drug testing); see also *supra* Part V.C (examining the use of hair testing results to support a court-martial conviction).

³⁴³ See *supra* Part IV.B (addressing environmental contamination and racial bias concerns).

³⁴⁴ See *supra* Part VI (implementing hair analysis).

Further, hair drug testing complies with Fourth Amendment protections against unreasonable searches and seizures.³⁴⁵ Hair sample “inspections” fit into the “special needs” exception to the Fourth Amendment, because hair drug testing has a strong deterrent effect and shares many similarities with urine testing.³⁴⁶ Hair sample testing’s longer drug detection window can also help commanders avoid turning an inspection into a subterfuge for an unlawful Fourth Amendment search.³⁴⁷

Besides inspections, commanders can also grant search authorizations, based upon probable cause for the seizure of a servicemember’s hair for drug testing.³⁴⁸ An argument currently exists that a servicemember may not have an expectation of privacy in his hair.³⁴⁹ If accepted, this argument would allow commanders to authorize a seizure of a servicemember’s hair and a subsequent search of that hair on less than probable cause.³⁵⁰

Finally, hair drug testing helps commanders ensure justice is done, and furthers the goals of both trial counsel and defense counsel. Trial counsel can rely on hair test results alone to prosecute drug use cases.³⁵¹ Drug laboratories provide a litigation packet³⁵² and the *American Jurisprudence Proof of Facts 3d* provides example foundation questions.³⁵³ Trial counsel can also use hair sample analysis results to

³⁴⁵ See *supra* Part III (analyzing hair drug testing and the Fourth Amendment).

³⁴⁶ See *supra* Part III.C.1 (applying the special needs exception to hair analysis).

³⁴⁷ See *supra* Part III.C.2 (applying the language of MRE 313 to hair drug testing).

³⁴⁸ See *supra* Part III.B (analyzing military search authorizations for hair samples).

³⁴⁹ See *Coddington v. Evanko*, 112 F. App’x 835, 835-38 (3rd Cir. 2004) (finding no reasonable expectation of privacy in hair); *In Re: Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 139 (3rd Cir. 1982) (concluding no expectation of privacy in hair that is on public display).

³⁵⁰ A finding of no expectation of privacy would allow commanders and law enforcement officials to obtain hair samples without a warrant in the same fashion as handwriting exemplars. See *United States v. Mara*, 410 U.S. 19, 21-22 (1973) (analyzing handwriting samples under the Fourth Amendment); *Coddington*, 112 F. App’x at 837 (citing *In re Grand Jury Proceedings Cecil Mills*, 686 F.2d 135, 139 (3rd Cir. 1982)) (comparing obtaining a hair sample to obtaining a handwriting exemplar).

³⁵¹ See *United States v. Bethea*, 61 M.J. 184, 184-85 (2005) (involving cocaine use on “divers” occasions); *United States v. Bush*, 47 M.J. 305, 312 (1997) (upholding a drug conviction based solely on hair test results).

³⁵² See *United States v. Adens*, 56 M.J. 724, 726 (Army Ct. Crim. App. 2002) (referencing a hair analysis litigation packet prepared by a drug laboratory).

³⁵³ See *Vinal*, *supra* note 18, §§ 13-25 (providing hair analysis foundation questions to assist trial counsel in the courtroom).

defeat an accused's claims of innocent ingestion.³⁵⁴ In contrast, defense counsel can use hair sample analysis results to support an accused's claims of a procedurally defective urinalysis test.³⁵⁵ The best initial step for either counsel is to contact a hair drug testing expert who can provide further details on hair drug testing capabilities.

³⁵⁴ See *Bethea*, 61 M.J. at 184-85 (involving law enforcement's use of a hair analysis test to refute defendant's denial of knowing cocaine use); *United States v. Johnson*, No. 33134, 2000 CCA LEXIS 18, at *1-2 (A.F. Ct. Crim. App. Jan. 27, 2000) (unpublished) (obtaining a hair sample after defendant claimed that his positive urinalysis resulted from unknowingly smoking cocaine-laced cigarettes).

³⁵⁵ See *United States v. Nimmer*, 43 M.J. 252, 252-54 (1995) (concerning the defense's efforts to introduce expert testimony on the inferences of a negative hair sample test); *United States v. Will*, No. 9802134, 2002 CCA LEXIS 218, at *12-18 (N-M Ct. Crim. App. Sept. 27, 2002) (unpublished) (finding that the military judge should have allowed the defense to enter a negative hair analysis into evidence).

THE TENTH HUGH J. CLAUSEN LECTURE ON LEADERSHIP¹**JOHN O. MARSH, JR.²**

¹ This is an edited transcript of a lecture delivered by The Honorable John O. Marsh, Jr., former Secretary of the Army, to members of the staff and faculty, their distinguished guests, and officers attending the 52d Judge Advocate Officer Graduate Course at The Judge Advocate General's School, Charlottesville, Virginia, on 12 May 2004. The Clausen Lecture is named in honor of Major General Hugh J. Clausen, who served as The Judge Advocate General, United States Army, from 1981 to 1985 and served over thirty years in the United States Army before retiring in 1985. His distinguished military career included assignments as the Executive Officer of The Judge Advocate General; Staff Judge Advocate, III Corps and Fort Hood; Commander, United States Army Legal Services Agency and Chief Judge, United States Army Court of Military Review; The Assistant Judge Advocate General; and finally, The Judge Advocate General. On his retirement from active duty, General Clausen served for a number of years as the Vice President for Administration and Secretary to the Board of Visitors at Clemson University.

² John O. Marsh, Jr., a native of Virginia, is a former Secretary of the Army and former Virginia Representative in Congress. He was a cabinet rank Counselor to President Ford. By appointment of former Secretary of Defense Cheney, he also served 1989-1994 in the position of Chairman of the Reserved Forces Policy Board, an advisory body in the Department of Defense relating to all the U.S. National Guard and Reserved Forces. Subsequently, for Secretary of Defense William J. Perry, Marsh chaired the panel on Quality of Life for members of the Armed Forces and their families. Marsh was born August 7, 1926, in Winchester, Virginia. He received his LL.B. degree in 1951 from Washington and Lee University and began the practice of law in Strasburg, Virginia. He was elected to four terms as a Representative in Congress from the Seventh District of Virginia (1963-1971) and was a member of the House Appropriations Committee. Choosing not to seek a fifth term, he resumed the practice of law. In March 1973, he returned to federal service as Assistant Secretary of Defense (Legislative Affairs). In January 1974, he became Assistant for National Security Affairs to Vice President Ford, and, in August of that year, Counselor, with Cabinet Rank, to President Ford. He returned again to private law practice in January 1977, as a Washington, D.C. resident partner of a major Virginia law firm. For President Ford, he had oversight of the Amnesty program and directed the Legislative Affairs program for the Ford White House. He chaired a panel of cabinet ranked members to make recommendations to the President for the reform and reorganization the United States intelligence community. At the request of President Ford he chaired the transition of the Ford Administration to the Carter Administration. On 30 January 1981, Marsh was sworn in as Secretary of the Army. When he retired from that post on 14 August 1989, his tenure was the longest of any Secretary of the Army or Secretary of War in the history of the Republic. During 1988, pursuant to an enactment of Congress, he served concurrently as the first Assistant Secretary of Defense (Special Operations/Low Intensity Conflict), to organize that office in the Department of Defense. On completing his service as Secretary of the Army, he undertook a special assignment as Legislative Counsel to Secretary of Defense Cheney for the development of legislative recommendations relating to streamlining of the defense procurement process, and then joined the Hazel & Thomas law firm early in 1990. He has been awarded, on six occasions, the Department of Defense Distinguished Public Service Award, and has been decorated by the governments of France and Brazil.

Let us consider history and philosophy. I am of the view that many answers to the current world situation are likely to be found in history and philosophy. I believe the study of history and philosophy will enable us to frame the doctrines and the strategies needed to address the challenges of our time.

Consider Philadelphia in September 1787. The Constitutional Convention has just concluded. There were fifty-five original delegates. Of the fifty-five, only thirty-nine delegates signed the U.S. Constitution; the others did not for differing reasons. Of the thirty-nine who signed it, the majority of them were veterans of the American Revolution. This majority put the life and death powers of the nation in the Congress, not in the Executive Branch. By original design, the most powerful chamber is the House of Representatives, not the Senate. Senate members were first elected by legislatures of the states; they were intended to be ambassadors to the national Congress from the states. Election of Senators by popular vote was provided by the Seventeenth Amendment to the Constitution and adopted in 1918.

The power to raise taxes is vested in the House, and the power to appropriate money, by implication, is also vested in the House. All tax bills must originate in the House. House terms for two years were

He holds the Presidential Citizens Medal. Mr. Marsh enlisted in the United States Army in 1944, during World War II, and was commissioned a second lieutenant at age nineteen, upon graduation from Infantry Officer Candidate School. He later served in the Army Reserve and the Virginia National Guard from 1954 to 1976, much of the Guard service being in the 116th Infantry Regiment. He graduated from the Army Airborne and Jumpmaster Schools and earned Senior Parachutist Wings. While in Congress, he served a thirty-day voluntary tour of active duty in Vietnam as a major, the only seated member of Congress to do so. In 1990, Mr. Marsh was selected by the Virginia Press Association to receive its "Virginian of the Year" Award. Thirty years before, he had been named by the Virginia Jaycee's the "Outstanding Young Man in Virginia." He was chosen by the Association of the United States Army as recipient of its George Catlett Marshall Medal for public service. The John O. Marsh, Jr. Armory, a Virginia National Guard facility in Woodstock, Virginia, was named in Marsh's honor and dedicated in November 1996. In 1998, Mr. Marsh served as Visiting Professor of Ethics at the Virginia Military Institute in Lexington, Virginia. On 25 October 2002, Mr. Marsh received the first Harry F. Byrd, Jr. 1935 Public Service Award. Marsh is married to the former Glenn Ann Patterson, and they have three children: Rob, a physician, Rebecca, a former high school counselor, and graduate of William and Mary, and Scot, a surveyor, and graduate of the Virginia Military Institute. Both Rob and Scot Marsh were recalled to active duty in Operation Desert Storm, and took part in combat operations in the Gulf War. Rob Marsh, a Special Forces combat physician serving with Delta Force, was seriously wounded while serving with a special operation in Somalia. Presently, he is a country doctor in the village of Middlebrook, Virginia, and teaches medicine at the University of Virginia.

intended as a safeguard on defense spending.

George Washington, the most powerful person in the country, was the President of the Convention. The Constitutional document was largely the drafting effort of James Madison. James Madison was a native of this area, and represented it in the first Congress.

Madison wrote, I'm sure, on behalf of Washington, the resolution of transmittal, sending from the Convention the proposed new Constitution to the Confederation Congress. It is important to note the work of the Constitutional Convention was done in camera. I make that point because I think we have at times gone overboard on access by the public to the deliberations of political and other public bodies, which sometimes can be counterproductive to the political deliberation process. General access to meetings of public officials is appropriate, but the rule of reason must be applied.

The U.S. Constitution was drafted in secret. Its provisions were really not disclosed until about the 1830s, and occurred with the publication of James Madison's papers.³ It is doubtful the Constitution could have been drafted if the meetings had been public.

The transmittal resolution reflected that Washington recognized the heart of what they were doing, and the real issue facing the country. In the resolution, he said, "It is obviously impractical in the federal government of these states to secure our rights of independent sovereignty to each and yet provide for the interest and safety of all. Individuals entering into society must give up a share of liberty to preserve the rest."⁴

It was the great seventeenth century philosopher John Locke whose ideas influenced our government more than any other person living beyond our shores. Locke was a physician who, as a young boy, lived through the English Civil War of the 1640s.⁵ The war had a profound impact on him. At that time—and this is hard for us to comprehend today—there was a theory of government espoused by the Stuart Kings;

³ James Madison, *The Papers of James Madison*, available at http://memory.loc.gov/amem/collections/madison_papers/ (last visited Aug. 16, 2006).

⁴ Letter from the Federal Convention President to the President of Congress (Sept. 17, 1787), <http://federalistpatriot.us/histdocs/loft.htm>.

⁵ British Broadcasting Centre, *Civil War 1625-1649*, <http://www.open2.net/civilwar/> (last visited Aug. 16, 2006).

namely James I, Charles I, Charles II and James II in the seventeenth century. This theory held a ruler's authority and power came by Divine Right⁶. This theory is discussed in *Encyclopedia Britannica*, and other reference books. James I wrote a dissertation justifying government by Divine Right.

Proponents of the theory argued a ruler was placed on the throne by Providence. Under the theory of Divine Right, the King can do no wrong; if he is a bad ruler, and the citizens suffer from his oppression and bad decisions, then under Divine Right he will be punished by Providence when he dies. Locke became an opponent of this theory. He developed the theory that to have a secure society with liberty and justice, and to repel invasion, you must establish a government that protects liberty, provides justice, and can repel aggression. The rights of personal property are much a part of these rights under Locke's theory.

In January of last year, President Václav Havel's⁷ term came to an end as the leader of the Czech Republic. Havel, a renowned intellectual and poet, had been imprisoned during the Cold War for his political views. He had gained elective office—head of the Czech Republic. When he stepped down from this office, the media called him “The Philosopher King.” One reporter commented that there were dents in the crown of the philosopher king. Havel seemed to echo that view when he responded, “We cannot expect that the world—in the hands of poets—will suddenly be transformed into a poem.”⁸

Current events in our world today confirm that the world is not a poem. Our Capitol city, Washington, in the early years of the third millennium, is becoming the city of the Jersey Walls. Accessibility to government buildings is limited, and protected by armed guards. Sensor devices scan your briefcase, and your person. This is aimed to thwarting a would-be terrorist. These circumstances point to the vulnerability of an open society, and how much we need the wisdom of the Founding Fathers to secure our liberties today. I have a problem with sequestered federal buildings. I have a concern where federal public servants are sequestered from the people they serve, and where you, in effect, have to

⁶ See THE COLUMBIA ENCYCLOPEDIA, *Divine Right of Kings* (6th ed. 2001-2005), available at <http://www.bartleby.com/65/di/divineri.html>.

⁷ See Arie Farnham, *Havel Era Ends in Czech Republic*, CHRISTIAN SCI. MONITOR, Jan. 31, 2003.

⁸ Vaclav Havel, *A Farewell to Politics*, N.Y. REVIEW OF BOOKS, Oct. 24, 2002.

get a permit to see them. I think this runs counter to the American experience.

In 1790, Thomas Jefferson had just returned from France. He was asked by a reporter, "Who did he consider the greatest man in America?" Jefferson did not hesitate, and he answered, "James Madison."

Locke's philosophy argued that individuals entering society must give up a share of liberty to preserve liberty for the whole. For Locke, it was a theory, to build a government with separation of powers between the legislative and executive branches. Madison took this theory and made it a reality. Madison was not only a superb political theorist and philosopher, but also a hands-on political practitioner and a political realist. The realism is reflected in his comment, "If men were angels, no government would be necessary."⁹ He remained, nonetheless, for his realism a political visionary, and the Constitution is a document of extraordinary flexibility. It is a product of his vision and his intellectual genius. It should be noted, he had studied for years, and prepared himself for political leadership.

In the Virginia Code, following the Constitution of the United States, and the State Constitution, in a statute that reads in part, "The common law of Virginia, in 1776, shall be the Common Law of England." The next statute in the code states that those acts of Parliament, including the English Bill of Rights, which are compatible with the laws of the Commonwealth that shall be the law of Virginia. These two provisions reflect our heritage from the English judicial system.

At this very moment, in the Middle East, the United States and forces of other nations are engaged in a struggle to stem terrorism. This is a different kind of terrorism. It incorporates information technology and cyber resources as weapons. These are tools used by both sides in the war. Because of cell phones, less developed countries have skipped the wires and poles generation in development of communication. They have acquired a highly effective, reliable communication system using cell phones for internet and e-mail. Terrorists use encrypted information. It may be embedded in different ways in their messages, making it harder to discover.

⁹ THE FEDERALIST NO. 51 (James Madison), *available at* <http://www.thirteen.org/federalist/paper51.html> (last visited Aug. 16, 2006).

I suggest you read a Federal publication that deserves greater consideration, "Critical Foundations."¹⁰ Perhaps, you have seen it, if not, you can get it online. It is a publication from a commission appointed by the President of the United States in 1997. You will recall before 9/11—there was terrorist act in Oklahoma City in 1995, the bombing of the Murrah Building. There were immediate grounds for federal jurisdiction because it was a Federal building that was bombed. Consequently, the FBI took jurisdiction. As a result of the attack, President Clinton appointed a study commission; half of the commission was from government, and half from the private sector. The commission examined cyber-activity, and the need to protect the national information infrastructure. Out of this Presidential study would come Presidential Decision Directive (*PDD*) 62, *Weapons of Mass Destruction*¹¹ and parts of *PDD* 63, *Presidential Decision Directives, Cyber and Information Infrastructure*.¹²

The Presidential study cited two major conclusions. First, there is a lack of awareness in America on the vulnerability of the Nation's infrastructure. Secondly, the law lags badly, and is failing to keep pace with emerging technology. The Presidential Report points out where the law lags, and how it should be remedied. The fact that that some of our laws for the cyber world are inadequate was demonstrated in the Y2K challenge. Remedies for Y2K could not have been accomplished if the Congress had not suspended briefly, the Freedom of Information Act (FOIA) and the Antitrust statutes.

The computer world poses major challenges. It is estimated that as much as 90% of the information infrastructures is in the private sector. If James Madison were alive today, I am sure he would relish these challenges of private sector governmental cooperation. However, I am of the view that the talent and resources are here in this room to address these challenges.

¹⁰ PRESIDENTS COMMISSION ON CRITICAL INFRASTRUCTURE PROTECTION, *CRITICAL FOUNDATIONS: PROTECTING AMERICA'S INFRASTRUCTURE* (1997).

¹¹ Fact Sheet- The White House, Office of the Press Secretary, *Combating Terrorism: Presidential Decision Directive 62* (May 22, 1998), available at <http://www.fas.org/irp/offdocs/pdd-62.htm>.

¹² The White House, Washington, *Critical Infrastructure Protection: Presidential Decision Directive/NSC-63* (May 22, 1998), available at <http://www.fas.org/irp/offdocs/pdd/pdd-63.htm>.

The Presidential report on protecting the infrastructure suggests the creation of ISACS, Information Sharing Analysis Committees, to achieve better communication and cooperation between government and the private sector. The report recommends dividing the United States infrastructure into seven sectors, including transportation, petroleum, and electric power grids and financial services. It is envisioned that within the ISACS, there can be an appropriate exchange of information to contribute to the effectiveness of these infrastructure components.

In *The Republic*,¹³ Plato, discusses the ideal state and the qualifications you need in the leader of that ideal state. He made this observation, “Until philosophers are kings, or kings philosophers, or the kings and princes of this world have the spirit and power of philosophy, and political greatness, and wisdom meet in one, cities will never have rest from their evils, nor shall the human race.”¹⁴

I served on a committee that was established by Congress to look at impacts of weapons of mass destruction in a terrorist attack in our cities and communities. This committee is referred to as the Gilmore Commission because it was chaired by Governor Gilmore of Virginia. A number of issues were raised in the commission reports. The Commission found there is a failure in transferring vital classified information to others in government who need this information. The current system of classification of sensitive information is a relic of the Cold War. The Gilmore Commission surveyed thousands of first responders, and they pointed to the need to develop a process so first responders- the sheriffs, the police, the firefighters- can obtain the information they need. You cannot do it under the current system. It is expensive to get security clearances even in the federal system, and often clearances are not transferable to other federal agencies. This should have been corrected years ago.

I suggest you look at the issues associated with Continuity of Government Commission (COG)¹⁵ and Continuity of Congress

¹³ Wikipedia, Republic (Plato), http://en.wikipedia.org/wiki/Plato's_Republic (last visited Aug. 16, 2006).

¹⁴ *Id.*

¹⁵ Continuity of Government Commission, <http://www.continuityofgovernment.org/home.html> (last visited Aug. 16, 2006).

Commission (COC).¹⁶ There is legislation proposed in reference to both of these. The House of Representatives poses a special problem in continuity of Congress. Filling a House vacancy requires a special election. In the Senate, however, as a general rule, when a vacancy occurs, the Governor of the state can make the appointment to fill the seat.

There is much public discussion about “data mining.” A little over a year ago, the Defense Advance Research Projects Agency,¹⁷ began a program called Total/terrorism Information Awareness (TIA)¹⁸. Secretary Rumsfeld appointed a committee to look at privacy issues raised by technology and their impact on defense programs. I was a member of that study group. Data mining can be troublesome, and it is increasing. With computers, it becomes hard to control. One data mining technique is radio frequency detection (RFID). RFID began as an inventory control measure. The device may be no larger than the head of a pin. In the manufacturing process, it might be inserted into a jacket or belt. When the item comes off the production line, it can be tracked to its final destination. However, its use is being expanded well beyond inventory control measures.

Contributing to the problem of data mining is the fact that individuals give third parties the authority to collect personal data. For example, if you shop in a Food Lion or Safeway with the “bonus” card, you disclose your shopping preferences when you check out. This shopper information is collected, and can be sold to other commercial interests.

As a general rule, every successful piece of legislation in the United States Congress travels two roads. First, it has to travel the “authorization road” to obtain legislative approval. Then, it must go back through the legislative process to obtain the money needed to fund the authorized project.

To demonstrate this point, when the American Revolution, in effect, ended on the 19th day of October in 1781 at Yorktown by British troops

¹⁶ *Id.*

¹⁷ Defense Advanced Research Projects Agency, <http://www.darpa.mil/> (last visited Aug. 16, 2006).

¹⁸ Total/Terrorism Information Awareness, <http://www.epic.org/privacy/profiling/tia/> (last visited Aug. 16, 2006).

surrendering to Washington, Washington immediately dispatched a courier to Philadelphia. The courier's mission was to get the surrender news to the Congress in Philadelphia quickly. The Continental Congress, on receiving this news, adopted a resolution to construct a monument at Yorktown to honor that great victory. On the 19th day of October 1891, 100 years later, President Chester Arthur unveiled the monument approved a century before. It took 100 years to get the money appropriated.

There was a reorganization of the American intelligence community in 1975. This was the post Watergate era and it was a horrendous time. Two Special Congressional committees were formed. One was the Church committee in the Senate, chaired by Senator Church. The House committee was called the Pike Committee, chaired by Representative Pike. I was tasked by President Ford to chair the White House effort to respond to the Congressional Committees. This effort was two-fold; first, handle the Congressional Committee's many requests for documents and witnesses, and second, develop an Executive Branch program to address abuses and prevent their reoccurrence. The issue of protecting Executive Privilege was also a significant one.

The National Security Agency (NSA)¹⁹ does not have a statutory charter. It was created by an Executive Order of President Truman in 1952. In the 1970's Congress considered changing that. This was fueled in part by the Watergate crises and abuses. After the election in 1974, the membership of both Houses of Congress were two to one against the administration. President Ford did not want to change the status of NSA because its extraordinary capabilities in intelligence collection which benefited greatly the national security elements of the Executive Branch. In part, because of the reforms he mandated in Executive Order 11905, an understanding was reached with the Congress and a legislative charter for NSA was averted. This understanding would also see the creation of Committees on Intelligence in both Houses of Congress.

Let me close with an anecdote, which to me says something about the strength of our Republic and its commitment to the rule of law. It was an event to which I was privy since I was serving Vice President Ford as his National Security Advisor and became aware of the developments leading to his assuming the Presidency.

¹⁹ National Security Agency, <http://www.nsa.gov/> (last visited Aug. 16, 2006).

Early in August, it became clear that President Nixon was seriously considering resigning, and that Vice President Ford was advised he could expect a call to meet with President Nixon to discuss this. That call came Thursday morning on 8 August 1974, and the two men met in the White House for an hour, or more.

The Vice President returned to his office in the Executive Offices shortly after noon. Mr. Ford met with his Chief of Staff, Bob Hartman, and me. He told us President Nixon had decided to resign as of noon the next day- a Friday.

In response to a question by Mr. Hartman, the Vice President said he would like to be sworn in by the Chief Justice, Mr. Warren Burger. An inquiry to his court chambers in Washington indicated he was attending an international law conference at The Hague. Mr. Ford spoke by phone with the Chief Justice, who indicated his willingness to participate but there was a problem in finding a commercial aircraft flight to get him to Washington for an event that was now less than 24 hours away.

The fleet of official aircraft at Andrews Air Force Base are under White House control. By four o'clock, I could tell the Chief Justice that an Air Force aircraft was enroute to The Hague. It was double crewed, one crew for the flight to Europe, and the second crew, after refueling, to fly him back to Andrews. At Andrews, the Chief Justice was air lifted by chopper and flown to the South Lawn of the White House shortly before the historic swearing in.

Now, I have often thought that an international tourist who was there at the time and would see that plane would obviously recognize it and say, what is that plane, and why is it here? The answer would be that the plane was sent with approval of the President of the United States to bring back to the United States the Chief Justice of the Supreme Court, who had written the unanimous decision that caused the President to resign. The Chief Justice would now return to America to swear in the Vice President of the United States to be the new President.

I think this transition of power demonstrates the quality and the soundness of this great Republic.

I wish you well in your careers, and thank you for your service to our Country.

IN TIME OF WAR¹REVIEWED BY COLONEL DAVID A. WALLACE²

Pierce O'Donnell, one of the leading trial lawyers in the United States, has authored a masterful and spellbinding book about an important but, until recently, obscure historical footnote from World War II—the German Saboteur Case.³ O'Donnell's book is meticulously detailed, thoroughly researched, and highly readable. For the judge advocate, *In Time of War* proves a ready source of background information to the terrorism challenges our nation faces today.

Throughout *In Time of War: Hitler's Terrorist Attacks on America*, O'Donnell provides the reader with a thrilling narrative about a nearly forgotten episode during the early years of World War II—a precarious and volatile time in our nation's history.

The facts of the case are straightforward and undisputed but read like a spy novel. In June 1942, two German U-boats, one off the coast of Florida and the other off Long Island, New York, landed eight Nazi terrorists under the cover of darkness. Hitler and his senior advisors were intimately involved in planning a once-secret mission, now known as Operation Pastorius.⁴ The mission's purpose was to fan out across the United States and destroy strategic transportation, manufacturing, and hydroelectric plant targets in a series of attacks that would create public panic.⁵

O'Donnell skillfully introduces the reader to each of the saboteurs. Although they all had different backgrounds and were from different segments of German society, they had one trait in common—long-term residency in America between the Great wars.⁶ Two of the eight

¹ PIERCE O'DONNELL, *IN TIME OF WAR* (2005).

² U.S. Army. Currently serving as an Academy Professor, Department of Law, U.S. Military Academy, West Point, New York.

³ *Ex Parte Quirin*, 317 U.S. 1 (1942).

⁴ O'DONNELL, *supra* note 1, at 21. The secret mission was named for Franz Pastorius, the leader of the first German immigrant community in the America in the 17th Century. According to O'Donnell, it was not unusual for Hitler to involve himself in the planning of tactical missions much to the consternation of some of his senior military officers.

⁵ *Id.*

⁶ *Id.* at 23. O'Donnell also notes that the eight "volunteers" had a strong aversion to service on the Eastern Front, where the German Army was suffering significant casualties.

saboteurs were U.S. citizens and all were fluent in English.⁷ Of note, O'Donnell's description of the eight leaves the reader with the sense that Hitler's terrorists were a motley crew, not the best of the Third Reich, yet surprising in their resulting terrible successes.⁸

The author's fascinating narrative brings the hapless terrorists to life with insights into their training at a secret saboteur school,⁹ their journey across the ocean by submarine,¹⁰ their landing in America and, for one of the teams, their chance encounter with an unarmed, twenty-one-year-old Coast Guard Seaman Second Class John C. Cullen.¹¹ Not long after arriving in the United States, the leader of the group, George Dasch,¹² double-crossed his comrades and reported everyone to the FBI.¹³ All of the saboteurs were consequently and swiftly apprehended.

Of particular interest to judge advocates, especially in light of recent events such as the Guantanamo Bay detainee situation, is O'Donnell's account of President Roosevelt's decision-making process on how to treat the captured saboteurs. The President's Attorney General, Francis Biddle,¹⁴ realized there were three options for disposing of the case.¹⁵ First, the detained Germans could be treated as prisoners of war, given combatant immunity, and imprisoned for the duration of the war.¹⁶ However, treating the Germans as prisoners of war had little appeal. Doing so was not required under international law because the Germans had been caught in civilian clothes, thus making them unlawful

⁷ *Id.* at 4.

⁸ *Id.* at 23.

⁹ *Id.* at 4-5. The training was conducted at Quenz Lake, Brandenburg, the capital of the state of Prussia, located approximately thirty miles from Berlin. The campus was once a luxurious farm owned by a wealthy Jewish shoe manufacturer. Alumni of the school had performed many other successful missions in Europe.

¹⁰ *Id.* at 56-59.

¹¹ *Id.* at 60-61.

¹² *Id.* at 23-25.

¹³ *Id.* at 80. Dasch's motive for scuttling the mission and turning in his comrades to the FBI is not entirely clear. His own claim was that he always intended to sabotage the mission as it was a way to strike back at Hitler. He was, by far, one of the most unsympathetic characters in the story.

¹⁴ *Id.* at 72. As Attorney General, Francis Biddle is one of the main characters of the story. He was a graduate of Harvard College and Harvard Law School. He was also a former federal appellate judge and solicitor general. O'Donnell describes him as having a brilliant legal mind and being politically liberal for his day.

¹⁵ *Id.* at 124.

¹⁶ *Id.*

combatants.¹⁷ Although President Roosevelt could accord prisoner of war status as a matter of “grace,” such an option was unsatisfactory. According to the author, Roosevelt needed a show trial to prove to the American people and Hitler that the United States could protect itself.¹⁸ Also, merely imprisoning the eight seemed like a weak, inadequate response to a serious act of terrorist aggression against the United States.¹⁹

The second of President Roosevelt’s alternatives involved trying the six Germans in civilian federal court for violating a sabotage-related criminal statute, and charging the two United States citizens with treason.²⁰ This option also proved unappealing to Roosevelt. First, only treason was punishable by death.²¹ The Espionage Act of 1917, the charging mechanism for the six German saboteurs, carried a maximum punishment of only thirty years’ confinement.²² This assumed, of course, a successful prosecution. The author astutely highlights the concerns of the attorney general in this regard:

No actual acts of sabotage had ever been committed. A charge of attempted sabotage, the attorney general concluded, would probably not be successful in federal court “on the ground that the preparations and landings were not close enough to the planned act of sabotage to constitute attempt.” . . . And an attempted act of sabotage “carried a penalty grossly disproportionate to their acts – three years.”²³

In addition to the other shortcomings associated with a trial in a civilian court, a public trial would expose one of the truths about the case—the eight Germans penetrated America’s defenses with ease and were only captured because Dasch proved to be a turncoat. FBI Director

¹⁷ *Id.*

¹⁸ *Id.* at 125.

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.* Additionally, the Constitution made it difficult to establish a conviction for treason. It requires a confession in open court or the testimony of two witnesses. U.S. CONST. art. III, § 3.

²² O’DONNELL, *supra* note 1, at 126.

²³ *Id.*

J. Edgar Hoover and the FBI had orchestrated a media extravaganza taking credit for their “brilliant and swift” capture of the German spies.²⁴

Finally, the saboteurs could be tried at a special military commission which was authorized to impose the death penalty for alleged violations of the law of war.²⁵ According to the author, this option instinctively appealed to President Roosevelt for several reasons: Roosevelt could appoint reliable generals to adjudicate the case; he could authorize the death penalty for the saboteurs; the case would be tried swiftly without unduly cumbersome rules of evidence and procedure; and the trial could be held in secret.²⁶ Roosevelt elected to try to saboteurs by military commission.²⁷

To ensure the secrecy of the proceedings, the trial itself was held in a virtual “black hole” on the fifth floor of the Justice Department in Washington, D.C.²⁸ The pseudo-courtroom was formerly used by the FBI as a lecture hall for training special agents.²⁹ The windows were covered with black curtains and the clear glass doors of the entrance were painted black.³⁰ O’Donnell provides a riveting and vivid picture of the proceedings that ensued. On the one side of the room sat the government’s all-star prosecution team, including the Attorney General, the Judge Advocate General of the Army, and the Director of the FBI.³¹ On the other side, the defendants were sat alphabetically behind their defense team, which was led by Colonel (COL) Kenneth Royall, lead counsel for seven of the saboteurs.³² Sitting in the front of the room was

²⁴ *Id.* at 105. In Anthony Lewis’s introduction to the book, he describes a press conference held by J. Edgar Hoover after the capture of the saboteurs. Hoover did not mention the real reason for the capture. Instead, he led the press to believe that it was the FBI that was responsible for cracking the case with their sophisticated investigative techniques. In fact, Hoover received a congressionally authorized medal for his effort. The true story did not emerge for years. *Id.* at xiii and xiv.

²⁵ *Id.* at 126.

²⁶ *Id.* at 126-27.

²⁷ *Id.* at 127. Arguably, the disposition of the case was not a difficult decision for Roosevelt. Three days after the Nazis were in custody, Roosevelt sent a memo to his attorney general saying that all eight should receive the death penalty. *Id.* at xiv.

²⁸ *Id.* at 141.

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.* at 143.

³² *Id.* at 144. Royall did not represent George Dasch because of the conflict of interest. Colonel Carl Ristine represented Dasch.

the military commission, which was comprised of a distinguished collection of Army general officers.³³

The O'Donnell's account leaves the reader with the vague impression that the military commission was merely a kangaroo court.³⁴ Utilizing relaxed rules of procedure, evidence, and a seemingly biased "jury,"³⁵ the defense lost virtually every motion, ruling, or request for relief. To make matters worse for the defense, the commission itself was only an advisory body.³⁶ Its role was to receive testimony and other evidence, create a record of the proceedings, and present a recommendation to President Roosevelt on guilt and punishment. Roosevelt alone would make the ultimate decision on the case.³⁷ Given the probable level of effort expended before the commission and the anticipated lack of a favorable result for his clients, Colonel Royall quickly realized that the only hope for his doomed clients was the United States Supreme Court.³⁸

Colonel Royall's Herculean effort to obtain relief from the Court makes for compelling reading. Royall realized the quickest way to get the case to the Court was by action through a Supreme Court justice.³⁹ During a recess in the commission proceedings, Royall personally visited the home of Justice Hugo Black, the only justice available in the Washington, D.C. area, seeking a writ of habeas corpus.⁴⁰ Justice Black flatly refused involvement in providing any assistance to COL Royall.⁴¹

³³ *Id.* at 143-44. The president of the commission was Major General (MG) Frank McCoy. He had initially retired from the Army in 1938. During his career, he served in a number of interesting and important assignments including aide to Teddy Roosevelt during the Spanish-American War. Additionally, he served on the court-martial that tried Brigadier General William "Billy" Mitchell, the outspoken advocate for airpower. Other members included: MG Blanton Winship (former judge advocate general); MG Lorenzo Gasser (former deputy chief of the Army); MG Walter Grant (former Third Corps commander); Brigadier General (BG) John T. Lewis (distinguished artillery officer); BG Guy Henry (distinguished cavalry officer); and BG John Kennedy (Congressional Medal of Honor winner).

³⁴ *Id.* at 147. The term "kangaroo court" originated in Texas courts in the mid-nineteenth century. In a mockery of justice, defendants were swiftly hung after a trial that had a preordained outcome.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.* at 148

³⁹ *Id.* at 190.

⁴⁰ *Id.* at 190-94.

⁴¹ *Id.* at 194.

Although stunned and disappointed at Black's response,⁴² Royall persisted with his efforts to spark Supreme Court interest in the case. Colonel Royall took the extraordinary step of traveling to Justice Owen Robert's farm near Philadelphia and persuading him, and eventually the entire Court, to hear his habeas corpus petitions.⁴³

Six days later, the Supreme Court convened in an unusual summer session to hear arguments on the petitions.⁴⁴ O'Donnell devotes an entire chapter of the book to the Supreme Court arguments. Colonel Royall zealously and unswervingly made his plea at this unanticipated opportunity. The major theme of his argument was that President Roosevelt had unconstitutionally bypassed well-established criminal statutes.⁴⁵ Royall unapologetically contended that the Germans had a right to file petitions and the President could not suspend the Great Writ.⁴⁶ Additionally, he argued that the German saboteurs were entitled to trial in civilian courts with all of the normal procedural safeguards.⁴⁷ Relying, in part, on *Ex parte Milligan*,⁴⁸ a Civil War era Supreme Court precedent, Royall contended that his clients were deprived of vital civil rights.

⁴² *Id.* Throughout his career on the bench, Justice Black had a reputation for his strident efforts for the poor, downtrodden, and unpopular.

⁴³ *Id.* at 202-03. Procedurally, the case could not start in the Supreme Court because it only has appellate jurisdiction in such matters. Royall filed seven writs of habeas corpus in the district court of Washington, D.C. In his summary rejection of Royall's petitions, Judge James W. Morris's terse order stated:

In view of this statement of fact [by counsel], it seems clear that the petitioner comes within the category of subjects, citizens or residents of a nation at war with the United States, who by proclamation of the President . . . are not privileged to seek any remedy or maintain any proceedings in the courts of the United States.

Id. at 203.

⁴⁴ *Id.* at 208.

⁴⁵ *Id.* at 217.

⁴⁶ *Id.* at 204. The U.S. Constitution gives only Congress the power to suspend the Writ of Habeas Corpus. Specifically, it provides that "the privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it." U.S. CONST. art. I, § 9.

⁴⁷ O'DONNELL, *supra* note 1, at 204.

⁴⁸ 71 U.S. 2 (1866). In that case, Lambdin Milligan was accused of planning to steal weapons and invade Union prisoner-of-war camps. He was sentenced to death by a military commission. Milligan sought release through the federal courts with a writ of habeas corpus. The Court held that the trial by military commission was unconstitutional because civilian courts were still operating.

The government matched Royall's zeal in the presentation of its case. In its submission to the Court, the government contended that *Ex parte Milligan* was distinguished from the instant case because "Milligan had never worn an enemy uniform or crossed lines in a theater of operations; this was a total war where the theaters of operations were inherently different from those in the Civil War."⁴⁹ Additionally, military commissions had a grant of authority from Congress to try violations of the law of war and Articles of War.⁵⁰ Moreover, the President as Commander in Chief had the constitutional authority to convene the proceedings and prescribe the rules.⁵¹

It did not take long for COL Royall and his clients to get their answer from the Supreme Court.⁵² In a cryptic, unanimous per curiam order, the Court upheld the military commission as lawfully constituted and denied the petitions for the writs of habeas corpus.⁵³ Remarkably, the Court did not provide its full opinion in the case until eighty-two days after the Germans were executed.⁵⁴

After the Supreme Court's decision, the commission proceedings advanced toward their inevitable conclusion on 1 August 1942.⁵⁵ The military commission, after nineteen days in session and three thousand pages of testimony and argument, made its recommendations to President Roosevelt on guilt and punishment—guilt for all; death for six, and life imprisonment for two.⁵⁶ President Roosevelt approved the judgment of the military commission.⁵⁷ Within days, the six were executed by electrocution.⁵⁸

Both the author and Anthony Lewis, a two-time Pulitzer Prize winner and author of the book's introduction, concluded that the case was a stain on the history of the Supreme Court.⁵⁹ Aside from the bias

⁴⁹ *Id.* at 204.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.* at 233-34.

⁵³ *Id.*

⁵⁴ *Id.* at 257. Justice Roberts told his colleagues on the bench that he believed that Roosevelt would execute the Germans no matter what the Court did. *Id.* at xiv.

⁵⁵ *Id.* at 235-43.

⁵⁶ *Id.* at 243, 248.

⁵⁷ *Id.* at 249.

⁵⁸ *Id.*

⁵⁹ *Id.* at xiv, 350-51.

behind the scenes,⁶⁰ the Court decided the case in one day.⁶¹ It summarily denied relief for the saboteurs without explanation.⁶² It did not even provide its full opinion on the case until nearly three months after the saboteurs' executions. In the words of John P. Frank, Justice Black's law clerk at the time of the case, "If the judges are to run a court of law and not a butcher shop, the reasons for killing a man should be expressed before he is dead."⁶³

In Time of War is a must read for all judge advocates. First, the case of the Nazi saboteurs is no longer just an interesting tidbit of World War II trivia. Anthony Lewis explains why the case is no longer just a matter of historical curiosity.⁶⁴ Specifically, President Bush used the Supreme Court's decision in *Quirin*, in part, as the basis to establish a legal framework to try terrorists associated with the attacks of September 11, 2001.⁶⁵ O'Donnell brings the lessons learned and contemporary relevance of the Saboteur Case to the present in evaluating the recent Supreme Court terrorism cases. The author draws the logical conclusion that *Quirin* should not be treated as a valid precedent for establishing presidential power.⁶⁶

The second reason for judge advocates to read the book is the tale of COL Kenneth Royall.⁶⁷ Royall, who later went on to become the

⁶⁰ *Id.* at xiv, 265. Lewis observed that two of the justices, James F. Byrnes and Felix Frankfurter, had a close relationship with the Roosevelt Administration that raised serious questions about the propriety of their involvement with the case. Byrnes had been working closely with the administration for months. Specifically, Byrnes provided the administration with advice on draft executive orders, war powers legislation, and other presidential initiatives. Frankfurter specifically talked with the secretary of war and recommended the use of military commissions. Frankfurter recommended that the commissions be entirely military. He also offered advice on how to structure the commission in anticipation of a Court challenge. *Id.* at 213.

⁶¹ *Id.* at xiv.

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.* at xiii.

⁶⁵ Military Order, Detention, Treatment, and Trial of Certain Non-Citizens in the War Against Terrorism (Nov. 13, 2001), 66 Fed. Reg. 57,833 (Nov. 16, 2001).

⁶⁶ O'DONNELL, *supra* note 1, at 352-53.

⁶⁷ *Id.* at 110-11. O'Donnell provides a good biographical sketch of Royall, a main character of the book. Born in 1894 in North Carolina, Royall was a highly intelligent child, skipping several grades in school. He graduated from high school at the age of fourteen. He attended the University of North Carolina, where he graduated Phi Beta Kappa. Royall was one of the youngest students ever to attend Harvard Law where he served as an editor for the *Harvard Law Review*. In the spring of his third year of law school, he joined the Army to fight in World War I. He received his law degree while he

Secretary of the Army, vigorously defended his clients and the Constitution in the face of a hostile president and bloodthirsty public. He was a model judge advocate. He performed his duty with dignity and honor under extremely difficult circumstances. Lewis expresses it very well: “[T]he safety of our country depends on the morality, commitment to the rule of law, and good faith of lawyers.”⁶⁸ Even the saboteurs, in the midst of their crisis, sincerely appreciated his efforts.⁶⁹ The story of Kenneth Royall is one of the main reasons this book is a must-read.

Lastly, *In Time of War* provides excellent insights for trial attorneys. The book exquisitely details the strategy and tactics of the courtroom advocates at the military commission and the Court. O’Donnell, a master storyteller and world-class trial attorney, captures the give and take of the courtroom drama in a way that is not only entertaining but also educational. He is at his very best in his mesmerizing account of the proceedings before the secret military commission as well as the expedited appeal to the United States Supreme Court. O’Donnell makes the reader feel as if he is present in the courtroom with Royall and the saboteurs. The relevance of this half-century-old tale to the challenges facing the United States and today’s judge advocate make *In Time of War* a topper on an SJA’s short list of recommended reading. Judge advocates will find applicability on a myriad of levels in this well-written, fascinating account.⁷⁰

was in basic training. He served as an artillery officer where he saw action overseas. After World War I, he returned to Goldsboro, where he made his mark as a trial attorney and civic leader. At age thirty-five, he was elected the president of the North Carolina Bar Association. At the beginning of World War II, Secretary of War Henry Stimson persuaded Royall to come to Washington, D.C. to help break the procurement logjam brought on by the war. *Id.* at 110-13, 132.

⁶⁸ *Id.* at xv.

⁶⁹ *Id.* at 252. After the trial but before their execution, six of the saboteurs wrote Royall a note that stated, in part, as follows:

Being charged with serious offenses in wartime, we have been given a fair trial . . . Before all we want to state that defense counsel . . . has represented our case as American officers unbiased, better than we could expect and probably risking the indignation of public opinion. We thank our defense counsel for giving its legal ability. . . in our behalf.

Id.

⁷⁰ O’Donnell made excellent use of the declassified trial transcript from the military commission as well as the never-before-seen papers of COL Royall. *Id.* at 367.

**PUBLIC ENEMIES: AMERICA'S GREATEST CRIME WAVE
AND THE BIRTH OF THE FBI, 1933-34¹**

MAJOR JIMMY BAGWELL²

In 1933, during the height of the Great Depression, the United States waged a vicious war. But unlike the First World War or the Second World War yet to come, the United States did not wage this war on distant European battlefields against foreign soldiers. Instead, this war raged across the American heartland and pitted “highly mobile [criminals] armed with submachine guns”³ against outgunned local law enforcement officials and the hapless agents of the fledgling new Federal Bureau of Investigation (FBI).

Presented against the backdrop of widespread poverty, for which many Americans blamed the government and the banks,⁴ and aided by the availability of fast cars that provided unprecedented mobility, “[t]he stage was set for the emergence of a new kind of criminal. . . .”⁵ Thanks in part to Hollywood’s glamorized accounts of organized crime such as *Bonnie and Clyde* in 1967⁶ and *Public Enemy* in 1931,⁷ “[t]he names of these bogeymen still resonate: Baby Face Nelson, Machine Gun Kelly, Ma Barker, Bonnie and Clyde,”⁸ John Dillinger, Pretty Boy Floyd.⁹

Enter author Bryan Burrough. Motivated by the knowledge that most Americans today, including direct descendants of the criminals themselves,¹⁰ know precious little about the depression-era War on Crime and even less about FBI Director J. Edgar Hoover’s revisionist efforts to conceal the bumbling efforts of his FBI that pursued the criminals,¹¹ Burrough authored *Public Enemies: America’s Greatest*

¹ BRYAN BURROUGH, *PUBLIC ENEMIES: AMERICA’S GREATEST CRIME WAVE AND THE BIRTH OF THE FBI, 1933-34* (2004).

² U.S. Army. Written while assigned as a student, 54th Judge Advocate Officer Graduate Course, The Judge Advocate General’s Legal Center and School, U.S. Army, Charlottesville, Va.

³ Mark Costello, *America’s Most Wanted*, N.Y. TIMES, Aug. 1, 2004, at 5.

⁴ See BURROUGH, *supra* note 1, at 8.

⁵ Costello, *supra* note 3, at 5.

⁶ See BURROUGH, *supra* note 1, at 23.

⁷ *Id.* at 99.

⁸ Costello, *supra* note 3, at 5.

⁹ See *id.*

¹⁰ See BURROUGH, *supra* note 1, at 551.

¹¹ See *id.* at xii.

Crime Wave and the Birth of the FBI, 1933-34. While researching for the book, Burrough discovered that the FBI did not release its voluminous files regarding these cases until the 1980's.¹² Thus, despite the existence of other books addressing the topic,¹³ Burrough's volume was to be "the first comprehensive narrative history of the FBI's War on Crime. . . ."¹⁴ Burrough's intentions in writing the book are two-fold: first, strip away the folklore to provide a detailed account of depression-era criminals, and second, debunk Hoover's revisionist history to provide an objective review of the FBI's performance throughout the depression-era War on Crime. How did Burrough fare? He succeeds remarkably on both fronts.

I. A Detailed Chronological Narrative of a Previously Untold Story

Burrough acknowledges at the book's onset the complexity of telling this story in its entirety.¹⁵ Others have written on individual players or isolated events within the depression-era War on Crime.¹⁶ For example, one book that Burrough references, *Dillinger Days*,¹⁷ focuses on its namesake, but "deals glancingly with Dillinger's criminal contemporaries."¹⁸ In Burrough's estimation, no previous book has overcome the difficulties inherent in comprehensively accounting for all of the major crime figures of the time.¹⁹ To navigate his way through the complex weave of the people, places, and events of 1933 and 1934, Burrough tells the story in a straightforward chronological narrative fashion. At first blush, this method seems logical since the time period he seeks to cover amounts to a mere eighteen months. However, when taking a second look, this method is overly cumbersome because Burrough unsuccessfully juggles the stories of five separate crime groups and alternates back and forth between the story lines with impunity. For example, Burrough begins chapter five by introducing Baby Face Nelson and briefly narrating his formative years before bringing the reader up to speed with details of Nelson's emergence onto the national scene in

¹² *Id.*

¹³ *Id.* at xiii.

¹⁴ *Id.* at xii.

¹⁵ *Id.*

¹⁶ *See id.* at 553 (providing a bibliographical essay wherein Burrough synthesizes source materials).

¹⁷ *Id.* at xii.

¹⁸ *Id.*

¹⁹ *See id.*

August of 1933.²⁰ Eight pages later, he switches to Machine Gun Kelly's activities during that time and throughout the course of the following twenty pages, he covers the Barker Gang and Dillinger.²¹ This snapshot of chapter five is representative of the book's prevailing format. Keeping track of the emerging story lines requires a reader's rapt attention as *Public Enemies* progresses.

As an alternative to a chronological narrative, Burrough could have addressed each of the five crime groups individually, in chronological order. Under this approach, readers could follow each group from inception to eventual demise without the distracting story line switching. The glaring disadvantage to this approach is that it would deprive Burrough of his gradual crescendo to the climactic ending, achievable only via the chronological narrative approach. Ultimately, Burrough chose the best way to tell this story, despite the often tangled web of story lines.

Burrough's capacity for detail is remarkable.²² His vivid recreation is attributable to his exhaustive research, resulting in over ten pages of footnotes. He purchased several hundred thousand pages of FBI documents at a cost of ten cents per page, which "fill a half-dozen file cabinets."²³ He also read a host of other books and scoured newspaper articles on 1930's gangsters and the Great Depression.²⁴ Finally, he relentlessly tracked down the descendants of the major players to obtain any information they might provide for the project.²⁵ Armed with all of these sources and their resulting information, Burrough pumped out five hundred and fifty-two pages.

While the book's length is compelling evidence of the precise detail with which Burrough tells the story, the length also demonstrates how perilously close Burrough teeters to going too far. In several instances, he veers off course, launching into detailed subplots involving seemingly inconsequential players, most notably the various girlfriends of several of the gangsters. For example, in chapter sixteen, Burrough devotes a substantial number of pages to Sally Backman, the girlfriend of Johnny

²⁰ *Id.* at 98.

²¹ *Id.* at 99-129.

²² Costello, *supra* note 3, at 2 (stating that "Burrough, . . . has written a book that brims with vivid portraiture").

²³ *See* BURROUGH, *supra* note 1, at 553.

²⁴ *Id.* at 554.

²⁵ *Id.* at 551.

Chase and member of Baby Face Nelson's gang for a brief time.²⁶ Burrough explains who she is, where she is from, and how she comes to travel with the gang. Although Backman's conflicts with Baby Face Nelson provide brief drama,²⁷ no other apparent reason exists for Burrough's devoting so many pages to her. Later in the book, the FBI captures Backman and she provides some helpful information to investigators, but none of the leads ultimately proves decisive in the search for Baby Face Nelson²⁸ and FBI agents eventually wind up sending her home to San Francisco.²⁹ The point is that Burrough could have fully discussed Backman's minimal relevance in substantially less print.

II. An Accurate Accounting of the FBI's Performance During the War on Crime

One of Burrough's "central aims" in writing *Public Enemies* was "to reclaim the War on Crime for the lawmen who fought it."³⁰ Burrough is highly skeptical of the official, FBI-endorsed, "sanitized" version of the War on Crime, as recounted in several books published between 1935 and 1956.³¹ In his estimation, these books "are, at best, incomplete; at worst, misleading" and represent "the stories J. Edgar Hoover wanted told."³² During Hoover's life, he was unwilling to share information with those persons desiring to tell the whole truth and his "penchant for secrecy" was "the principal obstacle to an objective narrative" of the FBI's true performance during the War on Crime.³³ The files that Burrough cites as principal authority for his book were not released until the 1980's—well after Hoover's death in 1972.³⁴ He speculates that the primary reason for Hoover's unwillingness to share the information with the public was because "the FBI files shed the most penetrating light on the FBI itself. They vividly chronicle the Bureau's evolution from an overmatched band of amateurish agents without firearms or law-enforcement experience into the professional crime-fighting machine of

²⁶ *Id.* at 419.

²⁷ *Id.* at 423.

²⁸ *Id.* at 453.

²⁹ *Id.* at 471.

³⁰ *Id.* at xiii.

³¹ *Id.* at xii.

³² *Id.*

³³ *See id.*

³⁴ *Id.* at 547.

lore—a story Hoover was never eager to have told.”³⁵ While Burrough cites critics who allege that Hoover kept the truth under wraps and that Hoover minimized the contributions of other agents in order to preserve the glory for himself, Burrough also points out that anonymity fueled Hoover’s larger aims of fostering teamwork and preserving the cover of covert agents.³⁶

Public Enemies’ overall treatment of Hoover suggests that Burrough falls into the category of those who believe that Hoover was driven by ego and craved the spotlight. Burrough portrays Hoover as a maniacal micro-manager who relentlessly barraged his subordinates in the field with scathing memorandums from FBI headquarters in Washington, D.C. Burrough’s descriptions of Hoover’s vision for an ideal FBI field office seem absurd. For example, Chicago field office agents were not allowed to have any pictures of loved ones in their work areas, nor were they allowed to eat in the office.³⁷ Under these oppressive prohibitions, hungry agents were forced to steal away to the lobby sandwich shop for a bite to eat.³⁸ Burrough opines: “Hoover ruled by absolute fiat. His men lived in fear of him. Inspection teams appeared at field offices with no notice, writing up agents who were even one minute tardy for work.”³⁹

Equally odd were Hoover’s recruiting practices: “His vision was precise: he wanted young energetic white men between twenty-five and thirty-five, with law degrees, clean, neat, well spoken, bright, and from solid families—men like himself.”⁴⁰ Had Burrough limited his inquiry to Hoover’s professional idiosyncrasies such as these, a reader could simply conclude that the author, while clearly at odds with Hoover’s methods, merely wanted to correct the historical record, choosing straightforward language to do so. However, Burrough unnecessarily delves into Hoover’s personal affairs. In one passage Burrough fuels unsubstantiated rumors about Hoover’s sexual orientation, but provides little evidence above office gossip and vague language in one of Hoover’s official memorandums to support the assertion.⁴¹ In another instance, Burrough recites the irrelevant fact that Hoover lived with his

³⁵ *Id.* at xiii.

³⁶ *See id.* at xiii-xiv.

³⁷ *See id.* at 148.

³⁸ *See id.*

³⁹ *Id.* at 11.

⁴⁰ *Id.*

⁴¹ *See id.* at 66.

mother until he was in his late twenties.⁴² These gratuitous forays into inconsequential areas of Hoover's personal life, while shedding some light on his overall personality, leave the reader with the impression that Burrough simply dislikes Hoover and sought to insert cheap shots at opportune times throughout the book.

While Burrough's motivations in smearing Hoover are not clear, he does provide some clues. Perhaps discrediting Hoover helps to achieve the author's stated purpose of reclaiming "the War on Crime for the lawmen who fought it."⁴³ Similarly, perhaps portraying Hoover in a negative light provides posthumous glory for Burrough's great-grandfather, an Arkansas deputy sheriff who pursued Bonnie and Clyde, and other local law enforcement personnel whose contributions Burrough's deems underappreciated.⁴⁴ Finally, perhaps casting disgrace on Hoover provides personal vengeance for the author's boyhood friend, whose great-uncle died at the hands of Clyde Barrow.⁴⁵

In spite of its weakness, *Public Enemies* is extraordinarily entertaining and thoroughly educational. With few Americans today understanding much about the depression-era War on Crime, Burrough's book is critically insightful. He educates readers as to how common criminals such as John Dillinger, Baby Face Nelson, and Machine Gun Kelly were unwittingly responsible for forcing the growth and maturation of what has become the world's preeminent crime fighting agency—the Federal Bureau of Investigation.

⁴² See *id.* at 10.

⁴³ *Id.* at xiii.

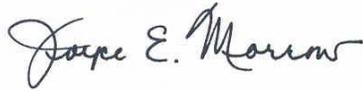
⁴⁴ See *id.* at xi.

⁴⁵ See *id.*

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

A handwritten signature in black ink that reads "Joyce E. Morrow". The signature is written in a cursive style with a large, stylized initial "J".

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
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