

COMMENTS

At Nature’s Mercy: The Uneasy Courtship of Criminal Defense and the Environment

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*[H]uman judges can show mercy. But against the laws of nature, there is no appeal.*¹

—Arthur C. Clarke

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I. OPENING STATEMENTS

The headline said it all: ‘LEAD PAINT’ DEFENSE: BID BY ‘RAPE’ TEEN.² The words, heavy with ink on the thin newsprint of the *New York Post*, made it clear exactly how readers should view teenage defendant Steven Vasquez’s legal argument that lead exposure made him

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1. ARTHUR C. CLARKE, *Maelstrom II*, in THE COLLECTED STORIES OF ARTHUR C. CLARKE 787, 787 (Tom Doherty Assocs., LLC 2001) (2000).

2. Laura Italiano, ‘Lead Paint’ Defense: Bid by ‘Rape’ Teen, N.Y. POST, Aug. 11, 2008, at 25.

unfit to stand trial as an adult.³ Yet, even abandoning the *Post*'s dramatics—Vasquez was accused of brutally raping a woman⁴—could lead exposure truly explain, or even mitigate, such a heinous act? Could it explain why Steven Vasquez crawled through the victim's fire escape that July day? Why he bound and gagged the sleeping woman? Why he held her at gunpoint? Could the lead-painted walls of his childhood home on West 129th Street really be the reason that the defendant took turns raping the victim, for hours, before stealing her belongings and fleeing the scene? Some judges, jurors, attorneys, and scientists say yes.

The incredulous tone of the above-mentioned article is telling of the often-uphill battle faced by many criminal defense presentations of environmental factors, such as lead exposure. However, recent jurisprudence reveals that though there are still hurdles to the positive reception of such evidence in the criminal arena, toxic environmental exposure has emerged as a viable criminal defense tool used to address aspects of both guilt and moral culpability.

In the case of Vasquez, his defense team opted to initially present evidence of his childhood lead exposure even before a trial setting, during the pretrial phase of litigation, in an effort to move the case to family court.⁵ Vasquez is an all-too-common example of how environmental toxic exposure can prove directly relevant to a defendant's culpability in a criminal case. High levels of lead exposure, constituting lead poisoning, have been linked to brain damage and various manifestations of mental deficiency.⁶ In Vasquez's case, the defendant was exposed to such high levels of lead that he was left mentally retarded, unable to read, and with the cognitive level of a small child.⁷ Due to this lack of cognition, and failure to truly understand the crime in which he had participated, Vasquez's attorney sought to have him charged as a minor in juvenile court, thus lessening any possible sentence, but not denying his involvement in the offense.⁸ In this way, Vasquez's case demonstrates another shared tenet of defenses involving neurotoxicity: be it from lead or another form of environmental toxin, a neurotoxicity defense is ultimately a defense based on the defendant's diminished mental capacity.

3. *Id.*

4. *Id.*

5. *Id.*

6. *See generally* J. Julian Chisolm, Jr., *Lead Poisoning*, *SCI. AM.*, Feb. 1971, at 15.

7. Italiano, *supra* note 2.

8. *Id.*

This Comment will outline the applicability, use, and relative success of environmental factors as a defense strategy in each general stage of criminal litigation. Part II will outline the phase of litigation leading up to, and including, the trial, focusing on the variations of a diminished capacity neurotoxicity defense when used to negate the defendant's guilt, as well as the procedural hurdles that this type of defense may encounter. Part III will focus on cases wherein evidence of environmental toxic exposure was used as mitigation during the sentencing phase of capital trials, in an effort to secure a life sentence for the defendant. Together, these cases demonstrate the potential and necessity for future criminal defense trial practice to include adequate investigation and presentation of issues surrounding a client's environmental toxic exposure.

II. GUILT PHASE: ENVIRONMENTAL FACTORS AS A DEFENSE THEORY

When environmental exposure is presented as a defense during the guilt phase of a trial, it must serve to demonstrate that the defendant's diminished mental capacity renders him not guilty of the charged offense. This includes defenses that suggest to the jury a more appropriate lesser charge is warranted by negating an element of the crime alleged. The process of putting on a neurotoxicity defense may even begin long before the actual trial date, through a presentation to the state and court regarding a defendant's mental limitations due to environmental toxicity. The goal of such a pretrial presentation, like that made in the Vasquez case discussed above, is to reduce the severity of the charges against a defendant, be it through revised charging documents or an agreement to handle the case in a different venue, such as family court or a mental health arena. In general, a diminished capacity argument may take on several forms, including pleading: (1) the defendant's incapacity to formulate the requisite mens rea necessary to prove a given crime;⁹ (2) the defendant's inability to regulate his own behavior, a defense otherwise known as automatism;¹⁰ (3) or arguing the defendant's exposure to toxins constitutes a form of involuntary intoxication.¹¹

9. David B. McConnell, Note, *The Sevin Made Me Do It: Mental Non-Responsibility and the Neurotoxic Damage Defense*, 14 VA. ENVTL. L.J. 151, 163-64 (1994).

10. *Id.* at 164. Automatism, as it applies to claims of exposure to environmental toxins, is classified as "non-insane," meaning that the behavior originates from external factors wherein "[t]he disease or defect is imposed by an outside force contrary to the victim's own will and/or knowledge," causing the defendant to be unaware of his own actions, or aware but unable to control those actions. *Id.* at 165.

11. *Id.* at 165-67.

However, in presenting any of these incarnations of an environmental neurotoxicity defense, the defense team must be prepared to demonstrate both that their client suffered from the ill effects of toxic exposure and that this exposure was a cause, or the cause, of the errant behavior. First, defendants must be tested for the presence of neurotoxins that may damage the central nervous system, such as pesticides, chemical solvents, and heavy metals.¹² Additionally, defendants must be assessed to determine if they demonstrate signs of neurological damage, that can be attributed to the toxic exposure.¹³ Testing for the presence of a neurotoxin and for cognitive damage can work to establish causation, particularly if the defendant experienced notable changes in behavior after exposure. However, human behavior is so varied that two defendants with identical levels of toxic exposure may react differently due to outside factors, further complicating the defense presentation.¹⁴

A. *Narin Sok: A Case for Heavy Metal Toxicity*

In 2007, Cambodian immigrant Narin Sok returned home to his wife in Edmonton, Canada, with a set of “magic” metal fertility belts from his home country; the couple wore the belts religiously in hopes of conceiving a child.¹⁵ Sadly, within a year, Sok would be charged with his wife’s murder. On July 30, 2008, police arrived at the couple’s home to find the front door barricaded, windows covered with garbage bags, and Sok’s wife, Deang Huon, strangled and buried underneath a mounting pile of rice sacks, garbage bags, and trash.¹⁶ Officers reported that, upon breaking through the barricade, the victim’s husband was still sitting beside her body, piling additional debris on her corpse.¹⁷

The tragic events of that day were seemingly building as early as 1986, when Sok began working in scrap metals yards, where he was

12. See *id.* at 154 (citing Diana Fishbein & Robert W. Thatcher, *Legal Applications of Electrophysiological Assessments*, in *NEUROPSYCHOLOGY AND THE LAW* 135, 145 (Jane Dywan et al. eds., 1991); A. Potusova et al., *Industrial Toxic Materials and Psychological Functions—The Need of [sic] Adequate Psychological Research*, 36 *ČESKOSLOVENSKÁ PSYCHOLOGIE* 113 (1992); Raymond Singer, *Proving Damages in Toxic Torts: Nervous System Dysfunction*, *TRIAL*, Nov. 1985, at 59).

13. See *id.* at 155-56 (citing Singer, *supra* note 12, at 59).

14. See McConnell, *supra* note 9, at 177-78.

15. Alexandra Zabjek, *Alta. Man Poisoned by Heavy Metals Not Criminally Responsible for Wife’s Death*, *EDMONTON J.* (May 16, 2011), <http://www.edmontonjournal.com/news/Alta+poisoned+heavy+metals+criminally+responsible+wife+death/4793478/story.html>.

16. *Id.*

17. *Id.*

responsible for separating metal wires to be recycled.¹⁸ Anecdotal evidence suggests that Sok seldom wore a mask while working, but that when he did, it would quickly become black with dust.¹⁹ In addition, the night before the killing, the defendant inexplicably chose to melt the metal fertility belts in a pan on his home stove, causing the couple to breathe in fumes from the zinc, silver, and lead belts.²⁰ A series of tests would reveal that, shortly after his arrest, the defendant had toxic levels of lead, cadmium, and manganese in his blood.²¹

In many ways, Sok's case demonstrates an ideal fact pattern for the implementation of a successful guilt phase environmental neurotoxicity claim. First, Sok has two clear environmental toxicity triggers, in the form of heavy metal poisoning: a long-term occupational exposure, as well as a short-term exposure involving high levels of contact (due to the small, enclosed nature of the apartment) that occurred very near in time to the crime. Second, when arrested, Sok displayed clear evidence of physical and mental disease that could be attributed to heavy metal poisoning. Physically, Sok was found to be in acute renal failure when arrested²² and was also treated for kidney failure and liver and heart damage.²³ Meanwhile, on a cognitive level, his behavior both before and after his arrest suggested he was suffering from an increasingly severe mental disturbance.²⁴ It was the defendant's erratic behavior during and after his arrest that alerted authorities, as well as his attorney, that this was not simply another homicide and that the case warranted further examination.²⁵ Finally, Sok's defense team sought the assistance of an

18. See Ryan Cormier, *Heavy Metal Poisoned Killer's Mind*, CAMBODIA TODAY, <http://cambodiatodayz.blogspot.com/2011/05/heavy-metal-poisoned-killers-mind.html> (last visited Mar. 28, 2012).

19. *Id.*

20. *Man Not Responsible for Wife's Death, Judge Rules*, CBC NEWS (May 16, 2011, 5:30 PM), <http://www.cbc.ca/news/canada/edmonton/story/2011/05/16/edmonton-sok-not-criminally-responsible.html>.

21. *Id.*

22. *Id.*

23. Zabjek, *supra* note 15.

24. Tony Blais, *Heavy Metal Poisoning Blamed in Killing*, EDMONTON SUN (May 9, 2011, 8:51 PM), <http://www.edmontonsun.com/2011/05/09/heavy-metal-poisoning-blamed-in-killing>. Only days prior to the incident, family members described Sok as asking for the Prime Minister's phone number, claiming that large men were chasing him, and paying \$700 for a cab ride to visit his mother whom he insisted was gravely ill, despite repeated assurances that the woman was healthy. *Id.*

25. See *id.* The arresting officers detailed some of Sok's odd behavior while he was in custody, including constantly spitting in the police cruiser and urinating on the floor of his holding cell before complaining that the cell was dirty. *Id.*

expert, a forensic psychiatrist, to help establish the causal connection between their client's alarming actions and his environmental exposure.²⁶

In court pleadings, Sok's defense argued that he could not be held criminally responsible for his actions because, at the time of the crime, he was suffering from a mental disorder that did not allow him to understand his own actions.²⁷ Here, the heavy metal toxicity served as both the trigger and root cause of Sok's mental illness and was thus incorporated into his insanity defense. The defense presentation was so convincing that the prosecution, known as "the Crown" in Canada, entered into a rare joint recommendation to the judiciary that the defendant be found not criminally responsible for the killing.²⁸ The Court of Queen's Bench Justice ultimately accepted the recommendation and found Sok not criminally responsible for his wife's death.²⁹

Sok's case stands as an example of an extremely effective use of environmental toxic exposure as a criminal defense at the pretrial litigation stage. Aside from the shrewd use of a combination of expert opinion backed by substantive medical and chemical testing, Sok's case likely also benefitted from the temporal nature of his impairment. Though Sok was hospitalized in a mental facility after his arrest, he made a full recovery before the Justice issued her decision.³⁰ The defendant was even able to discuss lucidly aspects of his case with law enforcement, doctors, and, presumably, his attorney.³¹ Not all sufferers of environmental toxic exposure have such short-term effects; instead, many defendants with lead poisoning (as in Vasquez's situation) find themselves permanently impaired.³² A mentally impaired defendant, such as someone with mental retardation, is far less equipped to assist in the preparation of his own defense and likely unable to recall the events that caused him to come into contact with a particular toxin. In Sok's case, relatives were able to describe the defendant's prior normal and peaceful demeanor³³ and contrast that with his descent into lunacy, suggesting that the aberration in his behavior could have an alternative explanation. Additionally, Sok himself was able to reflect on his actions

26. *See id.*

27. Cormier, *supra* note 18.

28. *See id.*

29. *Man Not Responsible for Wife's Death, Judge Rules*, *supra* note 20.

30. Cormier, *supra* note 18.

31. *See id.*

32. *See generally* Sara Outterson, Note, *Getting the Lead Out: Revising Lead Hazard Legislation To Reach Children in Poverty*, 31 WM. & MARY ENVTL. L. & POL'Y REV. 829 (2007).

33. Cormier, *supra* note 18. Notably, Sok had no criminal history and no history of domestic violence with his wife. *Id.*

and express his own regret and remorse for his wife's death³⁴—a sense of perspective not likely afforded to permanently impaired defendants. Finally, in a case of temporary insanity such as Sok's, there is little fear that the now fully recovered defendant will become a repeat offender, thus limiting the rationale for punishment; this is a sharp contrast to a defendant who committed a crime due to his cognitive impairment and lack of impulse control, and could easily have a similar situation emerge in the future due to his ongoing condition.

With Sok's case as a benchmark for an effective use of evidence of environmental toxic exposure in a criminal defense, it may be easier to evaluate the potential success of future cases employing a similar defense strategy at the trial level.

B. Wilbert Frank Jr.: The Pitfalls of Carbon Monoxide Poisoning

There is little dispute that on November 30, 2010, Wilbert Frank Jr. gunned down his estranged wife as she exited a local restaurant.³⁵ Silvia Frank had a restraining order against her husband, but had agreed to a brief meeting, at his request, to exchange some of their children's belongings.³⁶ Surveillance video shows that as his wife exited the building, Frank opened the trunk of his car, emerged with a shotgun, and shot Silvia Frank in the stomach, all while the couple's eldest daughter looked on.³⁷ After the shooting, Frank returned to his car and sped away.³⁸ Frank was found in his temporary rental home and placed under arrest within two hours of the shooting.³⁹ However, even the arresting officers noted that Frank appeared unwell and disoriented, so much so that they believed the defendant might have poisoned himself.⁴⁰ Frank was admitted to a hospital and blood tested, but was ultimately diagnosed as having suffered a panic attack and booked into jail.⁴¹ The blood sample

34. See *Man Not Responsible for Wife's Death, Judge Rules*, *supra* note 20.

35. See John Asbury, *Wife Shot, Killed in Front of San Jacinto Restaurant*, PRESS-ENTERPRISE (Dec. 1, 2010, 11:33 PM), <http://www.pe.com/local-news/local-news-headlines/20101202-wife-shot-killed-in-front-of-san-jacinto-restaurant.ece>.

36. *Id.*

37. See *id.*; John Asbury, *San Jacinto: Murder Suspect Claims Carbon Monoxide Poisoning*, PRESS-ENTERPRISE (Dec. 7, 2011, 9:33 PM), <http://www.pe.com/local-news/riverside-county/hemet/hemet-headlines-index/20111207-san-jacinto-murder-suspect-claims-carbon-monoxide-poisoning.ece>.

38. Asbury, *supra* note 37.

39. *Id.*

40. *Id.*

41. *Id.*

taken that day was destroyed; it would be over a month before anyone would question the decision to do so.⁴²

In late December 2010, Frank's former landlord reported that the wood-burning fireplace in the defendant's former apartment was malfunctioning, causing carbon monoxide to seep into the building.⁴³ The apartment's standard furnace was broken, making the fireplace the only heat source during the winter months.⁴⁴ The defendant reported that to keep warm, he commonly slept alongside the fireplace.⁴⁵ Upon learning of the carbon monoxide leak, Frank's defense team formulated a defense strategy hinging around Frank's carbon monoxide exposure: involuntary intoxication.⁴⁶

In pursuing an involuntary intoxication defense, Frank's attorneys alleged that their client's actions were not the result of deliberation or free will, but rather, the byproduct of the defendant's unknowing carbon monoxide exposure, which caused Frank to act in the heat of passion.⁴⁷ However, this defense strategy faced many of the typical hurdles of an environmental neurotoxicity defense. First and foremost, there was no direct evidence that Frank had actually suffered carbon monoxide poisoning. Though he did demonstrate some symptoms at the time of his arrest, disorientation could be a sign of any number of ailments, including the panic attack with which Frank was ultimately diagnosed. The hospital had no indication that carbon monoxide poisoning was a possibility and, thus, did not conduct any sort of test for the presence of the toxin in Frank's blood sample.⁴⁸ Unlike lead, and many other environmental toxins, there is no long-term test for carbon monoxide exposure—meaning that once Frank's attorneys were alerted to the possibility for such a defense, too much time had already passed since the incident to conduct another blood test.

Even if Frank could demonstrate that he did have excessive levels of carbon monoxide in his blood, this is not enough to facilitate a successful environmental toxin defense. Instead, the Frank defense team must also demonstrate that carbon monoxide poisoning actually caused the defendant's psychosis. This proved particularly difficult in this case because carbon monoxide poisoning is not commonly, if ever, associated

42. *See id.*

43. *Id.*

44. *Id.*

45. *See id.*

46. *See id.*

47. *See id.*

48. *See id.*

with psychosis or violence.⁴⁹ Thus, there is no clear causal link between the defendant's (*alleged*) environmental exposure and the criminal behavior at issue. Additionally, Frank's defense claims are undercut by the defendant's own actions at the time of the offense and before. Much of Frank's behavior can be seen as rational, or even calculating, such as calling his wife to arrange the meeting, packing a shotgun in his trunk, or taunting the victim after the shooting.⁵⁰ Additionally, Frank had a history of domestic violence with his wife, wherein he had been convicted and given probation, which he was still serving at the time of the shooting.⁵¹

Ultimately, Frank may well have been suffering from some form of carbon monoxide poisoning at the time of the crime; however, without solid medical and scientific evaluations to serve as the backbone of a neurotoxicity defense, there is little chance that such a claim will be accepted by a jury or even admitted by a judge. The presiding judge in the *Frank* case denied the defense motion to present an involuntary intoxication defense (based on carbon monoxide exposure), citing concerns that the claim was too speculative.⁵² The court held that, given the scarcity of evidence that carbon monoxide actually played a role in the killing, the argument lacked relevance to the case and could not be made.⁵³ In particular, the court seemed troubled by the absence of evidence that the defendant had actually been exposed to carbon monoxide, given that the only evidence of a gas leak was found over a month after the defendant had vacated the property.⁵⁴ Unable to present a neurotoxicity defense on behalf of Frank, his attorneys sought to argue that the killing was a crime of passion, not calculation.⁵⁵ Frank was convicted of his wife's murder and sentenced to serve fifty years to life.⁵⁶

49. *Id.* More typical behavioral effects of carbon monoxide poisoning include memory loss, poor concentration, or brain damage. *Id.*

50. See John Asbury, *San Jacinto: Carbon Monoxide Defense Denied in Murder Trial*, PRESS-ENTERPRISE (Dec. 8, 2011, 11:56 AM), <http://www.pe.com/local-news/riverside-county/hemet/hemet-headlines-index/20111208-san-jacinto-carbon-monoxide-defense-denied-in-murder-trial.ece>. After shooting his wife, Frank allegedly bent over her body, saying "That'll teach you to [mess] with me." *Id.*

51. Jose Arballo, *Update: San Jacinto Woman Had Separated from Husband Before Fatal Shooting*, SW. RIVERSIDE NEWS NETWORK (Dec. 1, 2010, 10:38 AM), <http://www.swrnn.com/2010/12/01/update-san-jacinto-woman-had-separated-from-husband-before-fatal-shooting/>.

52. Asbury, *supra* note 50.

53. John Asbury, *San Jacinto: Man Convicted of Killing Wife*, PRESS-ENTERPRISE (Dec. 16, 2011, 9:52 PM), <http://www.pe.com/local-news/riverside-county/hemet/hemet-headlines-index/20111216-san-jacinto-man-convicted-of-killing-wife.ece>.

54. *Id.*

55. See *id.*

56. John Asbury, *San Jacinto: Man Gets 50+ Years for Murder*, PRESS-ENTERPRISE (Jan. 16, 2012, 4:22 PM), <http://www.pe.com/local-news/riverside-county/hemet/hemet-headlines-index/20120116-san-jacinto-man-gets-50-years-for-murder.ece>.

C. *Terrance Frank: Uranium Exposure as a Defense*

Terrance Frank grew up surrounded by the uranium mines of the Navajo Indian Reservation in Arizona.⁵⁷ For twenty-four years⁵⁸ the defendant lived in a house built on a uranium rock foundation and drank water from a well lined with uranium rock.⁵⁹ By all accounts, Frank might have continued to live in such a manner were it not for the events of June 24, 1988. On that date, Frank proceeded to get drunk, walk several miles to retrieve a firearm, and enter a home on the reservation and shoot four people, leaving two victims dead.⁶⁰ Frank was charged with two counts of first-degree murder in federal court.⁶¹

Frank's defense counsel chose to pursue a trial defense of temporary insanity based on neurotoxicity caused by uranium exposure.⁶² This case would come to be one of the first in the country, if not *the* first, to advance a defense based on environmental exposure.⁶³ To further complicate matters, Frank had committed the shootings while being voluntarily intoxicated, a defense that is generally no defense at all. Instead, the defense would argue that uranium had caused Frank's organic brain damage and that the alcohol only exacerbated his condition, acting as a trigger for temporary psychosis.⁶⁴ In Frank's favor was the strong evidence of his own organic brain damage, as well as the prevalence of similar brain damage within his community.⁶⁵ The presence of uranium within Frank's daily life was similarly well documented, seemingly cementing the issue of the defendant's environmental exposure.⁶⁶ Returning to the "check-list" for environmental toxicity defenses, Frank

57. RALPH SLOVENKO, *PSYCHIATRY AND CRIMINAL CULPABILITY* 103 (1995). Mr. Slovenko notes that, at that time, the surrounding mines provided half of the uranium used in the United States. *Id.*

58. *United States v. Frank*, 933 F.2d 1491, 1492 (9th Cir. 1991).

59. McConnell, *supra* note 9, at 167 (citing Telephone Interview by David B. McConnell with Jon M. Sands, Fed. Pub. Defender (Sept. 16, 1994)).

60. *Frank*, 933 F.2d at 1492; McConnell, *supra* note 9, at 168 (citing Telephone Interview by David B. McConnell with Jon M. Sands, *supra* note 59).

61. McConnell, *supra* note 9, at 167.

62. Deborah W. Denno, *Considering Lead Poisoning as a Criminal Defense*, 20 *FORDHAM URB. L.J.* 377, 394 (1993).

63. See McConnell, *supra* note 9, at 167 (citing Telephone Interview by David B. McConnell with Jon M. Sands, *supra* note 59).

64. Denno, *supra* note 62, at 394.

65. See McConnell, *supra* note 9, at 167-68 (citing Telephone Interview by David B. McConnell with Jon M. Sands, *supra* note 59). In fact, Frank's two brothers also suffered from similar brain damage. Statistical evidence was also presented at trial documenting local rates of birth defects at two to eight times higher than the general population. *Id.* (citing Telephone Interview by David B. McConnell with Jon M. Sands, *supra* note 59; Charlotte-Anne Lucas, 'Toxin Defense' Successful, *NAT'L L.J.*, May 1, 1989, at 9).

66. See *id.*

was also able to demonstrate that uranium can cause neurotoxic damage through expert psychiatric testimony.⁶⁷ Finally, Frank presented psychological evidence that his violent behavior was a result of his existing brain injuries.⁶⁸ Through this extensive use of expert testimony, Frank's defense team fully elucidated the nature of their client's exposure, the physical and cognitive damage Frank suffered, and the causal link between the damage, the exposure, and the crime committed.

The greatest potential hazard to the defense theory in this case came in the form of the defendant's voluntary intoxication during the commission of the crime. Frank's attorneys positioned the alcohol as a trigger, suggesting that were it not for the underlying brain condition, the crime would not have occurred from intoxication alone.⁶⁹ In this way, the defense successfully addressed another common concern amongst cases of environmental toxic exposure: why is it that not everyone with *x* condition commits a crime? A variety of experts testified that Frank's brain injury placed the defendant in such a fragile state that the alcohol pushed him into a psychotic state.⁷⁰ It is noteworthy that though the defendant suffered from a permanent impairment, the defense theory still posited that the crime was committed during a temporary psychotic state, perhaps to understate the client's potential for future violence.

Jurors evidently accepted Frank's arguments, at least to an extent, because the jury rejected the first-degree murder charges and returned two convictions for second-degree murder, a lesser charge not requiring the same level of premeditation.⁷¹ Jurors found that Frank's brain injury rendered him incapable of forming the requisite level of intent necessary to support a first-degree murder conviction,⁷² though it is unclear if the jury truly believed that Frank committed the crimes while in a psychotic state, or rather, simply felt that his underlying condition would make premeditation impossible at any time.

67. *See id.* (citing Lucas, *supra* note 65, at 9).

68. *Id.* (citing Telephone Interview by David B. McConnell with Jon M. Sands, *supra* note 59).

69. *See* Denno, *supra* note 62, at 394.

70. *Id.* ("As one expert in the Frank case commented, if such toxins 'lead to brain damage . . . the victims could become human time bombs' who are considerably more sensitive to the effects of drugs and alcohol." (quoting Lucas, *supra* note 65, at 9)); *see also* SLOVENKO, *supra* note 57, at 103 ("Dr. Fred Rosenthal . . . testified, 'I'm not saying that radiation or brain damage always leads to murder, but if you have somebody who's not functioning well . . . and you add to that intoxication, then things like this can happen.'").

71. *See* Denno, *supra* note 62, at 394 (citing Lucas, *supra* note 65, at 9).

72. *See id.*

III. PENALTY PHASE: ENVIRONMENTAL FACTORS AS MITIGATION IN DEATH PENALTY PROCEEDINGS, THROUGH TWO INSTANCES OF LEAD POISONING EVIDENCE

While the previous section explored the use of environmental factors as a complete defense theory to negate a defendant's criminal culpability, this Part will address cases wherein environmental neurotoxicity is presented as mitigation for the seriousness of the defendant's criminal acts. This use of mitigation is most prevalent within death penalty proceedings, wherein the guilt and sentencing phases are bifurcated. During the sentencing portion of the proceeding, defense counsel is granted wide latitude to introduce virtually any evidence that would warrant a finding of life, as opposed to death, for their client.⁷³ Such mitigation evidence may include information and testimony about the defendant's redeeming characteristics, such as positive work history, military service, or family ties, as well as life history information. The latter category encompasses the bulk of mitigation evidence presented in capital trials and includes information regarding a client's upbringing, including any history of abuse, neglect, or extreme poverty.⁷⁴ The Supreme Court has consistently held that such life history mitigation evidence is relevant to the assessment of a defendant's moral culpability for his crime.⁷⁵ Though environmental toxic exposure does not immediately appear to fall into the category of life history mitigation, there can be a strong correlation between these two general mitigation themes.

Lead poisoning provides an excellent example of the overlap between environmental exposure evidence and testimony regarding a client's early childhood life history. Because children are far more susceptible to lead toxicity than adults,⁷⁶ many cases of environmental exposure to lead require an investigation into a client's childhood home and environment; such an investigation is also likely to marry the theme

73. See, e.g., Kevin M. Doyle, *Lethal Crapshoot: The Fatal Unreliability of the Penalty Phase*, 11 U. PA. J.L. & SOC. CHANGE 275, 289 (2007-2008) (citations omitted).

74. See *id.* at 290 (citing *Eddings v. Oklahoma*, 455 U.S. 104, 115 (1982); *Penry v. Lynaugh*, 492 U.S. 302, 304 (1989)).

75. E.g., *Wiggins v. Smith*, 539 U.S. 510, 535 (2003) (quoting *Penry*, 492 U.S. at 319) (“[E]vidence about the defendant's background and character is relevant because of the belief, long held by this society, that defendants who commit criminal acts that are attributable to a disadvantaged background . . . may be less culpable . . .” (first two alterations in original)).

76. Denno, *supra* note 62, at 392 (citing U.S. ENVTL. PROT. AGENCY, 230-R-92-008, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES 9 (June 1992)). Lead poisoning has been called “the most common and socially devastating environmental disease of young children.” *Id.* at 390 (quoting Steven Waldman, *Lead and Your Kids*, NEWSWEEK, July 15, 1991, at 42, 44).

of environmental toxicity with issues of poverty.⁷⁷ In the United States, the primary method of lead exposure among children is through ingestion: eating and inhaling lead paint chips and the byproduct dust.⁷⁸ Sadly, the use of lead paint was, and still is, concentrated in areas of urban poverty, such as housing projects and inner city schools.⁷⁹ Though there have been recent efforts to stem the use of lead paint in new construction and complete remediation at former lead paint sites, generations of children have already been exposed and many of today's criminal defendants grew up in an era when the use of lead was still relatively unchecked.⁸⁰ Lead exposure is likely to provide useful mitigation evidence because it has been linked, in scientific studies and research, with decreased IQ levels, mental retardation, impulsivity, and violence.⁸¹ A client's inability to control his own impulses, or the information that someone could be prone to violent behavior because of environmental circumstances as opposed to his own character, could be directly relevant to a juror's opinion of that client's moral culpability for an offense.

The following cases examine the particular use of lead exposure as mitigation evidence for a capital offense and suggest the somewhat unpredictable nature of the impact of mitigation evidence. Both individuals, Lavar Bryant and Corey Williams, were young African-American males, ages eighteen⁸² and sixteen,⁸³ respectively. Both men lived in the South, and it was there that both were convicted of first-

77. See generally Gregory J. Kuykendall et al., *Mitigation Abroad: Preparing a Successful Case for Life for the Foreign National Client*, 36 HOFSTRA L. REV. 989, 1011 (2008) (discussing the intersection of a client's poverty and exposure to environmental toxins).

78. Denno, *supra* note 62, at 392 (citations omitted).

79. See *id.* at 391-92.

80. Even as late as 2000, the U.S. Department of Housing and Urban Development estimated that in Baltimore, Maryland, alone roughly 1200 children per year were victims of lead poisoning. Jim Haner, *Lead's Lethal Passage: One Family's Anguish*, BALT. SUN (Sept. 10, 2000), <http://www.baltimoresun.com/news/maryland/bal-leadkresssep10,0,3765829,full.story>.

81. See, e.g., Paul B. Stretesky & Michael J. Lynch, *The Relationship Between Lead Exposure and Homicide*, 155 ARCHIVES PEDIATRICS & ADOLESCENT MED. 579 (2001) (finding a correlation between violent behavior and lead exposure based on air-lead concentrations); Kim N. Dietrich et al., *Early Exposure to Lead and Juvenile Delinquency*, 23 NEUROTOXICOLOGY & TERATOLOGY 511 (2001) (discussing both *in utero* and *ex utero* lead exposure associated with risk for antisocial and delinquent behaviors); Roger D. Masters et al., *Environmental Pollution, Neurotoxicity, and Criminal Violence*, in 7 ENVIRONMENTAL TOPICS: ENVIRONMENTAL TOXICOLOGY—CURRENT DEVELOPMENTS 11 (J. Rose ed., 1998) (discussing lead's impact on individual neurochemistry and the correlation between environmental lead levels and geographical differences in violent crime rates).

82. Jim Haner, *Victims of Lead Unnoticed by Courts*, BALT. SUN (Oct. 8, 2000), http://articles.baltimoresun.com/2000-10-08/news/0010080261_1_lead-poisoning-paint-poisoning-justice-sytem/2.

83. *State v. Williams*, 2001-1650, pp. 3-4 (La. 11/1/02); 831 So. 2d 835, 840.

degree murder.⁸⁴ Both defense teams also offered lead exposure mitigation evidence during the penalty phase of the trial, though with dramatically different results.

A. *Lavar Bryant*

It took jurors less than three hours to decide that Lavar Bryant was guilty of stabbing a man to death with a flat head screwdriver through his heart.⁸⁵ There was also evidence that as the victim's heart was slowly "suffocated" by fluid pressure, Bryant held the man's face in the sand so he could not call out for help.⁸⁶ At trial, a pathologist estimated that Bryant likely held the victim down for at least fifteen minutes before death occurred.⁸⁷ On August 4, 1995, Mike Suber had encountered the defendant breaking into his car in the government-building parking lot where Suber worked.⁸⁸ After a struggle, Suber was killed and the defendant had etched the phrase "Metro Mike f-- your Mamma" on the rear of the victim's car before fleeing the scene.⁸⁹

Bryant suffered from an extreme case of lead poisoning as a child and remained poisoned for six years.⁹⁰ The defendant's childhood tenement home proved to be coated with toxic lead paint and lead paint dust.⁹¹ The lead exposure was so severe that Bryant was consistently hospitalized; medical records revealed that at age one he had suffered a dose of eighty-three micrograms of lead.⁹² The defendant suffered from severe learning disabilities as a result of his environmental lead exposure, with an estimated one hundred incidents of truancy, fighting, and petty crime at the time of the murder.⁹³

84. See Haner, *supra* note 82 (stating that Bryant was from Columbia, South Carolina); *Williams*, 2001-1650 at p. 3; 831 So. 2d at 840 (stating that Williams was from Shreveport, Louisiana).

85. Haner, *supra* note 80.

86. See *State v. Bryant*, 520 S.E.2d 319, 320 (S.C. 1999).

87. *Id.*

88. Haner, *supra* note 80.

89. *Bryant*, 520 S.E.2d at 320. It would later be explained at trial that Columbia-area criminals referred to themselves as "Metro." *Id.*

90. Haner, *supra* note 80.

91. *Id.*

92. *Id.* For reference, the Center for Disease Control and American Academy of Pediatrics qualify blood lead levels of greater than ten micrograms per deciliter as lead poisoning. See *Lead*, CTRS. FOR DISEASE CONTROL & PREVENTION, <http://www.cdc.gov/nceh/lead/> (last updated Jan. 27, 2012); Ruth A. Etzel et al., *Screening for Elevated Blood Lead Levels*, 101 PEDIATRICS 1072 (1998).

93. Haner, *supra* note 80.

Bryant was charged and convicted of a single count of first-degree murder, with prosecutors seeking the death penalty as punishment.⁹⁴ Bryant's defense team opted to present a wealth of mitigation evidence surrounding the defendant's lead exposure and resulting impairments. Jurors heard from witnesses about Bryant's poor school record, low cognitive functioning, and disciplinary problems. Interestingly, as part of the mitigation strategy, the defense sought to emphasize, rather than minimize, Bryant's previous criminal record. Jurors heard of the defendant's rash of criminal offenses, a particularly lengthy list given his young age, and also learned that many of the crimes appeared to have been committed on a whim, absent any apparent motive.⁹⁵ In this way, the defense sought to paint the picture of Bryant as a man who was literally unable, not simply unwilling, to control his behavior. Defense attorneys then reconnected Bryant's evident lack of control with his environmental toxic exposure through expert medical testimony. Dr. Herbert Needleman, a pediatrician who studies lead poisoning in children, served to explain the link between Bryant's anger and control issues and the lead poisoning from which the defendant had suffered.⁹⁶ Dr. Needleman testified that Bryant's extreme levels of lead exposure had made him "prone to uncontrollable aggression long after he was exposed," causing him to act without thinking of the consequences.⁹⁷

As in some of the guilt stage environmental toxin defenses presented in the previous section, here, the prosecution attempted to negate the impact of Bryant's lead exposure by arguing that not all victims of lead poisoning become criminals or act violently.⁹⁸ However, this argument is less persuasive when dealing with mitigation evidence, which focuses on the factors that could make a particular defendant less morally culpable, as opposed to demonstrating that the defendant is not guilty of the crime alleged, a much higher standard; even if jurors choose to believe an environmental exposure mitigation argument, the defendant will still be punished through a sentence of life in prison.

In Bryant's case, the jury considered the defendant's considerable neurotoxic damage and returned a sentence of life in prison, rejecting the death penalty.⁹⁹ Though the mitigation strategy in this case was extremely effective, it does carry the legitimate defense concern that

94. *Id.*

95. *See id.*

96. *See id.*

97. *See id.*

98. *See id.*

99. *Id.*

jurors will subscribe too deeply to descriptions of the defendant as violent, dangerous, and uncontrollable—essentially, casting the defendant as someone too dangerous even for prison life.¹⁰⁰ This risk may be heightened in cases of lead poisoning mitigation, as there will almost certainly be scientific evidence presented as to the lifelong nature of the impairment and the inability of the defendant to improve or remedy his violent behavior. Criminal defense attorneys seeking this type of mitigation strategy must complement lead exposure mitigation evidence with testimony regarding how the defendant could be safely controlled within a prison setting to quell juror concerns regarding the defendant's future dangerousness.

B. *Corey Williams*

In 1998, Corey Williams shot a pizza deliveryman in the course of an attempted armed robbery.¹⁰¹ The crime was one of happenstance; Williams arrived at the home of an acquaintance just as she was paying Jarvis Griffin, the Pizza Hut deliveryman.¹⁰² Williams shot the victim three times, from close range, before fleeing.¹⁰³

It is statutorily provided that, in Louisiana, a jury may consider a defendant's mental disease or defect and its impact on his capacity to understand the criminality of his conduct as a mitigating circumstance in a capital case.¹⁰⁴ Lead poisoning and the accompanying organic brain damage and cognitive impairments surely qualify as a form of mental defect that could inhibit a defendant's understanding of his actions. Yet, in the case of Williams, the jury seemingly disagreed because Williams was convicted of first-degree murder and sentenced to death.¹⁰⁵

100. See Meghan Shapiro, *An Overdose of Dangerousness: How "Future Dangerousness" Catches the Least Culpable Capital Defendants and Undermines the Rationale for the Executions It Supports*, 35 AM. J. CRIM. L. 145 (2008) (discussing the theory of future dangerousness and the troubling implications to some forms of mitigation evidence).

101. *State v. Williams*, 2001-1650, p. 3 (La. 11/1/02); 831 So. 2d 835, 840. Though Williams was certainly armed with a handgun and later confessed to the police that he had intended to rob the driver, his actions and account of the situation demonstrate his seeming lack of understanding. Despite the fact that Williams had just demanded money, he stated that he believed the deliveryman was reaching for a weapon instead of the requested money and shot the victim multiple times before running away. An onlooker then approached and robbed the dying victim. By all accounts, Williams never profited from the crime. See *id.* at p. 17; 831 So. 2d at 849-50.

102. *Id.* at p. 3; 831 So. 2d at 840.

103. *Id.*

104. LA. CODE CRIM. PROC. ANN. art. 905.5(e) (2011) ("At the time of the offense the capacity of the offender to appreciate the criminality of his conduct or to conform his conduct to the requirements of law was impaired as a result of mental disease or defect or intoxication.").

105. *Williams*, 2001-1650 at p. 3; 831 So. 2d at 839.

The facts of Williams' case, particularly when viewed alongside the Bryant case, appeared to be ripe for a successful lead exposure mitigation defense. Williams also developed lead poisoning at a very early age through eating paint chips from the walls of his squalid tenement rental home.¹⁰⁶ By the age of two, Williams had blood lead levels as high as 102 milligrams per deciliter (mg/dL); he demonstrated medically documented blood lead levels ranging anywhere from thirty-five mg/dL and above for at least six years.¹⁰⁷ Doctors were so concerned about Williams' unfailingly high lead levels that they called social services on multiple occasions, wherein social workers saw a very young Williams unattended and continuing to eat paint chips and dirt.¹⁰⁸ Reviewing the case many years later, an epidemiologist from Tulane University would call Williams' case "the most extreme case of lead poisoning [she] had seen" in her career.¹⁰⁹

During the sentencing phase of trial, Williams' defense team did present some evidence of their client's lead exposure, namely, that the exposure occurred as the result of parental neglect.¹¹⁰ The State also stipulated that lead exposure can cause "an organic brain problem" and "a learning disability and, subsequently, a low I.Q."¹¹¹ But though the jury learned Williams suffered from childhood lead exposure and had a low IQ score, there is no indication that any evidence was presented to help the jury understand the impact of lead on behavior. In other words, jurors were already aware that Williams had a low level of intellectual functioning, so the knowledge that lead may have caused this trait had little impact on their ultimate findings. Jurors were never told that lead has been linked to violence or, more importantly, to impulsivity and a failure to understand the consequences of one's actions. Nor were jurors aware of the true scope of the defendant's exposure, merely that he had been lead poisoned as a child.

Williams was ultimately spared the death penalty when he was found to be mentally retarded and thus ineligible for execution under

106. Brief on Appeal at 12, *Williams*, 2001-1650; 831 So. 2d 835 (quoting the State's stipulation from the trial record).

107. Ruling on Issue of Mental Retardation at 8, *State v. Williams*, No. 193,258 (1st Dist. Ct., Caddo Parish Feb. 20, 2004) (quoting Dr. Felicia A. Robito).

108. Brief on Appeal, *supra* note 106, at 12.

109. Ruling on Issue of Mental Retardation, *supra* note 107, at 7 (quoting Dr. Felicia A. Robito).

110. *Williams*, 2001-1650 at p. 14; 831 So. 2d at 847.

111. Brief on Appeal, *supra* note 106, at 12 (quoting the State's stipulation from the trial record).

Atkins v. Virginia.¹¹² However, his case is instructive in that, though evidence of lead exposure can be a persuasive mitigating factor in death penalty proceedings, the sheer existence of environmental toxic exposure is not in and of itself sufficient to mitigate such a serious offense. A more effective lead exposure mitigation plan must explain the full medical and behavioral ramifications of lead poisoning to the jury, particularly in regard to facets of the client's behavior that are not readily apparent (for instance, it was never made clear to the Williams jury that the defendant was impulsive or easily influenced). Additionally, lead exposure can be portrayed as a very sympathetic, and humanizing, experience—especially when under such abusive and neglectful circumstances—and should be presented as such for the client's benefit. In Williams' case, both the Louisiana Supreme Court and the trial judge portrayed the defendant's environmental lead exposure as an important facet of the case, further suggesting that such evidence can serve as powerful, and effective, mitigation if pled to the fullest extent.

IV. THE VERDICT

As the majority of these cases demonstrate, given the appropriate conditions, environmental toxicity can be an effective criminal defense tool at the pretrial, trial, or sentencing phase of litigation. However, it is instructive to recall the incredulity of the *New York Post* story that opened this Comment; environmental exposure is not, and cannot be seen as, a fix-all criminal defense strategy. Though some forms of environmental toxic exposure are startlingly common, such as lead poisoning, the vast majority of criminal defendants will not have an appropriate, or convincing, neurotoxicity defense. Despite this, attorneys would be wise to investigate a client's background for potential toxic exposure, particularly if there appears to be brain damage or other cognitive impairment present. The following considerations are paramount to the ultimate decision to employ a neurotoxicity defense:

- Does the client have medical or scientific proof of exposure to an environmental toxin?
- Did the client's exposure result in a manifestation of harm, such as a cognitive impairment?
- Is there a scientifically documented relationship between the client's manifested harm and an element of the charged offense, such as an inability to understand an action's consequences?

112. See Ruling on Issue of Mental Retardation, *supra* note 107, at 8-9 (citing *Atkins v. Virginia*, 536 U.S. 304 (2002)).

- Was the toxic environmental exposure near in time to the client's offense?
- If not, did the exposure cause a lasting impairment that would continue to impact the client long after the initial exposure?
- Do the circumstances surrounding the exposure paint the client in a sympathetic light?

If the majority of these questions can be answered in the affirmative, a client may be well served by raising issues of environmental neurotoxicity as an element of his criminal defense strategy.