

When Legislatures Delegate Death: The Troubling Paradox Behind State Uses of Electrocution and Lethal Injection and What it Says About Us

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This article discusses the paradoxical motivations and problems behind legislative changes from one method of execution to the next, and particularly moves from electrocution to lethal injection. Legislatures and courts insist that the primary reason states switch execution methods is to ensure greater humaneness for death row inmates. History shows, however, that such moves were prompted primarily because the death penalty itself became constitutionally jeopardized due to a state's particular method. The result has been a warped legal "philosophy" of punishment, at times peculiarly aligning both friends and foes of the death penalty alike and wrongly enabling legislatures to delegate death to unknowledgeable prison personnel. This article first examines the constitutionality of electrocution, contending that a modern Eighth Amendment analysis of a range of factors, such as legislative trends toward lethal injection, indicates that electrocution is cruel and unusual. It then provides an Eighth Amendment review of lethal injection, demonstrating that injection also involves unnecessary pain, the risk of such pain, and a loss of dignity. These failures seem to be attributed to vague lethal injection statutes, uninformed prison personnel, and skeletal or inaccurate lethal injection protocols.

The article next presents the author's study of the most current protocols for lethal injection in all thirty-six states where anesthesia is used for a state execution. The study focuses on a number of criteria contained in many protocols that are key to applying an injection, including: the types and amounts of chemicals that are injected; the selection, training, preparation, and qualifications of the lethal injection team; the involvement of medical personnel; the presence of general witnesses and media witnesses; as well as details on how the procedure is conducted and how much of it witnesses can see. The study emphasizes that the criteria in many protocols are far too vague to assess adequately. When the protocols do offer details, such as the amount and type of chemicals that executioners inject, they oftentimes reveal striking errors and ignorance about the procedure. Such inaccurate or missing information heightens the likelihood that a lethal injection will be botched and suggests that states are not capable of executing an inmate constitutionally. Even though executions have become increasingly hidden from the public, and therefore more politically palatable, they have not become more humane, only more difficult to monitor.

I. INTRODUCTION

The history of executions in this country is fraught with paradox about why legislatures change from one execution method to another.¹ This article focuses on the most recent versions of this quixotic dilemma—legislative moves from electrocution to lethal injection. Evidence suggests that state patterns of rejecting and retaining execution methods are diagnostic of the status of the death penalty process because they have gauged for more than a century how this country views executions, both literally and symbolically. Michel Foucault had long observed how methods of punishment and death were vibrant, social and political symbols.² The symbols have remained, but they have a disturbing modern twist. The death penalty in the United States "has thus been retained more as the symbol of a particular politics than as an instrumental aspect of penal policy."³

Generally, pro and con debates concerning the death penalty are divisively clear. Such predictability is not the hallmark of reactions to changes in execution methods, however. Oftentimes, friends and foes of the death penalty align both sides of the execution methods debate, despite their different goals. The result is a dangerous and distorted legal "philosophy" of punishment that erodes human rights and constitutional safeguards, most particularly the Eighth Amendment's Cruel and Unusual Punishments Clause.⁴

The core of this execution methods paradox lies, not surprisingly, on whether legal actors want to reject or retain the death penalty and which stance will ensure their success. On the one hand, legislatures and courts have consistently claimed that the change from one method of execution to another provides the condemned the most humane and decent means of death possible given our knowledge of human science.⁵ At the same time, however, statutory and judicial behavior contradicts this purported rationale. For example, legislatures typically change an execution method only to stay one step ahead of a looming constitutional challenge to that method because the acceptability of the death penalty process itself therefore becomes jeopardized.⁶ Moreover, legislative changes to new execution methods oftentimes have not been retroactive; inmates already on death row when the change occurs must be executed by the older, more problematic method or they are still allowed to "choose" that method.⁷

In more recent years, death penalty proponents and opponents have united against lethal injection specifically. For example, some proponents feel that the older, more questionable method, typically electrocution, better represents their

retributive sentiments than lethal injection;⁸ some opponents believe that lethal injection will increase the number and acceptability of executions because the death penalty will be more palatable.⁹ Paradoxically, the two sides also have united by promoting lethal injection because it appears more humane. For this reason, some proponents feel that injection can save the death penalty from abolition¹⁰ while some opponents believe injection can save inmates from torture.¹¹ Public opinion polls occupy both camps: the public says it wants the death penalty,¹² but it also wants what it believes to be the most humane method of execution.¹³ Occasionally, inmates fuel the frenzy by picking for their own death the older, more controversial, execution method if they are in a state that allows such a choice—just to make a point about the barbarity of the death penalty.¹⁴ Of course, the media is allowed, if not required, to record whether the execution process is humane; yet, courts have routinely dismissed the media's accounts of botched executions in cases challenging the constitutionality of execution methods.¹⁵

Despite the overwhelming use of lethal injection in this country,¹⁶ many of those individuals who are medically qualified to carry out a proper and humane injection—doctors and nurses—simply do not want to do it.¹⁷ The nineteen percent who do¹⁸ confront opposition by influential medical societies.¹⁹ Legislatures delegate death to prison personnel and executioners who are not qualified to devise a lethal injection protocol, much less carry one out.²⁰ In an effort to present a medically sterile aura of peace, for example, executioners inject paralyzing drugs that serve no other purpose than to still a prisoner who, in reality, may be experiencing the hideous pains of dying but may not be able to express it.²¹ The consequences suggest the most duplicitous irony of all: the very method that seems most appealing in the eyes of the public is also one of the most unjustifiably cruel. In their all-consuming haste to perpetuate the death penalty, legislatures and courts promote an uncontrolled brutality that should have no place in society or the law. The U.S. stance also starkly contrasts with the approach in the international community, where the number of abolitionist countries increases each year.²²

Part II of this article describes the current distribution of execution methods in this country as a prelude to discussing the history and modern development of Eighth Amendment standards and an execution methods jurisprudence. The Part emphasizes the United States Supreme Court's complete constitutional disregard for how inmates are executed, irrespective of a century-long pattern of horrifying, and entirely preventable, mishaps linked to all execution methods. The Part contends that an Eighth Amendment analysis of execution methods requires a simultaneous examination of the behaviors of all three institutional decision makers—legislatures, courts, and prison officials. Even though a legislature may consider a particular method to be the most humane under ideal circumstances, prison officials may, in practice, continually misapply the method. If a pattern of inappropriate application exists, the court should find that method unconstitutional, and the legislature should abandon that punishment.

Part III examines the constitutionality of electrocution using four interrelated criteria derived from the Court's modern Eighth Amendment jurisprudence. These criteria emphasize the importance of pain, the risk of pain, human dignity, and legislative trends reflecting changing execution methods.²³ The Part notes that pain is only one of a range of factors for evaluating execution methods, although evidence suggests that even a routine or "properly performed" execution can cause intense pain and a lingering death. When an analysis of electrocution considers other Eighth Amendment factors, such as legislative trends toward lethal injection, there are strong arguments suggesting that electrocution is cruel and unusual. Lastly, the Part examines case studies in three states (Georgia, Nebraska, and Ohio) that illustrate paradoxical legislative problems with electrocution.

Part IV overviews the origins of lethal injection, the types of lethal injection statutes, the lethal injection procedure, and judicial challenges to injection. Given the problems in all of these areas, the Part is a prelude to questioning legislatures' and courts' presumptions that injection meets the Eighth Amendment's standards.

Part V provides a modern Eighth Amendment analysis of lethal injection relying on the same standards and criteria used to assess electrocution, in addition to a focus on media coverage. Although legislative trends are moving exclusively in the direction of lethal injection, there still are important issues that bear on "evolving standards of decency," most particularly the American Medical Association's prohibition of physicians' participation in lethal injections. The Part concludes that there is substantial evidence that lethal injection involves an "unnecessary and wanton infliction of pain," the risk of such pain, and a loss of dignity. These problems seem to be attributed to vague lethal injection statutes, uninformed prison personnel, and missing, skeletal, or inaccurate lethal injection protocols.

Part VI discusses the author's study of the most current protocols for lethal injection in all thirty-six states where anesthesia is used for state executions. The Part first emphasizes the author's difficulty in acquiring protocols or information on incomplete protocols. Of those states with prison officials who agreed to submit a protocol to the author or who had a

protocol publicly available (such as through a web site), only a limited number of protocols offered any details on the application of the lethal injection method itself in terms of key criteria, which include the following: (1) the amount of chemicals that are injected into the inmates, since the great majority of states used the standard three-injection chemicals (sodium thiopental, pancuronium bromide, and potassium chloride); (2) the preparation by the execution team for the lethal injection process; (3) the selection, training, and qualifications of the lethal injection team; (4) the involvement of medical personnel; (5) the extent to which guidelines are explicitly enumerated, written down, and made publicly available; (6) the availability of advice if there is a problem or a mistake during the execution procedure (for example, a tube becomes clogged), or instructions on how to revive an inmate if there is a stay in the execution; (7) the allowed or required presence of general witnesses or media witnesses; as well as (8) details on how the procedure is conducted and how much of it witnesses can see. When the protocols do provide details, such as the amount of chemicals that are injected, they oftentimes reveal ignorance and errors that heighten the likelihood that an execution will be botched. Such inaccurate or missing information suggests that states are not capable of executing an inmate humanely.

Part VII analyzes the paradoxical motivations behind legislative changes in execution methods. The Part notes that the conflicting goals of death penalty proponents and opponents alike ironically can merge when the topic is a switch in execution methods, particularly the move from electrocution to lethal injection. The Part illustrates these tensions and converges in the context of the 2001 federal execution of Timothy McVeigh. McVeigh's execution, which involved the traditional three-chemical lethal injection, was either too painless, humane enough, or too torturous, depending on the political eye and medical education of the observer.

As McVeigh's death indicates, execution procedures often have served as an underlying barometer of social attitudes toward the death penalty in general. Paradoxically, the seemingly serene and medically pristine application of lethal injection satisfies both friends and foes of the death penalty because it fuels the death penalty process for those who want it to continue, but also makes the process seem more humane for those who would like it to end. Perhaps Foucault would have agreed, however, that even though executions have become increasingly hidden from the public and therefore more politically acceptable, they have not become more humane, only more difficult to monitor.

This article contends that lethal injection appears to be unconstitutional given the science and faulty application of injections. However, the protocols are so sketchy, and the procedure so covert, that legislatures and courts are able to turn a blind eye toward the consequences. Moreover, prison officials are wrongly delegated a degree of discretion for which they have no training and knowledge.

This article does not recommend that prison officials acquire an expertise for killing people. Rather, the goal is three-fold—to expose yet one more line of evidence showing the failures of the death penalty process, to provide a possible explanation for why such failures exist, and to detail the difficulties and paradoxes surrounding the attempts to resolve these problems. While death penalty proponents may believe that the increasing refinement of execution methods, irrespective of their humaneness, rightly perpetuates the death penalty, there are no legal or social standards that support this agenda. “The Court has *never* accepted the proposition that notions of deterrence or retribution might legitimately be served through the infliction of pain beyond that which is minimally necessary to terminate an individual's life.”²⁴ Unfortunately, however, it seems that legislatures have accepted this proposition through irresponsible delegation.

II. THE EIGHTH AMENDMENT EXECUTION JURISPRUDENCE

A. *Current Methods of Execution and “Choice” States*

An analysis of the execution methods paradox requires some perspective on the current distribution of execution methods in this country. Table 1²⁵ lists the execution methods currently enacted in the thirty-eight death penalty states. Lethal injection now is the predominant method of execution; it is the sole method of execution in twenty-seven states and one of the two methods in each of the nine choice states.²⁶ Likewise, lethal injection executions far exceed the numbers of executions conducted by any other method.²⁷ In contrast, electrocution is the sole method of execution in only two states—Alabama and Nebraska—and legislatures in both states are now considering bills challenging its use.²⁸ Electrocution is an option in three of the choice states (Florida, South Carolina, and Virginia).²⁹ Hanging, the firing squad, and lethal gas are no longer the sole method of execution in any state.³⁰ Although each of these three methods is included as an option in two choice states, the methods are rarely used.³¹

However, this capsule of the current distribution of execution methods is not the end of the legislative story. The following sections of this article discuss the circuitous path that led up to it. The sections will focus first on electrocution because it was the most widely used execution method and challenges to it have had the strongest impact on legislative

developments. Yet, this article examines most closely state uses of lethal injection in an effort to demonstrate how disturbingly errant legislative delegations of death continue to be.

B. *The Impact of Eighth Amendment Standards*

A striking oddity of the American death penalty is the Court's complete constitutional disregard for how inmates are executed. While the Court continually recognizes the Eighth Amendment hazards associated with prison conditions,³² it has never reviewed evidence on the constitutionality of execution conditions despite repeated, horrifying, and entirely preventable mishaps.³³ Indeed, the Court has recently agreed to hear challenges on the subject twice (involving California³⁴ and Florida³⁵), only to drop the cases after state legislatures have changed their methods of execution.³⁶

Explanations for these circumstances are baffling, yet one result seems clear: by refusing to acknowledge the problems with execution methods, the Court does not question the death penalty process itself. Moreover, states have aided this result through their systematic efforts to change to a new execution method whenever it seems likely that their current method is constitutionally vulnerable.³⁷ Increasing adoption of lethal injection by the great majority of death penalty states is the most visible evidence of this constitutional sidestepping.³⁸

1. *An Historical Intertwining of Courts and Legislatures*

When the United States Constitution was being ratified, the Framers included in the Bill of Rights a prohibition of cruel and unusual punishments that was created expressly to proscribe the kinds of "torturous" and "barbarous" penalties associated with certain methods of execution.³⁹ To date, however, courts generally have provided only superficial and, at times, inaccurate Eighth Amendment review of the constitutionality of execution methods. Most commonly, courts dismiss the electrocution challenge entirely (often in one sentence) by relying on the century-old precedent of *In re Kemmler*.⁴⁰ In *Kemmler*, the Court held that the Eighth Amendment did not apply to the states and deferred to the New York legislature's conclusion that electrocution was not a cruel and unusual punishment under the state's Electrical Execution Act.⁴¹ Courts have mostly relied on *Kemmler* to dismiss challenges to the constitutionality of electrocution, although the case also has been used to bolster challenges to the other four types of execution methods.⁴²

Kemmler's history, however, demonstrates how unique and problematic the case really is. The events surrounding *Kemmler* also suggest that political and financial forces outweighed the purported humanitarian concerns over how death row inmates were executed. For example, the New York Electrocution Act was a direct result of two major legislative events: (1) the Governor of New York's 1885 message to the legislature decrying the barbarity of hanging;⁴³ and (2) the Governor's appointment of a Commission to investigate "the most humane and practical method known to modern science" of carrying out executions.⁴⁴ Compelling evidence suggests that the Commission's ultimate recommendation of electrocution as the most humane method of effecting death was influenced heavily by a financial competition between Thomas Edison and George Westinghouse concerning whose current would dominate the electrical industry: Edison's DC current or Westinghouse's AC current.⁴⁵ Edison and his associates would have benefited by showing that George Westinghouse's AC current was so lethal it could kill someone. If AC current were applied in the electric chair, people would be afraid to use the current in their own homes.⁴⁶ Indeed, this Edison-Westinghouse rivalry existed within and throughout the New York Supreme Court's evidentiary hearings.⁴⁷ Yet, despite a cross-examination demonstrating Edison's ignorance of the effects of electrical currents on the human body as well as experimental results showing that electrocution did not quickly kill many of the animals tested, Edison's enormous reputation at the time outweighed revelation of his or any other expert's substantive flaws.⁴⁸ The New York legislature adopted electrocution and, with time, the medical community recommended AC current in particular.⁴⁹

2. *A Lack of Proper Precedent*

For a range of reasons, *Kemmler's* precedential value has diminished substantially over the last century. First, the *Kemmler* Court never specifically employed the Eighth Amendment's Cruel and Unusual Punishments Clause even though post-incorporation cases have continued mistakenly to cite *Kemmler* as an Eighth Amendment case.⁵⁰ Next, the *Kemmler* Court adopted an unusually stringent burden of proof standard⁵¹ that has not been used since in death penalty cases.⁵²

Moreover, a court reviewing electrocution under the Eighth Amendment would not defer to the state's legislature to the same extent as the *Kemmler* Court.⁵³ Most critically, because *Kemmler* was decided before anyone had been electrocuted, the Court had limited evidence in reaching its conclusion apart from the law, science, and politics of the time.⁵⁴

Scientifically, William Kemmler's 1890 electrocution failed. The media reported in graphic detail the confusion and mistakes that surrounded the executioners' attempts to regulate the newly tried electric chair, as well as the physical violence and mutilation that Kemmler experienced.⁵⁵ Regardless, Kemmler's mishap was a blight on the memory of state legislatures. Electrocution quickly became a popular means of execution in other states, despite comparable reports of mishaps and botches.⁵⁶ It appeared that the desire to perpetuate the death penalty outweighed any humanitarian goal to switch to a new method or to stop executions entirely.⁵⁷ Consequently, the Court relied on *Kemmler* decades later in *Malloy v. South Carolina*⁵⁸ and in *Louisiana ex rel. Francis v. Resweber*⁵⁹ to fuel states' uses of electrocution in the face of new kinds of legal challenges.

C. The Modern Development of Eighth Amendment Standards

Since 1962, when the Court held in *Robinson v. California*⁶⁰ that the Eighth Amendment applies to the states,⁶¹ the Court's Eighth Amendment doctrine has emphasized an "evolving standard of decency" of cruel and unusual punishment.⁶² This evolution occurs because "[t]ime . . . brings into existence new conditions and purposes. Therefore, a principle to be vital must be capable of wider application than the mischief which gave it birth."⁶³ For these reasons, the Court has viewed the Eighth Amendment "in a flexible and dynamic manner,"⁶⁴ recognizing that the Clause "draw[s] its meaning from the evolving standards of decency that mark the progress of a maturing society."⁶⁵ Current claims of cruel and unusual punishment must therefore be assessed "in light of contemporary human knowledge."⁶⁶

Aspects of *Kemmler* coincide with the "evolving standards of decency" jurisprudence. Although scientific evidence does not support the *Kemmler* Court's factual assumptions regarding the acceptability of electrocution,⁶⁷ one of the *Kemmler* Court's legal conclusions remains viable: "Punishments are cruel when they involve torture or a lingering death . . . something more than the mere extinguishment of life."⁶⁸

In conjunction with the "evolving standards of decency" and "torture and lingering death" guideposts, some courts also have considered whether a particular state's execution methods statute is unconstitutionally vague.⁶⁹ This approach recognizes that all three levels of decision makers (legislatures, courts, and prison personnel) are simultaneously involved in execution procedures, but that legislatures could play a greater role in either guiding or curtailing prison personnel's discretion in implementing executions.

Currently, five states can still apply electrocution. Two states use electrocution as their sole method of execution⁷⁰ and three states allow the condemned a choice between electrocution and lethal injection.⁷¹ Yet, not one of these five states provides information on the voltage or amperage of the electrical current that should be applied, nor the way that current should be administered. Three of the five states specify nothing more than "death or punishment by electrocution."⁷²

Overall, the electrocution statutes alone provide insufficient information to assess whether electrocution meets Eighth Amendment standards.⁷³ For that reason, this article focuses more directly on the behavior of prison officials.

The Court's Eighth Amendment jurisprudence suggests four interrelated criteria for determining the constitutionality of an execution method: (1) "the unnecessary and wanton infliction of pain";⁷⁴ (2) "nothing less than"⁷⁵ human dignity (for example, "a minimization of physical violence during execution"⁷⁶); (3) the risk of "unnecessary and wanton infliction of pain";⁷⁷ and (4) "evolving standards of decency" as measured by "objective factors to the maximum extent possible,"⁷⁸ such as legislation passed by elected representatives⁷⁹ or public attitudes.⁸⁰ However, no court has reviewed the constitutionality of electrocution or lethal injection under modern Eighth Amendment standards that consider, as a substantial part of an "evolving standards of decency" analysis, legislative trends and related information, such as public opinion polls and execution protocols. The next Part of this article briefly attempts such an analysis.

III. A MODERN EIGHTH AMENDMENT ANALYSIS OF ELECTROCUTION

The Court's modern Eighth Amendment jurisprudence suggests that pain is only one of a range of factors used to evaluate whether an execution method constitutes cruel and unusual punishment. This Part discusses the pain and physical violence of electrocution but then focuses on other Eighth Amendment criteria, especially the strong showing of legislative trends away from electrocution. The legislative trend criterion has been the most strongly ignored by courts, but is perhaps the most critical now.

A. *Electrocution Constitutes the "Unnecessary and Wanton Infliction of Pain"*

The Court set forth general principles gauging what can be considered proper measures of excessive pain; however, other courts have provided substantially more detail. For example, in an effort to determine if an inmate experienced "unnecessary and wanton infliction of pain" while conscious, the Ninth Circuit has supported consideration of a wide range of evidence, including scientific research and eyewitness accounts of actual executions.⁸¹

The most recent research and eyewitness observations suggest that many factors associated with electrocution, such as severe burning, boiling body fluids, asphyxiation, and cardiac arrest, can cause extreme pain when unconsciousness is not instantaneous.⁸² Table 8⁸³ lists brief summaries of nineteen botched electrocutions following *Gregg v. Georgia*,⁸⁴ when the Court ended its moratorium on the death penalty.⁸⁵ These botches provide considerable evidence that prisoners can experience extensive pain and suffering even when the electrocution is routine or "properly performed."⁸⁶

On July 8, 1999, perhaps the most notorious botched electrocution occurred when Allen Lee Davis's execution in Florida's electric chair went terribly awry—an event that garnered worldwide notice and condemnation.⁸⁷ The Florida Supreme Court's color photos of the executed Davis (posted on the Internet as part of a case appendix)⁸⁸ received so many "hits" from the several millions of interested viewers that the court's computer system crashed and was disabled for months afterwards.⁸⁹

The photos and witnesses' testimony detailed the horror. Davis suffered deep burns on his head, face, and body, as well as a nosebleed that poured blood down his face and shirt. More troubling was evidence that Davis was partially asphyxiated before and during the electrocution from the five-inch-wide mouth strap that belted him to the chair's head-rest.⁹⁰ There also was testimony that, after guards placed the mouth strap on him, Davis's face became red and he tried to get the guards' attention by making sounds⁹¹—noises described by witnesses as "'screams,' 'yells,' 'moans,' 'high-pitched murmurs,' 'squeals,' or 'groans,' or like 'a scream with someone having something over their—their mouth.'"⁹² Execution team members stated that they "ignored" Davis's noises, however, because those kinds of sounds "were not unusual during an electrocution."⁹³ In the post-execution photos taken by Department of Corrections personnel,

a sponge placed under [Davis's] head-piece obscures the top portion of his head down to his eyebrows; because of the width of the mouth-strap, only a small portion of Davis' face is visible above the mouth-strap and below the sponge, and that portion is bright purple and scrunched tightly upwards; his eyes are clenched shut and his nose is pushed so severely upward that it is barely visible above the mouth-strap. . . .⁹⁴

Thomas Provenzano, who was scheduled to be executed in Florida State Prison the next day, filed a petition with the Florida Supreme Court seeking a stay of execution and argued that the state's electric chair was cruel and unusual punishment. The Florida Supreme Court remanded Provenzano's case to the circuit court to conduct an evidentiary hearing on the constitutionality of Florida's electric chair. After the hearing, the circuit court held that electrocution in Florida's electric chair "is not unconstitutional."⁹⁵ In *Provenzano v. Moore*, a 4–3 *per curiam* opinion, a plurality of the Florida Supreme Court affirmed in three pages the circuit court's "finding that the electric chair is not unconstitutional."⁹⁶ Moreover, the plurality reiterated its previous holding in *Jones v. State*⁹⁷ that had rejected the claim that Florida's use of electrocution violated "evolving standards of decency."⁹⁸ The court implied there was no need to readdress the "evolving standards of decency" issue.

In *Provenzano*, the Florida Supreme Court's skeletal *per curiam* opinion virtually ignored the great bulk of the Court's Eighth Amendment jurisprudence. Therefore, the Florida Supreme Court effectively begged the question of electrocution's continued propriety under an "evolving standards of decency" test.

In granting certiorari to review the issue in *Bryan v. Moore*,⁹⁹ the Court defied history and expectations. For the first time ever, it seemed willing to consider arguments concerning whether execution by electrocution in any state—in this case

Florida—violated the Eighth Amendment’s Cruel and Unusual Punishments Clause.¹⁰⁰ The Court ultimately dismissed its certiorari grant in light of the Florida legislature’s decision to switch to lethal injection.¹⁰¹ Regardless, *Bryan* signifies the beginning of the final end to electrocution. *Bryan* also has fueled comparable constitutional challenges in the two remaining electrocution states, Alabama and Nebraska.¹⁰²

Because the *Provenzano* court disregarded much of the existing Eighth Amendment jurisprudence, the *Bryan* Court’s failure to provide guidance for evaluating execution methods leaves open the possibility that additional factors influenced the Court’s decision to grant certiorari. As in *Provenzano*, other courts also have engaged in brief Eighth Amendment reviews that focus predominantly on the amount of pain inflicted while ignoring alternative Eighth Amendment standards.

B. *Electrocution Constitutes “Physical Violence” and Offends “Human Dignity”*

Much of the attention directed toward Allen Lee Davis’s execution concerned not only the pain he might have experienced but, without question, the mutilation that occurred when he and others before him were electrocuted. Evidence of mutilation resulting from electrocution is derived from three sources: (1) post-execution autopsies, which are required in some states; (2) observations provided by experts; and (3) witnesses’ descriptions of executions, some of which are detailed in Table 8.¹⁰³ The effects of electrocution on the human body include the following: charring of the skin and severe external burning, such as the possible burning away of the ear; exploding of the penis; defecation and micturition, which necessitate that the condemned person wear a diaper; drooling and vomiting; blood flowing from facial orifices; intense muscle spasms and contractions; odors resulting from the burning of the skin and the body; and extensive sweating and swelling of skin tissue.¹⁰⁴

Similar to Allen Lee Davis’s execution, for example, the execution of Wilbert Lee Evans in Virginia resulted in substantial bleeding; blood poured from Evans’s eyes and nose, drenching his shirt. Moreover, the flames witnessed during the 1990 execution of Jesse Joseph Tafero and the 1997 execution of Pedro Medina made the public explicitly aware of how a human body could be burned and distorted during an electrocution.¹⁰⁵

C. *Electrocution Constitutes the Risk of “Unnecessary and Wanton Infliction of Pain”*

When legislatures or courts validate the use of electrocution, it is implied that prison officials will perform executions properly and that equipment will not malfunction. A focus on electrocutions in all states and over time, however, reveals the potential for prison personnel to contribute to a risk of unnecessary pain.

In 1990, for example, Jesse Tafero’s botched electrocution in Florida suggested there was a substantial likelihood the state’s execution procedure could result in severe pain and prolonged agony. Subsequently, a pattern of consecutive malfunctions has been established with the botched Florida electrocutions of Pedro Medina and, now, Allen Lee Davis. Tafero’s and Medina’s executions shared similar problems (most particularly difficulties with the headset sponge), that created the flames, smoke, smell, and burning in both executions.¹⁰⁶ Notably, both of their executions closely resembled William Kemmler’s over a century ago.¹⁰⁷ The new set of problems accompanying Davis’s execution suggests that a continuing pattern of botches is highly foreseeable. Indeed, a pattern of consecutive botching also occurred in Virginia even after the state rewired the electric chair due to prior botching. These problems prompted Virginia to allow inmates a choice between electrocution and lethal injection.¹⁰⁸

D. *Electrocution Contravenes “Evolving Standards of Decency”*

Legislative trends are an established way to measure “evolving standards of decency.”¹⁰⁹ Yet, courts, such as *Provenzano*,¹¹⁰ have ignored such trends when they have evaluated the constitutionality of electrocution. A thorough assessment of this aspect of the Court’s Eighth Amendment jurisprudence should consider legislative changes in execution methods in all states over the course of the twentieth century, starting with the New York legislature’s 1888 selection of electrocution.

1. *The Marked Legislative Trends Away from Electrocution*

Legislative trends from 1888–2001 show three general patterns in the use of the five available execution methods in the United States. First, most state legislatures presumably change from one method of execution to another or to a “choice” between a state’s old method of execution and lethal injection for humanitarian reasons, most typically because there have

been problems with the method. However, other factors, such as cost, also are considered. Second, legislatures demonstrate a fairly consistent pattern of movement from one method of execution to another, suggesting that states take notice of the methods used, and the difficulties encountered, by other states. Third, since 1977, when lethal injection was first introduced, no state has changed to, or included as an additional “choice,” any other method of execution but lethal injection. In general, states’ changes in execution methods have occurred in the following order: from hanging to electrocution to lethal gas to lethal injection. The firing squad has been used sporadically in only a few states.¹¹¹

In 1853, hanging, the “nearly universal form of execution,” was used in forty-eight states and territories.¹¹² Nearly four decades later, however, concerns over the barbarity of hanging and the subsequent advent of electrocution prompted states to change their method of execution from hanging to electrocution.¹¹³ Even though the first electrocutions were grotesquely botched,¹¹⁴ by 1913, a total of thirteen states had changed to electrocution as a result of “a well-grounded belief that electrocution is less painful and more humane than hanging.”¹¹⁵ By 1949, twenty-six states had changed to electrocution, the largest number of states that had ever used electrocution at the same time.¹¹⁶ Since 1949, however, no state legislature has selected electrocution as its method of execution.¹¹⁷

It appears that states stopped adopting electrocution initially because of the greater appeal of lethal gas. In 1921, Nevada was the first state to switch from its prior methods (hanging and shooting) to lethal gas in accordance with the state’s new Humane Death Bill.¹¹⁸ By 1955, eleven states were using lethal gas and twenty-two states were using electrocution. By 1973, twelve states were using lethal gas and twenty states were using electrocution. Since 1973, however, no state has selected lethal gas as a method of execution.¹¹⁹

With each new lethal gas statute came controversy and constitutional challenges, both before and after the Court’s moratorium on capital punishment in *Furman v. Georgia*.¹²⁰ By 1994, there was a “national consensus” concluding that lethal gas was not an acceptable method of execution because of the cruelty involved.¹²¹ Lethal gas continues to be available for use for executions in two states (California and Missouri),¹²² and it continues to be controversial.

Recent research indicates that there is an even more striking national consensus rejecting electrocution. Since 1973, twelve states have abandoned lethal gas as their exclusive method of execution.¹²³ By contrast, since 1949, twenty-one states have abandoned electrocution as either an exclusive or choice method of execution.¹²⁴ Moreover, nine (or nearly one-half) of these states dropped electrocution in the last six years.¹²⁵

Recent trends also suggest that state legislatures may have reached a “sufficient” degree of national consensus in rejecting both lethal gas and electrocution as execution methods. Although the Court has never specified how much of a consensus is considered “sufficient,” it has rendered punishments unconstitutional with far less consensus than that shown for lethal gas or electrocution. In *Enmund v. Florida*,¹²⁶ for example, the Court held the death penalty unconstitutional for some kinds of felony murder, explaining that of the thirty-six death penalty jurisdictions, “only” eight, “a small minority,” allowed capital punishment for such an offense.¹²⁷ Furthermore, even if the Court considered, along with these eight states, an additional nine jurisdictions that allowed the death penalty “for an unintended felony murder if . . . aggravating circumstances . . . outweigh[ed] mitigating circumstances,” the Court emphasized that still “only about a third of American jurisdictions” would allow a defendant to be sentenced to death for such offenses.¹²⁸ The Court noted that even though this trend was not “wholly unanimous among state legislatures’ . . . it nevertheless weighs on the side of rejecting capital punishment for the crime at issue.”¹²⁹ Lastly, in those cases where the Court has rejected Eighth Amendment challenges to a particular punishment, there have been far more states employing that particular punishment than the number of states employing electrocution.¹³⁰

2. *The Overwhelming Use of Lethal Injections for Executions*

Over time, lethal injection has become the overwhelmingly dominant method of execution.¹³¹ Of those inmates executed by either electrocution or lethal injection between 1978 and 2001, 80% were executed by lethal injection and 20% were executed by electrocution.¹³² As the total number of executions from these two methods increased over time (from 1 execution in 1979 to nearly 100 executions in 1999), the percentage of electrocution executions declined, albeit unevenly.¹³³ The percentage of electrocution executions dropped fairly steadily from 1981 to 1986 (from 100% to 39%), then increased

briefly from 1987 to 1991 (up to 50%), then declined steadily thereafter.¹³⁴ From 1997 to 2000, electrocutions constituted less than 7% of all executions.¹³⁵ In 2001, there were no electrocutions—an unprecedented statistic.¹³⁶ Already a rarity, it is likely that electrocution will soon be extinct.

3. *Other Evolving Standards of Decency Factors*

There are other issues that bear on evolving standards of decency. For example, no country other than the United States uses electrocution.¹³⁷ Of the four electrocution states in this country that used electrocution with the most frequency from 1976–2000 (Alabama, Florida, Georgia, and Nebraska), Florida imposed the most electrocution executions. Since 1976, more than half of the electrocutions in this country—and thus in the world—have taken place in Florida.¹³⁸

Electrocution also is not favored as a method of execution in recent public opinion polls. Polls show that lethal injection is preferred by most, if not the great majority, of respondents.¹³⁹ Floridians as a group demonstrated majority support for lethal injection after Davis’s execution.¹⁴⁰

The Florida Corrections Commission, the body responsible for overseeing Florida’s electric chair, also had recommended that Florida change to lethal injection.¹⁴¹ The Commission’s state-wide survey of execution methods revealed that “numerous states had recently changed to lethal injection from electrocution because it was considered to be a ‘more humane method of execution.’”¹⁴² Lastly, the Humane Society of the United States and the American Veterinarian Medical Association consider electrocution a wholly unacceptable method of euthanasia for animals.¹⁴³

In *Provenzano*,¹⁴⁴ the Florida Supreme Court failed to address these critical evolving standards of decency factors. Clearly, a modern Eighth Amendment analysis of electrocution reveals the court’s unjustified conclusion that electrocution is constitutional. Most perplexing was the *Provenzano* court’s failure to consider legislative trends away from electrocution towards lethal injection.

E. Ongoing Legislative Problems with Electrocution: Three Current Case Studies

One of the most disturbing facets of electrocution is the extent to which it has remained a constitutional, legislative, and penal concern. Three cases in three different states illustrate the problems accompanying this persistence: (1) until 2001, the continuing application of electrocution for Georgia death row inmates sentenced before Georgia’s enactment of lethal injection (in contrast to Louisiana, which has a similar statute, but declines to use electrocution); (2) the confusion in 2001 accompanying the extent to which the electrocution protocol in Nebraska corresponds with legislative intent; and (3) the difficulties that arise when an inmate unexpectedly decides to choose electrocution when lethal injection is the favored and more predictable choice—a problem Ohio confronted in 2001.

1. *Georgia (and Louisiana)*

In 2000, the Georgia legislature determined that all individuals sentenced to death for capital crimes committed on or after May 1, 2000, should be executed by lethal injection, while all condemned individuals sentenced to death before that date should be executed by electrocution. Previously, electrocution was the only execution method available in Georgia.¹⁴⁵ If this law had stayed in effect, 129 death row men and one woman in Georgia would have been electrocuted.¹⁴⁶

The Georgia legislature’s motivation for devising such a stringent, choice-less bifurcation between execution methods is not unique; other states have recommended this peculiar strategy, eventually switching to a lethal injection-only approach due to the onslaught of litigation over the controversial prior method.¹⁴⁷ The fact that Georgia appeared not to have incorporated the experiences of other states despite the decades-long attacks on electrocution suggests that old methods die hard, along with the punitive philosophies that accompany them. Until *Dawson v. State*¹⁴⁸ was decided in 2001, no appellate court had found electrocution unconstitutional,¹⁴⁹ although lower courts in Georgia¹⁵⁰ and Nebraska¹⁵¹ had.

In *Dawson*, the Georgia Supreme Court ruled, 4–3, that the state could no longer use electrocution, explaining that the method’s “specter of excruciating pain and its certainty of cooked brains” constitutes cruel and unusual punishment.¹⁵² *Dawson* emphasized that the Georgia legislature had, since 2000, been moving in this direction.¹⁵³ Similarly, while the *Dawson* court focused on the “purposeless physical violence and needless mutilation” that characterize electrocution, the court

also stressed that “many states” had moved to lethal injection, “clearly” an “important factor” in determining the constitutionality of “an older method.”¹⁵⁴

Georgia’s change spotlights the different kinds of relationships that exist between legislatures and prison personnel when the legislature has mandated a controversial execution method. For example, Louisiana’s execution method statute is comparable to Georgia’s.¹⁵⁵ Louisiana’s inmates are to be executed by electrocution if they were sentenced to death before September 15, 1991, and they are to be executed by lethal injection if they were sentenced to death after that date.¹⁵⁶ However, in practice, Louisiana’s prison officials have used only lethal injection since the change in statute because they dismantled the electric chair in 1991. Essentially, all judges issue death warrants specifying that lethal injection will be used.¹⁵⁷ No one has ever questioned the fact that Louisiana prison officials do not follow the law,¹⁵⁸ most likely because following it would create so many needless problems.

2. *Nebraska*

Two court rulings in 2000 and 2001, respectively, determined that Nebraska’s four-jolt method of electrocution violates state law.¹⁵⁹ The first ruling found electrocution to be both illegal and unconstitutional, explaining that the gaps between jolts allow “the potential for the inmate to regain consciousness and experience substantial and unnecessary pain.”¹⁶⁰ The second ruling upheld the constitutionality of electrocution and the 1980s protocol created for its use; however, the court concluded that the state statute requires that inmates be executed with one continuous jolt and not four separate jolts.¹⁶¹ As the court explained, “[t]he state ‘has the responsibility for following a protocol that will be consistent with the statute. . . . This is not the case at the present time.’”¹⁶² On the other hand, the statute is read differently by lawyers with the Nebraska Attorney General’s Office and the Director of Nebraska’s Department of Correctional Services; they state that there is nothing in the statute’s language suggesting one continuous current.¹⁶³

While both sides continue to wrangle, one issue is clear: the Nebraska legislature’s delegation of statutory interpretation to prison officials has caused a crisis over how executions should be carried out. Moreover, by revealing that prison officials may not be operating according to legislative intent, it seems likely that prisoners’ Eighth Amendment rights might have been violated. In light of Nebraska’s experience with electrocution, the prospect that the Nebraska legislature may ultimately adopt lethal injection¹⁶⁴ indicates that comparable kinds of problems may occur with that method.

3. *Ohio*

Ohio presents yet another variation on a theme in terms of the statutory problems associated with electrocution. Until November 2001, under the Ohio statute, condemned inmates were electrocuted unless they affirmatively chose lethal injection.¹⁶⁵ Unlike Georgia’s statute, this bifurcation provided all death row inmates the same punishment, and all could choose lethal injection. Unpredictably, however, John Byrd, Jr. wanted to be executed by electrocution.¹⁶⁶ According to Ohio’s prison director, who was concerned about the reliability of the state’s 104-year-old electric chair, such a choice could have created great emotional stress and technical difficulty, and his staff was not prepared.¹⁶⁷ As a result, in July 2001, prison officials at Ohio’s Department of Rehabilitation and Correction asked the Ohio Legislature to abolish the use of electrocution because they were concerned that the electric chair may malfunction.¹⁶⁸ With the support of the state governor, the Ohio legislature enacted an emergency bill eliminating electrocution.¹⁶⁹

Such an ironic initiative contradicts the traditional sides that such parties take when the issue concerns the constitutionality of an execution method. The inmate, who does not want to be executed, is requesting the presumably harsher method to make a statement about the cruelty of electrocution and capital punishment. Prison officials clip that gesture entirely and the legislature reinforces them with a change in the statute. In the meantime, legislative change occurs because prison officials concede that they could not properly carry out the punishment that the inmate wanted and the legislature originally prescribed.

Ohio’s situation, which is not unique,¹⁷⁰ highlights the paradoxical dilemma when friends and foes of the death penalty align on both sides of the execution method debate, albeit with different purposes in mind. Two state senators, both death penalty proponents, stood on either side of Ohio’s debate: one senator argued to rid of electrocution in order to keep the death penalty, the other argued to keep the chair to show Ohio’s law and order bent.¹⁷¹ Others engaged in the debate—including a

non-legislator and opponent of the death penalty—wanted to keep electrocution because lethal injection “sanitizes” and “sugarcoats” killings; “putting someone to death (in any way) is cruel and unusual punishment.”¹⁷²

The incongruity of this dilemma is all the more pronounced when lethal injection is investigated more thoroughly. The next Part contends that lethal injection has just as many, if not more, medical and constitutional problems as electrocution.

IV. QUESTIONING LETHAL INJECTION AS A LEGITIMATE ALTERNATIVE FOR EXECUTIONS

This Part questions legislatures’ and courts’ presumptions that lethal injection is a constitutional method of execution. Evidence suggests that lethal injection is following a similar constitutional path taken by other execution methods that were initially viewed as humane, but later rendered problematic when there was insurmountable evidence that executions were being botched. The Court’s continuing avoidance of the execution method debacle unfortunately ensures that legislatures and courts will confront the problems with lethal injection only after countless numbers of individuals have been executed inhumanely.

This Part first examines lethal injection in the context of the applicable Eighth Amendment standards. It then analyzes some of the problems associated with lethal injection as well as the dubious and limited rationales that courts have offered for finding the method constitutional.

A. *The Beginning of Lethal Injection*

Lethal injection was considered a potential method of execution as early as 1888.¹⁷³ The procedure was briskly rejected, however, predominantly because of the medical profession’s belief that the public would begin to link the practice of medicine with death.¹⁷⁴ In 1953, the renowned British Royal Commission on Capital Punishment questioned both the humaneness and practicality of lethal injection because of the problems that could result from the peculiar physical attributes of many inmates (for example, abnormal veins) or the medical ignorance of the executioners.¹⁷⁵ Regardless, the United States commenced a renewed interest in lethal injection in 1976 after *Gregg v. Georgia*,¹⁷⁶ when the country again confronted the dilemma of executing people.¹⁷⁷

There is a range of opinion concerning the source of the country’s interest in lethal injection. Some scholars insist that legislatures at the time seemed to show no preference for a particular execution method.¹⁷⁸ However, others claim that lethal injection became popular along with the conservative shift in the nation’s politics.¹⁷⁹ In 1973, for example, then-Governor Ronald Reagan of California recommended the idea of lethal injection for executions when he compared it to animal euthanasia, specifically, the ease of putting a horse to sleep.¹⁸⁰ Still others contend that legislatures favored lethal injection because it appeared more humane and palatable relative to other methods,¹⁸¹ and it was cheaper.¹⁸²

Irrespective of the origins of lethal injection, legislatures embraced the method quickly. In May 1977, Oklahoma became the first state to adopt lethal injection and by 1981, five states had adopted it.¹⁸³ However, the procedure was not even used until 1982, in the botched lethal injection of Charles Brooks, Jr.¹⁸⁴ The substantial numbers of other botched lethal injections, particularly at the start,¹⁸⁵ did not deter other states from adopting the method with relative confidence and speed.¹⁸⁶

B. *Types of Lethal Injection Statutes*

There are six general and overlapping types of lethal injection statutes.¹⁸⁷ These types illustrate the complex and peculiar ways in which states have introduced lethal injection as a new method of execution, particularly within the choice states, and how perpetuation of the death penalty appears to be a primary goal. Most striking are the distinctions between states that authorize either retroactive or nonretroactive applications of a new method of execution, depending on whether the amending statute was enacted after the prisoners were sentenced or convicted (“pre-enactment prisoners”) or before they were sentenced or convicted (“post-enactment prisoners”).

Table 10 shows that twenty-seven states provide no alternative method of execution for prisoners sentenced or convicted after the date the lethal injection statute was enacted or became effective (Type 1).¹⁸⁸ Six states allow the prisoner to choose between lethal injection and another execution method (Type 2);¹⁸⁹ three states allow someone other than the prisoner (such as the commissioner of corrections) to choose the method of execution (Type 3).¹⁹⁰ Type 3 statutes appear to be partly a

function of practicality, in case one method is difficult or unavailable. In turn, five states allow choices between lethal injection and another execution method only to pre-enactment prisoners who were sentenced or convicted prior to the statute's enactment (Type 4).¹⁹¹

Table 10's choice statutes (Types 2, 3, and 4)¹⁹² illustrate legislatures' simultaneous efforts to change and retain methods of execution. Yet, such cross purposes result in nonsensical provisions that have no apparent penological or social policy justification. For example, states can allow either the prior method or the new, and purportedly more humane, method be the default if an inmate refuses to make a choice between methods. Most inmates decline, for whatever reason, to choose a particular method.¹⁹³ Consequently, they die by the least humane method in those states that have the least humane method as the default. This least humane default dilemma prompted the California litigation that the Court was going to address before the California legislature changed the default to lethal injection.¹⁹⁴ South Carolina's choice statute is even more perplexing. Both pre-enactment and post-enactment prisoners can choose their method of execution, although the no choice default for the former is electrocution whereas the no choice default for the latter is lethal injection.¹⁹⁵ Predictably, electrocution is the constitutional substitute if lethal injection is rendered unconstitutional.¹⁹⁶

The one Type 5 statute for Louisiana is unusual because it does not allow any choice. Rather, it mandates that a pre-enactment prisoner use the method of execution that existed when the prisoner was sentenced to death—electrocution—although post-enactment prisoners receive lethal injection.¹⁹⁷ In *Malloy v. South Carolina*,¹⁹⁸ the Court held that it was not a violation of the Ex Post Facto Clause when a new, purportedly more humane, method of execution was retroactive.¹⁹⁹ Yet, Louisiana has a statute where the new, purportedly more humane, method is not retroactive.²⁰⁰ What is unique about Louisiana, however, is that the state's statutory "appearances" are deceiving about what happens in practice. Ever since September 15, 1991, when lethal injection was first made available, Louisiana officials have executed all inmates by injection, regardless of what the statute says.²⁰¹ Perhaps those officials could foresee that at some point, the use of electrocution would become a source of litigation, similar to what Georgia experienced. Until 2001, Georgia officials executed pre-enactment inmates by electrocution under a statute nearly identical in language to Louisiana's.²⁰²

The legislative concern for ensuring the continuation of the death penalty process through execution methods, however, is perhaps most clearly illustrated by the constitutional substitute provisions of the ten states listed in the last category of Table 10 (Type 6).²⁰³ These states have one or more constitutional substitutes in case lethal injection is deemed unconstitutional or invalid. In Oklahoma, for example, if lethal injection is rendered unconstitutional, the death sentence will be carried out by electrocution instead; yet, if both lethal injection and electrocution are rendered unconstitutional, the death sentence "shall be carried out by firing squad."²⁰⁴ Presumably, the three execution methods are ordered in terms of their relative humaneness; but currently, both constitutional substitutes (electrocution and firing squad) are considered more inhumane or problematic than lethal injection. It appears that the state's interest is not with seeking the method that avoids unnecessary pain, but rather the constancy of the death penalty process itself, with a substitute initially considered to be second or third in a rank ordering of humaneness. States seem to have such a replacement to avoid any possible hiatus that may arise in applying the death penalty should lethal injection prove to be constitutionally troublesome.

C. *The Lethal Injection Procedure*

The constitutional issues concerning lethal injection have as much to do with the substance of the chemicals, as with how they are administered. In line with the paradoxical tale of execution methods generally, the motivation behind the origins of the specific lethal injection procedure that most states follow in this country was linked with improving the humaneness and cost of executions, as well as the palatability of the death penalty. Moreover, it appears that a prominent doctor—Stanley Deutsch—may have had far more influence than he realized.

In 1977, the now-deceased Senator Bill Dawson of Oklahoma asked Dr. Deutsch, then head of Oklahoma Medical School's Anesthesiology Department, to recommend a method for executing prisoners through the administration of drugs intravenously.²⁰⁵ Senator Dawson was concerned that it would cost the state \$62,000 to fix its electric chair and \$300,000 to build a gas chamber, and he had been informed that a lethal injection procedure would be substantially cheaper.²⁰⁶ In his letter of reply to Dawson,²⁰⁷ Deutsch advised that lethal injection was "[w]ithout question . . . extremely humane in comparison to" electrocution and lethal gas.²⁰⁸ As Deutsch explained in a news article, "[f]rom what I had heard of electrocution, . . . it was pretty grotesque, with eyeballs popping out of their sockets and smoke coming out of the head helmet.

It seemed to me a lethal injection would be much more humane. I thought it was a pretty good idea, myself.”²⁰⁹

The state adopted lethal injection based in part on Deutsch’s recommendation that anesthetizing would be a “rapid[ly] pleasant way of producing unconsciousness” and ensuing death.²¹⁰ Indeed, Oklahoma’s lethal injection statute, which is representative of other state statutes,²¹¹ repeats nearly verbatim the terminology that Deutsch used in his letter to describe to Dawson the two main types of drugs that Deutsch recommended. According to Deutsch’s letter, unconsciousness and then “death” would be produced by “[t]he *administration . . . intravenously . . . in [specified] quantities of . . . an ultra short acting barbiturate*” (for example, sodium thiopental) in “*combination*” with a “*neuromuscular [sic] blocking drug[]*” (for example, pancuronium bromide) to create a “*long duration of paralysis.*”²¹² According to Oklahoma’s statute, “[t]he punishment of death must be inflicted by continuous, *intravenous administration* of a lethal *quantity of an ultrashort-acting barbiturate in combination* with a chemical *paralytic* agent until *death* is pronounced by a licensed physician according to accepted standards of medical practice.”²¹³ Deutsch’s recommendations of specific drugs also are incorporated in all of the latest lethal injection protocols in those states that identify the chemicals that executioners use.²¹⁴

The typical lethal injection consists of three chemicals,²¹⁵ the first two of which were suggested by Deutsch;²¹⁶ the origins of the use of the third chemical are not clear.²¹⁷ The first chemical is a nonlethal dose of sodium thiopental, commonly known by its trademark name, Sodium Pentothal, a frequently used anesthetic for surgery.²¹⁸ This article uses the generic name sodium thiopental, unless it is referring to a particular state’s protocol, in order to avoid partisanship toward companies that, theoretically, are competing in the same market.²¹⁹ Like the Oklahoma statute, other lethal injection statutes refer generally to an “ultrashort-acting barbiturate” or an “ultrafast-acting barbiturate,”²²⁰ which appropriately characterize the brevity of sodium thiopental’s effect.²²¹ Sodium thiopental is supposed to induce a deep sleep and the loss of consciousness, usually in about twenty seconds.²²²

The second chemical is pancuronium bromide, also known as Pavulon, a total muscle relaxant. Given in sufficient dosages, pancuronium bromide stops breathing by paralyzing the diaphragm and lungs.²²³ Again, this article refers to the generic name, pancuronium bromide.

The third and last chemical, potassium chloride—which physicians most frequently use during heart bypass surgery—induces cardiac arrest and stops the inmate’s heartbeat permanently.²²⁴ Many states now use a saline solution²²⁵ to flush the intravenous line before and after each chemical is administered so that the chemicals do not clog the tubing.²²⁶

It is not clear how or why this chemical combination has persisted, although increasingly, the chemical manufacturers have come under attack for their roles in lethal injections.²²⁷ Sodium thiopental—an “ultra-short” acting drug as Deutsch and the statutes specify²²⁸—typically wears off very quickly; other similar drugs, such as pentobarbital, endure far longer.²²⁹ The “fast acting” aspect of sodium thiopental can have horrifying effects if the inmate awakens while being administered the other two drugs.²³⁰ Deutsch recommended a dosage that appears to some doctors sufficient to keep even a drug-resistant individual asleep for an adequately long time period.²³¹ However, most states do not specify the dosage that the executioners use,²³² so that it is unclear whether the amounts are proper. Most importantly, it is totally unnecessary for the barbiturate to be “fast acting” given the availability of longer acting chemicals.²³³

The third drug, potassium chloride, may have been recommended initially for use in lethal injections by two possible sources: (1) advising doctors, some of whom were involved in developing state execution protocols (such as New Jersey’s), and/or (2) Fred Leuchter, the highly controversial and later-discredited creator of much, if not most, of the execution equipment in this country,²³⁴ including lethal injection machines.²³⁵ According to Leuchter, the New Jersey doctors agreed with his recommendation that potassium chloride be used as the third chemical in the machine Leuchter created for New Jersey’s executions.²³⁶ Because the medical literature did not have articles specifying what dosages of the drugs were adequate to be lethal, Leuchter relied on the information that was available for pigs and estimated accordingly.²³⁷

When Deutsch recommended to Dawson two chemicals rather than three,²³⁸ the second chemical, pancuronium bromide (or a chemical similar to it),²³⁹ was intended to cause death. However, when potassium chloride is used as an additional third chemical, pancuronium bromide serves no real purpose other than to keep the inmate still while potassium chloride kills.²⁴⁰ Therefore, pancuronium bromide creates the serene appearance that witnesses often describe of a lethal injection execution,

because the inmate is totally paralyzed.²⁴¹ The calm scene that this paralysis ensures, despite the fact that the inmate may be conscious and suffering, is only one of the many controversial aspects of this drug combination.²⁴²

As the following sections discuss, from the start, lethal injection was fraught with constitutional challenges that courts regularly have dismissed, despite continuing evidence of egregious mishaps. Such challenges have focused on issues suggesting that lethal injection is cruel and unusual, including, the types of drugs used and their effects, the vagueness of the lethal injection statutes, and the substantial amount of discretion that prison officials have in administering injections.

D. Judicial Challenges to Lethal Injection

Judicial dismissals of lethal injection challenges have resembled those cases dismissing electrocution challenges. However, the variations between the two types of execution methods have introduced some different legal issues as well. Of particular interest in this article are challenges concerning the extent to which a state can delegate to prison personnel the discretion and power to punish, a problem of greater relevance in lethal injection cases. In *Ex parte Granviel*,²⁴³ for example, the Texas Court of Criminal Appeals rejected the first Eighth Amendment challenge to lethal injection by emphasizing that courts, such as *In re Kemmler*,²⁴⁴ had upheld the constitutionality of other execution methods and that injection complied with “evolving standards of decency.”²⁴⁵ But, the *Granviel* court also countered a wide range of the appellant’s additional claims, arguments that would be echoed by other courts over the next quarter century: (1) any possible pain associated with injection-related complications “could be characterized as a possible discomfort or suffering necessary to a method of extinguishing life humanely”;²⁴⁶ (2) the Texas statute’s failure to specify the substances to be used in the injection was no less clear than those statutes pertaining to other execution methods, such as electrocution, which no court had declared unconstitutionally vague;²⁴⁷ and (3) the fact that the Director of the Department of Corrections determined the lethal substance and procedure to be used did not constitute an improper delegation of the state’s legislative power.²⁴⁸

Using *Granviel* as precedent, courts successfully thwarted two other lethal injection challenges²⁴⁹ prior to the Court’s consideration of a different line of argument in *Heckler v. Chaney*.²⁵⁰ In *Heckler*, death row inmates claimed that the drugs used for lethal injection had been approved by the Food and Drug Administration (FDA) only for the medical purposes stated on their labels²⁵¹—for example, animal euthanasia²⁵²—and not for the executions of humans.²⁵³ Given this designation and the likelihood that the drugs would be applied by unknowledgeable prison personnel, “it was also likely that the drugs would not induce the quick and painless death intended.”²⁵⁴ Such practices constituted the “unapproved use of an approved drug” and therefore a violation of the prohibition against “misbranding” under the Federal Food, Drug, and Cosmetic Act.²⁵⁵ Regardless, the Court steadfastly held that the FDA’s discretionary authority in refusing to initiate proceedings according to the inmates’ demands was not subject to judicial review.²⁵⁶ One year later, the Fifth Circuit Court of Appeals relied on *Heckler* in *Woolls v. McCotter*²⁵⁷ to deny Randy Woolls’s claim that Congress failed to provide judicial review for the FDA’s refusal to evaluate the use of sodium thiopental as a lethal drug; the court emphasized that the use of such a drug did not constitute cruel and unusual punishment.²⁵⁸ Six days after his challenge, Woolls’s execution was botched.²⁵⁹

After *Woolls*, courts have rejected a range of additional challenges to lethal injection,²⁶⁰ including two group actions by inmates. In the first, a class action, Illinois death row inmates contended, among other things, that the State’s use of Leuchter’s lethal injection machine was unconstitutional because of Leuchter’s lack of qualifications and because prison officials administered the wrong drugs.²⁶¹ Similar arguments condemning lethal injection were raised and dismissed prior to the execution of John W. Gacy.²⁶² Yet, Gacy’s execution was notoriously botched.²⁶³ In a second group suit, thirty-six Missouri death row inmates claimed that lethal injection is unconstitutional because of the nature and length of Emmitt Foster’s 1995 execution.²⁶⁴ Although a judge granted an order halting all executions in Missouri, the Eighth Circuit Court of Appeals overturned it.²⁶⁵

In *Sims v. State*²⁶⁶ and a number of preceding cases,²⁶⁷ the litigation focused again on many of the issues raised in *Ex parte Granviel*.²⁶⁸ The Supreme Court of Florida discounted Sims’s constitutional challenge to lethal injection based upon a range of arguments.

First, Sims was not denied a full and fair evidentiary hearing because of “the State’s failure to disclose the execution procedures or the chemicals to be used in administering the lethal injection.”²⁶⁹ According to the court, Sims received a copy

of the Florida Department of Corrections' "Execution Day Procedures," which disclosed the chemicals to be used during the execution, and the State presented at the evidentiary hearing three Department of Corrections (DOC) witnesses who gave more specific information about the lethal injection chemicals.²⁷⁰

Second, the Florida DOC's execution protocol provided adequate details and procedures for administering lethal injection.²⁷¹ The trial court was correct in ruling that lethal injection was neither cruel nor unusual and that "the Department of Corrections is both capable and prepared to carry out executions in a manner consistent with evolving standards of decency."²⁷² According to the *Sims* court, a comparable kind of challenge to lethal injection was "raised and rejected" by the United States District Court in *LaGrand v. Lewis*,²⁷³ in which the court held that "the written procedures are not constitutionally infirm simply because they fail to specify in explicit detail the execution protocol."²⁷⁴ Moreover, in *Sims*, the expert testimony offered by a sociologist documenting lethal injection botches "came from newspaper accounts of the execution and did not come from first-hand, eyewitness accounts or formal findings following a hearing or investigation into the matter."²⁷⁵ The *Sims* court also discounted the expert testimony from a neuropharmacologist who provided examples of how a lethal injection execution could be botched if the chemicals were not injected properly or if prison personnel were not fit to administer them.²⁷⁶ According to the court, the expert "admitted that lethal injection is a simple procedure and that if the lethal substances to be used by DOC are administered in the proper dosages and in the proper sequence at the appropriate time, they will 'bring about the desired effect.'"²⁷⁷ The expert also stated that "at high dosages of the lethal substances intended [sic] be used by the DOC, death would certainly result quickly and without sensation."²⁷⁸ As the *Sims* court concluded, "[o]ther than demonstrating a failure to reduce every aspect of the procedure to writing, *Sims* has not shown that the DOC procedures will subject him to pain or degradation if carried out as planned."²⁷⁹

Third, Florida's lethal injection statute does not violate the Separation of Powers Clause in the Florida Constitution due to the improper delegation of legislative power to an administrative agency.²⁸⁰ Relying on *Granviel*,²⁸¹ the *Sims* court explained that the lethal injection statute "clearly defines the punishment to be imposed (i.e., death)" and "makes clear that the legislative purpose is to impose death."²⁸² While the statute allows the DOC to determine the methodology and chemicals to be used, the court thought that delegation was more preferable than relying on state legislators because the DOC "has personnel better qualified to make such determinations."²⁸³

The following sections of this article point out the weaknesses of the *Sims* court's analyses. The discussion first shows that the precedent the *Sims* court cited is grossly insufficient. For example, *Sims* turns to *Ex parte Granviel*,²⁸⁴ the first case to challenge lethal injection. However, *Granviel* was decided in 1978, a quarter century ago and four years before lethal injection was ever used in this country.²⁸⁵ Like *Kemmler* is to electrocution, *Granviel* is to lethal injection—entirely inappropriate as precedent scientifically.²⁸⁶ The *Sims* court also relied heavily on *LaGrand v. Lewis*.²⁸⁷ Yet, *Lewis*—a two-page court order that never involved an evidentiary hearing on lethal injection—presents merely a short and diluted look at lethal injection and cites comparably limited reviews of the method.²⁸⁸

As this article makes clear, an Eighth Amendment analysis of lethal injection also requires that inmates have a public and detailed protocol of the lethal injection procedure far in advance of litigation. The kind of notice the *Sims* court and other courts have found acceptable is out of touch with modern science. The following sections offer a further glimpse of what these courts have lacked.

V. A MODERN EIGHTH AMENDMENT ANALYSIS OF LETHAL INJECTION

A modern Eighth Amendment assessment of lethal injection relies on the same kinds of standards that guide evaluations of electrocution: the "unnecessary and wanton infliction of pain," the "risk" of such pain, "physical violence," the offense to "human dignity," and the contravention of "evolving standards of decency."²⁸⁹ Granted, there is an ironical dearth of literature available on how to execute people. Much of this article's, and the case law's, analysis of the constitutionality of lethal injection relies on the expert opinions of experienced anesthesiologists²⁹⁰ because their profession is so involved in this country's execution industry.²⁹¹

A. *The Significance of Media Coverage of Executions*

This article's Eighth Amendment analysis of electrocution recognized judicial validation of a diversity of evidence to determine if an inmate experienced "unnecessary and wanton infliction of pain."²⁹² This evidence included scientific research and eyewitness accounts of actual executions.²⁹³ More recent cases have, once again, emphasized the importance of eyewitness accounts of actual executions, this time in the context of lethal injection executions.²⁹⁴ Courts have addressed in particular media witnesses²⁹⁵ who "almost invariably now serve as the public's surrogate" to ensure that "no untoward conduct has occurred."²⁹⁶ The majority of state protocols allow for media witnesses at lethal injection executions.²⁹⁷

In *California First Amendment Coalition v. Woodford*,²⁹⁸ the United States District Court for the Northern District of California listed many of the reasons why it considered the media's viewing of executions to be significant: (1) the Eighth Amendment and the First Amendment both mandate the public's presence during the entire execution because the public's perception is needed to determine whether an execution protocol meets evolving standards of decency;²⁹⁹ (2) courts assessing the constitutionality of execution methods partly rely on eyewitness testimony because it "is crucial to the review of execution protocols which the courts frequently undertake";³⁰⁰ (3) the prevailing opinion that lethal injection is the most "humane and painless" available execution method may change with the evolution of technology and society's perceptions;³⁰¹ and (4) eyewitness media reports provide the documentation needed for society to make its judgments.³⁰² In a striking statement, the *Woodford* court made clear that "[e]xecution witnesses present by statute [were] entitled to view the entire execution, not just 'the dying.'"³⁰³ Therefore, witnesses could observe "the condemned entering the chamber, his placement on the gurney and the installation of the intravenous device."³⁰⁴

Given such strong reliance on the presence of the media, the *Sims* court's dismissal of an expert sociologist's organization of newspaper accounts of botched lethal injection executions³⁰⁵ makes no scientific or legal sense. Granted, the expert did not witness the executions; however, the reporters who wrote the newspaper articles did, oftentimes in accordance with statutes and state protocols either requiring or allowing media witnesses.³⁰⁶ Moreover, the *Sims* court contradicts its own conclusions when it quotes for support a portion of *LaGrand v. Lewis*³⁰⁷ which refers specifically to "eye-witness reports" of two lethal injections that confirm "the finding that the condemned lose consciousness within seconds, and death occurs with minimal pain within one to two minutes."³⁰⁸ The *Sims* court's conclusions regarding newspaper accounts disregard two critical criteria: (1) accepted legal standards concerning the significance of media witnesses, and (2) the court's own evidence for finding lethal injection constitutional.³⁰⁹

B. An "Unnecessary and Wanton Infliction of Pain"³¹⁰

The most significant facet of the media case law on executions concerns the extent to which witnesses can see the earlier stages of the lethal injection process—specifically, the point at which the lethal chemicals begin to enter an inmate's body.³¹¹ For example, California now allows witnesses to view the procedure from the point just prior to the inmate "being immobilized," i.e., strapped to the gurney, to the point just after the inmate dies.³¹² However, acquiring this range in view was a legal struggle. Prison officials preferred that witnesses see the proceedings only after officials had strapped the inmate to the gurney and had inserted intravenous tubes.³¹³ Yet, the most serious problems with lethal injection executions oftentimes occur at the start of the procedure, especially when executioners try to find a suitable vein for the first injection.³¹⁴ Regardless, many execution protocols enforce strict limits on viewing witnesses.³¹⁵

In general, executioners strap the inmate to a gurney in the execution chamber, insert a catheter into a vein, and inject a nonlethal solution. After the reading of a death warrant, a lethal mixture is injected by one or more executioners or, depending upon the state, by a machine.³¹⁶ This entire procedure involves potential Eighth Amendment concerns that have not been sufficiently addressed by courts or legislatures. Moreover, given the breadth and scope of the potential difficulties associated with lethal injection, witnesses for the public should be available to monitor the inmate's last twenty-four hours (with due privacy protections of course)—including the last meal, the walk to the gurney, the tie down, intravenous injections, the pronouncing of death, and the removal of the corpse.³¹⁷

There are many practical reasons for suggesting a wide scope. First, prisoners differ in their physiological constitution as well as their drug tolerance and drug use histories; therefore, some prisoners may need a far higher dosage of sodium

thiopental than others “before losing consciousness and sensation.”³¹⁸ Inmates can experience substantial pain and suffering if they receive an inadequate dosage of sodium thiopental and therefore regain consciousness and sensation while being injected with the second and third chemicals.³¹⁹ For example, the procedure initially applied in Illinois required an amount of sodium thiopental that would be insufficient to produce unconsciousness in approximately twenty percent of the population.³²⁰ If the three chemicals are administered out of sequence—for example, pancuronium bromide is administered first—there is a near certainty that the inmate will experience excruciating pain during a lethal injection even without the outside appearance of pain because the pancuronium bromide paralyzes him.³²¹

Second, the discretion allowed prison officials in administering every procedure³²² enables executioners to ignore each prisoner’s physical characteristics (for example, age, body weight, health), even though these factors strongly affect an individual’s reaction to the chemicals as well as the condition of their veins.³²³ For example, physicians have particular difficulty finding suitable veins among individuals with diabetes, heavily pigmented skin, obesity, or extreme muscularity, as well as the very nervous or drug users.³²⁴ Nearly one quarter of prison inmates’ veins may be inaccessible “because they are deep, flat, covered by fat or damaged by drug use.”³²⁵

Third, medically trained people have enough difficulty finding a vein with certain individuals; for untrained executioners, the problems are compounded substantially.³²⁶ Executioners experiencing trouble finding a vein can unnecessarily insert the catheter: (1) into a sensitive area of the body, such as the groin³²⁷ or hand;³²⁸ (2) in the wrong direction so that chemicals flow away from the inmate’s heart and therefore hinder their absorption;³²⁹ (3) intramuscularly instead of intravenously.³³⁰ In some cases, executioners must perform a “cutdown,” a surgical procedure that exposes the vein if there is difficulty finding one.³³¹ In addition, if the inmate eats or drinks six-to-eight hours before the execution, he may choke or gag after the injection of sodium thiopental.³³²

Finally, lethal injection is considered the most humane method for the euthanasia of animals.³³³ However, the Humane Society firmly states that the chemicals must be injected by “well trained and caring personnel”³³⁴—a sharp contrast to the qualifications available for those executing death row inmates.

Over time, such difficulties have resulted in a high risk of lethal injection botches,³³⁵ which some experts contend “is the most commonly ‘botched’ method of execution in the United States.”³³⁶ Botches are particularly prevalent in Texas because of the state’s frequent and early use of the method.³³⁷ Even Leuchter contends that “about eighty percent” of the lethal injections in Texas “have had one problem or another,”³³⁸ although he does not document this estimate.

The execution errors in Texas are glaring and repetitive. For example, in 1985, Stephen Peter Morin waited forty minutes while executioners probed both of his arms and legs to find a vein suitable for the injection; in 1988, Raymond Landry also endured forty minutes of needle probing, shortly after which the catheter popped out of his vein and spurted the chemicals toward witnesses two feet across the room; and in 1989, Stephen McCoy’s violent physical reaction to the lethal injection drugs was so great (chest heaving, gasping, and choking) that one witness fainted while others gasped.³³⁹

The high percentage of botches in Texas appeared to be partly attributable to the dearth of written procedures provided to the executioners concerning how to perform an execution. Originally, these “procedures” listed little more than the chemicals to be used (in incorrect order of application) and a vague account of the content of the syringes. Moreover, there was no information specifying the nature and extent of the qualifications that executioners should have in order to perform an execution.³⁴⁰ After Stephen Morin’s 1985 botched execution, a prison spokesperson stated that the difficulty caused from inserting the needles “would probably prompt the Texas Department of Corrections to review its procedures for administering the drugs when the condemned person has a history of drug abuse.”³⁴¹ Notably, the Texas Department of Corrections has never changed its procedures to accommodate the special injection problems associated with damaged veins.³⁴² Indeed, a botched execution attributable to an inmate’s unsuitable veins occurred each year following Morin’s execution until Landry’s botched execution.³⁴³ Texas continues to have difficulties starting intravenous injections in former drug users.³⁴⁴ These problems also occur in other states.³⁴⁵ Georgia is now the most pronounced example of the problems that can result when executioners are ignorant and inexperienced.³⁴⁶

C. “Physical Violence” and Offends “Human Dignity”

Lethal injection does not entail mutilation in the same way as electrocution. Yet, lethal injection does offend an inmate's dignity in light of the accounts of botched lethal injections listed in Table 9³⁴⁷ and those discussed in this Part.

D. Evolving Standards and Legislative Trends

Legislative trends are moving exclusively in the direction of lethal injection.³⁴⁸ Regardless, there are significant issues concerning lethal injection that bear on the standards of decency factor. Most predominant is the ongoing stance by the American Medical Association's (AMA) Council on Ethical and Judicial Affairs, which prohibits physicians' participation in executions.³⁴⁹ Although the Council's position pertains to all methods of execution, it is particularly applicable to lethal injection, which requires relatively more medical skill³⁵⁰ and has long been affiliated with the medical profession.³⁵¹

The question of what does and should constitute physician involvement in executions is controversial.³⁵² The AMA and state medical associations have publicly condemned physician participation in lethal injection executions, stating that a physician's role should be limited to the pronouncement of death.³⁵³ In the past, some states had attempted to solve this dilemma by employing Leuchter's lethal injection machines in which syringes are activated by a mechanical plunger.³⁵⁴ Yet, Leuchter's reputation has since been destroyed³⁵⁵ and no state lethal injection protocol that this author studied mentions the use of a machine.³⁵⁶ In turn, a number of state statutes are extremely vague on the subject of the procedure to be used and the involvement of medical personnel.³⁵⁷

This situation is unlikely to change, which raises a number of contentious issues. For example, is it unethical for the medical profession to loan its instruments to the state for the purposes of execution?³⁵⁸ Is it wrong for physicians to be present at a lethal injection execution even if they could prevent a mishap that could prolong the pain and death of an inmate?³⁵⁹ While some commentators raise concerns that medical involvement may inappropriately "sanitize or humanize executions,"³⁶⁰ others warn that if physicians relinquish involvement in executions to less trained individuals, there could be far greater inhumanity.³⁶¹ A fringe of commentators compare the condemned inmate's situation to that of the terminally ill because neither has a recourse for living. Physicians are responsible for ensuring that the terminally ill die as smoothly and as painlessly as possible. Should inmates have comparable treatment?³⁶² Would it be cruel and unusual to afford anything less?

Regardless of these kinds of debates and the stance of the medical societies, physicians do participate in lethal injection executions in different ways.³⁶³ Since 1977, for example, physicians have been part of every stage of an execution, "whether preparing for, participating in, or monitoring executions or attempting to harvest prisoners' organs for transplantation."³⁶⁴ While physicians find some stages more acceptable than others, a substantial minority are involved in every possible stage. In 2001, a cross-sectional survey of 413 practicing physicians showed that forty-one percent of the respondents were willing to perform at least one action involving capital punishment by lethal injection that was disallowed by the American Medical Association.³⁶⁵ The proportion agreeing to perform a disallowed action ranged from the 19% who were willing to administer the lethal chemicals to the 36% who were willing to determine death.³⁶⁶

The next Part of this article discusses in greater depth the medical problems with state delegation of death in the context of lethal injection by examining all lethal injection protocols in use in this country in the first half of 2001. The Part focuses on the problems that prison officials face in having to enforce a punishment deemed acceptable in theory by legislatures but extremely difficult to apply in practice.³⁶⁷

VI. STATE DELEGATION OF LETHAL INJECTION

This Part reports the author's study of lethal injection protocols in the thirty-six states that used lethal injection as an execution method in 2001. Lethal injection protocols or information about them were gathered in at least one of three major ways, summarized in Tables 19 and 20:³⁶⁸ (1) by mail, which was forwarded by a prison official; (2) by website, in those states that had them; and (3) by e-mail or phone communication, in those states that had no available protocol or when the protocol that was available had missing information that could not be obtained in any other way except by telephone or e-mail. This Part concludes that because of the extremely vague nature of lethal injection statutes, prison officials have far too much discretion in administering injections.

A. *Missing Protocols and Missing Information*

One of the most striking aspects of studying lethal injection protocols concerns the sheer difficulty involved in acquiring them. As Table 11 shows, in four states, prison officials explained by phone or by e-mail that information concerning the types of chemicals used in their lethal injection executions was confidential.³⁶⁹ Yet, two of these four states—Virginia and South Carolina—ranked high, second and eighth respectively, among those states with the most number of executions since 1976; indeed, Virginia was second only to Texas.³⁷⁰ In three other states—Kansas, Kentucky, and New Hampshire—officials explained that the information on lethal injection chemicals does not exist; for Kansas and New Hampshire, there is no protocol because there is no prospect of having an execution any time soon.³⁷¹ While on the surface such a rationale seems understandable since neither state has executed anyone for decades,³⁷² it makes it impossible to conduct a complete evolving standards of decency analysis of execution methods. If a state is going to have a death penalty with a certain method of execution, the details of that execution method should be provided. Moreover, Kentucky does engage in executions with some regularity;³⁷³ there is no reason why the state does not have a protocol.

As Tables 11 and 12 show, not surprisingly, the great majority (twenty-seven) of the states use the standard three lethal injection chemicals: sodium thiopental, pancuronium bromide, and potassium chloride. Nineteen, or 70% of these states and 53% of all states, also specifically mention the use of a saline solution in their protocol.³⁷⁴ This is important because, if the lethal injection lines are not properly flushed through with a solution such as saline, “flocculation” (clogging) can occur, as some of the protocols warn.³⁷⁵ Notably, North Carolina’s and New Jersey’s decision to use only two—rather than all three—chemicals, can have a bearing on how the execution proceeds.³⁷⁶ Of particular interest is the fact that although both states use sodium pentothal as their first chemical, they do not use the same second chemical. In North Carolina, where the second chemical is pancuronium bromide, a prisoner would take far longer to die (as much as twenty minutes) because potassium chloride kills so much more quickly. In New Jersey, where the second chemical is potassium chloride, the prisoner may die far more quickly, but the death may not be as still or “serene” as in other states because the prisoner will not be paralyzed. At the same time, there is not the prospect that a prisoner will be paralyzed in pain and unable to scream out—a potential reality in every other state.³⁷⁷

A closer look at New Jersey’s lethal injection practice suggests, however, that statutes may not reflect the reality of an execution when power is delegated to prison officials. For example, the New Jersey Department of Corrections has stated consistently over the years that it plans to use three drugs when administering a lethal injection, including one to stop breathing.³⁷⁸ This approach indicates that, contrary to statute, pancuronium bromide or a chemical similar to it will in fact be administered.

B. *Problems with the Quantities of Lethal Injection Chemicals*

Tables 13–15 show the additional kinds of details that states provide in their protocols beyond simply listing chemicals. According to Tables 13 and 14, only nine states—or one-quarter of all death penalty states—specify the quantity of the lethal injection chemicals that they use.³⁷⁹ In other words, those states that merely list their chemicals give no indication of whether executioners are injecting sufficient quantities of those chemicals, much less whether they are injecting the chemicals in the correct order. Nor is there any indication that executioners are avoiding flocculation and additional potential problems that witnesses may not be able to detect.

Table 15 lists the nine states that do specify the quantities of chemicals that executioners are supposed to use in lethal injection executions.³⁸⁰ However, a close examination of Table 15 shows that simply because a state lists the quantities of chemicals that it uses does not mean that it provides such information properly. In order to determine the proper concentration of lethal injection chemicals, chemical quantities should be designated two ways: (1) by weight, which is indicated by grams (gm) or milligrams (mg), and (2) by volume, which is indicated by cubic centimeters (cc) or milliliters (ml). One needs to know both the weight of a chemical and the volume of diluent to determine the chemical’s effectiveness. The volume of diluent for chemicals should be (1) at least large enough so that all the chemicals will be dissolved, and (2) sufficiently dilute so that it will not irritate the inmate’s vein and cause that inmate pain. For example, 2.5 gm of thiopental sodium is lethal; however, that amount will merely end up as precipitated sludge if there is an attempt to dissolve it in 5 ml. If there is an attempt to dissolve the 2.5 gm of thiopental sodium in 50 ml, the resulting solution will be very irritating to the inmate’s veins and therefore painful. However, dissolving 2.5 gm in 100 ml would create an effective concentration.

An examination of California's chemical quantities in Table 15 provides a good illustration of the limited amount of information that state lethal injection protocols offer. The California protocol indicates that the executioner first injects five grams of sodium pentothal (weight) in 20–25 cc of diluent (the diluent is a normal saline solution). This amount of sodium thiopental is more than enough to kill any human being. Thus, the concentration of the injection is “sufficient” at the very least; a twenty percent concentration of sodium thiopental can burn when it goes into the vein. Like most states, California has two additional chemicals to ensure death: pancuronium bromide and potassium chloride. As Table 15 shows, however, there is no designation of weight for either chemical, only volume (cc's). Therefore, it is impossible to know how much California executioners inject.

Similarly, all the chemical designations for Tennessee mention only volume (cc's) and not weight. There is not enough information to determine the adequacy of Tennessee's protocol.

Florida's chemical specifications are accurate, but incomplete, demonstrating a problem that is the converse to California and Tennessee. According to many anesthesiologists, “no less than” two grams of sodium pentothal is enough to put even a very resistant person into a long, deep, sleep;³⁸¹ however, Florida's protocol does not mention the volume of fluid used to dissolve the sodium pentothal. Nor does it mention the amount of fluid used to dissolve the pancuronium bromide and potassium chloride. Therefore, in Florida, the concentrations of all three chemicals are unknown.

In contrast to California, Florida, and Tennessee, the weights and volumes for all three lethal injection chemicals in the protocols for Connecticut, Mississippi, New Mexico, and Washington are predictably lethal. Of all the states included in Table 15, however, Connecticut has the most technically sophisticated protocol. The amounts provided are described in a scientific way and the protocol refers both to volume (ml) and to weight (mg), as well as to “mEq” (milliequivalent), a sound technical description. The doses administered in Connecticut are certainly enough to kill even a very resistant person.

For Mississippi, the amounts and descriptions of all three chemicals also seem lethal per syringe. However, the Mississippi protocol's reference to two syringes for pavulon and three syringes for potassium chloride creates considerable confusion regarding how officials actually administer the injection. The Mississippi Department of Corrections representative was unable to elaborate further,³⁸² making the protocol difficult to evaluate.

The North Carolina protocol specifies the weight for sodium pentothal (typically far more than sufficient). However, the rest of the protocol's description is very confusing. For example, the same protocol provides the unit of liquid for pavulon, but not the weight. The concentration is unknown.

In Montana, the amount of sodium pentothal is not a lethal dose; it is one-fourth or less than that used in other states. Therefore, if the pancuronium bromide is effective while the sodium pentothal is wearing off, the inmate would be paralyzed but awake. In turn, the Montana protocol refers only to ampules for the pavulon and the potassium chloride, so that the concentration of either chemical is unknown.

Overall, there is inordinate variation and incompleteness across the nine states that provide quantities of lethal injection chemicals in Table 15. Note that Table 15 does not list those states where most lethal injection executions have been performed (those among the top five) and lists only two states that have had at least five lethal injection executions between 1977–1999 (North Carolina and California).³⁸³ Whereas Montana and Washington have had two and one lethal injection executions, respectively, between 1977–1999, the remaining states listed in Table 15 did not have any (Connecticut, Florida, Mississippi, New Mexico, and Tennessee).³⁸⁴ Paradoxically, then, those states with the most number of lethal injection executions are the least informative about how they perform executions. In contrast, those states that have among the fewest lethal injection executions, or who had not lethally injected anyone at all during this time period, are the most informative.

Simply because some states specify the amounts of their chemicals, however, does not mean that their efforts are valid and reliable. Those states that do provide quantities of injection chemicals vary so widely in terms of their doses and instructions, it is not surprising that botched executions result. Furthermore, with rare exceptions, there is no information available on who measures the chemicals or even whether the executioner gives the full amount of chemical quantities that are indicated. For example, even if an execution takes place in a state that appears to have some sophistication in listing its chemicals (for example, Connecticut), there is no assurance that the executioner actually injects what the Connecticut protocol lists. The practice in New Jersey suggests that prison officials may not even follow what the state legislature dictates, much less what the lethal injection protocol may describe.³⁸⁵ As the following section discusses, protocols mention little to nothing about the medical expertise of the executioners.

C. Executioners and Execution Procedures

The thirty-six lethal injection states provide minimal information in their protocols on the quality or training of those individuals selected to execute an inmate (Table 17). Fourteen states—or approximately 39% of all the states³⁸⁶—for example, mention “training” or “competency” or “preparation” or “practice” for the executioners. Moreover, even among

those states that mention some training, there is little to no indication of what kind of preparation the department of corrections offers. Likewise, only eight states give any direction concerning how an executioner should proceed if there are serious, foreseeable, or unexpected problems with the execution procedure or with the inmate: (1) Florida (if death does not occur initially), (2) Georgia (if a suitable vein cannot be found), (3) Indiana (if an inmate has “extremely small veins”), (4) New Jersey (if a vein cannot be found, warns that medication “must not be rapidly or sporadically injected,” and directs that executioners should provide life saving techniques if a stay is called), (5) New Mexico (warns that flocculation can occur if sodium pentothal is not flushed from the line and recommends using the other injection tube), (6) New York (warns that if sodium pentothal is not flushed from the line, flocculation may occur if it mixes with the pavulon), (7) Tennessee (if death does not occur initially), and (8) Washington (notes that the “condemned’s file is examined to see if any special instructions may be required”).³⁸⁷

Ironically, the mere fact that the protocols in eight states warn executioners of problems, suggests that prison officials are aware of the hazards involved if ill-trained individuals administer a lethal injection. An experienced anesthetist would not need such warnings, or surely not in the context of a written protocol to be learned at the time of the execution. Furthermore, the remaining states basically say nothing about preventing problems.

Criteria for selecting or training executioners in these states appear to be nonexistent. In eight states, the executioners are anonymous department of corrections staff members,³⁸⁸ whereas in five states, the warden or commissioner selects executioners without specifying if they are staff members.³⁸⁹ Five other states simply mention the number of people on an execution team or the mere fact that there is a team.³⁹⁰ Only Arkansas relies on “unpaid volunteers.”³⁹¹ In turn, eight states³⁹² do not provide any information whatsoever. Regardless of such silence about training, state protocols also are lax on giving directions concerning what executioners should do if there is a stay of execution. For example, seventeen states do not indicate whether they have phone lines in effect for the governor or other individuals to call to stop an execution.³⁹³

In some states, it is unclear who is to pronounce death when the execution goes through, or whether there is any involvement of medical personnel, particularly physicians. Because of the significance of physician contributions, Table 17 examines lethal injection protocols as well as all state statutes specifying the involvement of medical personnel in executions. For most (twenty-seven) states, the protocols overlapped substantively with the statutes. In nine states, however, the statutes offered some additional information.³⁹⁴ Regardless of the source (protocol or statute), in eight states, there is no mention that medical personnel are to participate in any way, even in pronouncing death.³⁹⁵ If only protocols are examined for this information and not statutes, this figure would rise to fifteen states.³⁹⁶ Relying on both protocols and statutes, Table 17 shows that physicians are present to declare or “pronounce” death in thirteen states,³⁹⁷ a coroner pronounces death in five states,³⁹⁸ and the warden or deputy commissioner in one state.³⁹⁹ In South Dakota, there is a required post-mortem exam and report.⁴⁰⁰ Only Florida states specifically that a pharmacist prepares the lethal injection.⁴⁰¹ In general, states allow for substantial physician participation, although the roles are limited, at least officially.

There is strikingly little information on the time of the last meal and the time of the execution (Table 16).⁴⁰² The length of time between the meal and the execution is important because if the inmate ingests food or drink six-to-eight hours before the execution, the inmate may choke or gag when sodium thiopental is injected.⁴⁰³ There are six states that provide some information on this time frame:⁴⁰⁴ (1) Indiana, five-to-six hour span; (2) New Jersey, not less than eight hours; (3) Ohio, approximately six hours; (4) Oregon, approximately six hours; (5) Texas, approximately two-to-three hours; and (6) Virginia, not less than four hours.⁴⁰⁵ Ironically, Texas and Virginia, the states with the highest numbers of lethal injection executions,⁴⁰⁶ have the shortest time span between the meal and the execution (of those states that mention any time span), and neither time span even approximates the six-to-eight hour parameter.

The next section examines the extent to which protocols allow or encourage witnesses to view an execution. This issue is particularly significant given the litigation brought by journalists concerning how much of a lethal injection they can watch.⁴⁰⁷

D. General Witnesses and Media Witnesses

Table 18 shows how many states have “general witnesses” for executions—individuals who include anyone from a family member to a physician to a corrections officer—as well as “media witnesses”—individuals who represent one or more of a broad range of media.⁴⁰⁸ The great majority of states specify that there should be general witnesses present for the execution,

although the types of witnesses vary substantially. Of the seven states that do not provide such specification, four have no protocol at all.⁴⁰⁹ Only two states omit any mention of general witnesses from the protocols they do have and one state (Nevada) indicates that the information is confidential.⁴¹⁰ Most states also allow for media witnesses, although eight of the states that provide for general witnesses do not mention explicitly whether they allow for media witnesses as well.⁴¹¹

Altogether, fourteen state protocols specified what media witnesses could view during an execution. None of these protocols echoed the liberal scope upheld by the court in *California First Amendment Coalition v. Woodford*,⁴¹² which allowed witnesses to see the entire lethal injection procedure, including the inmate being injected.⁴¹³ Rather, all fourteen protocols shield witnesses from the actual injection of the inmate and differ to the extent they cover other parts of the procedure. The protocols can be divided into four general categories (minor differences between them are presented in Table 18), ranging from the least restricted (1) to the most restricted (4) viewing:

(1) Witnesses arrive to view the execution before the execution team has inserted intravenous catheters into the inmate's arm. The curtain to the witness room is then closed only to be reopened after the intravenous catheters have been inserted into the inmate. The execution continues and, presumably, death is pronounced (Louisiana and Virginia).

(2) Witnesses arrive to view the execution after the execution team has inserted intravenous catheters into the inmate's arm and they stay to view until the inmate's death is pronounced (Colorado, Georgia, Mississippi, New Mexico, North Carolina, Oregon, South Dakota, and Texas).

(3) Witnesses arrive to view the execution after the execution team has inserted intravenous catheters into the inmate's arm and they stay to view until all the chemicals have been injected. The curtain is then closed and a physician is called in to pronounce death. After the physician pronounces death, the curtain is raised and there is an official pronouncement of death made to the witnesses (New York, Ohio, and Tennessee).

(4) Witnesses arrive to view the execution after the execution team has inserted intravenous catheters into the inmate's arm and they stay to view until all the chemicals have been injected. The curtain is then closed and the inmate's death is pronounced (Connecticut).

The four categories indicate that the primary distinction among them is whether witnesses are allowed to see the inmate die (categories one and two only). While this distinction may appear to be minor, the practical implications can be significant. Lethal injection botches can occur even if the injection procedure has been hidden from view or has seemingly gone smoothly (for example, the inmate may react to the chemicals). The following Part reviews the preceding sections of this article in the context of the Timothy McVeigh execution which, from most accounts, appeared quiet and serene except to some of those with a more trained eye.

VII. DISCUSSION: LETHAL INJECTION AND TIMOTHY MCVEIGH

This article discusses the paradoxical motivations behind legislative changes from one method of execution to the next. Legislatures and courts have consistently stated that the primary reason states switch execution methods is to ensure greater humaneness and decency for death row inmates.⁴¹⁴ Throughout history, however, it appears that such moves were prompted primarily because the death penalty itself became jeopardized due to a state's particular method—be it hanging, electrocution, or lethal gas.⁴¹⁵ The result has been a warped legal “philosophy” of punishment, at times peculiarly aligning both friends and foes of the death penalty alike. This “death-penalty goal” also has wrongly enabled legislatures to delegate death to uninformed prison personnel.

What frames this paradox are the competing and contradictory efforts by legal actors to abolish or expand the death penalty. Such wrangling has become all the more acute as states increasingly drop electrocution in order to adopt lethal injection.⁴¹⁶ For example, some death penalty proponents feel that electrocution better represents the retributive goal of the death penalty and that lethal injection is far too soft on criminals. This perspective was stunningly represented by Bob Butterworth, the Attorney General of Florida, who stated that Pedro Medina's horrendously botched electrocution⁴¹⁷ would serve as both a means of retribution and as a deterrent.⁴¹⁸ “People who wish to commit murder, they better not do it in the state of Florida because we may have a problem with our electric chair.”⁴¹⁹ Yet, Butterworth's pronouncements were consistent with this country's century-long tendency to use execution methods as a punishment device extending well beyond “death,” both symbolically and politically.⁴²⁰

Other death penalty proponents claim that lethal injection is not cruel enough. As the mother of one crime victim stated in an interview preceding the execution of her daughter's killer, lethal injection “is too quick. . . . He would need to suffer a little bit more according to what he gave [my daughter], which was a lot of suffering.”⁴²¹ Justice Scalia may have mirrored such

views when describing a gruesome case he considered particularly eligible for the death penalty—the rape and murder of an eleven-year-old girl.⁴²² “How enviable a quiet death by lethal injection compared to that!”⁴²³ At the same time, legislatures and courts are appealing to such anecdotal accounts from a vengeful minority; the majority of Americans in public opinion polls⁴²⁴ as well as some prison officials⁴²⁵ prefer lethal injection because they consider it to be the most humane method. Others view injection as an effective way to perpetuate the death penalty because it makes the process seem less gruesome.⁴²⁶

The dialogue surrounding the federal execution of Timothy McVeigh illustrates these tensions. The protocol for federal execution by lethal injection, which is not released to the public without a Freedom of Information Act request, uses the same three chemicals applied in most states.⁴²⁷ Because McVeigh’s death was so rapid,⁴²⁸ some witnesses complained that it was too painless as compared to that of his victims. “He didn’t suffer at all,” recounts one witness, but rather “just went to sleep.”⁴²⁹ In general, witnesses appeared to believe that McVeigh’s transition from life to death was “subtle”;⁴³⁰ the relaxing of his eyes and lips was the only indication of his “remarkably uneventful” death.⁴³¹

Other witnesses’ observations suggested, however, that McVeigh’s death was slightly more difficult. As the first injection occurred, McVeigh’s chest moved up and down, his lips puffed air out, his jaw clenched, and his eyes glassed over but remained open.⁴³² As the next two chemicals were injected, his skin turned pale yellow.⁴³³ The most dramatic account came from a media witness who recalled McVeigh’s eyes glassing over to the point of being watery as the injections were administered,⁴³⁴ a sign to some anesthesiologists that McVeigh may have been tearing due to pain.⁴³⁵

The point here is not to invoke sympathy for McVeigh, but rather to scrutinize the process by which he was executed and the inconsistencies surrounding it. On the one hand, the public outrage against McVeigh seemed limitless and death in the form of lethal injection too good for him.⁴³⁶ On the other hand, the impending execution educated the public about the lethal injection procedure itself and some of the potential hazards associated with it.⁴³⁷ For these reasons, some death penalty opponents consider lethal injection to be inhumane and not the “deep sleep” it appears to be.⁴³⁸ Although far less publicized, the events also gave some visibility to those who actually perform the executions and the toll it takes on them emotionally.⁴³⁹ Regardless of what side the public was on, lethal injection appeared to be a paradox revealing the complexities of the execution process as well as the death penalty itself.

VIII. CONCLUSION

The execution methods debate is played out in terms of legislative decision-makers, who oftentimes turn a blind eye to the concerns of those who actually have to kill.⁴⁴⁰ In turn, a considerable portion of doctors, nurses, and other medical personnel willingly participate in executions. Prison officials face the worst of both worlds: they have limited political clout by which to make their choices known, and minimal guidance provided by those who make the choices for them. The process is made all the more perplexing because those who report the problems with the system—media witnesses—have questionable credibility when experts attempt to use their accounts in court. “As a result,” in Foucault’s words, “justice no longer takes public responsibility for the violence that is bound up with its practice.”⁴⁴¹ The system becomes literally and symbolically unobservable. In the context of applying execution methods, when justice becomes unobservable, it ceases to exist.

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¹ Currently, five different types of execution methods are used in this country: hanging, firing squad, electrocution, lethal gas, and lethal injection. See *infra* app. 1, tbl.1. For a discussion of legislative changes in execution methods over time, see generally Deborah W. Denno, *Getting to Death: Are Executions Constitutional?*, 82 IOWA L. REV. 319 (1997) [hereinafter Denno, *Getting to Death*]; Deborah W. Denno, *Is Electrocution an Unconstitutional Method of Execution? The Engineering of Death over the Century*, 35 WM. & MARY L. REV. 551 (1994)

[hereinafter Denno, *Electrocution*].

² See generally MICHEL FOUCAULT, *DISCIPLINE AND PUNISH: THE BIRTH OF THE PRISON* (Alan Sheridan trans., 1977) [hereinafter FOUCAULT, *DISCIPLINE AND PUNISH*]. According to Foucault, the history of punishment is marked by increasing secrecy in which penalties “become the most hidden part of the penal process” and, as a result, “justice no longer takes public responsibility for the violence that is bound up with its practice.” *Id.* at 9. As a more modern commentator notes, what is considered “violent” is accompanied by limitations, even today. “Humane treatment simply does not offend human sensibilities, and therefore cannot be graphic, spectacular, or terroristic.” John W. Murphy, *Technology, Humanism and Death by Injection*, 11 PHIL. & SOC. ACTION 55, 56 (1985). The less passionate the method, the more humane it becomes because society appears to be guided by the exercise of reason, and its members characterized as rational actors. See MICHEL FOUCAULT, *MADNESS AND CIVILIZATION: A HISTORY OF INSANITY IN THE AGE OF REASON* 78 (Richard Howard trans., 1965). Electrocution was considered relatively less passionate than hanging because it appeared to be more a product of engineering. See generally Denno, *Electrocution*, *supra* note 1. Lethal injection appears to be a product of medicine and sanitized conditions. See generally Denno, *Getting to Death*, *supra* note 1.

³ DAVID GARLAND, *PUNISHMENT AND MODERN SOCIETY* 245 (1990).

⁴ The Eighth Amendment provides that “[e]xcessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.” U.S. CONST. amend. VIII.

⁵ See *infra* notes 111–17, 141–44, 152–54, 165–69, 210, 414, 424–25 and accompanying text.

⁶ See *infra* notes 9, 32–38, 57, 171, 203–04, 415 and accompanying text.

⁷ See, e.g., *infra* notes 145–58, 193–202 and accompanying text.

⁸ See *infra* notes 171, 417–20 and accompanying text.

⁹ See *infra* notes 172, 180–81, 210, 360, 426 and accompanying text; see also David Firestone, *Court to Rule on Method’s Constitutionality*, N.Y. TIMES, March 7, 2001, at A12 (noting that national opponents of the death penalty held “mixed feelings” about challenging the constitutionality of electrocution; although they oppose electrocution, several emphasized that lethal injection has been approved so overwhelmingly “precisely to make capital punishment more acceptable to the public”).

¹⁰ See *infra* notes 37–38, 171, 426 and accompanying text.

¹¹ See *infra* notes 171, 180–81 and accompanying text; see also David Crary, *Electric Chair’s Days Are Numbered as Cruelty Is Cited Punishment*, L.A. TIMES, Aug. 19, 2001, at A18.

¹² See *infra* notes 139–40, 424–26 and accompanying text.

¹³ See *infra* notes 139–40, 142, 424–26, 440 and accompanying text.

¹⁴ See *infra* notes 165–72 and accompanying text.

¹⁵ See *infra* notes 87, 275, 303–09 and accompanying text.

¹⁶ See *infra* notes 109–36 and accompanying text; app. 1, tbls.1–6.

¹⁷ Neil J. Farber et al., *Physicians’ Willingness to Participate in the Process of Lethal Injection for Capital Punishment*, 135 ANNALS INTERNAL MED. 884, 886 (2001); see also *infra* notes 349–64 and accompanying text.

¹⁸ Farber et al., *supra* note 17, at 886; see also *infra* notes 352, 363–66 and accompanying text.

¹⁹ Linda L. Emanuel & Leigh B. Bienen, *Physician Participation in Executions: Time to Eliminate Anonymity Provisions and Protest the Practice*, 135 ANNALS INTERNAL MED. 922, 922–24 (2001); see *infra* notes 349–62 and accompanying text.

²⁰ See *infra* notes 386–401 and accompanying text.

²¹ See *infra* notes 230, 241–42, 258, 261, 318–21, 377, 435 and accompanying text.

²² Deborah W. Denno, *Capital Punishment and the Human Rights Norm*, 9 CRIM. L. FORUM 171, 171 (1999) (reviewing WILLIAM A. SCHABAS, *THE DEATH PENALTY AS CRUEL TREATMENT AND TORTURE: CAPITAL PUNISHMENT CHALLENGED IN THE WORLD’S COURTS* (1996)); see also note 87 and accompanying text (emphasizing the worldwide notice and condemnation of Allen Lee Davis’s botched electrocution).

²³ See *infra* notes 74–80 and accompanying text.

²⁴ *Glass v. Louisiana*, 471 U.S. 1080, 1084 (1985) (Brennan, J., dissenting from denial of certiorari); see also *Furman v. Georgia*, 408 U.S. 238, 392 (1972) (Burger, C.J., dissenting) (“The dominant theme of the Eighth Amendment debates was that the ends of the criminal laws cannot justify the use of measures of extreme cruelty to achieve them.”).

²⁵ See *infra* app. 1, tbl.1.

²⁶ See *infra* app. 1, tbl.1.

²⁷ See *infra* app. 1, tbls.4–7; see also *infra* notes 131–36 and accompanying text.

²⁸ See *infra* app. 2 (Alabama and Nebraska).

²⁹ See *infra* app. 1, tbl.1; app. 2 (Florida, South Carolina, and Virginia).

³⁰ See *infra* app. 1, tbl.1; app. 2.

³¹ See *infra* app. 1, tbl.5 n.*, tbl.6 n.*.

³² See Denno, *Getting to Death*, *supra* note 1, at 321–27, 345–48.

³³ See generally Deborah W. Denno, *Adieu to Electrocution*, 26 OHIO N.U. L. REV. 665 (2000); Denno, *Getting to Death*, *supra* note 1; Denno, *Electrocution*, *supra* note 1.

³⁴ In *Fierro v. Gomez*, the Ninth Circuit unanimously held that California’s statute authorizing execution by lethal gas was unconstitutionally cruel and unusual. 77 F.3d 301, 309 (9th Cir. 1996), *vacated on other grounds*, 519 U.S. 918 (1996) (remanding for reconsideration in light of the changed statute). *Fierro* marked the first time in this country’s history that a federal appeals court had held any method of execution unconstitutional. *Id.* at 308 (stating that two circuit courts had found execution by lethal gas to be unconstitutional). Yet, the Court vacated the Ninth Circuit’s holding that lethal gas was unconstitutional in light of the California legislature’s subsequent amendment of the state’s death penalty statute allowing lethal injection to be used unless the death row inmate specifically requested lethal gas. See *Gomez*, 519 U.S. at 918 (remanding for reconsideration in light of changed statute). In *Stewart v. LaGrand*, 526 U.S. 115 (1999), the Court held that the death row inmate waived his claim that execution by lethal gas violated the Eighth Amendment because the inmate chose to be executed by lethal gas rather than lethal injection. *Id.* at 118–19.

³⁵ See *infra* notes 99–102 and accompanying text (discussing *Bryan v. Moore*, 528 U.S. 960 (1999) and *Bryan v. Moore*, 528 U.S. 1133 (2000)).

³⁶ See *infra* app. 2 (California and Florida).

³⁷ See Denno, *Getting to Death*, *supra* note 1, at 388–90.

³⁸ See *id.* at 363–72, 385–86.

³⁹ *Furman v. Georgia*, 408 U.S. 238, 263 (1972) (Brennan, J., concurring). The origin of the Eighth Amendment’s Cruel and Unusual Punishments Clause has been described in detail. See Harmelin v. Michigan, 501 U.S. 957, 973–79 (1991); *Furman*, 408 U.S. at 316–28 (1972) (Marshall, J., concurring); RAOUL BERGER, DEATH PENALTIES: THE SUPREME COURT’S OBSTACLE COURSE 29–58 (1982); Anthony F. Granucci, “*Nor Cruel and Unusual Punishments Inflicted*”: *The Original Meaning*, 57 CAL. L. REV. 839, 839–65 (1969) (examining the history of the Clause and the case law).

⁴⁰ 136 U.S. 436 (1890); see also Denno, *Getting to Death*, *supra* note 1, at 329–54; Denno, *Electrocution*, *supra* note 1, at 616–23.

⁴¹ *Kemmler*, 136 U.S. at 443.

⁴² Examples of such dismissals are categorized by execution method as follows. *Lethal gas*: *Hernandez v. State*, 32 P.2d 18, 24–25 (Ariz. 1934); *People v. Davis*, 794 P.2d 159, 173 (Colo. 1990); *State v. Kilpatrick*, 439 P.2d 99, 110 (Kan. 1968); *Calhoun v. State*, 468 A.2d 45, 70 (Md. 1983). *Lethal injection*: *People v. Stewart*, 528 N.E.2d 631, 639 (Ill. 1988); *Ex parte Granviel*, 561 S.W.2d 503, 510 (Tex. Crim. App. 1978). *Firing squad*: *People v. Anderson*, 493 P.2d 880, 890–91 (Cal. 1972); *Kilpatrick*, 439 P.2d at 110. *Hanging*: *Anderson*, 493 P.2d at 890; *DeShields v. State*, 534 A.2d 630, 640 (Del. 1987); *Kilpatrick*, 439 P.2d at 110.

⁴³ In 1885, the Governor of New York announced in his annual message to the legislature that:

[t]he present mode of executing criminals by hanging has come down to us from the dark ages, and it may well be questioned whether the science of the present day cannot provide a means for taking the life of such as are condemned to die in a less barbarous manner.

Kemmler, 136 U.S. at 444.

⁴⁴ 1886 N.Y. Laws ch. 352, § 1.

⁴⁵ CRAIG BRANDON, THE ELECTRIC CHAIR: AN UNNATURAL AMERICAN HISTORY 67–88 (1999); Denno, *Electrocution*, *supra* note 1, at 568–73.

⁴⁶ Denno, *Electrocution*, *supra* note 1, at 571.

⁴⁷ See BRANDON, *supra* note 45, at 89–133; Denno, *Electrocution*, *supra* note 1, at 577–83. Edison testified that death by electrocution would be quick and painless and that electricity would not mutilate the victim’s body. In contrast, Westinghouse reportedly financed William Kemmler’s appeal at a cost exceeding \$100,000. Both Edison and Westinghouse also relied on a series of experiments testing the effects of electrocution on animals, albeit emphasizing differing results. BRANDON, *supra* note 45, at 89–133; Denno, *Electrocution*, *supra* note 1, at 573–83.

⁴⁸ Denno, *Electrocution*, *supra* note 1, at 580–81.

⁴⁹ *Id.* at 574–77.

⁵⁰ See Denno, *Getting to Death*, *supra* note 1, at 334. For examples of cases that incorrectly state that *Kemmler* analyzed and applied the Eighth Amendment, see, for example, *McCleskey v. Kemp*, 481 U.S. 279, 299 (1987); *Johnson v. Glick*, 481 F.2d 1028, 1031 (2d Cir. 1973); *Bailey v. Lally*, 481 F. Supp. 203, 218 (D. Md. 1979); *Thompson v. State*, 542 So. 2d 1286, 1298 (Ala. Crim. App. 1988), *aff’d*, 542 So. 2d 1300 (Ala. 1988).

⁵¹ The New York courts had required the prisoner to show “beyond doubt” that the execution method was cruel and unusual. *In re Kemmler*, 136 U.S. 436, 442 (1890).

⁵² Courts, such as *Provenzano v. Moore*, typically fail to identify the burden of proof when reviewing the constitutionality of execution methods. 744 So. 2d 413, 416–19 (Fla. 1999) (per curiam). However, the burden of proof that courts cite most frequently—preponderance of the evidence—is far less stringent than the “beyond doubt” standard stated in *Kemmler*. See Denno, *Getting to Death*, *supra* note 1 at 335; see also

Walton v. Arizona, 497 U.S. 639, 649–51 (1990) (plurality opinion) (upholding Arizona’s imposition on defendants the burden of establishing, “by a preponderance of the evidence, the existence of mitigating circumstances sufficiently substantial to call for leniency” in order to avoid the death penalty after the establishment of one or more aggravating factors); Blake v. Hall, 668 F.2d 52, 57 (1st Cir. 1981) (determining that plaintiffs had failed to establish by “a fair preponderance of the evidence” that cell conditions at a prison constituted cruel and unusual punishment); McGill v. Duckworth, 726 F. Supp. 1144, 1148–49 (N.D. Ind. 1989) (discussing the applicability of the preponderance of the evidence standard in suits against prison officials for failing to protect a prison inmate from attack by another inmate), *aff’d in part and rev’d in part*, 944 F.2d 344 (7th Cir. 1991); Martin v. Foti, 561 F. Supp. 252, 257 (E.D. La. 1983) (noting that plaintiffs had “failed to show by a preponderance of the evidence” that conditions were cruel and unusual).

⁵³ See *Kemmler*, 136 U.S. at 442–43 (quoting the New York Supreme Court’s explanation of why it deferred to the legislature).

⁵⁴ See generally BRANDON, *supra* note 45; Denno, *Electrocution*, *supra* note 1, at 559–607.

⁵⁵ See generally BRANDON, *supra* note 45, at 160–204. A *New York Times* reporter’s account of Kemmler’s August 6, 1890, execution explains some of the problems that occurred:

After the first convulsion there was not the slightest movement of Kemmler’s body. . . . Then the eyes that had been momentarily turned from Kemmler’s body returned to it and gazed with horror on what they saw. The men rose from their chairs impulsively and groaned at the agony they felt. “Great God! he is alive?” some one said; “Turn on the current,” said another

Again came that click as before, and again the body of the unconscious wretch in the chair became as rigid as one of bronze. It was awful, and the witnesses were so horrified by the ghastly sight that they could not take their eyes off it. The dynamo did not seem to run smoothly. The current could be heard sharply snapping. Blood began to appear on the face of the wretch in the chair. It stood on the face like sweat. . . . An awful odor began to permeate the death chamber, and then, as though to cap the climax of this fearful sight, it was seen that the hair under and around the electrode on the head and the flesh under and around the electrode at the base of the spine was singeing. The stench was unbearable.

Far Worse Than Hanging, N.Y. TIMES, Aug. 7, 1890, at 1. For a fascinating historical account of the press’s attempts to cover executions in New York, see Michael Madow, *Forbidden Spectacle: Executions, the Public and the Press in Nineteenth Century New York*, 43 BUFF. L. REV. 461 (1995).

⁵⁶ See BRANDON, *supra* note 45, at 205–43; Denno, *Electrocution*, *supra* note 1, at 598–676.

⁵⁷ See Denno, *Getting to Death*, *supra* note 1, at 388–94.

⁵⁸ 237 U.S. 180, 185 (1915) (concluding that the State’s implementation of death through electrocution, rather than hanging, did not increase the punishment of murder but only changed its mode).

⁵⁹ 329 U.S. 459 (1947) (plurality opinion). In *Francis*, the issue was not whether electrocution was per se unconstitutional, but whether the State of Louisiana could constitutionally execute the appellant after the electric chair had malfunctioned during the first attempt. *Id.* at 461. In examining the circumstances of *Francis* “under the assumption, but without so deciding” that the Eighth Amendment applied, a plurality of four Justices interpreted the Cruel and Unusual Punishments Clause as prohibiting only the “inflict[ion of] unnecessary pain,” not the suffering created in an “unforeseeable accident.” *Id.* at 462, 464. The Justices thus assumed that state officials performed “their duties . . . in a careful and humane manner.” *Id.* at 462. Justice Frankfurter explained, however, that his deciding fifth vote did “not mean that a hypothetical situation, which assumes a series of abortive attempts at electrocution . . . would not raise different questions.” *Id.* at 471 (Frankfurter, J., concurring).

⁶⁰ 370 U.S. 660 (1962).

⁶¹ *Id.* at 666. In *Furman v. Georgia*, Justice Douglas relied on both *Robinson* and *Francis* to conclude that the Eighth Amendment’s applicability to the states is “now settled.” 408 U.S. 238, 241 (1972) (per curiam) (Douglas, J., concurring).

⁶² *Trop v. Dulles*, 356 U.S. 86, 101 (1985) (plurality opinion); see also *Stanford v. Kentucky*, 492 U.S. 361, 369 (1989); Denno, *Getting to Death*, *supra* note 1, at 337–38.

⁶³ *Weems v. United States*, 217 U.S. 349, 373 (1910).

⁶⁴ *Stanford*, 492 U.S. at 369 (quoting *Gregg v. Georgia*, 428 U.S. 153, 171 (1976)).

⁶⁵ *Trop*, 356 U.S. at 101.

⁶⁶ *Robinson v. California*, 370 U.S. 660, 666 (1962).

⁶⁷ See, e.g., *Poyner v. Murray*, 508 U.S. 931, 933 (1993) (Souter, J., joined by Blackmun & Stevens, JJ., concurring in denial of certiorari) (emphasizing that *Kemmler* was not “a dispositive response to litigation of the issue [of the constitutionality of electrocution] in light of modern knowledge”).

⁶⁸ *In re Kemmler*, 136 U.S. 436, 447 (1890).

⁶⁹ For a discussion of how courts have assessed whether a state’s particular execution method is unconstitutionally vague, see *infra* notes 73, 247, 273–74, 282–83, 357 and accompanying text. These unconstitutionally vague statute cases have focused primarily on lethal gas and lethal injection, discussed *infra* notes 247, 273–74, 282–83, 357 and accompanying text (lethal injection cases). The lethal gas cases are examined briefly in this footnote because challenges to the vagueness of lethal gas statutes have provided precedent for the challenges to the vagueness of lethal injection statutes. Regardless, no court has upheld a statutory vagueness challenge. For example, in *State v. Gee Jon*, 211 P. 676, 682 (Nev. 1923), the court emphasized two points: (1) the legislature “sought to provide a method of inflicting the death penalty in the most humane manner known to modern science,” *id.*; see also Robert A. Maurer, *Death by Lethal Gas*, 9 GEO. L.J. 50, 51 (1921) (noting that “it would appear that the Nevada statute would be upheld as another attempt by a legislature to find a still more humane method of execution than by electrocution and the other methods now in use”); and (2) prison officials administering the gas would also “carefully avoid inflicting cruel punishment” when selecting the type of gas to use, because it was unspecified in the statute. See *Gee Jon*, 211 P. at 682; see also *Hernandez v. State*, 32 P.2d 18, 25 (Ariz. 1934)

(“The fact that [lethal gas] is less painful and more humane than hanging is all that is required to refute completely the charge that it constitutes cruel and unusual punishment.”); *People v. Daugherty*, 256 P.2d 911, 922 (Cal. 1953) (declining defendant’s contention that lethal gas is cruel and unusual because executioners “could use a lethal gas which would cause long and cruel suffering”); Raymond Hartmann, *The Use of Lethal Gas in Nevada Executions*, 8 ST. LOUIS U. L.J. 167, 168 (1923) (expressing support for the Nevada statute despite concerns that the lack of specification for the type of gas might introduce error on the part of prison officials, who may inadvertently select a type of gas that would inflict pain and suffering).

⁷⁰ The two states are Alabama and Nebraska. ALA. CODE § 15-18-82(a) (1975) (“[T]he sentence shall be executed . . . by causing to pass through the body of the convict a current of electricity of sufficient intensity to cause death, and the application and continuance of such current through the body of such convict shall continue until such convict is dead.”); NEB. REV. STAT. § 29-2532 (1943) (“[Death] shall be by causing to pass through the body . . . a current of electricity of sufficient intensity to cause death.”); *see also infra* app. 1, tbl.1; app. 2 (Alabama and Nebraska).

⁷¹ The three states—Florida, South Carolina, and Virginia—allow a choice between electrocution and lethal injection. *See infra* app. 1, tbl.1; app. 2 (Florida, South Carolina, and Virginia). Only the electrocution provisions in their respective statutes are cited here. *See* FLA. STAT. ANN. § 922.105(1) (West 2000) (“A death sentence shall be executed by lethal injection, unless the person sentenced to death affirmatively elects to be executed by electrocution.”); S.C. CODE ANN. § 24-3-530 (A) (Law Co-op. 1993) (amended 1995) (“[The condemned] shall suffer the [death] penalty by electrocution”); VA. CODE ANN. § 53.1-233 (Michie 1994) (“The death chamber shall have all the necessary appliances for the proper execution of prisoners by electrocution.”). Arkansas allows pre-enactment prisoners a choice between electrocution and lethal injection. *See infra* app. 1, tbl.10 (Type 4—Arkansas). However, only two inmates remain who can make that choice. *See infra* app. 2 (Arkansas). Because of the limited potential for the use of electrocution in Arkansas, this article does not consider Arkansas a choice state.

⁷² *See supra* note 71 (The three states are Florida, South Carolina, and Virginia.).

⁷³ *See* Denno, *Getting to Death*, *supra* note 1, at 352–53 (reviewing the issue of statutory vagueness in the context of electrocution statutes).

⁷⁴ *Gregg v. Georgia*, 428 U.S. 153, 173 (1976); *Louisiana ex rel. Francis v. Resweber*, 329 U.S. 459, 463 (1947) (plurality opinion).

⁷⁵ *Trop v. Dulles*, 356 U.S. 86, 100 (1958) (plurality opinion).

⁷⁶ *Glass v. Louisiana*, 471 U.S. 1080, 1085 (1985) (Brennan, J., dissenting).

⁷⁷ *Farmer v. Brennan*, 511 U.S. 825, 842 (1994) (in terms of a standard of deliberate indifference, referring to a risk that is “longstanding, pervasive, well-documented, or expressly noted by prison officials in the past, and the circumstances suggest that the defendant-official . . . had been exposed to information concerning the risk and thus ‘must have known about it.’”). Even though the *Farmer* Court’s standard pertains to the risk of inmate attacks, the Court did not suggest that the standard should be limited only to this circumstance. Furthermore, the likelihood of a botched execution can be estimated far more accurately than the likelihood of an inmate attack, given that the former is based on more readily identifiable and objective criteria. *See also* *Glass*, 471 U.S. at 1093 (Brennan, J., dissenting) (noting that even if electrocution did not “invariably produce pain and indignities, the apparent century-long pattern of ‘abortive attempts’ and lingering deaths suggests that this method of execution carries an unconstitutionally high risk of causing such atrocities”).

⁷⁸ *Stanford v. Kentucky*, 492 U.S. 361, 369 (1989) (quoting *Coker v. Georgia*, 433 U.S. 584, 592 (1977) (plurality opinion)).

⁷⁹ *Fierro v. Gomez*, 865 F. Supp. 1387, 1410 (N.D. Cal. 1994), *aff’d*, 77 F.3d 301 (9th Cir. 1996), *vacated on other grounds*, 519 U.S. 918 (1996) (remanding for reconsideration in light of the changed statute).

⁸⁰ *Fierro*, 865 F. Supp. at 1400–01.

⁸¹ *Fierro v. Gomez*, 77 F.3d 301, 308 (9th Cir. 1996), *vacated on other grounds*, 519 U.S. 918 (1996) (remanding for reconsideration in light of the changed statute). Given the scientific uncertainty concerning measurements of pain and unconsciousness, the *Fierro* district court found to be probative, “to varying degrees,” all the evidence of eyewitness observations of gas chamber executions. *Fierro v. Gomez*, 865 F. Supp. 1387, 1400 (N.D. Cal. 1994). The court particularly considered as “objective” and “reliable sources of clinical information,” the San Quentin execution records produced contemporaneously with the actual executions by trained medical personnel closely observing the inmates. *Id.* at 1400–01. The execution records of two recently executed inmates were deemed “the most probative evidence of pain and consciousness” because the men were executed under the protocol being challenged. *Id.* at 1401.

⁸² *See* Denno, *Getting to Death*, *supra* note 1, at 354–58 (summarizing available medical publications, eyewitness reports, and affidavit testimony).

⁸³ *See infra* app. 1, tbl.8.

⁸⁴ 428 U.S. 153 (1976).

⁸⁵ *Id.* at 168–207.

⁸⁶ Sherwin B. Nuland, M.D., *Cruel and Unusual*, N.Y. TIMES, Nov. 9, 1999, at A25 (“Even when it functions exactly as it should, the electric chair is a brutal killer.”). *See generally* SHERWIN B. NULAND, HOW WE DIE: REFLECTIONS ON LIFE’S FINAL CHAPTER (1993) (discussing different methods of death and the pain associated with them).

⁸⁷ *Amnesty Calls for Death Penalty Abolition, Following Grisly Execution*, AGENCE FRANCE-PRESSE (Paris, Fr.), July 9, 1999, at 1; Joe Carroll, *US Death Sentence Ruling Defies Ratified UN Treaty*, IRISH TIMES (Dublin, Ir.), Nov. 3, 1999, at 12; Roberta Harrington, *Death Penalty Debate Sparked*, SUNDAY HERALD (Glasgow, Scot.), Nov. 28, 1999, at 16; Julie Hauserman, *Lethal Injection is Signed into Law*, ST. PETERSBURG TIMES, Jan. 5, 2000, at 1A; *Madrid Demonstrators Protest Death Sentence*, PRESS JOURNAL (Vero Beach, Fla.), Nov. 3, 1999, at A11; *Millions Flock to US Execution Site*, THE SCOTSMAN (Edinburgh, Scot.), Nov. 1, 1999, at 22; Michael Peltier, *Death Pictures Pique Interest Worldwide*, PRESS JOURNAL (Vero Beach, Fla.), Oct. 25, 1999, at A8; David Osborne, *Is the End in View for Old Sparky?*, THE INDEPENDENT (London, Eng.), Jan. 9, 2000, at 20.

[88](#) *Provenzano v. Moore*, 744 So. 2d 413, 442–44 (Fla. 1999) (Shaw, J., dissenting).

[89](#) *Millions Flock to US Execution Site*, *supra* note 87; Peltier, *supra* note 87; Osborne, *supra* note 87.

[90](#) *Provenzano*, 744 So. 2d at 433–34 (Shaw, J., dissenting).

[91](#) *Id.*

[92](#) Brief for Petitioner at 3, *Bryan v. Moore*, 528 U.S. 960 (1999) (citations omitted).

[93](#) *Id.*

[94](#) *Provenzano*, 744 So. 2d at 434 (Shaw, J., dissenting).

[95](#) *Id.* at 416.

[96](#) *Id.*

[97](#) 701 So. 2d 76, 79 (Fla. 1997).

[98](#) *Provenzano*, 744 So. 2d at 415.

[99](#) 528 U.S. 960 (1999).

[100](#) *Id.* However, it was unclear why the Court made such a move after all these years. There were a range of views: (1) the Court wanted to declare electrocution constitutional once and for all, to end the seemingly ceaseless stream of appeals challenging the method's constitutionality over the years; (2) the Court in particular wanted to examine the constitutionality of Allen Lee Davis's execution in light of Florida's history of botched executions; or (3) the Court wanted to examine whether electrocution in general, as well as applied specifically in Florida, was constitutional. This broad scope necessitated a sufficiently wide focus for challenging the constitutionality of electrocution, beginning with the method's history.

[101](#) *Bryan v. Moore*, 528 U.S. 1133 (2000); *see infra* app. 2 (Florida).

[102](#) *See infra* app. 2 (Alabama and Nebraska).

[103](#) *See infra* app. 1, tbl.8.

[104](#) *See Denno, Getting to Death, supra* note 1, at 359.

[105](#) *See infra* app. 1, tbl.8.

[106](#) *See infra* app. 1, tbl.8.

[107](#) *See supra* note 55 and accompanying text.

[108](#) *See Denno, Getting to Death, supra* note 1, at 362 & n.262.

[109](#) *See supra* notes 78–79; *infra* notes 126–30, 154 and accompanying text.

[110](#) 744 So. 2d 413 (Fla. 1999) (per curiam).

[111](#) *Denno, Getting to Death, supra* note 1, at 363–408, 439–64; *see infra* app. 1, tbls.2–3; app. 2.

[112](#) *Campbell v. Wood*, 511 U.S. 1119, 1119 (1994) (Blackmun, J., dissenting from denial of certiorari) (citing *State v. Frampton*, 627 P.2d 922, 934 (Wash. 1981)).

[113](#) *See supra* notes 43, 56 and accompanying text.

[114](#) *See supra* notes 55–56 and accompanying text.

[115](#) *Malloy v. South Carolina*, 237 U.S. 180, 185 (1915) (noting the adoption of electrocution by eleven states following the decision of a New York commission that it was more humane, making the total number of states adopting electrocution thirteen, including the state at issue, South Carolina).

[116](#) *See infra* app. 1, tbl.2; app. 2.

[117](#) *See infra* app. 1, tbls.2–3; app. 2.

[118](#) In 1921, in an attempt to prove the state humane, the Nevada legislature passed a law providing that lethal gas was to be administered “without warning and while [the inmate was] asleep in his cell.” WILLIAM J. BOWERS, *LEGAL HOMICIDE: DEATH AS PUNISHMENT IN AMERICA, 1864–1982*, at 12 (1984). This procedure was never followed, however, because it was impossible to release the gas in a regular cell. *Id.* Yet, in *State v. Gee Jon*, the Nevada Supreme Court emphasized that the legislature “sought to provide a method of inflicting the death penalty in the most humane manner known to modern science.” 211 P. 676, 682 (Nev. 1923). The legislature evaluated, but rejected, hanging and shooting in favor of lethal gas. *Id.* The 1921 lethal gas law did not expressly indicate retroactive operation. *Id.* at 681–82.

[119](#) *Denno, Getting to Death, supra* note 1, at 366–67; *see infra* app. 2.

[120](#) 408 U.S. 238, 256–57 (1972) (holding that the discretionary statutes were unconstitutional as applied, violating the Equal Protection Clause). For an overview of these challenges, see *Denno, Getting to Death, supra* note 1, at 367–68.

[121](#) *Denno, Getting to Death, supra* note 1, at 368.

[122](#) *See app. 1, tbl.1; app. 2* (California and Missouri).

[123](#) *Denno, Getting to Death, supra* note 1, at 368–70.

¹²⁴ These states are, in order of abandonment: Oklahoma (1951), Mississippi (1954), New Mexico (1955), Texas (1977), Massachusetts (1982), Arizona (1983), Illinois (1983), New Jersey (1983), South Dakota (1984), Louisiana (1990), Pennsylvania (1990), Ohio (1993, 2001), Virginia (1994), Connecticut (1995), Indiana (1995), New York (1995), South Carolina (1995), Kentucky (1998), Tennessee (1998), Florida (2000), and Georgia (2000). *See infra* app. 1, tbls.1–3.

¹²⁵ *See supra* note 124; *infra* app. 1, tbls.1–3; app. 2. There are historical differences between the uses of electrocution and lethal gas that point to states' initial, relative reluctance to reject electrocution. First, over the course of the century, states have relied on *Kemmler* to support the retention of electrocution, whereas no court case has addressed the constitutionality of lethal gas. Next, electrocution was introduced three decades earlier than lethal gas during a time when science was substantially less advanced; therefore, lethal gas, which was also a considerably more visible method than electrocution, had the advantage of greater immediate scrutiny. Nonetheless, electrocution and lethal gas have comparable "legislative lifelines" (sixty-one years and fifty-one years respectively) in terms of the point at which they were introduced and the point at which they were no longer adopted, thereby suggesting comparable periods of tolerance (electrocution was first introduced in 1888 and last adopted in 1949; lethal gas was first introduced in 1921 and last adopted in 1973). Lastly, lethal gas is more expensive than electrocution, a factor that states have acknowledged when they have changed execution methods. *See infra* app. 2.

¹²⁶ 458 U.S. 782 (1982).

¹²⁷ *Id.* at 792.

¹²⁸ *Id.* (emphasis added).

¹²⁹ *Id.* at 793.

¹³⁰ *See, e.g.,* *Stanford v. Kentucky*, 492 U.S. 361, 370–71 (1989) (rejecting a challenge to the constitutionality of the death penalty for 16-year-olds, noting that ten of the thirty-seven death penalty jurisdictions allowed capital punishment for such youths); *Penry v. Lynaugh*, 492 U.S. 302, 334–35 (1989) (rejecting a challenge to the constitutionality of the death penalty for mentally retarded persons, emphasizing that only two states had prohibited it).

¹³¹ *See infra* app. 1, tbls.1–6.

¹³² *See infra* app. 1, tbl.4.

¹³³ *See infra* app. 1, tbl.4.

¹³⁴ *See infra* app. 1, tbl.4.

¹³⁵ *See infra* app. 1, tbl.4.

¹³⁶ *See infra* app. 1, tbl.4.

¹³⁷ *Provenzano v. Moore*, 744 So. 2d 413, 436 (Fla. 1999) (Shaw, J., dissenting); *Jones v. State*, 701 So. 2d 76, 87 (Fla. 1997) (Shaw, J., dissenting); AMNESTY INTERNATIONAL, *WHEN THE STATE KILLS* 265–68 (1989).

¹³⁸ *See infra* app. 1, tbl.7.

¹³⁹ *See* Carla McClain, *Arizona Gas Chamber Stays*, GANNET NEWS SERV., Apr. 7, 1992, available in LEXIS, Nexis Library, Wires File (84% favoring lethal injection); George Skelton, *Death Penalty Support Still Strong in State*, L.A. TIMES, Apr. 29, 1992, at A1 (63% favoring lethal injection).

¹⁴⁰ Steve Bousquet, *Eye on 2000: A State Poll, The Chair Out of Favor*, MIAMI HERALD, Nov. 7, 1999, at 1A (reporting the results of an October 1999 statewide poll conducted by *The Miami Herald* and *The St. Petersburg Times* in which 58% of the 600 people questioned supported a state law to replace the electric chair with lethal injection); *Poll: Electric Chair Unpopular in Florida*, OMAHA WORLD-HERALD, Nov. 7, 1999, at 22A.

¹⁴¹ *Provenzano*, 744 So. 2d at 436–37 (Shaw, J., dissenting) (citations omitted).

¹⁴² *Id.* at 437.

¹⁴³ *Id.* at 436.

¹⁴⁴ *Id.* at 413 (per curiam).

¹⁴⁵ *See infra* app. 1, tbl.2; app. 2 (Georgia).

¹⁴⁶ Dick Pettys, *Electrocution Argued in Court*, CHI. TRIB., July 10, 2001, § 1, at 12.

¹⁴⁷ Denno, *Getting to Death*, *supra* note 1, at 378–79 (discussing Mississippi); *see infra* app. 2 (Mississippi).

¹⁴⁸ 554 S.E.2d 137 (Ga. 2001).

¹⁴⁹ *Id.* at 144; *see also id.* at 146–47 (Thompson, J., dissenting) ("The majority claims that state imposed electrocution has fallen into disfavor in this country, but it does not cite a single case where an appellate court in another state or the federal system has held electrocution to be cruel and unusual under a state constitution or the federal constitution. *That is because there are no cases.*"); Henry Weinstein, *Georgia High Court Relegates Electric Chair to History*, L.A. TIMES, Oct. 6, 2001, at A21 (noting that the *Dawson* court's decision "marks the first time an appellate court has issued such a ruling against use of the electric chair").

¹⁵⁰ *Dawson*, 554 S.E.2d at 139–41.

¹⁵¹ *See infra* notes 159–60.

¹⁵² *Dawson*, 554 S.E.2d at 144.

153 *Id.*

154 *Id.* at 143.

155 See *infra* app. 2 (Louisiana).

156 See *infra* app. 2 (Louisiana).

157 See *infra* app. 2 (Louisiana).

158 See *infra* app. 2 (Louisiana).

159 Todd von Kampen, *Sticking with 4 Jolts for Now, Two Officials Say a Second Judge's Ruling Against How the Electric Chair is Used Won't Prompt Quick Changes*, OMAHA WORLD-HERALD, Feb. 23, 2001, at 9.

160 *Id.* (quoting the May 2000 ruling by District Judge Robert Hippe in the 1999 murder case involving death row inmate Raymond Mata, Jr.).

161 *Id.* (referring to the February 22, 2001, ruling by District Judge Randall Rehmeier in the case of convicted murderer Kimberly Sue Faust). Nebraska's electrocution statute refers to a continuous current. NEB. REV. STAT. § 29-2532 (1943) ("The mode of inflicting the punishment of death, in all cases, shall be by causing to pass through the body of the convicted person a current of electricity of sufficient intensity to cause death; and the application of such current shall be continued until such convicted person is dead."); see also *supra* note 70.

162 von Kampen, *supra* note 159, at 9.

163 *Id.*

164 In January 2001, bills were introduced by Sens. Jon Bruning and Kermit Brashear to replace electrocution with lethal injection. L.B. 62, 97th Leg., 1st Reg. Sess. (Neb. 2001); L.B. 356, 97th Leg., 1st Reg. Sess. (Neb. 2001).

165 See *infra* app. 2 (Ohio).

166 Randy Ludlow, "Old Sparky" Finale? Byrd Electrocution Maybe Chair's Last, CIN. POST, Aug. 10, 2001, at 1A.

167 *Id.* ("Some pretty nasty stuff has happened around the country, and that's not something I want to put our staff through. . . . It's stressful on me [too].") (quoting Ohio Corrections Director Reggie Wilkinson); see also Randy Ludlow, *Old Sparky is Out of Work*, CIN. POST, Nov. 16, 2001, at 19A (noting that Ohio Corrections Director Reginald Wilkinson had wanted to "dismantle the oak chair to spare his volunteer execution team from witnessing the horror of electrocution").

168 *National Briefing (Midwest)*, N.Y. TIMES, July 19, 2001, at A18.

169 Am. H.B. 362, 124th Gen. Assem., Reg. Sess. (Ohio 2001) (eliminating electrocution as a means of executing the death sentence), available at http://www.legislature.state.oh.us/bills.cfm?ID=124_HB_362; see also app. 2 (Ohio).

170 A comparably peculiar circumstance arose when John Albert Taylor made a highly publicized choice to be executed by firing squad under Utah's choice statute, which has lethal injection as the default. See *infra* app. 2 (Utah); James Brooke, *Utah Debates Firing Squads in Clash of Past and Present*, N.Y. TIMES, Jan. 14, 1996, § 1, at 16; *Condemned Criminal in Utah Seeks Death by Firing Squad*, N.Y. TIMES, Dec. 11, 1995, at A14 [hereinafter *Condemned Criminal*]; *Firing Squad Executes Killer*, N.Y. TIMES, Jan. 27, 1996, at A22. Apparently motivated by a desire to embarrass the State, Taylor's decision accentuated current problems in administering the firing squad. See Brooke, *supra*; *Condemned Criminal, supra*. Regardless, the diminished publicity following Taylor's death appears to have also dimmed the political concern with the firing squad.

171 Bill Cohen, *Ohio Considers Junking Electric Chair*, STATELINE.ORG (July 30, 2001), at <http://www1.stateline.org/story.do?storyId=138945>.

172 *Id.*

173 In 1888, lethal injection was considered along with other execution methods when New York's governor-appointed commission was seeking the most humane means of implementing the death penalty. Denno, *Electrocution, supra* note 1, at 571–72; see also *supra* notes 43–44 and accompanying text (discussing the appointment of the New York commission).

174 Denno, *Electrocution, supra* note 1, at 572–73; Patrick Malone, *Death Row and the Medical Model*, 9 HASTINGS CTR. REP., Oct. 1979, at 5; see also James W. Garner, *Infliction of the Death Penalty by Electricity*, 1 J. AM. INST. CRIM. L. & CRIMINOLOGY 626, 626 (1910) (stating that in the opinion of one Philadelphia physician, utilizing "the practice of medicine . . . for the purpose of putting criminals to death would arouse the unanimous protest of the medical profession"). This concern among physicians still exists. Jerome D. Gorman, M.D. et al., *The Case Against Lethal Injection*, 115 VA. MED. 576, 576–77 (1988) ("This use of a well-known medical tool, general anesthesia, for execution blurs the distinctions between healing and killing, between illness and guilt.").

175 ROYAL COMMISSION ON CAPITAL PUNISHMENT 1949–1953 REPORT 258–61 (1973) [hereinafter ROYAL COMM'N REP.] (stating that attempts to make an injection into a vein often result in practical difficulties, rendering the method unsuitable for execution). The Royal Commission discussed four major problems that are still relevant to lethal injections today: (1) lethal injection could not be administered to individuals with certain "physical abnormalities" that make veins impossible to locate and that even "normal" veins can be flattened by cold or nervousness, conditions frequently characteristic of an execution setting; (2) lethal injection is difficult unless the subject fully cooperates and remains "absolutely still"; (3) lethal injection requires medical skill, although the medical profession was opposed to participating in the process; and (4) because of such problems, it was likely that executioners would have to implement an intramuscular (rather than intravenous) injection even though the intramuscular method would be slower and more painful. *Id.* at 258–60. In 1965, executions were abandoned entirely in Great Britain; consequently, there was no reason for the British to re-evaluate whether lethal injection would be preferable to other methods of execution. FRANKLIN E. ZIMRING & GORDON HAWKINS, *CAPITAL PUNISHMENT AND THE AMERICAN AGENDA* 109 (1986).

176 428 U.S. 153 (1976) (plurality opinion).

[177](#) ZIMRING & HAWKINS, *supra* note 175, at 109–10.

[178](#) *Id.* at 109–11.

[179](#) Ward Casscells, M.D. & William J. Curran, M.D., *Doctors, the Death Penalty, and Lethal Injection*, 307 NEW ENG. J. MED. 1532, 1532 (1982).

[180](#) Then-Governor Reagan explained the procedure as follows:

Being a former farmer and horse raiser, I know what it's like to try to eliminate an injured horse by shooting him Now you call the veterinarian and the vet gives it a shot and the horse goes to sleep—that's it. I myself have wondered if maybe this isn't part of our problem [with capital punishment], if maybe we should review and see if there aren't even more humane methods now—the simple shot or tranquilizer.

Henry Schwarzschild, *Homicide by Injection*, N.Y. TIMES, Dec. 23, 1982, at A15 (quoting Ronald Reagan); *see also* Scott Christianson, *Corrections Law Developments: Execution by Lethal Injection*, 15 CRIM. L. BULL. 69, 70 (1979). Zimring and Hawkins claim, however, that the subsequent lure of lethal injection cannot be traced to any charismatic figure or special constituency. ZIMRING & HAWKINS, *supra* note 175, at 110.

[181](#) Daniel C. Hoover, *Injection Death Bill Endorsed by House*, NEWS & OBSERVER (Raleigh, N.C.), June 29, 1983, at 1A. The appearance of lethal injection also was important in light of an increasing public interest in the possibility of televised executions. *See, e.g.*, *Garrett v. Estelle*, 424 F. Supp. 468, 470–71 (N.D. Tex. 1977) (discussing an attempt by a Public Broadcasting Service television station to enjoin the Texas Department of Corrections from banning the broadcast of the first execution in Texas since 1964), *rev'd*, 556 F.2d 1274 (5th Cir. 1977); Jef I. Richards & R. Bruce Easter, *Televising Executions: The High-Tech Alternative to Public Hangings*, 40 UCLA L. REV. 381, 386–89 (1992) (discussing *Garrett* and related cases); *infra* note 206 and accompanying text (noting that the chemicals for a lethal injection execution are about \$100 or less).

[182](#) Christianson, *supra* note 180, at 72 (contending that Oklahoma passed the lethal injection statute in part because of its economic benefits). Advocates of lethal injection present four major arguments on its behalf: (1) economy; (2) humaneness; (3) political feasibility; and (4) constitutional soundness. Herb Haines, *Primum Non Nocere: Chemical Execution and the Limits of Medical Social Control*, 36 SOC. PROBS. 442, 445–46 (1989); *see also* Gorman et al., *supra* note 174, at 577 (noting that lethal injection appears to be more humane and cheaper than electrocution).

[183](#) *See infra* app. 2 (The adopting states were: Oklahoma and Texas in 1977, Idaho in 1978, New Mexico in 1979, and Washington in 1981.).

[184](#) *See infra* app. 1, tbl.9 (Charles Brooks, Jr.).

[185](#) *See infra* app. 1, tbl.9.

[186](#) *See infra* app. 1, tbl.3; app. 2. The start of electrocution also was accompanied by large numbers of botched executions. *See supra* notes 55–56 and accompanying text.

[187](#) *See infra* app. 1, tbl.10. Additional types are possible; these six provide the most workable introduction to lethal injection statutes.

[188](#) These twenty-seven states are: Arizona, Arkansas, Colorado, Connecticut, Delaware, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Montana, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, and Wyoming. *See infra* app. 1, tbl.10 (Type 1 statutes); *see also infra* app. 1, tbl.1.

[189](#) These six states are: California, Florida, South Carolina, Utah, Virginia, and Washington. *See infra* app. 1, tbl.10 (Type 2 statutes).

[190](#) These three states are: Idaho, New Hampshire, and Missouri. *See infra* app. 1, tbl.10 (Type 3 statutes).

[191](#) These five states are: Arizona, Arkansas, Delaware, Kentucky, and South Carolina. *See infra* app. 1, tbl.10 (Type 4 statutes).

[192](#) *See infra* app.1, tbl.10 (statutes of Types 2, 3, and 4).

[193](#) For example, one small survey showed that of the twenty-four California death row inmates who were provided a choice between lethal gas and lethal injection between January 1, 1993, and October 14, 1993, two-thirds (sixteen inmates) declined to make a choice. In turn, seven selected lethal injection and one chose lethal gas. *Fierro v. Gomez*, 865 F. Supp. 1387, 1391 (N.D. Cal. 1994), *aff'd*, 77 F.3d 301 (9th Cir. 1996), *vacated on other grounds*, 519 U.S. 918 (1996) (remanding for reconsideration in light of changed statute). The Royal Commission initially considered that giving a prisoner a choice between methods would provide a way of “introducing an untried system.” However, the Commission ultimately decided otherwise because of the inmate’s “tormenting vacillation” involved in making such a choice. ROYAL COMM’N REP., *supra* note 175, at 220.

[194](#) *See supra* note 34 and accompanying text; *infra* app. 2 (California).

[195](#) *See infra* app. 1, tbl.10; app. 2 (South Carolina).

[196](#) *See infra* app. 1, tbl.10 (Type 6 statutes); app. 2 (South Carolina).

[197](#) *See infra* app. 1, tbl.10 (Type 5 statutes).

[198](#) 237 U.S. 180 (1915).

[199](#) *Id.* at 182–84 (holding that a retroactive method of execution does not violate Article I, Section 10 of the Constitution, which bars ex post facto laws); *see also supra* notes 58, 115 and accompanying text (discussing *Malloy v. South Carolina*, 287 U.S. 180 (1915)).

[200](#) *See infra* app. 2 (Louisiana).

[201](#) *See supra* notes 155–58 and accompanying text.

[202](#) *See supra* notes 145–55 and accompanying text; *infra* app. 2 (Georgia).

²⁰³ These ten states are: Arkansas, California, Delaware, Florida, Illinois, New Hampshire, Ohio, Oklahoma, South Carolina, and Wyoming. See *infra* app. 1, tbl.10 (Type 6 statutes).

²⁰⁴ OKLA. STAT. ANN. tit. 22, § 1014(B), (C) (West 1986); see also *infra* app. 1, tbl.10.

²⁰⁵ See Don Colburn, *Oklahoma Was the First*, WASH. POST, Dec. 11, 1990, (Health Section), at 14; Frank Murray, *McVeigh to Die from Mixture of 3-Drug Cocktail; Execution Foes Say It Is Inhumane*, WASH. TIMES, April 25, 2001, at A4; Jeff Stryker, *The Role of Professions in the Execution Process*, THE RECORDER, Apr. 23, 1992, at 6. Telephone Interview with Dr. Stanley Deutsch, Professor of Anesthesiology, George Washington University School of Medicine and Health Sciences (July 25, 1995).

²⁰⁶ See Stryker, *supra* note 205, at 6; see also *supra* note 182 and accompanying text (commenting on the low cost appeal of lethal injection). Currently, the cost of lethal injection drugs averages about \$100 or less, depending upon the state and other factors such as the supplier and the amount of chemicals used. See, e.g., Lawrence D. Egbert, *Physicians and the Death Penalty*, AMERICA, Mar. 17, 1998, at 16 (stating that the cost of the “anesthesia equipment” in a Maryland execution in July 1997 “was about \$75”); Frank Zoretich, *Clark Execution Cost More Than \$40,000, Officials Say*, ALBUQUERQUE TRIBUNE, Feb. 16, 2002, at A3 (explaining that “the lethal injection cocktail of drugs cost taxpayers \$91.49”); N.C. DEP’T OF CORR., EXECUTION METHODS, at <http://www.doc.state.nc.us/DOP/deathpenalty/executio.htm> (last updated Sept. 5, 2001) (noting that the cost of execution supplies in North Carolina averages about \$105.63).

²⁰⁷ Letter from Stanley Deutsch, Ph.D., M.D., Professor of Anesthesiology, University of Oklahoma Health Sciences Center, to the Honorable Bill Dawson, Oklahoma state senator (Feb. 28, 1977) [hereinafter Deutsch Letter] (on file with the author). Deutsch’s letter reads as follows:

Dear Senator Dawson:

This letter is written to review areas that we discussed regarding execution by administration of drugs intravenously. Without question this is, in my opinion, extremely humane in comparison to either electrocution or execution by the inhalation of poisonous gases.

The administration of an ultra short acting barbiturate such as Thiopental (Pentothal) or Methohexital (Brevital) in quantities of 2000 mg with 1000 mg of Succinylcholine intravenously would produce unconsciousness within 40 seconds and death of [sic] asphyxia. Other neuromuscular [sic] blocking drugs that could be employed include Pancuronium or Decamethonium in doses of 20 mg to produce long duration of paralysis and an effect similar to Succinylcholine. The effect of [sic] combination of ultra short acting barbiturate and neuromuscular blocking drugs would produce death in a predictable way and with certainty. These drugs have understandability of terminology in all medical and other biological circles and therefore there would be no probability of confusion with regard to which drugs would be used and the intent at the doses employed.

Administration of these drugs would necessitate the starting [of] an intravenous infusion of fluids through a plastic catheter as we commonly do in the operating room. In an uncooperative patient, this would require restraint of an arm, but this can be facilitated by oral sedation or intramuscularly prior to attempting to begin the intravenous solution. This is also commonly employed in patients who are apprehensive prior to arrival in the waiting room.

Having been anesthetized on several occasions with ultra short acting barbiturates and having administered these drugs for approximately 20 years, I can assure you that this is a rapid[ly] pleasant way of producing unconsciousness. If there is any further information that I can provide you, do not hesitate to call upon me.

Sincerely yours,

/s/

Stanley Deutsch, Ph.D., M.D.
Professor and Head
Department of Anesthesiology
[The University of Oklahoma Health Sciences Center]

Id.

²⁰⁸ *Id.*

²⁰⁹ Colburn, *supra* note 205, at 14.

²¹⁰ Deutsch Letter, *supra* note 207 (providing specifics on how lethal injection could be carried out); see also Stryker, *supra* note 205, at 6 (summarizing Dr. Deutsch’s opinion). Nancy Nunnally, a spokesperson for the Oklahoma Corrections Department, confirmed that the state changed to lethal injection for “humane” reasons. As she explained, “[p]eople don’t realize it, but the electric chair can take 11 minutes to kill people. The first shock knocks you unconscious, but then it would just cook you. You would literally fry.” Mary Thornton, *Death by Injection*, WASH. POST, Oct. 6, 1981, at A1.

²¹¹ See *infra* app. 1, tbl.10. See generally app. 2.

²¹² Deutsch Letter, *supra* note 207 (emphases added).

²¹³ OKLA. STAT. ANN. tit. 22, § 1014 (A) (West 1996) (manner of inflicting punishment of death) (emphases added); see also *infra* app. 2 (Oklahoma).

²¹⁴ See *infra* app. 1, tbls.11–12; app. 3.

²¹⁵ See *infra* app. 1, tbls.11–12; app. 3. For an overview of the controversy concerning these chemicals, see Haines, *supra* note 182, at 445–46 (discussing whether lethal injection is a humane method of execution); Harold L. Hirsh, *Physicians as Executioners*, LEGAL ASPECTS OF MED. PRAC., Mar. 1984, at 1, 1–2 (describing the circumstances surrounding *Chaney v. Heckler*); Don Colburn, *Lethal Injection: Why Doctors Are Uneasy About the Newest Method of Capital Punishment*, WASH. POST, Dec. 11, 1990, (Health Section), at 12 (debating the role of physicians in

execution by lethal injection); *Death Dealing Syringes*, TIME, Dec. 20, 1982, at 29 (reporting the execution of Charles Brooks by lethal injection); Ian Fisher, *Merits of Lethal Injection Are Questioned by Its Foes*, N.Y. TIMES, Feb. 17, 1995, at B5 (analyzing the controversy surrounding lethal injection as a humane method to induce death); Jacob Weisberg, *This is Your Death: Capital Punishment: What Really Happens*, NEW REPUBLIC, July 1, 1991, at 23 (explaining the debate over televised executions).

[216](#) Deutsch Letter, *supra* note 207.

[217](#) See *infra* notes 234–37 and accompanying text.

[218](#) PHYSICIAN’S DESK REFERENCE 835 (55th ed. 2001); Malone, *supra* note 174, at 6.

[219](#) See *infra* notes 261, 320, 375–77, 381, 387 and accompanying text.

[220](#) See *infra* app. 1, tbl.10 (Type 1 statutes).

[221](#) See *infra* note 222 and accompanying text.

[222](#) See Malone, *supra* note 174, at 6. Because prisoners differ in their physiological constitution as well as their drug tolerance and drug use histories, some prisoners may need a far higher dosage of sodium pentathol than others “before losing consciousness and sensation.” See Affidavit of Edward A. Brunner, M.D., Ph.D., ¶ 8G [hereinafter Brunner Affidavit], Exhibit B of Verified Complaint in Chancery, Gacy v. Peters, No. 94 CH (Ill. Apr. 1994) [hereinafter Gacy Complaint].

[223](#) THE AM. COLL. OF PHYSICIANS ET AL., BREACH OF TRUST: PHYSICIAN PARTICIPATION IN EXECUTIONS IN THE UNITED STATES 20 (1994) [hereinafter BREACH OF TRUST]; PHYSICIAN’S DESK REFERENCE, *supra* note 218, at 1193. Other chemical paralyzing agents include tubocurarine chloride and succinylcholine chloride, the last of which Deutsch also recommended. Deutsch Letter, *supra* note 207.

[224](#) Malone, *supra* note 174, at 6. Potassium chloride stops the heart; potassium induces cardiac arrest. Letter to Deborah W. Denno, Professor, Fordham University School of Law, from Lawrence Egbert, M.D., M.P.H., former Professor of Anesthesiology, University of Texas Southwestern Medical School, and current President, Maryland chapter of Physicians for Social Responsibility 6 (Nov. 2001) [hereinafter Egbert Letter] (on file with the author).

[225](#) STEDMAN’S MEDICAL DICTIONARY 1566 (26th ed. 1995) (defining “saline” as “[a] salt solution, usually sodium chloride”).

[226](#) See *infra* note 375 and accompanying text.

[227](#) Justine Sharrock, *Undercutting Executions*, MOTHER JONES, Dec. 28, 2001, at http://www.motherjones.com/web_exclusives/features/news/executions.html (targeting Bergen Brunswig, Cardinal Health, and Abbott Laboratories); Martin Yank, *Lethal Injection, Cardinal Health on the Hot Seat*, COLUMBUS ALIVE (Columbus, Ohio), Jan. 17, 2002, at 7 (implicating Abbott Laboratories, Cardinal Health, Inc., Bergen Brunswig, and Ross Products).

[228](#) See *supra* notes 207, 210, 212–13, 220–21 and accompanying text.

[229](#) Telephone and e-mail interview with Lawrence Egbert, M.D., M.P.H., former Professor of Anesthesiology, University of Texas Southwestern Medical School, and current President, Maryland chapter of Physicians for Social Responsibility (Aug. 13, 2001).

[230](#) See *supra* note 21 and accompanying text; *infra* notes 230, 241–42, 258, 261, 318–21, 377, 435 and accompanying text.

[231](#) Deutsch Letter, *supra* note 207 (referring to “an ultra short acting barbiturate such as Thiopental (Pentothal) or Methohexital (Brevital) in quantities of 2000 mg”); see *Sims v. State*, 754 So. 2d 657, 666 n.17 (Fla. 2000) (referring to a “lethal dose” of 2000 milligrams of sodium pentothal, “certain to cause rapid loss of consciousness (i.e., within 30 seconds of injection)”). *But see* Egbert, *supra* note 206, at 16 (stating that 2000 mg. of thiopental may not be lethal for some people).

[232](#) See *infra* app. 1, tbls.11–15; app. 3.

[233](#) Egbert Letter, *supra* note 224, at 6.

[234](#) Denno, *Getting to Death*, *supra* note 1, at 354–58, 385 n.400; Denno, *Electrocution*, *supra* note 1, at 624–62; see also *infra* notes 261, 345, 355 (noting Leuchter’s controversy and questionable credibility).

[235](#) Denno, *Getting to Death*, *supra* note 1, at 377, 384–85; see also *infra* notes 261, 345 (noting the problems with Leuchter’s lethal injection machines).

[236](#) STEPHEN TROMBLEY, THE EXECUTION PROTOCOL: INSIDE AMERICA’S CAPITAL PUNISHMENT INDUSTRY 76–77 (1992).

[237](#) *Id.* at 77–78; see also *infra* note 345 (discussing Leuchter’s dubious “technique” for creating the chemical combinations necessary for a lethal injection).

[238](#) Deutsch Letter, *supra* note 207.

[239](#) The two drugs similar to pancuronium bromide were succinylcholine and decamethonium. *Id.*

[240](#) See *infra* note 321.

[241](#) See *infra* notes 261, 321.

[242](#) Emanuel & Bienen, *supra* note 19, at 923.

[243](#) 561 S.W.2d 503 (Tex. Crim. App. 1978) (en banc).

[244](#) 136 U.S. 436, 447 (1890). For a discussion of *Kemmler*, see *supra* notes 40–70 and accompanying text.

²⁴⁵ *Ex parte Granviel*, 561 S.W.2d. at 509 (quoting *Trop v. Dulles*, 356 U.S. 86, 101 (1958)).

²⁴⁶ *Id.* at 510.

²⁴⁷ *Id.* at 511–13. The *Granviel* court set forth the standards for determining whether a statute is unconstitutionally vague:

It is, of course, true that a law must be sufficiently definite that its terms and provisions may be known, understood, and applied. An Act of the legislature which violates either of said Constitutions (Federal or Texas), or an Act that is so vague, indefinite, and uncertain as to be incapable of being understood, is void and unenforceable [sic].

Id. at 511 (internal quotation marks omitted).

²⁴⁸ *Id.* at 514 (noting that a legislative body “may delegate to the administrative tribunal or officer power to prescribe details”). *See generally* John H. Gordon, Jr., Note, *Criminal Procedure—Capital Punishment—Texas Statutes Amended to Provide for Execution by Intravenous Injection of a Lethal Substance*, 9 ST. MARY’S L.J. 359, 361–65 (1977) (providing arguments for why the Texas lethal injection statute is constitutional).

²⁴⁹ *See Earvin v. State*, 582 S.W.2d 794, 799 (Tex. Crim. App. 1979) (en banc) (rejecting a lethal injection challenge in one sentence by citing to *Granviel*); *Felder v. State*, 564 S.W.2d 776, 779 (Tex. Crim. App. 1978) (en banc) (same).

²⁵⁰ 470 U.S. 821 (1985).

²⁵¹ *Id.* at 823.

²⁵² *Chaney v. Heckler*, 718 F.2d 1174, 1177 n.5 (D.C. Cir. 1983), *rev’d*, 470 U.S. 821 (1985).

²⁵³ *Heckler*, 470 U.S. at 823.

²⁵⁴ *Id.*; *see also* Michele Stolls, *Heckler v. Chaney: Judicial and Administrative Regulation of Capital Punishment by Lethal Injection*, 11 AM. J.L. & MED. 251, 251–69 (1985) (discussing the *Heckler* Court’s decision to decline to review the FDA’s nonenforcement decision and its impact on the judicial regulation of death penalty cases).

²⁵⁵ *Heckler*, 470 U.S. at 823–24.

²⁵⁶ *See id.* at 837–38.

²⁵⁷ 798 F.2d 695 (5th Cir. 1986).

²⁵⁸ *See id.* at 697–98. In support of his claim, Woolls provided testimony from several physicians contending that: (1) “the injection of sodium thiopental may cause physical and mental pain due to possible technical difficulties in administering the drug”; (2) “even if administered by a professional . . . the individual would be aware of the onset of loss of consciousness and the paralytic drug would produce a sense of shortness of breath and suffocation over a two to three minute period”; and (3) “the individual may also experience a sensation of multiple electric shocks over the entire body with erratic muscle twitching followed by acute paralysis and suffocation.” *Id.*

²⁵⁹ *See infra* app. 1, tbl.9 (Randy L. Woolls).

²⁶⁰ *See, e.g., Hill v. Lockhart*, 791 F. Supp. 1388, 1394 (E.D. Ark. 1992) (rejecting a claim that lethal injection is unconstitutional because it is not performed by medical doctors and therefore results in difficulties, such as an inability to locate a vein); *People v. Stewart*, 520 N.E.2d 348, 358 (Ill. 1988) (rejecting a claim that lethal injection constitutes cruel and unusual punishment because “defendant has submitted no evidence which indicates that execution by lethal injection results in protracted death or unnecessary pain”); *see also infra* notes 261–62, 264–79 and accompanying text.

²⁶¹ In 1990, Charles Silagy and Walter Stewart brought a class action for injunctive relief against the State of Illinois and the Illinois Department of Corrections (DOC) contending that the lethal injection procedure used by the DOC violated the Illinois death penalty statute. Plaintiffs’ Complaint at 1–2, *Silagy v. Thompson*, No. 90-C-5028 (N.D. Ill. Feb. 7, 1991). Plaintiffs emphasized that they were not challenging the constitutionality of lethal injection per se, but rather the particular procedure the defendants intended to use to implement it. *Id.* at 2–3. Although the Illinois statute authorized the injection of only two chemicals (a barbiturate and a paralytic agent), the defendants authorized the injection of three chemicals—sodium pentothal, pancuronium bromide, and potassium chloride. *Id.* at 1–2. According to the plaintiffs, “defendants’ procedures create the substantial risk that plaintiffs will strangle or suffer excruciating pain during the three-chemical injection, but will be prevented by the paralytic agent from communicating their distress.” *Id.* at 2. In addition, the DOC planned to use a lethal injection machine manufactured by Leuchter, despite the fact that the DOC had fired Leuchter because of his questionable qualifications. *Id.* at 6. Subsequently, Leuchter announced that his machine in Illinois was faulty and likely to fail. *Id.* at 6–7. The District Court for the Northern District of Illinois ultimately dismissed the plaintiffs’ complaint. *Silagy v. Thompson*, No. 90-C-5028 (N.D. Ill. Feb. 7, 1991) (memorandum opinion and order).

²⁶² Verified Complaint in Chancery, *Gacy v. Peters*, No. 94 CH (Ill. Apr. 1994).

²⁶³ *See infra* app. 1, tbl.9 (John W. Gacy).

²⁶⁴ Tom Jackman, *Death Penalty Resumes; Missouri Injection Case is With Supreme Court After Appellate Ruling*, KAN. CITY STAR, June 21, 1995, at C1; *see infra* app. 1, tbl.9 (Emmitt Foster).

²⁶⁵ Jackman, *supra* note 264.

²⁶⁶ 754 So. 2d 657 (Fla. 2000).

²⁶⁷ *LaGrand v. Lewis*, 883 F. Supp. 469, 471 (D. Ariz. 1995), *aff’d sub nom., LaGrand v. Stewart*, 133 F.3d 1253 (9th Cir. 1998) (listing prior cases involving a constitutional challenge to lethal injection).

²⁶⁸ 561 S.W.2d 503 (Tex. Crim. App. 1978); *see supra* notes 243–49 and accompanying text (discussing *Granviel*).

[269](#) *Sims*, 754 So. 2d at 665.

[270](#) *Id.* An edited version of this protocol can be found *infra* app. 3 (Florida).

[271](#) *Sims*, 754 So. 2d at 665–66.

[272](#) *Id.* at 668.

[273](#) *Id.* at 666 (citing *LaGrand v. Lewis*, 883 F. Supp. 469 (D. Ariz. 1995), *aff'd sub nom.*, *LaGrand v. Stewart*, 133 F.3d 1253 (9th Cir. 1998)).

[274](#) *Id.* at 667 (quoting *LaGrand*, 883 F. Supp. at 470–71).

[275](#) *Id.* at 667 n.19.

[276](#) *Id.* at 667–68, 667 n.19.

[277](#) *Id.* at 668 n.19.

[278](#) *Id.* at 668.

[279](#) *Id.*

[280](#) *Id.*

[281](#) *Id.* at 668–69 (citing *Ex parte Granviel*, 561 S.W.2d 503 (Tex. Crim. App. 1978)).

[282](#) *Id.* at 670.

[283](#) *Id.*

[284](#) 561 S.W.2d 503 (Tex. Crim. App. 1978).

[285](#) In 1982, Charles Brooks was the first person to be executed by lethal injection. *See supra* note 184 and accompanying text; *infra* app. 1, tbl.9.

[286](#) Notably, *Granviel* used *Kemmler* as precedent to find lethal injection constitutional. *Granviel*, 561 S.W.2d at 508–09; *see also supra* notes 243–48 and accompanying text (discussing *Granviel*'s reliance on *Kemmler*).

[287](#) *Sims*, 754 So. 2d at 666–67 (citing *LaGrand v. Lewis*, 883 F. Supp. 469 (D. Ariz. 1995)).

[288](#) *See generally* *LaGrand v. Lewis*, 883 F. Supp. 469 (D. Ariz. 1995).

[289](#) *See supra* notes 74–80 and accompanying text (discussing Eighth Amendment standards in the context of evaluating electrocution).

[290](#) In addition to the medical literature, this article relies on the expert opinions of two anesthesiologists, who also have provided expert testimony in court on challenges to the constitutionality of lethal injection: Edward A. Brunner, M.D., Ph.D., former Professor of Anesthesia at Northwestern University Medical School, and Lawrence Egbert, M.D., M.P.H., former Professor of Anesthesiology at the University of Texas Southwestern Medical School and current President of the Maryland chapter of Physicians for Social Responsibility.

[291](#) Egbert, *supra* note 206, at 15. *See generally* TROMBLEY, *supra* note 236.

[292](#) *See supra* notes 81–102 and accompanying text.

[293](#) *See supra* notes 81–95 and accompanying text.

[294](#) *See, e.g.*, *California First Amendment Coalition v. Woodford*, No. C-96-1291-VRW, 2000 WL 33173913 (N.D. Cal. July 26, 2000); *California First Amendment Coalition v. Calderon*, 88 F. Supp. 2d 1083 (N.D. Cal. 2000); *California First Amendment Coalition v. Calderon*, 956 F. Supp. 883 (N.D. Cal. 1997) (“*Calderon I*”), *rev'd* 150 F.3d 976 (9th Cir. 1998).

[295](#) *Calderon I*, 956 F. Supp. at 890 (noting that the First Amendment protects public access to executions).

[296](#) *Id.* at 889 (“Even though the historical basis for the media’s witnessing of executions is somewhat less clear than that of the public generally, it is no stretch to suggest that the public’s right of access includes a right of media access.”); *see also* *California First Amendment Coalition v. Calderon*, 150 F.3d 976, 981 (9th Cir. 1998) (emphasizing that “the role of the media is important; acting as the ‘eyes and ears’ of the public, they can be a powerful and constructive force, contributing to remedial action in the conduct of public business” (quoting *Houchins v. KQED, Inc.*, 438 U.S. 1, 8 (1978))).

[297](#) *See infra* notes 408–11 and accompanying text.

[298](#) No. C-96-1291-VRW, 2000 WL 33173913 (N.D. Cal. July 26, 2000).

[299](#) *Id.* at *9.

[300](#) *Id.*

[301](#) *Id.*

[302](#) *Id.*

[303](#) *Id.*

[304](#) *Id.*

[305](#) *See supra* note 275 and accompanying text.

[306](#) *See infra* notes 408–11 and accompanying text. The credibility of newspaper accounts of botched lethal injections also came up in

Connecticut's evidentiary hearing concerning the constitutionality of lethal injection. The 1997 Connecticut evidentiary hearing relied on this author's testimony as well as the testimony of Drs. Edward Brunner and Lawrence Egbert. *State v. Breton*, No. CR4-147941 (Conn. Super. Ct. Nov. 14, 1997); *see also supra* note 290 (describing the credentials of Drs. Brunner and Egbert). Yet, the *Breton* court focused on the evidence it wanted to hear. For example, the court merely mentioned both doctors' extended testimony concerning the risks inherent in the lethal injection process. In contrast, the court emphasized the fact that on cross examination "both doctors agreed . . . that the proper implementation of the state's procedures by lethal injection would result in a virtually painless death." *Breton*, No. CR4-147941, at 2. The court considered "reliable" the author's data and studies on botched lethal injection executions, and noted my opinion that there exists a substantial risk of the infliction of unnecessary pain in light of the number of botched executions (for example, at least one in nine of twenty-two states that have the lethal injection procedure). However, the court considered my "second and third hand reports [newspaper accounts of botched executions], substantially less reliable." *Id.* Remarkably, the court chose to credit instead the testimony of two State experts on this issue: (1) Dr. Jeffrey Gross, who testified about the "routine" and "ordinary" nature of the lethal injection process and the State's efforts to avoid mishaps; and (2) David Nunnelee, a witness who characterized the 121 Texas executions as "seemingly painless," and "with no outward signs of physical pain or torture." *Id.* at 3. Moreover, the court highlighted evidence that the Deputy Commissioner of Corrections had followed "appropriate steps" to ensure a safe and effective procedure that would avoid any possible mishaps experienced in other states. *Id.* at 5.

³⁰⁷ 883 F. Supp. 469 (D. Ariz. 1995).

³⁰⁸ *Sims v. State*, 754 So. 2d 657, 667 (Fla. 2000) (quoting *LaGrand v. Lewis*, 883 F. Supp. 469, 470–71 (D. Ariz. 1995)).

³⁰⁹ The fact that other courts preceding *Sims* have reacted similarly to newspaper accounts of botched lethal injections presented by this author during evidentiary hearings provides only further evidence of how limited Eighth Amendment analyses of lethal injection have been. *See, e.g., supra* note 306 (discussing *State v. Breton* in Connecticut); *see also Ex parte Richardson*, No. 81-CR-1545 (175th Dist. Ct., Bexar County, Tex. Oct. 1, 1997) (concerning the evidentiary hearing on the constitutionality of lethal injection in Texas held on April 28–30, 1997; in that hearing, the prosecution also questioned the reliability of this author's testimony on botched lethal injection executions based on newspaper reports).

³¹⁰ *See supra* note 74 and accompanying text.

³¹¹ *See California First Amendment Coalition v. Woodford*, No. C-96-1291-VRW, 2000 WL 33173913 (N.D. Cal. July 26, 2000); *California First Amendment Coalition v. Calderon*, 88 F. Supp. 2d 1083 (N.D. Cal. 2000); *California First Amendment Coalition v. Calderon*, 956 F. Supp. 883 (N.D. Cal. 1997) ("Calderon I"), *rev'd*, 150 F.3d 976 (9th Cir. 1998).

³¹² *California First Amendment Coalition*, 2000 WL 33173913, at *10; *California First Amendment Coalition*, 88 F. Supp. 2d at 1084; *Calderon I*, 956 F. Supp. at 889–90.

³¹³ *California First Amendment Coalition*, No. C-96-1291-VRW, 2000 WL 33173913, at *10; *California First Amendment Coalition*, 88 F. Supp. 2d at 1084; *Calderon I*, 956 F. Supp. at 889–90.

³¹⁴ *See infra* app. 1, tbl.9 (detailing executioners' problems with finding a vein or keeping a needle inserted in a vein).

³¹⁵ *See infra* app. 1, tbl.18; notes 412–13 and accompanying text (analyzing statewide restrictions on witnesses viewing a lethal injection procedure).

³¹⁶ *See generally* TROMBLEY, *supra* note 236, at 105–16.

³¹⁷ Egbert Letter, *supra* note 224, at 7.

³¹⁸ Brunner Affidavit, *supra* note 222, ¶ 8G.

³¹⁹ Brunner Affidavit, *supra* note 222, ¶ 8G–H; Affidavit of Lawrence Deems Egbert, M.D., M.P.H., ¶ 13 [hereinafter Egbert Affidavit], Exhibit 3 of Petition for Post Conviction Writ of Habeas Corpus, *Ex parte Sam Felder, Jr.*, No. 227815-B (Tex. Crim. App. May 12, 1994) [hereinafter Felder I Petition] (pet. denied); *see also Chaney v. Heckler*, 718 F.2d 1174, 1191 (D.C. Cir. 1983) ("Even a slight error in dosage or administration can leave a prisoner conscious but paralyzed while dying, a sentient witness of his or her own slow, lingering asphyxiation."), *rev'd*, 470 U.S. 821 (1985).

³²⁰ Brunner Affidavit, *supra* note 222, ¶ 8G (Illinois Department of Correction's procedures typically recommended that 40cc of sodium pentothal be injected).

³²¹ Brunner Affidavit, *supra* note 222, ¶ 8H. As Brunner explains:

Under such circumstances, the prisoner will suffer an extremely painful sensation of crushing and suffocation, as the pancuronium bromide takes effect and stops his ability to breathe. The pancuronium bromide will paralyze the prisoner, rendering him unable to move or communicate in any way, while he is experiencing excruciating pain. As the third chemical, potassium chloride is administered, the prisoner will experience an excruciating burning sensation in his vein. This burning sensation—equivalent to the sensation of a hot poker being inserted into the arm—will then travel with the chemical up the prisoner's arm and spread across his chest until it reaches his heart, where it will cause the heart to stop.

Id.

³²² *Id.* ¶ 7 (noting that under the Illinois procedure, "unlimited discretion to determine the dosages—and even to 'alter' the chemicals themselves—is given to unspecified 'qualified health care personnel'"); Egbert Affidavit, *supra* note 319, ¶ 7 (emphasizing the discretion under the Texas death penalty statute); *see infra* app. 3 (illustrating the amount of discretion in all state protocols).

³²³ Thomas O. Finks, *Lethal Injection: An Uneasy Alliance of Law and Medicine*, 4 J. LEGAL MED. 383, 397 (1983); Hirsh, *supra* note 215, at 1.

³²⁴ Finks, *supra* note 323, at 397 (explaining that "[l]ethal injections may not work effectively on diabetics, drug users, and people with heavily pigmented skins"); Hirsh, *supra* note 215, at 1 (noting that "if a person is nervous or fearful, his veins become constricted"); *On Lethal*

Injections and the Death Penalty, 12 HASTINGS CTR. REP., Oct. 1982, at 2 [hereinafter *On Lethal Injections*] (explaining that lethal injections are particularly difficult to administer “to people with heavily pigmented skins . . . and to diabetics and drug users”); *Another U.S. Execution Amid Criticism Abroad*, N.Y. TIMES, Apr. 24, 1992, at B7 [hereinafter *Another U.S. Execution*] (reporting that the difficulty in executing Billy Wayne White was due to his history as a heroin user); Weisberg, *supra* note 215, at 23 (describing the forty-five minutes required for technicians to find a serviceable vein in a former heroin addict).

[325](#) Finks, *supra* note 323, at 397 (quoting Kotulak, *Execution by Injection: The Doctor’s Dilemma*, CHI. TRIB., Dec. 21, 1982, § 2, at 4).

[326](#) Egbert Affidavit, *supra* note 319, ¶ 11 (“Unskilled personnel may be unable to insert successfully the IV catheter in the prisoner. This may be because the prisoner was once an addict and used the veins carelessly so the veins clotted or because the prisoner is anxious and this causes the veins to constrict.”).

[327](#) *Capital Punishment: Cruel and Unusual*, ECONOMIST, Jan. 23, 1993, at 86 (reviewing TROMBLEY, *supra* note 236, and quoting a death row inmate, “[t]hey put a catheter in your penis”); *see infra* app. 1, tbl.9 (George “Tiny” Mercer); *infra* app. 3 (Kentucky).

[328](#) *See infra* app. 1, tbl.9 (Rickey Ray Rector).

[329](#) Affidavit of Stephen M. Trombley, ¶ 20 [hereinafter *Trombley Affidavit*], Exhibit A of Gacy Complaint, *supra* note 222.

[330](#) Brunner Affidavit, *supra* note 222, ¶ 5; Egbert Affidavit, *supra* note 319, ¶ 9. If the catheter is improperly administered into the muscle, the prisoner will experience a severe burning sensation, and the drugs will take longer to absorb than if they had been directly inserted into the bloodstream. Brunner Affidavit, *supra* note 222, ¶ 8E; Egbert Affidavit, *supra* note 319, ¶ 9.

[331](#) TROMBLEY, *supra* note 236, at 261; Finks, *supra* note 323, at 397; Haines, *supra* note 182, at 448. Cutdowns are typically unnecessary if a technician is experienced and uses modern equipment. Interview with Edward A. Brunner, M.D., Ph.D., Professor of Anesthesia, Northwestern University Medical School (Apr. 29, 1997).

[332](#) Brunner Affidavit, *supra* note 222, ¶ 8E (noting that the risk of strangulation could be prevented by denying the prisoner food six-to-eight hours before execution).

[333](#) Humane Soc’y of the U.S., *General Statement Regarding Euthanasia Method for Dogs and Cats*, SHELTER SENSE, Sept. 1994, at 11.

[334](#) *Id.* at 11–12.

[335](#) *See infra* app. 1, tbl.9.

[336](#) *Sims v. State*, 754 So. 2d 657, 667 n.19 (Fla. 2000) (quoting the expert testimony of Professor Michael Radelet).

[337](#) *See infra* app. 1, tbl.9 (describing the lethal injection botches of eleven Texas inmates: Charles Brooks, Jr., James D. Autry, Thomas Andy Barefoot, Stephen Peter Morin, Randy L. Woolls, Elliot Rod Johnson, Raymond Landry, Stephen McCoy, Billy Wayne White, Justin Lee May, and Ronald Allridge). Perhaps for this reason, in 1997, a Texas district court held an evidentiary hearing on the constitutionality of lethal injection. *Ex parte Richardson*, No. 81-CR-1545 (175th Dist. Ct., Bexar County, Tex. Oct. 1, 1997); *see also supra* note 309 (discussing the Texas hearing). This hearing was followed shortly by a hearing in Connecticut because the state had just adopted, but never used, the method. *State v. Breton*, No. CR4-147941 (Super. Ct. Conn. Nov. 14, 1997). Both the Connecticut and Texas courts upheld the constitutionality of lethal injection. *See supra* notes 306, 309 (discussing, respectively, the outcomes of the hearings in Connecticut and Texas).

[338](#) TROMBLEY, *supra* note 236, at 73 (noting that, “[i]n the final analysis, it looks disgusting” because the inmates “routinely choke, cough, spasm, and writhe as they die”).

[339](#) *See infra* app. 1, tbl.9.

[340](#) *Richardson*, No. 81-CR-1545 (testimony of Deborah W. Denno).

[341](#) *Murderer of Three Women Is Executed in Texas*, N.Y. TIMES, Mar. 14, 1985, at A22 [hereinafter *Murderer of Three Women*].

[342](#) *See infra* app. 3 (Texas).

[343](#) *See infra* app. 1, tbl.9 (Randy Woolls (1986) and Elliot Rod Johnson (1987)).

[344](#) *See infra* app. 1, tbl.9. The Texas executions of Billy Wayne White in 1992 and Ronald Allridge in 1995 also were botched because technicians experienced difficulties locating suitable veins. *See infra* app. 1, tbl.9.

[345](#) *See infra* app. 1, tbl.9. Also, at the time lethal injection machines malfunctioned in the states that used them. By 1990, four states had purchased Leuchter-created lethal injection machines. Denno, *Electrocution*, *supra* note 1, at 627–28 (listing Delaware, Illinois, Missouri, and New Jersey). However, Leuchter had no technical or medical expertise for devising the different mixtures of chemicals he recommended. For example, when one of the first states that switched to lethal injection contacted Leuchter for advice on that method, he began to study pharmacology and chemistry. Based upon the results of studies conducted on pigs and rabbits, Leuchter calculated the dosages of sodium thiopental, pancuronium bromide, and potassium chloride required for the lethal injection of human beings. Thereafter, he created a computer-controlled machine for injecting prisoners without, he explained, rupturing their veins or inducing “undue discomfort.” *Dr. Death and His Wonderful Machine*, N.Y. TIMES, Oct. 18, 1990, at A24.

[346](#) *See infra* app. 1, tbl.9 (Jose Martinez High).

[347](#) *See infra* app. 1, tbl.9 (Joseph High, Nov. 7, 2001).

[348](#) *See supra* notes 1, 25–31, 131–36, 183–203 and accompanying text.

[349](#) Council on Ethical and Jud. Affairs, AMA, Council Rep., *Physician Participation in Capital Punishment*, 270 JAMA 365, 365 (1993) [hereinafter *Council on Ethical and Jud. Affairs*] (“A physician, as a member of a profession dedicated to preserving life when there is hope of doing

so, should not be a participant in a legally authorized execution.” (quoting Council on Ethical and Jud. Affairs, AMA, Code of Med. Ethics, Current Op., Op. 2.06 (1994)); BREACH OF TRUST, *supra* note 223, at xi. The Hippocratic Oath that physicians take rests on an intention to “do no harm.” *Id.* at 39. See generally W. Noel Keyes, *The Choice of Participation by Physicians in Capital Punishment*, 22 WHITTIER L. REV. 809, 812 (2001) (discussing the AMA’s stance against physician participation and the long history of doctor involvement in executions). Capital punishment also contradicts nursing philosophy although the American Association of Nurse Anesthetists has not taken a formal stance concerning the participation of certified nurse anesthetists in capital punishment cases. Ann E. Aprile, *Ethical Issues Involving Medical Personnel and the Administration of Lethal Injection in Capital Punishment Cases*, CRNA: THE CLINICAL FORUM FOR NURSE ANESTHETISTS, Aug. 1996, at 116–17.

³⁵⁰ Christina Michalos, *Medical Ethics and the Executing Process in the United States of America*, 16 J. MED. & L. 125, 126 (1997) (noting that with a lethal injection execution, “[m]edical knowledge is required to order the drugs, insert the catheter and connect the monitoring equipment”).

³⁵¹ James K. Boehnlein et al., *Medical Ethics, Cultural Values, and Physician Participation in Lethal Injection*, 23 BULL. AM. ACAD. PSYCHIATRY LAW 129, 130 (1995) (“Lethal injection is an example of the medicalization of a complex social issue, yet it is unique because in this instance physicians’ skills and procedures are being used to carry out government mandates that contradict established medical practice (i.e., the taking of a human life.)”); David J. Rothman, *Physicians and The Death Penalty*, 4 J.L. & POL’Y 151 (1995) (discussing the historical role of physicians in executions); James Welsh, *Execution by Lethal Injection*, 348 LANCET 63 (1996) (emphasizing how the growing use of lethal injection internationally is drawing physicians into further involvement with capital punishment and therefore raising serious ethical and human rights issues); James Welsh, *The Medicine That Kills*, 351 LANCET 441 (1998) (discussing a 1998 Amnesty International report detailing the problems with lethal injection and medical involvement in it).

³⁵² See, e.g., Ronald Bayer, *Lethal Injections and Capital Punishment: Medicine in the Service of the State*, 4 J. PRISON & JAIL HEALTH 7, 7–14 (1984) (discussing the controversy surrounding physician participation in lethal injections); Casscells & Curran, *supra* note 179, at 1532–33 (same); see also Neil Farber et al., *Physicians’ Attitudes About Involvement in Lethal Injection for Capital Punishment*, 160 ARCHIVES OF INTERNAL MED. 2912, 2912 (2000) (reporting the results of a survey of 482 physicians and concluding that, regardless of the statements of medical societies, “the majority of physicians surveyed approved of most disallowed actions involving capital punishment, indicating that they believed it is acceptable in some circumstances for physicians to kill individuals against their wishes”); *supra* note 18; *infra* notes 363–66 and accompanying text (discussing other survey results).

³⁵³ Council on Ethical and Jud. Affairs, *supra* note 349, at 366–67. “The AMA guidelines . . . specify that selecting injection sites, starting intravenous lines, prescribing, preparing or administering injection drugs, and consulting with lethal injection personnel constitute physician participation in executions and are unethical.” BREACH OF TRUST, *supra* note 223, at 20. The presence of a physician at a lethal injection execution was required by some state statutes such as Oklahoma’s. OKLA. STAT. ANN. tit. 22, § 1014 (1996). However, this arrangement has changed for two reasons: (1) the AMA’s pronouncement and physicians’ complaints that states were turning executions into medical procedures, see Gorman et al., *supra* note 174, at 576; and (2) claims that physicians were blurring the line between their role as a healer and as a killer, see Fisher, *supra* note 215 (reporting that, in several states, doctors are present at executions, but do not administer the injections). As a result, states with lethal injection no longer require the services of a physician, except to pronounce death. See generally BREACH OF TRUST, *supra* note 223.

³⁵⁴ Denno, *Electrocution*, *supra* note 1, at 627–28 (listing Delaware, Illinois, Missouri, and New Jersey); see *supra* note 345 and accompanying text (discussing those states that apply Leuchter’s machines).

³⁵⁵ Denno, *Electrocution*, *supra* note 1, at 664–62; see *supra* notes 234, 261, 345 and accompanying text (discussing some of the problems Leuchter has encountered).

³⁵⁶ See *infra* app. 3.

³⁵⁷ BREACH OF TRUST, *supra* note 223, at 18–20; see *infra* app. 3; *infra* notes 386–407 and accompanying text.

³⁵⁸ Aprile, *supra* note 349, at 116 (noting that the equipment loaning issue is in controversy). Some doctors have likened such involvement to the physician participation in the torture and murder of Nazi prisoners and concentration camp victims. Gorman et al., *supra* note 174, at 577.

³⁵⁹ Fred Leuchter claims that in lethal injection executions, doctors will knowingly watch prison personnel mix or inject chemicals incorrectly but not say anything because they do not want to get involved. TROMBLEY, *supra* note 236, at 74–77.

³⁶⁰ Aprile, *supra* note 349, at 116. Three doctors recently explained the problem:

Lethal injection looks more like therapy than punishment. It involves a traditional and familiar therapeutic modality, intravenous general anesthesia, typically with Pentothal and a muscle relaxant. The only difference is that the “patient,” once “put to sleep,” is not recovered. By wrapping punishment in a therapeutic cloak, the whole process leading to that final moment feels less aversive to those who are required to participate and is therefore more bearable.

Gorman et al., *supra* note 174, at 576 (noting that lethal injection appears to be more humane and cheaper than electrocution).

³⁶¹ According to one author, for example, physicians in such a situation could be viewed as renegeing on their “contract with their patients.” Aprile, *supra* note 349, at 117. Yet, others view the situation far differently.

Even though lethal injection is ‘medicalized’ by society, there is no doctor-patient relationship and, consequently, no give and take between physician and patient. Yet even when there is no defined doctor-patient relationship, the doctor is using knowledge and skills attained during medical education and is thus recognized by society as possessing and using those specific skills that are normally used to sustain and enhance life.

Boehnlein et al., *supra* note 351, at 132.

³⁶² Aprile, *supra* note 349, at 117 (questioning whether “dignity in death and dying [are] denied as a personal right for the death-row inmate?”). *But see supra* note 351 and accompanying text (offering counter arguments).

³⁶³ This participation was thoroughly documented in BREACH OF TRUST, a report on physician participation in executions throughout the United States. *See* BREACH OF TRUST, *supra* note 223; *see also* Boehnlein et al., *supra* note 351, at 130; Farber et al., *supra* note 17, at 886; Farber et al., *supra* note 352, at 2912.

As of 1991, Oklahoma required physicians to order the drugs used in the lethal injection, pronounce the prisoner dead, and inspect the intravenous line started by a technician to ensure its proper function. Physicians have been required to perform cutdowns on prisoners when adequate veins could not be found. As recently as 1997, twenty-three states required physicians to determine or pronounce death, and Illinois has passed statutes specifically to allow physicians to give lethal drugs for the purposes of capital punishment. Moreover, physicians are participating via indirect means such as providing technical advice, ordering drugs, supervising drug administration, or pronouncing death. A total of twenty-seven states require or permit physicians to be involved in some way in the process of capital punishment.

Farber et al., *supra* note 352, at 2912–13.

³⁶⁴ Emanuel & Bienen, *supra* note 19, at 922 (citing Robert D. Trogg & Troyen A. Brennan, *Participation of Physicians in Capital Punishment*, 329 NEW ENG. J. MED. 1346, 1346–50 (1993)).

³⁶⁵ Farber et al., *supra* note 17, at 886.

³⁶⁶ *Id.*; *see also* Farber et al., *supra* note 352, at 2912 (noting that in a recent survey of physicians, more than half approved of most disallowed medical actions involving capital punishment).

³⁶⁷ *See generally* DONALD A. CABANA, DEATH AT MIDNIGHT: THE CONFESSION OF AN EXECUTIONER (1996) (detailing former prison warden Cabana’s account of the prison system and his personal problems with the administration of the death penalty); ROBERT JOHNSON, DEATH WORK: A STUDY OF THE MODERN EXECUTION PROCESS (1990) (exploring the details of the execution process from the perspectives of the death row prisoners, their guards, and the executioners).

³⁶⁸ *See infra* app. 1, tbls.19–20.

³⁶⁹ *See infra* app. 3 (Nevada, Pennsylvania, South Carolina, and Virginia).

³⁷⁰ DEATH PENALTY INFO. CTR., STATE EXECUTIONS, at <http://www.deathpenaltyinfo.org/dpicreg.html> (last updated on Feb. 19, 2002).

³⁷¹ *See infra* app. 3 (Kansas, Kentucky, and New Hampshire).

³⁷² DEATH PENALTY INFO. CTR., STATE BY STATE DEATH PENALTY INFO., at <http://www.deathpenaltyinfo.org/firstpage.html> (indicating that Kansas and New Hampshire have had no executions since 1976) (last updated on Feb. 1, 2001).

³⁷³ DEATH PENALTY INFO. CTR., *supra* note 370, at <http://www.deathpenaltyinfo.org/dpicreg.html> (last updated on Feb. 19, 2002); TRACY L. SNELL, BUREAU OF JUSTICE STATISTICS BULLETIN, CAPITAL PUNISHMENT 1999 at 10 tbl.10 (2000).

³⁷⁴ Virginia also mentions the use of saline, although prison officials will not specify the lethal injection chemicals. *See infra* app. 1, tbl.11.

³⁷⁵ *See infra* app. 1, tbl.17. The New York protocol, for example, states the following:

1. CAUTION: If all of the sodium pentothal has not been flushed from the line, mixture with the pavulon may create flocculation (solid particles) to block the flow of the liquid through the angiocath. If blockage occurs, the remaining injections must be made in the contingency line running to the alternate site.

See infra app. 3 (New York).

³⁷⁶ *See infra* notes 377–78 and accompanying text.

³⁷⁷ *See supra* notes 21, 230, 241–42, 258, 261, 318–21; *infra* note 435 and accompanying text.

³⁷⁸ Donald Janson, *Prisoners’ Appeals Delay Jersey Executions*, N.Y. TIMES, March 9, 1986, at 42 (“The New Jersey law mandates death by successive injections of thiopental sodium, to render the person unconscious, pancuronium bromide to stop his breathing, and potassium chloride to end his heartbeat.”); Michael Norman, *Site of Executions Ready in Trenton*, N.Y. TIMES, Aug. 21, 1983, at 43 (referring to syringes “filled with three drugs: thiopental sodium, a fast-acting barbiturate that causes unconsciousness; pancuronium bromide, a muscle relaxant that can induce respiratory failure, and potassium chloride, a salt compound that produces an abnormal heart rhythm and heart failure”); Meg Nugent, *Death Chamber Renovations Nearly Done—Corrections Chief Sorts Through Final Details for Execution of Martini*, STAR-LEDGER (Newark, N.J.), July 30, 1999, at 21 (“[Commissioner] Terhune said he wasn’t prepared yesterday to release details on what drugs will be used, saying the decision had not yet been finalized. But he said one would serve as a relaxant while the other two would stop the heart and breathing.”); Steve Strunsky, *N.J. Law; Death, After 36 Years, Is Back on Death Row*, N.Y. TIMES, Aug. 8, 1999, § 14, at 5 (describing a “cocktail of three drugs—a sedative and drugs to arrest Mr. Martini’s heartbeat and breathing—that will kill Mr. Martini”); Joseph L. Zentner, *We Cannot Sanitize Execution*, THE RECORD (Bergen, N.J.), Oct. 27, 1985, at 1 (“Two technicians stand behind stainless-steel trays. One tray holds syringes filled with saline; the other holds the ‘hot’ syringes, which are filled with: thiopental sodium, a fast-acting barbiturate that produces unconsciousness; pancuronium bromide, a muscle relaxant that causes respiratory failure; and potassium chloride, a salt compound that induces heart failure.”).

³⁷⁹ *See infra* app. 1, tbls.13–14.

³⁸⁰ *See infra* app. 1, tbl.15.

³⁸¹ *But see* Egbert, *supra* note 206, at 16.

[382](#) See *infra* app. 3 (Mississippi).

[383](#) States with the highest number of lethal injection executions, from 1977–1999, rank as follows: Texas (199), Virginia (48), Missouri (41), Arkansas (20), Oklahoma (19), South Carolina (19), Arizona (17), North Carolina (13), Illinois (12), Delaware (9), Nevada (7), California (5), and Louisiana (5). SNELL, *supra* note 373, at 16 app. tbl.4.

[384](#) SNELL, *supra* note 373, at 16 app. tbl.4.

[385](#) See *supra* note 378 and accompanying text.

[386](#) The fourteen states are: Arizona, Connecticut, Illinois, Louisiana, Montana, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Texas, Utah, and Washington. See *infra* app. 1, tbl.17.

[387](#) See *infra* app. 1, tbl.17.

[388](#) The eight states are: California, Colorado, Connecticut, Delaware, Georgia, Idaho, North Carolina, and Ohio. See *infra* app. 1, tbl.17.

[389](#) The five states are: Florida, Maryland, Montana, New Jersey, and New Mexico. See *infra* app. 1, tbl.17.

[390](#) The five states are: Arizona, Indiana, Mississippi, Oklahoma, and Utah. See *infra* app. 1, tbl.17.

[391](#) See app. 1, tbl.17.

[392](#) The eight states are: Kansas, Kentucky, Missouri, Nevada, New Hampshire, South Carolina, South Dakota, and Tennessee. See *infra* app. 1, tbl.17.

[393](#) These seventeen states are: Delaware, Kansas, Kentucky, Louisiana, Maryland, Missouri, Nevada, New Hampshire, North Carolina, Oklahoma, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, and Wyoming. See *infra* app. 1, tbl.17.

[394](#) See *infra* app.1, tbl.17.

[395](#) These eight states are: Arizona, Arkansas, Delaware, Illinois, Kansas, Maryland, Montana, and Utah. See *infra* app. 1, tbl.17.

[396](#) The seven additional states are: Kentucky, Nevada, New Hampshire, Oklahoma, Pennsylvania, South Carolina, and Virginia. See *supra* note 395 for the other eight states.

[397](#) These thirteen states are: California, Connecticut, Florida, Georgia, Indiana, Mississippi, New Hampshire, New Jersey, New Mexico, New York, Ohio, Oregon (“a medical professional”), and Washington. See *infra* app. 1, tbl.17.

[398](#) These five states are: Colorado, Idaho, Louisiana, Montana, and Pennsylvania. See *infra* app. 1, tbl.17.

[399](#) The single state is North Carolina. See *infra* app. 1, tbl.17.

[400](#) See *infra* app. 1, tbl.17.

[401](#) See *infra* app. 1, tbl.17.

[402](#) See *infra* app. 1, tbl.16.

[403](#) Brunner Affidavit, *supra* note 222, ¶ 8E (noting that the risk of strangulation could be prevented by denying the prisoner food six-to-eight hours before execution); see *supra* note 332 and accompanying text.

[404](#) The six states are: Indiana, New Jersey, Ohio, Oregon, Texas, and Virginia. See *infra* app. 1, tbl.16.

[405](#) See *infra* app. 1, tbl.16.

[406](#) See *supra* note 383 and accompanying text.

[407](#) See *supra* notes 294–313 and accompanying text.

[408](#) See *infra* app. 1, tbl.18.

[409](#) These four states are: Kansas, Kentucky, New Hampshire, and Pennsylvania. See *infra* app. 1, tbl.18; see also *infra* note 410 and accompanying text for the other three states.

[410](#) The two states that omit any mention of general witnesses are Arizona and Nevada. See *infra* app. 1, tbl.18.

[411](#) These eight states are: Arkansas, Florida, Idaho, Illinois, Indiana, Maryland, Missouri, and Wyoming. See *infra* app. 1, tbl.18.

[412](#) See *supra* notes 294–313 and accompanying text (discussing all the stages of the litigation).

[413](#) See *supra* notes 312–13 and accompanying text.

[414](#) Denno, *Getting to Death*, *supra* note 1, at 439–64; see also *supra* notes 142, 152–54, 165–69, 210; *infra* notes 424–25 and accompanying text.

[415](#) Denno, *Getting to Death*, *supra* note 1, at 388–98; see also *supra* notes 6, 9, 32–38, 57, 150–51, 171, 203–04 and accompanying text. Kentucky is a classic example of how a state legislature’s decision to switch from electrocution to lethal injection sparked a debate about the acceptability of the death penalty itself. Michael Collins, *Bill Replaces Electrocution with Lethal Injection*, CIN. POST, Jan. 9, 1998, at 5K; Tom Loftus, *1998 Kentucky General Assembly; House Backs Execution by Injection*, COURIER-JOURNAL (Louisville, Ky.), Jan. 15, 1998, at 1B.

[416](#) See *supra* notes 109–36 and accompanying text; *infra* app. 1, tbls.1–6.

[417](#) See *infra* app. 1, tbl.8.

⁴¹⁸ *Condemned Man's Mask Bursts Into Flame During Execution*, N.Y. TIMES, Mar. 26, 1997, at B9 [hereinafter *Condemned Man's Mask*].

⁴¹⁹ *Id.*

⁴²⁰ See generally Denno, *Getting to Death*, *supra* note 1, at 391–98; Denno, *Electrocution*, *supra* note 1; *supra* notes 2–3 and accompanying text.

⁴²¹ *Man Executed for 1986 Murder*, AUSTIN AMERICAN-STATESMAN, June 21, 1995, at B5.

⁴²² *Callins v. Collins*, 510 U.S. 1141, 1143 (1994) (Scalia, J., concurring).

⁴²³ *Id.*

⁴²⁴ See *supra* notes 139–40 and accompanying text.

⁴²⁵ See *supra* note 141; *infra* note 440 and accompanying text.

⁴²⁶ See *supra* notes 10, 37–38, 171, 180–81 and accompanying text.

⁴²⁷ The protocol for a federal lethal injection consists of three ten-second injections into the saline running through the intravenous tube. The injections are one minute apart. The three drugs used in the lethal injection are sodium thiopental, pancuronium bromide, and potassium chloride. When all goes as planned, death takes less than two minutes after the final injection. The entire execution takes about four and a half minutes. Murray, *supra* note 205; Lois Romano, *McVeigh is Executed*, WASH. POST, June 12, 2001, at A13.

⁴²⁸ At 7:10 a.m. EDT, the first chemical was injected into the intravenous line in McVeigh's right leg, which was not visible to the witnesses. Romano, *supra* note 427. The next drug was administered at 7:11, and at 7:14 McVeigh was dead. *Witnesses Describe McVeigh's Last Moments*, CNN.COM LAWCENTER, (June 11, 2001), at <http://www.cnn.com/2001/LAW/06/11/mcveigh.witnesses/> [hereinafter *Witnesses Describe McVeigh's Last Moments*]. In total, the execution was four minutes long. Romano, *supra* note 427.

⁴²⁹ Pam Belluck, *The Scene: Calm at Execution Site and Silence by McVeigh Prove Unsettling for Some*, N.Y. TIMES, June 12, 2001, at A27.

⁴³⁰ *Id.*

⁴³¹ *Witnesses Describe McVeigh's Last Moments*, *supra* note 428, at <http://www.cnn.com/2001/LAW/06/11/mcveigh.witnesses>; see also Romano, *supra* note 427. Most witnesses reported that McVeigh's eyes blinked a few times and then very slowly started to move back in his head. Rick Bragg, *McVeigh Dies for Oklahoma City Blast*, N.Y. TIMES, June 12, 2001, at A1; see also Paul Duggan, *Too Easy For Him: For Witnesses in Oklahoma, A Long Day Brought Little Relief*, WASH. POST, June 12, 2001, at A1; Alex Rodriguez, *U.S. Executes its Worst Terrorist*, CHI. TRIB., June 12, 2001, at A17; *Witnesses Describe McVeigh's Last Moments*, *supra* note 428, at <http://www.cnn.com/2001/LAW/06/11/mcveigh.witnesses>. Others observed McVeigh blow air out of his mouth twice before his eyes rolled back. Bragg, *supra*; see also Duggan, *supra*; Rodriguez, *supra*. These accounts agree that the death seemed peaceful.

⁴³² Caryn James, *The Coverage: The Oklahoma Bomber's Final Hours Are Hardly Television News's Finest*, N.Y. TIMES, June 12, 2001, at A26. Several witnesses observed McVeigh's eyes turning glassy. Bragg, *supra* note 431.

⁴³³ James, *supra* note 432; see also Bragg, *supra* note 431; Romano, *supra* note 427. Another victim witness observed a momentary lapse in McVeigh's otherwise blank expression—as the sedative took hold, McVeigh apparently clenched his mouth as if “he was trying to fight the sleep.” Bragg, *supra* note 431. Another witness account also recalls McVeigh's pursed lips and a tight jaw. Romano, *supra* note 427.

⁴³⁴ Romano, *supra* note 427.

⁴³⁵ Telephone Interview with Edward Brunner, M.D., Ph.D., Professor of Anesthesiology, Northwestern University Medical School (Aug. 6, 2001); see also Bruce Shapiro, *Dead Man Waking*, TALK MAG., Oct. 2001, at 86 (discussing the observations of Mark Heath, an anesthesiologist and neuroscientist at Columbia Presbyterian Medical Center, stating that McVeigh's tear was “a classic sign of an anesthetized patient being awake”).

⁴³⁶ *20/20 Friday: An Eye for an Eye, A Life for a Life; The Prosecutor; Joseph Hartzler Discusses Prosecuting Timothy McVeigh* (ABC television broadcast, May 4, 2001); *20/20 Friday: An Eye for an Eye, A Life for a Life; The Victims; Victims and Relatives Share Views on McVeigh's Execution* (ABC television broadcast, May 4, 2001).

⁴³⁷ Murray, *supra* note 205; *20/20 Friday: An Eye for an Eye, A Life for a Life; The Death House; Warden Burl Cain Describes Death by Lethal Injection* (ABC television broadcast, May 4, 2001).

⁴³⁸ Murray, *supra* note 205.

⁴³⁹ *20/20 Friday: An Eye for an Eye, A Life for a Life; The Executioners; Executions Take High Toll on People Who Perform Them* (ABC television broadcast, May 4, 2001).

⁴⁴⁰ See *supra* notes 165–69, 367 and accompanying text.

⁴⁴¹ FOUCAULT, DISCIPLINE AND PUNISH, *supra* note 2, at 9.