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Fred Zain, the CSI Effect, and a Philosophical Idea of Justice: Using West Virginia as a Model for Change

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I. INTRODUCTION

A new trend has jurors demanding more forensic evidence in criminal trials before deciding to convict an accused. Some in the legal community and in the media trace this demand back to popular television shows that depict crime scene investigations, such as CSI: Crime Scene Investigations ("CSI"); however, it is more probable that this demand has come naturally, through our society's own cultural and technological advancements. This demand for scientific proof also comports with our collective ideas about justice. As the demand for such evidence rises, so does the level of trustworthiness a jury has for the expert introducing such evidence at trial. Because the demand for forensic evidence not only means that the prosecution feels compelled to produce such evidence at all costs but also means that the jury gives the forensic expert a heightened level of trustworthiness to the detriment of the defense, there is a significant need for change in the way such evidence is used and standardized. This Note uses the unchecked fraud of Fred Zain, a now infamous figure in the forensic community, and the inability of the indigent defendant to acquire rebuttal forensic experts as a call for change.

Much has been made of this trend in forensic evidence in recent years. Judges and prosecuting offices have conducted studies to survey the validity of this demand for forensic evidence. In addition, defense attorneys point to instances of significant fraud, on the part of several prominent forensic examiners, as a call for change in the treatment of forensic evidence. No matter which side of the courtroom an attorney sits, it is clear that this issue is paramount in today's criminal justice system. The issues confronted here go to the heart of our collective idea of justice: that only a truly guilty person should be robbed of his or her liberty.

Television shows like CSI are certainly sexy, but what effect, if any, does a show like CSI have on society's concept of truth and justice? Do jurors

1 As used in this Note, see infra Part II, "forensic evidence" refers to the scientific collection and analysis of physical evidence in criminal cases. This includes tests such as fingerprinting, hair analysis, bite mark analysis, and DNA testing. See Counterterrorism and Forensic Science Research, THE FEDERAL BUREAU OF INVESTIGATION: LABORATORY SERVICES, http://www.fbi.gov/about-us/lab/counterterrorism-forensic-science-research (last visited Feb. 21, 2012).


3 See, e.g., George Castelle, Lab Fraud: Lessons Learned from the 'Fred Zain' Affair, CHAMPION, May 23, 1999, at 12.
who become “educated” about crime scene investigations through watching these shows become experts in the jury room? Many prosecutors argue in the affirmative.\(^4\)

When scholars first began studying this phenomenon, later termed the “CSI effect” by the media and the legal community, scholars debated whether it existed. Most determined that if the CSI effect did exist, its existence had never been proven empirically; therefore, there was no way to definitively answer the question.\(^5\) However, now that empirical studies have proven there is some sort of effect on today’s juries, what is it?\(^6\) Our society today is more technologically and scientifically advanced than ever before. Even jurors with only basic knowledge are more savvy than those jurors who took the box ten years ago. This new awareness of technology and scientific methods means that jurors demand more scientific evidence than ever before. Although at first this would seem more burdensome for the prosecution, those representing the government, state or federal, have vast resources on their side when compared to the indigent defendant. Additionally, once this scientific evidence is produced, it creates an almost irrebuttable presumption of guilt in the mind of the juror. This is most evidenced in the fraud of the Fred Zain affair. Fred Zain’s fabrication of evidence went unchecked for years. His ability to find conclusive forensic evidence proving a defendant’s guilt when there seemingly was none made him a star witness for the prosecution, but what did he leave in the wake of his fraud?

This Note offers arguments for change in the way that forensic evidence is treated in a criminal trial. Part II surveys the evidentiary law behind the admissibility of forensic evidence, the indigent defendant’s right to a forensic expert, and the convicted person’s right to DNA testing. Part II also gives an overview of the American jury system and the origins of the CSI effect. Part III analyzes several arguments for change in the treatment of forensic evidence, from the irrebuttable presumption of guilt, to the CSI effect, to the inability of the indigent defendant to acquire his or her own forensic expert, and to the fraud of Fred Zain. Part IV reviews recommendations for change in the treatment of forensic evidence. This Note is intended to provide significant support for change

\(^4\) See, e.g., MCAO, supra note 2, at 5 (“In June 2005, the Maricopa County Attorney’s Office conducted a survey of 102 prosecutors with jury trial experience. . . . The prosecutors were asked about their experiences with jurors seeking irrefutable physical and scientific evidence and their perceptions of a possible ‘CSI Effect’ among juries. This study found a significant CSI influence in Maricopa County juries.”).


\(^6\) See, e.g., Shelton, supra note 2, at 34 (“Rather than any direct CSI Effect from watching certain types of television programs, our studies in Washtenaw and Wayne Counties suggest that these juror expectations and demands for scientific evidence are the result of broader changes in our popular culture, fostered by the mass media and by litigants’ beliefs that the effect exists. Those broad and pervasive changes lead jurors to expect that the prosecutor and the defense will obtain and present the scientific evidence that technology has made possible.”).
in the treatment of forensic evidence as well as survey recommendations for that change.

II. BACKGROUND: THE BUILD UP OF FORENSIC EVIDENCE

Most scholars agree that forensic evidence has been used in criminal cases for more than a century. The term “forensic medicine” was first used in 1816, thus, replacing the older term “medical jurisprudence.” It was not until 1936 that the term “forensic science” was used in any official capacity, and it was not until the 1960s that the phrase took on its now widely known meaning: forensic “denote[s] the police officers and scientists who specialise in the collection and analysis of trace evidence left at crime scenes.” As one commentator said, “Today, it is commonplace to speak of ‘forensic evidence,’ yet barely two generations ago, this would have seemed a meaningless tautology.”

Because forensic evidence has long been used in criminal trials, the case law regarding forensic evidence developed with the application of less stringent evidentiary standards than the standard which is followed in the majority of jurisdictions now. Recently, however, many in the scientific and legal communities have begun to cast doubt on the reliability and validity of much forensic testimony.

A. Legal Background

Much of the legal background concerning forensic evidence falls under the Rules of Evidence, both in federal and state courts. Forensic evidence is presented at a criminal trial through the testimony of an expert. To rebut this

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7 See, e.g., Hon. Donald E. Shelton, Forensic Science Evidence and Judicial Bias in Criminal Cases, 49 JUDGES J. 18, 18 (2010).
8 Michael J. Clark, Wellcome Trust Centre for the History of Medicine at UCL, Historical Keywords: Forensic, 366 LANCET 1351 (2005) (“[T]he earliest use of the corresponding English expression seems to have been in George Edward Male’s Epitome of Juridical or Forensic Medicine (1816). Thereafter, ‘forensic medicine’ gradually replaced the older term ‘medical jurisprudence.’”).
9 Id.
10 Id.
11 Shelton, supra note 7. See also infra Part II.A.1 for a discussion of the previous “generally accepted” standard versus the modern standard for forensic testimony.
12 Shelton, supra note 7. (“The last 20 years have ushered in an era of doubt about the validity of forensic testimony.”).
13 Although the specific rules for expert testimony may vary through jurisdictions, the following is a discussion of generalities that are true for all jurisdictions, federal or state; specific jurisdictional rules are noted as such.
14 See, e.g., FED. R. EVID. 702; W. VA. R. EVID. 702 (“If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.”).
testimony, the Rules of Evidence allow for the defendant to strongly cross-examine the expert as well as produce an expert for the defense. Once a defendant has been convicted, most states also have statutes that outline the convicted person’s right to DNA testing.

1. The Rules of Evidence

The United States Supreme Court promulgated the admissibility requirements of expert testimony under the Federal Rules of Evidence, which have recently changed. The Federal Rules of Evidence govern the admissibility of expert testimony under Rule 702. The Rule states,

\[
\text{A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert’s scientific technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.}
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Forensic evidence, however, received its introduction in criminal trials, both federal and state, under the old rule and the old test for admissibility articulated

15 See Fed. R. Evid. 611(b); W. Va. R. Evid. 611(b).
16 Rule 702 of the Federal Rules of Evidence and other similar state evidentiary rules, such as Rule 702 of the West Virginia Rules of Evidence, provide for the opinion testimony of a qualified expert witnesses at trial; however, some of the most difficult questions courts have faced in regards to expert testimony is what are the rights of the indigent defendant who cannot afford an expert. See infra Part II.A.2.
18 Fed. R. Evid. 702. The rule was amended twice in recent history. See Fed. R. Evid. 702 advisory committee’s note. The language of the rule was amended in 2000 in response to Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), and to the many cases applying Daubert, including Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999). In Daubert the Court charged trial judges with the responsibility of acting as gatekeepers to exclude unreliable expert testimony, and the Court in Kumho clarified that this gatekeeper function applies to all expert testimony, not just testimony based in science.
19 Id. The rule was amended again in 2011 “as part of the restyling of the Evidence Rules to make them more easily understood and to make style and terminology consistent throughout the rules. These changes are intended to be stylistic only. There is no intent to change any result in any ruling on evidence admissibility.” Id.
by the D.C. Circuit in Frye v. United States\textsuperscript{20} in 1923.\textsuperscript{21} The Frye test articulated a “general acceptance” test for scientific principles.\textsuperscript{22} “Some states still use the ‘general acceptance’ test” but most states as well as federal courts use the “revised admissibility standard[s]” developed by the Court in Daubert v. Merrell Dow Pharmaceuticals, Inc.\textsuperscript{23} The Daubert standard, now codified in the Rule, requires the judge to assess the scientific validity of the proposed testimony under Rule 702 by evaluating the reasoning and methodology used by the expert.\textsuperscript{24}

Although the Daubert standard was articulated in a civil case,\textsuperscript{25} the case and the decisions subsequent to it\textsuperscript{26} have “significantly changed the legal landscape for the admission of forensic science evidence in criminal cases.”\textsuperscript{27} The standard of admissibility has risen from “general acceptance” to requiring the trial judge to determine “scientific validity, requiring empirically sound theoretical foundations appropriately applied to the particular case.”\textsuperscript{28} This new stand-

\textsuperscript{20} 293 F. 1013 (D.C. Cir. 1923).
\textsuperscript{21} Shelton, supra note 7.

The use of forensic evidence in criminal cases in the United States is well over a century old. The case law developed with the application of the Frye doctrine, which required only that such testimony be “generally accepted.” As more courts admitted testimony from any particular forensic science field, other courts used those decisions to bolster the idea that the field was “generally accepted.” There was rarely any challenge to the scientific reliability of such evidence, especially if proffered by prosecutors. The routine acceptance of forensic expert testimony for the prosecution expanded beyond areas of physical science or physical examination. Psychologists, sociologists, social workers, and even counselors or police officers were allowed to give their opinion that the testimony, or other conduct, of a complainant was consistent with a person who had been sexually abused in the manner similar to that described by the complainant. Nevertheless, most courts did not allow social scientists proffered by the defense to testify to the unreliability of eyewitness testimony.

Id.\textsuperscript{22}


\textsuperscript{23} Shelton, supra note 7, at 19. For a detailed listing of the admissibility standard used in each state for scientific evidence see id. at 23.

\textsuperscript{24} Id. at 19 (“The Court held that when faced with a proffer of expert scientific testimony under Rule 702, the trial judge must preliminarily assess the scientific validity of the testimony’s underlying reasoning or methodology and determine whether it can be properly applied to the facts at issue.”).


\textsuperscript{26} “[T]wo subsequent Supreme Court amplifications . . . commonly referred to as the Daubert trilogy, directed trial judges to examine the principles and methodology of proffered scientific evidence, rather than focus only on conclusions as to what was generally accepted.” Shelton, supra note 7, at 19 (citing Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999); Gen. Elec. Co. v. Joiner, 522 U.S. 136 (1997)).

\textsuperscript{27} Id.

\textsuperscript{28} Id.
ard requires criteria such as “proof of testability, error rate, and peer review.”

Additionally, the Court pronounced “the trial judge as the ‘gatekeeper’ who
must make the scientific reliability and applicability assessment of the proffered
evidence before it may be presented to the jury.” As the “gatekeeper,” the trial
judge has an enormous responsibility under this standard.

Like most states, the West Virginia Rules of Evidence were “modeled
after their federal counterparts; therefore, the history of the federal rules pro-
vides guidance in interpreting [West Virginia’s] rules.” More precisely, West
Virginia “[R]ule 702 is identical to Rule 702 of the Federal Rules of Evi-
dence.” Consequently, West Virginia has adopted the Daubert standard of
admissibility.

2. The Indigent Defendant

As expert testimony moves to the forefront of criminal trials, the indi-
gent defendant has received some statutory rights in order to hire his or her own
expert. In federal trials, “the Criminal Justice Act provides for expert assistance
for indigent defendants . . . . The Act, however, limits expenses for experts to
$1,000.00 unless the court certifies that a greater amount is ‘necessary to pro-
vide fair compensation for services of an unusual character or duration.”
Most states also have similar provisions, but the amount of money given to the indi-
gent defendant for a forensic expert is usually shamefully minimal. In West
Virginia, for example, the indigent defendant has a statutory right to request
payment for an expert witness, but the trial court must still approve such ex-

29 Id.
30 Id.
regards to expert testimony).
33 Id. at 203.
34 Paul C. Giannelli, Forensic Science, 33 J.L. MED. & ETHICS 535, 539 (2005) (footnote omit-
ted).
35 Id. The state statutes providing for expert assistance for indigent defendants differ in a varie-
ty of respects. See Paul C. Giannelli, Ake v. Oklahoma: The Right to Expert Assistance in a Post-
differences see id. Among other differences he explains that

some statutes provide for the payment of reasonable expenses, while others
specify a maximum amount. Some of these limits are shamefully low: $250
for each capital defendant in Illinois, 725 ILL. COMP. STAT. 5/113-3(d) (West
2011), and $300 per expert in . . . New Hampshire, N.H. REV. STAT. ANN. §
604-A:6 (2011). In some instances, statutes that establish maximums do per-
mit reimbursement for expenses above the maximum in extraordinary circum-
stances.

Id. (internal citation omitted).
The defendant must (1) request the expert in writing; (2) "detail why the expert is needed"; (3) have the opportunity to elaborate on the motion; and (4) if the request is denied, the trial court should place specific reasons for its ruling in the record. The Supreme Court has also recognized the constitutional need for indigent defendants to have access to certain experts, such as in the realm of psychiatry. In recognizing this right, the Court was concerned with an indigent's "meaningful access to justice." In other words, when a state brings its judicial power down upon an indigent defendant, "it must take steps to assure that the defendant has a fair opportunity to present his defense." This fundamental principle, grounded in significant part on the Fourteenth Amendment's due process guarantee of fundamental fairness, derives from the belief that justice cannot be equal where, simply as a result of his poverty, a defendant is denied the opportunity to participate meaningfully in a judicial proceeding in which his liberty is at stake.

The Court further stated "a criminal trial is fundamentally unfair if the State proceeds against an indigent defendant without making certain that he has access to the raw materials integral to the building of an effective defense." In determining that, in some instances, a psychiatrist is just such a raw material, the Court specified that a defendant has access to a competent professional, not necessarily the defendant's own psychiatrist or even a psychiatrist that the defendant likes. The Court has yet to determine whether a forensic expert is such a raw material.

36 W. VA. CODE ANN. § 29-21-13a(e) (LexisNexis 2012) ("Actual and necessary expenses incurred in providing legal representation for proceedings of any kind involving felonies for which a penalty of life imprisonment may be imposed, including, but not limited to, expenses for travel, transcripts, salaried or contracted investigative services and expert witnesses, shall be reimbursed in an amount as the court may approve.").

37 State v. Brown, 552 S.E.2d 390, 402 (W. Va. 2001) (per curiam) (quoting Syl. pt. 1, State ex rel. Foster v. Luff, 264 S.E.2d 477, 478 (W. Va. 1980)). In Brown the court found no error in the decision of the trial court to deny the defendant payment for an expert jury specialist even though the trial court failed to specify its reasons for denying the motion. Id. at 402–03.


39 Id. at 77.

40 Id. at 76.

41 Id.

42 Id. at 77.

43 Id. at 83 (“We therefore hold that when a defendant demonstrates to the trial judge that his sanity at the time of the offense is to be a significant factor at trial, the State must, at a minimum, assure the defendant access to a competent psychiatrist who will conduct an appropriate examination and assist in evaluation, preparation, and presentation of the defense. This is not to say, of
Even though many courts, both state and federal, now in some instances provide access to forensic experts, appellate courts have been reluctant to reverse a trial court's decision not to grant an expert to an indigent defendant. For example, the Tenth Circuit denied a petitioner's appeal because the forensic expert testimony proposed by the defense at trial did not go beyond the level of pure speculation. The petitioner, Malcolm Rent Johnson, appealed a decision of the district court that denied his request for habeas corpus relief. Many believe now that the pure speculation was actually the testimony of the state's forensic expert witness, Joyce Gilchrist. Gilchrist testified that samples taken from the victim's bedroom showed semen with Johnson's blood type; semen that her colleagues later found did not exist. Based on Gilchrist's bunk scientific testimony, Johnson was convicted of murder and sentenced to death; he was executed in Oklahoma on January 6, 2000.

3. DNA Testing Rights

Once convicted, in most states, the defendant still has a right to one forensic test: a DNA test. DNA testing is the analysis of the genetic component of cells in the human body in order to identify identical genes. In West Virginia, an individual convicted of a felony serving a term of imprisonment may motion course, that the indigent defendant has a constitutional right to choose a psychiatrist of his personal liking or to receive funds to hire his own. Our concern is that the indigent defendant have access to a competent psychiatrist for the purpose we have discussed, and as in the case of the provision of counsel we leave to the State the decision on how to implement this right."

See, e.g., Johnson v. Gibson, 169 F.3d 1239 (10th Cir. 1999); see also State v. Lee, 976 So. 2d 109 (La. 2008).

Johnson, 169 F.3d at 1247.


Id.

Id. For a more detailed discussion of the case see infra Part III.C.1.


DNA is material that governs inheritance of eye color, hair color, stature, bone density and many other human and animal traits. DNA is a long, but narrow string-like object. . . . Our body's cells each contain a complete sample of our DNA. . . . Basically, every part of the body is made up of these tiny cells and each contains a sample or complement of DNA identical to that of every other cell within a given person. There are a few exceptions. For example, our red blood cells lack DNA. Blood itself can be typed because of the DNA contained in our white blood cells.

Id.
the trial court that entered the judgment of conviction for a DNA test. The motion will only be granted where, among other requirements, the identity of the perpetrator of the crime was significant in the case, and DNA testing would raise a reasonable probability that the convicted person's verdict would be more favorable. The request will be denied where the evidence to be tested was merely one piece used at trial, and even without that evidence taken into consideration, the state still had overwhelming evidence to convict the petitioning individual. This statutory right, however, only arises after conviction.

B. The Jury System

The Sixth Amendment of the Constitution guarantees judgment by a jury in a criminal trial. The text of the Amendment provides that:

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defense.

This right has been incorporated to the states through the Fourteenth Amendment as the right to a speedy trial, the right to a public trial, and the right to an impartial jury. The right, however, does have its limitations. The Supreme Court has ruled that jury trials for petty offenses, crimes carrying a potential punishment of less than six months, are not guaranteed.

A “jury trial begins with the summoning of a group of people as potential jurors and eliciting information from them in a process called the voir dire.” Although courts may conduct voir dire differently—some courts allow

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52 Id.
53 State ex rel. Burdette v. Zakaib, 685 S.E.2d 903 (W. Va. 2009) (denying post-conviction DNA testing because (1) the cigarette butt that petitioner sought to have tested was merely one piece of the evidence used at his trial, and (2) a thorough review of the record revealed that even without the cigarette butt, the State still had overwhelming evidence to convict petitioner).
54 U.S. CONST. amend. VI.
55 Id.
60 Id. at 16.
the attorneys to question the jurors while in other courts the judge will conduct
the questioning—the process allows for each side to gain information about
the potential jurors. Based on this information counsel can eliminate potential
jurors by exercising challenges. The number of jurors is prescribed by the ju-
risdiction and is usually either six or twelve. After the jury is selected, the
judge instructs it on some of the basic law and procedures applicable to the
case. This is followed by opening statements, and then the attorneys are off in
pursuit of their respective cases.

C. CSI Effect Background

The supposed CSI effect is a much discussed phenomenon among jurors
in the media and by those in the legal community. It has been credited with the
modern juror’s demand for more physical and scientific evidence at trial. Many
in the legal community link this demand to television shows like CSI: Crime
Scene Investigations. The show now has several spin-offs, CSI: Miami and
CSI: New York, and is shown in syndication practically twenty-four hours a
day. Since the inception of this type of show, millions of viewers have tuned
in to watch episodes like Iced, where three bizarre murders are solved in an hour
using a myriad of high-tech science, most of which is not available in reality.

An example of the unrealistic standard of scientific evidentiary proof
employed in the show CSI appears in the episode Harvest. In this episode, the

61 See, e.g., W. VA. TRIAL COURT R. 42.03.
(a) The attorneys conducting the case shall be permitted to ask voir dire ques-
tions of the prospective jury panel members unless the presiding judicial of-
er officer finds that there are justifiable reasons to deny such attorney voir dire....
(b) If attorney-conducted voir dire is not permitted, the attorneys conducting
the case may request that the judicial officer ask specific additional or sup-
plemental voir dire questions of the prospective jury members.

62 JONAKAIT, supra note 59, at 16.
63 Id.
64 Id.
65 See W. VA. TRIAL COURT R. 42.04(a) (“Opening Statements. At the commencement of trial
in a criminal action, the State and the defendant may make non-argumentative opening statements
as to their theories of the case and the manner in which they expect to offer their evidence.”).
66 See, e.g., MCAO, supra note 2, at 2–5.
67 Id. at 4 (“Nine of the top 20 rated shows nationally are forensic crime television dramas....
Cable television and satellite television make past episodes of these programs available twenty-
four hours a day.”); see also Tyler, supra note 5, at 1052.
68 See Tyler, supra note 5, at 1052.
69 Id. at 1058–59 (citing CSI: Crime Scene Investigation: Harvest (CBS television broadcast
investigation “crew encounters the twisted Perez family.” The family has a twenty-year-old son dying of leukemia, so the parents genetically engineer their youngest daughter in order to harvest her body for organs, bone marrow, and stem cells. Trouble for the family starts when the little girl goes missing and is later found dead. Fibers and footprints link the father to the crime scene; however, the real killer is the terminally ill son, who ground poison into the girl’s milk to put her out of her misery. Of course, the whole story is wrapped up in one hour, and the physical and scientific proof is so concrete that it forces the father to confess to dumping his daughter’s body.

The majority view among legal scholars is that the CSI effect does not exist. Several speculate that if there is any heightened expectation among jurors, it comes from our society’s own cultural advancements in technology and information sharing, not a fictional television show. However, many lawyers in the criminal field argue that the CSI effect is very much real.

III. PSEUDO-SCIENCE AND THE CSI EFFECT: A PERFECT STORM FOR FRED ZAIN

The heightened demand from jurors for forensic evidence, no matter this demand’s source, has created a need for change in the way such forensic evidence is treated. The pressure on the prosecution to produce this evidence could lead a forensic examiner to overstate results or, at worst, completely make them up. Combined with this demand for forensic evidence is the juror’s heightened trust for the testifying forensic examiner at trial. This trust creates an insurmountable obstacle for the defense. Because of both factors—the propensity to falsify evidence and the trust for the examiner by the jury—the way in which forensic evidence is treated needs significant improvement.

A. Pseudo-Science and an Irrebuttable Presumption of Guilt

Not all forensic evidence is created equal; therefore, not all forensic evidence should be treated equally by a jury. “Statistics can have the unfortunate

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70 Id.
71 Id.
72 Id. at 1059.
73 Id.
74 Id. at 1058–59.
75 See, e.g., id. at 1053 (“While the CSI effect has been widely noted in the popular press, there is little objective evidence demonstrating that the effect exists. As is often the case with legal issues, the pace of public discussion has outstripped the ability of scholars to research the issue.”).
76 See, e.g., Shelton, supra note 2, at 12.
77 See MCAO, supra note 2, at 2.
78 See, e.g., infra Part III.D (discussing the fraud of Fred Zain).
quality of lending an appearance of legitimacy to questionable scientific conclusions or, as the court stated . . . "[P]seudo-science is eminently convincing because it is accompanied by all the mumbo-jumbo of real science." 79 Pseudo-science is also particularly damaging because of the level of trustworthiness a jury gives to a forensic science expert. Scientific experts at trial create an irrebuttable presumption of guilt in the minds of the jury, whether the expert is presenting pseudo-science or a more reliable scientific testing. As discussed below, there is little one can do to exclude forensic evidence from trial even if it is “pseudo-science.”

1. Post-Daubert

Daubert changed the admissibility requirements of expert testimony from a “generally accepted” test to a test where the trial judge must determine the scientific validity of evidence. 80 Although in the civil context Daubert is often used by the defense and judges to exclude the plaintiff’s expert testimony, in the criminal forensic field, it has received little attention. 81

Some scholars argue that if the Daubert standard were taken as stringently in criminal cases as it is in civil cases, much of what we think of as forensic science evidence would not be admitted in trial. 82 One reason is that most of the testimony in the forensic field “has no origin or basis outside of the context of criminal investigation and litigation.” 83 Another reason for exclusion under the Daubert standard is the lack of reliability and standardization in many forensic tests, such as fingerprinting and hair analysis. 84 Even though in recent years there have been significant questions, such as these, as to the validity of many forms of forensic science evidence, “criminal court judges, at both the trial and appellate levels, continue to admit virtually all prosecution-proffered expert testimony.” 85

The “general acceptance” of most all prosecution proffered forensic evidence does not stop the defense in some cases from moving the court to exclude the prosecution’s forensic expert witness. In United States v. Havvard, 86

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80 See Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993); Shelton, supra note 7, at 19. For a discussion, see supra Part II.A.1.
81 Shelton, supra note 7, at 19–20.
82 See id. at 20.
83 Id.
84 See infra Part III.A.2 for further discussion of pseudo-science techniques.
85 Shelton, supra note 7, at 20.

Havvard was charged with being a felon in possession of firearms . . . . Before trial, Havvard filed a motion in limine seeking to bar the government from of-
for example, Havvard’s defense attorney filed a motion to exclude the government’s expert fingerprint witness, arguing that the expert’s opinion was a subjective opinion and that it was not sufficiently reliable. Havvard supported his argument by relying on the fact that the examiner refused to give a standard by which latent fingerprints are matched, and he described the examiner’s opinion as subjective. In response, the government argued that the test is so well-established that a hearing was not even needed, and that the judge should “essentially take judicial notice of the [test’s] reliability.” Although the court did not use the government’s logic, it still found the test satisfied the Daubert standard. In doing so, the court focused on the fact that the fingerprinting technique can be tested, it has a low error rate, and it is peer-reviewed. The court concluded by saying “[i]n fact, after going through this analysis, the court believes that latent print identification is the very archetype of reliable expert testimony under those standards.” Even under the standards of Daubert, Havvard did not have a chance at keeping the fingerprinting expert’s admittedly subjective opinion out of court.

2. Pseudo-Science

There are several types of investigative tools at a forensic examiner’s disposal, including fingerprinting, ballistics, and bite mark analysis. Two of

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Id. at 849. The case has not been overturned on appeal.

87 Id. at 850.

88 Id.

89 Id. at 851.

90 Id. at 853–54 (“The court has adapted the Daubert reliability factors to this case, and those factors strongly support the reliability of latent print identification despite the absence of a single quantifiable threshold.”).

91 Id. at 854–55.

92 Id. at 855.

93 The court was quick to point out, however, that Havvard had his own consulting expert on fingerprint issues. He also had the opportunity at trial to call his own witness to offer a different opinion or to show the jury if there was any discrepancy between the latent print on the firearm and the known print of the defendant’s index finger. He did not do so.

Id.

94 Depending on the resources available, forensic examiners have a wide range of techniques and methodologies available to them. “Some of the forensic science disciplines are laboratory based (e.g., nuclear and mitochondrial DNA analysis, toxicology and drug analysis); others are based on expert interpretation of observed patterns (e.g., fingerprints, writing samples, toolmarks, bite marks, and specimens such as hair).” Nat’l Research Council, Nat’l Acad. of Sci.,
these tools, however, are on opposite ends of the reliability spectrum: hair analysis and DNA profiling. DNA profiling has a stringent standard of proof, but hair analysis has no such standard. At an ever-increasing rate, hair analysis is moving towards the realm of "pseudo-science mumbo-jumbo."

a. Hair Analysis

Although on television hair analysis may seem concrete and absolute, in reality, it is probably the most controversial and subjective forensic analysis available. One scholar has said hair analysis "is comparable to telling the jury that the perpetrator wore a white shirt and the defendant owns a white shirt." Unlike other more concrete forms of forensic analysis, forensic examiners are not required to follow a set of uniform standards to declare a match between two hairs. One examiner may decide a lower number of features on the hairs is acceptable to declare a match than another examiner.

The National Academy of Sciences ("NAS") Report on forensic science found that "testimony linking microscopic hair analysis with particular defendants is highly unreliable." This finding was stunning to many in the legal community because hair evidence has been used and relied upon as material evidence for more than a century. With this recent revelation among forensic examiners, it remains to be seen how much this type of evidence will be relied upon or admitted in future trials. Judging from the treatment given to forensic

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95 Id. ("With the exception of nuclear DNA analysis . . . no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source. In terms of scientific basis, the analytically based disciplines [such as DNA analysis] generally hold a notable edge over disciplines based on expert interpretation [such as hair analysis].").

96 "The most controversial aspect of expert testimony involves attempts to individuate the hair sample." Paul C. Giannelli, Microscopic Hair Comparisons: A Cautionary Tale, 46 CRIM. L. BULLETIN 1, 24 (2010). Hair analysis consists of several steps:

[t]he first step in the analysis is determining whether a sample is a hair rather than a fiber. Next, the examiner attempts to ascertain (1) whether the hair is of human or animal origin; (2) the part of the body that the hair came from (scalp, pubic, or limb hair); (3) racial origin; (4) whether the hair has been dyed; (5) whether the hair was pulled or fell out as a result of natural causes or disease; and (6) whether the hair was cut or crushed.

Id. The examining expert views the hair both macroscopically and microscopically, and the ultimate determination of identifying characteristics is left to the opinion of the examining expert. Id.

97 Id.

98 Id. at 3.

99 NAS REPORT, supra note 94, at 161.

100 Giannelli, supra note 96, at 1.
evidence under the *Daubert* standard by the *Harvard* court, however, hair analysis will likely be admitted by trial courts in perpetuity.

b. Forensic Serology and DNA Analysis

DNA profiling, unlike other forensic science techniques, is not unique to criminal law; it is the cutting edge of science.\(^{101}\) Therefore, unlike other forensic techniques used by crime labs across the country, such as hair analysis, DNA profiling has always been held to the high stringent standards that scientists use when conducting research.\(^{102}\) It has been an invaluable tool in proving the innocence for many wrongly convicted defendants, and as discussed later, it was DNA that exposed a sixteen-year fraud by one infamous West Virginia serologist, Fred Zain.\(^{103}\) One report said of wrongful convictions that “[t]he chief culprit in over seventy-five percent of the cases was mistaken eyewitness identification testimony, but in more than one third of the exonerations, flawed forensic evidence other than DNA, played a role.”\(^{104}\) The report went on to say that “[p]articularly problematic was expert testimony based on microscopic hair analysis that was admitted in a number of cases in which courts later vacated the convictions on the basis of DNA testing.”\(^{105}\)

Although many studies point to incorrect eyewitness identification as the chief cause for wrongful convictions,\(^{106}\) the Rules of Evidence are well equipped to deal with this situation. The trier of fact, usually the jury, has the opportunity to evaluate the witness firsthand, and the defense has the opportunity to zealously cross examine that witness.\(^{107}\) While the same is true for forensic

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\(^{102}\) *Id.*


\(^{104}\) Berger, *supra* note 101, at 321.

Unlike techniques like ballistics, fingerprinting, or bitemark analysis which were developed and exist solely in the world of forensics, forensic DNA profiling is the fortuitous byproduct of cutting edge science. Consequently, eminent scientists participated from the first in validating DNA testing for forensic use. They quickly realized that the practices followed in many crime laboratories were considerably less stringent than the standards scientists employ in conducting research. By the 1990s, two committees convened by the National Research Council stressed the need for laboratories to develop procedures that would minimize the risk of error.

\(^{105}\) *Id.*

\(^{106}\) *Id.*

\(^{107}\) *See id.*

\(^{108}\) *See FED. R. EVID. 611(b); W. VA. R. EVID. 611(b).*
expert witness testimony, there is often a presumption of correctness and trustworthiness for the expert on behalf of the jury. As discussed below, the jury presumes that scientific proof means guilt.

Although DNA testing is much more reliable than hair analysis, there is no accounting for fraudulent evidence. “DNA testing is now done routinely and is correctly viewed as the most remarkable forensic tool we have ever had. But DNA testing can operate as the gold standard only if the laboratory’s work is correctly done.” Just as DNA can be the gold standard to hold all forensic sciences up to in terms of standardization and reliability, the fraud of Fred Zain can be the blank enzyme plate by which to evaluate the scientist or forensic examiner for fraud. Forensic science is only as reliable and trustworthy as the examiner.

3. An Irrebuttable Presumption of Guilt

Once scientific evidence is produced in a case by the state through testimony of an expert, whether DNA analysis, hair analysis, or fraudulently manufactured “mumbo-jumbo,” there is a heightened level of trustworthiness for the expert on the part of the jury. This elevated level of trust for the witness can be insurmountable for the defense. “According to one study, “[a]bout one quarter of the citizens who had served on juries which were presented with scientific evidence believed that had such evidence been absent, they would have changed their verdicts—from guilty to not guilty.” The heightened level of trustworthiness on the part of the jury for a forensic science expert creates an irrebuttable presumption of guilt in the minds of the jury. As one article stated, “only forensic evidence claims to be beyond the pale of human error, and thus inherently trustworthy.”

Once forensic evidence is admitted, “there appears to be little that can be done to undermine its impact.” The traditional means of countering such evidence is for the criminal defense to conduct a strong cross examination of the

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108 Recognizing that “[a]ppellate courts often cite the fact that the cross-examination of the prosecution expert was effective as a reason why a defense expert was not needed,” Giannelli refers to this proposition as an “underlying myth.” Giannelli, supra note 35, at 1376.

109 See infra Part III.A.3.

110 Berger, supra note 101, at 322.

111 See for example, the discussion of Glen Dale Woodall’s conviction and the Fred Zain affair in infra Part III.D.

112 Giannelli, supra note 34, at 541 (quoting J.L. Peterson et al., The Use and Effects of Forensic Science in the Adjudication of Felony Cases, 32 J. FORENSIC SCI. 1730, 1748 (1987)).


state’s expert plus present a rebuttal expert.115 Research of jurors has “found that none of it made much difference. Once the expert evidence was in, nothing undid its effects more than marginally.”116

A presumption shifts the burden of establishing evidence to the opposing party to rebut the initial presumption.117 Presumptions of fact can be rebutted by other evidence or circumstances to the contrary.118 A presumption of law, however, is irrebuttable in West Virginia.119 “[A] presumption of law is a rule of law that a particular inference shall be drawn by a court or jury from a particular circumstance.”120 Forensic scientific evidence creates a presumption in the minds of the jury: the defendant committed the crime because the scientific expert told me the defendant was at the crime scene. Because this presumption is virtually insurmountable for the defendant, forensic scientific evidence at trial creates a presumption of guilt in the minds of the jury. The burden then shifts to the defendant to disprove it, which is virtually impossible.121

In West Virginia, jurors are not instructed to presume guilt when presented with forensic evidence.122 In fact, the only presumption jurors are instructed about in a criminal trial is the presumption of innocence.123 The Supreme Court of Appeals of West Virginia has ruled that “[i]n a criminal prosecution, it is constitutional error to give an instruction which supplies by pre-

115 See supra Part II.A.1.
116 Saks & Risinger, supra note 114.
118 McGinnis v. Curry, 13 W. Va. 29 (1878); see also Dwight v. Hazlett, 147 S.E. 877, 880 (W. Va. 1929) (“[A]s the rule is based on a presumption [of fact], the rule becomes impotent whenever the presumption is seasonably rebutted.”). Establishing contrary facts effectively rebuts a presumption. Id.
120 Id. (quoting State v. Dodds, 46 S.E. 228, 231 (W. Va. 1903)).
121 See, e.g., O’Connell, 256 S.E.2d at 431 (“The problem with the use of the word ‘presume’ in the instruction in question is that it implicitly establishes a fact necessary for conviction—intent to kill—which fact remains established unless the defendant can rebut it with proof to the contrary. This is a constitutionally impermissible shifting of burden of proof.”); see also People v. Brown, 769 N.E.2d 1266, 1274 (N.Y. 2002) (“Thus, in this case, the introduction of expert testimony was prejudicial, first, because it nullified the presumption of innocence by replacing it with a presumption of guilt in which the jury was given information on how defendant got rid of marked money and drugs. Moreover, the introduction of the expert testimony shifted the burden of proof from the prosecution to the defendant, requiring her to explain why the expert’s statements did not apply to her and leaving the jury to conclude that she had no explanation.”).
123 Id. Specifically, the model jury instructions state, “The Court instructs the jury that the law presumes a defendant in a criminal case to be innocent of crime. Thus, a defendant, although accused, begins the trial with a ‘clean slate’—with no evidence against him.” Id.
sumption any material element of the crime charged."\textsuperscript{124} Jurors in West Virginia are, however, instructed that they "are the sole judges of the 'credibility' or 'believability' of each witness."\textsuperscript{125} Jurors are also instructed that the meaning of "'credibility of a witness' means the truthfulness or lack of truthfulness of a witness."\textsuperscript{126} This is where the juror makes a presumption. The state's forensic science expert is given higher credibility and presumed a higher level of truthfulness. In other words, jurors expect experts to tell the truth. They expect to rely on the testimony of an expert, to be taught by the expert, even in the wake of Fred Zain.

On appeal, this presumption continues. Many courts on appeal will assume that such scientific evidence is valid.\textsuperscript{127} In \textit{State v. Woodall}, the Supreme Court of Appeals of West Virginia went so far as to say of the jury in that case that "[t]here is no reason to believe that the jury here was unfairly swayed by the grandeur of science . . . ."\textsuperscript{128} As discussed in Part III.D, however, that is exactly what happened. Glen Dale Woodall was wrongly convicted based on fraudulent scientific evidence, and on appeal, the court accepted the validity of the evidence.\textsuperscript{129}

At the trial court level, a judge in West Virginia may take judicial notice of a test's reliability.\textsuperscript{130} If a senior appellate court has concluded that a scientific "test is generally accepted by the scientific community, a trial court may take judicial notice of [that] test's reliability."\textsuperscript{131} One commentator pointed out that many forensic techniques, however, achieved this general acceptance from courts before the more demanding \textit{Daubert} standards.\textsuperscript{132} Because empirical support for some of these now accepted techniques is lacking, research on these techniques is a pressing concern.\textsuperscript{133} For example, hair analysis has been used in trials for more than a century, and through research, the scientific community

\textsuperscript{124} O'Connell, 256 S.E.2d at 431.
\textsuperscript{125} W. VA. CRIMINAL LAW RESEARCH CTR., supra note 122, at 9.
\textsuperscript{126} Id.
\textsuperscript{128} Id.
\textsuperscript{130} "[U]nder Rule 702, there is a category of expert testimony based on scientific methodology that is so longstanding and generally recognized that it may be judicially noticed, and, therefore, a trial court need not ascertain the basis for its reliability." Wilt v. Buracker, 443 S.E.2d 196, 203 (W. Va. 1993). In announcing the \textit{Daubert} standard as applicable to the West Virginia Rules of Evidence, the court stated, "\textit{Daubert} is directed at situations where the scientific or technical basis for the expert testimony cannot be judicially noticed and a hearing must be held to determine its reliability." \textit{Id.}
\textsuperscript{132} Giannelli, supra note 34, at 536.
\textsuperscript{133} \textit{Id.}
found that it is not as reliable as once thought.\textsuperscript{134} “To put the point more bluntly: if the state does not test the scientific evidence with which it seeks to convict defendants, it should forfeit the right to use it.”\textsuperscript{135} Because of the irrebuttable presumption of guilt the testifying forensic expert gives to the jury and because many forensic science techniques are now questionable under the \textit{Daubert} standard, treatment of forensic evidence at trial needs significant improvement.

\section*{B. The CSI Effect}

One of the most cited articles on the subject of the \textit{CSI} effect determined that the \textit{CSI} effect is plausible; however, it has never been proven empirically.\textsuperscript{136} Author Tom Tyler found the phenomenon plausible because it has been proven that juries are influenced by mass media, and jurors are very rarely able to put aside their preconceptions; therefore, it is likely that jurors who watch the program are influenced by it.\textsuperscript{137} Tyler also found several other plausible alternative explanations for the allegedly increasing acquittal rate that has led to the speculation of the \textit{CSI} effect: juries may (1) have increased sympathy for the accused, (2) be less likely to convict than those in the legal community expect them to be, and (3) have a declining trust and confidence in the courts and the law that make them less likely to convict.\textsuperscript{138} Tyler concludes that “[t]he effect may exist, but it may not be a \textit{CSI} effect.”\textsuperscript{139} So, if it is possible, the question turns to what would an empirical study of jurors find?

\subsection*{1. An Empirical Study: The Unicorn, the Mermaid, and the CSI Effect}

One empirical study of juror perceptions and expectations was conducted by a felony trial judge in Michigan, Judge Donald E. Shelton.\textsuperscript{140} To answer questions about juror expectations of scientific evidence and whether or not these expectations were related to watching any law-related television shows, two surveys were conducted with actual summoned jurors in Ann Arbor and Detroit, Michigan.\textsuperscript{141} In all 2246 jurors were surveyed.\textsuperscript{142} “[T]he survey was administered to summoned jurors prior to jury selection or any preliminary in-

\begin{footnotesize}
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\item \textsuperscript{134} NAS \textit{Report}, supra note 94, at 161.
\item \textsuperscript{135} Giannelli, \textit{supra} note 34, at 541 (quoting MIKE REDMAYNE, EXPERT EVIDENCE AND CRIMINAL JUSTICE 139 (2001)).
\item \textsuperscript{136} Tyler, \textit{supra} note 5, at 1053.
\item \textsuperscript{137} \textit{Id.} at 1056, 1060.
\item \textsuperscript{138} \textit{Id.} at 1084–85.
\item \textsuperscript{139} \textit{Id.} at 1085.
\item \textsuperscript{140} See Shelton, \textit{supra} note 2, at 1 n.1.
\item \textsuperscript{141} \textit{Id.} at 5.
\item \textsuperscript{142} \textit{Id.}
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struction. The jurors were assured that the survey was anonymous and that it was unrelated to their potential selection as a juror in any case. The survey asked jurors to answer questions about their television viewing habits and whether or not they would demand scientific evidence before finding a defendant guilty. In his analysis of the data compiled through the juror surveys, Judge Shelton concluded that “[I]ke the unicorn and the mermaid, the CSI Effect is a myth.”

Although the survey uncovered that jurors do have an expectation of scientific evidence in criminal trials, Judge Shelton found the reason for that demand had more to do with society’s technological advances than a juror’s television viewing habits. He called this advancement in public awareness of the use of modern technology and its availability in criminal proceedings the “tech effect.” Judge Shelton also theorized that jurors’ expectations for scientific evidence is not only derived solely from the “tech effect” but also from broad portrayals of the criminal justice system in all types of media, the “media effect,” and the extent to which lawyers and judges bring their beliefs about the CSI effect to trial. “[T]hese forces act in combination to influence juror expectations and demands for forensic-science evidence.”

Now, more than ever before, the average juror is aware of the technology and science available in criminal prosecutions. Although the educated, modern juror may not be directly linked to television programming, it can be said that “juror expectations and demands for scientific evidence are the result of broader changes in our popular culture, fostered by the mass media and by litigants’ beliefs that the effect exists.” Jurors expect that at trial both sides will “obtain and present the scientific evidence that technology has made possible.”

The new, modern juror, with an iPhone and a laptop, should not be viewed by either side as a negative (as long as he or she brings neither to court).

143 Id. at 6.
144 Id. at 23. But see N.J. Schweitzer & Michael J. Saks, The CSI Effect: Popular Fiction About Forensic Science Affects the Public’s Expectations About Real Forensic Science, 47 JURIMETRICS J. 357, 363 (2007) (conducting their own empirical study, the authors concluded that “CSI leads viewers to expect high-tech science and something more than the intuition of the witness, so that when in court they are presented with much lower-tech science and the witness’s subjective judgment, they are likely to find it less convincing than do non-CSI-viewers. To this extent, our data support the claims of those who have argued that the CSI effect increases the prosecution’s burden.”).
145 Shelton, supra note 2, at 23.
146 Id.
147 Id. at 30.
148 Id.
149 Id. at 34.
150 Id. at 34.
151 Id.
"The criminal-justice system must find ways to adapt to, rather than fight against, this new, more modern juror." As discussed later, there are lessons that can be learned and adapted in the laboratory as well as the courtroom in order for the modern justice system to adapt to a new educated juror who demands more forensic evidence.

2. The Media Effect

Other scholars have furthered the media effect argument by claiming that the CSI effect is a myth created by the media. Some scholars have suggested that we can gain insight into this new phenomenon by looking at another point when media and law intersected: the supposed litigation crisis or the litigation explosion. As some scholars argue, "the CSI effect is not the first time that American media has been accused of having perpetuated beliefs about the legal system that are not supported by empirical data." Since the 1970s, the media has reported a crisis in America, a crisis surrounding the civil legal system. It was reported that more cases were filed, more disproportionate damages were awarded, and that the legal system was out of control as compared to the legal systems in other similar countries. This supposed crisis, however, has been largely "debunked." Both the litigation crisis and the CSI effect echo a similar distrust of juries by the media. Some would suggest that the CSI effect has resounded with the legal community because it "would seem to embody the law's anxiety about the threat to its legitimacy as a truth-producing institution posed by a rival truth-producing institute called 'science.'" Regardless of the reasoning behind their belief, many criminal trial lawyers insist that the CSI effect is alive and well in their courtrooms.

152 Id.
154 Id. at 1341.
155 Id.
156 Id.
157 Id. at 1342.
158 Id.
159 Id. at 1373.
160 Id.
161 See infra Part III.B.3.
3. The CSI Effect Through the Eyes of a Criminal Lawyer and the Burden of Proof

Several published reports and studies surveying criminal trial lawyers determined the CSI effect is very real to lawyers and judges in the field. On June 30, 2005, the Maricopa County, Arizona, Attorney’s Office published such a study. In the study, the Attorney’s Office surveyed prosecutors and defense attorneys who practice within the county and found that these attorneys feel the significant influences of television shows like CSI. One prosecutor observed,

I had a drug case . . . where the officer saw the defendant throw down a baggie of drugs. The baggie was not fingerprinted as the backlog [for laboratory testing] was almost six months at the time. After the trial, the jury complained that the lack of fingerprint evidence suggested that the baggie could have been there all along.

The study also discussed other cases in which attorneys felt the effect was dispositive. In one case, the defendant was prosecuted for drugs that were found in a cigarette pack in his pocket. Although the defendant admitted that the pack was his, he denied that he ever had possession of the drugs. After admitting that he watched CSI, the foreperson claimed that the investigators should have conducted “extensive fingerprinting, DNA testing, and other forensic” testing. The foreperson had convinced the entire jury that the prosecution did not do enough to prove its case. In another case, the jury acquitted the defendant for theft even though the victim saw the man steal his radio from his car. After the trial, the jurors said the investigators should have taken fingerprints and that the prosecution did not give them enough credit for “being smart.”

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162 See, e.g., MCAO, supra note 2.
163 Id.
164 Id. at 5.
165 Id. at 6. The author, while working as a summer law clerk, witnessed a similar case first hand. The case involved a federal prisoner accused of possessing marijuana and a homemade weapon, a shank, in a federal prison. Even though two officers from the facility testified that they confiscated a bag of marijuana and a shank from the defendant, the jury refused to convict the defendant because there was no fingerprint or DNA evidence presented by the prosecution.
166 Id. at 7.
167 Id.
168 Id.
169 Id.
170 Id.
171 Id. at 7–8.
172 Id.
In 2006, Andrew Thomas, the chief prosecutor for Maricopa County, responded to Tyler’s article with an article of his own. Thomas explains “the false expectation of plentiful scientific evidence can create a bias in the jury if this issue is not properly addressed at trial.” The high expectations of jurors created by fictional shows such as CSI cannot be met by the limited resources in real prosecutors’ offices. Moreover, Thomas claims that prosecutors are worried that justice is not being done.

Often there is very little physical or scientific evidence in criminal cases; however, jurors now demand that there be more than eye-witness testimony, victim testimony, or confessions. Even in jurisdictions that have these sophisticated techniques, prosecutors argue that the resources are so scarce and costly that they are reserved for the most serious crimes. The majority of prosecutions, however, are for low-level criminal offenses such as theft, drug possession, and assault. Unlike the more serious crimes, such as murder, these cases are generally not given valuable forensic resources. Consequently, there is little or no science to support the claims of the prosecution and “[t]hese cases bear the brunt of the CSI effect because these cases often do not yield irrefutable physical or scientific evidence of guilt or innocence.”

Surveys also indicated that many prosecutors believe this heightened demand for scientific evidence has elevated the burden of proof in criminal cases from “beyond a reasonable doubt” to something closer to beyond all or any doubt. Some scholars theorize that prosecutors are concerned because science has a more stringent burden of proof than the law. Therefore, if scientific evidence is required for a conviction in every case, this vicariously elevates the prosecutor’s legal burden of proof to that of the scientific burden of proof. Others also claim an elevated burden of proof for the prosecution by pointing to

174 Id. at 70.
175 Id. at 70–71.
176 Id. at 70.
177 MCAO, supra note 2, at 6.
178 Id.
179 Id.
180 Id. (“While some jurisdictions have access to some of the ‘bells and whistles’ equipment depicted in television dramas, those resources are scarce and are usually reserved for the most serious crimes.”).
181 Id.
183 Id.
184 See id.
the fact that no amount of forensic evidence can prove mens rea. A fingerprint does not prove intent, but the lack of such scientific evidence can seriously hamper the prosecution’s case. Even if the scientific standard of proof is met with forensic evidence, the prosecution still has to prove intent for a conviction.

As discussed below, however, this forensic demand can ultimately be more damaging for the defense. Whatever the name—tech effect, CSI effect, the media effect—there is little doubt amongst criminal trial lawyers that the modern juror demands more forensic evidence at trial. This heightened demand coupled with the heightened level of trustworthiness the jury gives to a testifying forensic expert makes instances of fraud in the forensic community particularly troubling.

C. Forensic Due Process for the Indigent Defendant

As the demand for scientific evidence grows to gain convictions, so too may the propensity for pseudo-science, expert bolstering, and fraudulent evidence. Because of this enticement to fraudulently produce scientific evidence and the defendant’s usual inability to acquire a rebuttal forensic expert, the modern juror’s demand for forensic evidence has a stronger possibility of harming the criminal defendant.

In our adversarial system, the most important check on fraudulent expert witness testimony offered by the prosecution is for the defense to hire its own expert. But this can be a very costly proposition, especially for an indigent defendant. More often than not, the indigent defendant is not given enough funding for forensic expert witnesses. Federal and state funding for defense experts must be increased to afford defendants due process.

Courts have often recognized the disadvantages an indigent defendant faces in mounting a full defense. What if the defense is unable to afford its own forensic testing or experts? What happens when the state forensic lab refuses to turn over evidence to the defense due to fear that it will be damaged? The answer may be a wrongful conviction because there can be no equality in justice if the defense is not given equal access to experts and evidence.

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185 Dennis J. Stevens, CSI Effect, Prosecutors, and Wrongful Convictions, 45 No. 4 CRIM. L. BULL. art. 2 (2009).
186 See id.
187 See supra text accompanying note 35.
188 “[T]he Act’s $1,000 limit for defense experts is far too low . . . and must be increased if due process is to be afforded to defendants.” Giannelli, supra note 34, at 539 (quoting J.B. Weinstein, Science and the Challenge of Expert Testimony in the Courtroom, 77 OR. L. REV. 1005, 1008 (1995)).
189 “[A] defendant may be at an unfair disadvantage, if he is unable because of poverty to parry by his own witnesses the thrusts of those against him.” Reilly v. Berry, 166 N.E. 165, 167 (N.Y. 1929).
190 Giannelli, supra note 34, at 539.
Prosecutors have access to all the powers and resources of the state crime labs. Although prosecutors may argue these resources are not always used because of funding and time constraints, it is the access itself that creates a disparity in the resources available to the defense. This disparity establishes "an economic presumption of guilt." Competing experts in criminal trials can serve not only the interests of due process and equality in justice but also as a quality control device for forensic examiners. Laboratory examiners are more likely to follow proper protocol when they know that outside experts will review their work. Many indigent defendants are now making well-founded arguments to trial courts in support of funding for forensic experts. Malcolm Rent Johnson in particular argued that a forensic expert was part of the "raw materials integral to the presentation of an adequate defense." The court, however, did not agree.

1. Malcolm Rent Johnson and "Black Magic"

Malcolm Rent Johnson's story, if true, is tragic. He was convicted of the rape and murder of an elderly woman in her Oklahoma City apartment and was sentenced to death. Arguably, Johnson was a good suspect; he was a convicted felon. His convictions included two rapes. The evidence used to convict him at trial were items of the victim's clothing found at his apartment and the testimony of forensic expert Joyce Gilchrist. Gilchrist was known in the local legal community by the nickname "Black Magic" because she could

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See Giannelli, supra note 35, at 1327. As Giannelli discusses, "expert assistance generally is not difficult for the prosecution. There are over 300 crime laboratories in this country, and state prosecutors typically have access to the services of state, county, regional, or metropolitan crime laboratories." Id.  

Id.  

Id.  

See, e.g., infra Part III.C.  


Id. at 1247 ("[P]etitioner's proffered expert rebuttal evidence does not purport to show that he could not have committed the crime. Therefore, upon review of the record we conclude that petitioner fails to show that denial of his request for expert assistance substantially prejudiced his case at the guilt phase of trial.").  

Id. at 1244.  

Id. ("The court submitted three aggravating circumstances for the jury's consideration: (1) prior conviction of a felony; (2) continuing threat to society; and (3) especially heinous, cruel, or atrocious killing. The jury rejected the third aggravator but found that the other two outweighed the evidence of mitigation. Petitioner was sentenced to death.").  

Id.  

Id.
find traces of evidence where there seemingly was none. Gilchrist testified that semen found on the bed at the victim’s apartment matched Johnson’s blood type and that strands of hair found at the scene were consistent with Johnson’s hair.

At trial, Johnson’s counsel sought funds from the court to secure a defense forensic expert to rebut the “Black Magic”—the testimony of Joyce Gilchrist. The trial court denied the request, and after conviction on habeas relief, the federal district court as well as the Tenth Circuit refused to overturn Johnson’s conviction on this basis. The Tenth Circuit denied Johnson’s appeal because the forensic expert testimony proposed did not go beyond the level of mere speculation. The court stated that “[o]ther than merely undermining certain aspects of the prosecution’s forensic evidence, however, petitioner’s proffered expert rebuttal evidence does not purport to show that he could not have committed the crime.” After exhausting all the legal relief available to him, Malcolm Rent Johnson was executed on January 6, 2000.

Just a few months later, however, the house of cards came crashing down for Joyce Gilchrist, the star witness at Johnson’s trial. On July 30, 2001, a fellow forensic examiner re-examined the slides used in the Johnson case and found no sperm present. This finding was confirmed by three other scientists in the lab. Gilchrist has also been accused of “repeatedly overstating courtroom testimony and performing shoddy forensic analysis.” Malcolm Rent Johnson went to his grave professing his innocence.

2. Glen Dale Woodall and More Denial

Like Johnson, Glen Dale Woodall was also a convenient suspect convicted with the help of questionable forensic science. Also like Johnson, Glen Dale Woodall was also not a wealthy defendant; Woodall’s family supported his defense and raised money for further DNA testing in his case by having bake sales and craft sales. Although ultimately it was the advancement of

203 Johnson, 169 F.3d at 1244.
204 Id. at 1246.
205 Id. at 1247.
206 Id.
207 Police Chemist Is Rebutted After Man’s Execution, supra note 47.
208 Id.
209 Id.
210 Id.
211 See infra Part III.D for a full discussion of this case.
new DNA techniques that allowed for a profile to be drawn from a smaller sample that set Woodall free, he was denied the opportunity to have a DNA test performed before his initial trial even began. In the pretrial hearing, he was denied a DNA test because the defense could not provide an expert witness to attest to the validity and reliability of DNA testing; they simply could not afford it.

These two cases illustrate the insurmountable obstacles indigent defendants face when confronted with forensic evidence, especially fraudulent forensic evidence. One man may well have been executed for a crime he did not commit while the other helped expose the biggest evidentiary fraud in West Virginia history.

D. The Fred Zain Affair

Fred Zain was a serology superstar in West Virginia. He was a prosecutor’s dream, miraculously finding evidence where there seemingly was none, magically discovering microscopic drops of blood or semen, conclusively proving beyond all doubt that the defendant was guilty just like it happens on television. Fred Zain was a one-man justice machine. He was known for pulling off the impossible in record time, and he eventually moved to Texas to expand his career. However, “[e]ven after Zain left the state, West Virginia prosecutors sent him evidence to examine because they could no longer get the ‘right’ results from their own crime lab.” There was just one problem: Fred Zain was a complete fraud.

1. The Case That Exposed the Fraud

It was the case of a gravedigger from Huntington that exposed Fred Zain as a fraud. Glen Dale Woodall was a convenient suspect, and the case was as high-profile as you can get in a small town. The crimes in question had the residents of the City of Huntington looking over their shoulders in fear of the boogieman, for answers, and a quick conviction. It was Zain who got to step

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[216] Id. (“[T]his Court chronicled Trooper Zain’s long history of falsifying evidence as a serology expert in criminal cases to obtain convictions for the prosecution.”).
[218] See Rutherford, supra note 212 (“People just did not want to go to the mall. It was really a panic situation [then],’ Ms. Brown recalled. Complicating accurate coverage of the incidents, ‘people could not tell the rumors from what was true. There was chaos and upheaval for people working there.’”).
in and play the role of star, expert witness for the prosecution.\textsuperscript{219} Woodall would say years later of Zain that he "was just too eager to get on the stand . . . . It was just the way he would sit up there. You could tell he was really enjoying his job, to help the prosecution get convictions."\textsuperscript{220}

The saga began in 1987 on two different snowy nights in Huntington, West Virginia.\textsuperscript{221} The Huntington area was gripped in fear after two women had been abducted from the Huntington Mall parking lot in Barboursville, West Virginia, brutally raped, and then released by their attacker.\textsuperscript{222} The local media termed the unknown assailant the "Mall Rapist."\textsuperscript{223} At trial, both victims described in horrific detail their stories.\textsuperscript{224} Each discussed similar nights of terror only a month apart: both were abducted at knifepoint, forced to perform fellatio, sodomized, and raped.\textsuperscript{225} The victim's accounts were not disputed; the only question at trial was the identity of the suspect.\textsuperscript{226}

At the time of his arrest, twenty-nine-year-old Glen Woodall was a groundskeeper at the cemetery across the street from the mall, White Chapel Memorial Gardens.\textsuperscript{227} He owned pants and boots similar to those described by the victims as worn by the Mall Rapist during the attacks, he was uncircumcised as was the assailant, and he had a distinctive smell.\textsuperscript{228}

At trial, Woodall's defense was no match for the state's forensic star, Fred Zain. The jury chose to believe the expert, Zain, over the defendant. "The defendant's case consisted largely of alibi testimony, which the jury rejected. The prosecution's case consisted primarily of circumstantial evidence, which, taken together, the jury found convincing."\textsuperscript{229} Zain's role in the case included "blood analysis of the defendant, compared to semen samples recovered from the victims . . . [and] body hair and beard hair from the defendant compared to hair recovered from the car where victim one was attacked."\textsuperscript{230} On July 8, 1987, less than six months after the first rape, which occurred on January 22, 1987, the

\textsuperscript{219} See id.


\textsuperscript{221} State v. Woodall, 385 S.E.2d 253, 256–57 (W. Va. 1989); see also Mall Rape Timeline, HERALD-DISPATCH (Oct. 28, 2010, 12:05 AM), http://www.herald-dispatch.com/news/x983709451/No-Headline ("Both victims testified they were attacked on snowy nights and were attacked while getting into their cars in the mall parking lot.").

\textsuperscript{222} Rutherford, supra note 212.

\textsuperscript{223} See, e.g., id.

\textsuperscript{224} Woodall, 385 S.E.2d at 257–58.

\textsuperscript{225} Id.

\textsuperscript{226} Id. at 258.

\textsuperscript{227} Mall Rape Timeline, supra note 221.

\textsuperscript{228} Woodall, 385 S.E.2d at 258. Both victims testified that there was a distinctive smell about the Mall Rapist that investigators also claimed to have found at Woodall's work place. Id.

\textsuperscript{229} Id.

\textsuperscript{230} Id.
jury deliberated only three hours and returned with a conviction for Woodall with the help of the evidence proffered by Zain.\textsuperscript{231} The verdict was delivered to a packed crowd of over 100 spectators in the courtroom.\textsuperscript{232} Later that summer, Woodall was sentenced to the maximum: “two life terms without parole and 203 to 335 years, all to be served consecutively.”\textsuperscript{233}

Woodall’s conviction was affirmed on appeal;\textsuperscript{234} however, in a subsequent habeas corpus proceeding, a DNA test ordered by the Supreme Court of Appeals of West Virginia “conclusively established” that Woodall could not have committed the crimes for which he was convicted.\textsuperscript{235} In 1992, his conviction was overturned after he served four years in prison and a year under electronic home confinement.\textsuperscript{236} After his release, Woodall settled his civil lawsuit against the state for false imprisonment for one million dollars, and he returned to Huntington to carry out the rest of his life in peace.\textsuperscript{237}

2. A New Mall Rapist Suspect

Even after his release, however, many in the Huntington community doubted Woodall’s innocence.\textsuperscript{238} According to a former local news anchor who is now an attorney, the victims found it especially hard to accept Woodall’s innocence.\textsuperscript{239} In a recent interview about the Woodall case, the news anchor said,

The day they brought Glen back from Moundsville, one of the victims pounded her fist on the vehicle they had brought him back in . . . . [She] had been told “the jury convicted him.” She could not believe that they were going to let him go. She was scared, frightened out of her mind that they were letting the guy who did this to her go. I don’t think she understood science.\textsuperscript{240}

\textsuperscript{231} Mall Rape Timeline, supra note 221.
\textsuperscript{232} Id.
\textsuperscript{233} Woodall, 385 S.E.2d at 259.
\textsuperscript{234} See id. at 265.
\textsuperscript{237} See Clevenger, supra note 220; Mall Rape Timeline, supra note 221.
\textsuperscript{238} Rutherford, supra note 220.
\textsuperscript{239} Id.
\textsuperscript{240} Id.
Over two decades after the brutal attacks, a Cabell County grand jury charged a Kanawha County man with the crimes in October 2010. \textsuperscript{241} Thanks to DNA testing, the grand jury was able to charge a new suspect with the crime, Donald Eugene Good, who was already serving a life sentence in prison. \textsuperscript{242} Good is "serving time at the Mount Olive Correctional Center for the killing of a St. Albans man in November 1992." \textsuperscript{243} Convicted felons in West Virginia are required to provide DNA samples, and Good's DNA matched the DNA profile from the Mall Rapist case. \textsuperscript{244}

Woodall's attorney, Lonnie Simmons, fought for years to have DNA testing done in his case at a time when the science was just developing. \textsuperscript{245} Simmons himself informed Woodall of the charges against Good and stated about the whole ordeal "[i]t shows the value of science . . . . With this kind of evidence, you have actual objective facts. And those objective facts can be tested and reviewed by other scientists. You eliminate some of the problems you have with eyewitness testimony and witnesses' memory." \textsuperscript{246} It is ironic, however, that it was fraudulent science that put Woodall away and reliable science that set him free.

3. A Systematic Practice of Manufactured Evidence

After the Woodall case, an unprecedented investigation, conducted at the request of the Supreme Court of Appeals of West Virginia, exposed misconduct on the part of Zain that was "the result of systematic practice rather than an occasional inadvertent error." \textsuperscript{247} The court concluded that Zain's misconduct not only constituted new evidence in the trials where his work was material to a conviction but also constituted a violation of due process for the defendants. \textsuperscript{248} The court stated that "[t]he matters brought before this Court . . . are shocking and represent egregious violations of the right of a defendant to a fair trial. They stain our judicial system and mock the ideal of justice under law." \textsuperscript{249} The report found many acts of misconduct on the part of Zain:

\textsuperscript{241} Clevenger, supra note 220.
\textsuperscript{242} Id.
\textsuperscript{243} Mall Rape Timeline, supra note 221.
\textsuperscript{244} Clevenger, supra note 220.
\textsuperscript{245} Id.
\textsuperscript{246} Id.
\textsuperscript{248} Id. at 504.
\textsuperscript{249} Id.
(1) overstating the strength of results; (2) overstating the frequency of genetic matches on individual pieces of evidence; (3) misreporting the frequency of genetic matches on multiple pieces of evidence; (4) reporting the multiple items had been tested, when only a single item had been tested; (5) reporting inconclusive results as conclusive; (6) repeatedly altering laboratory records; (7) grouping results to create the erroneous impression that genetic markers had been obtained from all samples tested; (8) failing to report conflicting results; (9) failing to conduct or to report conducting additional testing to resolve conflicting results; (10) implying a match with a suspect when testing supported only a match with the victim; and (11) reporting scientifically impossible or improbable results.

Some of Zain’s co-workers reported seeing him recording results from blank enzyme test plates and stated that he criticized them for being too conservative. Others claimed only that he “sometimes reported findings that they would not have.” In almost every case that was reviewed in the investigation, fraud was discovered. “Although individual cases of fraud have been uncovered at various times in crime labs throughout the country, the Zain case appears to be the first time that an appellate court has discredited a forensic scientist’s entire career and authorized the reopening, in habeas corpus proceedings, of every case that the forensic scientist handled.”

This case was monumental for not only West Virginia but also the entire country.

250 Id. at 516.
251 Id. at 511.
252 Moreland and Midkiff testified that Zain became their supervisor in 1979 or in the early 1980s. They testified that during their employment, particularly in the later years, they observed Zain recording on his worksheet results from enzyme test plates which appeared to them and to other employees, including State Police Officer Blake, Zain’s supervisor, to be blank. Midkiff estimated that she had observed at least 100 instances of such conduct, stating such occurrences became routine over the years and were known in the other divisions of the State Police crime lab.

Id.
253 Id. at 511–12 n.11.
254 Castelle, supra note 3, at 13. The investigation examined 134 cases, and “[t]he report cited Zain’s impropriety in at least 37 rape and murder cases.” Mall Rape Timeline, supra note 221. By 2002, “West Virginia had paid at least $6.5 million to settle lawsuits from wrongfully convicted defendants.” Id.
255 Mall Rape Timeline, supra note 221.
4. The Victims

Was it fame? Was it money? Was it the attention he received while playing the role of star witness for the prosecution? Was it a misguided philosophical view of justice? We will likely never know what drove Fred Zain to commit such systematic acts of fraud. Perhaps he thought he was serving the greater good through his own view of justice, which may be the most frightening factor to imagine. The defendants who were the victims of his lies were convenient; they were quite literally gravediggers and accused rapists. They were individuals who lived on the outskirts of societal norms—individuals whom society may be willing to lay the blame upon in the interest of quick, efficient justice. They were presumed guilty, not innocent, and Zain manufactured evidence to fit this presumption. Zain did not serve justice in most philosophical senses of the word. In fact, he created more victims by misrepresenting the evidence in this case. Not only did he help put an innocent man in prison, but his misguided view of justice also allowed a rapist to roam the streets and eventually kill a man.

No one would diminish what the two victims of the Mall Rapist experienced. Zain furthered their pain by bringing false closure to horrible events. The terror they experienced should not be discounted, but manufacturing evidence through fraudulent pseudo-science served no purpose for the victims or the accused. Through his actions, Zain only victimized these women again. "Countless other criminal defendants faced Fred Zain in court during a 16-year career that encompassed cases in at least eleven states." The full number of victims of Zain’s fraud may never fully be recompensed or known.

5. Lessons Learned

George Castelle, Chief Public Defender of Kanawha County, West Virginia, represented the interests of all West Virginia prisoners in the special investigation of Fred Zain by the court and many prisoners in the subsequent habeas proceedings. In 1999, he wrote an article about his experiences titled Lab Fraud: Lessons Learned from the Fred Zain Affair. He discussed four important lessons for defense attorneys to take away from Zain: (1) fraudulent forensic science is endemic; (2) inadvertent error, sloppiness, exaggeration, and biased forensic science are equally pervasive; (3) untrustworthy forensic science contaminates the seemingly independent non-scientific evidence; and

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256 Castelle, supra note 3, at 12.
257 Id.
258 See id.
259 See id. at 13.
260 See id. at 14.
261 Id.
(4) untrustworthy forensic science can be caught and corrected.\textsuperscript{262} Criminal defense lawyers must understand "that faulty forensic science contaminates more than the scientific portion of the evidence—it is capable of contaminating the entire case."\textsuperscript{263} And "[t]he abuses of Fred Zain and those like him simply could not exist in a truly independent forensic science community, fostered in institutions that carry out only scientific agendas."\textsuperscript{264}

All factors combined into a perfect storm to make the fraud of Fred Zain and those like him possible, and if unchecked, will make this type of fraud possible, if not probable, to happen again. The modern juror's demand for more forensic evidence places a burden on the prosecution to produce this evidence. The prosecution, in turn, places that demand on its forensic examiners, who, in the interest of justice, decide to exaggerate the results. Once at trial, the jury has overwhelming trust in the expert examiner, who testifies at length about mystifying scientific tools such as enzyme plates and microscopic characteristics. The defense is unable to rebut this type of evidence with a forensic expert of its own because it simply cannot afford one, and the court will not pay for it. Consequently, the fraud goes unchecked for years.

E. A Collective Philosophical Definition of Justice

The concerns of many in the legal community of the new technologically-savvy juror and his or her effect on the evidentiary proof needed to convict an accused are rooted in deep philosophical beliefs about fairness, justice, and the law. Philosophical debates about justice founded the American Constitution, and the authors were great students of history and developed the ideas of justice upon which our country is founded from many great ancient Greek philosophers, such as Socrates and Aristotle.\textsuperscript{265}

In our modern criminal justice system, the jury process is one way in which law is guided philosophically. Jurors evaluate facts to determine the "truth" in a criminal trial; "[e]ach person possesses an inviolability founded on justice that even the welfare of society as a whole cannot override."\textsuperscript{266} A philosophy regarding justice and fairness guides the way in which each juror evaluates the law. "In a well-ordered society, then, the public conception of justice provides a mutually recognized point of view from which citizens can adjudicate their claims of political right on their political institutions or against one anoth-

\textsuperscript{262} Id. at 16.
\textsuperscript{263} Id. at 15.
\textsuperscript{264} JIM DWYER, PETER NEUFELD & BARRY SCHECK, ACTUAL INNOCENCE: FIVE DAYS TO EXECUTION AND OTHER DISPATCHES FROM THE WRONGLY CONVICTED 122 (2000).
\textsuperscript{265} "[T]here was a notion in Europe that Americans were proceeding, in their government, upon Greek principles." CATHERINE DRINKER BOWEN, MIRACLE AT PHILADELPHIA: THE STORY OF THE CONSTITUTIONAL CONVENTION MAY TO SEPTEMBER 1787, at 143 (1966).
\textsuperscript{266} JOHN RAWLS, A THEORY OF JUSTICE 3–4 (1971).
er." 267 Has the new era of technology altered our collective philosophical definition of justice?

No, society's collective philosophical idea of justice has not drastically changed; in fact, it remains stable. "Since a well-ordered society endures over time, its conception of justice is presumably stable . . ." 268 In contrast, our collective idea of justice is supported by the new modern juror. The modern juror's demand for all proof available at trial before denying an accused liberty is a tenant of our idea of justice. An innocent man sent to prison is, for many, the very definition of injustice. It was Aristotle who first proposed that one could derive the meaning of justice from the meaning of injustice. 269 If injustice is an innocent man punished for a crime he did not commit; justice must be a guilty man punished for a crime he did commit.

Although many people would disagree, some would argue that the conviction of one innocent man serves the need of social order and one innocent person sent to prison or death is an acceptable price to pay. For example, United States Supreme Court Justice Antonin Scalia stated in a concurring opinion in a death penalty case that "[o]ne cannot have a system of punishment without accepting the possibility that someone will be punished mistakenly. . . . But with regard to the punishment of death in the current American system, that possibility has been reduced to an insignificant minimum." 270 Who then is society willing to tolerate as that "insignificant minimum," a gravedigger, an accused rapist, the indigent? It is doubtful, however, that Malcolm Rent Johnson, who professed his innocence until the day he was executed, would call himself an "insignificant minimum."

American society's philosophical view of justice requires the highest level of proof available when denying someone liberty and freedom, and this era of technology has raised our cultural awareness to the scientific evidence available. Therefore, it comports with our view of justice to demand such evidence. Our philosophical view of justice also relies on the tenet that only the guilty will be punished. Because scientific evidence establishes an irrebuttable presumption of guilt in jurors' minds, significant safeguards should be implemented to promote justice or to not create injustice by sending innocent men to jail based on deficient or fraudulent scientific evidence. Rather than railing against this new demand, those who practice the art of persuasion—lawyers—must adapt to new, evolved scientific techniques of persuasion.

268 RAWLS, supra note 266, at 454.
IV. RECOMMENDATIONS

Below are several recommendations that, taken together or separately, may serve to advance justice and help prosecutors and defendants deal with the new, educated juror’s demand for forensic evidence and the problems that this demand creates.

A. Exonerations Only: The Extreme

The most extreme remedy for the problems with forensic evidence is to exclude it completely at trial. This would mean forensic evidence could only be used to exonerate, not incriminate, the defendant. Some commentators have suggested this may be the best solution. “The most effective cure . . . may be exclusion of the misleading expert testimony.”271 This is not practical, however, nor does it serve our collective interests of justice.

A more workable solution may be to review the forensic science techniques once again through the admissibility requirements of Daubert. This would force the proponent of the evidence to justify the testing as well as force the “gatekeeper,” the trial judge, to determine the scientific validity of these techniques. This review process may help bring to light some of the glaring inaccuracies with forensic science techniques such as hair analysis.

B. Mandatory Crime Lab Accreditation

Most states already require DNA exoneration evidence to come from an accredited laboratory when it is used in the exoneration of a previously convicted defendant.272 This standard should be universally adopted among all types of forensic evidence when used in any type of criminal proceeding. The American Society of Crimes Laboratory Directors-Laboratory Accreditation Board audits labs “to determine whether they are abiding by the quality assurance standards.”273 The American Bar Association (“ABA”) has also called for accreditation of all crime laboratories.274 While some argue that this is impractical,275 standardizing practices across the industry in this manner would ensure that examiners are continuing education. Accreditation, however, is not the sole answer. It will not solve all the problems presented with forensic evidence. Although accreditation “is not a panacea[, it is] a good first step.”276

271 Saks & Risinger, supra note 114, at 1063.
272 Berger, supra note 101.
273 Id. at 322.
274 Id.
276 DWYER, NEUFELD & SCHECK, supra note 264, at 258.
C. **Model Ethical Rules**

In 2008, the ABA adopted two amendments to Model Rule 3.8, which governs the role of prosecutors. However, only one state, Wisconsin, has adopted the amendments (g) and (h). Rules 3.8(g) and (h), Special Responsibilities of a Prosecutor, state:

(g) When a prosecutor knows of new, credible and material evidence creating a reasonable likelihood that a convicted defendant did not commit an offense of which the defendant was convicted, the prosecutor shall: (1) promptly disclose that evidence to an appropriate court or authority, and (2) if the conviction was obtained in the prosecutor's jurisdiction, (i) promptly disclose that evidence to the defendant unless a court authorizes delay, and (ii) undertake further investigation, or make reasonable efforts to cause an investigation, to determine whether the defendant was convicted of an offense that the defendant did not commit.

(h) When a prosecutor knows of clear and convincing evidence establishing that a defendant in the prosecutor's jurisdiction was convicted of an offense that the defendant did not commit, the prosecutor shall seek to remedy the conviction.

These amendments create an ethical obligation on the part of the prosecutor to disclose evidence that a defendant may have been wrongfully convicted. This duty would include disclosure of forensic fraud. The rule, however, would only have as much teeth as a given jurisdiction is willing to give it, and aside from disciplinary measures against an offending prosecutor, the rule provides no recourse for a defendant harmed by the misconduct it prohibits.

D. **Full Disclosure in Pretrial Discovery**

Although it would seem evident, prosecutors and forensic examiners have consistently argued against the pretrial discovery of scientific evidence. Woodall's defense team received just such an opposition when it began arguing for DNA testing in the case. The arguments mainly concern fears that the evidence may be destroyed, distorted, or misused in advance disclosure.

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278 *Id.* at 321.
279 *Id.* at 315–16.
281 Giannelli, *supra* note 34, at 540.
However, critics have largely refuted these arguments. Additionally, these arguments fail in light of concerns for the ability of a defendant to mount a proper defense. "The need for full pretrial disclosure is especially important with respect to scientific proof because this type of evidence is virtually impossible to test or rebut at trial without an advance opportunity to examine it carefully." Without pretrial discovery on the part of the prosecution, the defendant will be denied due process and left without the raw materials integral to build an effective defense.

Equally important to pretrial discovery is whether the defense intends to argue the lack of scientific proof as evidence of the defendant's innocence. The defense should also be required to notify the prosecution that it intends to use this argument in order to afford the prosecution the time to provide scientific proof. This could come in the form of a notice requirement, similar to affirmative defenses such as self-defense.

E. Jury Instructions

Jury instructions are probably one of the most important aspects of any case. Appropriately charging the jury can make or break a case for the defense or the prosecution. Although several states, including Ohio, have proposed CSI effect jury instructions that would become part of the charge to the jury, probably the most appropriate time to confront the issue of the CSI effect is during voir dire. It is during jury selection that the defense can eliminate those jurors who would be all too willing to blindly trust a prosecution expert and the prosecution can eliminate those jurors who will heighten its burden of proof. The judge can also use voir dire as a time to advise potential jurors of the differences between reality in the courtroom and courtroom television.

V. CONCLUSION

The American judicial system is ever-changing: it is not a stagnant entity. It is evident that the modern, educated, technologically-savvy juror has impacted the system as a whole and that those in the legal community must adjust. Judges must take it into consideration in instructing the jury, and lawyers must take it into consideration in choosing the jury. An effective trial strategy could employ it to either side's advantage. However, justice must be served through ever-present elimination of fraud. More damaging than an acquittal due to lack of scientific evidence is the conviction of an innocent defendant based on fake scientific evidence. This heightened demand for forensic evidence coupled with

282 See id.
283 Id. at 539.
the heightened level of trustworthiness the jury gives to a testifying forensic expert makes instances of fraud in the forensic community particularly damaging to our collective idea of justice and resounds in the ears of many who demand reform.

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