ASSIMILATING DNA INTO THE PHILIPPINE CRIMINAL JUSTICE SYSTEM: EXORCISING THE GHOST OF THE INNOCENT CONVICT

Patricia-Ann T. Prodigalidad

TABLE OF CONTENTS

ASSIMILATING DNA TESTING INTO THE PHILIPPINE CRIMINAL JUSTICE SYSTEM: EXORCISING THE GHOST OF THE INNOCENT CONVICT*

*Patricia-Ann T. Prodigalidad***

The universally accepted legal maxim goes that "it is better that ninety nine... offenders shall escape than that one innocent man be condemned."[1] Sadly, in Philippine and perhaps global practice, this statement has been honored in the breach. True, convicts languishing in jail typically profess their innocence and, true, not all of them can possibly be innocent. However, if the criminal justice system is to succeed, no one should peremptorily dismiss "the ghost of the innocent man convicted" as an "unreal dream," as the distinguished jurist Learned Hand once did.[2] Instead, the existence of the convicted innocent should be conceded, the reasons for his wrongful conviction analyzed, and the remedies to prevent the errors adopted. Indeed, it is only when the problem is recognized that a solution can be developed and implemented.

In the Philippine legal experience, preventing a wrongful conviction is arguably hardest in prosecutions for rape. Trial courts have consistently relied on eyewitness identification as principal evidence in support of convictions, even in some cases where such testimony is riddled with inconsistencies. Of the twenty-four rape cases that reviewed by the Supreme

---

* This article is the author's Harvard Law School masteral thesis. For past Philippine literature on DNA evidence, see generally Pacifico Agabin, *Integrating DNA Technology In The Judicial System*, 1 CONTINUING LEGAL EDUC. L.J. 27, 28 (2001); Ma. Corazon De Ungria, *Application Of Forensic DNA Analysis In The Philippines*, 1 CONTINUING LEGAL EDUC. L.J. 57, 61-62 (2001).

Cite as Patricia-Ann Prodigalidad, *Assimilating DNA Testing Into the Philippine Criminal Justice System: Exorcising the Ghost of the Innocent Convict*, 79 PHIL. L.J. 930, (page cited) (2005).

** Chair, PHILIPPINE LAW JOURNAL (1995). Partner, Abello Concepcion Regala & Cruz (ACCRALAW) Law Offices. LL.M., Harvard University (2004). LL.B., *Cum Laude*, Class Salutatorian (1996), B.S., *Magna Cum Laude* (1991), University of the Philippines. Topnotcher, 1996 Bar Examinations. Member, Iota Tau Tau International Legal Sorority.

[1] THOMAS STARKIE, EVIDENCE 751 (1824). Similar statements were made over the centuries by other commentators from Sir John Fortescue to William Blackstone.

[2] United States v. Garsson, 291 F. 646, 649 (S.D.N.Y. 1923).

Court from January 2002 to the third quarter of 2003, twenty-two, or 92%, involved guilty verdicts based principally, sometimes even solely, on the basis of an identification by the victim or another eyewitness.

In cases involving other crimes, the Supreme Court has conceded the unreliable nature of eyewitness identification and has even categorically decreed such as "inherently suspect."[3] However, when it comes to rape, the High Court generally ignores its own prior pronouncements and, instead, affirms the principle that "[a] woman who says she has been raped... says almost all that is necessary to signify that the crime has been committed"[4] because:

> No woman, especially one so young, would concoct a tale of defloration; allow the examination of her private parts; and undergo the expense, the trouble and the inconvenience – not to mention the trauma of a public trial – if she is not motivated solely by the desire to have the culprit apprehended and punished. The embarrassment or stigma she suffers in allowing an examination of her private parts and in testifying in open court on the painfully intimate details of her ravishment effectively rules out the possibility of a false accusation of rape....[5]

The legal environment that results from both statute and jurisprudence fails to motivate, in fact it sufficiently demotivates, prosecutorial arms to find, preserve and offer "better" evidence, including DNA.[6] Rather, the state submits the time-tested, more convenient, and less expensive alternative of eyewitness identification, and counts on the

---

[3] People v. Limpanog, G.R. No. 141438, 396 SCRA 603, 616, Feb. 3, 2003, *citing* People v. Teehankee, Jr., G.R. No. 111206-08. 249 SCRA 54, 94, Oct. 6, 1995.

[4] People v. Penaso, G.R. No. 121980, 326 SCRA 311, 319, Feb. 23, 2000, *citing* People v. Tumala, Jr., G.R. No. 122100, 284 SCRA 436, 439, Jan. 20, 1998..

[5] People v. Gonzales, G.R. No. 140676, 385 SCRA 573, 579, Jul. 31, 2002. The same rule was reiterated in subsequent cases including, but not limited to, People v. Llanto, G.R. No. 146458, 395 SCRA 473, Jan. 20, 2003 and People v. Umayam, G.R. No. 147033, 402 SCRA 457, Apr. 30, 2003.

[6] Deoxyribonucleic acid is the "blueprint of life" and "the basic building block of life." DNA accounts for his or her individuality because DNA molecules contain the genetic code that determines each person's characteristics. All nucleated human cells – white blood cells, sperm, and buccal cells – have the code-carrying DNA. It is quite durable and can be obtained from sources such as teeth, dandruff, fingernails, and skeletal remains. NORAH RUDIN & KEITH INMAN, AN INTRODUCTION TO FORENSIC DNA ANALYSIS 37 (2nd ed. 2001); II PAUL GIANNELLI & EDWARD IMWINKELRIED, SCIENTIFIC EVIDENCE 3-4 (3rd ed. 1999).

judiciary to accept this evidence of a lower quality, as they have repeatedly done in the past.

In other jurisdictions, however, the forensic science community has initiated a move towards a more "scientific" approach in criminal prosecutions, one that relies on "scientific evidence," particularly DNA profiling. Inspired by advances abroad, counsel for convicted sexual offenders in the Philippines have sought to introduce post-conviction DNA testing. Despite initial resistance, DNA evidence was finally recognized in 2002, in the rape decision *People vs. Vallejo*.[7]

While *Vallejo* is a milestone, unfortunately, it did not eliminate the existing disincentives. Thus, by itself, it cannot stimulate an increased reliance on DNA evidence. Moreover, by validating uncritical, if not wholesale, acceptance of DNA evidence and the expert testimony offered to explain it, *Vallejo* fails to guard against possible misuse or abuse. The current evidentiary structure remains inadequate to properly assimilate the use of DNA evidence into the criminal justice system due to an apparent belief of the judiciary's members in the mythical infallibility of DNA evidence, bolstered by a forensic expert's possibly misleading testimony and the failure of opposing lawyers to correct it. If these inadequacies are not addressed, reliance on *Vallejo* may well lead to the same wrongful convictions that its doctrine intended to prevent.

This paper aims to show that the legal system must strike a balance between the two extreme positions now existing side by side in jurisprudence: the wholesale admission and uncritical acceptance of DNA evidence on the one hand, and the absolute reliance on inherently unreliable eyewitness identification on the other. It is believed that the American experience in using DNA and other scientific evidence will facilitate the Philippines' search for a precise point of equipoise.

In addition, this paper hopes to explain why and how the Philippine criminal justice system must be modified in order to properly assimilate DNA evidence. Again, it is believed that the American experience will assist the quick identification of the present system's flaws and supply the possible remedies.

The first part of this paper will review jurisprudence and show the Trial Courts and the Supreme Court's established tendency to absolutely rely

---

[7] G.R. No. 144656, 382 SCRA 192, May 9, 2002.

on eyewitness identification in rape convictions. It will then identify and critique, the standard justifications for this tendency. It will also explain how the inadequacies of the system with respect to DNA and other scientific evidence are not external, but rather internal and structural.

The second part will discuss and analyze *Vallejo*, and explain how its unqualified, uncritical and indiscriminate acceptance of DNA evidence in rape prosecutions presents a significant potential for abuse or misuse, but without necessarily eliminating the disincentives of the current legal structure.

The third part will examine American cases of wrongful conviction and describe how scientific, forensic and even DNA evidence contributed to these convictions. In addition, it will discuss the steps taken by both the American legislature and judiciary to minimize such cases.

In light of the American experience discussed in the third part and considering the models of criminal justice systems in other parts of the world, the fourth and last part will evaluate the current statutory regime and assess whether it sufficiently guards against the possible abuse or misuse of DNA evidence. The paper will then recommend the adoption of a progressive model, which involves legislative, judicial and even executive action, that gradually and properly assimilates the use of DNA evidence in criminal prosecutions for rape and other sexual offenses. It is hoped that this progressive model will facilitate decision-making by the courts and, more importantly, create a legal structure in a state of equilibrium that sufficiently motivates the members of the criminal justice system to maximize the use of all possible and available forms of evidence: testimonial, physical, medical, DNA and other scientific evidence – in order to make the "ghost of the innocent man convicted" a truly "unreal dream."

I. EYEWITNESS IDENTIFICATION: THE "BEST EVIDENCE" IN THE PHILIPPINE RAPE PROSECUTION

In both the United States and England, the single most important factor leading to wrongful conviction has been found to be eyewitness identification, whether made in good faith or not.[8] Despite the unanimous and universal recognition of this fact, eyewitness identification continues to

---

[8] C. RONALD HUFF ET AL., CONVICTED BUT INNOCENT: WRONGFUL CONVICTION AND PUBLIC POLICY 66 (1996).

be the preferred – if not the best and unbeatable – evidence of an accused's guilt in Philippine rape prosecutions.

A review of jurisprudence reveals the tendency of courts to rely on eyewitness identification in the absence of, or worse in disregard of, available or potentially available physical, scientific and forensic evidence.[9] For a large number of years, trial judges and even Supreme Court Justices seemed undisturbed by the fact that scientific and forensic evidence, despite its availability and potential strength, had played a minimal role in criminal prosecutions. Indeed, up to the third quarter of 2003, the Supreme Court continued to affirm rape convictions on the *sole* basis of testimonial evidence given by either the rape victim or a "bystander" eyewitness.

So entrenched is this dependence on eyewitness identification that *People v. Abayon*[10] affirmed the conviction of several accused charged with rape and homicide on the mere say-so of a bystander. "Vicente," the lone eyewitness, not only claimed to have witnessed the rape of the mother and the killing of all five members of the Alibio family, but further asserted that he followed all the accused to the place where the dead bodies were buried. Two years later, the same eyewitness reported the crime and led the police to the alleged gravesite. In defense, the accused denied their guilt and alleged that the witness had implicated them in the crime out of revenge, as he was a tenant they had ejected from their land.

Expectedly, the trial court rejected this defense and found "Vicente's" testimony credible and reliable. All the accused were sentenced to death. The *only* physical evidence corroborating "Vicente's" testimony were three (3) human bones, which were not even tested as belonging to any of the alleged victims. On appeal, the accused argued that "no independent evidence was presented to show that Myrna Alibio was raped by the accused or that the bones discovered were those of the victims and that the accused were responsible for killing them."[11] In disagreeing with the accused's assigned errors, the Supreme Court explained:

> The testimony of a single witness if credible and positive and satisfies the court as to the guilt of the accused beyond reasonable doubt is sufficient to convict. In the instant case, Vicente gave a clear and convincing narration of the crime pointing to the accused as

---

[9] People v. Garcia, G.R. No. 141125, 378 SCRA 266, 275, Feb. 28, 2002.
[10] People v. Abayon, G.R. No. 142874, 385 SCRA 588, 597-98, Jul. 31, 2002.
[11] *Id.* at 598.

> responsible therefor. His lone testimony, therefore, is sufficient to support a conviction.
>
> The trial court wisely gave more weight to the declarations of the prosecution witness than to the testimony of the accused. Their defense consists of denial and alibi. All too often we have ruled that both denial and alibi are weak defenses which cannot prevail where there is positive identification of the accused by the prosecution witnesses. Denial is a self-serving negative evidence that cannot be given greater weight than the declaration of a credible witness who testifies on affirmative matters. We note that the accused failed to establish that they could not be at the vicinity of the Alibio house when the rape and killing took place. For the defense of alibi to prosper, the requirements of time and place must be strictly met. The accused must not only prove their presence at another place at the time of the commission of the offense but they must also demonstrate that it would be impossible for them to be at the scene of the crime when it was committed.
>
> As for the imputation that witness Vicente Dauba had an axe to grind against Jose Abayon and Ireneo de Leon and thus was impelled by an improper motive in testifying for the prosecution, this was also properly disregarded by the trial court. While Jose Abayon and Ireneo de Leon supposedly boxed Vicente, there appears no reason why Francisco, Jonathan and Celso, all surnamed Abayon and Piloy dela Serna, with whom the witness did not bear any resentment, were also implicated as participants in the crime. Apart from the testimonies of the accused, this defense is also uncorroborated by independent and impartial witnesses.[12]

The *Abayon* decision is disturbing, to say the least. It is disturbing not only because the only evidence of the rape was the uncorroborated testimony of a supposed eyewitness who had waited two years to report the crime but, more importantly, because the commission of the rape had elevated the homicide to a capital offense. Considering the gravity of the imposable penalty, it would have been more prudent for the High Court to have either ensured that the three human bones found actually belonged to any of the alleged victims, or to have reversed the conviction because it was supported by only the bare testimony of an apparently not-so-disinterested party.

---

[12] *Id.* at 598.

People v. Magallanes set another alarming precedent.[13] Here, the Supreme Court again relied on the testimony of an alleged eyewitness, "Deodelfa," who positively identified the accused as the rapist and killer of the deceased victim. The Court explained that the eyewitness testimony was "corroborated" or "buttressed"[14] by physical evidence and the medical findings:

> Quite unfortunately for appellant, we see no justification to reverse the trial court's appreciation of the testimony of Deodelfa. The trial court's assessment of the credibility of Deodelfa, finding her testimony to be "a positive, straightforward, and natural narration of facts", deserves our highest respect.
>
> Contrary to appellant's protestations, the fact of rape was convincingly proved by the testimony of Deodelfa and the physical evidence. Deodelfa testified that she saw appellant took off the victim's jogging pants, then his own maong short pants, leaving him entirely naked. She saw appellant lay on top of the victim and the bare buttocks of appellant doing the pumping motion on the victim for about six to ten minutes.
>
> Dr. Delmonte, who conducted the autopsy on Nelida's body, confirmed that Nelida's sex organ had been penetrated by a penis. He stated that the "whitish discharge" found on the external genitalia of Nelida was spermatozoa. Upon cross-examination, he explained that the owner of the sperm cells found in Nelida's genitalia could be the person who had the "most recent contact" with her. Deodelfa saw appellant rape Nelida just before she was killed.
>
> Furthermore, the findings of the medical examination and report reveal injuries or circumstances supportive of sexual assault which strengthen the testimony of Deodelfa that Nelida was raped before she was killed. A witness' testimony which is corroborated by the medico-legal report is credible.
>
> ...
>
> Nevertheless, as we have found earlier, appellant's guilt was proven by Deodelfa's positive and categorical testimony, buttressed by the physical evidence. It is for this reason that appellant's defense of denial and alibi must fail. Absent any showing of ill motive on the part of the eyewitness testifying on the matter, a categorical,

---

[13] G.R. No. 136299, 410 SCRA 183, 197-98, Aug. 29, 2003, *citing* People v. Doctolero, Sr., G.R. No. 131866, 363 SCRA 404, 410, Aug. 20, 2001; People v. Molina, G.R. No. 125397, 312 SCRA 130, 134, Aug. 10, 1999.

[14] *Id.* at 199.

> consistent and positive identification of the accused prevails over denial and alibi.[15]

A reading of the excerpt exposes the readiness of the prosecution's expert witness, the medico-legal officer who had conducted the autopsy, to engage in conjecture when, on cross-examination, he testified that the "person who had the most recent contact" with the victim "could be" the owner of the sperm cells found in the victim's body. It is surprising that this so-called expert, presumably trained in science, medicine and the law, could so easily ignore that a more determinative mode of identification was possible through DNA testing. Indeed, without much delay, further DNA testing could have been done on the "sperm cells" to ascertain whether the same belonged to the victim's husband or to the alleged rapists. Worse, *Magallanes* reveals the willingness of the Justices to accept as factual this baseless speculation on the rapist's identity when categorically testified to by the prosecution's "expert" witness and where the accused was positively identified by an eyewitness.

Magallanes is not unique. A plethora of rape cases[16] exist where the biological evidence available, in the form of semen stains or sperm cells, was not submitted for DNA testing, despite the existence of such testing facilities in the country since early 1997.[17] Perhaps, as will be explained in a succeeding section, the current jurisprudential and necessarily statutory regime in the Philippines fails to motivate, or worse, provides disincentives to, the prosecution to obtain DNA and other scientific evidence whenever the more convenient, time-tested and less expensive alternative to DNA testing is available – eyewitness identification.

To justify the intellectual stances taken by the Supreme Court, it may be posited that it was constrained to limit itself to eyewitness identification because no scientific or DNA evidence was adduced in the course of the trial. Perhaps the Supreme Court thought that if they were to

---

[15] *Id.* at 199, *citing* People v. Villaver, G.R. No. L-32104, 370 SCRA 618, 622, Mar. 5, 1983, 2001; People v. Basquez, G.R. No. 144035, 366 SCRA 154, 170, Sep. 27, 2001.

[16] *See, e.g.,* People v. Labiano, G.R. No. 145388, 403 SCRA 324, Jun. 9, 2003; People v. Bitancor, G.R. No. 147968, 393 SCRA 440, Dec. 4, 2002; People v. Pastorete, G.R. No. 133827, 393 SCRA 45, Nov. 27, 2002; People v. Ocampo, G.R. No. 135877, 387 SCRA 638, Aug. 22, 2002; People v. Ugang, G.R. No. 144036, 381 SCRA 775, May 7, 2002; People v. Caragay, G.R. No. 141125, 378 SCRA 266, Feb. 28, 2002, People v. Quezada, G.R. Nos. 135557, 375 SCRA 248, Jan. 30, 2002; People v. Escordial, G.R. No. 138934, 373 SCRA 585, Jan. 16, 2002.

[17] Ma. Corazon De Ungria, *Application Of Forensic DNA Analysis In The Philippines*, 1 CONTINUING LEGAL EDUC. L.J. 57, 61-62 (2001).

minimize dependence on eyewitness testimony, most rape convictions would be reversed and several accused acquitted. Or perhaps some of them held an intuitive belief that an innocent accused of rape and positively identified would himself demand DNA testing.

This last notion, if at all present in any Justice's subconscious, involves several key assumptions, namely that:

(1) the defense counsel was knowledgeable about the DNA or other scientific evidence potentially available;

(2) the accused was advised of such a possibility by his counsel; and

(3) the accused had the resources to cause the conduct of DNA testing.

It is unfortunately these three assumptions are tragically inapplicable for a majority those accused of rape in the Philippines,

A. COMMON JUSTIFICATIONS FOR RELIANCE ON EYEWITNESS IDENTIFICATION

To better understand the minimal role DNA evidence has so far played in Philippine rape prosecutions, it is important to review the seemingly standard justifications proffered by the courts in relying upon eyewitness identification, whether by the rape victim or by a bystander.

The following settled principles should govern trial courts' decision-making in rape prosecutions:

(a) an accusation of rape can be made with facility – if it is hard to prove, it is even more difficult for the accused to disprove;

(b) in view of the intrinsic nature of the crime in which only two persons are usually involved, the testimony of the complainant must be scrutinized with extreme caution; and

(c) the evidence for the prosecution must stand or fall on its own merits and not draw strength merely from the weakness of that for the defense.[18]

Given these principles, one would expect that rape cases are tried with difficulty, especially where the only evidence available is the complainant's testimony. Unfortunately, most trial courts pay lip service to these principles and then dilute their effectiveness by invoking common justifications validated by no less than the Supreme Court.

The first such justification posits that evidence is unavoidably limited, by nature, in rape cases. Thus:

> It is well-entrenched jurisprudence that the lone testimony of the victim in a prosecution for rape, if credible, is sufficient to sustain a verdict of conviction. The rationale is that, owing to the nature of the offense, the only evidence that can be adduced to establish the guilt of the accused is usually only the offended party's testimony.[19]

The second justification posits that no woman would publicly admit to being raped if it were not true, and by implication presumes that the typical Filipina woman is innocent, morally upright, and prudishly conservative. *People v. Gonzales*[20] clearly articulates this mindset:

> No woman, especially one so young, would concoct a tale of defloration; allow the examination of her private parts; and undergo the expense, the trouble and the inconvenience – not to mention the trauma of a public trial – if she is not motivated solely by the desire to have the culprit apprehended and punished. The embarrassment or stigma she suffers in allowing an examination of her private parts and in testifying in open court on the painfully intimate details of her ravishment effectively rules out the possibility of a false accusation of rape. For this reason, the Court has consistently applied the well-settled rule that when a woman – more so if she is a minor – says she has been raped, she says in effect all that is necessary to prove that rape was committed.[21]

---

[18] People v. Bitancor, G.R. No. 147968, 393 SCRA 440, 446-47, Dec. 4, 2002; People v. Restoles, G.R. No. 112692, 339 SCRA 40, 48, Aug. 25, 2000; People v. Antido, G.R. No. 121098, 278 SCRA 425, 440, Sep. 4, 1997.

[19] Bitancor, 393 SCRA at 447. This was reiterated in People v. Daramay, G.R. No. 140235, 382 SCRA 119, 128, May 9, 2002; People v. Lucban, G.R. No. 119217, 322 SCRA 313, 315, Jan. 19, 2000.

[20] G.R. No. 140676, 385 SCRA 573, 579 July 31, 2002.

[21] *Id.* at 579.

This second justification's reasoning is simply too idealistic. It fails to consider that certain economic realities may impel a needy and unscrupulous woman to falsely accuse someone of rape, a non-bailable offense, and then drop the charges before any case is actually filed in court for a substantial fee.[22] More importantly, it demonstrates the judicial system's naiveté or, worse, its deliberate stereotyping of the Filipino woman as a barrio lass and the disregard of her gradual transformation into the modern and less inhibited Filipina.

The first justification, however, remains more dangerous because it effectively equates positive eyewitness identification with the accused's guilt. This myopic view that has spawned a criminal justice system extremely focused and excessively dependent on eyewitness accounts, in disregard of more reliable forensic evidence.

Further securing eyewitness identification in its position as the prime evidence in a rape trial are:

(1) the uniform rejection by courts of alibi as a "weak defense" that would "almost invariably be... ignored in the face of a positive identification made by an eyewitness"[23] and

(2) the uniform pronouncement that "categorical and consistent positive identification, absent any showing of ill motive... prevails over denial... [which defense] [u]nless substantiated by clear and convincing proof, ... is considered negative, self-serving and undeserving of any weight in law."[24]

The problems with these doctrinal declarations arise from two realities. First, an innocent accused of a crime often will have no other defense but an alibi. He has no affirmative defense and, thus, invokes none. Moreover, the ordinary man does not, and would not be expected to, live his life in a manner that ensures he has an alibi that can be "proven clearly and convincingly." Indeed, if an accused lives alone and sleeps at home at night, what other evidence could he present be other than his "self-serving" testimony?

---

[22] The author bases this theory purely on anecdotal evidence gathered in the course of her litigation work. She has no empirical evidence of such practices.

[23] People v. Labiano, G.R. No. 145338, 403 SCRA 324, 334, Jun. 9, 2003.

[24] People v. Umayam, G.R. No. 147033, 402 SCRA 457, 476, Apr. 30, 2003, *citing* People v. Jose, G.R. No. 130666, 324 SCRA 196, Jan. 31, 2000.

Second, these rules effectively presume that an erroneous identification arises only if the eyewitness has some ill motive against the accused. This presumption was proven false as early as 1902 by Professor von Liszt's "class experiment" and has since been reaffirmed every decade.[25] Indeed, American research "indicates that a substantial number of errors resulting in the conviction of innocent persons emanate from what can be termed good-faith eyewitness identification...."[26] Three major categories have been found to contribute to good-faith "misidentification," in addition to the innate fallibility of human perception and memory. These are:

> First, there are psychological factors emanating from the disturbed emotional state (or even shock) of the witness or bystander. Such trauma may exacerbate an individual's already imperfect powers of perception, the difficulty of retaining information during stressful situations, and the inability to retrieve such information from the memory's storage system. Second, there are systemic factors related to the various functions of the criminal justice system. These include procedures used for mug shot and lineup identifications and the suggestions that may be introduced during investigation in the time leading up to and during identification. Third, there are flaws in eyewitness identification stemming from societal and cultural expectations and difficulties with cross-racial identification, which may introduce confusion even where no prejudice exists....[27]

In the 1995 murder case *People v. Teehankee*,[28] the Court already expressly recognized the unreliability of eyewitness identification and the relative strength and inherent authoritativeness of the various forms of scientific evidence:

> Eyewitness identification constitutes vital evidence and, in most cases, decisive of the success or failure of the prosecution. Yet, while eyewitness identification is significant, it is not as accurate and authoritative as the scientific forms of identification evidence such as the fingerprint or DNA testing. Some authors even describe eyewitness evidence as "inherently suspect." The causes of misidentification are known, thus:
>
> > Identification testimony has at least three components. First, witnessing a crime, whether as a victim or a bystander, involves perception of an event actually

---

[25] JIM DWYER ET AL., ACTUAL INNOCENCE: FIVE DAYS TO EXECUTION AND OTHER DISPATCHES FROM THE WRONGLY CONVICTED 41-43 (2000).

[26] HUFF ET AL., *supra* note 8, at 86.

[27] *Id.* at 87.

[28] G.R. No. 111206, 249 SCRA 54, 94-95, Oct. 6, 1995.

> occurring. Second, the witness must memorize details of the event. Third, the witness must be able to recall and communicate accurately. Dangers of unreliability in eyewitness testimony arise at each of these three stages, for whenever people attempt to acquire, retain, and retrieve information accurately, they are limited by normal human fallibilities and suggestive influences. (internal citations omitted)[29]

The "inherently suspect" nature of eyewitness identification was also the basis for the Supreme Court's reversal of a murder conviction in *People v. Limpanog*.[30] However, again, these doctrines apparently escape the Court's collective consciousness when a rape case is reviewed. In fact, rape convictions based principally, or even solely, on eyewitness identification are almost always affirmed on appeal.[31]

In affirming these convictions, the Supreme Court seeks refuge in their limited review jurisdiction and their inability to assess witness credibility firsthand. Thus, the Supreme Court stated:

> In rape cases the issue, more often than not, is the credibility of the victim. Rape is generally unwitnessed and very often the victim is left to testify for herself. Her testimony is most vital and must be received with the utmost caution. When a rape victim's testimony is straightforward, unflawed by any material or significant inconsistency, then it deserves full faith and credit and cannot be discarded. Once found credible, her lone testimony is sufficient to sustain a conviction.
>
> In assessing the credibility of witnesses, we are guided by the following doctrinal principles:
>
> 1) The reviewing court will not disturb the findings of the lower court unless there is a showing that it had overlooked, misunderstood, or misapplied some fact or circumstance of weight and substance that could affect the results of the case;

---

[29] *Id.* at 94.

[30] G.R. No. 141438, 396 SCRA 603, 616, Feb. 3, 2003.

[31] In 2002, fifteen out of the sixteen convictions for rape reviewed by the Supreme Court relied on eyewitness identification. Of these, thirteen were affirmed. In the first three quarters of 2003, seven out of the eight rape convictions reviewed by the Court relied on eyewitness identification. All seven were affirmed. Significantly, the eighth case reviewed likewise involved testimonial evidence, but that of one conspirator turned state witness. This conviction was similarly affirmed.

> 2) The findings of the trial court respecting the credibility of witnesses are entitled to great respect and even finality as it had the opportunity to examine their demeanor when they testified on the witness stand; and
>
> 3) A witness who testified in clear, positive, and convincing manner and remained consistent on cross-examination is a credible witness.[32]

The reliance of the Court on its limited authority in reviewing, and almost invariably affirming, the trial court's assessment of the credibility of an eyewitness conveys a policy of non-interference, if not deference, in cases where eyewitness identification is present. A similar message is effectively expressed by its refusal to consider post-conviction motions for DNA testing in such cases. As the denials are made without any discussion of the available biological evidence and its condition, these decisions seem to signal a preeminence of eyewitness testimony.

In *Andal v. People*,[33] all the accused were convicted of rape and sentenced to death on the basis of bystander eyewitness identification. As a last attempt to prove their innocence, the accused moved for DNA testing. Though implicitly acknowledging that DNA evidence would be more authoritative than eyewitness identification, the Supreme Court cursorily denied the motion simply stating that this evidence is "unnecessary" or "forgotten evidence too late to [be] consider[ed]":

> The issue of "DNA tests" as a more accurate and authoritative means of identification than eyewitness identification need not be belabored. The accused were all properly and duly identified by the prosecution's principal witness, Olimpio Corrales, a brother in law of accused Jerry and Ricardo Andal. DNA testing proposed by petitioners to have an objective and scientific basis of identification of "semen samples to compare with those taken from the vagina of the victim" are thus unnecessary or are forgotten evidence too late to consider now.[34]

Similarly, in the subsequent decision *People v. Marquez*,[35] an accused convicted of robbery with homicide and sentenced to *reclusion perpetua* argued on appeal that the use of DNA testing would prove his innocence. The Supreme Court dispensed with the argument in one curt sentence: "[T]he

---

[32] People v. Penaso, G.R. No. 121980, 326 SCRA 311, 318-19, Feb. 23, 2000.
[33] G.R. No. 138268-69, 307 SCRA 650, 654 May 26, 1999.
[34] *Id.* at 654.
[35] People v. Marquez, G.R. No. 136736, 380 SCRA 561, Apr. 11, 2002.

fact, however, is that there was no DNA test to prove accused-appellant's innocence."[36] Ironically, however, footnote 22 attached to that sentence added, "In the United States, DNA tests have been used to convict perpetrators of crime, as well as exonerate innocent individuals."

Considering the severe penalties imposed upon the accused in these cases, nothing other than time would have been lost had the Court ordered post-conviction DNA testing where biological evidence was available and well preserved. Admittedly, the Supreme Court may have entertained the idea that the integrity of the biological specimen samples taken from the crime scene or from the rape victim's body may have been compromised. However, the Court denied a post-conviction motion even where there was an "unquestionably well-preserved" biological specimen in the form of a child born as a result of the rape.

In *People v. Penaso*,[37] the fifteen-year-old victim became pregnant allegedly due to her rape. The accused invoke the defense of alibi and further denied having any sexual relations with the child victim. Based principally on the testimony of the child victim, the trial court convicted the accused. On appeal before the Supreme Court, the accused moved for DNA and blood testing. The motion was denied and found to be "futile" because, in the words of *Andal*, the accused having been positively identified, the DNA evidence was "unnecessary" or "forgotten evidence too late to [be] consider[ed] now."[38]

A DNA or even a blood test would have been a logical step in ascertaining the veracity of the accused and the victim's conflicting testimonies. DNA testing of the child's possible paternity would have been conclusive proof of either guilt or innocence. Despite the clear value of such testing in that case, the Court instead chose to capitalize on the motion's tardiness rather than spend an additional two weeks on DNA testing and entertain the possibility that a wrongfully convicted innocent might be set free.

One wonders why neither the police nor the prosecution required that DNA or even blood testing be conducted to ascertain the baby's paternity. Perhaps, the prosecuting lawyers and the trial court felt there was no need because the minor victim had categorically identified the accused,

---

[36] *Id.* at 571.

[37] People v. Penaso, G.R. No. 121980, 326 SCRA 311, Feb. 23, 2000.

[38] *Id.* at 322.

the investigators. Again, given that the accused would live out his days in prison, DNA or even blood testing would have been a small price to pay for certainty.

Regrettably the Supreme Court does not share the author's outlook because *Penaso* binds the judiciary, and perhaps even the entire criminal justice system, to a clear mindset regarding just how much – or rather how little – significance should be placed on DNA evidence as against eyewitness identification.

B. CRITICAL SCRUTINY OF EYEWITNESS TESTIMONY: EXCEPTIONS TO THE SUPREME COURT'S GENERAL POLICY OF NON-INTERFERENCE

Although the Supreme Court generally affirms guilty verdicts rendered by trial courts in rape cases, a few of these convictions have been reversed on the grounds that the eyewitness testimonies presented in these were unreliable,[39] the identification was improperly influenced by police misconduct of a lineup,[40] and the circumstantial evidence presented was insufficient to engender moral certainty of guilt.

In these exceptional cases, the Court appeared to be more critical, if not suspicious, of eyewitness testimony. This sluggish and erratic change in outlook may conceivably have been propelled by the clamor from the forensic science and legal communities. This is evident from the Court's lament in *People v. Janson:*

> What befell the Alcantara family, particularly to Marites, is abhorrent and should be condemned. But after due reflection and deliberation, we still find difficulty in sustaining the trial court's conclusion regarding appellants' guilt because of inconclusive identification. Doubts persist in our mind as to who are the real malefactors. Yes, a complex offense has been perpetrated, but who are the perpetrators? How we wish we had DNA or other scientific evidence to still our doubts! But we have only uncertain testimonies to rely on....[41]

True, after the foregoing expression of disappointment, the Supreme Court continued to affirm convictions built principally, if not

---

[39] People v. Janson, G.R. No. 125938, 400 SCRA 584, 601 Apr. 4, 2003; People v. Fernandez, G.R. No. 139341, 385 SCRA 224, July 25, 2002.

[40] People v. Escordial, G.R. No. 138934, 373 SCRA 585, 607, Jan. 16, 2002.

[41] People v. Janson, G.R. No. 125938, 400 SCRA 584, Apr. 4, 2003.

solely, on eyewitness identification. True, despite the reversals in the above exceptional cases, the Supreme Court continued to reaffirm the common justifications offered by the trial courts and reemphasize the inherent weaknesses of the logical defenses available to an innocent. Worse and likewise true, since its clear call for DNA evidence, the Supreme Court has continued to cursorily deny motions for post-conviction DNA testing. Thus, the above rare and exceptional cases continue to be rare and exceptional. On the other hand, the criminal justice system's agents – the investigators, the prosecutors and even the trial judges – continue to manifest a propensity to rely on victim or bystander eyewitness identification in the prosecution of rape and other sexual offenses. Taking into account the High Court's continuing and repeated validation of convictions rendered on such evidence, the propensity is understandable if not foreseeable.

C. CONTINUING VALIDATION OF EYEWITNESS TESTIMONY: DISINCENTIVES IN THE PHILIPPINE CRIMINAL JUSTICE SYSTEM

This propensity to rely on eyewitness testimony, supported as it is by empirical evidence, can hardly be refuted. Thus, the real question is not whether the propensity exists but *why* it exists in the first place. Otherwise stated, why are criminal prosecutions for rape generally characterized by evidence limited to eyewitness testimony and identification?

The author believes that the answer lies in the interplay of standard justifications for the use of eyewitness testimony, beliefs in the inherent weakness of certain defenses that have become entrenched in jurisprudence, and principles of limited review. The combined application and repeated reaffirmation of all these create a legal framework that discourages actors in the criminal justice system from demanding forensic evidence, including DNA evidence, whenever an eyewitness is available.

Not only do actual participants in litigation – prosecutors, defense lawyers, and trial judges – fall prey to this demotivation, so do law enforcers, crime scene investigators and medical examiners. In several of the rape cases reviewed in 2002 and in the first three quarters of 2003, biological evidence was available in the form of specimen slides showing the presence of spermatozoa.[42] For undisclosed reasons, these were never subjected to DNA

---

[42] People v. Labiano, G.R. No. 145388, 403 SCRA 324, Jun. 9, 2003; People v. Bitancor, G.R. No. 147968, 393 SCRA 440, Dec. 4, 2002; People v. Pastorete, G.R. No. 133827, 393 SCRA 45, Nov. 27, 2002; People v. Caragay, G.R. No. 141125, 378 SCRA 266, Feb. 28, 2002. People v. Quezada, G.R. Nos. 135557, 375 SCRA 248, Jan. 30, 2002; People v. Escordial, G.R. No. 138934, 373 SCRA 585, Jan. 16, 2002.

testing to ensure that they in fact belonged to the accused. One possible explanation is that no investigator, medico-legal officer, prosecutor or public defender in any of these cases actually demanded such testing be conducted. Another, and perhaps the more likely, possibility is that an eyewitness conveniently provided the evidence linking the accused to the sperm found in the victim's body, as seen in *Magallanes.*

So great is this demotivation that in *People v. Escordial*,[43] the medico-legal officer who examined the victim's body "could not remember either whether there was sperm in the victim's vagina when she examined the latter" or that "no sperm specimen had been taken" from the victim.[44] This testimony clearly indicates the lack of importance the officer attached to a sperm analysis, much less to its DNA testing. Further, the trial court's conviction and the Supreme Court's affirmation prove that the officer was probably right in not giving importance to DNA analysis.

Even defense lawyers are not immune from these disincentives. In *People v. Baring*,[45] the accused was charged with the statutory rape of a seven-year-old. In addition to the child victim's eyewitness testimony, the prosecution offered the medico-legal certificate containing the findings of the physical and medical examination of the child. When the prosecution sought to subpoena the medico-legal officer to identify the certificate and testify in open court, the defense agreed to dispense with his testimony and waive its right to cross-examine him. Worse, the defense even admitted the authenticity, due execution and contents of the medical certificate because, in his words, the "doctors says."[46]

It is conceivable that, because the child victim had testified and positively identified the accused, the defense lawyer had expected that nothing would be gained by questioning the medico-legal officer. If so, the defense lawyer was ultimately correct because, on appeal, the Supreme Court *unqualifiedly* declared that "a medical examination of the victim is not indispensable in a prosecution for rape inasmuch as the victim's testimony alone, if credible, is sufficient to convict the accused of the crime."[47]

Whatever the defense lawyer's reason may have been and notwithstanding that his expectations may have been realistic, this author

---

[43] People v. Escordial, G.R. No. 138934, 373 SCRA 585,595 Jan. 16, 2002.
[44] *Id.* at 595.
[45] G.R. No. 137933, 374 SCRA 696, Jan. 28, 2002.
[46] *Id.* at 704.
[47] *Id.* at 705.

and litigator is of the opinion that a deferential attitude towards medical experts is misplaced and that, knowing he had an uphill battle to prove an accused's innocence, the defense lawyer should have pushed harder, demanded better quality evidence, and refused to agree to the prosecution's presentation of anything less.

The trial court decision in *People v. Webb*[48] best demonstrates the current minimalist role of DNA and other scientific evidence in the criminal prosecution of rape, again, as a consequence of the disincentives produced by the jurisprudential, and in certain cases statutory, structure of the criminal justice system.

Here, the admissibility of DNA evidence and the right of the accused to compel DNA testing were squarely raised in the course of the trial. However, the opportunity to obtain evidence stronger and more accurate than eyewitness testimony and the chance to set a legal precedent was lost when the trial court, upon unsubstantiated objections of the prosecution, denied the motion.

The trial judge summarized her factual findings:

> This case involved a sinister plan to gang rape the teen-aged victim. The accused, 7 of them, went to the house of the victims after midnight on June 29, 1991 and by a pre-arranged plan with the principal witness, three of them entered the house. According to this witness, after three of the accused had entered the house, she too went inside and pushing a door leading to one of the rooms, she saw two bloodied bodies on top of the bed, and on the floor she saw the first accused with bare buttocks on top of the rape victim, pumping her. She also saw the second accused at the foot of the bed where the two bodies lay, which was about to wear his jacket. She saw the rape victim moaning and in tears, and her mouth was gagged. It was further found by the trial court that when the first accused was raping the victim, her seven year-old sister was awakened and, upon seeing her elder sister being raped, she jumped at the first accused, bit his shoulder, grabbed his hair, and pulled down his leather jacket. The first accused became furious, grabbed the young girl, pulled her to the wall, and stabbed her several times. The medico-legal officer of the NBI found that the mother of the rape victim was stabbed 12 times after having been hog-tied with an electric cord like the younger daughter. The rape victim was found positive for spermatozoa in the genital area in the smear test conducted by the NBI laboratory although it was noted that there were no injuries

[48] RTC Branch 274, Parañaque City, Crim. Case No. 95-404.

> therein. At the time the cadaver of the rape victim was discovered, she was found naked from the waist down; and it bore contusions on the left and right thighs, which meant that she had put up a severe resistance to an unwanted sexual intercourse. The wounds on the younger sister also indicated that she was able to ward off her assailant.

It is more than apparent that there were numerous possible sources of DNA evidence. In addition to the vaginal smear taken by the National Bureau of Investigation ("NBI") that apparently showed the presence of spermatozoa, one had the hair that the younger sister supposedly pulled from one of the accused's head and perhaps flesh under her fingernails. DNA evidence might further have been retrieved from her mouth and teeth, as she had allegedly bitten the accused. Thus, the Vizconde crime scene was a forensic scientist's dream come true. Nevertheless, for reasons unknown, police investigators failed to exert effort towards locating and examining these possible DNA sources.

The medico-legal officers merely conducted a physical and genital examination of the victims, and determined the presence of spermatozoa in the rape victim's vaginal smear and stopped there. Further, presented with the finding of spermatozoa, the prosecution likewise did not request that DNA testing be done on the sample. Neither did the defense show any intention to initiate DNA testing. Perhaps, as in all other rape cases, the eyewitness testimony was considered the most important evidence.

Three years into the trial, the accused Webb filed a Motion to Direct NBI to Submit Semen Specimen to DNA Analysis, alleging:

> 1) The Prosecution asserts that the Accused Webb raped Carmela Vizconde. In support of this assertion, the Prosecution submits the testimony of its supposed eyewitness, Jessica Alfaro, and the existence spermatozoa in Carmela Vizconde's body.
>
> 2) The Accused Webb has denied participation in the rape of Carmela Vizconde and killing of the Vizconde family. As his defense, he presented evidence (and continues to present evidence) showing that he was in the United States at the times the crimes were committed.
>
> 3) The Accused Webb seeks to "avail of scientific evidence through a DNA testing of the semen specimen obtained

from Carmela Vizconde's body to rebut the claim of the prosecution and simultaneously, prove his innocence."

4) In a letter dated 23 April 1997, "the National Bureau of Investigation has confirmed that the semen specimen extracted from Carmela Vizconde's body is extant and is preserved on slides." The Accused Webb is "willing to give a sample of his semen for comparison purposes under supervised conditions to be imposed by" the trial court.

5) ...

6) Lastly, the Accused Webb alleges that "[s]ince the semen specimen is still in the custody and possession of the NBI ... If granted, accused Webb reserves his right to be represented at all stages of the DNA typing process and to have access to the results thereof."

Instead of welcoming Webb's offer to voluntarily submit his DNA and the possibility that DNA testing would prove Webb's guilt, the prosecution objected to the conduct of the DNA testing on the following grounds:

1) The presence of spermatozoa in the body of the deceased Carmela Vizconde was not the sole basis of the prosecution in concluding that the crime of rape was committed; nor was the said specimen attributed solely to the accused-movant Webb so as to justify the undertaking of a selective DNA examination.

2) Contrary to the accused-movant Webb's contention, DNA testing has not been accorded official recognition by Philippine courts.

3) Granting arguendo that DNA testing has been officially recognized by Philippine courts, accused-movant Webb has not shown that the semen specimen recovered from the body of the deceased Carmela Vizconde and presently in possession of the NBI was properly extracted and duly preserved for purposes of DNA examination.

A little over a month after the Opposition was filed, the trial court denied Webb's Motion, holding that:

> The absence or presence of sperm cells is not a primordial consideration in the prosecution rape, and this has been held in a long line of decisions. It was further held that a medical examination is not indispensable in the prosecution of the crime of rape. Thus, the presence of spermatozoa in the vaginal canal of the victim is not an essential element of the crime of rape, and that, it is not required in order that rape can be prosecuted.
>
> The contention of the accused Webb that DNA testing has been accorded official recognition by Philippine courts is bereft of truth. In fact, it was emphatically stated by the Honorable Supreme Court that DNA, being a relatively new science, has not yet been accorded official recognition by our courts.
>
> It is believed that at this time, there is no one yet within the Philippine jurisdiction who has the necessary knowledge and expertise to testify on DNA examination inasmuch as the same is just new. Moreover, the proposition of the accused Webb that proceedings touching on this matter may be done in the United States is not an advisable option since the would-be witnesses are beyond the jurisdiction of this Court, and therefore, cannot be made accountable for their acts.
>
> Considering that more than six (6) years have already elapsed since the commission of the crime in June, 1991, there is no assurance that the semen specimen has not been tempered (sic) with or contaminated. Neither is there a clear and convincing showing by the accused Webb that the proper procedure for the extraction and preservation of the semen specimen has been rigidly and duly complied with. At this point, the Court believes that the proposed DNA examination will not serve the ends of justice, but instead, will only lead to the complication and confusion of the issues of the case. (internal citations omitted)

From the face of the order, it is evident that the trial court had merely reiterated the prosecution's arguments without consulting any scientific authority to determine whether these were in fact valid. In doing so, it not only discredited the prosecution's evidence, which was eventually admitted and relied on in the final decision, but further revealed a misunderstanding of a DNA analysis' significance, a test that may have, in the words of no less than the prosecution, "determine which of several suspects the material might have come from and which suspects may be ruled out." More importantly, it is obvious that the trial court's primary ground for denial was actually the prosecution's first objection – that there

was no need for DNA testing because the presence of the sperm is not the evidence of the rape. And what was? Eyewitness identification, of course.

The least that the trial court could have done was to inquire whether DNA analysis was feasible, whether in the Philippines or in a foreign country. Moreover, what is most perplexing is the prosecution's objection to the motion when, earlier that year, a government DNA testing laboratory had been formally launched in the country and when the prosecution itself relied on the vaginal smears collected from the rape victim to prove the existence of sperm cells. Surely, evidence admissible and reliable for one purpose should have been deemed admissible and reliable for the purpose of DNA testing until the experts at the DNA testing laboratory said otherwise. Quite unexpectedly, after his DNA Analysis Motion was denied by the trial court, Webb neither appealed it to the Court of Appeals nor assailed it before the Supreme Court. Instead, the defense let the issue drop.

Shortly afterwards, the trial court rendered a decision convicting all the accused principally on the basis of the eyewitness testimony. According to the trial judge, now a justice of the Court of Appeals, this eyewitness testimony was credible and prevailed over Webb's "inherently weak" defense – alibi. Significantly, that "weak" defense was supported, among others, by several official documents of the governments of the Philippines and the United States, including his Philippine passport, the records of the Philippine Department of Immigration, a certification from the United States Immigration and Naturalization Service and a letter-reply of the United States Department of State to the Note Verbale No. 244-95 of the Philippine Department of Foreign Affairs – all of which established that Webb was in California at the time of the rape.

The trial court ruled that these documents were of little value as they were hearsay or could well have been obtained through the influence of Webb's father, then a senator. It disregarded these official documents and instead relied on the eyewitness account of a certain Jessica Alfaro, a conspirator turned state witness who had been silent for four years, who executed two prior affidavits inconsistent with her court testimony, whose initial description of the perpetrators of the crime did not coincide with the descriptions of the several accused she had subsequently identified, and who could not even personally identify some of the accused she claimed to have known.

On appeal, Webb will have to rebut the very same principles regarding eyewitness testimony that have supported convictions in so many other cases. It is unfortunate that he was denied the chance to secure the

"stronger" and "more accurate" DNA evidence that may have proven his innocence. However, considering all the events that led to his conviction, can Webb truly impute blame to one specific party? Or is his current plight a result of a structural problem that currently prevails in the Philippines?

This author submits that the criminal justice system itself must be held responsible. For so long as the judiciary, particularly the Supreme Court, continues to reaffirm the reliability and sufficiency of eyewitness identification and continues to resist post-conviction DNA testing, the current legal environment will subsist, as will its failure to provide incentives to prosecutors, defense lawyers, medico-legal officers, and police investigators to seek DNA testing where biological samples are present. The prevailing disincentives will ultimately reduce the quality of the evidence required to prove an accused's guilt, raise the accused's burden to prove his innocence, stunt the development of the law governing the use of DNA technology and forensic science in general and, more importantly, increase the statistical possibility that an innocent person will be wrongfully convicted – and consequently that a guilty sexual offender will erroneously be set free.

II. THE SUPREME COURT'S UNCRITICAL AND INDISCRIMINATE ACCEPTANCE OF DNA EVIDENCE: CREATING YET ANOTHER DANGEROUS EXTREME

Vallejo is the first formally reported case where a Philippine trial court actually relied upon DNA evidence as one piece of circumstantial evidence to convict an accused of rape and sentence him to death. On appeal, the accused raised several errors about his conviction. Only one of which pertained to the use of the DNA evidence, the allegation that the "prosecution failed to show that all the samples submitted for DNA testing were not contaminated, considering that these specimens were already soaked in smirchy (*sic*) waters before they were submitted to the laboratory."[49] In rejecting the accused's argument and admitting the DNA evidence, the Court held:

> DNA is an organic substance found in a person's cells which contains his or her genetic code. Except for identical twins, each person's DNA profile is distinct and unique.

---

[49] People v. Vallejo, G.R. No. 144656, 382 SCRA 192, 208, May 9, 2002.

When a crime is committed, material is collected from the scene of the crime or from the victim's body for the suspect's DNA. This is the evidence sample. The evidence sample is then matched with the reference sample taken from the suspect and the victim.

The purpose of DNA testing is to ascertain whether an association exists between the evidence sample and the reference sample. The samples collected are subjected to various chemical processes to establish their profile. The test may yield three possible results:

> 1) The samples are different and therefore must have originated from different sources (exclusion). This conclusion is absolute and requires no further analysis or discussion;
>
> 2) It is not possible to be sure, based on the results of the test, whether the samples have similar DNA types (inconclusive). This might occur for a variety of reasons including degradation, contamination, or failure of some aspect of the protocol. Various parts of the analysis might then be repeated with the same or a different sample, to obtain a more conclusive result; or
>
> 3) The samples are similar, and could have originated from the same source (inclusion). In such a case, the samples are found to be similar, the analyst proceeds to determine the statistical significance of the similarity.

In assessing the probative value of DNA evidence, therefore, courts should consider, among others things, the following data: how the samples were collected, how they were handled, the possibility of contamination of the samples, the procedure followed in analyzing the samples, whether the proper standards and procedures were followed in conducting the tests, and the qualification of the analyst who conducted the tests.

In the case at bar, the bloodstains taken from the clothing of the victim and of accused-appellant, the smears taken from the victim as well as the strands of hair and nails taken from her tested negative for the presence of human DNA, because, as Ms. Viloria-Magsipoc explained:

> "PROSECUTOR LU:
>
> Q: I noticed that specimens 1 to 5 consisting of bloodstains taken from the clothing of the victim and of the accused gave negative results for the presence of

human DNA. Why is it so? What is the reason for this when there are still bloodstains on the clothing?

A: After this Honorable Court issued an Order for DNA analysis, serological methods were already conducted on the said specimens. And upon inquiry from Mr. Buan and as far as he also knew of this case, and we also interviewed the mother who came over to the laboratory one time on how was the state of the specimens when they were found out. We found that these specimens were soaked in smirchy water before they were submitted to the laboratory. The state of the specimens prior to the DNA analysis could have hampered the preservation of any DNA that could have been there before. So when serological methods were done on these specimens, Mr. Byron could have taken such portion or stains that were only amenable for serological method and were not enough for DNA analysis already. So negative results were found on the clothings that were submitted which were specimens no. 1 to 5 in my report, Sir.

Q: I also noticed that specimen no. 6-B consisting of the smears taken from the victim also proved negative for human DNA, why is it so?

A: Because when we received the vaginal smears submitted by Dr. Vertido, the smear on the slide was very, very dry and could have chipped off. I already informed Dr. Vertido about it and he confirmed the state of the specimen. And I told him that may be it would be the swab that could help us in this case, Sir. And so upon examination, the smears geared negative results and the swabs gave positive results, Sir.

Q: How about specimen no. 7, the hair and nails taken from the victim, why did they show negative results for DNA?

A: The hair samples were cut hair. This means that the hair did not contain any root. So any hair that is above the skin or the epidermis of one's skin would give negative results as the hair shaft is negative for DNA. And then the nails did not contain any subcutaneous cells that would be amenable for DNA analysis also, Sir.

> Q: So it's the inadequacy of the specimens that were the reason for this negative result, not the inadequacy of the examination or the instruments used?
>
> A: Yes, Sir."

> Thus, it is the inadequacy of the specimens submitted for examination, and not the possibility that the samples had been contaminated, which accounted for the negative results of their examination. But the vaginal swabs taken from the victim yielded positive for the presence of human DNA. Upon analysis by the experts, they showed the DNA profile of accused-appellant:
>
> "PROSECUTOR LU:
>
> Q: So based on your findings, can we say conclusively that the DNA profile of the accused in this case was found in the vaginal swabs taken from the victim?
>
> A: Yes, Sir.
>
> Q: That is very definite and conclusive?
>
> A: Yes, Sir." (internal citations omitted)[50]

Vallejo's positive impact on the Philippine justice system is undeniable. Its significance to the advance of forensic DNA technology in the country is likewise indisputable. However, this author is doubtful that *Vallejo, by itself,* will properly facilitate the use of DNA evidence in the criminal justice system because:

(1) *Vallejo* does not eliminate or neutralize the "disincentives" created by the current legal environment reliant on eyewitness identification and, thus, may not result, and has not resulted, in the increased use of DNA evidence; and

(2) *Vallejo*'s indiscriminate and uncritical acceptance of DNA and other forms of scientific evidence does not safeguard against the potential misuse or abuse thereof.

Hence, although *Vallejo* is a dangerously overreaching precedent, its reach does not extend so far as to purge the system of the problem that first impelled the use of DNA evidence in other countries – reliance on the

---

[50] *Id.* at 210, *citing* People v. Cabug, G.R. No. 123149, 355 SCRA 391, 409-10, Mar. 27, 2001.

"inherently suspect" and "unreliable" mode of identification called eyewitness testimony.

Nonetheless, this author sees the following intrinsic values of *Vallejo:*

(a) it reveals the inadequacies that need to be remedied in order to properly set the stage for the assimilation of DNA evidence in the Philippine legal system; and

(b) hopefully generates an intensified interest on the part of the legal community in the potential strength of DNA evidence in criminal cases especially when properly assimilated.

A review of *Vallejo's* records reveals a number of inadequacies, if not limitations, that diminish or should diminish the effectiveness of DNA evidence in attaining the objectives of the criminal justice system, namely exonerating the innocent and convicting the guilty. These are:

1) *Vallejo's* implicit reaffirmation of the doctrine that "eyewitness identification" is the "best" and "unbeatable" evidence in a rape.

2) The trial court and the Supreme Court's silence on the standards of admissibility of DNA evidence in criminal cases.

3) The actual or perceived bias of the forensic biologist who conducts the DNA testing as an employee of a government investigative agency and who testifies as a prosecution expert.

4) The active involvement of the forensic scientists in the investigation of the case and their undue exposure to "extra-domain" information, as will be explained below, may have introduced some subliminal effect into the forensic scientists' expectations and interpretations.

5) The defense lawyer obviously lacked information on the real significance of DNA testing and on the factors that affect the accuracy and validity of the results.

6) The trial court and the Supreme Court's overwhelming acceptance of "junk science," or declarations and testimonies of so-called scientific experts that were baseless and unsubstantiated.

First of all, to elaborate, *Vallejo* did not involve an eyewitness and is an atypical rape case in that respect. That this peculiarity was considered by the Court is evident from the following paragraph that laid the predicate for its evaluation of the merit, or lack of merit, of the appeal:

> First. An accused can be convicted even if no eyewitness is available, provided sufficient circumstantial evidence is presented by the prosecution to prove beyond reasonable doubt that the accused committed the crime. In rape with homicide, the evidence against an accused is more often than not circumstantial. This is because the nature of the crime, where only the victim and the rapist would have been present at the time of its commission, makes the prosecution of the offense particularly difficult since the victim could no longer testify against the perpetrator. Resort to circumstantial evidence is inevitable and to demand direct evidence proving the modality of the offense and the identity of the perpetrator is unreasonable.[51]

This preliminary paragraph is both positive and negative. It is positive because, through it, the Supreme Court correctly classified DNA evidence as circumstantial evidence. However, it is negative because there is a reaffirmation, albeit implicitly, of the preeminence of eyewitness testimony in the average rape case. Considering the ostensible disparity in treatment between DNA evidence and eyewitness identification, the disincentives discussed were only been validated yet again, but, worse, reinforced. Thus, *Vallejo* arguably encourages a prosecutor with an eyewitness to opt to simply rely on the time-tested, more convenient, and cheaper mode of identification.

Second, there was a conspicuous silence on the trial court's part, and even the Supreme Court's, on the criteria for the admissibility of DNA evidence in criminal prosecutions. As evident from the above excerpt, the Court glossed over admissibility standards and proceeded immediately to the evidence's probative value. Admittedly, this omission may have arisen from the defense's failure to assail the admissibility of the DNA evidence, to question compliance with predetermined procedures and protocols for DNA testing, to attack the "chain of custody" and to impugn the integrity of

---

[51] Vallejo, 382 SCRA at 204-05, *citing* Cabug, 355 SCRA 391; People v. Rayos, G.R. No. 133823, 351 SCRA 336, Feb. 7, 2001.

the samples. However, the lack of any effort on the part of the Supreme Court to even explain why the DNA evidence was admissible, credible or even reliable in this case left trial judges, prosecutors, defense lawyers, forensic scientists, and the general public as uninformed as before. True, the Supreme Court prescribed some factors in general terms, namely:

> In assessing the probative value of DNA evidence, therefore, courts should consider, among other things, the following data: how the samples were collected, how they were handled, the possibility of contamination of the samples, the procedure followed in analyzing the samples, whether the proper standards and procedures were followed in conducting the tests, and the qualification of the analyst who conducted the tests.[52]

Regretfully, the Court did not itself appraise the DNA evidence actually submitted against the general factors it had identified. It merely proceeded to quote the expert witness' testimony and, based on this, concluded that the "totality of the evidence points to no other conclusion than that the accused-appellant is guilty of the crime charged."[53]

More disturbing, the trial records[54] revealed a paucity in the evidence to duly establish the manner by which the samples were collected, particularly those taken from the victim; how these samples were handled and preserved before being subjected to DNA testing, again, particularly those taken from the victim; the possibility of contamination in all stages of the sampling, preservation and testing; the procedures, protocols and standards prescribed by the DNA laboratory concerned and by the forensic community as a whole; compliance with such procedures, protocols and standards; and the qualifications and competence of the forensic chemist to conduct the testing, perform the analysis, interpret the results, identify the reports and testify in court. Although the defense counsel may be partly to blame for this outcome because he merely stipulated to the prosecution DNA expert's competence,[55] the Supreme Court's unqualified admission

---

[52] Vallejo, 382 SCRA at 209.

[53] *Id.* at 211.

[54] The author has reviewed the various briefs and pleadings filed by the prosecution and the defense in People v. Vallejo, Criminal Case No. 375-99, the various transcripts of stenographic notes and the actual decision of the trial court. Copies of these documents are on file with the author.

[55] At the hearing conducted on January 18, 2000, the defense counsel stipulated on the "competence and expertise of the witness to testify as an expert" on DNA examinations. People v. Vallejo, Crim. Case No. 375-99, Transcript of Stenographic Notes, Direct Examination of Mrs. Aida Viloria-Magsipoc (Forensic Chemist and

and unexplained declaration of reliability of the subject DNA evidence should not result in an inference that the prosecution was without any legal obligation to prove that the DNA evidence it seeks to present is, in fact, admissible, credible and reliable[56] and on the general factors to be considered in assessing such evidence's probative value.

Third, it is often said that no two people can have the same DNA except identical twins. Although this is an absolute truth with respect to the sharing of an individual's *entire genome*,[57] DNA testing does not, under the current technology, examine the entire genome, which is roughly composed of three billion base pairs in forty-six chromosomes. Instead, as explained by the National Research Council in their 1992 report, all "the DNA typing [technologies] used today examine only a few sites of variations." In fact, "most thorough DNA technologies examine only a very small fraction of the total base pairs." As a result of the current limitation of the technology, there is a chance "that two persons have DNA patterns (or genetic types) that match at the small number of sites examined."[58] Consequently, regardless of the astronomical odds of a random match, it is an important caveat that a DNA "match," identification or inclusion is "never absolute."[59] and, thus, should be couched as a probability statement[60] or the "statistical possibility that the observed genotype [in the evidentiary and reference samples] will occur at random in the population in question."[61]

Contrary to these universally recognized principles of DNA testing, the forensic expert witness in *Vallejo*, Aida Viloria-Magsipoc, did not express her findings of a DNA match in the form of a statistical probability. In fact, she merely declared the DNA "match" between the sample taken from the victim's vagina and the sample taken from the accused as "conclusive," "very definite" and error-free. She testified on direct examination:

Supervisor of DNA Laboratory of the Philippine National Bureau of Investigation), Jan. 18, 2000 (hereinafter "Direct Examination of Viloria-Magsipoc").

[56] RULES OF COURT, Rule 130, § 49. "*Opinion of expert witness.* – The opinion of a witness on a matter requiring special knowledge, skill, experience or training which he is shown to possess, may be received in evidence."

[57] J.P. Henderson, *The Use of DNA Statistics in Criminal Trials*, FORENSIC SCI. INT'L, Aug. 28, 2002, at 183, 183-86.

[58] GIANNELLI & IMWINKELRIED, *supra* note 6, at 3-4.

[59] Charles Strom, *Genetic Justice: A Lawyer's Guide to the Science of DNA Testing*, 87 ILL. B.J. 18, 20 (1999).

[60] GIANNELLI & IMWINKELRIED, *supra* note 6, at 9.

[61] Strom, *supra* note 59, at 20.

Q: Compared to fingerprinting, how accurate would the DNA testing be?

A: A prolific DNA testing is a 99.9% identification marker for human individuals, Sir.

Q: So this is almost as accurate or more accurate than fingerprinting?

A: It's almost as accurate as fingerprinting, Sir.

Q: What about any room for any human or mechanical error during the testing, would there be any room for that?

A: Maybe a percent of it. But with the machines that we make use, any error on one particular thing readily come out on the screen that says you made an error in pressing this or in putting the samples per se. And even in quantitation (sic), the computers would say so that you have more than enough or you have less samples in it, Sir.

Q: Yes, but if there is a malfunction in the machine, would that be easily detected by the person using the computer?

A: Yes, Sir.

Q: So, would you say that because of the combined use of human resources and machines, the possibility of error is greatly minimized or totally eliminated in the DNA testing?

A: Yes, Sir.

...

Q: Your findings include a chart which I cannot understand. Can you explain to us the meaning of this chart appearing in your findings?

A: Yes, Sir.

Q: What do they mean? The letters A, AA, AB and BB, what do they mean?

A: Under the heading findings, specimens 1 to 5, 6-B and 7 all gave negative results for the presence of human DNA. Specimens 6-A, 8-A to C gave positive results for the presence of human DNA, Sir, showing the following profiles. ... On this particular specimen, we found out that there were mixtures in the DNA profiles. ... On the HBGG which had a BB and a weak A, we also found out that it is possible and highly probable that the DNA profile of the suspect which is BB is on the profile taken from the vaginal swab. So with the profile on the D7S8 and GC, wherein the mixtures of the profiles of the victim and the suspect were also accounted for. Although the profile of the victim was not taken from her or from the subject directly, we deduced the genotype of her profile from the sample

> references given or taken from her father and mother. So that's were we deduced her genotype and then compared with the DNA profile taken on the vaginal swab from the victim. ...
>
> Q: So, based on your findings, can we say conclusively that the DNA profile of the accused in this case was found in the vaginal swabs taken from the victim?
>
> A: Yes, Sir.
>
> Q: That is very definite and conclusive?
>
> A: Yes, Sir."[62]

Apparently informed of the real nature of a DNA "match," the Supreme Court acknowledged that a finding of "inclusion" requires the analyst "to determine the statistical significance of the similarity."[63] Notwithstanding this universal understanding, the Court found nothing objectionable about the misleading and, possibly, untrue testimony of the forensic expert on the "conclusiveness" of an identification through DNA evidence, the definitiveness of her findings, and the factual impossibility, if not elimination, of error in her DNA testing. Most people would ask what reason a forensic expert would have to mislead the trial court into believing that DNA evidence was more conclusive than it really was. However, this author is more concerned about four core issues:

1) Why the High Court, after having presumably read the testimony of the forensic scientist, let the witness go unreproached;

2) Why the High Court failed to caution other forensic scientists not to do the same;

3) Whether, by reason of the *Vallejo* decision, forensic scientists who conduct DNA testing while an employee of the Philippine government's investigative agency and who testify as a prosecution expert would be perceived as having a legitimate bias in favor of the prosecution; and

---

[62] Direct Examination of Viloria-Magsipoc, *supra* note 55, at 15-16, 21-25.
[63] People v. Vallejo, G.R. No. 144656, 382 SCRA 192, 208-09, May 9, 2002.

4) Whether this bias, actual or perceived, should affect the admissibility, reliability and over-all probative value of the DNA evidence itself.

Fourth, the trial records disclose that the forensic scientists who had conducted the blood typing and the DNA analysis were well-informed of the developments of the case. They were even allowed to communicate directly with the victim's parents, exchange information with the police investigators and prosecutors, and even interrogate the accused. The questioning by the forensic biologist who performed the serological tests was so intense that the accused confessed to him the commission of the crime. This witness clarified, however, that talking with the accused was not a standard operating procedure and that he just "want[ed] to know more about the case" before conducting the tests and that "any information either on the victim or from the suspect will help" him "personally."[64]

Studies have shown that scientists given too much extra-domain information, or information belonging to a domain beyond the examiner's field of science and thus unnecessary and irrelevant to his scientific examinations, are prone to be influenced in their interpretation of the results.[65] Forensic analysts and biologists are not immune from such influences. Here, the scientists were not merely given too much extra-domain information, they were allowed to secure this themselves through *personal* contact with the victim's parents, the police investigators, the prosecutors, and even the accused. It cannot be disputed that this excessive exposure to extra-domain information would enhance the possibility of "unintentional" bias arising out of "observer effects." Unfortunately, the Court was unmoved by this peculiarly excessive access and the forensic biologist's undue participation in the investigation. Nonetheless, this author believes that, if the *Vallejo* doctrine is interpreted to be a validation of the conduct of forensic scientists, the intrusion of unintentional bias into the supposedly objective nature of DNA technology would have then been legitimized by the decision and, thus, this point must be more explicitly addressed in jurisprudence.

---

[64] People v. Vallejo, Crim. Case No. 375-99, Transcript of Stenographic Notes, Direct Examination of Pet Byron T. Buan (Forensic Biologist of the Philippine National Bureau of Investigation), Nov. 15, 1999, at 67-68.

[65] D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1, 56 (2002).

Fifth, as it is not normally utilized in criminal prosecutions, Philippine lawyers are largely unfamiliar with and inexperienced in working with DNA evidence. Thus, the lack of sophistication exhibited by the defense counsel in his cross-examination of the forensic expert is unsurprising. In fact, the cross-examination conducted by the defense counsel was brief and consisted of no more than five major questions:

> Q: At present, does the NBI have the most modern equipment like those used in the United States for DNA testing?
>
> A: In what particular state of the United States, Sir?
>
> Q: I understand that DNA testing is used in criminal investigation. Do we have the proper equipments or instruments for this purpose?
>
> A: Yes, Sir.
>
> Q: Like those used in other countries?
>
> A: Yes, Sir.
>
> Q: If a particular submitted to your office, like in this case, will be submerged in dirty water, will the passage of time affect the accuracy of your findings on this specimen?
>
> A: Yes, Sir.
>
> Q: In what ways?
>
> A: In so many ways, Sir. Because if the specimen is not properly preserved, even if it contains human DNA for that matter, it would give negative results on analysis.
>
> Q: It will give negative results?
>
> A: If it is not properly preserved, Sir.
>
> Q: But does the NBI have the proper equipment for the preservation of the specimens submitted to them?
>
> A: Yes, Sir. We have the cryo freezer which could store up to -90 degrees centigrade, Sir.
>
> Q: In this case, were the specimens preserved properly?
>
> A: Yes, Sir.

> Q: That will be all, Your Honor.[66]

Nevertheless, this lack of experience and knowledge resulted in a failure to mount a number of admissibility, credibility and reliability attacks on the DNA evidence, to the accused's prejudice. For example, the cross-examination failed to assail the asserted "conclusiveness" of a DNA match and the supposedly "error-free" nature of the DNA evidence sought to be admitted into evidence. No question was raised about why reference samples for the victim's DNA were not obtained directly from the victim's body but rather "inferred" from the genotypes of her parents. No issues were raised on whether the established procedures and protocols for DNA testing were followed, whether the statistical basis for the expert's conclusions was sound, whether the population database upon which the random match is measured was sufficient, whether the expert witness had completely disclosed all findings in her examination, whether the expert had communicated with the prosecution prior to her testimony; and whether the integrity of the evidentiary and references samples was maintained through an established chain of custody, satisfactory methods of handling, and acceptable modes of preservation. Fortunately, lack of experience and information in impugning the admissibility and credibility of DNA evidence is remediable through education and training. In addition, as shown by the experience of American defense lawyers,[67] sophistication is developed in practice.

Sixth, the Supreme Court in this case seemed overly eager to accept any form of "scientific" explanation for a particular fact, notwithstanding the obvious lack of basis or evidence for it. This overzealous acceptance of "junk science" is evident from the decision:

> Accused-appellant contends that the bloodstains found on his garments were not proven to have been that of the victim as the victim's blood type was not determined.
>
> The contention has no merit. The examination conducted by Forensic Biologist Pet Byron Buan of both accused-appellant's and the victim's clothing yielded bloodstains of the same blood type "A". Even if there was no direct determination as to what blood type the

---

[66] Direct Examination of Viloria-Magsipoc, *supra* note 55, at 30-31.

[67] Early American case law on DNA evidence reveals uncritical acceptance of DNA evidence. However, "the precedential value of these cases was somewhat 'less compelling than they [at first] appear' because in the vast majority the defense did not mount any sophisticated admissibility attacks on the evidence." GIANNELLI & IMWINKELRIED, *supra* note 6, at 48-49

> victim had, it can be reasonably inferred that the victim was blood type "A" since she sustained contused abrasions all over the body which would necessarily produce the bloodstains on her clothing....[68]

Surely, neither the expert witness nor the Court should be allowed to just "reasonably infer" any victim's blood type much less just assume that the victim bled profusely where no evidence to that effect was on record. The danger of this so-called "reasonable inference" is clear if we assume, for the sake of argument, that the victim's blood type is not "A". If this assumption were true, then some doubt would have been elicited on whether the accused really was the assailant, or if there were more than just one assailant.

Like the unfamiliarity on the defense lawyer's part, the uncritical and indiscriminate acceptance by the trial court and the Supreme Court of the forensic experts' testimonies on DNA and other so-called scientific evidence is a result of a lack of information, instruction or understanding of the underlying science, the sources of possible error, and the importance of compliance with procedures and protocols. This inadequacy is similarly remedied through education and training. A modest amount of effort, it is submitted, should equip officers of the court with enough knowledge to avoid misleading others nor be misled by them.

To summarize, *Vallejo* exemplifies and entrenches in jurisprudence courts' extremely liberal approach towards the admissibility of DNA evidence, and perhaps even a present absolute deference towards expert scientific evidence. Thus, *Vallejo* is a precedent fraught with dangerous consequences – consequences that no less than the American criminal justice system is trying to undo.

Notwithstanding all its limitations, however, *Vallejo* proves that DNA evidence era has finally seen its dawn in the Philippines. This is not to say, however, that the courts, if not the entire criminal justice system, have realized the folly of unduly relying principally on eyewitness identification and have recognized the advantage of having forensic evidence available. Additionally, *Vallejo* unwittingly reveals the current inadequacies of the Philippine legal system that render DNA evidence vulnerable to abuse or misuse. Thus, any model that seeks to integrate and assimilate the use of DNA evidence in criminal prosecutions must address these inadequacies so as to guarantee that the Philippine criminal justice system will fully achieve

---

[68] People v. Vallejo, G.R. No. 144656, 382 SCRA 192, 206-07, May 9, 2002.

its objective: preventing wrongful convictions and deterring the commission of crime.

III. LESSONS FROM AMERICA: HOW "SCIENCE" MAY CONVICT THE INNOCENT AND HOW TO PREVENT THIS RESULT

The hundreds of innocents liberated by post-conviction DNA testing in the United States are a testament to the American criminal justice system's imperfection. One element present in all forensic science, including DNA testing, guarantees some degree of error: the human element. The American experience shows that the probability of error is no so insubstantial that it is easily ignored, as *Vallego* did.

In the book *Actual Innocence: Five Days to Execution, and Other Dispatches From the Wrongly Convicted*, Jim Dwyer, Peter Neufeld and Barry Scheck analyzed the reconstruction made by the Cardozo Law School's Innocence Project[69] of sixty-two cases out of the sixty-seven post-conviction exonerations in North America. Expectedly, 84% of the wrongful convictions were the consequence of "mistaken eyewitness" identifications. The more astounding conclusion was that a third involved "tainted or fraudulent science," that is, "scientific error."[70] In some cases, this error arose as a result of the technician's deliberate, if not malicious, acts in conducting the test, preparing the laboratory report or testifying in open court.[71] In others, the error resulted from a witting or unwitting non-

---

[69] *See* http://www.innocenceproject.org. "The Innocence Project at the Benjamin N. Cardozo School of Law at Yeshiva University, founded by Barry C. Scheck and Peter J. Neufeld in 1992, is a non-profit legal clinic and criminal justice resource center. We work to exonerate the wrongfully convicted through postconviction DNA testing; and develop and implement reforms to prevent wrongful convictions. This Project only handles cases where postconviction DNA testing can yield conclusive proof of innocence."

[70] DWYER, *supra* note 25, at 246.

[71] Paul Giannelli, *Impact of Post-Conviction DNA Testing on Forensic Science*, 35 NEW ENG. L. REV. 627, 630-31 (2001).

compliance with prescribed procedures and protocols,[72] negligence,[73] and misleadingly inaccurate statements.[74]

Whatever the underlying reason for these, the United States' legal system has experienced the entire gamut of scientific errors. There is clearly no need for the Philippine system to experience the same errors and force innocent Filipino accused to relive the tragedies that befell hapless Americans convicted by scientific error.

A. "TROOPER ZAIN": A CASE OF "WHITE COAT FRAUD"[75]

It was once unimaginable that forensic scientists would willfully fabricate evidence, perjure themselves on witness stands, and risk imprisonment to provide prosecutors with the evidence needed to win convictions. This is no longer true, not after the revelations of the past two decades. The reality is that scientific experts may lie about their credentials,[76] may act as prosecution advocates by using misleading statements,[77] conceal material containing possibly exculpatory information,[78] or most importantly, falsify scientific results and thereby manufacture evidence. All this may be

---

[72] *Id.;* Jean Coleman Blackerby, *Life After Death Row: Preventing Wrongful Capital Convictions and Restoring Innocence After Exonerations*, 56 VAND. L. REV. 1179, 1188-89 (2003).

[73] Giannelli, *Impact of Post-Conviction DNA Testing*, *supra* note 71, at 635-38; Blackerby, *supra* note 73 at 1188-89.

[74] Giannelli, *Impact of Post-Conviction DNA Testing*, *supra* note 72, at 633-35.

[75] The term "white coat fraud" was coined in Chapter 5 of DWYER, *supra* note 25.

[76] Experts have lied about their credentials in a surprising number of cases. A number of them are described in Giannelli, *Impact of Post-Conviction DNA Testing*, *supra* note 71, at 630-31. One particular example is the case described by Professor Starrs about a "firearms expert [who] took some credit for 'the development of penicillin, the Pap smear, and to top it all off, the atomic bomb.'"

[77] Giannelli, *Impact of Post-Conviction DNA Testing*, *supra* note 71, at 630-34; Blackerby, *supra* note 72, at 1188-89.

[78] *Id.* at 635-36. One notable example is the infamous Alejandro Hernandez and Rolando Cruz murder and rape trial in Illinois in 1983. DWYER ET AL., *supra* note 25, at 179. The expert and the prosecutors's misconduct was narrated: "When a crime technician arrived at the courthouse to testify for the state, he pulled aside one of the prosecutors and relayed some news: representatives from the Nike shoe company said that the prints at the back window had been made by a woman's shoe, perhaps size six or five and a half. Either size was too small for Cruz or Hernandez. The prosecutor put the technician on the witness stand and carefully avoided any mention of shoe size or likely gender. In fact, the defense was not told about the Nike analysis."

done under the aegis of a scientist's white coat.[79] Perhaps the most notorious case of "white coat fraud" was revealed by an investigation into the misconduct of a certain Trooper Fred S. Zain that led to the systemic breakdown of the West Virginia State Police Crime Laboratory's Serological Division.[80]

The downfall of Trooper Zain began with the Glen Dale Woodall's wrongful conviction for multiple felonies in 1987, including two counts of sexual assault. Woodall was sentenced to a prison term of 203 to 335 years.[81] The forensic evidence testified on by Zain was instrumental in his conviction. This indicated that, "based upon his scientific analysis of semen recovered from the victims, '[t]he assailant's blood types... were identical to Mr. Woodall's.'"[82] Moreover, Zain testified that "this combination of blood traits would statistically occur in only 6 of every 10,000 males in West Virginia."[83] Despite this damning testimony, Woodall remained steadfast in his claim of innocence. A subsequent DNA test conclusively established that Woodall could not have been the perpetrator,[84] and his conviction was overturned in 1992.

Following his release, Woodall instituted a suit for false imprisonment against the State of West Virginia. The State's insurer recommended settlement for the policy limit of USD1 million after an investigation, including a review of Zain's work as Chief of Serology at the West Virginia State Police Crime Laboratory's Division of Public Safety. The furor generated by the million-dollar settlement led to an internal audit of Zain's work from 1979 to 1989.

Acting on a petition for extraordinary relief filed by a county prosecutor, the West Virginia Supreme Court appointed the Honorable James Holliday, a retired circuit judge, to supervise the investigation of the Serology Division. After an extensive five-month investigation conducted with the assistance of the American Society of Crime Laboratory Directors

---

[79] Giannelli, *Impact of Post-Conviction DNA Testing*, *supra* note 71 at 629-33.

[80] In re: Investigation of the West Virginia state Police Crime Laboratory, Serology Division, 438 S.E.2d 501 (1993) (hereinafter "In re: Investigation of Serology Division").

[81] State v. Woodall, 385 S.E.2d 253 (1989).

[82] In re: Investigation of Serology Division, 483 S.E.2d at 509, *citing* Woodall, 385 S.E.2d at 260.

[83] In re: Investigation of Serology Division, 483 S.E.2d at 509.

[84] *Id.* at 503.

("ASCLD"), Judge Holliday filed a report that chronicled Zain's long history of falsifying evidence. Specifically, he identified:

> The acts of misconduct on the part of Zain included (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 that 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. (internal citation omitted)[85]

Judge Holliday also noted that Zain's misconduct may have been discovered had his supervisors not ignored or concealed complaints against him and finally discussed the ASCLD criticisms of certain operating procedures during Trooper Zain's tenure, which "undoubtedly contributed to an environment within which Zain's misconduct escaped detection."[86] These procedural deficiencies included:

> (1) no written documentation of testing methodology; (2) no written quality assurance program; (3) no written internal or external auditing procedures; (4) no routine proficiency testing of laboratory technicians; (5) no technical review of work product; (6) no written documentation of instrument maintenance and calibration; (7) no written testing procedures manual; (8) failure to follow generally-accepted scientific testing standards with respect to certain tests; (9) inadequate record-keeping; and (10) failure to conduct collateral testing.[87]

Trooper Zain's saga did not stop, however, in West Virginia. With his misconduct still undiscovered, he transferred to the County Medical Examiner's laboratory in San Antonio, Texas.[88] There, he replicated the same phantom "pro-prosecution" science he had performed in West Virginia. He "testified about blood evidence when no blood had been

---

[85] *Id.* at 503.

[86] *Id.* at 508.

[87] *Id.* at 504.

[88] Paul Giannelli, *The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories*, 4 VA. J. SOC. POL'Y & L. 439, 447-48 (1997).

found; in other cases he reported performing tests his lab was incapable of performing. [As a result at] least five men were convicted of rape and murder because of his testimony. Their convictions were [subsequently] overturned."[89] More alarming, however, was prosecutors' willingness to accept the opinion of an obviously "pro-prosecution" scientist as scientific evidence. In fact, there was evidence to show that, after Zain's transfer and when the West Virginia Police Crime Laboratory did not achieve the "right" results, prosecutors requested that samples be brought to him in Texas to benefit from his "expertise."[90]

In the words of the West Virginia Supreme Court, Zain's acts "stain our judicial system and mock the ideal of justice under law."[91] His story, however, emphasizes not that the American criminal justice system is imperfect, but that human beings can make science imperfect. Thus, lawyers and judges cannot afford to be lulled into the false sense of security that the seeming infallibility of science may tempt them with.

B. "JUNK SCIENCE"

When properly handled, conducted, interpreted and presented, scientific evidence is indeed a superior form of evidence. However, not everything that sounds like science is in fact science. Often, "pseudo-science," or so-called "junk science," "is eminently convincing because it is accompanied by all the mumbo-jumbo of real science."[92] So, what exactly is "junk science?" It is "science unsupported by evidence" that "typically employs questionable methodology to reach unsupported conclusions."[93] It "arises when a witness seeks to present grossly fallacious interpretations of scientific data or opinions that are unsupported by scientific evidence."[94] Thus, the admission of junk science misleads fact finders into believing that

---

[89] Timothy Maier, *Inside The DNA Labs* (Jun. 2003), available *at* http://www.truthinjustice.org/inside-labs.html.

[90] In re: Investigation of Serology Division, 483 S.E.2d at 512-13.

[91] *Id.* at 508.

[92] *Id.* at 519, *citing* State v. Thomas, 421 S.E.2d 227, 232 (1992).

[93] Debra Worthington et al., *Hindsight Bias, Daubert, And The Silicone Breast Implant Litigation: Making The Case for Court-Appointed Experts in Complex Medical and Scientific Litigation*, 8 PSYCHOL. PUB. POL'Y & L. 154, 158 (2002).

[94] KENNETH FOSTER & PETER HUBER, JUDGING SCIENCE: SCIENTIFIC KNOWLEDGE AND THE FEDERAL COURTS 17 (1997).

the so-called scientist or expert witness' claims are based on valid scientific theory when, in truth and in fact, they are not.[95]

When is scientific evidence insufficiently scientific? There are too many instances to enumerate, but it is well-accepted that these include evidence obtained in breach of proper procedures and protocols, produced by crime laboratories that suffer from continuing quality control problems, or claim to be results of novel techniques that cannot be replicated. For obvious reasons, most of the evidence testified to and prepared by Zain can be classified as junk science.

On the other hand, although relatively new as a science, "no one maintains" that DNA analysis is, in itself, "junk science."[96] The caveat, however, is that even "solid science" can become "junk" when tainted with too many quality control problems.[97] Two examples illustrate how DNA evidence can transform from "legitimate" to "junk" in frail human hands: (1) the wrongful conviction of Tim Durham;[98] and (2) the 2003 Houston Police Department ("HUPD") controversy.

1. *State of Oklahoma v. Timothy Edward Durham*

In January 1992, the Tulsa police arrested Tim Durham for the rape of a certain Molly M committed seven months earlier. Despite the presentation of at least eleven witnesses who placed him more than three hundred miles away in Dallas at the time of the attack, Durham was found guilty based on DNA evidence and a hair analysis.[99] A certain Dr. Robert Giles testified on the DNA evidence, a molecular biologist with a private Texas laboratory known as GeneScreen. He stated that he had tested patches of Molly M's swimsuit thrice. On the first two trials, only the victim's DNA was found. On the third try, "a faint dot on his DNA board" indicated a "match with one of Tim Durham's genetic markers."[100] Though "at least one man in ten" had those markers, Dr. Giles categorically testified that the accused fell into the pool of suspects. He admitted that he was

---

[95] Worthington et al., *supra* note 93, at 158.

[96] HARLAN LEVY, AND THE BLOOD CRIED OUT: A PROSECUTOR'S SPELLBINDING ACCOUNT OF THE POWER OF DNA 199 (1996).

[97] DWYER, *supra* note 25, at 169.

[98] *Id.* at 161-170.

[99] After a century of expert testimony about microscopic hair comparisons, hair analysis as a mode of identification was found to be inconclusive. In fact, of the wrongful convictions studied by the Innocence Project, 29% involved evidence from hair analysis. DWYER ET AL., *supra* note 25, at 166.

[100] *Id.* at 167.

unsure another person would look at the DNA photograph and "make the same call" but, since he had being doing this for several years, he "[had the] experience in knowing how to make these particular calls."[101] He added, "There is some art involved in that, but that's why I'm trained as a scientist to do what I do."[102]

At the time of Durham's conviction, it was unknown that Dr. Giles had neither reported all of his results nor informed the court of these, in breach of acceptable procedures and protocols and in violation of quality control guidelines. He had omitted to state that, on his first two DNA trials, another marker had been evident on the DNA photograph, one that was inconsistent with both Tim Durham and Molly M. Many years later, Dr. Giles stated that the marker was a mere "artifact" that could safely be ignored. Nevertheless, his omission was considered "misleading."[103]

Worse, it was established that scientific work conducted by GeneScreen was, at the time of Durham's trial, under some cloud of doubt. In an Indiana murder case, the laboratory reported finding sperm cells on a swab taken from the victim's mouth, but these later turned out to be yeast. When questioned, the laboratory officials blamed a "weak microscope."[104] After Durham had been imprisoned for five years, another DNA test was conducted on the Innocent Project's insistence, and Durham was conclusively excluded as the source of any sperm found on Molly M's swimsuit.

2. Houston Police Department

In 1999, sixteen-year-old Josiah Sutton was wrongfully convicted of carjacking and rape.[105] The conviction was secured with by DNA evidence supplied by the Houston Police Department ("HUPD") Crime Laboratory. The DNA report stated that the profile found in the crime scene and identified as his "can be expected to occur in 1 out of 694,000 people among

---

[101] *Id.*

[102] *Id.*

[103] *Id.* at 169.

[104] *Id.*

[105] Hal Cohen, *DNA Evidence On Trial*, SCIENTIST, Aug. 25, 2003, at 62, *available at* http://www.the-scientist.com/yr2003/aug/prof3_030825.html; Timothy W. Maier, *Inside The DNA Labs* (Jun. 2003), *available at* http://www.truthinjustice.org/inside-labs.html; Adam Liptak, *You Think DNA Evidence Is Foolproof? Try Again*, N.Y. TIMES, Mar. 16, 2003, *available at* http://sobek.colorado.edu/~mciverj/NYT_DNA-Evidence_031603.html.

identified as his "can be expected to occur in 1 out of 694,000 people among the black population" in the United States.[106] After serving four years of his twenty-five year sentence, DNA retesting conclusively excluded him as a suspect.

Apparently, the state laboratory was found to have "routinely mishandled evidence,"[107] "exaggerated its significance"[108] and "unheeded protocol."[109] In the Sutton case, for example, the proper statistical analysis was that Sutton's DNA profile matched "1 of 8 black people, not 1 of nearly 700,000."[110] This "erroneous" interpretation may have been caused by the analyst's inexperience and lack of instruction. It was discovered that the said analyst had merely "attended a two-week training course sponsored by the company that sold DNA kits to" the state laboratory.[111] After an investigative news report showed that its "technicians couldn't perform the simplest of tests, deliberately misinterpreted data and stored evidence in a room where the ceiling leaked so badly that 34 DNA samples were contaminated by rain during a severe storm,"[112] and after a state audit confirmed its shoddy practices, the HUPD Crime Laboratory was shut down in January 2003.[113]

Sadly, the HUPD Crime Laboratory is not unique. A crime laboratory in Fort Worth, Texas was also shut down pending investigation after a senior technician had admitted to "ignoring DNA procedures to help prosecutors."[114] Similar complaints and accusations have been leveled against crime laboratories in Florida, Arizona, Baltimore, Illinois, Montana, Washington, Oklahoma, and California.[115] Indeed, last year, United States Justice Department Inspector General Glenn Fine put even the Federal Bureau of Investigation's ("FBI") DNA Crime Laboratory under scrutiny after a former lab technician admitted to violating scientific procedures while analyzing DNA samples.[116]

---

[106] Liptak, *supra* note 105, ¶ 1.
[107] *Id.*, ¶ 11.
[108] *Id.*
[109] Cohen, *supra* note 105.
[110] Liptak, *supra* note 105, ¶ 12.
[111] *Id.*, ¶ 10.
[112] Maier, *supra* note 105.
[113] Cohen, *supra* note 105.
[114] Maier, *supra* note 105.
[115] *Id.*
[116] *Id.*

This does not signify that DNA evidence or its underlying science is not good because it is. As explained by Peter Neufeld, a founder of the Innocence Project, DNA is "kind of a truth machine. But any machine when it gets in the hands of human beings can be manipulated or abused."[117]

C. OBSERVER EFFECTS: THE POWER OF EXPECTATION AND SUGGESTION

The above examples may mislead one into the impression that scientific error is caused solely by deliberate misrepresentation by forensic scientists or the crime laboratories they work for. Unfortunately, experience has also revealed "biased mistakes" caused by "honest" and competent scientists acting in "good faith" but whose powers of perception were affected by their own expectations and other peoples' suggestions.[118]

It is elementary in modern psychology that "the desires and expectations people possess influence their perceptions and interpretations of what they observe. In other words, the results of observation depend upon the state of the observer as well as the thing observed."[119] As Julius Caesar noted, "[M]en generally believe quite freely that which they want to be true."[120] Likewise, Sir Francis Bacon wrote that "[t]he human understanding resembles not a dry light, but admits a tincture of the will and passions, which generate their own system accordingly, for man always believes more readily that which he prefers."[121] In summary, scientists have been conscious for centuries that "observer factors can distort findings and produce misleading conclusions in myriad ways not so easily corrected for."[122]

Perhaps because of the presence of the human element, this elementary psychological principle finds no less application in forensic science. Each day, forensic scientists are required to observe a wide variety of objects, record their observations, and make subjective judgments and interpretations based on information of varying degrees of ambiguity. As

---

[117] Liptak, *supra* note 105, ¶ 4.

[118] D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1, 1 (2002).

[119] *Id.* at 6.

[120] "*(H)omines fere credunt libentur id quod volunt.*" G. JULIUS CAESAR, CAESAR'S COMMENTARIES ON THE GALLIC WAR 155 (Frederick Holland Dewey ed., 1918) (51 B.C.), *cited in* Risinger et al., *supra* note 118, at 6.

[121] Risinger et al., *supra* note 118, at 9.

[122] *Id.* at 8.

"subjective judgment and interpretation by the human observer remain the principal methods of reaching conclusions in most forensic disciplines" and because "the working environment of the forensic scientist is not lacking in sources of expectations or outcome preferences", the operation of observer effects on the forensic evidence ultimately produced is made easy[123] and should be expected and dealt with.

Generally speaking, observer effects are errors of apprehension,[124] recording,[125] recall,[126] computation,[127] or interpretation[128] "that result from some trait or state of the observer"[129] and that occurs in the various stages of any observation process.[130] The empirically-established premise of "observer effects" is that "[e]xpectation, whatever its source, plays into the phenomenon of confirmation bias[131] and lays the groundwork for selective attention[132] to evidence."[133] There are, however, forms of "observer effects" which have particular significance to the criminal justice system. These are are: "role effects," "conformity effects," "experimenter effects," and enhancement effects of "desire and motivation."

1. Role effects[134]

Role-taking studies and experiments have revealed that the particular function, perception or role that a person is required to adopt affects "the information [that a] person seeks as well as how th[at] person perceives that information."[135] These "role effects" confirm the "cocktail party

---

[123] *Id.* at 27.

[124] Errors of apprehension are errors that occur at the stage of initial perception.

[125] Errors of recordings are errors that creep in at the stage where what is observed is recorded, assuming a record beyond memory is even made.

[126] Errors of recall or memory are errors that are induced by both desires and the need for schematic consistency, and that escalate over time when memory is relied on.

[127] Errors of computation are errors that occur when correct observations accurately recorded or remembered are transformed into incorrect results when calculations are performed on them.

[128] Errors of interpretation are errors that occur when examiners draw incorrect conclusions from the data.

[129] Risinger et al., *supra* note 118, at 12.

[130] *Id.* at 25-26.

[131] "Confirmation bias" is the tendency of observers to test a hypothesis by looking for instances that confirm it rather than by searching for potentially falsifying instances.

[132] "Selective attention" is the tendency of observers to seek out some information and avoid other information.

[133] Risinger, *supra* note 118, at 15.

[134] *Id.* at 18-19.

[135] *Id.* at 18.

commonplace that a barber is more likely to note details of a person's haircut than a dentist, and a dentist more likely to note details about a person's teeth."[136] The same studies demonstrate that "role perception also has an impact during the retrieval phase,"[137] or information recalled by a person was affected by what role, perception or function he was required to adopt after witnessing a particular object or event.[138] Considering the cognitive effect of "role," a possible influence on that person's decision-making is not unlikely.[139] Based on this possibility, it has been posited that "investigators whose role is to solve a problem may become convinced of the truth of a proposed solution more easily than investigators whose role is to describe a situation, or to describe the likelihood of various options."[140] If these "role effects" indeed have some effect on decision-making, then the following observation of James Starrs about forensic laboratories made decades ago in 1971 finds some psychological explanation, if not justification:

> It is quite common to find... laboratory facilities and personnel who are, for all intents and purposes, an arm of the prosecution. They analyze material submitted, on all but rare occasions, solely by the prosecution. They testify almost exclusively on behalf of the prosecution. They inevitably become part of the effort to bring an offender to justice. And as a result, their impartiality is replaced by a viewpoint colored brightly with prosecutorial bias.[141]

2. Conformity effects[142]

Research studies have also uncovered "conformity effects," that is, the tendency of persons "to conform to the perceptions, beliefs, and behavior of others" by either "rely[ing] on the views of others in order to develop their own conclusions, sometimes to gain additional information, other times merely to be in step with their peers."[143]

---

[136] *Id.*

[137] *Id.*

[138] *Id.*, *citing* Richard Anderson et al., *Effects on a Reader's Schema at Different Points in Time*, 75 J. EDUC. PSYCHOL. 271, 276 (1983); Richard Anderson & James Pichert, *Recall of Previously Unrecallable Information Following a Shift in Perspective*, 17 J. VERBAL LEARNING & VERBAL BEHAV. 1, 2-3, 10-11 (1978).

[139] Risinger, *supra* note 118, at 18-19.

[140] *Id.* at 19.

[141] James Starrs, *The Ethical Obligations of the Forensic Scientist in the Criminal Justice System*, 54 J. ASS'N OFFICIAL ANALYTICAL CHEMISTS 906, 910 (1971).

[142] Risinger, *supra* note 118, at 19.

[143] *Id.*

3. Experimenter effects[144]

Studies of possible "experimenter effects" focus on the interaction between the observer and the subject observed, and how this interaction affects the entire observation process. It has been discovered that the "observer communicates something, usually unintentionally, to which the subject responds; [and] what appears to be learned about the subject is actually a reflection of various aspects of the process of observing."[145] The observer's silent communication arises from his unconsciously changing behavior towards different research subjects depending on what he expects from each participant. In turn, these participants "pick up the cues [from the observer] and respond to them with their own changed [or cued] behavior." A perfect, and common, example of the experimenter effect is the "placebo theory" in medical research which has led to "double-blind testing designs."[146]

It seems logical to expect that "experimenter effects" are irrelevant in forensic science, particularly in DNA analysis, because the subjects of observation can hardly interact with the examiners. However, Michael Risinger and co-authors[147] proposed an enlargement of the concept of an experiment, and then explained:

> [T]he larger organizational setting of a crime laboratory is analogous to an "experiment," where the police investigators, prosecutors, lab directors, and colleagues in the lab are the "experimenters"... and the individual forensic examiners are the "subjects" of the experiment. From this perspective, the beliefs and expectancies of superiors, coworkers, and external personnel are manifest in their behavior toward the forensic scientist "subject," in turn affecting the behavior of those "subjects" – their observations, recordings, computations, and interpretations – not to mention the additional impact role and conformity effects may have....[148]

Taking this proposal, the concept of an experiment may be further expanded to encompass an entire criminal justice system or, taken to its

---

[144] *Id.* at 20-21.

[145] *Id.*

[146] Medical researchers, who believe in the effectiveness of a particular experimental drug, observe improvements in patients due in part to the researcher's or experimenter's expectations regarding the drug. To control these "experimenter effects," double blind testing has been designed where neither the patient nor the researcher is aware who is taking a placebo and who is actually taking the experimental drug.

[147] Risinger, *supra* note 118, at 21.

[148] *Id.*

limits, an entire country. With the forensic scientists, prosecutors and trial judges as the research subjects and all others, including victims and members of the media, as the observers, the experimenter effects of the latter's expectations are arguably very powerful.

4. Influence of desire and motivation[149]

"Observer effects" arising from pre-designated "roles," the need for conformity, and experiment interaction are products of a third-party's or one's own expectations. When an observer's expectations are attended with "desire" and "motivation" arising from anger, revenge, or other deeply emotional incentives such as pride, these "observer effects" are exponentially enhanced. Studies have shown that where there is "need-determined perception" or where "an observer has strong motivation to see something, ... that something has an increased likelihood of being 'seen.'"[150]

Individuals who are strongly motivated to do their job well are always appreciated, even in crime laboratories. In fact, the same motivation and devotion is desired, if not expected, of forensic scientists. However, when these emotions cause forensic scientists to "harbor a preference for one outcome over another," they risk the likelihood of tainting their powers of observation and subconsciously introducing bias into results. Indeed, research on need-determined perception demonstrates "that in general the world appears different to people who have a desire to see it in different ways, and how different the world appears is related to the intensity of that desire."[151]

These observer effects are mainly products of expectation. In forensic science, these may be unconsciously generated by:

(1) the role these forensic scientists play, or that of a prosecution expert witness;

(2) the unspoken expectations of observers within Risinger, et al.'s concept of an "expanded experiment," that is the laboratory supervisors, their colleagues and law enforcers; and

(3) the forensic examiner's own expectations regarding what the results should be.

---

[149] *Id.* at 24-25.
[150] *Id.* at 24.
[151] *Id.* at 25.

However, even more troublesome than these sources of expectations are activities consciously intended to induce, or at least aimed at inducing, observer effects in forensic scientists through "expressed" expectations. These expectations are generally hidden within extra-domain information made accessible through (a) direct communication prior to examination;[152] (b) requests for reexamination in light of disclosed "new" information;[153] and (c) selective requests for reexamination by third parties because of conflicting results reached by another forensic scientist.[154]

The manner through which "expectations" are conveyed and "observer effects" are induced in the last two modes are so obvious that it is a wonder that these practices have not yet been discontinued in forensic investigation. Faced with "new," yet extraneous,[155] information obtained in the course of a criminal investigation and confronted with a conflicting finding from another forensic scientist, the examiner is often induced into "reconsidering" his initial interpretation and findings, and afterwards reporting with conviction results conveniently consistent with the "new information" or with other scientists' results.[156]

It is, of course, possible that the "reconsidered" result is actually correct or that the results on reconsideration would be identical to the initial findings. However, those points are immaterial. A forensic scientist who engages in a repeat testing or a reinterpretation of her results on the basis of "new" but extraneous information, or on the basis of a possible conflict with another test by a third party, makes himself extremely vulnerable to the operational influences of observer effects – that is, confirmation biases and selective attention – and invites the contamination of his findings.[157]

Perhaps because of its more subtle nature and because its inductive effect is felt even before an examination is initiated, the more important mode of conveying "expressed expectation" is through the direct communication of extra-domain information. To recall, extra-domain information is information belonging to a domain beyond the examiner's

---

[152] *Id.* at 35-38.

[153] *Id.* at 38-39.

[154] *Id.* at 39-40.

[155] Obviously, the "new information" is extraneous to the scientific examination because the scientific examination had been completed without this information and that results successfully obtained.

[156] Risinger, *supra* note 118, at 38-42.

[157] For illustrative cases of these two modes of "expressed expectations" inductive of observer effects, please see *id.* at 38-40.

field of science and which are, thus, unnecessary and irrelevant to his examination.[158] Direct communication of extra-domain information prior to a forensic examination is improper because, unlike law enforcement agents and crime investigators, forensic scientists are expected to reach their conclusions based *solely* on their knowledge of a particular field of science, a matter presumably unfamiliar or unknown to the ultimate fact-finder. It is on this basis that a forensic scientist's testimony is admitted as expert opinion.

Thus:

> The proper function of a forensic scientist is to give an answer to a question appropriate to her discipline by the application of the methods of her discipline. It is not to give an answer, even an honest and accurate answer, to that same question by any other means. ... [Thus, w]hen the forensic scientist is exposed to, relies on, or is influenced by any information outside of her own domain, she is abusing her warrant, even though she may honestly believe that such information makes her conclusion more reliable, and even, or especially, if she is right about this. Her role is not to give a conclusion based even partly on information outside her domain, which the jury can presumptively evaluate at least as well as she, but only to give the jury the reliable product of her discipline that is beyond what they could deduce on their own.[159]

The consideration of extra-domain information is prohibited because this would introduce observer effects, no matter how hard the scientist tries to disregard the information. These effects will unavoidably distort his findings because they are a part of the human psyche.

In current forensic practice, the most straightforward access to extra-domain information takes the form of direct communications from third parties, such as written transmittal forms from investigators accompanying the evidentiary samples and containing information about other inculpatory evidence found in the case; telephone conversations with prosecutors, investigators and other officers; face-to-face interviews with the victims, investigators and suspects; and the like. Of these, the practice of "allowing submitting agencies to include whatever information they wished in their submission documents and the practice of passing those documents to the testing examiner along with the evidence to be tested ... [is] virtually

---

[158] *Id.* at 28-29.
[159] *Id.* at 28.

universal."[160] Indeed, the United States FBI engages in these practices and so does its Philippine counterpart, as was obvious from *Vallejo*.

Further, "double counting" is a potential danger generated by pre-testing access to extra-domain information. That is, one extraneous piece of evidence is appreciated, and necessarily weighed, by the fact-finder at least twice. The first time is when the investigator testifies to that piece of extra-domain evidence. The second time comes when a forensic expert testifies to a conclusion reached on the basis of this evidence that had no bearing on his examination. There is, therefore, a "double impact being given to the domain-extraneous information."[161] Further, since the second time involves an expert, the impact of that extra-domain evidence is not only doubled but exponentially intensified, notwithstanding that the originally minimal weight of the extraneous evidence.

To graphically and mathematically explain this "double impact" effect of access to extra-domain information, Risinger and his co-authors present an analogy to an "investigative echo chamber, where a few items of evidence reverberate and seem more numerous and stronger than they really are."[162] This is explained:

> Suppose I have seven items of evidence associating a suspect with a crime scene. Further, assume that each of these items of evidence is independent of the others, and each carries with it a random match probability of only .50 (that is, a person selected at random from the population would have a 50% chance of possessing the same attribute). Because I have seven items of evidence which connect the suspect to the crime, they combine to be far more compelling identification than any one of them alone: 50 raised to the seventh power equals .0078 – only 78 chances in 10,000 that a person selected at random from the population would be incriminated to the same extent as this suspect. Human intuition corresponds at least roughly with the mathematics, and we have the feeling that as each item of evidence accumulates, the likelihood of erroneously convicting an innocent suspect gets smaller and smaller.
>
> Now suppose there is only one independent item of evidence, and that all the others are the products of cross-contamination, thus: As a consequence of an interview with a suspect, a detective comes to have a hunch that the suspect is the perpetrator. Affected by that officer's hunch, a handwriting examiner concludes that the

---

[160] *Id.* at 32.
[161] *Id.* at 29.
[162] *Id.* at 29-30.

> ambiguous handwriting evidence identifies the suspect as the perpetrator (an example of conformity effect, possible role effect, and confirmation bias affecting the decision threshold). An officer conducting a lineup knows of his colleague's hunch and the document examiner's match, and inadvertently steers an eyewitness to select the suspect from a lineup when, had the witness been out of the presence of the officer, a positive identification would not have been made (an example of conformity to authority and the Clever Hans effect). The bitemark expert learns of those three items of evidence and is influenced by them when making his positive identification. Before the toolmark expert completes his examination, he knows of four other items of incriminating evidence, and so on. However, if each of these examples is largely an echo of the initial item, then the true random- match probability may be closer to .50 than to .0078 because each new incriminating item may be little more than a reflection of that initial piece of evidence.[163]

The result of the investigative echo chamber is an "illusory [yet potent] consensus" reached by ordinary and expert witnesses whose individual findings are ostensibly consistent with one another, but whose consistency actually results from the reinforcement each provided the other through extra-domain information. Borrowing from a purely scientific context:

> Insofar as systematic biases have been observed, they are overwhelmingly ... a tendency to contaminate one's reports in the direction of agreement with what others are reporting and thus fail to report what is uniquely available from one's own perspective. In addition, the agreement achieved represents pseudo-confirmation. The tremendous literature on conformity and suggestion shows how strong and persuasive this effect is. It could scarcely fail to operate among teams of scientists.[164]

The testimony of David Williams, a member of the FBI explosives unit on the World Trade Center bombing case, provides a concrete example of the danger that access to extra-domain information poses.[165] According to Williams, he "identified the main charge as a urea nitrate bomb, not based upon residues found at the scene, but 'on speculation based on *evidence*

---

[163] *Id.*

[164] *Id.* at 30, *citing* DONALD CAMPBELL, SYSTEMATIC ERRORS TO BE EXPECTED OF THE SOCIAL SCIENTIST ON THE BASIS OF A GENERAL PSYCHOLOGY OF COGNITIVE BIAS, IN INTERPERSONAL EXPECTATIONS: THEORY, RESEARCH, AND APPLICATIONS 37 (Peter David Blanck ed., 1993).

[165] Risinger et al., *supra* note 118, at 33.

linking the defendants to that explosive.'"[166] After an investigation conducted by the Inspector General on the FBI crime laboratory, the former criticized William's methodology and reported:

> Williams portrayed himself as a scientist and rendered opinions as an explosives expert. As such, he should have limited himself to conclusions that logically followed from the underlying data and the scientific analyses performed.... He should not have based his opinions, in whole or in part, on evidence that was collateral to his scientific examinations, even if that evidence was somehow connected to the defendants.... By basing his urea nitrate opinion on the collateral evidence, Williams implicitly accepted as a premise the prosecution's theory of guilt. This was improper.[167]

The Inspector General's Report also cited the *Psinakis* case, which "involved a claim that the defendant produced a large amount of explosive by stripping it out of detonating cord."[168] Forensic examiner Terry Rudolf "[a]cknowledged that his identification of PETN on the tools was based in part on the fact that stripped detonating cord was found in the defendant's garbage" and that "given this information, he presumed the material on the knife was PETN."[169] Again, the examiner "failed to distinguish between the separate and distinct roles of an investigator and a forensic scientist."[170]

Admittedly, the resulting harm of access to extra-domain information prior to the conduct of a scientific examination may not be as conspicuous as those caused by extra-domain information conveniently revealed to the forensic examiner after initial findings have been reported. However, it is precisely because these effects are unnoticeable that they are pervasive and powerful, and affect even the gold standard of forensic science, DNA evidence.[171]

For example:

---

[166] *Id.*, *citing* Office of the Inspector General, U.S. Dep't of Justice, U.S. Doc. J 1.14/2:L 11/2, The FBI Laboratory: An Investigation into Laboratory Practices and Alleged Misconduct in Explosives-Related and Other Cases 44 (1997), *available at* http://www.usdoj.gov/oig/fbilab1/fbil1toc.htm (hereinafter, "Inspector General's Report").

[167] Inspector General's Report, *supra* note 167, at 128-29.

[168] Inspector General's Report, *supra* note 167, at 24. PETN is short for pentaerythritoltetranitrate, a very strong high explosive.

[169] *Id.* at 24.

[170] *Id.* at 30.

[171] Risinger et al., *supra* note 118, at 36.

> Commentators have noted a disturbing tendency for forensic analysts to resolve ambiguities in DNA patterns in a manner consistent with the expected result. The analyst may, for example, infer that a discrepancy between two DNA profiles on one autorad must be an artifact (rather than a true genetic difference) because there is a match on the other autorads or, worse yet, because other evidence in the case suggests the two profiles have a common source. Professor Eric Lander has condemned this kind of bootstrap interpretation in forensics because 'one runs the risk of discounting precisely those differences that would exonerate an innocent defendant.' An analyst who too readily dismisses discrepancies in a DNA test that do not fit with other evidence can mistakenly conclude that weak, equivocal evidence is quite powerful, and thereby mislead the trier of fact....[172]

In conclusion, although the harm resulting from observer effects is less obvious and generally unnoticed, these are both more ubiquitous and more insidious. If permitted to run uncontrolled through forensic practice, as they currently are in the Philippines and, to a lesser degree, in the United States, "observer effects can lead competent and honest forensic scientists, using well-validated techniques, to offer sincere conclusions that are, nevertheless, distorted and inaccurate."[173] This does not mean that forensic scientists should not seek additional information as this is similarly undesirable. Rather, forensic examiners should purposefully limit their information to "intra-domain" or "domain-relevant" information. Finally, each specific field of forensic science should determine what intra-domain information is, with respect to it, as expeditiously as possible.

D. AMERICA'S RESPONSE: HOW TO "JUNK SCIENCE"

Culling real from junk science in the American legal system has proven to be more complicated than originally expected. Perhaps because of the awe with which science was initially viewed, legal scholars, practicing lawyers and even judges were often blind to the remotest possibility of any form of scientific error. Recognizing, compensating for, and reforming the law to prevent the social cost of "junk science" – wrongful convictions – remains the system's task for the twentieth century, as well as for the twenty-first.

---

[172] William Thompson, *Evaluating the Admissibility of New Genetic Identification Tests: Lessons from the "DNA War"*, 84 J. CRIM. L. & CRIMINOLOGY 22, 53-54 (1993).

[173] Risinger, *supra* note 118, at 11.

1. "Restrictive" admissibility standards for DNA & other scientific evidence: Compliance with procedures and protocols

The admissibility standards for scientific evidence in the American legal system have come full circle from an era of strictness to one of laxity and then back to strictness. That is not to say, however, that America has returned to the point it began from. Rather, each era serves as a foundation for the next and, as a result, the current standards of admissibility may be the most restrictive to date.

The history of DNA evidence's usage generally parallels that of all other forms of scientific evidence. As with *Vallejo* in the Philippines, early American cases exhibited an uncritical acceptance and admission of DNA evidence.[174] The precedential value of these early cases, however, was "somewhat less compelling" because "in the vast majority the defense did not mount any sophisticated admissibility attacks on the evidence."[175] In their wake, "many experts from several disciplines scrutinized the work of commercial and government laboratories" and took issue on laboratory procedures and analyses.[176] This plethora of questions initiated a second wave of cases in which various courts excluded at least some aspects of DNA evidence.[177] After the publication of the National Research Council's report on DNA evidence in 1992,[178] a "third wave of cases" arose which focused "less on the laboratory methods for characterizing and matching DNA and more on the statistical methods for interpreting the significance of similarities in DNA samples."[179]

With the diffusion of DNA technology into the forensic realm and its mounting role as a golden standard in criminal prosecutions, attacks have been leveled by critics on the "procedure for ensuring the accuracy of such analyses" and questions raised "about the quantitative interpretation of genetic typing."[180] Indeed, in this newest wave of cases, "defendants have questioned whether the protocols used for forensic work are sufficient to prevent false-positive results" and whether the "procedures for estimating

---

[174] GIANNELLI & IMWINKELRIED, *supra* note 6, at 46.

[175] *Id.* at 49.

[176] COMMITTEE ON DNA FORENSIC SCIENCE: AN UPDATE, COMMISSION ON DNA FORENSIC SCIENCE: AN UPDATE, & NAT'L RESEARCH COUNCIL, THE EVALUATION OF FORENSIC DNA EVIDENCE 174 (1996) (hereinafter, "1996 NRC REPORT").

[177] *Id.* at 174-75.

[178] NAT'L RESEARCH COUNCIL, DNA TECHNOLOGY IN FORENSIC SCIENCE (1992) (hereinafter, "1992 NRC REPORT").

[179] 1996 NRC REPORT, *supra* note 176, at 175.

[180] *Id.*

the frequencies of the genotypes" in a particular database are valid and reliable.[181] The criticisms at each stage had not been consistently resolved either in favor of or against DNA evidence.

Despite these occasional setbacks, however, one thing has remained constant: the general consensus that the underlying scientific theory of DNA profiling is valid.[182] As a result, "In the cases in which the courts excluded DNA testimony, they did so for other stated reasons, namely, either a finding that the analyst had not employed proper procedure in the pending case or a conclusion that the statistical evaluation testimony was flawed."[183] As will be explained below, this emphasis on the employment of proper procedures and protocols, whether qualitative, quantitative or statistical, is the new restrictive standard of admissibility.

1. Frye rule of "general acceptance"

Frye v. United States[184] is one of the more important cases on the admissibility of scientific evidence, if not scientific theory itself. In this 1923 decision with only two pages and no citations, the D.C. Circuit Court of Appeals addressed the admissibility of evidence derived from a "systolic blood pressure deception test," a forerunner to the polygraph.

The defendant was accused of murder and proffered an expert to testify on the results of the so-called "deception test" conducted on him. The government objected not because the expertise of the witness had not been established, but because the underlying methodology was "novel science," which had not yet been used by the scientific community. The trial court sustained the objection and convicted.

On appeal, the accused assailed the trial court's refusal to allow the expert testimony. Affirming the conviction, the Circuit Court of Appeals considered the admissibility of the novel "deception test" as a case of first impression and explained:

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle

---

[181] *Id.*

[182] GIANNELLI & IMWINKELRIED, *supra* note 6, at 49.

[183] *Id.*

[184] 293 F. 1013 (D.C. Cir. 1923).

> or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.[185]

The Court went on to rule that the "systolic blood pressure deception test" had not "yet gained such standing and scientific recognition among physiological and psychological authorities"[186] and, as such, expert testimony on results of such a test would be inadmissible. Under this *Frye* standard, it is not enough that the qualified expert testify on a technique's validity. In addition, there must be testimony that the technique has been "generally accepted by the relevant scientific community."[187] This "general acceptance" test became the dominant standard for admissibility of scientific evidence in both federal and state courts until 1993.[188]

2. Relevancy standard

In some jurisdictions, courts have used the "relevancy" standard. Under this approach, novel scientific evidence is admitted if the judge determines that it will be more helpful than misleading to the jury.[189] Thus, in jurisdictions following this "relevancy test," there is no need to show that scientists generally regard the procedure as reliable.[190] Instead, new scientific procedures even if controversial may be admitted into evidence "if the court either finds scientific proponents more persuasive than critics or finds that, notwithstanding the dispute, the jury will be able to evaluate the evidence appropriately."[191] Under this relevancy test, therefore, judges have both greater discretion in admitting evidence and the accompanying greater burden of assessing: the validity of the underlying science, the reliability of the method and the competence of the jury on such an issue.[192]

For obvious reasons, the *Frye* general acceptance standard was considered a more restrictive standard than relevancy.[193] With respect to DNA evidence, this characterization has proven to be true.[194] Indeed, it is in *Frye* jurisdictions that "DNA evidence has received the most thorough

---

[185] *Id.* at 1014.
[186] *Id.*
[187] GIANNELLI & IMWINKELRIED, *supra* note 6, at 11.
[188] *Id.* at 11-12.
[189] Thompson, *supra* note 172, at 31.
[190] *Id.* at 31 n.42.
[191] *Id.*
[192] *Id.*
[193] *Id.* at 31.
[194] *Id.*

scrutiny during pretrial admissibility hearings and has most often been ruled inadmissible."[195]

The stricter *Frye* standard faded from use with the adoption of the Federal Rules of Evidence in the 1970s. The "relevancy approach" was seemingly codified in Federal Rule of Evidence 402 ("FRE 402"), which expressly provides:

> All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority.

A number of federal circuits were induced to abandon *Frye* due to the codified rules' clear words and the absence of any mention *Frye's* general acceptance standard in the reporter's notes for the Federal Rules of Evidence Advisory Committee.[196] As a creature of case law, *Frye* was "no longer good law."[197]

3. Schwartz: Strengthening Frye

In 1989, *State v. Schwartz*[198] presented the issue of DNA evidence's admissibility to the Minnesota Supreme Court for the first time. The Court not only relied on the *Frye* general acceptability standard, it added teeth to it.

Schwartz was charged with the stabbing and murder of Carrie Coonrod.[199] The police obtained two pieces of clothing, a bloodstained pair of jeans and a bloodstained shirt, allegedly belonging to Schwartz.[200] The articles were submitted to the Minnesota Bureau of Criminal Apprehension ("BCA"), along with blood samples from both the accused and the victim.[201] The BCA's tests confirmed that the blood stains on the jeans and shirt were consistent with Coonrod's blood.[202] The prosecution, not content with the serological tests, likewise sent the blood samples for DNA testing to

---

[195] *Id.*

[196] United States v. Downing, 753 F.2d 1224 (3d Cir. 1985); Joseph Sanders et al., *Legal Perceptions of Science and Expert Knowledge*, 8 PSYCHOL. PUB. POL'Y & L. 139, 140 (2002).

[197] Edward Imwinkelried, *Flawed Expert Testimony: Striking The Right Balance In Admissibility Standards*, 18-SPG CRIM. JUST. 28, 34 (2003).

[198] State v. Schwartz, 447 N.W.2d 422 (Minn. Sup. Ct. 1989).

[199] *Id.* at 423.

[200] *Id.*

[201] *Id.*

[202] *Id.*,at 423-424.

Cellmark Diagnostics Corporation, a laboratory licensed in Maryland and in Pennsylvania.[203] The tests indicated that the banding pattern of the victim's blood sample "is contained in the DNA banding pattern obtained from the stain removed from the plaid shirt."[204] Cellmark reported that the "frequency of this DNA banding pattern in the Caucasian population is approximately 1 in 33 billion."[205]

The state, over the Schwartz's objection, introduced Cellmark's DNA test results. Thereupon, the district court certified the following questions to the Minnesota Court of Appeals, which in turn certified these to the state Supreme Court:[206]

> 1) In determining the admissibility of emerging scientific testing, is a trial court to rely on the *Frye* standard of general acceptability in the scientific community or the relevancy approached derived from Rules of Evidence 403 and 702?
>
> 2) May evidence of "DNA Fingerprinting" test results be admissible in a criminal proceeding?
>
> 3) ...

The Supreme Court conceded that DNA evidence *in general* was admissible because its underlying science satisfied the *Frye* standard of general acceptability.[207] Nevertheless, it excluded the DNA evidence proffered by the prosecution on the ground that it "lack[ed] foundational adequacy" in this particular case.[208]

The Court held that for DNA evidence to be admissible in a specific case, general acceptance by the relevant scientific community is insufficient. Rather, the "reliability of the test results is crucial"[209] and since "specific DNA test results are only as reliable and accurate as the testing procedures used by the particular laboratory,"[210] admissibility of DNA evidence *in a*

---

[203] *Id.*, at 424.
[204] *Id.*
[205] *Id.*
[206] *Id.* at 423.
[207] *Id.* at 426.
[208] *Id.* at 428.
[209] *Id.* at 426.
[210] *Id.*

particular case essentially requires: (a) the DNA tests are "performed in accordance with appropriate laboratory standards and controls;"[211] and (b) the "test data and methodology must be available for independent review by the opposing party."[212] It also found that the testing laboratory, Cellmark, had "implemented protocols and certain quality control measures for its technicians" but "deficiencies in several aspects exist" considering:

> The director of Cellmark's Research and Development Laboratory, Dr. Robin Cotton, admitted that because Cellmark did not meet all the minimum guidelines [prescribed by the Technical Working Group on DNA Analysis Methods (TWGDAM) coordinated by the FBI], such as formal methodology validation and published results of experimental studies in peer review journals, the FBI likely would not consider their test results ready for use in court. The experts also reviewed similar standards for DNA typing developed by CACLD (the California Association of Crime Laboratory Directors). Again, Dr. Cotton acknowledged that Cellmark has not comported with all of these standards.[213]

The Court added that "even if a laboratory has followed reliable procedures to ensure accurate test results," the constitutional concerns arising from the implication of the fair trial and due process rights may prevent admissibility "when data relied upon by a laboratory in performing tests are not available to the opposing party for review and cross-examination."[214] Ideally: "a defendant should be provided with the actual DNA sample(s) in order to reproduce the tests."[215] However, this is often impractical because forensic samples are often too small, thus entirely used up in initial testing, "access to the data, methodology and actual results is crucial so a defendant has at least an opportunity for independent expert review."[216]

The Court held that the more important reason for this admissibility requirement is that:

> The validity of testing procedures and principles is assessed in the scientific community by publishing data in peer review journals. The TWGDAM, FBI and CACLD standards stress that publication of a laboratory's work product and data used in DNA analysis, as well as

---

[211] *Id.* at 423.
[212] *Id.*
[213] *Id.*. at 426-27.
[214] *Id.* at 427.
[215] *Id.*
[216] *Id.*

> independent replication and validation studies, are essential prerequisites to reliability. Efforts to assess the reliability of the commercial laboratories' methodology consequently have been hindered because this information has not yet been made fully available. For example, Cellmark has not yet published data regarding its methodology and its probes are only selectively available.[217]

The Court concluded:

> While we agree with the trial court that forensic DNA typing has gained general acceptance in the scientific community, we hold that admissibility of specific test results in a particular case hinges on the laboratory's compliance with appropriate standards and controls, and the availability of their testing data and results.[218]

For failure to establish compliance with both of the Minnesota Court's additional prongs to *Frye*, the DNA evidence in *Schwartz* was declared inadmissible.

Essentially, *Schwartz*'s practical effect was to create a second and a third tier for scientific evidence's admission, particularly for DNA test results. These additional tiers required the trial court to conduct a tapered inquiry that starts with the *Frye* general inquiry of "what does the scientific community think of the underlying technique?"; then proceeds to specify "what exactly was done in this case?"; and then "what notes, documents and other laboratory data are available to prove what was done and have they been made accessible to the opponent?" The process of filtering DNA evidence was made more rigorous because "reliability is particularly important in a criminal proceeding because a suspect may face the loss of liberty [or even life] due to DNA identification."[219]

Unfortunately, the *Schwartz* doctrine, like the *Frye* standard, was considered the "traditional common law view."[220] Since support for the Federal Rules of Evidence was then gaining ground, a "trend towards the view that errors in test procedure affected only the weight, not the admissibility, of scientific evidence."[221] Thus, unlike in *Schwartz*, noncompliance with laboratory standards, procedures and protocols was not a "foundational inadequacy" but rather a diminution of credibility. This

---

[217] *Id.* at 427-28.
[218] *Id.* at 428.
[219] *Id.* at 426.
[220] Imwinkelried, *supra* note 197, at 34.
[221] *Id.*

trend was fueled even more by the decision of federal courts in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[222] which construed FRE 402 as "abolishing uncodified exclusionary rules of evidence" and retaining only the relevancy standard.[223]

4. Daubert's "reliability rule" for "judicial gatekeepers"

Daubert ended the *Frye* standard's 70-year dominance, and the United States Supreme Court announced that *Frye* had been *superseded by the Federal Rules of Evidence*. The Rules give no indication that scientific evidence must meet the test of general acceptance to be admissible.[224]

Although *Daubert* was a civil product liability suit, it declared *Frye's* rigid general acceptance standard "at odds with the liberal thrust of the Federal Rules of Evidence and their general approach of relaxing the traditional barriers to opinion testimony."[225] The Court was quick to emphasize that, under Rule 702,[226] the admissibility of expert testimony or evidence is not unrestricted. In *Daubert*, the Court emphasized that expert opinion and evidence must not only be relevant, it must also be reliable.[227] Hence, evidence that is relevant but unreliable is inadmissible. In short, reliability under *Daubert* is not quite the same as reliability in *Schwartz*.

In *Daubert*, the United States Supreme Court parsed Rule 702, used the terms "scientific knowledge" as an anchor, declared that the admissibility standard is evidentiary reliability such as trustworthiness, and that evidentiary reliability will be based on scientific validity.[228] In practical terms, when faced with a proffer of expert scientific testimony, the trial judge must act as the "gatekeeper" by first determining "whether the expert is proposing to testify on (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue."[229] In this role, the trial court

---

[222] Daubert v. Merrell Dow Pharmaceuticals, Inc., 506 U.S. 579, 113 S. Ct. 2786 (1993).

[223] Imwinkelried, supra note 197, at 34.

[224] Daubert, 113 S. Ct. at 2790.

[225] *Id.* at 2794.

[226] FED. R. EVID., Rule 702, which governs expert testimony, then provided: "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."

[227] Daubert, 113 S. Ct. at 2798.

[228] *Id.* at 2798 n.9.

[229] *Id.* at 2796.

must preliminarily assess "whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology can be applied to the facts in issue."[230]

Daubert does not provide a definitive checklist for judges performing this gatekeeper role. However, it did describe certain factors which have come to be known as the *Daubert* factors:

1) whether the theory or technique can be and has been tested;[231]

2) whether the theory or technique has been subjected to peer review and publication;[232]

3) the known or potential rate of error;[233]

4) the existence and maintenance of standards controlling the technique's operation;[234] and, finally,

5) whether the theory or technique is generally accepted in the relevant scientific community.[235]

Over and above these *Daubert* factors, however, the trial court is authorized to exclude irrelevant evidence, or evidence that will not "assist the trier of fact,"[236] as well as evidence whose "probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury...."[237]

As chronicled by the decisions of post-*Daubert* trial courts, the "reliability standard" proved to be more difficult to interpret than when it first appeared. Procedurally, several issues were raised including the obligation of the trial judge to hold a preliminary determination of admissibility pursuant to Federal Rule of Evidence 104(a), the party upon whom the burden of persuasion rested on the issue of admissibility, and the

---

230 *Id.*
231 *Id.* at 2796.
232 *Id.* at 2797.
233 *Id.*
234 *Id.*
235 *Id.*
236 *Id.* at 2795.
237 *Id.* at 2798, citing FED. R. EVID., Rule 403.

degree of proof required.[238] Substantively, *Daubert* was criticized as having laid down a test that was "vague and abstract," that failed to provide sufficient guidance, and that was, at least on its face, conflicting.[239] Indeed, one commentary observed, "Astonishingly, all parties expressed satisfaction with the *Daubert* decision – the lawyers for the plaintiff and defense, and scientists who wrote *amicus* briefs."[240] According to another author, "This alone should have raised red flags."[241]

The central debate was whether *Daubert* intended to lower the bar of admissibility of scientific evidence or raise it. Unfortunately, the Supreme Court's words in *Daubert* were susceptible to either interpretation.

Initially, *Daubert* was deemed to have the effect of "lowering the admissibility bar" of scientific evidence.[242] A decade later, however, *Daubert* is described as establishing an "exacting" standard.[243] This transformation, or clarification, was fueled by the United States Supreme Court's subsequent decision, *Kumho Tires Co. v. Carmichael.*[244] *Kumho Tires*, another product liability case, expressly decreed that the trial judge had considerable latitude in deciding "whether or not an expert's relevant testimony is reliable", "how to test an expert's reliability" and "whether or when a special briefing or other proceedings are needed to investigate reliability."[245] More importantly, according to the Court, *Daubert*'s gatekeeping requirement is necessary "to ensure the reliability and relevancy of expert testimony" "in a particular case."[246] Here, "where [an expert] testimony's factual basis, data, principles, methods, or their application are called sufficiently into question... the trial judge must determine whether the testimony has a 'reliable basis in the knowledge and experience of [the relevant] discipline'"[247] and "in light of the particular facts and circumstances of the particular case."[248] Thus, the gate of

---

[238] GIANNELLI & IMWINKELFRIED, *supra* note 6, at 34-35.

[239] *Id.* at 58-59.

[240] Kenneth Foster et al., *Policy Forum: Science and the Toxic Tort*, 261 SCI. 1509, 1614 (1993).

[241] Paul Giannelli, *The Supreme Court's "Criminal" Daubert Cases*, 33 SETON HALL L. REV. 1071, 1077 (2003).

[242] *Id.* at 1078.

[243] *Id.* at 1076.

[244] 526 U.S. 137, 119 S.Ct. 1167 (1999).

[245] *Id.* at 1176.

[246] *Id.*

[247] *Id.* at 1175.

[248] *Id.* at 1179.

reliability guarded by the courts turned out to be more impenetrable than originally announced.

With this clarification, the admissibility standard for scientific evidence has finally come full circle: from the initially lax standard of relevancy to the strictness of *Frye*; from the initially "relaxed" screening of *Daubert* back to the now "exacting standard" of the *Daubert-Kumho* "reliability in a particular case" approach. Under the *Daubert-Kumho* regime, the failure of a particular expert to comply with the methods, procedures and protocols in a particular case would once again impact the reliability of the evidence, a "foundational" requirement for its admissibility. This author posits that the admissibility bar for expert evidence has been restored to a position almost as high as in *Schwartz*, but not as high.

5. Federal Rules of Evidence 702

Amendments to FRE Rule 702 codified the *Daubert-Kumho* approach[249] and became effective in December 2000. A required foundational showing that "the witness has applied the principles and methods reliably to the facts of the case" has been expressly added. Thus, the ongoing debate as to whether "application of proper procedures went to weight and not admissibility" was finally resolved in favor of the stringent option,[250] perhaps even more restrictive than the *Daubert-Kumho* court ever imagined. The Advisory Committee's Notes are helpful to practitioners:

> Rule 702 has been amended in response to *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, and to the many cases applying *Daubert*, including *Kumho Tire Co. v. Carmichael*. 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. ... The amendment affirms the trial court's role as gatekeeper and provides some general standards that the trial court must use to assess the reliability and helpfulness of proffered expert testimony. Consistently with *Kumho*, the Rule as amended provides that all types of expert testimony present questions of admissibility

---

[249] FED. R. EVID., Rule 702 now provides: "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, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case."

[250] Giannelli, *Daubert Cases*, *supra* note 241, at 1104.

for the trial court in deciding whether the evidence is reliable and helpful. Consequently, the admissibility of all expert testimony is governed by the principles of Rule 104(a). Under that Rule, the proponent has the burden of establishing that the pertinent admissibility requirements are met by a preponderance of the evidence. ...

...

...Under the amendment, as under *Daubert*, when an expert purports to apply principles and methods in accordance with professional standards, and yet reaches a conclusion that other experts in the field would not reach, the trial court may fairly suspect that the principles and methods have not been faithfully applied. ... The amendment specifically provides that the trial court must scrutinize not only the principles and methods used by the expert, but also whether those principles and methods have been properly applied to the facts of the case. As the court noted in *In re Paoli R.R. Yard PCB Litig.*, "any step that renders the analysis unreliable ... renders the expert's testimony inadmissible. This is true whether the step completely changes a reliable methodology or merely misapplies that methodology."

The amendment requires that the testimony must be the product of reliable principles and methods that are reliably applied to the facts of the case. ... So long as the principles and methods are reliable and applied reliably to the facts of the case, this type of testimony should be admitted.

Nothing in this amendment is intended to suggest that experience alone – or experience in conjunction with other knowledge, skill, training or education – may not provide a sufficient foundation for expert testimony. To the contrary, the text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience. ...

If the witness is relying solely or primarily on experience, then the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts. The trial court's gatekeeping function requires more than simply "taking the expert's word for it." ... The more subjective and controversial the expert's inquiry, the more likely the testimony should be excluded as unreliable. ...

Subpart (1) of Rule 702 calls for a quantitative rather than qualitative analysis. The amendment requires that expert testimony be based on sufficient underlying "facts or data." The term "data" is intended to encompass the reliable opinions of other experts. ... The language "facts or data" is broad enough to allow an expert to rely on hypothetical facts that are supported by the evidence.

> ...When facts are in dispute, experts sometimes reach different conclusions based on competing versions of the facts. The emphasis in the amendment on "sufficient facts or data" is not intended to authorize a trial court to exclude an expert's testimony on the ground that the court believes one version of the facts and not the other.
>
> ...
>
> The amendment makes no attempt to set forth procedural requirements for exercising the trial court's gatekeeping function over expert testimony. ... Courts have shown considerable ingenuity and flexibility in considering challenges to expert testimony under Daubert, and it is contemplated that this will continue under the amended Rule. (internal citations omitted)[251]

Some courts have interpreted the 2000 amendment to Rule 702 as an advocacy of an extremely fact-based admissibility assessment of scientific and expert evidence,[252] which is a step beyond *Daubert-Kumho* but still not to the point of *Schwartz*. In *Rudd v. General Motors Corp.*,[253] an Alabama district court explained its understanding of the amended rule:

> The advisory committee notes for Rule 702, as amended effective December 1, 2000, comment that the amended rule was formulated in part to affirm *Kumho's* holding that the trial judge's gatekeeper function applies to all expert testimony. But the newly-expanded rule goes further than *Kumho* to "provide some general standards that the trial court *must* use to assess the reliability and helpfulness of proffered expert testimony...."
>
> While the inquiry into "reliable principles and methods" has been a familiar feature of admissibility analysis under *Daubert* the new Rule 702 appears to require a trial judge to make an evaluation that delves more into the facts than was recommended in *Daubert*, including as the rule does an inquiry into the sufficiency of the testimony's basis ("the testimony is based upon sufficient facts or data") and an inquiry into the application of a methodology to the facts ("the witness has applied the principles and methods reliably to the facts of the case").
>
> ...Neither of these two latter questions that are now mandatory under the new rule--the inquiries into the sufficiency of the testimony's basis and the reliability of the methodology's application

---

[251] *Advisory Committee's Note to Amendment to FRE Rule 702 effective December 1, 2000, available at* http://www.law.harvard.edu/publications/evidenceiii/rules/702.html (last visited Oct. 1, 2004).

[252] Giannelli, *Daubert Cases*, *supra* note 241, at 1104.

[253] 127 F. Supp. 2d 1330 (2001).

> – were expressly part of the formal admissibility analysis under *Daubert.*
>
> ...
>
> However, while this court can find no case law precisely implementing these kinds of analyses, the amended rule's reliability-of-application inquiry was at least foreshadowed in *General Electric Co. v. Joiner*, where the Supreme Court suggested that *Daubert's* distinction between factual conclusions and methodology might be too sharply-drawn. ....
>
> Going beyond the permissive language of *Joiner,* the plain language of new Rule 702, as well as the advisory committee notes to the new Rule, makes it clear that this court is now *obliged* to screen expert testimony to ensure it stems from, not just a reliable methodology, but also a sufficient factual basis and reliable application of the methodology to the facts. Despite this express provision for judicial evaluation of such factually-entwined matters, however, the advisory committee notes caution that the trial judge must still avoid usurping the role of the trier of fact. ...[254] (citations omitted)

As will be explained in a later section, this author believes the Alabama district court's decision was quite correct.

2. Accreditation of forensic scientists and laboratories

For over a decade, the call for mandatory standardization, accreditation and monitoring, if not regulation have been constant themes in the extensive literature on forensic science.[255]

In 1990, the National Research Council of the National Academy of Sciences ("NRC") established a distinguished panel of experts to evaluate the use of DNA technology in forensic science and to resolve the ongoing controversy. The panel released a report in April 1992 ("1992 NRC Report") that formally endorsed the scientific principles underlying forensic DNA testing and recommended that testing should continue.[256] However, the same report conceded that the implementation of the new technology presented problems and that improvements were necessary. Among the

---

[254] *Id.* at 1336-1337.

[255] Lissa Bouwer Hansen, *Stemming the DNA Tide: A Case for Quality Control Guidelines*, 16 HAMLINE L. REV. 211, 230-231 (1992); Thompson, *supra* note 172, at 104; E. Donald Shapiro & Stewart Reifler, *Forensic Dna Analysis And The United States Government*, MED. SCI. & L., Jan. 1996, at 43; Giannelli, *Abuse of Scientific Evidence*, *supra* note 88; Strom, *supra* note 59; Risinger et al., *supra* note 118; Maier, *supra* note 105; Cohen, *supra* note 105.

[256] 1992 NRC REPORT, *supra* note 178.

recommendations were that "a formal system be developed for accreditation of laboratories doing forensic DNA testing, admissibility of test results in court be contingent on the laboratory being accredited, and that accreditation depend on complying with rigorous standards for quality assurance, such as participation in externally administered proficiency tests."[257]

The call for standardization, accreditation and monitoring of DNA testing laboratories became even stronger in the wake of *Zain*. Regarding that case, Honorable Judge Holliday noted that "certain operating procedures during Trooper Zain's tenure" "undoubtedly contributed to an environment within which Zain's misconduct escaped detection."[258] These procedural deficiencies included:

> (1) no written documentation of testing methodology;
>
> (2) no written quality assurance program;
>
> (3) no written internal or external auditing procedures;
>
> (4) no routine proficiency testing of laboratory technicians;
>
> (5) no technical review of work product;
>
> (6) no written documentation of instrument maintenance and calibration;
>
> (7) no written testing procedures manual;
>
> (8) failure to follow generally-accepted scientific testing standards with respect to certain tests;
>
> (9) inadequate record-keeping; and
>
> (10) failure to conduct collateral testing.[259]

As a final note to *Zain*, the West Virginia Supreme Court of Appeals lamented that "the matters brought before [it] by retired Judge Holliday [regarding the misconduct of Zain] are shocking and represent egregious violations of the right of a defendant to a fair trial," which "stain our judicial

---

[257] Thompson, *supra* note 172, at 42, *citing* 1992 NRC REPORT, *supra* note 178, at 97-110.

[258] In re: Investigation of Serology Division, 438 S.E.2d 501, 504 (1993).

[259] *Id.*

system and mock the ideal of justice under law."[260] "This corruption of our legal system would not have occurred had there been adequate controls and procedures in the Serology Division."[261] Thus the Court directed that "steps... be taken to obtain certification of the State Police forensic laboratory by the American Society of Crime Laboratory Directors."[262]

To address the concerns raised in the 1992 NRC Report, the United States Congress incorporated the DNA Identification Act of 1994[263] into the Violent Crime Control & Law Enforcement Act of 1994. The former directed the creation of quality assurance and proficiency testing standards, and directed the FBI director to appoint an advisory board on DNA quality assurance standards.[264] Though the Act established a federal framework for setting national standards on quality assurance and proficiency testing,[265] compliance with it was not made mandatory for all forensic laboratories; rather it was only made a qualification for government funding.[266]

Three years after *Zain*, standardization, accreditation, certification, and monitoring were still not mandatory. Thus in 1996, the NRC updated the original report ("1996 NRC Report"),[267] and again recommended (a) standardization both as to quality control[268] and quality assurance;[269] (b) accreditation of crime laboratories; and (c) monitoring of crime laboratories through proficiency testing and certification of forensic scientists.[270] Thus:

> Recommendation 3.1. Laboratories should adhere to high quality standards (such as those defined by TWGDAM[271] and the DNA

---

[260] *Id.* at 508.

[261] *Id.*

[262] *Id.*

[263] 42 U.S.C. §§ 14131-33.

[264] *Id.*, § 14131.

[265] 1996 NRC REPORT, *supra* note 176, at 78.

[266] *Id.*

[267] *Id.*

[268] *Quality control* (QC) refers to measures that are taken to ensure that the product, in this case a DNA-typing result and its interpretation, meets a specified standard of quality. 1996 NRC REPORT, *supra* note 176, at 75

[269] *Quality assurance* (QA) "refers to measures that are taken by a laboratory to monitor, verify, and document its performance. Regular proficiency testing and regular auditing of laboratory operations are both essential components of QA programs. QA thus serves as a functional check on QC in a laboratory. ..." *Id.* at 75.

[270] *Id.* at 75-88.

[271] The Technical Working Group on DNA Analysis Methods ("TWGDAM") is a group composed of forensic DNA analysts from government and private laboratories

> Advisory Board) and make every effort to be accredited for DNA work (by such organizations as ASCLD-LAB).[272]
>
> Recommendation 3.2. Laboratories should participate regularly in proficiency tests, and the results should be available for court proceedings.

Again, the aforesaid NRC recommendations remain just that: recommendations.

The HUPD Crime Laboratory controversy broke out in 2003, and law enforcement experts and legal scholars firmly rallied for regulation to avoid the recurrence of the misconduct and negligence that had become "systemic problem[s] faced by many crime labs."[273] Apparently, laboratory accreditation and scientist certification remained the exception rather than the rule, despite the NRC recommendations and the DNA Identification Act of 1994. The numbers of laboratories that sought accreditation and certification remained low because these remained voluntary and were prohibitive in terms of both cost and time.[274] As of August 2003, there were 400 to 500 labs performing forensic work, but only 240 of them, however, were fully accredited and only twenty-five had pending applications.[275] Innocence Project Peter Neufeld, faced with such bleak statistics, complained that "[t]he fundamental problem with forensic science in labs –

---

around the United States and Canada. It has published guidelines and reports that address various aspects of forensic DNA analysis and laboratory procedure. The most recent guidelines define current accepted standards of practice for forensic DNA laboratories in Northern America. *Id.* at 77. TWGDAM has been renamed the Scientific Working Group on DNA Analysis Methods ("SWGDAM"). In the summer of 2003, SWGDAM revised the 1995 TWGDAM Guidelines.

[272] Laboratory Accreditation Board of the American Association of Crime Laboratory Directors ("ASCLD-LAB") is an entity that sponsors a crime laboratory accreditation program that requires extensive documentation of all aspects of laboratory operations (including the education, training, and experience of personnel; the specification and calibration of equipment and reagents; the validation and description of analytic methods, the definition of appropriate standards and controls, the procedures for handling samples, and the guidelines for interpreting and reporting data), proficiency testing, internal and external audits of laboratory operations, and a plan to address deficiencies with corrective action and weigh their importance for laboratory competence. The TWGDAM QC and QA guidelines are specifically endorsed by ASCLD-LAB as part of the foundation for accreditation. *Id.* at 77.

[273] Maier, *supra* note 105.

[274] Of the various jurisdictions in the United States, only the states of New York, Oklahoma and, after the 2003 fiasco, Texas require accreditation for crime laboratories.

[275] Cohen, *supra* note 105.

whether it is DNA, hair, handwriting, ballistics – is that unlike clinical labs, forensic labs are unregulated by any government entity."[276] Instead, according to Neufeld, "labs set their own standards."[277]

Having learned the hard way that scientific evidence is not infallible, this appeal for regulation was understandable and expected. True, such regulation will not by itself guarantee that procedures and protocols will be followed in any particular case, nor that forensic scientists will accurately and honestly report their observations and findings, nor even that every item of DNA evidence proffered is reliable under the particular circumstances. Nevertheless, if laboratories and forensic scientists are aware that any test may be a blind proficiency examination or evaluation, or that their operations are dependent on accreditation, they will surely be more diligent, if only because to avoid the increased cost of laxity.

3. Post-conviction DNA testing statutes

Many convicts sought to have their convictions overturned through the aid of scientific breakthroughs, particularly DNA evidence. Acknowledging the tragic reality that Justice Learned Hand once denied, American courts have granted relief, on a case-to-case basis, by sanctioning post-conviction DNA testing and, in a State-to-State manner, admitting exculpatory results as newly discovered proof of innocence that justify reversals.[278]

Sometime in June 1995, the United States National Institute of Justice commissioned a study aimed at identifying and reviewing cases of convicted individuals who had subsequently been released from prison as a result of post-conviction DNA testing of the evidence available.[279] As of early 1996, the study had identified twenty-eight such cases throughout the American legal system.[280] Specifically, post-conviction DNA testing by the Innocence Project has successfully exonerated 143 innocent convicts as of April 29, 2004, and some of these were on death row.[281] More than 300 cases of wrongful convictions have been documented by the various

---

[276] *Id.*

[277] *Id.*

[278] EDWARD CONNORS ET AL., CONVICTED BY JURIES, EXONERATED BY SCIENCE: CASE STUDIES IN THE USE OF DNA EVIDENCE TO ESTABLISH INNOCENCE AFTER TRIAL (1996); HUFF ET AL., *supra* note 8; JIM DWYER ET AL., *supra* note 25.

[279] CONNORS ET AL., *supra* note 279, at 2.

[280] *Id.*.

[281] Innocence Project, *Junk Science, at* http://www.innocenceproject.org/causes/junkscience.php.

innocence projects all over the United States and the number is steadily growing.[282]

Over the past decade, there has been a move to legislate post-conviction DNA testing as a remedy on a state-by-state basis. Initially, only New York and Illinois had laws expressly granting the right of access to post-conviction DNA testing. More than thirty other states have followed suit in the last five years, however. Some states, however, have resisted. The Innocence Project and other advocates have urged the United States Congress to adopt federal legislation as a result of this state to state disparity.

In October 2003, the Innocence Protection Act (IPA) of 2003 was introduced in the 107th Congress, as part of a larger bill called the Advancing Justice Through DNA Technology Act. This revolutionary bill would grant any inmate found guilty of a federal offense the right to petition a federal court for DNA testing, under penalty of perjury. It likewise induced states and local government units – with the power of the purse – to train and educate, among others, law enforcement personnel, judges, prosecutors and defense lawyers; to adopt adequate measures to preserve evidence and make post-conviction DNA testing available to inmates; and to engage in further research and development to improve forensic DNA technology in terms of identification accuracy, efficiency and portability. Further, the bill required all public crime laboratories to obtain accreditation, undergo periodic external audits, and demonstrate compliance with federal standards. In November 2003, the Advancing Justice Through DNA Technology Act passed the House of Representatives with an overwhelming 357-67 vote. It is now pending before the Senate.[283]

IV. ASSIMILATING THE USE OF DNA EVIDENCE WITHIN THE PHILIPPINE CRIMINAL JUSTICE SYSTEM: A PROGRESSIVE MODEL

In the midst of all the post-conviction exonerations observed in the United States, its legal system continued to innovate and adapt, and eventually provided statutory remedies. Each post-conviction exculpation is a learning experience, and the American legal system is quickly learning. Considering that DNA evidence has just begun to be introduced in the Philippines, the Philippines must look to the American system for guidance instead of undergoing the same growing pains.

---

[282] Imwinkelried, *supra* note 197, at 29.

[283] U.S. S. No. 1700, 108th Cong.

The Philippines has taken a giant first doctrinal step in recognizing, albeit as an exception, that eyewitness testimony is not the best nor unbeatable evidence in rape cases. Its validation, recognition and admission in *Vallejo*, albeit problematic in itself, constitutes a major second. These, however, are not enough. The current Philippine jurisprudential and statutory regimes are recipes for disaster. That is, wrongful convictions arising from continued reliance on eyewitness identification in rape cases and, in the absence of an eyewitness, the wholesale admission of junk, biased and even fraudulent science.

As shown by the variety of causes for wrongful convictions in the United States, there is no completely reliable evidence – not eyewitness testimony, not confessions, and not even science. The Philippine criminal justice system should implement a policy of strictly scrutinizing eyewitness testimony. Concurrently, it should prescribe more stringent admissibility standards to guarantee the quality of proffered expert testimony and scientific evidence, particularly DNA evidence, without raising the bar too high and forcing the entire justice system to rely even more heavily on the "inherently suspect" eyewitness identification by default.[284]

The author's recommends that neither eyewitness identification nor scientific evidence be relied upon to the exclusion of the other. However, DNA and other scientific evidence must be integrated within the Philippine justice system and integrated well. Again, *Vallejo* fell short of this goal.

The proper assimilation of DNA evidence depends on two primary factors: (a) the existence of a legal environment that ensures its validity, reliability and credibility as well as safeguards against its abuse or misuse; and (b) the actual demand for, use of, and reliance upon DNA evidence in criminal prosecutions. The model that seeks to properly assimilate DNA evidence must have three objectives:

> (a) to eliminate, or at the least mitigate, the disincentives generated by the current legal system that emphasizes and gives "supremacy" to eyewitness identification;
>
> (b) to create incentives for the members of the criminal justice system to use and rely on DNA evidence; and

---

[284]Imwinkelried, *supra* note 197, at 29.

(c) to set up a legal regime that admits DNA evidence while ensuring its reliability and credibility as well as safeguarding against its abuse or misuse.

The proper assimilation of DNA evidence into the Philippine legal system, or any legal system for that matter, will take time and effort, and, sadly money. As there is no quick fix, the author proposes a progressive model, or assimilation gradually achieved through successive courses of action, each of which serves as the foundation for the next. These are divided into short-term, medium-term and long-term measures.

A. SHORT TERM COURSES OF ACTION: EDUCATION, INSTRUCTION & INVESTIGATION

The author recommends the adoption of the following stopgap measures that can be implemented by the Supreme Court swiftly and at minimal cost:

1) Mandating all members of the judiciary, from judges of the trial courts to Justices of the Supreme Court, especially those deciding rape cases, to participate in continuing legal education programs intended to strengthen their knowledge about DNA Evidence, its real significance, the requisite elements for reliability and validity (such as the proper procedures, protocols, necessary laboratory reports), the possible sources of error, and the available objections to admission of DNA test results as evidence;

2) Including "DNA and Other Forensic Evidence" as an independent subject of the Mandatory Continuing Legal Education ("MCLE") program for lawyers, especially those who are part of the Public Prosecutors' Office and the Public Attorneys' Office, to educate them on the requisite elements for reliability and validity (such as the proper procedures, protocols, and necessary laboratory reports), possible sources of error, the proper manner of presentation of DNA evidence, and available objections to admission of DNA test results as evidence;

3) Adopting a policy of "Strict Scrutiny of Eyewitness Testimony in Rape Cases" and issuing an administrative instruction to all courts that such a policy should be strictly enforced in all pending and subsequently litigated cases;

4) Adopting a policy of "Encouraging Use of DNA Evidence" and prescribing strict compliance with the criteria for admissibility laid down in *Vallejo;* and

5) Creating a technical group to investigate the feasibility of granting DNA testing as a post-conviction relief in certain cases and issuing a directive to that effect.

These short-term measures, if taken seriously and strictly enforced, should positively impact on (a) criminal complaints being investigated by the Philippine National Police ("PNP"), the National Bureau of Investigation ("NBI") and other law enforcement agencies; (b) criminal cases under preliminary investigation; (c) criminal prosecutions currently being litigated before the trial courts; and, perhaps (d) rape convictions on appeal.

1. Education of the bench

Philippines courts as exemplified in *Vallejo* often defer to forensic expert witnesses. Perhaps this is because:

(a) judges are inexperienced and, worse, ignorant of the technical and scientific bases for DNA or other forensic evidence;

(b) judges mistakenly believe in the conclusiveness of a DNA "match;" and

(c) judges are of the erroneous impression that DNA and other forensic evidence, being results of scientific methods, are infallible and incorruptible.

A review of the American experience on "white coat" fraud, "junk science" and "observer effects", should show the folly of this deferential mindset to legal scholars and laymen, but more importantly, the judges themselves.

Trial judges are tasked with ascertaining the admissibility of expert evidence including testimony on DNA test results and thereafter assessing their credibility. It is essential that they not be allowed to seek refuge under the convenient excuse of "scientific ignorance." To allow judges to invoke such would be to place the administration of justice at the mercy of experts.

Accordingly, the Supreme Court should immediately mandate all members of the judiciary, from trial judges to appellate justices, especially those deciding rape cases, to actively participate in continuing legal education programs intended to strengthen their knowledge about DNA

evidence. In addition to the general education of all members of the judiciary, presiding judges of Heinous Crimes Courts should undergo intense special instruction on DNA evidence[285] and should be required to keep themselves abreast of the developments of the technology, subject to some monitoring or evaluation by the Supreme Court.

2. Education of the bar

Legal gamesmanship often prevails over justice in an adversarial criminal justice system. Thus, when confronted with criticisms about the possibility that pseudoscientific assertions will be admitted into evidence and confuse the issues, the United States Supreme Court countered that the answer was not to raise the bar of admissibility but rather to rely on the merits of the adversarial system:

> In this regard respondent seems to us to be overly pessimistic about the capabilities of the jury and of the adversary system generally. Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.[286]

The "anemic work" of defense attorneys, as seen from both *Vallejo* and the more numerous American precedents, allow junk science, white coat fraud and observer effects remain unchallenged.[287] As lamented by Innocence Project's directors:

> Finally, that Fred Zain and Ralph Erdmann were able to thrive for years is a backward tribute to the anemic work of defense attorneys in their states. As Public Defender George Castelle of West Virginia points out, if even one defense lawyer had challenged Fred Zain to present his notes during his ten-year reign of error, the charade would have come to an end. Too many lawyers ended up going to law school because of lousy grades in chemistry and biology. A fear of science won't cut it in an age when many pleas of guilty are predicated on the reports of scientific experts. Every public defender's office should have at least one lawyer who is not afraid of a test tube.[288]

Similarly, members of the Philippine bar, especially public defenders must rise above a general fear of science and an ignorance of scientific

---

[285] Hansen, *supra* note 254, at 234.

[286] Daubert v. Merrell Dow Pharmaceuticals, Inc., 506 U.S. 579, 113 S. Ct. 2786, 2798 (1993).

[287] DWYER, *supra* note 25, at 125.

[288] *Id.*

principles. They have allowed themselves to lag behind their peers elsewhere in world, and must take immediate steps to catch up.

It is thus recommended that the members of the bar, especially those who are part of the Public Prosecutor's Office,[289] the Public Attorney's Office,[290] and the Office of the Solicitor General,[291] ensure that they are well-informed about DNA evidence. The author proposes that a separate subject called "DNA and Other Forensic Evidence" be added to the six (6) main areas of law covered by the Mandatory Continuing Legal Education ("MCLE") program.[292] This aims to enable lawyers to scrutinize DNA evidence, assess the same against prescribed standards and when necessary, mount all defenses and objections possible to DNA evidence.

3. Implementation of judicial precedent

Risinger and co-authors stated that "no general reform of practice is likely to be forthcoming unless that reform is required by the courts through decisions excluding evidence."[293] This author absolutely agrees.

It is the author's proposal that, in the exercise of its Constitutional and exclusive power to promulgate rules of practice and procedure in all courts,[294] the Supreme Court selectively reaffirm the precedent value of the "exceptional cases" earlier discussed. It must also declare the doctrines laid down in these as policy through administrative circulars. Through this

---

[289] The Public Prosecutor's Office is part of the National Prosecution Service, an attached agency of the Department of Justice ("DOJ"). Its members are charged with the task of (i) evaluating the findings of law enforcement agencies referred to them or other criminal complaints filed with the said office directly; (ii) filing the corresponding information or criminal complaints in the proper courts on the basis of their evaluation; and (iii) prosecuting the alleged offenders in court in the name of the Republic of the Philippines.

[290] The Public Attorneys' Office is a government agency attached to the DOJ that provides free legal assistance to indigent litigants including those accused in criminal cases.

[291] The Office of the Solicitor General ("OSG") is a branch of the DOJ that represents the Republic in civil actions before all courts. With respect to criminal proceedings are concerned, the OSG appears before the Court of Appeals and the Supreme Court.

[292] Bar Matter No. 850, October 2, 2001, Rule 2, § 2 enumerates the required MCLE areas as: legal ethics; trial and pre-trial skills; alternative dispute resolution; update on procedural and substantive law and jurisprudence; legal writing and oral advocacy; and international law and international conventions.

[293] Risinger et al., *supra* note 118, at 54.

[294] CONST. art. VIII, § 5(5).

selective reaffirmation, the Supreme Court will take explicit action to discourage reliance on eyewitness testimony and encourage critical use of scientific evidence.

a. Strict scrutiny of eyewitness testimony rule

In one of the few cases where the Supreme Court has recognized that "accusing a person of this crime [of rape] can be done with facility" and that, as a result, "the testimony of the complainant must always be scrutinized with great caution."[295] In addition, "[i]t may not be easy for [the victim] to prove the commission of rape; yet, it is even more difficult for the accused, though innocent to disprove his guilt."[296] Concerned with the possibility of affirming a wrongful conviction based primarily on eyewitness testimony, the Supreme Court connected these settled principles to the prosecution's burden of proving all elements of the rape to obtain a conviction and, on these rare occasions, dissected the testimony of the eyewitness and rejected them as unreliable, inconsistent, inadequate and tainted by ill-motive.[297] The Court expounded:

> This principle must be viewed in relation to that which holds that the evidence for the prosecution must stand or fall on its own merits; it cannot draw strength from the weakness of the evidence for the defense.
>
> ...
>
> Owing to the character of the crime of rape, the testimony of the victim is the focal point around which the charges naturally revolve. Therefore, the degree of reliability, consistency and adequacy of her testimony on material points – as well as the very manner in which she gives such testimony – can either sustain or negate conviction.
>
> ...
>
> It is clear that conviction may arise from any categorical and consistent positive identification, absent any showing of ill motive on the part of the eyewitness testifying on the matter. In a litany of cases, this Court has ruled that when there is no showing of any improper motive on the part of the victim to testify falsely against the accused or to falsely implicate the latter in the commission of the crime, the logical conclusion is that no such improper motive exists, and that the testimony is worthy of full faith and credence. Further, this Court has reiterated time and time again that it is most unlikely for a young girl like complainant, or even her family, to impute the crime of rape to no less than a relative and to face social humiliation, if not to vindicate her honor.

---

[295] People v. Fernandez, G.R. No. 139341, 385 SCRA 224, 232, July 25, 2002.
[296] *Id.* at 232.
[297] *Id.* at 233.

> However settled these principles, they do not apply to the case at bar. We note from Defense Witness Winifreda Butay's testimony that complainant admitted to having been instructed by her mother to testify to having been raped by the father. We also had the occasion to examine the testimony of complainant's mother, who openly testified how she herself had allegedly been raped by appellant. Without passing judgment on that incident, we note the animosity she felt towards him. The mother's ill motive clearly supported Butay's testimony that complainant had accused her father of raping her after being coached by her own mother to do so....
>
> ...
>
> Given the foregoing findings, we are not concluding that complainant has not been a victim of rape, or that appellant's defense of alibi and denial can be given full faith and credence. We only stress that her testimony was unable to pass the exacting test of moral certainty that the law demands and the rules require to satisfy the prosecution's burden of overcoming appellant's presumption of innocence.
>
> A conviction in a criminal case must be supported by proof beyond reasonable doubt – moral certainty that the accused is guilty. The defense may be weak, but the prosecution is even weaker....
>
> The Court has aptly said: "It is better to liberate a guilty man than to unjustly keep in prison one whose guilt has not been proved by the required quantum of evidence. Hence, despite the Court's support of ardent crusaders waging all-out war against felons on the loose, when the People's evidence fails to prove indubitably the accused's authorship of the crime of which they stand accused, it is the Court's duty – and the accused's right – to proclaim their innocence. Acquittal, therefore, is in order."[298]

Though most of the subsequent decisions of the Supreme Court fail to assess eyewitness testimony against the same "exacting test of moral certainty," the Supreme Court is not precluded from emphasizing this particular decision to subordinate courts. The author recommends the issuance of an administrative circular:

> (a) formally adopting the "strict scrutiny of eyewitness testimony rule" as applied in *People v. Fernandez* and as referred to in a number of other cases;
>
> (b) directing all trial judges, particularly those presiding over designated heinous crime courts, to strictly apply the "exacting test

---

[298] *Id.*, *citing* People v. Geron, G.R. No. 113788, 281 SCRA 36, Oct. 17, 1997.

of moral certainty" in analyzing the rape victims' testimony and other eyewitnesses as elucidated in *Fernandez*, and

(c) requiring strict compliance with these key principles in the evaluation of evidence in rape cases undergoing trial or pending decision and even in cases on appeal before appellate courts including the Supreme Court.

b. Vallejo's Admissibility Criteria for DNA Evidence

Sometime in the second quarter of 2003, the Supreme Court, through its second division, complained that they only had "uncertain testimonies to rely on" in reviewing a conviction for robbery with rape, and exclaimed that they wished they had "DNA or other scientific evidence... to still [their] doubts!"[299] Such an appeal must be announced in more than dicta, and made official to all members of the criminal justice system, particularly to both bench and bar. This author thus recommends that the Supreme Court issue a circular stating that, in line with *Janson* and *Vallejo*, it encourages the presentation of DNA and other scientific evidence in all criminal prosecutions involving rape and other sexual offenses whenever biological samples were properly collected, are available for testing, have been well preserved, and had their integrity protected through a well-established and well-documented "chain of custody."

The Supreme Court should also complement this with another circular prescribing criteria that the trial courts should apply in determining the admissibility and credibility of proffered DNA evidence. This should cite *Vallejo* as the current precedent:

> In assessing the probative value of DNA evidence, therefore, courts should consider, among others things, the following data: how the samples were collected, how they were handled, the possibility of contamination of the samples, the procedure followed in analyzing the samples, whether the proper standards and procedures were followed in conducting the tests, and the qualification of the analyst who conducted the tests.[300]

To ensure that DNA evidence is reliable, however, the same circular should caution the trial judges to *strictly* enforce the foregoing criteria pending the formulation and promulgation of a supplementary set of evidentiary rules to handle DNA and other scientific evidence. More

---

[299] People v. Janson, G.R. No. 125938, 400 SCRA 584, 601, Apr. 4, 2003

[300] People v. Vallejo, G.R. No. 144656, 382 SCRA 192, 209, May 9, 2002.

importantly, if compliance with the criteria is in doubt, trial judges should be advised to exclude the evidence.

4. Investigation into post-conviction DNA testing relief

A number of Philippine convicts, some on death row, have sought DNA testing on appeal. Uniformly, the Supreme Courts' response has been a simple, "It's too late!" This author believes that this justification is too simplistic. First, for a convict on death row, his exoneration can never come too late.

Second, one author writes that "finality is a doctrine that can be explained in two words when it comes to innocence tests: willful ignorance."[301] By ruling that DNA testing done after conviction is too late, the Court transforms this "willful ignorance" into law.

Third, the most essential but hidden problem posed by cursory denials of post-conviction DNA testing is its adverse effect on public safety. Simply, "every time an innocent offender is wrongfully convicted, the actual offender remains free to continue victimizing the public."[302]

Fourth, each denial on purely procedural grounds amounts to another lost opportunity to prove to the public that DNA evidence is more reliable than eyewitness testimony, another lost chance to learn from forensic scientists who will be called to testify on even evidentiary samples that are years old, and another lost chance to develop jurisprudence on the requisite standards, protocols and procedures for DNA testing, as well as the consequences of noncompliance.

The author suggests that the Court create a technical working group to review various rape convictions affirmed over a certain period and identify potential pilot cases for post-conviction DNA testing. This group should begin with cases where the DNA evidence is actually a child who was allegedly the result of a rape, but where the alleged father continues to deny any sexual relations with the rape victim.[303] By sanctioning post-conviction

---

[301] DWYER, *supra* note 25, at 247.

[302] HUFF ET AL., *supra* note 8, at xxiii.

[303] *See* De Ungria, *supra* note 17, at 67. The author discusses People v. Victoriano Paras, Crim. Case No. 85974-78, RTC Pasig City, Br. 163. Here, a man accused of five counts of rape was acquitted after the court considered that: (a) the testimonies of the victim and her witnesses were inconsistent with one another, (b) the accused's defense of alibi had been established by witnesses, and (c) DNA testing of the child allegedly born out of the rape conclusively excluded the accused as the father. Unfortunately, as

DNA testing and later publicizing the results, the Court will promote public awareness on DNA testing as a tool for incrimination and for exculpation. Hopefully, awareness will increase the demand for DNA evidence at the pre-trial stage or even during the custodial investigation stage while decreasing that for eyewitness testimony.

B. MEDIUM TERM COURSES OF ACTION: JUDICIAL REFORM & ACTIVISM

The next rungs on the ladder are intended to institutionalize the changes implemented through the short-term courses of action. However, these are designed with some modifications and, more importantly, to provide a transition from current evidentiary and procedural practices to a more radical structural change. These medium-term courses require action primarily from the judiciary, and are intended to minimize the possibility of scientific error, white coat fraud, junk science and observer effects.

1. Judicial Reform: Adoption of the *Frye-Schwartz* Standard of admissibility for DNA evidence

In the Philippines, evidence is admissible when it is relevant to the fact in issue and is not otherwise excluded by statute or the Rules of Court.[304] Evidence is relevant when it "has such a relation to the fact in issue as to induce belief in its existence or non-existence."[305] Admissibility thus hinges on relevance and relevance alone.

Section 49 of Rule 130 governs the admissibility of expert testimony:

> The opinion of a witness requiring special knowledge, skill, experience or training which he is shown to possess, may be received in evidence.

Hence the admissibility of expert opinion depends on the concurrence of three (3) factors:

> (1) "the subject under examination must be one that requires that the court has the aid of knowledge or experience such as men not

---

there was positive testimony from the rape victim, DNA paternity testing was not done during the investigation stage or even before trial had commenced. As a result of this omission and because rape was not a bailable offense, the accused had to spend a total of six years, six months and twelve days in detention.

[304] RULES OF COURT, Rule 128, § 3.

[305] Rule 128, § 4.

> especially skilled do not have, and such therefore, as cannot be obtained from the ordinary witnesses;"
>
> (2) "the witness called as an expert must possess the knowledge, skill or experience needed to inform the court in the particular case under consideration;" and
>
> (3) expert testimony is not admissible as to a matter not in issue."[306]

These rules also apply to expert witness testimony on DNA evidence. As a consequence, all other issues relating to the reliability or to objections to the validity of DNA evidence are left to a trial judge's discretion.

The prevailing admissibility standards for DNA evidence and accompanying expert opinion are thus exceedingly liberal. After examining America's experience over the past two decades and considering the result in *Vallejo*, the resulting environment is highly dangerous as it facilitates, if not invites, abuse or misuse. As eloquently explained by one author:

> Again, we cannot generalize and suspect all forensic scientists of sinister motives. I am convinced that the forensic disciplines are peopled with basically honest and straightforward, competent, experts. But that belief may lull us into a false sense of security.
>
> The temptation to fabricate or to exaggerate certainly exists. ... Not all succumb to that temptation; in all likelihood most never do. The "system", however, certainly makes it possible for this to occur....[307]

To prevent such, the Court should adopt the *Frye* rule, as modified by *Schwartz*, to govern the admissibility of DNA and other scientific evidence. Under this proposed rule, trial judges will, as gatekeepers of the evidence, have to determine the validity of evidence, assess its reliability and, more importantly, ensure that the necessary laboratory reports, data, documents and notes proving such reliability are available for perusal by both the court and the opposing party. Failure to meet any aspect of this admissibility test would be, under the *Frye-Schwartz* rule, a foundational inadequacy, which renders the evidence inadmissible. This rule is essential considering the unsophisticated, if not antiquated, crime scene investigation

---

[306] VII VICENTE FRANCISCO, THE REVISED RULES OF COURT OF THE PHILIPPINES 649 (1997).

[307] Andre Moenssens, *Novel Scientific Evidence in Criminal Cases: Some Words of Caution*, 84 J. CRIM. LAW & CRIMINOLOGY 1, 17 (1993).

and evidence gathering methods presently practiced in the country.[308] Thus, until the public officers tasked with these extra-judicial responsibilities are adequately trained and supplied with sufficient equipment, it is the author's opinion that questions about DNA evidence should bear upon the *admissibility* of the DNA evidence rather than its weight or probative value. This is the only rule that can ensure that the legal system sufficiently guard itself.

The *Frye-Schwartz* restrictive admissibility standard's adoption does not entail much, as explained by Imwinkelried:

> [Forensic expert testimony] hold[s] the genuine promise of reducing the incidence of miscarriage of justice. It is not asking too much to expect both that every proponent of an expert theory or technique must demonstrate its reliability and that every expert will show that he or she followed sound scientific protocol. Indeed, it would be irresponsible to ask less. In this setting, the consequences of irresponsibility are both grave and predictable: wrongful conviction.[309]

2. Judicial activism: Requiring court-appointed & independent expert witness on DNA testing results

The review of American cases revealed that too many experts who testified in these manifested a pro-prosecution bias, or a "willingness to share or distort opinions to support the state's case."[310] In some cases, especially where observer effects are in play, this bias is so deep in the expert's subconscious that it is difficult to bring into the open, even through the most rigorous of cross-examinations. Considering these experts were most often employed by crime laboratories with ties to the investigative and prosecutorial arms of the United States government and were normally presented as prosecution witnesses, this bias is not at all surprising.[311] In fact, it should be expected.

As forewarned by the willingness of the *Vallejo* expert to give misleading testimony, the same bias should be anticipated from prosecution expert witnesses employed by crime laboratories attached to the NBI and the PNP.

---

[308] Ma. Ceres Doyo & Luige del Puerto, *Too many 'Ayers' in PNP, Not Enough Books*, PHIL. DAILY INQUIRER, Jul. 1, 2002, *available at* http://www.law-forensic.com/cfr_ayers.htm.

[309] Imwinkelried, *supra* note 197, at 34.

[310] Giannelli, *supra* note 85, at 441.

[311] *Id.* at 470.

A second predicament is that there is often an imbalance of expert testimony. As most crime laboratories are attached agencies of the government, "obtaining expert assistance is generally not a problem for the prosecution."[312] In contrast, "forensic laboratory services... are not generally available to criminal defendants."[313] In the Philippines, an even greater disparity may exist because of the relative newness of DNA technology. Experts in the pertinent fields, unaffiliated with government laboratories, are hard to find in the country and their services are usually too costly for the ordinary accused.[314] As a result, in criminal prosecutions, the accused frequently fails to present any witness to rebut the expert testimony offered by the prosecution.

The third and perhaps the more injurious disadvantage is the stunting of the legal development surrounding DNA evidence. The result is that the most vocal proponent of DNA evidence is the prosecution, as in the United States. In contrast, defense attorneys have objected each and every time to its admission and probative value.[315] Conversely, where the result of a DNA test is exculpatory, the tendency of American prosecutors is to raise the objections normally expected from the defense or, if the testing is done before a charge is filed, not to present it at all. This is likely true as well in the Philippines. As a consequence of this selective use, the evidentiary law surrounding DNA evidence is uncertain and its development still stunted, all to the detriment of the science behind it.

This author recommends the modification of procedural and evidentiary rules. Basically, this will require that a court-appointed expert witness from an accredited crime laboratory testify on DNA evidence in criminal prosecutions. The witness should be independent of the state investigative and prosecutorial arms. These court-appointed DNA experts will, with the aid of the trial court's clarificatory questions, testify on:

(1) his or her qualifications and expertise;

---

[312] Paul Giannelli, *Junk Science: The Criminal Cases*, 84 J. CRIM. LAW & CRIMINOLOGY 105, 118 (1993).

[313] *Id.*

[314] Pacifico Agabin, *Integrating DNA Technology In The Judicial System*, 1 CONTINUING LEGAL EDUC. L.J. 27, 28 (2001).

[315] Rockne Harmon, *General Admissibility Considerations For Dna Typing Evidence: Let's Learn From The Past And Let The Scientists Decide This Time Around, in* FORENSIC DNA TECHNOLOGY 153, 179 (Mark Farley & James Harrington eds., 1991).

(2) the manner by which the integrity of the evidentiary and reference biological samples were (or were not) maintained through an established chain of custody

(3) the method by which these samples were preserved and subsequently handled in the laboratory; the standard protocols, procedures and processes used by the laboratory (as accredited);

(4) the manner by which the testing was conducted in compliance with such standard protocols, procedures and processes

(5) the results of the DNA testing and her expert interpretation of the results couched in a statement of statistical probability.

In addition, prior to his testimony, the court-appointed DNA expert must make available to the court, the prosecution and the defense all laboratory notes, reports, referral forms and other relevant documents. However, as is the case in the United Kingdom, the court-appointed DNA expert shall not be allowed to express an opinion on any fact in issue such as whether or not the accused was present at the scene of the crime.[316] However, the modified rules must expressly state that, in appreciating the testimony of a court-appointed DNA expert, the trial court is not, by the mere fact of such appointment, entitled to give greater weight to that testimony over that given by any other expert witness whose competence and qualifications have been established.

To protect the rights of all the parties to due process, this court-appointed expert witness shall be subject to cross-examination by both the prosecution and the defense. Notwithstanding the appointment, further, both the prosecution and the defense shall be allowed to present their own expert witness, who will either interpret the results of the public crime laboratory or the results obtained upon retesting by a private crime laboratory. These ensure the maintenance of the adversarial system.

Numerous American legal scholars have recommended the use of court-appointed expert witnesses for a multitude of reasons.[317] The same

---

[316] Henderson, *supra* note 57, at 183-86.

[317] Sofia Adrogue & Alan Ratliff, *The Independent Expert Evolution: From the "Path of Least Resistance" to the "Road Less Traveled?"*, 34 TEX. TECH. L. REV. 843-896 (2003); M. Neil Browne et al., *The Perspectival Nature of Expert Testimony in the United States, England, Korea, and France*, 18 CONN. J. INT'L L. 55-102 (2002); Justin Murphy, *Expert Witness At Trial: Where Are The Ethics?*, 14 GEO. J. LEGAL ETHICS 217-39 (2000); Ellen E. Deason,

justification and benefits are expected from the proposed modification of the Philippines' procedural rules. First, the use of court-appointed expert witnesses will balance the scales between the prosecution and the defense as far as resources are concerned. Second, the rule would reduce the frequency of initial clashes between the two sides' experts in the first instance. Third, DNA evidence, whether exculpatory or inculpatory, must be disclosed to all concerned. Fourth, the adoption of a court-appointed witness rule would reduce the impact of observer effects on DNA evidence offered in court. As witnesses of the court, the forensic DNA expert's selective appreciation of evidence may be diminished tremendously. Fifth, courts will attract better and more qualified experts to testify as many of these experts prefer to testify as neutral scientists rather than as party advocates.

However, the use of court-appointed witnesses is just the first prong of the recommended modification. The proposal would additionally require that: (a) the court-appointed witness be certified in his field; (b) the witness be employed by a government crime laboratory; (c) the crime laboratory be independent of the investigative and prosecutorial arms of the government; and (d) the crime laboratory be duly accredited by the statutorily recognized accrediting agency. This author hopes that, while the short-term measures of this progressive model are being implemented and while the medium term courses of action being put into place, the necessary complementary legislation will be enacted.

As an alternative, it is recommended that, pending enactment of proposed legislation, forensic experts should come to court not as witnesses but as friends of the court, or *amici curiae*. They must: (a) testify, among other things, to their qualifications, the procedures and protocols required in their laboratory, and the procedures they followed; (b) state their findings and their interpretations of these; and (c) present all requisite supporting documentation. Afterwards, *amici* shall be made available for cross-examination. In line with settled jurisprudence and to fill in the gap in procedural rules, the Court, should amend the provision on *amicus curiae* to include other non-lawyers such as forensic scientists, serologists, molecular biologists, and the like. This bridge measure requires, however, that the trial judge proactively perform his task as gatekeeper of the evidence by asking the necessary questions to ensure that DNA evidence proffered is valid, reliable and, as much as possible, free from the observer effects caused by extra-domain influence.

Court-Appointed Expert Witnesses: Scientific Positivisim Meets Bias and Deference, 77 OR. L. REV. 59-156 (1998).

Should legislation fail to pass, the judiciary must compensate by institutionalizing the responsibility of the expert who actually conducted the DNA test as a friend of the court, instead of retaining his usual role as a prosecution witness.

C. LONG TERM COURSE OF ACTION: LEGISLATION

The proper integration of DNA evidence in the Philippine criminal justice system does not purely depend on the judiciary's efforts. DNA evidence does not start on a clean slate and radical structural changes within the justice system itself are crucial. In the long term, these radical structural changes may only be institutionalized through legislation.

It would be unrealistic to expect radical change all at once and merely from one new law. Nonetheless, legislation with the following salient features will provide a solid foundation for the assimilation of DNA testing into the justice system:

1) DNA evidence to be admitted in evidence in criminal prosecutions for rape and or other sexual offenses must be the result of DNA testing done in a blind manner, or in a manner that excludes unnecessary extra-domain information;

2) Blind DNA testing must be performed by an individual qualified and duly certified to do so;

3) Blind DNA testing must be performed within a crime laboratory that is fiscally and administratively independent of the government's investigative and prosecutorial arms; and

4) The government and independent crime laboratories must be subject to mandatory standardization and accreditation as well as regular monitoring (via blind proficiency testing).

First, some of the most underestimated causes of "scientific error" in the Philippines and perhaps even in the United States are produced by observer effects. "The simplest, most powerful and most useful procedure to protect against the distorting effects of unstated assumptions, collateral information and improper expectations and motivations is blind testing."

"An examiner who does not know what conclusion is hoped for or expected of her cannot be affected by those considerations."[318]

Second, the qualification of the forensic scientist performing the test and his requisite certification by the designated government or professional agency may trace their justification to the need for proffered evidence's reliability. By requiring certification, the law indirectly requires that forensic scientists be duly qualified and thus promotes the reliability of all DNA evidence proffered. The HUPD controversy should be a testament to this.

Third, there are at least five DNA laboratories in the Philippines, namely those in the NBI and PNP, University of the Philippines Natural Sciences Research Institute ("UPNSRI") DNA Analysis Laboratory, National Kidney Institute of the Philippines ("NKIP"), and St. Luke's Medical Center. Of these, only the last is privately operated. Moreover, the first two are attached to the state's investigative agencies. This author emphasizes that laboratories' independence will help immunize them from possible pro-prosecution biases and reduce potential scientific errors arising from white coat fraud, junk science and especially observer effects.[319] Thus, the UPNSRI and NKIP DNA laboratories should be maintained, but the resources of the NBI and PNP laboratories should be reallocated to other agencies such as government hospitals, public educational institutions, and the like.

Fourth, the lack of regulation of crime laboratories merits immediate attention. If there is one thing the Philippines should learn from the American experience, it is that regulation should be put in place to guarantee that DNA evidence is reliable. Although accreditation is not a foolproof guarantee that "DNA testing performed in any [one] case has been done properly and interpreted correctly,"[320] it certainly increases the probability of reliable results.

D. CENTRALIZED CLEARING HOUSE: CREATION OF THE NATIONAL DNA TESTING CENTER

This author's final proposal is for legislation to facilitate the introduction of DNA evidence by establishing a National DNA Testing Center ("NDTC"), a centralized clearing house for DNA testing in the Philippines, charged with, among others, the following responsibilities:

---

[318] Risinger et al., *supra* note 119, at 45.
[319] Giannelli, *supra* note 85, at 469-473.
[320] Strom, *supra* note 59, at 25.

(a) Promulgating quality assurance and quality control guidelines and standards for all crime laboratories in the Philippines, whether public or private;

(b) Accrediting DNA testing laboratories, whether public or private, and periodically monitoring them through blind proficiency testing;

(c) Certifying forensic scientists, whether or not attached to public laboratories, and monitoring their performance via blind proficiency testing;

(d) With the help of members of the Philippine forensic science community, preparing a roster of independent, certified forensic DNA experts, who are not attached to public laboratories and who are willing to serve as party witnesses in criminal cases to either interpret the original findings of the public independent crime laboratory or to conduct a separate DNA retesting of the biological samples;

(e) Training forensic scientists employed by the accredited and independent public crime laboratories on how to present DNA evidence in court as an *amicus curiae* or as a court-appointed witness;

(f) Supervising the distribution of DNA evidentiary and reference samples to the accredited independent public crime laboratories for blind DNA testing and managing the intra-domain information made available with the samples;

(g) Preserving evidentiary and reference biological samples of DNA;

(h) Managing any subsequent extra-domain information that may be supplied to the crime laboratory designated to perform the blind testing;

(i) Liaising with other governmental agencies including the investigative and prosecutorial arms thereof; and

(j) Conducting educational seminars and training sessions for members of the Bench, the Bar and the general public on DNA evidence and its underlying technology.

Under this legislative proposal, the NDTC shall have supervisory powers over all government crime laboratories and shall itself be under the supervisory authority of a panel composed of members of the Department of Science and Technology ("DOST"), Department of Health (DOH), Department of Education (DepEd), the Supreme Court (SC), the Integrated Bar of the Philippines ("IBP"), and recognized professional organizations of forensic DNA scientists and experts.

Operationally, the NDTC shall be the centralized clearinghouse of all DNA testing required in criminal prosecutions.[321] Thus, all evidentiary and reference samples for DNA testing shall be submitted to it, along with all relevant factual information. Upon receipt of the evidentiary and reference samples, the NDTC shall prepare a referral report containing only such intra-domain information as may be necessary for the proper conduct of the DNA test.

The referral report shall neither identify the parties involved nor the case to which it belongs, nor specify which sample pertains to whom. Instead, these referral reports shall be numbered and the samples shall be labeled in a manner that ensures the "blind" nature of the test. After the referral report is completed and the samples duly labeled and segregated, these will be transmitted to one of the designated accredited public crime laboratories for testing. Designations shall be determined through lottery, rounds or any other method that ensures randomness. Once testing is completed and results obtained, the results shall then be returned to the NDTC, who shall then transmit a copy of the report to the referring body,[322] who shall in turn furnish copies to the persons whose samples were tested. Should the case go to trial, the NDTC shall identify the forensic scientist who conducted the test, and he shall then testify as the court-appointed witness in accordance with the proposals described earlier. Should a retest be sought,[323] the NDTC shall provide a roster of certified forensic experts from the private sector.

To emphasize such a centralized DNA testing clearinghouse's importance, the author recommends that a separate item be made in the

---

[321]For a better appreciation of the NDTC structure and procedure, see Appendix 1.

[322]The referring body can be the law enforcement agencies, the National Prosecution Service, the Public Attorney's Office, the accused, the trial court, etc.

[323] Under the guidelines to be promulgated by the NDTC, which may be drafted using the guidelines of the TWGDAM and the ASCLD-LAB as models, the right to a retest should be afforded to both the prosecution and the accused whenever the same is practicable.

national annual general appropriations for the NDTC. Moreover, resources may be taken from the budgets of the DOST, DOH, DepEd, and maybe even the Office of the President. Ideally, the NDTC should be fiscally independent of the Department of Justice, which is tasked with prosecuting crime. Admittedly, several areas of the national budget are already considered insufficient to finance their many activities. However, resourcefulness may be the key.

Admittedly, this proposal describes only a skeletal design. Developing a more refined process is a formidable task. The creation of the NDTC implicates more issues than what has been simplistically described above. This paper, however, is not intended to resolve all these issues in one clean sweep, but merely intended to prod the development of a structure in the right direction.

V. CONCLUSION

The flaws of the current Philippine legal system that render the proper assimilation of DNA evidence impossible are not only intuitively undeniable, they are clearly documented. True, the author has presented only statistics from the United States. However, given that human nature and its accompanying defects are universal, and if the American experience is representative, then the potential danger that arises from *Vallejo*'s endorsement, if not validation, of an uncritical acceptance and admission of scientific evidence, particularly DNA evidence, is attested to by the hundreds of innocent convicts exonerated over the past few years in that jurisdiction.

For so long as the scientific method continues to require a human element, the infallibility of scientific evidence, particularly DNA evidence, remains a vain hope. Infallibility is a myth and must be presumed to be so when lives are at stake. The most that any criminal justice system can do, and as the American system has done and continues to do, is to raise legal obstacles that prevent tainted and fraudulent science from finding their way into the prosecution of criminal cases, reduce the possibility of unconscious biases, and punish those who deliberately violate the trust and confidence reposed on them as scientific experts. If, despite such obstacles, fraudulent, tainted and unconsciously biased science is admitted into courts, remedies should be made available to victims.

Admittedly, it may be too complicated to readjust the structure as it now exists to ensure the independence of crime laboratories, to guarantee

the impartiality of the forensic expert, and to warrant that proper methods, procedures and protocols have been followed. DNA evidence's lack of reliability, or any evidence's for that matter, often comes at too high a price: a wrongful conviction. The cost of this mistake is eloquently depicted by Alexander Dumas:

> The inspector... turning to the prisoner, "What do you demand?" said he.
>
> "That... if innocent, I may be set at liberty."
>
> "When were you arrested?" asked the inspector.
>
> "The 28th of February, 1815, at half-past two in the afternoon."
>
> "Today is the 30th of June, 1816; why, it is but seventeen months."
>
> "Only seventeen months!" replied Dantes; "oh, you do not know what is seventeen months in prison! – seventeen ages rather, especially to a man who, like me, had arrived at the summit of his ambition – to a man who, like me, was on the point of marrying a woman he adored, who saw an honourable career open before him, and who loses all in an instant, who sees his prospects destroyed, and is ignorant of the fate of his affianced wife, and whether his aged father be still living! Seventeen months' captivity... is a worse punishment than human crime ever merited."[324]

Indeed, it is the legal system's prerogative to be unconcerned with the need to exorcise the ghost of the hnnocent convict. If it chooses to be so callous, however, then it must be reminded that, for every innocent imprisoned, there is a guilty criminal set free. This, at least, should be the concern of the law.

- o0o -

---

[324] ALEXANDRE DUMAS, THE COUNT OF MONTE CRISTO (1846).