IN THE CIRCUIT COURT FOR PRINCE GEORGE'S COUNTY, MARYLAND

STATE OF MARYLAND	*	
v.	*	**Case No. CT08-1682X**
HENRY TEFARI WHITTINGHAM	*	

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STATE'S RESPONSE TO DEFNEDNAT'S
MOTION TO EXCLUDE TESTIMONY OF TERRY EATON

COMES NOW, the State of Maryland, by and through Glenn F. Ivey, State's Attorney for Prince George's County and E. Wesley Adams, Assistant State's Attorney and submits this Response to Defendant's Motion to Exclude Testimony of Terry Eaton. As more fully stated below, the State respectfully submits that the Defendant cannot demonstrate any substantial disagreement to the general acceptance of the firearms identification and therefore, respectfully requests that this Court DENY Defendant's motion.

INTRODUCTION

The Defendant, Henry Whittingham, has been charged with the murder of Roberto Tario which occurred on October 31, 2007 outside of the Settings night club in Hyattsville, Maryland. Recovered from the victim during the autopsy was a single .44 caliber projectile. An additional was recovered at the scene of the shooting. On January 12, 2008, during the course of an assault investigation, Prince George's County Police Det. Gregory Fuoco recovered a Smith & Wesson .44 caliber Magnum revolver from among the Defendant's belongings in the apartment of the Defendant's girlfriend.

On August 6, 2008, Firearms Examiner Terry Eaton of the Prince George's County Police Department conducted a thorough examination of the projectiles and Smith & Wesson .44 caliber Magnum revolver ("S&W revolver") and determined that the projectiles were fired from the S&W revolver.

Defendant, keeping in step with a coordinated national attack on firearms identification evidence led by a law school professor[1], has demanded a *Frye-Reed* hearing to determine the admissibility of Mr. Eaton's opinion that the S&W revolver recovered from the Defendant fired the bullet that killed Roberto Tario.

In support of its claim that individualization is no longer generally accepted, Defendant proffers to this Court a stretched interpretation of the National Academy of Sciences Report, *Strengthening Forensic Science in the United States, A Path Forward* ("NAS Report") and attempts to buttress this argument with the "cookie cutter" affidavit of Ms. Schwartz, two statisticians without any relevant expertise in the field of firearms and toolmark examination and

[1] Adina Schwartz is a professor at the John Jay College of Law in Brooklyn, New York. She has championed this cause, appearing, with little avail, throughout the country, claiming expertise, without any judicial recognition of it, in the field of firearms and toolmark examination methodology and asserting its methodology is no longer generally accepted by the relevant scientific community. Thus far her crusade has fallen on deaf judicial ears.

a metallurgist who, not only has admittedly limited experience in the specific field of firearms examination, but who conceded in his testimony last month before the District of Columbia Superior Court the continued acceptance of pattern matching and individualization.[2]

The State respectfully submits that the defendant, who has the burden of proof in this hearing, cannot establish through its interpretation of the NAS Report, its affidavits nor through the testimony of Mr. Tobin, that the theory and methodology of tool mark examination and individualization is no longer generally accepted by the *relevant scientific community* or even the broader scientific community.

I. FRYE-REED STANDARD

It is well settled in Maryland that the decision to exclude expert testimony rests in the sound discretion of the trial judge and will not be overturned absent a clear abuse of discretion. That discretion provides the trial judge with "wide latitude in determining whether expert testimony is sufficiently reliable to be admissible." *Wilson v. State*, 370 Md. 191, 200 (2002)

Maryland subscribes to the *Frye-Reed* test for evaluating the admissibility of expert testimony. *See, Reed v. State*, 283 Md. 374 (1978). It requires that the particular methodology which forms the basis of the expert's opinion be "generally accepted as reliable within the expert's particular field." *Giddens v. State*, 148 Md. App. 407, 412-13 (2002). This standard was deliberately intended to interpose a substantial obstacle to the unrestrained admission of evidence based upon ***new or novel*** scientific principles, however, where the validity and reliability is so broadly and generally accepted within the scientific community, as in the case of ballistics, the Court may take judicial notice of its reliability. Where the methodology is not subject to judicial notice of its reliability, the court must require proof of general acceptance as a pre-requisite for admission. *Clemmons v. State*, 392 Md. 339, 363 – 64 (2006) (citations omitted).

As the Court stated in *Reed v. State*, 283 Md. 374 (1978), "general acceptance means just that; the answer cannot vary from case to case. . . it becomes the 'threshold question' of admissibility, to be resolved as a matter of law before the court exercises its discretion in applying all the criteria to a particular proffered expert."

A. The Assumption Underlying Firearms Identification Have Long Been Judicially Noticed by The Court of Appeal and the Supreme Court of the United States And as Such, the Burden is on The Defendant to Show That the There is No Longer General Acceptance Among the Relevant Scientific Community.

In Section III of his Memorandum of Law, Defendant improperly interprets Maryland law with respect to the burden of proof under *Frye-Reed*. Firearms examination and the opinions rendered by qualified experts in the field are neither new nor novel and have long enjoyed judicial notice of their reliability. *See, e.g., Reed v. State*, 283 Md. 374, (1978) (Noting that

[2] *See, United States v. Joseph Thomas*, D.C. Sup. Ct., Case No. 2007-CF1-25845, Transcript of William A. Tobin, September 4, 2009.

ballistics is an area "deemed admissible under the Frye standard" as a result of its long standing general acceptance in the relevant scientific community.)

The State, therefore, suffers from no burden of proof as to its admissibility. *See, Keene Corp, Inc. v. Hall*, 96 Md. App. 644, 656 (2003) (If the reliability of a technique for a specific purpose has been established, the application of that technique in a particular case is not subject to the *Frye* rule).

Instead, the State respectfully submits that proper test for this Court is whether the defendant can establish that the relevant scientific community has become "significantly divided" or is "in serious disagreement." *See Armstead v. State*, 342 Md. 38, 60 - 61 (1996) ("inverse *Frye-Reed* hearing" shifts the burden to defendants to prove evidence is unreliable rather than requiring the State to prove it reliable.) *see, also, Reed*, 283 Md. at 374 (explaining that the *Frye* standard serves to bar those techniques in which the scientific community remains significantly divided or in serious disagreement.)

B. *Frye-Reed* Does Not Apply Where the Challenge Is To The Results Of A Generally Recognized Methodology.

Even affording full acceptance and weight to each of Defendant's expert's opinions, Defendant cannot show that there exists a serious disagreement in any scientific community that pattern matching – the underlying scientific principal of firearms and tool mark identification – is an unreliable methodology for determining identification to a reasonable degree of practical certainty. In fact both the Defendant's own expert and the NAS Report upon which the Defendant so heavily relies states that it is the presumed methodology. The NAS Report states with respect to what it considers a weaker science, impression evidence:

> The goal of impression evidence analysis is to identify a specific source of the impression, and the analytical process that this follows generally is an accepted sequence: identifying the class (group) characteristics of the evidence, followed by locating and comparing individual, identifying (also termed accidental or random) characteristics.
>
> At the least, class characteristics can be identified, and with sufficiently distinctive patterns of wear, one might hope for specific individualization.

The NAS Report continues its acceptance of the pattern matching methodology in the tool mark and firearms section, stating:

> In both firearm and toolmark identification, it is useful to distinguish several types of characteristics that are considered by examiners. "Class characteristics" are distinctive features that are shared by many items of the same type. For example, the width of the head of a screwdriver or the pattern of serrations in the blade of a knife may be class characteristics that are common to all screwdrivers or knives of a particular manufacturer and/or model. Similarly, the number of grooves cut into the barrel of a firearm and the direction of "twist" in those grooves are class characteristics that can filter and restrict the range of firearms that match evidence found at a crime scene. "Individual characteristics" are the fine microscopic markings and textures that are said to be unique to an individual tool or firearm.

Additionally, in 2008 the NAS also published a report entitled *Ballistic Imaging*, a report quoted authoritatively and extensively by the 2009 NAS Report which found the same thing:

> There exists one baseline level of credibility, however, that must be demonstrated lest any discussion of ballistic imaging be rendered moot – namely, that there is a least some "signal" that may be detected. In other words, the creation of toolmarks must not be so random and volatile that there is no reason to believe that any similar and matchable marks exist on two exhibits fired from the same gun. The existing research, and the field's general acceptance in the legal proceedings for several decades is more than adequate testimony to that baseline level.

NAS Report, *Ballistic Imaging*, p. 81.[3]

Not only is there any meaningful evidence lacking in the NAS Report itself that there exists a substantial division or significant disagreement among the scientific community that pattern matching is not only the accepted methodology but also capable of producing individualization, but the Committee Members themselves continue to support this methodology in their daily work.

Dr. Jay Seigel, Professor & Department Chair, Director, Forensic Investigative Science Analytic and Forensic Science, a Member of the NAS Committee has published a text book entitled *Fundamentals of Forensic Science* in which he details and supports the theory of firearms and tool mark individualization as the generally accepted methodology. Moreover, he continues to teach this as the methodology to this day. On October 20, 2009, Dr. Jim Hamby, whose expertise in the field of fire arms identification is well documented and whose resume and studies are attached to this Response, was the guest lecturer in Dr. Seigel's forensic science class of approximately 150 students teaching firearms identification.[4]

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[3] Although the Defense "Experts" in this case have previously attempted to hold this Report out as "the proof" of substantial disagreement in the community, Dr. John Rolph, Chair of the Committee for this Report, submitted an affidavit specifically denounce such use. His Affidavit was originally filed in D.C. Superior Court and a copy is attached to this Memorandum.

[4] Dr. Seigel, when asked to provide an opinion as to Schwartz and her clan's efforts to waive the 2009 NAS Report as "the proof" of substantial disagreement stated the following:

> "I am aware of this professor at John Jay and her diatribe against firearms/tool marks and that she and her ilk are using the NAS report as a means to discredit pattern evidence in general and firearms and fingerprints in particular. Nevermind that she has no experience in firearms analysis."
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> "The report has language that indicates it is not to be construed as an indictment against any forensic science and that it does not say any type of forensic science is inadmissible."
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> "I categorically disagree with the idea that the report precludes any evidence from admission at trial."
>
> "Lack of validity (according to double blind, controlled testing, non-casework studies) does not equate to invalidity. This was an important point stressed in the report."
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> "I believe that the unnamed professor at John Jay has seized upon the NAS report and is using it for purposes for which it was not intended. This is unfortunate and should be pointed out and recognized."

See, 10/26/09 e-mail correspondence by Dr. Jay Seigel which is attached to this exhibit.

Peter Marone, the Executive Director of the Virginia Department of Forensic Sciences and Committee Member supervises approximately 20 firearms examiners on a daily basis. His examiners continue to make identifications as of the filing of this Response.

Finally, William A. Tobin, the expert Defendant has hired "to debunk the myth of infallibility of" firearm and tool mark identification, as recently as September 4, 2009 at a hearing on the exact same motion in which the exact same experts supplied the exact same "evidence of controversy" within the "relevant scientific community", conceded that the underlying theory that tool marks are left during the machining process and can be used to match specific items of evidence to a specific source is the generally accepted theory.

During the examination of his qualifications by both the Defense, the State and the Court, the Defendant repeatedly indicated the fundamental assumptions of tool mark, in general, and more specifically, firearms identifications. Those assumptions are:

> 1 - That "any time two metals are in forced contact with each other and regardless of the application . . . there is very possibly and, in fact, if not likely expected to be some transfer or characteristics of one - - from one to the other; (Tobin Hearing Transcript p. 31, lns. 9 – 14);
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> 2 – That the transfer "is highly complex, and it's very dependent upon its environment;" (Ibid. lns. 14 – 15);
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> 3 – That anytime two metals are in forced contact with each other and in relative motion, there very likely will be striations or impressions typically imparted from one to the other;" (Ibid lns. 17 – 20);
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> 4 – That "the key thing the examiner claims to do is to differentiate between the individual characteristics from subclass characteristics" (Hearing Transcript p. 32 lns. 9 -13); and that, most importantly
>
> 5 – **He has, after being consulted by firearms and tool mark examiners especially, been able to take inconclusive results and reach a conclusion that there were identical markings that matched and markings that did not match.** (Hearing Transcript p. 25, ln. 15 – p. 26, ln. 13.)

Again on pages 43 and 44 of the hearing transcript, prior to attacking an examiners ability to form an opinion as to individualization, Mr. Tobin asserts that the fundamental analytical process, to which all tool mark and firearms examiners subscribe is that of pattern matching.

Finally, As the State noted in its introduction, Adina Schwartz, has lead a national and systematic attack on the admissibility of firearms evidence. In fact, the Scientific Working Group – Guns ("SWGGUN") has provided links to as many and challenges and decisions on this issue. *See*, www.SWGGUN.org (click on Admissibility Kit, click on Court Decision). The State counts 18 Federal and State Jurisdictions[5] in which these challenges have occurred.

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[5] MD – Howard County Circuit Court and U.S. Dist. Ct. MD; U.S. Dist. Ct. New Mexico; PA Sup. Ct. – 2 cases; D.C. Superior Court – 12 cases; Indiana Superior Court – Marion County; Alaska Superior Court – 3rd Judicial District; Ohio Court of Common Pleas – Cuyahoga County; Southern District of New York; Superior Court of Washington – King County; Superior Court of Connecticut – New Briton; Florida – 13th Judicial Circuit Court; U.S.

Contrary to Defendant's assertions[6], in EVERY single case, even *U.S. v. Glynn*, 578 F.Supp.2d 567 (S.D.N.Y. 2008), the judge not only found the methodology generally accepted in both the relevant scientific community but even the broad scientific community, but the testimony was admitted. *See, Glynn*, 578 F.Supp.2d at 573 (stating that the twin assumptions of firearms identifications – i.e. individual markings exist and are imparted on a bullet during firing - have garnered sufficient empirical support as to their validity and their acceptance) and 574 ("its methodology has garnered sufficient empirical support as to warrant its admissibility.")

Moreover, in *U.S. v. Monteiro*, 407 F.Supp.2d 351 (D. Mass. 2006), another case upon which Defendant relies to establish lack of general acceptance in the scientific community, the Court specifically found, after reviewing all of the evidence challenging the admissibility of the firearms examiners opinion, that "[t]here has also been no credible challenge to the underlying physical theory of how marks are transferred from the firearm to the cartridge case;" "[t]he government has met its burden[7] demonstrating that the underlying scientific principle that firearms leave unique marks on ammunition is reliable" and "[a]lthough these authors have suggested possible improvements, the community of toolmark examiners seems virtually united in their acceptance of the current technique." *Id.* at 365 -66 & 372. (footnote added).

The State will also present through either affidavit or live testimony, the opinions of Dr. James Hamby, AFTE Member and former Editor its Journal, William Conrad, expert hired by the defense, Peter Diaczuk, the Director for Forensic Science Training, Center for Modern Forensic Practice at the John Jay College of Criminal Justice, and Terry Eaton, the actual tool mark examiner. Each of these experts will testify that the methodology adhered to by firearms in general and employed by Mr. Eaton in this case, enjoys widespread and general acceptance among both the relevant scientific practitioners and a majority of the members of the academic community.

The State respectfully submits that Mr. Tobin's own sworn testimony proves that there exists no significant division as to the fundamental methodology and scientific underpinnings of firearms and tool mark examinations down to the specific individual markings that a tool makes on a specimen – i.e. that two metals in contact with one another leave a mark, that those marks can be matched to one another at an individualized level and that he, himself, has done so. Moreover, were this methodology no longer accepted, the individual authors and members of the Committee would abandon their teachings and practice of it. Finally, were this methodology no longer accepted, Courts across the nation would, especially given the number of challenges, reject its admission. In light of these facts, the Defendant cannot meet its burden of proof and rebut the presumption of admissibility of firearms examination evidence.

Dist. Ct. - Northern District of California; U.S. District Court for Middle District of Georgia; Massachusetts Superior Court – Suffolk County; U.S. Dist. Ct. – D. Mass.; State Supreme Court of Delaware; United States Army Military Court.

[6] Defendant asserts that "several federal and state judges have reached the same conclusions finding that the methodology lacks sufficient rigor to be received as science."

[7] Federal Jurisdictions operate under *Daubert* which, unlike *Frye-Reed*, places the burden on the Government to prove reliability

C. Defendant's Claim of Disagreement on Methodology Is More Properly Characterized As a Potential For Lack of Uniformity of OPINION Made By Two Qualified Experts and As Such Is Not The Proper Subject of a *Frye-Reed* Hearing

Defendant claims that because Firearms Examination and Tool Mark analysis lack a uniform, quantifiable opinion that can be statistically quantified, like DNA, and that because qualified experts can disagree on the results, it follows that the methodology must therefore be unreliable and that, therefore, despite its widespread acceptance in both the scientific and legal community, he is entitled to a review of this evidence under *Frye-Reed*. This claim is incorrect.

Every medical doctor's opinion that is testified to a reasonable degree of medical certainty is based on recorded "marks" – body temperature, x-rays, demonstrated symptoms, etc. – yet in EVERY medical malpractice that is litigated two doctors disagree on how to evaluate those symptoms. Every psychologist opinion is based on recorded "marks" – answers to tests, behavioral evaluations, etc. – yet, psychiatrist opinions differ. Were Defendant's claim incorrect, then none of these opinions would be admissible, no opinion as to the mechanical failure of automobile breaks, engine parts, etc. would be admissible nor would the opinion of any other expert in a scientific field that is subject to human interpretation be admissible. This too is incorrect.

Defendant must attack the "methodology" of firearms identification, because on July 19, 2009, his own expert firearms examiner, William Conrad – whose name, observations, and opinions are conspicuously absent from Defendant's Motion - had the opportunity to review Mr. Eaton's notes, the photo micrographs, the evidence collected from the victim and the scene, and found Mr. Eaton's conclusions to be both accurate and properly arrived at.

Given that both of Defendant's own experts concede that a qualified examiner can make an accurate tool identification, Defendant must attack the *opinion of the individual examiner* and characterize it as a challenge to the "methodology" and therefore, not subject to a *Frye-Reed* challenge. The essence of defendant's challenge and, the State respectfully submits, the reason this Court should not entertain a hearing on this matter, is best captured by Judge Motz's Opinion in *Keene Corp, Inc. v. Hall*, 96 Md. App. 644, 656, 57 (1993):

"[E]xperts may disagree as to the application of a technique, or as to the results of that application, *but they do not generally question that the technique is capable of producing the results claimed.* For instance, it is common knowledge that psychiatric diagnoses are often at odds with each other, and it is easy to picture experts disputing whether two writing samples came from the same hand. It is much more difficult to imagine experts disputing whether psychiatric diagnoses or handwriting identifications are possible with any significant degree of reliability. Yet this is precisely the nature of the voice print dispute; experts question the capability of the process itself, not just the results of its application."

Reed, 283 Md. at 397-98 (emphasis added by *Reed* court) (quoting, Comment, *The Voiceprint Dilemma: Should Voices Be Seen and Not Heard?*, 35 Md.L.Rev. 267, 280 n. 79 (1975)). In this explanation, the distinction is simply being drawn between a new scientific technique, which must pass the *Frye* test, and application of an established technique, which need not necessarily pass the *Frye* test.

For example, if an analysis is recognized as valid for identifying handwriting, its application to analyze particular handwriting need not meet the *Frye* test but if an analysis previously recognized as reliable to analyze handwriting is used to analyze fingerprints, it would have to meet the *Frye* test in order to be admitted.

Id.

Or by Judge Moylan's opinion in *Fitzgerald v. State*, 153 Md. App. 601, 648 – 49 (2003) where he explains:

> On August 16, 2002, the appellant filed a Motion for a Hearing on the Scientific Reliability of the Canine Sniff. Citing *Frye v. United States, supra; Reed v. State, supra; Hutton v. State,* 339 Md. 480, 663 A.2d 1289 (1995); *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993); and Maryland Rule 5-702, the appellant sought a hearing at which he proposed "to introduce evidence to debunk the myth of infallibility of canine sniffs." The motion cited a number of federal cases broadly calling into general question the investigative technique of canine sniffing.
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> Although the appellant's presentation at the suppression hearing soon reduced itself not to a broad attack, pursuant to the *Frye-Reed* test, on the general acceptance of the investigative technique by the relevant scientific community but simply to an *ad hoc* challenge to the training and reliability of Alex specifically, the focus nonetheless remained on the reliability of the result.
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> Even if a *Frye-Reed* test ruling were before us on its merits, (it is not), the appellant's case would not lift off the ground. If we were to assume, *arguendo,* that the olfactory sensitivity of dogs is a new scientific technique (a dubious proposition), the *Frye-Reed* test is concerned only with the general scientific acceptance of the technique and not with the *ad hoc* reliability of a particular dog on a particular occasion. In *Reed v. State,* 283 Md. at 381, 391 A.2d 364, Judge Eldridge made the sweeping nature of the inquiry unmistakably clear.
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> *The question of the reliability of a scientific technique or process is unlike the question,* for example, *of the helpfulness* of particular expert testimony *to the trier of facts in a specific case. The answer to the question about the reliability of a scientific technique or process does not vary according to the circumstances of each case.* It is therefore inappropriate to view this threshold question of reliability as a matter within each trial judge's individual discretion. Instead, considerations of uniformity and consistency of decision-making require that a legal standard or test be articulated by which the reliability of a process may be established.
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> (Emphasis supplied).

D. General Questioning of the "100% Match" Opinion Does Not Create A Substantial Disagreement Which Invalidates Matches To A Reasonable Degree Of Scientific Certainty In The Field Of Firearms Identification.

Defendant's assertion that Mr. Eaton cannot testify to "a reasonable degree of scientific certainty in the field of firearms and tool mark identification" that the bullets from the victim were fired the S&W Revolver simply because there exists academic inquiry as to a statistical basis for uniqueness is without merit.

First, While Tobin is aware of a number of studies, for example the 1998 validation study by David Brundage entitled *The Identification of Consecutively Rifled Gun Barrels* published in the AFTE Journal, Volume 30, number 3[8], which demonstrated firearms examiners ability to differentiate between the most difficult of firearms – i.e. 10 barrels made right after one another so that the wear between the tool making the barrel was at its minimum – He can point to no study refuting presumption that tools will impart and unique and individual mark nor any studies which negated their ability to so differentiate. *See*, Tobin Hearing Transcript at p. 84 ln. 15 – p. 121 ln. 22. (For example, at page 108, after being confronted with the Coody study on consecutively manufactured pistol slides and asked whether he would dispute the conclusions of uniqueness and examiners ability to differentiate, Mr. Tobin stated at 13, "Questioning and disputing are two different issues, ***so I don't know that I have enough information to dispute the report.***") (emphasis added).

In fact, when specifically asked if he has ever heard of a case in the District of Columbia over the past 80 years was later found to be faulty, Tobin stated "No.". *Ibid.* at p. 120 lns. 13 – 18). Similarly, he conceded that in all of the DNA exonerations secured by the Innocence Project, none of those cases involved a conviction based on a false positive identification of a firearm. *Ibid.* at p. 120 ln. 19 – 121 ln.. 22).

Second, Justice Raymond Brassard stated in *Commonwealth v. Meeks*, 2006 WL 2819423 (Sup. Ct. Mass, Suffolk County, Case Nos. 2002-10961, 2003-10575) (Findings of Fact, Rulings of Law) when ruling on this exact motion[9] stated that forensic science disciplines must be broad enough to permit the potential for practitioners to acknowledge flaws in the methodology and tolerant enough to allow the dissent. *Id.* at 48. (quoting *Comm. v. Patterson*, 445 Mass. 626, 643 (2005). This dissent provides the ability for theoretical evolution, as has been the case in DNA, without discrediting general acceptance

Third, almost all medical, psychological, social science opinions as well as technical opinions, such as car mechanical failures, cannot be expressed in mathematical terms but are consistently testified to a "reasonable degree of scientific certainty."

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[8] The State has attached a copy of Dr. James Hamby's power point presentation on the study. Dr. Hamby took the original Brundage study, which only involved 67 participants and expanded it to 520 Scientists from 21 countries around the world. Additionally, the State has attached a copy entitled *The Examination, Evaluation and Identification of Fired 9MM Cartridge Cases Fired from 617 Different GLOCK Model 17 & 19 Semiautomatic Pistols.*

[9] Adina Schwartz testified at this motion consistently with the affidavit she filed with this Court. The Court specifically held (as have every other Court) that she is **NOT** an expert on fire arms and tool mark identification. In that case, the tool mark "parrot" for Ms. Schwartz's opinion was a highly discreditable "expert" named Dan Lamagna, about whose testimony the Court stated, "[t]his court does not extensively credit the testimony of Lamagna." *Meeks*, 2006 WL 2819423 at p. 45.

Fourth, the opinion that Mr. Eaton will offer is that: "to a reasonable degree of scientific certainty in the field of firearms identification, that the amount of agreement between the known samples and the questioned evidence is of quantity and quality that the likelihood that another tool made the marks is a practical impossibility." His opinion is not that it was a 100% percent match to the exclusion of all other guns.

II. DEFENDANT'S "EXPERTS" ARE NEITHER DISTINQUISHED NOR REPRESENTATIVE OF THE RELEVANT SCIENTIFIC COMMUNITY.

The State respectfully submits with the exception Mr. Tobin, who is limited by his own admissions, none the defense experts are sufficiently trained in firearms examination to offer any opinions with respect to firearms examination.

A. Ms. Adina Schwartz

Adina Schwartz is a crusader for a cause and an absolutist. Her overwhelming desire to eliminate firearms examination in criminal prosecutions is so subjectively biased that it, in itself, undermines her credibility. While extensively read in the field of firearms examination methodology literature, her writings, affidavits and testimony are strictly the work of a zealous advocate – which is laudable in a defense attorney, her true profession, but laughable in an "expert witness." She has never been trained as a firearms examiner or conducted a firearms examination, never conducted a study of any kind on firearms nor taken a proficiency exam. She has never fired a gun, attended armorer's school, observed the manufacture of a firearm or spoken with a manufacturer. She has testified that she believes that no one can compare marks between projectiles or shell casings and make a match. *See, Commonwealth v. Meeks*, 2006 WL 2819423, at 41 – 42 & fn. 140 (Super. Ct. Mass.)

The State has attached two separated opinions, *US v. Taylor*, Case No. CR 07-1244 WJ (U.S. Dist. Ct., D. NM) (Memorandum op.) and *Commonwealth v. Colegrove*, Case No. CP-08-CR-000785-2007 (PA Ct. Common Pleas, Bradford County) both filed within the past 60 days, one by a federal judge and the other a state judge. Both had the opportunity to review the cookie cutter affidavit filed by Ms. Schwartz and even hear her testify, a "privilege" this Court will not get. Needless to say, neither Court looked upon Ms. Schwartz favorably.

In the most scathing of opinions to date, Judge William Johnson declares Ms. Schwartz unfit, due to a complete lack of qualifications to give any opinions with respect to the conclusions of the Governments firearms examiners. *Taylor*, Opinion. at 5. (Noting all of the other jurisdictions who have rejected Ms. Schwartz' expertise). Furthermore, Judge Johnson went on to find, after weighing her testimony against other witness and his article *The Scientific Foundation of Firearms and Tool Mark Identification – A Response to Recent Challenges* (which is attached as an exhibit to this Response) as a matter of law that her testimony is unreliable and seriously questions the reliability of her methodology. *Id.* at 13 – 14.

Additionally, on October 27, 2009, the State received yet another scathing opinion of Adina Schwartz, her credibility and this crusade, this time by an academic colleague and fellow professor at John Jay. *See*, October 27, 2009 Letter of Peter Diaczuk. Mr. Diaczuk, is the Director for Forensic Science Training, Center for Modern Forensic Practice at the John Jay College of Criminal Justice. Recently, in testimony under oath in *California v. Rose*, Ms.

Schwartz has attributed training and learning under Mr. Diaczuk in an effort to bolster her technical firearms credentials. As evidenced by Mr. Diaczuk's e-mail and commentary, Ms. Schwartz has once again demonstrated, that in an effort to push her agenda, she lacks true candor with the Court. It is no wonder Defendant chooses only to rely on Ms. Schwartz' affidavit in support of his motion as opposed to having her credibility tested in the crucible of cross-examination![10]

The State respectfully requests that this Court, as a result of the serious issues surrounding her methodology, scholarship, partisanship and, most importantly, credibility, in the absence of any testimony or cross-examination, afford the same weight to Ms. Schwartz' testimony that the majority of the Courts who have had the opportunity have – i.e. little or none.

B. Mr. William Tobin

After hearing his expert testimony under oath, Judge Richard E. Welch of the Superior Court of Massachusetts had this to say of the Defense expert William A. Tobin:

> "His testimony smacks of the partisan crusader rather than a dispassionate scientist. His lack of credibility is underscored by his inability to directly answer a question, his insistence on giving a pre-planned recitation and is constant self-promotion. This judge can think of no expert witness he has found less credible."

Commonwealth v. Daye, No. 11238-11246, 2005 WL 1971027 (Aug. 3, 2005, Mass. Super.) In a footnote included in the original citation, Judge Welch went on to note a particular instance of "mistaken" testimony under oath regarding disclosure of evidence and the ease at which his personal bias affected his "expert" opinion.

What underscores this opinion even more is that Mr. Tobin was testifying regarding Comparative Lead Bullet Analysis (CBLA) arguably his strongest field of expertise, in which he at least conducted a scientific study. In the case at bar, Mr. Tobin is opining based on general tool mark knowledge with admittedly limited experience and without the benefit of any meaningful studies in the field of firearms examinations. *See, e.g.* Tobin's Hearing Transcript Testimony; and Affidavit of Stephen G. Bunch, Ph. D, Supervisory Physical Scientist (Unit Chief) at the FBI.

The State respectfully submits that his transcript from last month's months hearing in D.C. Superior Court demonstrates that not much has changed from the hearing before Judge Welch except the subject matter of his "expertise."

Additionally, Mr. Tobin is not qualified to state an opinion as to the creation of a mathematical expression of certainty in the field of ballistics. He is not a statistician and does not understand how to apply statistics to the field of firearms examination. Finally, he has not conducted any studies on applying statistical formulas to the field of firearms examinations. Any conclusion he may give in this regard can only be seen as prohibited *ipse dixit* opinion. *See, e.g., Bohnert v. State,* 312 Md. 266 (1988) (holding that expert opinion must be based on scientific facts proven or assumed, as opposed to conjecture. The opinion itself cannot provide the foundation for the opinion.) Since Mr. Tobin does not understand the statistical probability and

[10] Especially in light of the fact that she is testifying in the Baltimore today, October 26, 2009.

more importantly how to apply its principals he cannot express any opinion as to its viability, reliability or otherwise.

C. Mr. Clifford Spiegelman - Why it's the Relevant Scientific Community that Matters

Statistical analysis – which relies on fixed points – is most properly applied to analytical sciences. One's such as DNA. As the NAS suggested, TA/FM is NOT an analytic science on the same footing as DNA analysis and does not lend itself to statistical analysis because there are no fixed knowns *a priori.* In other words, without the set parameters present in mathematical and chemical analytic disciplines, it is only illusorily possible to create a "statistical probability" of a match. See, e.g. *Forensic Science Communications*, October 1999, a peer-reviewed quarterly journal published by FBI Laboratory personnel at http://www.fbi.gov./programs/lab/fsc/current/index.htm ("none of the forensic science disciplines can that deal with comparisons based on unique occurrences, or clinical judgments can establish the degree of confidence statistically with respect to an individual result."). *See, also*¸ Moenssens, A., Meeting the Daubert Challenge to Handwriting Evidence – Preparing for a Daubert Hearing, abstract from presentation at Second Annual Symposium on the Forensic Examination of Questioned Documents at Albany, N.Y., June 18, 1999 (the scientific product is not subject to routine measurements, which could later be summarized and compared to the ideal.)

A statistician, therefore, who wishes to determine whether it is statistically possible to demonstrate individualization – the thrust of defendant's unreliability claim – must understand the random nature of tool marks, the methodology of finding and matching marks. As the NAS Reports states "understanding situations that may pose particular challenges for associating two images of evidence requires some knowledge of situations that are generally known to be complex in the field." NAS Report p. 81.

Furthermore, a demand that there be a certain number of matching marks completely ignores the fundamental understanding of what makes tool marks unique since 1 mark, if sufficiently out of the ordinary from the manufacturing process could by itself produce a match. Contrast that to DNA which occurs naturally and in which the alleles are fixed and consistent, it becomes simply a matter of side by side comparison, taken in combination with genome frequency and population characteristics which allow the extrapolation of statistical individualization.

As stated above, without such fixed reference points, meaningful statistical analysis is an illusory academic goal. As a case in point, Defendant's statistician-affiant Spiegelman, authored the section in the 2004 National Academies of Science, Board on Chemical Sciences and Technology study regarding comparative lead bullet analysis entitled *Forensic Analysis: Weighing Bullet Lead Evidence* in which, ironically enough, he concluded that the statistics proved that it was reliable![11] Miraculously, two years later, it was thrown out of court and he

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[11] Despite the variations in manufacturing processes that make it difficult to determine whether bullets come from the same compositionally indistinguishable volume of lead (CIVL), CABL analysis can have value in some court cases. **Finding: The committee found that CABL is sufficiently reliable to support testimony that bullets from**

filed additional reports that it was not statistically reliable! Given his ability to flip-flop so easily, and considering his lack of expertise in tool mark examination – much like his lack of expertise in the chemical and elemental compositions of bullet lead – Mr. Spiegelman's opinion regarding the necessity of statistics in order to prove individualization should be dealt with in the same fashion that Courts have dealt with Ms. Schwartz unqualified attempts to comment on firearms methodology and practices, it should be afford little or no weight by this Court when determining the issue of whether general acceptance is being questioned.

More importantly, the State respectfully submits that, even if Mr. Spiegelman is determined, despite his complete lack of training, knowledge and experience in the field tool mark and fire arms examination, to be capable of performing a meaningful statistical analysis in his own field, this Court should ask a number of questions before judging his "expert" opinion's credibility:

A – Why didn't he or Ms. Kafadar a committee member, provide a statistical analysis to the NAS Report or at least, provide guidance as to how one could be performed, considering that no other expert has been capable of rendering such an analysis?;

B – What actually provides Speigelman with the legal basis – i.e. training, knowledge or experience in the field – that would permit him to opine on tool mark examination procedures?

C – If Defendant's answer is that he has relied on Ms. Schwartz's analysis, or has read the scholarly articles themselves, how is this any different than Judge Johnson's critique of Ms. Schwartz's ability to opine?

Again, since we only have Mr. Spiegelman's and Ms. Carriquiry's, whose tool mark and fire arms examination training knowledge and experience is equally deficient and non-existent, affidavits, the State would submit that this Court should afford very little weight to their opinions on statistics because of their lack of relevant experience in the field and, more importantly, disregard as unqualified, any opinions that comment on procedures or methodologies employed by firearms examiners.

CONCLUSION

As stated more fully above, Defendant's challenge to the admissibility of firearms examination evidence fails and their demand for a *Frye-Reed* hearing on the reliability of such evidence should be denied. Defendant, who bears the burden of proof to show a lack of

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the same CIVL are more likely to be analytically indistinguishable than bullets from different CIVLs. An examiner may also testify that having CABL evidence that two bullets are analytically indistinguishable increases the probability that two bullets came from the same CIVL, versus no evidence of match status. Recommendation: Interpretation and testimony of examiners should be limited as described above, and assessed regularly. *Id.*at p. 6, Legal Interpretations. It should be noted that Mr. Spiegelman, along with Karen Kafadar (another of the 2009 NAS Report Committee Members) are the two who authored Appendix K – Statistical Analysis of Bullet Lead Data to this report which forms the basis of this conclusion.

acceptance, cannot provide evidence, other than the assertions of a discredited, non-expert, crusader, a tool mark examiner who actually agrees with the methodology and two statisticians who lack any firearms examination experience, and in fact, relied upon the crusaders interpretation of general acceptance in reaching their opinions. In contrast, the State has provided this Court with opinion after opinion of bona fide experts, both state and defense, academics and even outside examiners with no dog in this fight, each of whom has repeatedly refuted Ms. Schwartz and her clan. Defendant, in short, cannot even show that a substantial disagreement exists among the scientific community. Therefore, the inquiry into this challenge must end. For all of the foregoing reasons, the State respectfully requests that this Court DENY Defendant's Motion to Exclude the Testimony of Terry Eaton.

Respectfully submitted,

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E. Wesley Adams

Assistant State's Attorney

CERTIFICATE OF SERVICE

I, E. Wesley Adams, Assistant State's Attorney hereby certify that on this 27th day of October, 2009, I hand delivered the foregoing State's Response to Defendant's Motion to Exclude the Testimony of Terry Eaton on Michael Beach, Esq. Counsel for the Defendant, Office of the Public Defender.

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E. Wesley Adams