

SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CRIMINAL DIVISION
Felony Branch

UNITED STATES OF AMERICA,	:	
	:	
v.	:	2003 FEL 6856
	:	Judge Neal E. Kravitz
TROY WORSLEY,	:	Hearing: July 18, 2008
	:	
Defendant.	:	

GOVERNMENT'S SUR-REPLY REGARDING DEFENDANT'S MOTION TO EXCLUDE
EXPERT TESTIMONY CONCERNING FIREARMS "MATCH" EVIDENCE

INTRODUCTION

On June 27, 2008, Troy Worsley, through counsel, filed a reply to the government's opposition to Worsley's motion to exclude firearms identification testimony (hereinafter "Defendant's Reply"). Defendant contends that this Court should conduct a Frye¹ hearing to resolve "several contested issues concerning the general acceptance of the proffered expert testimony" (Defendant's Reply at 2). Defendant is wrong.

There is no basis to subject the government's proposed expert firearms testimony to the rigors of Frye, because the field of firearms and toolmark identification has been accepted by the relevant scientific community for nearly a century. The scientific "controversy" alleged by defendant is unsupported by the record and ignores the vast body of case law, here and throughout the country, cataloguing the near-universal

¹ Frye v. United States, 54 App. D.C. 46, 293 F. 1013 (1923).

acceptance of pattern matching throughout the relevant scientific community. Moreover, defendant's efforts to characterize the proffered firearms testimony as involving an "absolute identity" is contrary to the record. In sum, defendant has failed to raise a cognizable claim under Frye and therefore this Court should deny defendant's motion without a hearing.

A Hearing Is Not Warranted

Defendant appears to concede that firearms and toolmark identification does not fall under the category of a new or novel methodology (Defendant's Reply at 3-5). Defendant nevertheless urges this court to reevaluate this well established field of forensic science because, according to defendant, controversy has developed within the relevant scientific community regarding "fundamental principles, methodology, and reporting of results relating to firearms identification" (Defendant's Reply at 5). Defendant's position is unsupported by the record and fails to address the recent slew of cases that have flatly rejected similar efforts to attack traditional pattern matching. See Commonwealth v. Whitacre, 878 A.2d 96, 101 (Pa. Super. Ct. 2005) (finding no abuse of discretion in trial court's conclusion that pattern matching methodology employed by government expert was "generally accepted by the scientific community consisting of

firearms experts and by a number of significant governmental bodies . . ."); United States v. Diaz, 2007 WL 485967 *11 (N.D. Cal. Feb. 12, 2007) ("The AFTE theory of firearms identification based on the traditional pattern matching appears to have broad acceptance in the forensic community"); United States v. Monteiro, 407 F. Supp. 2d 351, 372 (D. Mass. 2006) ("[T]he community of toolmark examiners seems virtually united in their acceptance of the current technique").²

Defendant asserts that this Court should conduct a hearing to resolve questions relating to: (1) fundamental assumptions of "uniqueness" and "reproducibility"; (2) the subjective nature of pattern matching; and (3) the lack of statistical probabilities to express the significance of a firearms match (Defendant's Reply at 1). These claims are addressed seriatim.

1. Fundamental Assumptions Underlying Firearms and Toolmark Identification

Defendant continues to rely upon the NRC Report on Ballistic Imaging ("NRC Report") as evidence of a recent

² Defendant cites to the scientific controversy surrounding the use of "comparative bullet lead analysis" (CBLA) as an example of an established field of forensic science that was subsequently subjected to scrutiny under Frye (Defendant's Reply at 4). The CBLA controversy, however, helps illustrate why a Frye hearing is unwarranted in this instance. Regarding the use of CBLA, (1) the National Research Council issued a report regarding the use of CBLA concluding that significant issues existed regarding the probative value of a chemical match, see, National Research Council, Forensic Analysis: Weighing Bullet Lead Evidence (2004); (2) scientists within the relevant scientific community raised questions over the probative value of CBLA; (3) some courts found that CBLA no longer enjoyed general acceptance within the scientific community, see Clemons v. State 896 A.2d 1059 (Md. 2006) and State v. Behn, 868 A.2d 329 (N.J. Super. Ct. App. Div. 2005); and (4) the FBI Laboratory discontinued the use of CBLA due to the problems associated with articulating the evidentiary significance of a chemical match. None of those factors are present in the field of firearms and toolmark identification.

"controversy" within the field of firearms and toolmark identification (Defendant's Reply at 6-8). Specifically, defendant contends that the NRC Report "expressly concluded" that the fundamental assumptions of the discipline are not proven (Defendant's Reply at 7-8). The sworn Affidavit of Dr. John E. Rolph, the Chair of the NRC Report, flatly rejects defendant's interpretation of the NRC Report. Dr. Rolph (quoting directly from the NRC Report) states the following: (1) the language relied upon by defendant "was not made in the context of assessing the admissibility of firearms-related evidence," and (2) the NRC Report is "neither a verdict on the uniqueness of firearm-related toolmarks generally nor an assessment of the validity of firearms identification as a discipline." Rolph Affidavit ¶ 6 (emphasis in the original report).³ The underscored language demonstrates that the NRC committee made a conscientious decision not to weigh in on the issue of "uniqueness" or assess the validity of firearms and toolmark identification as a forensic discipline.⁴ Accordingly,

³ Quoting directly from the NRC Report, Dr. Rolph explains that the charge of the committee was "to focus on 'the uniqueness of ballistic images' – that is on the uniqueness and reproducibility of the markings (toolmarks) left on cartridge cases and bullets as they are recorded or measured by various technologies." Rolph Affidavit ¶ 6 (emphasis added). The uniqueness and reproducibility of "images" in a computer database is different from the uniqueness and reproducibility of actual toolmarks under a comparison microscope. As noted by Dr. Stephen G. Bunch, Unit Chief for the FBI Firearms Sections, identifications are never based upon matches in an imaging database. Bunch Affidavit at ¶ 39. For example, a match in the National Integrated Ballistic Information Network (NIBIN) is merely a starting point for further investigation under a comparison microscope. Id.

⁴ Even if Dr. Rolph had supported defendant's interpretation of the NRC Report

the NRC Report cannot be counted as an opinion within the firearm and toolmark identification community, much less evidence of a "controversy" therein.⁵

Equally flawed is defendant's assertion that the government attempts to limit the relevant scientific community to "forensic firearms examiners" (Defendant's Reply at 9). The government's opposition reveals that, in addition to the near-universal acceptance of pattern matching amongst practicing firearms and toolmark examiners, see SWGGUN Survey (Government's Opposition, TAB E), the practice of firearms and toolmark identification has been, and continues to be, supported by: (1) presumptive validity checks (alerting examiners of potential "subclass" issues), see Bunch Decl. ¶ 27; (2) validation studies (including studies of consecutively manufactured firearms - where the possibility of a false-positive conclusion is at its highest), (which he expressly rejects), the NRC Report does not dispute the general acceptance of pattern matching within the relevant scientific community. United States v. Porter, 618 A.2d 629, 634 (D.C. 1992) ("The issue is consensus versus controversy over a particular technique, not its validity"); Jones v. United States, 548 A.2d 35, 42 (D.C. 1988) ("[T]he focus is primarily on counting scientific votes rather than on verifying the soundness of a scientific conclusion").

⁵Defendant suggests that Dr. Bunch's discussion of "uniqueness" may be evidence of an "additional controversy" regarding the fundamental underpinnings of firearms and toolmark identification because, according to defendant, Dr. Bunch acknowledges that "toolmarks are not actually unique" (Defendant's Reply at 8). To the contrary, Dr. Bunch made the point that all toolmarks are unique at a certain microscopic level. See Supplemental Statement of Stephen Bunch at ¶ 3. According to Dr. Bunch, the uniqueness of all objects is illustrated by the use of bar codes. Id. If one were to look at two "identical" bar codes affixed to the same product type, those bar codes would be read as "identical" by the bar code scanner. Id. However, microscopic examination of the two bar codes would reveal countless differences. Id. This is analogous to the similarities of "individual characteristics" on bullets and cartridge cases which provide sufficient similarities to conclude identity, but, at some microscopic level, are clearly unique. Id.

see Government's Opposition at p. 14 n.10 & TAB G; (3) proficiency tests (designed to test the proficiency of specific laboratories or particular firearm examiners), see Bunch Decl. ¶ 30 & Pope Decl. ¶ 17; and (4) the scientific literature (including two articles by Ronald G. Nichols in which he reviews a total of 56 scientific articles), see Government's Opposition at p. 35 n.25 & TAB H.⁶

After nearly a century of overwhelming acceptance on the part of the relevant scientific community, defendant attempts to find support for an alleged "controversy" based upon the affidavits of William Tobin (a metallurgist) and Clifford Spiegelman (a statistician). However, these two defense "experts" have not: (1) been formally trained in the field of firearms and toolmark identification; (2) conducted presumptive validity checks; (3) conducted validation studies; (4) administered proficiency examinations; or (5) published peer-reviewed scientific articles in the field of firearms and toolmark identification. Thus, their views cannot be counted as part of the relevant scientific community.⁷

⁶In our original pleading, the government also attached the sworn testimony of ATF Firearms Examiner Ronald G. Nichols in U.S. v. Diaz, No. CR-05-0167, in which Nichols testified that, after his comprehensive review of the scientific literature in the field of firearms and toolmark identification, he was not aware of a single peer-reviewed article which stands for the proposition that firearms and toolmark identification is not a reliable forensic discipline. See Government's Opposition at p. 35 n.25 & TAB F.

⁷ Even assuming they were part of the scientific community, their views do not significantly undermine the overwhelming support within the scientific community. Porter, 618 A.2d at 634 (unanimity among scientists is not required under Frye).

2. Pattern Matching

Defendant contends that the emergence of Consecutive Matching Striae ("CMS"), a method by which some firearms examiners quantify the match in a particular toolmark pattern, somehow undermines the scientific acceptance of traditional pattern matching (Defendant's Reply at 11-12). As evidence of a "debate" within the scientific community, defendant points out that Dr. Bunch had previously published an article on the relative virtues of pattern matching versus CMS (Defendant's Reply 11). A discussion over the advantages of one technique over another, however, does not implicate Frye. As noted by Dr. Bunch, the mere fact that a minority of firearms examiners choose to quantify their identifications using CMS, does not in any way invalidate the traditional use of pattern matching. See Supplemental Bunch Affidavit ¶ 4. Moreover, as discussed in our original pleading, at p. 40 n.29, CMS is not a new methodology, but rather an extension of pattern matching.⁸ Even if CMS could properly be characterized as a new or different methodology, the mere advent of a new methodology in this forensic field in no way undermines the general acceptance of a century-old

⁸Defendant cites to an article on CMS by Bruce Moran. (Defendant's Reply at 13, citing Bruce Moran, A Report on the AFTE Theory of Identification and Range of Conclusions for Tool Mark Identification and Resulting Approaches to Casework, 34 AFTE Journal, 227 (2002)(attached hereto as TAB K)). Moran's article confirms that CMS is merely an extension of traditional pattern matching: "[A] growing number of toolmark examiners such as myself have taken the traditional 'pattern match' process a step further by applying the conservative criteria described by Biasotti and Murdock in 1997" 34 AFTE at 231.

methodology. Pattern matching has been, and continues to be, the cornerstone of the firearm and toolmark field. See Government's Opposition TAB E (SWGGUN SURVEY).⁹

Moreover, defendant continues to assert that subclass characteristics undermine the reliability of firearms identifications (Defendant's Reply at 13). However, the possible presence of subclass characteristics has not undermined the general acceptance of pattern matching within the relevant scientific community. To the contrary, validation studies have demonstrated, and continue to demonstrate, that firearms examiners can match markings to particular firearms (even under a "worst case scenario" environment, involving consecutively manufactured firearms). See e.g. Government's Opposition at TAB G. More specifically, validation studies involving Ruger pistols (the type of weapon used in case), have not revealed any issue of subclass markings. See Supplemental Bunch Affidavit ¶ 5 (attached hereto as TAB L). In fact, firearms examiners have demonstrated an ability under rigorous testing conditions to identify cartridge cases and bullets to Ruger pistols with a

⁹Various scientifically accepted types of forensic methodologies are continually being replaced by newer, typically more probative, methodologies. For example, the use of blood typing has been largely usurped by the use of DNA testing. Even within the DNA community, new forms of more discriminating DNA typing are continually replacing older methodologies. These advancements in forensic science do not undermine or disturb the general acceptance of older established methodologies unless the science itself has been called into question by the relevant scientific community. Such is not the case here.

zero error rate. Id. citing Erich D. Smith, Cartridge Case and Bullet Comparison Validation Study with Firearms Submitted in Casework, AFTE Journal, Vol. 36, No. 4, p. 130 (Fall 2004); David J. Brundage, The Identification of Consecutively Rifled Gun Barrels, AFTE Journal, Vol. 30, No. 3, p.438 (Summer 1989).¹⁰ Indeed, if the existence of subclass markings was an important and pervasive problem, error rates in validity studies involving consecutively manufactured firearms would be high (or at least present). Supplemental Bunch Affidavit ¶ 5.¹¹

Finally, based upon an affidavit by Clifford Spiegelman, defendant asserts that the field of firearms and toolmark identification "does not follow the scientific method . . ." (Defendant's Reply at 14). This contention is not supported by anyone within the relevant scientific community and is directly contradicted by the Moran article cited by the defense:

Testing the traditional toolmark identification theory has been conducted by a number of scientists using the scientific method I've listed (above) the scientists who used this approach. The majority of them were concerned with trying to distinguish marks

¹⁰Both of these validation studies are attached to the government's opposition at TAB G.

¹¹ The Bonfanti & De Kinder article (attached hereto as TAB M) cited by the defense merely refers to two instances of subclass markings that have been widely known to practitioners in the firearms community for quite some time. Supplemental Bunch Affidavit ¶ 5 (citing Matty W. and Johson T., A comparison of manufacturing marks on Smith & Wesson firing pins, AFTE Journal 1984, 16(3), 51-56; Thompson E. Phoenix, Arms (Raven) breech face toolmarks, AFTE Journal 1994, 26(2), 134-134). In fact, Dr. Bunch first learned about this issue during his examiner training period. Id. Thus, the Bonfonti & J. De Kinder article merely supports Dr. Bunch's earlier contention that firearms examiners are readily alerted, via publication or otherwise, to issues relating subclass characteristics. Id.

made by consecutively produced tools based on method of manufacture and found that they could do this.

34 AFTE Journal at 230.¹²

2. Absence of Statistical Probabilities

Defendant continues to assert, without any support whatsoever, that firearms examiners "frequently" state their conclusions in "absolute terms" (Defendant's Reply at 15). As an example of this alleged phenomenon, defendant cites to prior testimony by MPD Firearms Examiner Jonathan Pope, in which he stated his conclusions "to the highest degree of scientific certainty" (*id.*). Firearm Examiner Pope's testimony did not, as defendant contends, state his conclusions in terms of absolute certainty, e.g., he did not testify that he was "absolutely" certain or 100% certain. Instead, he qualified his conclusions to the highest "degree" of "scientific" certainty.

The government has already made clear that it will not have its firearms examiner state a conclusion with absolute certainty (Government's Opposition at 43). Rather, as previously noted, the government's firearms expert can communicate his high degree of confidence in an identification without overstating the significance of the match by stating that it was made with "practical certainty" or to "a reasonable degree of scientific

¹²Defendant attaches an article discussing problems with incompetence at the firearms laboratory for the Detroit Police Department (Defendant's Reply at 13 n.8). Defendant, however, concedes, as he must, that the issues that plagued the Detroit firearms laboratory have no bearing on the Frye issues raised in this case (*id.*).

certainty (id.).

Surprisingly, defendant does not take issue with Dr. Frederick Bieber's assessment that the use of statistical frequencies in interpreting the results of DNA profile comparisons is not easily amenable to the field of firearms and toolmark identification (Defendant's Reply at 16). Thus, it would appear that defendant has abandoned his original claim that firearms identification evidence should not be admitted in the absence of DNA-type statistical analysis (compare Defendant's Motion at 14 with Defendant's Reply at 16). Despite this concession, defendant asserts, without support, that some (unspecified) statistical calculation should nevertheless be required before this Court permits the government's firearms examiner to discuss a match (Defendant's Reply at 16).¹³ Suffice it to say, defendant's unsupported request for the application of some unspecified statistical method is not a basis to exclude the government's proposed firearms evidence under Frye.¹⁴

13 Once again, defendant simply fails to address cases that have rejected his position. See e.g., Diaz, 2007 WL 485967 *1 (examiner allowed to state match to a "reasonable degree of certainty in the ballistics field"); Monteiro, 407 F. Supp. 2d at 372 (examiner permitted to state conclusion "to a reasonable degree of ballistic certainty"); State v. Riley, 568 N.W.2d 518, 527 (Minn. 1997) (proper for trial court to allow expert to state match "to reasonable degree of scientific certainty").

14 As with his original pleading, defendant fails to cite a single case in support of his argument that a Frye hearing is warranted here. Instead, defendant cites to United States v. Damian Brown, et al., 05 Cr. 538 (JSR), see Defendant's Reply at 18, in which the Honorable Jed S. Rakoff, district court judge for the Southern District of New York, limited the scope of a firearms examiner's conclusions under Fed. R. Evid. 702, due to sloppy work on the part of the examiner and a rather shocking admission that his standard practice was to "ignore" the possibility of subclass markings (Defendant's Reply TAB H at 1478-49). That ruling has no bearing on the Frye issues raised herein. Although the exact

CONCLUSION

For the foregoing reasons, and for the reasons set forth in the government's opposition, defendant's motion to exclude expert testimony regarding firearms match evidence should be DENIED.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing Government's Sur-reply Regarding Defendant's Motions to Exclude Expert Testimony Concerning Firearms Match Evidence, was served by hand upon counsel for the defendant, Matthew Mazur, PDS, 633 Indiana Avenue, N.W., Washington, DC 20004, on this 14th day of July, 2008.

terminology used by the government's expert to communicate the certainty of his conclusions is an appropriate topic for a later date, it does not merit a Frye inquiry into the general acceptance of pattern matching.

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