IN THE SUPERIOR COURT FOR THE STATE OF ALASKA

THIRD JUDICIAL DISTRICT AT ANCHORAGE

STATE OF ALASKA,

Plaintiff

v.

DERRICK WREN,

Defendant

Case No. 3AN-03-10649CR

Order Re: Motion to to Preclude Expert Ballistic Testimony and *Daubert-Coon* Hearing

The state filed a notice with the Court of their intent to admit expert testimony pursuant to Alaska Rule of Evidence 702 regarding ballistic evidence allegedly matching the firearm in evidence to bullets and shell casings found at the crime scene relevant to the above-numbered case. On July 9, 2008 the Defendant filed a motion to preclude the state from presenting their ballistic evidence and requested the Court conduct a *Daubert-Coon*[1] hearing to consider the admissibility of the proposed expert testimony and the permissible scope of the state's expert's testimony. The Court conducted a *Daubert-Coon* hearing over two days, February 20, 2009 and March 27, 2009. The state presented their evidence on February 20, 2009.

After considering the parties' motions and the presented evidence, the Court finds that the theory of firearm toolmark identification as used by Dr. Shem is a reliable topic for expert scientific testimony under the *Daubert-Coon* and *Marron* standards. Additionally, Dr. Shem may testify at trial that, in his opinion, the shell casings match the

[1] 509 U.S. 579 (1993)(adopted by the Alaska Supreme Court in *State v. Coon*, 974 P.2d 386 (Alaska 1999)).

relevant firearm to the exclusion of all other firearms. The Defendant may attack the certainty of Dr. Shem's conclusions at trial either through cross-examination or by presenting its own evidence.

I. Does Firearm Toolmark Identification Qualify as a Reliable Basis for Scientific Expert Testimony?

At the evidentiary hearing on February 20, 2009, the state's presentation consisted of the testimony of Dr. Robert Shem, a senior forensic scientist at the State of Alaska, Department of Public Safety Scientific Crime Detection Laboratory ("Alaska Crime Lab") in Anchorage and the state's proposed ballistics expert in this case. Dr. Shem testified regarding his own qualifications as a firearm toolmark examiner, the general theory of firearm toolmark identification, and his examination of the relevant evidence in this case. On March 27, 2009 the Defendant cross-examined Dr. Shem regarding the reliability of firearm toolmark identification as a science and Dr. Shem's alleged ability to match the shell casings found at the scene of the crime to the firearm in evidence to the exclusion of all other firearms. Both parties also provided the Court with supporting case law and scholarly articles.

A. Is Firearm Toolmark Identification A Reliable Basis for Scientific Expert Testimony?

When admitting expert testimony, the court must first determine if the subject upon which the expert will testify is a subject that is appropriate for expert testimony. In *Coon v. State*,[2] the Alaska Supreme Court established the standard Alaskan courts use to examine whether the questioned subject meets the standards for scientific soundness and reliability to qualify as a science for purposes of expert testimony under Rule 702. The Court in *Coon* essentially adopted the test set out by the United States

[2] 974 P.2d 386 (Alaska 1999).

Supreme Court in *Daubert v. Merrill Dow Pharmaceuticals, Inc.*[3] Under the *Daubert/Coon* standard, the reviewing court looks to several factors:

> "(1) whether the proffered scientific theory or technique can be (and has been) empirically tested (i.e., whether the scientific method is falsifiable and refutable); (2) whether the theory or technique has been subject to peer review and publication; (3) whether the known or potential error rate of the theory or technique is acceptable, and whether the existence and maintenance of standards controls the technique's operation; and (4) whether the theory or technique has attained general acceptance."[4]

These factors are not exhaustive and the trial judge has "leeway in analyzing whether the *Daubert[-Coon]* factors, or some other factors, are pertinent to the assessment of the methodological validity of the particular evidence being offered in each case."[5] The ultimate question the trial court must answer is whether the theory or technique underlying the purported expert's testimony is reliable enough to justify the deference traditionally and inevitably accorded to scientific expert testimony.

The Court will not recap Dr. Shem's entire testimony or the general theory and techniques of firearm toolmark identification in this memorandum opinion. After reviewing Dr. Shem's testimony and the parties' submitted exhibits, the Court finds that the theory and techniques of firearm toolmark identification at issue in this case are the standard theory and techniques of firearm toolmark identification propounded by the Association of Firearm and Toolmark Examiners ("AFTE") and exhaustively explained in the written materials already submitted to the Court.[6] The evidence does not demonstrate any discrepancies with the AFTE theory or alternate theories or techniques of firearm toolmark identification. Indeed, the crux of the Defendant's complaint regarding the toolmark evidence in this case is not the basic theory or techniques of toolmark identification, but the degree of certainty that the Court will permit Dr. Shem to testify he can match the shell casings to this particular firearm. As to firearm toolmark identification evidence, both federal and state courts have almost unanimously found

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[3] 509 U.S. 579 (1993).
[4] 974 P.2d at 395 (citing *Daubert*, 509 U.S. at 593-94).
[5] *Ratliff v. State*, 110 P.3d 982, 984-84 (Alaska App. 2005).
[6] *See, e.g., U.S. v. Monteiro*, 407 F. Supp.2d 351, 359-364 (D. Mass. 2006)(citing Theory of Identification, Association of Firearm and Toolmark Examiners, 30 AFTE J. 86 (1998)).

that the theory and techniques of firearm toolmark identification meet the *Daubert* standard as reliable scientific evidence.[7]

Turning to the first listed *Daubert-Coon* factor, the Court finds that the theories and techniques of firearm toolmark identification are testable. First, Dr. Shem testified regarding the testability of the theory of toolmark identification. He testified regarding numerous studies testing the accuracy of toolmark identification.[8] These studies examined bullets fired through consecutively-manufactured barrels[9] to determine if these bullets displayed individual characteristics for precise identification with a specific firearm barrel. The participating examiners correctly matched every specimen to the appropriate firearm barrel. For example, Dr. Shem discussed "The Identification of Consecutively Rifled Gun Barrels,"[10] a study published by David Brundage where he asked thirty (30) nationally-accredited examiners to determine whether any of fifteen (15) bullets conclusively matched ten (10) consecutively-manufactured gun barrels. None of the examiners made a false conclusion.[11]

Dr. Shem next testified that examiners at certified[12] crime laboratories, such as the Alaska Crime Lab, are given proficiency exams every year by an outside examiner on the different types of toolmark identification.[13] These exams are designed to mimic real cases and test the examiner's ability to consistently reach accurate conclusions.[14] In his cross-examination, the Defendant pointed out the dearth of blind or double-blind studies of firearm toolmark examination.[15] Dr. Shem testified that the proficiency studies conducted by the ASCLD/LAB were essentially blind studies because the examinees did not know whether the presented evidence matched any of the presented

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[7] *See, e.g., U.S. v. Green*, 405 F.Supp.2d 104, 108 (D.Mass 2005). *U.S. v. Glynn*, 2008 WL 4293317 (S.D.N.Y. 2008)(unpublished), presents a notable exception, if only for its uniquely harsh dismissal of firearm toolmark identification as a reliable basis for expert testimony.

[8] *See, e.g.*, State's Exhibits 2-14, 24, 28-30; Evidentiary Hearing on February 20, 2009 ("Hearing I") at approximately 10:46-11:15 a.m.

[9] The idea is that consecutively-manufactured barrels present the closest possibility of leaving identical markings on bullets and shell casings.

[10] State's Exhibit No. 4; Hearing I at approximately 10:53-54 a.m.

[11] 30 AFTE Journal 3 (Summer 1998).

[12] Crime laboratories are certified by the American Society of Crime Laboratory Directors Laboratories Accreditation Board ("ASCLD/LAB"). *See* ASCLD/LAB's homepage at http://www.ascld-lab.org/.

[13] *See* http://www.ascld-lab.org/legacy/pdf/alpd1002.pdf.

[14] Hearing I at approximately 9:06 a.m.

[15] Evidentiary Hearing on March 27, 2009 ("Hearing II") at approximately 9:50 a.m.

tools.[16] This does not address the potential distortion of test results because the examinees are aware they are being tested. However, this deficiency does not render the theory untestable or untested for evidentiary purposes.

The Defendant argues that the determination of a match necessarily relies upon the examiner's subjective determination. However, the evidence has not been destroyed and examiner must provide some documentation of his examination. Another examiner can then examine the evidence or documentation to verify or disagree with the examiner's conclusion. On its face, this solution does not address the more fundamental concern regarding the science as a whole because the reviewing examiner would rely on the same allegedly flawed principles as the questioned examiner. However, the capacity for re-examination means that the science can be tested for consistent results. The question of reliability then shifts to the other *Daubert/Coon* factors that examine the consistency of those results.

The Defendant further argued that the examiner's conclusion is not testable because his notes do not indicate the particular patterns or marks the examiner used to make his conclusion. While this information could be helpful, it does not render the examiner's conclusion untestable. Another examiner could either verify or disagree with the examiner's conclusion on the basis of any matching pattern or lack thereof because the fundamental question is whether the marked object matches the tool and not which marks the examiner relied upon in reaching his conclusion.

With regards to the second *Daubert-Coon* factor, the Court finds that the theory and techniques of firearm toolmark identification have been subject to extensive peer review and publication. The additional materials submitted by both parties provide ample evidence that the theory and techniques of firearm identification have been subject to intense scrutiny by peer review, international publication, and academic evaluation. AFTE is a prime example of a peer review organization that provides a forum for scholarly analysis, criticism of the scientific theory, and monitors developments in the field. For example, Dr. Shem testified AFTE has a committee system that reviews articles for publication in the AFTE Journal only after submission to

[16] Id.

other experts in the toolmark examination community.[17] The field of toolmark identification has also been researched recently by the National Academy of Sciences.[18]

Next, the Court finds that the known or potential error rate is within the acceptable range of reliable scientific evidence. Dr. Shem testified to several studies that measured the error rates from collected proficiency tests administered throughout the United States as well as constructed studies examining a specific sample of examiners testing bullets fired through consecutively-manufactured barrels.[19] Dr. Shem testified regarding an article by Stephen Bunch and Douglas P. Murphy entitled "A Comprehensive Validity Study for the Forensic Examination of Cartridge Cases."[20] The study documented the examination results of "all qualified examiners in the FBI Laboratory's Firearms-Toolmarks Unit."[21] The examiners reported "no mis-identification or mis-elimination errors."[22] Dr. Shem further testified regarding a presentation by Murphy examining the cumulative results of Collaborative Testing Services ("CTS")[23] administered proficiency examinations, but the record is unclear if Dr. Shem's testimony refers to the aforementioned study documented in state's Exhibit 11.[24]

In contrast, the Defendant presented several articles which he claimed showed toolmark examination to have a known or potential error rate closer to 9 or 10%.[25] Specifically, the Defendant pointed to a study by Peterson, Fabrican, and Field, "Crime Laboratory Proficiency Testing Research Program,"[26] and another by Joseph Peterson and Penelope Markum, "Crime Lab Proficiency Test Results 1970-1991."[27] The Defendant also cited "Thornton Courts of Law versus Court of Science," which the Defendant claims finds that there is no verifiable error rate for firearm toolmark

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[17] *See, e.g.*, AFTE Journal homepage available at http://www.afte.org/Journal/AFTEJournal.htm; see also
[18] Committee to Assess the Feasibility, Accuracy, and Technical Capability of a National Ballistics Database, National Research Council, Ballistic Imaging (National Academies Press 2008, available at http://books.nap.edu/catalog/12162.html; unmarked Defendant's Exhibit.
[19] Discussed at Hearing I at approximately 10:20 a.m. - 11:30 a.m. (State's Exhibits 2-14, 20, 22, 23, and 25).
[20] 35 AFTE Journal 201 (Spring 2003)(State's Exhibit No. 11).
[21] Id. at 201; Hearing I at approximately 11:21:45 a.m.
[22] Id. at 203.
[23] See the organization's homepage at http://www.collaborativetesting.com/forensics/index.html.
[24] Hearing I at 11:21-:22 a.m. There is no mention of CTS or the years 1990-2000 and 2003 in the study submitted as Exhibit 11.
[25] Hearing II at approximately 9:50 a.m.
[26] National Criminal Justice Reference Service No. NCJ 048122 (1978); abstract available online at http://www.ncjrs.gov/App/Publications/abstract.aspx?ID=48122.
[27] 40 Journal of Forensic Sciences, Issue 6 (November 1995).

identification.[28] Dr. Shem responded that he either wasn't familiar with the studies, the studies were outdated, or that a generalized error rate is irrelevant when considering the potential accuracy of an individual examiner's conclusions.[29] He also mentioned that some studies that reported higher error rates included results from student examiners and included examinees' inconclusive responses as errors.[30] The use of proficiency tests to establish the potential error rate is potentially problematic. First, the validity of the error rate from these examinations presumes the proficiency tests actually mirror real cases in difficulty of identification. Second, the tests could examine a sample of toolmark examiners that do not represent the entire field. Finally, the studies are not blind and could be distorted by the examinees' knowledge that they were being tested.

The studies cited by the Defendant and the theoretical flaws in the use of proficiency tests as a gauge of error rates in the field shed some doubt on the state's claimed error rates. However, the balance of the evidence leads this Court to conclude the generalized error rates for firearm toolmark identification are sufficiently documented and not unacceptably high so as to invalidate the theory or render expert opinion testimony based on its principles inherently unreliable.

The state also presented evidence that firearm toolmark identification follows "standards controlling the technique's operation."[31] The state introduced the "State of Alaska Firearm Toolmark Examiners Procedures Manual," which Dr. Shem testified was drafted by the AFTE and adapted to Alaska's unique needs.[32] The state also presented evidence that the AFTE has compiled a procedures manual, code of ethics and glossary.[33] The examiner and examination must adhere to these standardized procedures in order to take advantage of the deference the Court is willing to pay to the field in general. In addition, these standards require that the examiner present documentation to support their conclusion that can be tested by another qualified expert.

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[28] Hearing II at approximately 9:52 a.m.; 1 Shepard's Expert and Scientific Evidence Quarterly 475-486 (1994).
[29] Hearing II at approximately 9:52-54 a.m.
[30] Id.
[31] *Coon*, 974 P.2d at 395.
[32] Hearing I at approximately 11:28 a.m.
[33] Hearing I at 8:59 a.m. Code of Ethics has been admitted as State's Exhibit 27. The Exhibit was allegedly printed from AFTE's website.

More controversial, however, is whether the firearm toolmark examiner's final conclusion i.e. whether there is a "match," adheres to a standard. Under the AFTE theory of identification, an examiner makes an opinion "of the common origin . . . when the unique surface contours of two toolmarks are in 'sufficient agreement.'"[34] The toolmarks are sufficiently in agreement when the marks "exceed[] the best agreement demonstrated between toolmarks known to have been produced by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool."[35] This determination is based upon "the significant duplication of random toolmarks as evidenced by the correspondence of a pattern or combination of patterns of surface contours."[36] There is no definition of "significant" provided in the AFTE Glossary and the determination of a match "is subjective in nature, founded on scientific principles and based on the examiner's training and experience."[37] Ultimately, there are no objectively verifiable or testable criteria for the match itself beyond the examiner's professed ability to match the patterns. Indeed, any challenge to the examiner's conclusion would also necessarily be based upon another examiner's subjective determination.[38] As stated in *U.S. v. Monteiro*,[39] the question is "whether a method that relies on the individual examiner's training and experience to distinguish between characteristics on a cartridge casing is fatal to the reliability of the technique as a whole."[40]

The Court finds that the lack of objective standards and criteria to establish the final match between tool-marked surfaces does not discredit the entire theory for purposes of expert testimony. First, the majority of the examination process is objective and empirically verifiable. This foundation lends the examiner's subjective

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[34] AFTE Glossary at 157, "Theory of Identification as it Relates to Toolmarks." (5th Edition)(State's Exhibit No. 1).
[35] Id.
[36] Id.
[37] Id
[38] Toolmark Examiners have attempted to develop an objective standard, which involves counting consecutively matched striae (CMS) and establishing a numeric threshold to delineate when there is sufficient agreement between two marked items. *See* Biasotti and Murdoch, "The Scientific basis of Firearms and Toolmark Identification," 516-517 (1997). Hearing II at approximately 9:33 a.m. However, Dr. Shem does not ascribe to this technique of toolmark identification. Consequently, CMS is not part of this Court's consideration of the reliability of the theory and techniques of toolmark examination at issue in this case, except as a point of reference.
[39] 407 F.Supp.2d 351 (D.Mass. 2006).
[40] *Id.* at 371

determination a degree of verifiability and testability in comparison to a subjective declaration based purely upon an expert's experience and training. Second, the submitted peer-reviewed articles and Dr. Shem's testimony convince the Court that a firearm toolmark examiner's opinion on the identification of tool-marked surfaces premised upon his experience, training, and adherence to the AFTE guidelines provides a sufficiently reliable and reproducible process to justify deference as scientific testimony. As discussed more thoroughly below, Alaska law differs from current federal law and courts also may admit certain expert testimony based entirely on the expert's specialized training and experience.

Finally, the Court finds that firearm toolmark evidence is sufficiently accepted by the scientific community to provide a basis for scientific expert testimony. As earlier noted, there has been extensive scientific review and publications addressing firearm toolmark identification. These publications almost universally recognize the scientific nature of firearm toolmark identification even where they question the empirical verifiability of an examiner's ability to make an identification of a single tool to the exclusion of all others in existence.

In sum, the Court finds that firearm toolmark identification is a sufficiently reliable basis for scientific expert testimony.

B. Is Dr. Shem Qualified to Offer Expert Testimony on Firearm Toolmark Identification?

The state must also show that their expert witness, Dr. Shem, is qualified to give expert testimony on forensic toolmark identification. Dr. Shem testified that has been a forensic toolmark examiner since roughly 1981 and has been a forensic scientist with the Alaska State Crime Laboratory since 1986. Before coming to Alaska, Dr. Shem received his Bachelor of Science degree in 1980 from Southern Illinois University at Carbondale and subsequently completed a two (2) year training course in toolmark identification with the Illinois State Police. He subsequently worked for the Illinois State Police until he began work at the Alaska Crime Laboratory. He is currently a "Forensic Scientist III," the highest attainable level of forensic scientist, at the Alaska Crime

Laboratory and identified himself on the stand as a "journeyman" level toolmark examiner.[41] Additionally, the Alaska Crime Laboratory is certified by ASCLD/LAB.[42]

Dr. Shem is also an active member,[43] former committee member, and former president of the AFTE. He has also published several scholarly articles on forensic toolmark identification.[44] Dr. Shem testified there have been no complaints filed against him alleging a breach of the code of ethics. Dr. Shem estimated he has testified several hundred times in Alaska courts as a toolmark identification expert.[45] Finally, Dr. Shem testified that he has not reached an incorrect conclusion on any of his proficiency examinations since he began working as a toolmark identification examiner.[46]

The Court finds that Dr. Shem is qualified to offer expert testimony on firearm toolmark identification. The Court further finds that Dr. Shem's examination of the evidence in this case meets or exceeds the requisite standards in the ballistic field. He has been tested by a neutral proficiency examiner and passed every exam. The Court found his testimony to be clear, concise, and credible and anticipates it will likely "assist the trier of fact to understand the evidence . . . [and] . . . determine a fact in issue."[47]

II. What Opinion Testimony May Dr. Shem Give Regarding the Degree of Certainty Of the Match Between the Shell Casings and the Firearm in Evidence?

Given the admissibility of firearm toolmark identification evidence as a proper subject for scientific expert testimony, the question remaining before the Court is what opinion Dr. Shem may give based on his examination of the firearm toolmark evidence in this case. More specifically, the Court must decide the degree of certainty to which

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[41] On cross-examination, Dr. Shem clarified that a journeyman toolmark examiner is (Hearing II at approximately 9:17 a.m.).
[42] List of accredited labs available from the ASCLD/LAB homepage at http://www.ascld-lab.org/legacy/aslablegacylaboratories.html.
[43] Dr. Shem testified that he has been a member in good standing since approximately 1981. He further testified that to remain a member, an individual must prove that they derive the majority of their income from being a toolmark examiner. Hearing I at approximately 8:57-8:58 a.m.
[44] Id.
[45] Hearing I at approximately 9:07 a.m.
[46] See e.g. Hearing I at
[47] Rule of Evidence 702.

Dr. Shem may testify that he could match the shell casing with the specific firearm in this case. The state requests the Court to allow Dr. Shem to testify that, in his opinion, the bullet in evidence came from a Glock firearm and the shell casing in evidence was fired by the Glock firearm in evidence "to the exclusion of all other Glocks in the world."[48] The Defendant claims the Court should only permit Dr. Shem to testify that he could match the relevant shell casing to the firearm "within ballistic certainty."[49]

As earlier noted, firearm toolmark identification involves both an objective and subjective component. The objective component requires the examiner to discover and document the striations and other marks on the marked surfaces. The examiner then uses their training, experience, and honed pattern-matching skills to reach an opinion whether a specific tool marked a specific item. This latter subjective portion is the principal area of contention regarding the accuracy of firearm toolmark identification.

The Defendant presented the Court with three cases where federal courts allowed expert testimony regarding toolmark identification under the *Daubert* standard, but limited the expert's testimony regarding the degree of specificity with which he could link the bullets and casings with a particular firearm. First, in *U.S. v. Green*,[50] the firearm toolmark examiner testified at the *Daubert* hearing that shell casings found at the crime scene matched shell casings fired from the weapon in evidence "to the exclusion of every other firearm in the world."[51] Judge Nancy Gertner admitted the toolmark testimony under the *Daubert* standard only after expressing her deep skepticism regarding the reliability of firearm toolmark identification. Her skepticism of the accuracy and reliability of the expert's findings was significantly exacerbated by deficiencies in the examiner's credentials and his examination of the evidence. Based on her skepticism, Judge Gertner limited the examiner's testimony to only "describe and explain the ways in which the earlier [shell] casings are similar to the shell casings test-fired from the [weapon in evidence]."[52]

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[48] Hearing II at approximately 10:18:50.
[49] At the beginning of Hearing I, defense counsel stated that they would stipulate Dr. Shem could testify to the match to a reasonable ballistic certainty. Hearing I at approximately 8:51 a.m. The state rejected the offer.
[50] 405 F.Supp.2d 104, 2005 WL 3475695 (D.Mass. 2005)/
[51] *Id* at 108-9.
[52] *Id*.

The Defendant next points to *Monteiro*,[53] another case from the Federal District Court for Massachusetts. In *Monteiro*, the court concluded the proposed firearm toolmark identification evidence was admissible under *Daubert* and that the examiner was qualified to testify.[54] However, the Court found that the examiner's opinion testimony was inadmissible because the examiner did not provide sufficient documentation of the evidence used to support his conclusion. Consequently, the court concluded the testimony was inadmissible because the examiner's conclusion could not be reproduced or verified by a second independent examiner.[55] The court further noted that the testimony would be admissible if the state obtained an independent review and verification of the examiner's results by a second examiner. Even if the state obtained a second examination, the court limited the expert's testimony to "an opinion of a match to a reasonable degree of certainty in the ballistics field . . . [and] not . . . that there is a match to an exact statistical certainty."[56]

Finally, the Defendant cites to *U.S. v. Diaz*,[57] an unreported case from the Federal District Court for the Northern District of California. In *Diaz*, the court admitted firearm toolmark identification evidence under *Daubert*. However, the court refused to allow the examiner to testify that the ballistic match precluded all other firearms in the world and limited the examiner's opinion testimony to whether the match was within a "reasonable degree of ballistic certainty."[58] The court limited the expert's testimony based up on the perceived inherent limitations of forensic toolmark identification.[59]

The Court first notes that these decisions represent an extreme minority of cases. The vast majority of courts have not limited firearm toolmark examiner testimony. Second, the Court found in the first section of this order that the theory and techniques underlying firearm toolmark identification is a sufficiently reliable subject for expert scientific testimony. For the reasons set forth below, the Court will not then limit that expert's opinion testimony of his conclusions premised on that subject and based upon his specialized training and experience in the field. The Defendant, by its own

[53] 407 F.Supp.2d 351 (D.Mass 2006).
[54] *Id.* at 372
[55] *Id.* at 374.
[56] *Id.* at 355.
[57] 2007 WL 485967.
[58] *Id.* at *1.
[59] *Id.* at *13.

evidence or cross-examination, can attempt to convince the jury of the alleged problems with the theory of firearm toolmark identification and the reliability of Dr. Shem's opinion. Given the Court's determination that the underlying theory and the conclusions resulting from its application are reliable under *Daubert*, the value or credibility of the expert's opinion is a question for the jury rather than the Court.

Additionally, the admissibility of expert evidence in Alaska is different than under the Federal Rules of Evidence. The Alaska Supreme Court in *Marron v. Stromstead*[60] expressly rejected the standard announced by the United States Supreme Court in *Kumho Tire v. Carmichael*[61] requiring federal courts to review all expert opinion testimony using the *Daubert* standard regardless whether the testimony is based upon objective science or upon the expert's specialized training and experience ("technical" expert testimony).[62] The federal cases cited by the Defendant all determined the admissibility of the expert's opinion testimony based exclusively on the *Daubert* standard. These decisions all occurred after 1999, when the United States Supreme Court decided *Kumho* Tire. The Defendant did not produce, nor has the Court's research uncovered, any cases where a court limited firearm toolmark expert opinion testimony before 1999. The Court does note, however, that the cases cited by the Defendant do not expressly cite *Kumho Tire* as the basis for their decisions to limit the expert's testimony.

In *Marron*, the trial court admitted expert opinion testimony from an "accident reconstruction expert" and a neurologist as "technical" expert testimony.[63] Noting that "[t]rial judges have wide discretion to determine whether to qualify witnesses as experts,"[64] the *Marron* Court affirmed the trial court's finding that both witnesses were "technical" experts for purposes of Rule 702 based on their extensive experience and ability to utilize their knowledge and expertise to help the jury understand the presented evidence.[65] The Supreme Court further determined that the trial court had admitted the experts' testimony "based on the reliability of their expertise in general, rather than its

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[60] 123 P.3d 992 (Alaska 2005).
[61] 526 U.S. 137 (1999).
[62] *Marron*, 123 P.3d at 1004.
[63] *Id.* at 1002-1009.
[64] *Id.* at 1002 (citing *Ferrell v. Baxter*, 484 P.2d 250, 267 (Alaska (1971)).
[65] *Marron*, 123 P.3d at 1008

application in this particular case."[66] Consequently, the Court found that the experts' opinion testimony should be not subject to the *Dabuert/Coon* test. The Court reasoned that *Daubert/Coon* did not apply because the opinion testimony did not rely on or address a "sophisticated scientific theory" that went "beyond the jury's everyday world experience and ordinary mode of reasoning."[67] The Court concluded that limiting the expert's opinion testimony in this case would run contrary to Alaskan courts' "liberal standard favoring the admissibility of expert testimony . . . to increase the information available to the factfinder."[68]

The difficulty courts find with firearm toolmark identification expert testimony is that "[f]irearm identification evidence straddles the line between testimony based on science and experience."[69] Alaska evidence law provides a solution to the objective/subjective quandary presented by firearm toolmark identification because the examiner's subjective conclusion is admissible as "technical" expert testimony even if there are questions whether the science of firearm toolmark identification provides a sufficient scientific basis to support a conclusion that a particular shell casing was marked by a particular firearm to the exclusion of all others in existence.[70] Although the objective verifiability of firearm toolmark identification may rely upon a somewhat sophisticated scientific theory or analysis (e.g. the true extent of an examiner's pattern-matching abilities and the rigorousness of the testing of the examiners), the theory of firearm toolmark identification and the examiner's ultimate opinion does not. A competent jury is fully capable of understanding the criteria upon which the examiner based his opinion and the potential fallibility of his conclusion.

In Alaska, the question of what weight the jury will accord the expert testimony is fundamentally a matter for the jury to decide after hearing the parties' arguments and not a proper use of the court's evidentiary gate-keeping power. Court interference in this adversary process would "usurp the jury's duty to determine the credibility of expert

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[66] *Id.* at 1004.
[67] *Id.* at 1007.
[68] *Id.* at 1005.
[69] *Monteiro*, 407 F.Supp.2d at 365.
[70] Alaska Rule of Evidence 702 does not include the three-part inquiry included in the analogous Federal Rule. *See* Federal Rule of Evidence 702. Consequently, the examiner's opinion is arguably entirely admissible as a technical expert opinion without a full *Daubert*-style analysis. *See Marron*, 123 P.3d at 1004, 1008.

testimony."[71] . The Defendant is fully capable of explaining the perceived faults, doubts and criticisms regarding the weight and value of the expert's opinion through effective cross-examination and the introduction of competing evidence.

In this first section of this Order, the Court determined that the firearm toolmark identification evidence is a reliable basis for expert testimony, the examiner in this case is qualified to offer expert opinion testimony on the subject, and that his testimony will likely prove instructive to the jury. The Court now finds that Dr. Shem may testify to his expert opinion regarding the match between the bullets and shell casings found at the scene and the firearm in evidence based on his specialized training and extensive experience with firearm toolmark identification.

III. Conclusion

In this case, the Court declines to limit Dr. Shem's opinion testimony regarding the match between the shell casings and the firearm in evidence. The jury is free to believe all, none, or part of the testimony of any witness and will be so instructed.

For the reasons set out in this Order, the Defendant's Motion to is DENIED.

5/1/09
Date

Michael Spaan
Superior Court Judge

I certify that on 5/5/09
a copy of the above was mailed to each of the following at their addresses of record. DAO Lambert

AV
A. Vigil – Administrative Assistant

[71] *Marron*, 123 P.3d at 1005.