

NORTH CAROLINA
COUNTY OF ROBESON

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
FILE NO.: 03 CRS 56540

STATE OF NORTH CAROLINA)

vs.)

MYRON BRITT)

) MOTION TO EXCLUDE FIREARM
) IDENTIFICATION TESTIMONY OF
) AGENTS TANNER AND WARE
)

Now comes the Defendant, through counsel, pursuant to the Fifth, Sixth, Eighth and Fourteenth Amendments to the United States Constitution, Article I, Sections 19, 23, 24 of the Constitution of North Carolina and N.C. Gen. Stat. § 8C-1, Rule 702, and moves this Honorable Court to exclude the firearm identification testimony of State Bureau of Investigation Laboratory employees, Agents Tanner and Ware, from the evidence at trial in this case as it is based upon a standard of methodology of firearms identification which is unreliable as a matter of law, as Agent Powell is unqualified to render an expert opinion and as neither Agent Powell nor Ware properly applied appropriate identification methodology correctly. As grounds in support, the Defendant would show:

1. On August 23, 2003, Nancy Melton Britt died as a result of single gunshot wound to the abdomen. A Winchester Expanding Point,

caliber 25 Auto, fired bullet was recovered from her body and submitted to the SBI Laboratory;

2. On September 2, 2003, between 8:45 p.m. and 10:20 p.m., a Hornady, caliber 25 Auto, fired jacketed hollow point bullet was recovered from a baseboard in the home of the Defendant's mother. This fired bullet was submitted to the SBI Laboratory for comparison to the Winchester Expanding Point fired bullet at 10:53 a.m. on September 3, 2003;
3. These items of evidence, along with others, were transferred directly to Teresa Tanner, an agent with the State Bureau of Investigation assigned to the firearm and toolmark section of the laboratory, from a member of the Lumberton Police Department;
4. Shortly thereafter Ms. Tanner concluded that the two bullets had been fired from the same firearm;
5. At a later time, on an uncertain date but prior to a report being generated on September 29, 2003, Peter Ware, a senior examiner in the firearm and toolmark section, conducted a technical review of Ms. Tanner's work. No written documentation of this review was made;

6. At the time Ms. Tanner conducted her examination and comparison of the two fired bullets, she had been in the firearm and toolmark section of the SBI laboratory approximately three years. At the time Mr. Ware conducted the technical review of Ms. Tanner's work, he had been in the firearm and toolmark section of the SBI laboratory approximately fourteen years;
7. In November, 2004, an examination and comparison of the two fired bullets was conducted by John H. Dillon, Jr. Mr. Dillon concluded that "[d]ue to a lack of sufficient corresponding microscopic marks, no conclusion could be reached as to whether or not the [submitted] bullets were fired through a single barrel.";
8. William E. Conrad also examined and compared the two fired bullets. Mr. Conrad concluded that [a]lthough there was some agreement of some individual characteristics in one land impression area noted there were insufficient individual marks present on the [Winchester] bullet to identify it as having been fired through the same barrel that fired the [Hornaday] bullet.";
9. At the time Mr. Dillon conducted his examination and comparison, he had served in the United States Marine Corps as an officer for four

years, as a field agent for the Federal Bureau of Investigation for six years, as an agent examiner in the firearms-toolmarks unit of the Federal Bureau of Investigation for eighteen years (six of which were spent as the chief of the firearms unit), as a forensic consultant to the Washington Metropolitan Police Department for two years, as a forensic consultant to the Federal Bureau of Investigation Laboratory for two years, and as a forensic consultant to the Bureau of Alcohol, Tobacco and Firearms for six years. At the time Mr. Conrad conducted his examination and comparison, he had served as a special agent in the U.S. Army Criminal Investigation Command for nine years, as a firearm and toolmark examiner at the U.S. Army Crime Laboratory for five years, as a forensic scientist supervisor at the Western Regional Laboratory for the Commonwealth of Virginia for twelve years, as a training officer for the Metropolitan Police Department in Washington, D.C. for three years, and as a forensic scientist consultant for seven years;

10. Rule 702 (a) of the Rules of Evidence provides "if scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness

qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion." A trial court must conduct a three-step inquiry when considering whether to admit expert testimony pursuant to Rule 702 of the Rules of Evidence: "(1) whether the expert's proffered method of proof is reliable, (2) whether the witness presenting the evidence qualifies as an expert in that area, and (3) whether the evidence is relevant."

State v. Morgan, 359 N.C. 131, 160, 604 S.E.2d 886, 903-04 (2004).;

11. Reliability in this State is "a preliminary, foundational inquiry into the basic methodological adequacy of an area of expert testimony."

Howerton v. Arai Helmet, Ltd., 358 N.C. 440, 460, 597 S.E.2d 674, 687 (2004);

12. More important than this rule of evidence, however, is the command of both the state and federal constitution that each accused receive a fair trial and the due process of law. The State seeks the death penalty in this case if the Defendant is convicted of first degree murder;

13. When a gun is fired, the inner barrel of the gun imparts "rifling" on the bullet. The barrel of a gun is manufactured to impart a twist on a

bullet as it travels, to ensure firing accuracy. The inside of a gun barrel is imprinted with cuts running the length of the barrel. The cuts within the barrel are called "grooves" and the raised surfaces are called "lands". Those rifling characteristics create marks on the bullet as it travels down the barrel. The raised lands cut into the surface of the bullet. Likewise, the bullet surface expands to fill the recessed grooves. The corresponding impressions left on the bullet as it travels through the barrel are depressed "land impressions" and raised "groove impressions". The twist imparted on a bullet can be either left or right, depending on the direction of the lands and grooves. *United States v. Diaz, et al.*, 2007 U.S. Dist. LEXIS 13152 (N. Dist. Calif.)(2007);

14. There are three types of characteristics observed by examiners: class, subclass and individual characteristics. Class characteristics on a spent bullet allow an examiner to narrow the firearm possibilities to certain types of guns made by certain manufactures. For a spent bullet, the class characteristics are the weight or caliber of the bullet, the number of lands and grooves, the twist of the lands and grooves, and the width of the lands and groove. *Id.*

15. Once the firearm possibilities are narrowed by class, the examiner looks for individual characteristics. The range of possibilities can be further narrowed by individual characteristics – microscopic, random imperfections in the barrel created by the manufacturing process. These unintended characteristics are caused by changes in the tool as it makes each barrel on the production line. *Id;*
16. Individual characteristics typically fall into two categories: (1) striated marks made by movement of the bullet within the gun (typically appearing as scratches), and (2) impressed marks that are pressed into a surface. A spent bullet usually has striated marks, created as it moves through the barrel of the gun. *Id;*
17. A third type of characteristic straddles the line between class and individual characteristics. These are subclass characteristics. These characteristics can exist, for example, within a particular batch of a brand of firearm. They arise due to imperfections in the manufacturing tool that persist during the manufacture of multiple firearm components. They cannot be considered class characteristics because they are not common to all units of a particular make, and

model of firearm. Nor are they individual characteristics because they persist throughout a period of manufacturing. *Id.*;

18. Firearm identification has been a forensic discipline since the 1930s. Firearms identification is a subset of the broader forensic discipline called toolmark identification. Toolmark examiners are trained to examine the marks left by tools on any variety of surfaces in an attempt to "match" a toolmark to the particular tool that made the mark. Firearms are a subset of tools that impart marks on bullets. According to the theory of firearms identification, a qualified examiner can reliably determine whether two bullets or two cartridge cases were fired by the same gun. This can be achieved based on an examiner's expertise, experiments, and daily practice. A conclusion that two cartridge components have a "common origin" can be reached when the examiner concludes that sufficient similarity exists between the patterns on the components. When determining whether "sufficient agreement" of toolmarks exists on a bullet, for example, the examiner will look for special relations of the striations, along with the depth and width of the striations. If there is significant similarity between those marks, the examiner can conclude that the

bullets were fired by the same firearm. The marks need not be identical. There need only be "sufficient agreement" between the marks based on the examiner's training and experience. This inspection is done under a split-screen comparison microscope. There are three conclusions an examiner can state. The examiner can make: (1) an "identification" of the components, concluding that they came from the same source; (2) an "elimination" of the components, concluding that they did not come from the same source; and (3) "inconclusive", meaning that there is not enough evidence to identify whether the components either do or do not come from the same source. *Id.*;

19. Rule 702 assigns to this Court the role of gatekeeper to assure that expert testimony rests on a reliable foundation and that witnesses are actually experts before being permitted to offer opinion evidence;
20. It is recognized that there is a problem of absolute testability in firearms identification. Because the accepted practice in the field is based on a subjective assessment, in actual case work it is impossible to conclusively state that an examiner's conclusion is correct or incorrect. *Id.*;

21. Because of this element of subjective assessment, most laboratories require examiners to thoroughly document their results and findings. Any identifications made must be photodocumented. Examiners must indicate the primary areas on which they base identifications. The industry standard also requires confirmation by at least one separate examiner when an identification is reached by the first examiner. *Id.*;
22. The principal standard controlling the technique of firearms identification is embodied in the Association of Firearm and Toolmark Examiners (FTE) theory of identification. This order holds that the practiced eye of a trained firearms examiner can apply the AFTE theory reliably. The AFTE theory states (PX 25 at 212):
 1. The theory of identification as it pertains to the comparison of toolmarks enables opinions of common origin to be made when the unique surface contours of two toolmarks are in "sufficient agreement."
 2. This "sufficient agreement" is related to the significant duplication of random toolmarks as evidenced by the correspondence of a pattern or combination of patterns of surface contours. Significance is determined by the comparative

examination of two or more sets of surface contour patterns comprised of individual peaks, ridges and furrows. Specifically, the relative height or depth, width, curvature and spatial relationship of the individual peaks, ridges and furrows within one set of surface contours are defined and compared to the corresponding features in the second set of surface contours. Agreement is significant when it exceeds 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. The statement that "sufficient agreement" exists between two toolmarks means that the likelihood that another tool could have made the mark is so remote as to be considered a practical impossibility.

3. Currently the interpretation of individualization/identification is subjective in nature, founded on scientific principles and based on the examiners training and experience. *Id.*;

23. In a 1957 study by Alfred A. Biasotti, A Statistical Study of the Individual Characteristics of Fired Bullets, 4 J. Forensic Sci. 34, 44

(1959), the author found that only 21-38 percent of the marks will match up on bullets fired from the same gun. Moreover, when bullets fired by two different .38 special Smith & Wesson revolvers of the same make and model were compared, 15-20 percent of the lines matched up. Therefore, there can be a pattern of matching marks on bullets fired from different guns;

24. The conclusion that a recovered bullet matches a test-fired bullet is based on a subjective "threshold currently held in the minds eye of the examiner and . . . based largely on training and experience n observing the difference between known matching and known non-matching impression toolmarks." Richard Grzybowski et al., *Firearm/Toolmark Identification: Passing the Reliability Test Under Federal and State Evidentiary Standards*, 35 AFTE J. 209, 213 (2003). A recent article has highlighted the complexity of comparing patterns because of the difficulty in distinguishing between class, subclass and individual characteristics, noting that a firearm "may be wrongly identified as the source of a toolmark it did not produce if an examiner confuses subclass characteristics shared by more than one tool with individual characteristics unique to one and only one tool."

Adina Schwartz, *A Systemic Challenge to the Reliability and Admissibility of Firearms and Toolmark Identification*, 6 Colum. Sci. & Tech. L. Rev. 2, 6 (2005);

25. The examiner's conclusions are not based on any quantitative standard for how many striations or marks need to match or line up. Instead, it is based on a holistic assessment of what the examiner sees. See Grzybowski et al., *supra*, at 214 ("The AFTE Theory of Identification is based on an assessment of both quality and quantity of agreement observed between toolmarks being compared. This is how toolmark identifications have always been made.");
26. Firearm identification evidence straddles the line between testimony based on science and experience. As the AFTE Theory describes it, the methodology is "subjective in nature, founded on scientific principles and based on the examiner's training and experience." Science is in the background, at the core of the theory, but its application is based on experience and training. *United States v. Monteiro*, 407 F. Supp. 2d 351 (D. Mass. 2006);
27. The advisory committee's note to federal Rule 702 counsels: "If the witness is relying solely or primarily on experience, then the witness

must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts. The trial court's gatekeeping function requires more than simply "taking the expert's word for it." While this note cites to *Daubert v. Merrell Dow*, 43 F.3d 1311, 1319 (9th Cir. 1995), and this is not a *Daubert* jurisdiction, it is submitted that this note is instructive;

28. This Court is required to determine the reliability of both the underlying science and its application in this case;
29. While admission of the type of firearm identification testimony challenged here has been almost automatic, a number of jurisdictions have begun to reconsider that position. In a recent opinion, Judge Gertner of the District Court of Massachusetts expressed "serious reservations" regarding the reliability of firearm toolmark identification evidence. *See United States v. Green*, 405 F. Supp. 2d 104, slip. Op. At 5 (D. Mass. 2005); *see also, Sexton v. State*, 93 S.W.3d 96 (Tex. Crim. App. 2002) (rejecting matching of cartridge cases based on magazine marks alone without recovery of underlying

magazine); *Ramirez v. State*, 810 So. 2d 836 (Fla. 2001)(rejecting toolmark analysis matching knife to fatal stab wounds).;

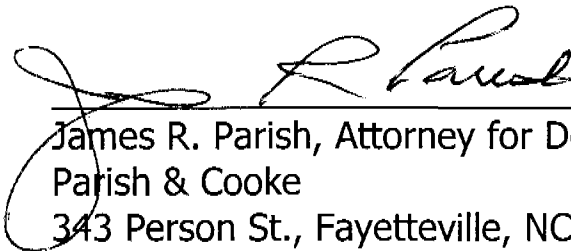
30. In this case, the State's evidence fails to pass the necessary tests of reliability. Ms. Tanner was not an experienced examiner, the evidence was received directly from a law enforcement officer, the examination was done hurriedly, the bullets compared were of different composition, the bullets had each been damaged, the areas relied upon to make the match were neither thoroughly documented nor photographed, and the administrative review done by Mr. Ware was not an independent review of the findings of Ms. Tanner.

WHEREFORE, the Defendant moves this Honorable Court to exclude the firearm identification testimony of State Bureau of Investigation Laboratory employees, Agents Powell and Ware, from the evidence at trial in this case.

Respectfully submitted this the 11th day of March, 2009.



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