SUPERIOR COURT OF THE DISTRICT OF COLUMBIA CRIMINAL DIVISION - FELONY BRANCH

UNITED STATES OF AMERICA 2013 1000

Cone No

08 CF1 27068

08 CF1 26996

08 CF1 26997~

DYLAN M. WARD, JOSEPH R. PRICE, and VICTOR J. ZABORSKY

v.

Judge Lynn Leibovitz

Status Hearing: April 23, 2010

GOVERNMENT'S OPPOSITION TO DEFENDANTS' JOINT MOTION IN LIMINE TO EXCLUDE EXPERIMENT EVIDENCE AND TESTIMONY

The United States of America, by and through its attorney, the United States Attorney for the District of Columbia, respectfully opposes the defendants' Joint Motion to Exclude Experiment Evidence and Testimony. As grounds for this Opposition, the government relies on the following points and authorities, and on any others that may be raised at a hearing on this motion.

I. Factual Background

Between March 10, 2010 and March 24, 2010, Douglas Deedrick, a trace evidence expert with 33 years experience in forensic science, conducted three tests in connection with the above-captioned case, the results of which were reflected in a 10-page report dated March 24, 2010 (appended hereto at Attachment A). He performed the first test – the "stab cut test" – in an effort to determine whether he could differentiate between cuts in a t-shirt made by a replica of the knife found on the scene and a replica of the knife missing from defendant Ward's cutlery set. He obtained two gray t-shirts similar to the t-shirt worn by Mr. Wone at the time of his murder, and stabbed each t-shirt three times with each of the two knives. He then compared the length of



the cuts. Given the similarity of the results, he determined that this test was inconclusive.1

He performed the second test – the "fabric imprint test" – in an effort to determine whether the pattern observed in the blood on the blade of the knife recovered on the scene was consistent with the fabric of the t-shirt or the fabric of the white cotton towel recovered from the scene. Using fabric from the same t-shirts and an imprint kit, he made an imprint on the knife, which did not appear similar to the imprint on the knife recovered from the scene. He then performed this experiment using a towel identical to the white towel recovered from the floor of the bedroom where Mr. Wone was murdered. Using equine blood, he swiped the surface of the knife from the tip of the blade to the base of the blade, with the blood-stained towel. The imprint patterns from the looped material of the towel that he observed at the bolster of the knife – the thick area between the blade and the knife handle – were similar to those observed on the crime scene knife. He determined that "[a]ccordingly, a towel similar to the exemplar towel could have produced the stained pattern found on the crime scene knife." Deederick Report of Examination at 5.

He performed the final test – the "fiber transfer exercise" – in an effort to determine whether fibers from the t-shirt would be expected to cling to the blade of the knife, in particular the grooved edge of the knife.² Given the obvious unavailability of a human subject, he chose a large pork loin, which he draped in a black t-shirt, in an effort to make any clinging fibers more

The government may elicit the fact that he performed this test to demonstrate that he undertook a number of independent experiments to help shed light on some of the physical evidence recovered from the scene.

The knife recovered from the nightstand next to Mr. Wone had a grooved edge. Few fibers were recovered from the edge of that knife, which Mr. Deedrick found surprising.

visible. He conducted three stab trials, in which he used a replica of the knife found at the scene, and stabbed through the t-shirt. He then examined the knife with a stereomicroscope to look for the presence of black cotton fibers. He removed the resulting fibers with forceps, mounted them on separate glass slides, and then recorded the number of fibers. The knife blade was thoroughly cleaned between each test. The first test resulted in more than 20 individual black cotton fibers being recovered from the blade; the second test resulted in more than 40 individual black cotton fibers being recovered from the blade; and the third test resulted in approximately 15 black cotton fibers being recovered from the blade; and the blade.

On April 9, 2010, the defendants filed a motion to suppress evidence and testimony from Mr. Deedrick regarding his March 2010 experiments and conclusions, on apparently three grounds: (1) They don't have enough information regarding the circumstances of the experiment for their experts to "fully analyze" the experiments and Mr. Deedrick's conclusions; (2) the experiments are not "substantially similar to those of the alleged stabbing of Mr. Wone;" and (3) Mr. Deedrick is not qualified to conduct such experiments and draw conclusions therefrom.

Because (1) on April 15, 2010, the defense spent nearly three hours with Mr. Deedrick exploring in great detail how and why he conducted the tests that he did, and the reasons and bases for his opinions derived therefrom; (2) the experiments fall well within this jurisdiction's requirements for experimental evidence; and (3) Mr. Deedrick is qualified to conduct such tests and derive opinions therefrom, the defendants' arguments fail and the testimony should be admitted.

This meeting effectively negates the defendants' first claim, and it merits no further discussion.

II. Legal Framework and Analysis

In this jurisdiction, two requirements must be met in order for experimental evidence to be admitted: (1) the experiment must be performed by someone qualified to do so by "sufficient skill, knowledge, or experience in the relevant field so that his testimony will probably aid the trier of fact in his search for truth" (Jones v. United States, 2010 WL 944178 (D.C. 2010, citing Dyas v. United States, 376 A.2d 827, 832 (D.C. 1977), internal quotation omitted); and (2) "the conditions of the experiment must be 'substantially similar to those of the alleged occurrence." Butts v. United States, 822 A.2d 407, 414 (D.C. 2003), quoting Taylor v. United States, 661 A.2d 636, 643 (D.C. 1995) (hereinafter "Taylor I").

A. Mr. Deedrick is qualified to perform these tests.

As set forth in his *curriculum vitae*, appended hereto at Attachment B, Douglas Deedrick has been a forensic examiner for 33 years, working both for the F.B.I and MPD, recently retiring from law enforcement to establish Deedrick Forensics, LLC. As the <u>Jones</u> Court made clear, "expertise may be predicated on experience rather than academic training. 'Scholarship is not a prerequisite for eligibility to testify as an expert witness; the relevant knowledge may be derived from professional experience, including, in particular, experience as a police officer." <u>Jones</u>, 2010 WL at *6, *quoting* <u>Karamychev v. District of Columbia</u>, 772 A.2d 806, 812 (D.C. 2001). Here, at any hearing on this motion, Mr. Deedrick will "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," in order for the Court to make the determination as to his qualifications. <u>Jones</u>, 2010 WL at *6.

Specifically, with respect to the fabric imprint test, Mr. Deedrick has been conducting such tests throughout the course of his career as a trace evidence examiner. He has been qualified as an expert and testified about such testing a number of times throughout his career. Indeed, he wrote a training program for MPD and FBI regarding fabric imprint testing. There can be no question that he is qualified to opine as to the pattern that certain fabrics make in blood on a knife.

Second, with respect to the fiber transfer test, again, Mr. Deedrick has been examining objects for the presence of fibers throughout the course of his career as a trace evidence examiner. Given his training and experience, he is familiar with the mechanisms by which trace evidence can adhere to surfaces, and the effect that various aspects of the surfaces — e.g., grooved knife edge, sticky surface — have on the retention of trace evidence. He similarly is well-qualified to conduct the stab cut test, and opine as to the results.

B. These experiments are substantially similar to the circumstances of the stabbing of Mr. Wone.

As noted, the conditions under which the experiments are conducted must be "substantially similar" to those of the alleged occurrence in order to be admissible. Butts, 822 A.2d at 414. However, as the Butts Court noted, "[s]ubstantial similarity 'does not require an identity of conditions but only that degree of similarity which will insure that the results of the experiment are probative." Id. at 414-15, quoting Love v. State, 457 P.2d 622, 627 (Alaska 1969). "Further, admissibility also turns on whether the dissimilarities, if any, can be adjusted for or explained so that their effect on the results of the experiment can be understood by the jury." Butts, 822 A.2d at 415 (internal quotations and citations omitted). As Butts made clear,

"the determination of whether substantial differences exist may not always be capable of a mechanical solution. Frequently common sense provides a good guide to whether a factor entering into an evidentiary determination is substantial or merely unimportant." <u>Id., citing Love</u>, 457 P.2d at 628.

In Butts, the government called an expert in accident reconstruction to testify about a visibility study he conducted to determine the amount of time it would take an unimpaired driver to perceive and react to a pedestrian in the roadway, under conditions similar to those on the night of a fatal traffic accident. The Court found that the conditions utilized by the expert adequately recreated that crash — the study was conducted on a wet roadway at night, in the same model of car that was involved in the actual crash, traveling at the same speed as the car in question, and the "victim" was a mannequin dressed in dark clothing. Significantly, the Court held that "the dissimilarities are of the type that could easily be, and in fact were, explained to the jury for it to consider when assessing the weight of the evidence." Id. at 415. These dissimilarities included that the mannequin was of a lighter complexion than the victim in the actual crash, the street light at the point of impact was illuminated during the experiment, there was no same-lane traffic factored into the experiment, nor was spray from other vehicles during the rain factored in. Indeed, the government's expert acknowledged on cross-examination that same lane traffic and rain spray should have been factored in.

1. The fabric imprint test

There can be little doubt that the experiment conducted by Mr. Deedrick to assess fabric imprint was substantially similar to the circumstances by which the knife obtained the blood pattern noted. He utilized two different hypotheses – that the t-shirt caused the imprint or that

the towel caused the imprint – and reenacted each scenario. The only difference was that he used equine, or horse, blood, and not human blood. His opinion that the towel may have caused the imprint is visible to the naked eye.

2. The fiber transfer test

With respect to the fiber transfer test, there is no question that the circumstances under which he conducted the test were not – indeed, could not be – identical to the actual stabbing of a living human being. However, this does not mean that the Court should exclude the evidence; rather, it goes to what weight a jury should ascribe to that evidence. The Court in <u>United States v. Taylor</u>, 759 A.2d 604, 608 (D.C. 2000) ("<u>Taylor II</u>"), offered guidance to a court in determining whether there is substantial similarity between the conditions of the event, and the conditions of the simulation, counseling trial courts to contemplate the following principles:

- (1) Are the dissimilarities likely to distort the results of the experiment to the degree that the evidence is not relevant? Here, while it is certainly true that the experiment does not precisely duplicate the circumstances of this violent stabbing, it nonetheless was conducted using a close approximation of human flesh, and exact replica of the knife claimed by the defense to be the murder weapon.
- (2) Can the dissimilarities be adjusted for or explained so that their effect on the results of the experiment can be understood by the jury? Here, Mr. Deedrick can, and will, explain to the Court and the jury how the very differences that the defense points out, can and should be factored into the results obtained -e.g., how the viscosity of pork loin fluid compares to human blood, how the lack of information regarding velocity might factor in, etc.

(3) What is the purpose of the experiment, and to what degree is this a matter of precise science? Here, the purpose was to assess whether the lack of fibers on the knife was plausible. This is not a matter of precise science, but rather one in which experiments which closely approximate the conditions at issue are conducted to aid in an assessment of the evidence on the scene.

Finally, the Court found that "[a]bsolute certainty is not required if the experiment would be considered valid by persons skilled or knowledgeable in the field which the experiment concerns." Id. Here, Mr. Deedrick chose materials that most closely approximated the circumstances of the stabbing. Using pig flesh in such an experiment is nothing new. See Robertson, James; Grieve, Michael, Forensic Examination of Fibers, at 75-76 (Ellis Horwoord Ltd. 1999) (citing fiber studies utilizing pig flesh "as a model tissue to simulate the human body").

As in <u>Butts</u>, the variables the defense points out are certainly areas for Mr. Deedrick to explain to the jury, and may well be "fertile field for cross-examination." <u>Butts</u>, 822 A.2d at 414. However, they do not make the experiment irrelevant. Rather, they can be "adjusted for or explained so that their effect on the results of the experiment can be understood by the jury," and thus this test too should be admitted. <u>Id</u>. at 415, *quoting* <u>Taylor I</u>, 661 A.2d at 644 (internal quotation omitted).

V. Conclusion

WHEREFORE, the United States respectfully opposes the Defendants' Joint Motion in Limine to Exclude Experiment Evidence and Testimony.

Respectfully Submitted, RONALD C. MACHEN, JR. UNITED STATES ATTORNEY

By:

RACHEL CARLSON LIEBER

D.C. Bar No. 456-491 GLENN L. KIRSCHNER T. PATRICK MARTIN

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CERTIFICATE OF SERVICE

I hereby certify that I caused a copy of the foregoing to be served by electronic mail and first-class mail, on April 23, 2010, upon Bernard Grimm, Esq., Cozen O'Connor, The Army and Navy Building, 1627 I Street, NW, Suite 1100, Washington, DC 20006, counsel for defendant Price, Thomas G. Connolly, Esq., Wiltshire & Grannis, LLP, 1200 Eighteenth Street, N.W., 12th Floor, Washington, DC 20036-2506, counsel for defendant Zaborsky, and David Schertler, Esq., Schertler & Onorato, LLP, 601 Pennsylvania Avenue NW, North Building, 9th Floor, Washington, DC 20004-2601, counsel for defendant Ward.

ASSISTANT UNITED STATES ATTORNEY

ATTACHMENT A

Deedrick Forensics, LLC

REPORT OF EXAMINATION

To: AUSA Thomas Martin

Office of the United States Attorney for the District of Columbia 555 Fourth Street, NW

Washington, D.C. 20530

FBI Case ID: 95A-HQ-1534475

MPD Case ID: MCL #06-08779/CCN 2006-105-033

Title: ROBERT ERIC WONE - VICTIM;

HOMICIDE

The following items were received from Robert Spalding on March 10, 2010:

Wusthof / 5" boning knife (photograph #1) Wusthof / 4 1/2" utility knife (photograph #2) Portions of white towel

Two (2) tubes of equine blood

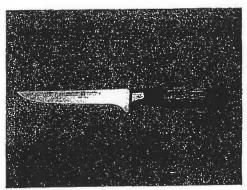
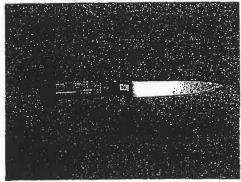


Photo #1 - Wusthof boning knife



Date: March 24, 2010

Photo #2 - Wusthof utility knife

The following items were acquired for testing purposes:

Gray T-shirt, GILDAN ULTRA COTTON, 99% cotton/1% polyester (COMCAST) logo

Gray T-shirt, DELTA PRO WEIGHT, 90% cotton/10% polyester

(William & Mary) logo

Black T-shirt, TULTEX, 100% cotton, (Ryoga Hibiki/Anime World Tour) logo

Foam blocks

Pork loin

Deedrick Forensics, LLC

Results of Examination:

Stab Cut Test

Stab cut tests were conducted on the two (2) gray T-shirts using the Wusthof boning knife and the Wusthof utility knife. The lengths of the stab cuts are reflected in the following tables:

KNIFE	T-SHIRT	CUT#	LENGTH OF CUT
BONING	"COMCAST"	Ī	11/16"
BONING	"COMCAST"	-2	12/16"
BONING	"COMCAST"	3	1" (complete length of blade)

KNIFE	T-SHIRT	CUT#	LENGTH OF CUT
UTILITY	"COMCAST"	1	13/16"
UTILITY	"COMCAST"	2	14/16°
UTILITY	"COMCAST"	3	13/16"

KNIFE	T-SHIRT	CUT#	LENGTH OF CUT
BONING	"WILLIAM & MARY"	1	12/16"
BONING	"WILLIAM & MARY"	2	10/16"
BONING	"WILLIAM & MARY"	3	12/16"

KNIFE	T-SHIRT	CUT#	LENGTH OF CUT
UTILITY	"WILLIAM & MARY"	1	11/16"
UTILITY	"WILLIAM & MARY"	2	11/16°
UTILITY	"WILLIAM & MARY"	3	11/16"

It will be necessary to resubmit the victim's T-shirt (Item 17) in order to compare the stab cut test results.

Fabric Imprint Test

Test fabric imprints were made from the "COMCAST" and "WILLIAM & MARY" T-shirts. No imprints like the test imprints were observed in photographs previously taken of the boning knife recovered at the crime scene (Item 13).

Test fabric imprints were also made with a portion of a white towel. A "dotted" pattern was detected on the test paper. Test imprints on the boning knife using the white towel stained with equine blood revealed patterns similar to those previously observed on the crime scene knife (Item 13).

Deedrick Forensics, LLC

Fiber Transfer Test

Stab cut tests were conducted with the boning knife and the black "TULTEX" T-shirt. Three (3) stab cuts were made through the T-shirt into the pork loin and the blade of the knife was examined for fiber transfers. After the fibers were removed, the blade of the knife was thoroughly cleaned. This process was repeated two (2) additional times. The fiber transfer test results are included in the following table:

TEST #	STAB CUTS #	LENGTHS OF CUTS	# OF BLACK COTTON FIBERS
1	1-3	10/16", 12/16", 13/16"	>20
2	1-3	14/16", 10/16", 12/16"	>40
3	1-3	11/16", 11/16", 10/16"	Approx. 15

Remarks:

The test materials and the glass microscope slides are being temporarily retained.

Douglas W. Deedrick

Deedrick Forensics, LLC

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ROBERT WONE HOMICIDE INVESTIGATION FORENSIC EXAMINATION OF EXEMPLAR KNIVES AND FABRIC

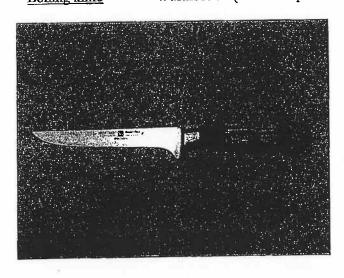
Date of Examination: 3/18/10

Location: FBI Laboratory, Trace Evidence Unit

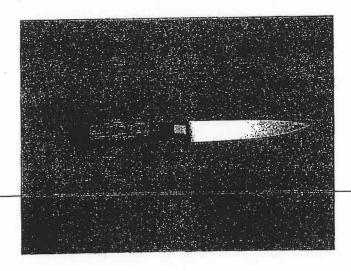
Stab Cut Exercise

In this exercise, two (2) knives were used:

#1 Boning knife Wusthof / 5" (Item 13 replica knife)



#2 <u>Utility knife</u> Wusthof / 4 1/2" (Replica of missing knife in Item 199 set)



Foam blocks were placed between the front and back of the shirts and each shirt was lightly stretched over the foam prior to stabbing.

Boning knife - Three (3) cuts were made through the front of the "COMCAST"
T-shirt.

Cut #1:

11/16" long

Cut #2:

12/16" long

Cut #3:

1" long (penetration entire length of cutting surface)

 Utility knife - Three (3) cuts were made through the back of the "COMCAST" T-shirt.

Cut #1:

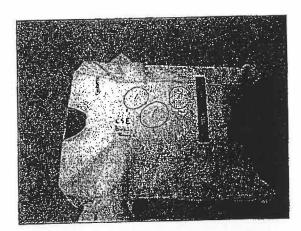
13/16" long

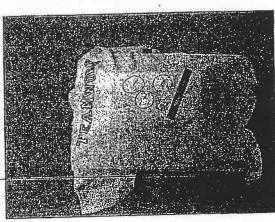
Cut #2:

14/16" long

Cut #3:

13/16" long





3. Boning knife – Three (3) cuts were made through the front of the "William & Mary" T-shirt.

Cut #1:

12/16" long

Cut #2:

10/16" long

Cut #3:

12/16" long

4. Utility knife – Three (3) cuts were made through the back of the "William & Mary" T-shirt.

Cut #1:

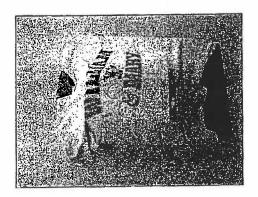
11/16" long

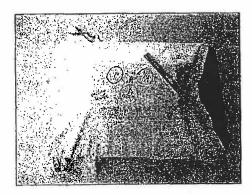
Cut #2:

11/16" long

Cut #3:

11/16" long





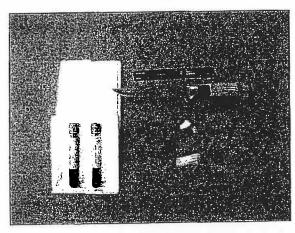
Previous measurements of cuts in victim's T-shirt range from 8/16" to 12/16". The actual T-shirt was not available for side-by-side comparisons.

The maximum blade width of the boning knife is 12/16" (4" from tip) and 14/16" (5" from tip of knife).

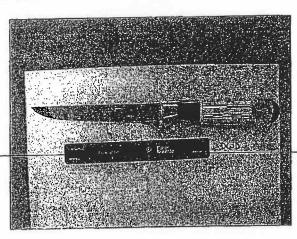
The maximum blade width of the utility knife is 12/16" (4" from tip) and 13/16" (4 1/2" from tip of knife).

Fabric Imprint Exercise

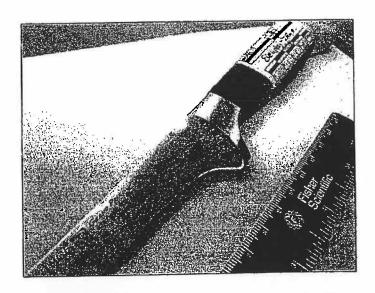
- 1. Test imprints were performed with the "COMCAST" T-shirt fabric and with the "William & Mary" T-shirt fabric using the imprint kit.
- One (1) imprint pattern of the "COMCAST" T-shirt and two (2) imprint patterns of the "William & Mary T-shirt were made. The imprint patterns of these fabrics were not observed in photographs previously made of the crime scene knife (Item 13).
- Six (6) imprint patterns of the exemplar towel were made. The loop ends of the pile surface produce a dotted pattern when applied lightly.
- 2. Test imprints were performed with the exemplar towel using equine blood. The blood was first decanted onto a clear watch glass and the towel was dabbed into it.

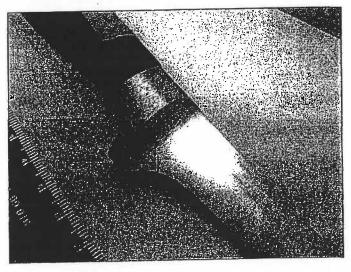


One flat surface of the boning knife was "swiped" from the tip of the knife blade to the base of the knife blade with a blood-stained towel, lightly touching the "bolster" (thick area between the blade and the knife handle).



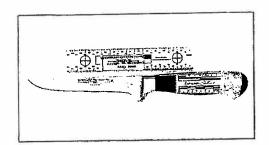
The other side of the boning knife was lightly touched with the blood-stained towel on the "bolster".

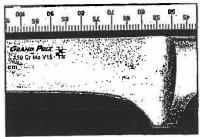


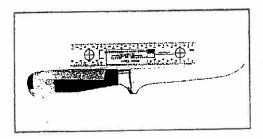


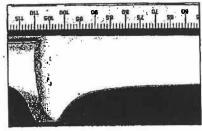
The imprint patterns produced by the blood-stained loop ends of the towel surface are similar in appearance to stained areas (depicted in photographs) on the "bolster" of the crime scene knife (Item 13). Accordingly, a towel similar to the exemplar towel could have produced the stained pattern found on the crime scene knife (Item 13).

The following photographs were taken by the FBI Laboratory Imaging Unit:



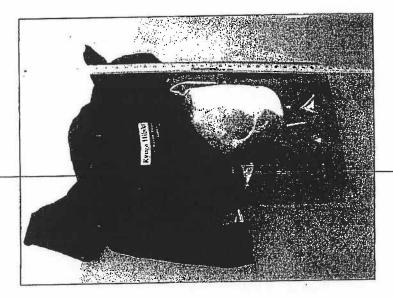






Fiber Transfer Exercise

Three (3) stab trials were conducted with the boning knife and the black "Tultex" T-shirt. The pork loin was placed beneath the T-shirt. Each trial consisted of three (3) stab cuts through either the front or the back of the T-shirt into the pork loin. After each trial, the knife would be examined with a stereomicroscope for the presence of black cotton fibers. The fibers were removed with forceps and mounted on separate glass microscope slides. The approximate number of fibers was recorded.



Trial #1:

Stab cut #1 = 10/16" long

Stab cut #2 = 12/16" long

Stab cut #3 = 13/16" long

>20 black cotton fibers recovered from the blade

Trial #2:

Stab cut #1 = 14/16" long

Stab cut #2 = 10/16" long

Stab cut #3 = 12/16" long

>40 black cotton fibers recovered from the blade (Note: One small yarn fragment was recovered from the edge of the cutting surface. This yarn consisted of many fibers.

Trial #3:

Stab cut #1 = 11/16" long

Stab cut #2 = 11/16" long

Stab cut #3 = 10/16° long

Note: The depth of stab cuts of Trial #3 was approximately 4".

Approximately 15 black cotton fibers were recovered from the blade.

A glass microscope slide containing known black cotton fibers from the "Tultex". T-shirt was prepared for comparison.

Note: Numerous, short black cotton fibers were recovered from the cutting edge of the boning knife. The edge, when viewed with magnification, reveals microscopic grooves likely produced during manufacture (machine grinding).

ATTACHMENT B

Statement of Qualifications

Date: 8/24/09

Name: Douglas W. Deedrick

Job Title: Evidence Supervisor

Discipline(s): Trace Evidence

Human/Animal Hair Identification

Fiber/Fabric Examinations Feather Identification

Education:

Dates attended Institution

Major :

Degree completed

Indiana University

1967-1972

Biology

Bachelor of Arts

Other training: (list continuing education, workshops, in-service and other formal training received)

Genetics course

Univ. of Virginia (9/91)

Molecular Biology/DNA

Univ. of Virginia (9/91)

Forensic Microscopy Workshop

McCrone Institute (8/78)

Principles of Polarized Light

FBI Academy (4/87)

Sex-typing of Human Hairs

FBI Academy (6/84)

Identification of Wood

FBI Laboratory (7/78)

Introduction to Hairs and Fibers

FBI Academy (4/78)

Feather Identification

Smithsonian Institution (1/78)

Courtroom experience:

Human hairs/Animal hairs/Wood identification/Feathers/Cordage/Textile fibers/fabric (1977-2009)

Testified in Federal/State and local trials/hearings/depositions/etc.

Professional Affiliations:

Scientific Working Group for Materials Analyses (Hair subcommittee) European Fibers Group

Employment History:

Job title: Clerk, Records Management

Employer:

FBI (HQ)

Tenure: 1972-1976

Job title: Special Agent (Field Agent)

Employer:

FBI(NY)

Tenure: 1976-1977

Principle duties: Fugitive investigation/Applicant investigations

Job title: Supervisory Special Agent

FBI (Lab) Employer:

Tenure: 1977-1993

Principle duties: Examiner - Hairs and Fibers Unit

Job title: Supervisory Special Agent

FBI (Lab) Employer:

Tenure: 1993-2001

Principle duties: Unit Chief - Trace Evidence Unit

Job title: Supervisory Special Agent

FBI (Lab) Employer:

Tenure: .2001-1/2003

Principle duties: Unit Chief - Information and Evidence Management Unit

Job title: Supervisory Special Agent

FBI (Lab) Employer:

Tenure: 1/2003-7/2004

Major Case Adviser/Cold Case Adviser, Consultant with Behavioral Analysis Unit, NCAVC

Job title: Forensic Examiner

Employer:

Forensic Science Services Division.

Metropolitan Police Department, Washington, D.C.

Tenure: 8/2004 10/2007

Job title: Evidence Supervisor

Employer:

Forensic Science Services Divison,

Metropolitan Police Department, Washington, D.C.

Tenure: 10/2007 to present

Other qualifications:

Feathers Are Not Lightweight Evidence, FBI Law Enforcement Bulletin, Douglas W. Deedrick and John P. Mullery

Feathers in Amber is Earliest New World Fossil of Picidae, The Wilson Bulletin, Roxie C. Laybourne, Douglas W. Deedrick and Francis M. Hueber

Sex Determination from Hair, Proceedings of the International Symposium on Forensic Hair Comparisons (1985), James L. Mudd and Douglas W. Deedrick

Hairs, Fibers, Crime and Evidence, FBI Laboratory Publication, Douglas W. Deedrick

Fabric Processing and "Nubs", Mute Witnesses - Trace Evidence Analysis, Academic Press, 2001, Douglas W. Deedrick

Microscopy of Hair Part I: A Practical Guide and Manual of Human Hairs, U.S. Department of Justice, Research and Technology Publication (2004), Douglas W. Deedrick and Sandra L. Koch

Microscopy of Hair Part II: A Practical Guide and Manual of Animal Hairs, U.S. Department of Justice, Research and Technology Publication (2004), Douglas W. Deedrick and Sandra L. Koch

Consultant with:

Smithsonian Institution

U.S. Air Force/ U.S. Navy Central Intelligence Agency

U.S. Secret Service U.S. Postal Service

NASA

U.S. Department of Interior

NCAVC, Behavioral Analysis Unit

Speaker/Instructor:

FBI Academy (in-service/National Academy)
Introduction to Hairs and Fibers, FBI Academy

Fiber identification, Forensic Science Laboratory, Pretoria,

South Africa

Feather Identification (Calif. Criminalistics Institute)

Numerous presentations on trace evidence

National Advocacy Center (USDOJ - Columbia, S.C.)

MPD Police Homicide School

MPD Evidence Technician Training