IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

UNITED STATES OF AMERICA	)	
	)	
Plaintiff,	)	CRIMINAL ACTION FILE
	)	NO. 1:11-CR-411-WSD
v.	)	
	)	ATLANTA, GEORGIA
CLIFFORD DEANGELO JACKSON (1) and CLIFFORD DURHAM, JR., (3)	)	
	)	
Defendants.	)	

TRANSCRIPT OF PROCEEDINGS
BEFORE THE HONORABLE WILLIAM S. DUFFEY, JR.,
UNITED STATES DISTRICT JUDGE

VOLUME 2
Wednesday, July 25, 2012

APPEARANCES OF COUNSEL:

For the Plaintiff:	OFFICE OF THE U.S. ATTORNEY (By: Nekia Shantel Hackworth)
For Defendant Jackson (1):	FEDERAL DEFENDER PROGRAM INC. (By: Vionnette Reyes Johnson)
For Defendant Durham (3):	William Boyd Hollingsworth

Proceedings recorded by mechanical stenography
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I N D E X

Wednesday Morning Session

July 25, 2012

9:42 a.m.

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P R O C E E D I N G S

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(In open court:)

THE COURT: Good morning, everybody.

Just to let you know, now that I sent you the two e-mails giving you some update on my scheduling, thinking that in light of the work that we have done last night and this morning and the transcripts that now are prepared, that the trial will start on Monday.

All right. Call your next witness, please.

MS. JOHNSON: Thank you. We call William Tobin to the stand.

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WILLIAM A. TOBIN

being first duly sworn by the Courtroom Deputy Clerk, testifies and says as follows:

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DIRECT EXAMINATION

BY MS. JOHNSON:

Q. Please state your name.

A. William Tobin, T-o-b-i-n.

Q. What is your current occupation?
A. I am a forensic metallurgist, materials scientist consultant.
Q. What specialized qualifications do you have to qualify you as a forensic metallurgist and materials scientist?
A. I have a Bachelor's of Science degree in Metallurgy from Case Institute of Technology in Cleveland, Ohio. I continued my formal education and graduate school at Ohio State University at George Washington University and the University of Virginia.

I acquired practical experience from my employments as a plant metallurgist at Chase Brass and Copper Company, with Monarch Aluminum Company, and in research at the National Aeronautics and Space Administration, and Battelle, B-a-t-t-e-l-l-e, Memorial Institute in Columbus, Ohio.

I spent 27 years as a special agent in the Federal Bureau of Investigation, the last 24 as a forensic metallurgist at the FBI laboratory.

I visited numerous metal manufacturing and processing plants throughout the United States and Taiwan.

I have been a guest speaker or lecturer for virtually all of the professional metallurgical societies throughout the United States and in Canada, and including four universities.

I have authored a number of forensic publications in the

field of forensic metallurgy and materials science.

That's all that comes to mind.

Q. Okay. Let me ask you, you mentioned working as a forensic metallurgist, materials scientist for the FBI. What were your duties while you worked for the FBI?

A. Primarily to evaluate all manner of solids and fluids, fluids being liquids and gases, and their interactions.

But the bulk of my work was examining metal, metal evidence in all types of crimes and events relating to metals.

Q. Did you conduct toolmark examinations while you were with the FBI?

A. Yes.

Q. How often?

A. On average, I would say roughly once a week, maybe.

Q. Did you work with firearm and toolmark technicians or examiners while at the FBI?

A. Yes, I did.

Q. Did you use the same equipment or instrumentation that was used by the firearm examiners at the FBI?

A. Yes. I did add an advanced scientific technique known as interferometry for some period of time, but I used the basic comparison microscope, yes.

Q. Are you a member of any scientific professional organizations?

A. Yes, I am.
Q. Can you tell us what some of them are?
A. I'm a member of the Society for Experimental Mechanics, the American Society for Metals, the American Society for Testing and Materials, the National Association of Corrosion Engineers, and others that don't immediately come to mind.
Q. Now, you mentioned that you have published in the course of your professional activities. Have you also worked on research projects?
A. Yes.
Q. What type of research projects have you worked on?
A. In my law enforcement career, they would entail various -- the scientific methodologies underlying certain forensic practices.

In the mid1980s I researched the certain forensic practice that appeared to be flawed in the field of arson and fire investigation, conducted research with a co-researcher, and we published our findings on that practice.

I then evaluated another practice that was in contradiction to basic metallurgical principles.

Q. Let me go -- before we move on to that, so if I understand you, you and others raised a challenge to an aspect of arson and fire investigation?
A. Yes.

Q. And was your challenge based on the scientific principles?
A. That's correct, yes.
Q. And what was the end result of that?
A. The field recognized the deficient practice, that it was flawed, and eventually vacated or abandoned the practice. And our research publications or findings are now published in the National Fire Administration's training materials.
Q. Okay. And you were about to go on to a topic involving metallurgy. Before I cut you off, is that where you were headed?
A. Yes.
Q. Okay. So tell me about that. I'm sorry, I interrupted you.
A. The second research was to investigate the efficacy of practice and the foundational scientific principles underlying comparative bullet lead analysis. The acronym we shortened it to was CBLA.

And therein was the -- the existing practice was to compare bullet compositions in an effort to opine source attribution or also known as individualization, quite similar to the current practice of firearms/toolmarks.

And that practice defied what metallurgical field -- principles known to exist in the metallurgical field, so we

investigated the scientific principles underlying that particular practice.

Q. So did you feel that the analysis on CBLA, on comparative bullet lead analysis, was based on the scientific method?

A. The first portion of the practice was effectively based on the scientific method, yes. But the ultimate entrance phase was terribly flawed, and in fact is quite analogous to the current practice of firearms.

We did not challenge the analytical aspects. In fact, it was very effective, used some very sophisticated analytical instrumentation for 25 years using a nuclear reactor. The analytical phase was very well scientifically founded.

But the ultimate inference of source or known as individualization was what we determined to be flawed.

Q. Let me ask you this. When you were raising the challenge to CBLA, were you a qualified comparative bullet lead analyst?

A. No.

Q. Did you ever attend any classes on bullet lead analysis?

A. No.

Q. Did you receive any training on comparative bullet lead analysis?

A. No.
Q. Did you as a forensic metallurgist and a materials scientist study the literature in the field of bullet lead analysis.
A. Yes, and that was quite exhaustive.
Q. And as a result of your review of this literature, did you challenge the practice of CBLA analysis based on a flawed scientific method?
A. Yes.
Q. Was a National Academy of Sciences committee convened to study this issue?
A. Yes.
Q. And what was the end result of your research and of the challenge to CBLA?
A. The end result was that the National Academy of Sciences vindicated our position.

And the primary proponent of the evidence, the FBI laboratory itself, announced in a press release on September the 1st, 2005, that they were vacating the practice, and concurred that there was no probative value in the practice.
Q. Okay. So this is a technique that the FBI doesn't follow anymore?
A. That's correct.
Q. About how long did this research and challenge take,

ballpark?

A. The first phase of it took three or four years.

The second phase, which we haven't discussed, was what I call the density and distribution demographics of the product itself, which is somewhat similar to the firearms considerations.

But the first phase, in answer to your question, was about three or four years before I actually started the research into how the product was distributed and/or concentrated in local regions or areas.

Q. And by that, you mean geographically?

A. I'm sorry?

Q. You mean geographically?

A. Yes.

Q. Okay.

A. That was the second phase of the practice, and that I had performed for several years before one of my colleagues and friends and co-authors, Professor Simon Cole at the University of California, asked to join the research and we could use his students as researchers as well.

So he joined, and then we were probably another two years. So that second phase was probably another maybe three years or four years.

And then the final research that we conducted with other colleagues was we researched issues relating to the

John F. Kennedy assassination. And we unknowingly -- I didn't even know -- we had won the 2008 Statistics in Chemistry Award for our research into the JFK assassination.

Q. And in your CV, I saw that you had an appearance on the TV show *60 Minutes*. Is that in connection with your CBLA work?

A. Yes.

Q. Okay. You mentioned you have published in the field of forensic metallurgy, materials science. How many papers have you published?

A. Total? A total of I believe it's seventeen papers, and we have one in publication as we speak.

But you mean on bullet lead or total?

Q. In total.

A. Total? My recollection is, as I sit here, seventeen already in print.

Q. And you said you have a paper pending publication?

A. Yes.

Q. What is the topic of that paper pending publication?

A. It's a long title. *Analysis of Experiments in Forensic Firearms/Toolmarks Practice Offered as Support for Low Rates of Practice Error and Inferential Certainty*.

I would have to -- may I refer to my -- is that close enough?

Q. Yeah, that's close enough.

So in a nutshell, the paper that's pending publication has to do with firearm and toolmark analysis?

A. Yes.

Q. Has that paper been peer reviewed?

A. Yes, in the more rigorous scientific manner known as refereeing.

Q. And what does refereeing mean?

A. That's a very stringent form of peer review where the authors submit their draft or the manuscript to the editors. The editors -- well, we submit it in a blinded form, but if it's not blinded, the editors will redact the identifying information.

The paper is then sent out to other mainstream scientists for critique. The other scientists will critique the paper, submit their evaluations and comments back to the editor.

The reviewers' identities are then redacted and the critique is then sent to the authors to address the issues that are raised.

That's the process known as refereeing, and they typically send them to three -- most journals will send it to three other scientists, sometimes two, but --

Q. Your paper pending publication, where is it to be published? What publication will publish it?

A. By the Oxford University Press. It's a journal called

Law Probability and Risk.

Q. And is that an indexed journal?

A. Yes.

Q. Have you been qualified as an expert in the field of forensic metallurgy, materials science, and tribology before?

A. Yes.

Q. How many times have you testified as an expert metallurgist, materials scientist, before?

A. My recollection is -- well, excluding my congressional testimonies, I have been qualified in 240 proceedings in 44 states.

Q. Let me show you what has been marked for identification purposes as Defendant's Exhibit No. 5.

Is that a copy of your CV?

A. Yes.

Q. And does it accurately set out your qualifications as we have discussed them this morning?

A. Many of them, if not most.

Q. Okay. Thank you.

MS. JOHNSON: I would move Defense Exhibit 5 into evidence.

MS. HACKWORTH: No objection.

THE COURT: It's admitted.

BY MS. JOHNSON:

Q. Have you prepared a Powerpoint as a demonstrative aid to help illustrate your testimony this morning?
A. Yes.
Q. With your permission, I will just click through the slides as we go through your testimony.
A. Sure, yes.
Q. Okay. Can you define metallurgy for us?
A. Metallurgy is the science of solids and fluids and their interactions again primarily of metals. The program through the years has metamorphosed into materials science with some modifications, but it's basically the same as materials science.
Q. Okay. And does metallurgy have an effect on toolmarks? Is it relevant to toolmarks?
A. Yes. It's the most relevant scientific discipline dealing with the interactions of the various components and ammunition.
Q. And what is tribology?
A. Tribology is the science and engineering of solids in relative motion and in contact with each other. Basically it encompasses issues such as friction, lubrication and wear.
Q. Can you give us an example?
A. For the case at bar, it would be, for example, the bullets or the projectiles as it's traveling through the barrel, it would entail tribological interactions.

Interactions between the cartridge case and the firing pin or the ejector or the extractor or the breech face, these would be tribological interactions that entail various aspects of friction, lubrication and wear.

Another example might be during the production or manufacturing processes, there are also serious tribological issues during those phases of a firearm's life.

Q. Now, have you researched and reviewed the domain literature relating to toolmark examinations?

A. Yes.

MS. JOHNSON: Your Honor, at this time, I would tender Mr. Tobin as an expert materials scientist and a member of the relevant scientific community for assessing the scientific foundation of firearm and toolmark examinations.

THE COURT: Any objection?

MS. HACKWORTH: No objection, Your Honor.

THE COURT: He's admitted for that purpose.

BY MS. JOHNSON:

Q. Mr. Tobin, what are striations?

A. Those are physical manifestations of tribological interactions, typically linear characteristics, tribological interactions of two items in relative motion under various stresses.

Q. So in a layman's language, it could -- it can be

scratches or marks?
A. Yes.
Q. Okay. Thank you.
What is the scientific method?
A. The scientific method is a process --
THE COURT: I understand scientific method. Let's move on.
MS. JOHNSON: Then I will skip that.
BY MS. JOHNSON:
Q. Let's turn to how the scientific method applies to toolmark examinations. Is there a scientific acceptable protocol for toolmark examinations?
A. Acceptable protocol?
Q. Yes.
A. No.
Q. You heard Mr. Webb talk about the AFTE's Theory of Identification, and I have put it up on the screen for you. Is that an acceptable scientific protocol?
A. No.
Q. Now, on the slide that you have prepared, I see that you have different colors for different words. And you actually have a small screen in front of you, if that helps you too. Whatever you prefer.
Why did you change the coloring on some of the words in the definition?

A. The different colors are to indicate very ill-defined or very vague terms that comprise the AFTE Theory of Identification that are quite unacceptable in a scientific protocol and/or unfounded.

Q. Okay. And can you give me a specific example looking at the definition?

A. Sure. For example, sufficient. What is sufficient? That term will vary from person to person and is a very subjective term.

The term agreement, what is agreement?

What is significant duplication of random toolmarks?

Practical impossibility is unfounded, and that's also vague given that there are no probabilistic models characterizing that representation.

And then, of course, at the very bottom, based on the examiner's training and experience, and training and experience is unacceptable as proof for an inductive hypothesis testing in the field of science.

Q. Now, what does the AFTE Theory of Identification require an examiner to do?

A. It requires the examiner to recall the best -- well, it's quite challenging on cognitive retention issues. It requires an examiner to recall the best matching nonmatch that he or she can remember.

The challenging aspect is in part because this is a

pattern-matching practice that uses the most elementary geometric form in nonunique combinations of -- I'm sorry, nonunique most elementary geometric form, and that's lines, to match each other.

So it requires an examiner to recall spatial relationships and line qualities throughout his or her career. For example, what he or she saw yesterday, what he or she saw last week, what he or she saw last year, and will vary with experience with an examiner and even geographic locations.

Q. So in the end, this is a subjective call by the examiner?

A. Yes.

Q. Do you know if the AFTE community is aware of this issue of subjectivity?

A. Yes. The AFTE Theory of Identification even acknowledges that it's a subjective practice.

And I did in my literature research uncover some internal memos indicating a recognition of the risks and the dangers of the practice, even characterizing it as inefficient and ineffective in its current state.

Q. Now, are there underlying premises required for the AFTE theory to be valid?

A. Yes.

Q. What are they?

A. The two primary premises required to be valid would be that of uniqueness and the second premise of repeatability.

I would caution that repeatability and reproducibility as terms used in the domain are not the same as indicated in the scientific community. So I'll try to delineate which definition we are referring to.

Q. Okay.

A. But the answer to your question is uniqueness and repeatability.

Q. Okay. How do scientists view the premise of uniqueness with regards to firearm and toolmark analysis?

A. The mainstream scientific community considers individualization a fallacy.

And in fact, with regard to the premise of uniqueness, there are two aspects of uniqueness. There is the esoteric definition of uniqueness. At some level above the subatomic, scientists do accept that uniqueness probably does exist, but the reality and what's more seminal to the practice are the pragmatic issues.

So there are two types of uniqueness. We don't generally deal anymore with the esoteric issue of whether uniqueness does or doesn't exist.

The more seminal pragmatic concern is discernible uniqueness. Can a human observer, is he or she at some level able to discern differences such as to call them unique.

So in other words, there are two -- there is the esoteric issue, and then there is the practical definition or concern of discernible uniqueness.

Q. Let me ask you this. Assuming -- and I know they are not the same size, but assuming that I have two Dasani water bottles that are the same size and to the naked eye they look identical.

So are you saying that at some subatomic level, they are going to be unique? Is that what you are saying?

A. At some -- not subatomic, but above the subatomic level.

Q. Okay.

A. It's probably unique. They are probably unique, but the key question is discernible uniqueness. Can a human observer discern that level of uniqueness.

Q. Now, you have talked about repeatability and reproducibility. What is repeatability?

A. In the scientific community, repeatability is the characteristic in the scientific process of the same experimenter being able to duplicate the results or the outcome of trials of his or her experiment over and over.

Q. Okay.

A. Reproducibility is the trait where an outside or external examiner would be able to reproduce the results.

Now, in the field of firearms/toolmarks, the term is used generally to indicate and the second prong -- second

required premise is that of repeatability, and that would be manifest by the ability -- the characteristics that are observed to be continually repeated through repeated firings.

You might want to put the next slide up.

Q. Okay. Yes, sir.

A. In other words, that bullet number one hundred, bullet number one thousand, will exhibit sufficient similarity of characteristics as to be repeatable through many, many firings.

The second prong, however, for which the field has been -- has ignored -- in other words, repeatability is a double-edge sword, and the one side of the sword has been ignored for decades, and that is repeatability in the manufacturing process.

So it is illogical that that premise behaves one way in service but is totally completely different in the other end, the other side of the sword, if you will.

So the repeatability is required in knowing that let's say a weapon is recovered at some temporally remote -- at some different time after a crime has occurred. The premise assumes that because of the premise of repeatability, that examiners will be able to conduct test firings and that the bullets acquired during that test firing will be comparable to the bullets recovered from the crime scene.

But it's illogical with that assumption to then assume that that doesn't occur in the factory during the production process. And I would argue -- or we would argue that in fact there is more repeatability in production because of the advances in tool surfaces, in materials -- for example, tungsten carbide is some of the hardest material known to man on the level of near diamond.

And so the repeatability, you can't assume that the characteristics are so volatile, they were randomly -- volatilization at the manufacturing level is quite high and yet it's constant out in the field during repeated firing. So there is a serious contribution in their assumptions on that area.

THE COURT: Can I just interject something?

MS. JOHNSON: Yes.

THE COURT: If this testimony is supposed to help me with understanding, it is incomprehensible to me. I don't know what you are trying to accomplish.

And, sir, I don't know what you are trying to accomplish, but I can't distinguish between your personal opinions about things, what the test is. It is redundant and it's confusing and it's not very understandable.

This is a court of law. I thought since you were an FBI agent, you understood that you have a responsibility to make your testimony understandable to somebody who is

trying to determine facts. You are not accomplishing that.

THE WITNESS: I don't --

THE COURT: You have just given a two-and-a-half-minute academic discussion embedded with words that most people in this courtroom don't understand because you are not tailoring your testimony to people like me to help me understand what you are trying to say.

So if you want to accomplish understanding, then you need to quit giving a lecture to a bunch of graduate students and understand what your responsibility is here.

BY MS. JOHNSON:

Q. Mr. Tobin, let me try to --

THE COURT: And I will tell you this. I have read a lot of cases now, including about your testimony, and it is the function of me -- and you understand that because you have been in law enforcement -- for me to make evidentiary decisions.

This is a hearing for me to make an evidentiary decision. It's not an opportunity for you to give me a metallurgical pedagogical lecture. So what you are doing is not helping me perform my judicial duties.

BY MS. JOHNSON:

Q. Mr. Tobin, let me see if I can get us focused on the

specifics of toolmark analysis and your opinions based on your research in that field. Okay?

THE COURT: Let me ask a couple of predicate questions.

MS. JOHNSON: Yes.

THE COURT: I mean, I know enough about this case and about this process to know that at some level, if you had a known firearm from which you fired a bullet, and you compared it to a bullet to see whether or not it was fired from a known firearm, that there is -- that everybody knows -- you know because I understand you have done this work before, you have done these comparisons, and you testified about these comparisons; correct?

THE WITNESS: Yes, Your Honor.

THE COURT: So at some level you agree that there is acceptable admissible testimony when you are making the sort of comparisons that you know about and that you yourself have done and about which you have testified about before. Do you agree with that?

THE WITNESS: Yes, Your Honor.

THE COURT: So you could take a known bullet fired out of a firearm, do this microscopic comparison with a hairline to see whether or not you could reach an opinion that the unknown source bullet came from the known weapon that fired the known bullet. Would you agree with that?

THE WITNESS: In that test procedure, yes, Your Honor.

THE COURT: Yes. The FBI does that all the time. They testify about that all the time.

THE WITNESS: Oh, I'm sorry, I thought you were characterizing a test environment. Are you talking about comparing it with a recovered weapon?

THE COURT: Well, I think these are simple. So here is the crime. Somebody used a weapon, and they found that on the defendant at the time that he was arrested. It is suspected that a bullet found in another crime scene came from that weapon, but you don't know.

You as a laboratory person would get the weapon and you would get the bullet to see whether or not it is excluded or inconclusive or you could establish that that bullet from the other crime scene came from the weapon you know about.

So you would test fire that weapon a couple of times; correct?

THE WITNESS: I missed the last part. You would testify --

THE COURT: You would test fire the weapon?

THE WITNESS: Oh, test fire, yes, sir.

THE COURT: You would retrieve the bullets that were fired?

THE WITNESS: Yes, sir.

THE COURT: And then you would put the known bullet from the known weapon under a microscope, and you will compare it with the bullet, the source of which was unknown. And you would compare them under the microscope to see if you could reach an opinion that the bullet that was recovered from the other crime scene was fired from the gun that you know was the source of the two bullets with which you were making a comparison; correct?

THE WITNESS: Everything was fine until the last. That's jumping down to the very bottom line is we take no issues with the process or the practical comparisons. The ultimate inference that it came from a specific source is unacceptable in the scientific community.

THE COURT: So to the extent that you expressed that opinion in courts before, you should not have done that; right?

THE WITNESS: I never have, Your Honor.

THE COURT: So you have never testified that you compared a known bullet with an unknown bullet and expressed any opinion about whether or not they were fired from the same weapon even though you know the weapon?

THE WITNESS: That's correct.

THE COURT: You have never done that?

THE WITNESS: No, Your Honor. My testimonies have

been to subclass subsets, population subsets, that it came from the same production lot, but never to a unique specific source.

THE COURT: So you have never -- and this was when you were employed by the FBI. Were you ever asked to do that? Or did you say, no, I can't go that far, all I can say is it comes from a subclass?

THE WITNESS: Oh, I have been asked to opine individualization, and I have resisted and indicated that the science doesn't support an individualization. That it came from the same production lot in my opinion, but I have not opined an individual source or a specific source.

In other words, I never said this product came from this particular source unless it's a fracture.

THE COURT: And so when you went to court and testified, you would only go so far as to the sublevel?

THE WITNESS: Yes, Your Honor.

THE COURT: Did other people from the FBI testify further than you were willing to testify personally?

THE WITNESS: Oh, sure, but in their own domain. In other words, I was not a qualified firearms examiner *per se*.

THE COURT: Oh, I see. So you weren't even qualified to do that in the FBI, so they would never put you up for that issue?

THE WITNESS: Not with regard to the pattern matching practice of bullets and cartridge cases. But I was frequently consulted -- or periodically consulted for issues relating to let's just say unusual circumstances that might arise where the firearms examiner might question why he was seeing what he was seeing or why he was not seeing what he expected to see.

THE COURT: Okay. So let me -- which we probably should have done when you qualified. So you were not qualified and you have never done the kind of analysis that I just described?

THE WITNESS: I have in toolmarks.

THE COURT: Because that's -- the question is about bullets and casings. When you were at the FBI, were you qualified to be able to look at a known bullet and an unknown bullet to reach -- to do the analysis to reach an opinion whether they were or were not fired from the same weapon? Were you qualified to do that?

THE WITNESS: I was --

THE COURT: Certified as a person, as an employee at the FBI lab, were you certified to do that?

THE WITNESS: Not as a firearms examiner, no.

THE COURT: And you have never testified about that in any case or hearing; correct?

THE WITNESS: No.

THE COURT: All right. So that gives me a better understanding of what you have and have not done.

So are you here today to tell me that at no level is that comparison that ballistics examiners do, which you are not one, is ever useful or admissible in a case?

THE WITNESS: Oh, no, Your Honor. In fact, I'm on public record as indicating that I do not have issues or I don't take issue with the practice, and I find them to be very effective at finding and comparing similarities in the pattern-matching practice. In other words, this bullet exhibits quite an impressive concordance, if you will, or similarities to opine that they are so similar.

But in fact I even indicated -- I'm on record as indicating I find the practice of firearms/toolmarks is still in my opinion one of the top three most effective probative tools and has significant probative value.

However, the ultimate inference of specific source attribution -- in other words, that it came from this gun to the exclusion of the other ten thousand guns that came in that production lot -- is scientifically unfounded.

THE COURT: So you are -- I mean, one of the problems with this is I have reread the defense's submissions, and it's unclear what you are challenging, and I'm trying to figure this out for myself.

I think that what you are challenging is the

specific opinion, however it's expressed in this case, because there are lots of other cases and I don't want to waste time going over all the variants, but in this case where there has been a review of two bullets and two casings -- or bullet fragments in this case and two casings which are not fragments through the analysis that we heard about yesterday, that your and the Iowa State doctor who testified yesterday, your objection is for anybody to go so far as to say that based upon that analysis, that a conclusion to some acceptable scientific degree of certainty came from a specific weapon. Is that correct?

THE WITNESS: Yes, Your Honor.

THE COURT: And is that your objection to the testimony?

MS. JOHNSON: I have two objections.

THE COURT: Is that one of your objections?

MS. JOHNSON: That's one objection. That's my second objection.

My first objection is that the evidence should not come in at all.

THE COURT: But for --

MS. JOHNSON: The second --

THE COURT: But for this reason, that there is not sufficient scientific certainty in the analytical process to express an opinion that they came from a single distinct

weapon that was the source?

MS. JOHNSON: Correct, correct.

And my second objection, which is if the evidence does come in, then I would -- I'm asking the Court not to allow the examiner to testify to a degree of practical certainty, because that is in my position not supported by statistics.

And there is a number of cases where --

THE COURT: I have read every case on this.

MS. JOHNSON: Okay.

THE COURT: I have read more cases than you cited, so I understand the issue.

MS. JOHNSON: Okay.

THE COURT: But I'm thankful that you now have really specifically articulated that, because now I can decide the motion more clearly.

MS. JOHNSON: Okay.

THE COURT: But I will tell you, all of this esoteric pedagogical description is not necessary to get -- now that we focused in on this specific issue.

MS. JOHNSON: Okay. Then let me see if I can move along.

BY MS. JOHNSON:

Q. Mr. Tobin, I want to show you this photo in your Powerpoint.

What do those show? What does that photo show?
A. This photo demonstrates a strikingly similar set of cartridge cases under the microscope. Again, there is the split screen image there, right along here, showing two -- the striking similarities between two cartridge cases that were fired from different firearms.
Q. Okay. And let me show you that photo. What does that show?
THE COURT: By the way, I don't find those as strikingly similar. It doesn't surprise me they are from two different firearms. And I have got to say, all I have is an English degree.
A. The second set are bullets fired from two different barrels showing a significant and striking -- and this is the terminology used by the firearms/toolmarks authors -- strikingly similar concordance of striations.
THE COURT: But I thought those were from two different weapons, aren't they?
THE WITNESS: Yes, Your Honor.
THE COURT: That is self-evident.
BY MS. JOHNSON:
Q. Let me ask you about the study from Miller. What does that study tell us?
A. That just basically says that during the firearms/toolmarks studies in the literature, that in

testing, they have found that it's not uncommon that different weapons exhibit more matching characteristics than bullets fired from the same weapon. And that's from Miller and Neel --

Q. Okay.

A. -- as an example of what other researchers have found.

The second --

Q. Oh, I'm sorry, I'm sorry.

A. The second phase relates to a study known as the AB-1717 by DeKinder, and what they did was they were trying to establish some federal databases -- and in fact this may have been what was part of the basis of the current federal databases.

But what they found is they would test fire -- or they would fire bullets and cartridge cases in known weapons and enter them in a database, and this was in part to try to eliminate the subjective matching.

But -- and so what they found, though, was that every subsequent entry or entries, rather, the computer would be called upon to say, okay, based on your database that you have already got stored, what bullets or cartridge cases are the highest candidates of being possible sources of these particular bullets.

But what they found is as more and more bullets were entered into the database, the position of known candidacy

was degraded over time. In other words, to the point actually where the known gun that fired the particular bullet didn't even appear in the top ten or fifteen most likely candidates.

Q. Okay. Let's talk briefly about the effects of technology on firearm identification.

A. This basically just says that with time and advancements in materials, that production lot sizes in the industry have gotten larger and larger because of reductions in tool wear during the production process.

So what may have been in earlier years only maybe several hundred weapons could be manufactured before the tooling had to be changed, they can now do thousands or tens of thousands of guns in the same lot before the tooling has to be changed.

The second aspect indicates that part of the advancements have been what's known as CNC or computer numerical control, so that, as was my charge when I was a plant metallurgist, production continuity is a considerable concern to plant metallurgists, so they are now precisely controlling the conditions that cause these patterns to be transferred to various work products.

And then basically we are just indicating here that the tools are more and more durable over time.

Q. Let's switch topics and talk about validation studies.

A. Okay.
Q. Are the validation studies scientifically reliable?
A. Almost universally no, but I would need to make a distinction between what's known as internal validity and external validity.

Some of them are -- do have what's known as internal validity, and that's -- I don't know if I have a slide for this.

Q. Let's -- maybe we don't, Mr. Tobin.
A. Oh, yes, it's three later.
Q. Oh, there we go.
A. Yes. Internal validity of an experiment is the basic minimum without which -- that is needed to be able to interpret or to give that experiment meaning.

External validity is the property of does that -- do the trials or the experiment allow generalization or extrapolation to the external community. It's called generalizability.

So in other words, is the experiment effective to prove what the experimenters were trying to prove or show or demonstrate, and then the second phase would be but now can those results be extended to other populations or subsets.

Q. Okay. Let me ask you --
A. I'm sorry, if I can finish my last part?
Q. I'm sorry.

A. So some of the validation studies do have internal validity. Some of them are -- but almost the significant portion of them have virtually no external validity.

Q. Okay. Now, you testified before that toolmark identification is a subjective practice?

A. Yes.

Q. Can a subjective practice be validated?

A. Not without a protocol.

Q. I want to go back --

A. I'm sorry, not without an objective protocol.

Q. I want to go back and talk about specific studies that Mr. Webb testified about, and one of the studies was the Hamby 2009 study.

You are familiar with that study?

A. Yes.

Q. Okay. I take it from your slide you have problems with that study?

A. Yes.

Q. Can you --

THE COURT: You know, again, I think we are getting lost in the weeds here.

MS. JOHNSON: Okay.

THE COURT: I once had a case where we looked at radial keratotomy and a scientific protocol to evaluate radial keratotomy for its scientific efficacy. So, you know,

I have been immersed -- for three years I was immersed in that.

The question here is what part of this process is this witness okay with and what part is he not okay.

Now, I understand that he does have a problem with a final expression of an opinion -- and I have heard enough from him to understand I think the foundation for that -- to say that where in a case like this where you have two fragments and two casings, to look at those and compare them under the microscope to say, however you express it -- and I have said this before -- say that they came from the same firearm.

I'm pretty right about that, that you have a problem with that?

THE WITNESS: Yes, Your Honor.

THE COURT: Okay. Because you believe that there is not a scientific foundation, whether there has not been enough study or whatever, today in 2012 to reach that sort of opinion, although it's possible sometime in the future that maybe we could?

THE WITNESS: Yes, Your Honor.

THE COURT: And you and the doctor yesterday would love to get one of those billion-dollar grants to be able to do that study to be able to validate it, but under the current environment you are not going to do that.

Now, I further understand from what you told me so far is that with respect to the process that Mr. Webb described and that we all know about, because we all lived long enough, we have actually seen this reproduced on TV programs time after time, that there is some value in looking at two things that you think might have been fired from the same gun and casings you think might have been fired in the same gun to making those comparisons, and that you can learn something from those comparisons and that there is some value in that.

And I think you have said that, and I think you said you are on record as to that?

THE WITNESS: Yes, Your Honor.

THE COURT: Am I right so far?

THE WITNESS: Yes, Your Honor.

THE COURT: But I think what you are saying is you can only go so far in that when you go the extra mile and say now I, as the examiner, have reached an independent conclusion that they were fired from the same gun, that you can't go that far, because the scientific study, the research and the community doesn't support that final expression of a conclusion. Am I okay so far?

THE WITNESS: Exactly. Yes, Your Honor.

THE COURT: So that doesn't mean that from the analytical view -- let's forget about the opinion for a

second, but going through what we talked about so far and that you know about and what was talked about yesterday, that you can't reach some less-than-exact conclusions that you have a lot of problem with -- and I might say I have a lot of problem with -- to say that there is certain consistencies in the comparison.

You just can't say, and by the way, those consistencies lead to a final opinion that they were from the same gun. They just might be consistent with the possibility that they came from the same gun. Is that fair?

THE WITNESS: That's quite fair. And I think the simplest time-saving bottom line is my and my colleagues' position is the strongest opinion in the current state of affairs that science -- the strongest scientifically-defensible opinion that can be rendered today is that, quote, based on the characteristics exhibited, comma, in my opinion -- which would be the first caveat -- it's possible that these bullets were fired in this particular firearm.

In other words, it's possible. And that's the strongest opinion that science will allow today.

BY MS. JOHNSON:

Q. And in connection with testifying that that is the strongest opinion that can be given today, you have looked at the different validation studies that the government has cited; is that right?

A. Yes.
Q. Okay. And you have seen flaws in the validation studies; is that right?
A. Yes.
Q. And that is why you believe the witness cannot go beyond the -- what you define as the possible testimony?
A. Yes, consistent with possible. That's the strongest opinion.
Q. Okay.

MS. JOHNSON: Judge, my next section was to walk through the validation studies specifically, because Mr. Tobin has the paper that's pending publication, he analyzes the different validation studies. So would you like me to go into that area, or do you feel you need to --

THE COURT: I think I know where he's going to end up.

I guess my question to the government is is there any objection with that limitation on any final expression of a conclusion?

MS. HACKWORTH: One moment, Your Honor, let me confer with Mr. Webb.

Your Honor, I wanted to confer with Mr. Webb to get his opinion on this. Mr. Webb has relayed that to say -- in the firearm/toolmarks world to say that it is possible that two bullets were fired from the same firearm would be the

equivalent of saying that he basically reached no conclusion. And so --

THE COURT: Well, I actually don't like that iteration, because we are dealing with a term I don't think a jury would understand very well.

But, I mean, the way I was thinking about it is that after he describes the comparison, that he would say that the comparison results in similarities that are consistent with having been fired from or in the same weapon.

MS. HACKWORTH: Your Honor, I think Mr. Webb and the FBI lab would be comfortable with that, but he suggested one additional step, and I guess we can get defense counsel's opinion as well. Could we also have him say that would be consistent with having been fired from the same weapon and inconsistent with having been fired from a different weapon?

THE COURT: I think that undercuts the consistency.

MS. HACKWORTH: So, Your Honor, we would agree. We would agree with you, Your Honor.

THE COURT: I mean, I have got Mr. Tobin here who, now that we have gotten to more a plain-speaking discussion in a more practical setting, is that what -- from the people that I sit -- that sit over in that box every day and that I

talk to for a long time after trials, I have got a real good sense of what jurors in this and probably any district can and cannot assume.

I think that all that we are trying to inform them about is we have done this comparison, without going into a lot of detail about all the microscopes -- and I think that should be shown. Just like we saw pictures up here, let them see all of that.

And that the opinion that I think is defensible that doesn't violate what I have my own concerns about as far as the exactness is that -- and that's why in my mind this morning I kind of went through how all of this will roll out, and said that the comparison results in similarities that are consistent with the fragments or the casings having been fired from or in the same weapon. Do you have any problem with that?

THE WITNESS: No, no, Your Honor.

And if I may offer, I don't think counsel, neither counsel nor I propose that this would actually be the same presentation that goes to the jury. I tend to put my sixth to eighth grade science hat on when we are talking to jurors. So I apologize for the maybe --

THE COURT: Well, you went to the Ph.D. version for me. I mean, I don't consider myself somebody who can't assimilate a lot of difficult information, but even this was

too difficult for me. So I needed to bring it back home to this case.

THE WITNESS: Yes, Your Honor.

THE COURT: Is everybody okay with that expression of an opinion?

MS. JOHNSON: I am, Your Honor.

MS. HACKWORTH: The government is comfortable with that, Your Honor. Thank you.

MR. HOLLINGSWORTH: We are okay with that, Judge.

THE COURT: So are we done?

MS. JOHNSON: We are.

THE COURT: Too bad it took us this long to get here.

THE WITNESS: Thank you, Your Honor.

MS. JOHNSON: Thank you, Judge.

THE COURT: Now, so what I have just said is going to be the limitation on Mr. Webb's opinion. And I just want to make sure that there is no objection to that limitation, is there? Starting with the defense, is there any objection to that limitation?

MS. JOHNSON: Not from Mr. Jackson, Your Honor.

THE COURT: All right. Mr. Hollingsworth, any objection from Mr. Durham?

MR. HOLLINGSWORTH: No, Your Honor.

THE COURT: Any objection from the government?

MS. HACKWORTH: No, Your Honor.

And I would just like to repeat to make sure that I have Mr. Webb properly prepared. And we will say no more than the comparison results in similarities that are consistent with having been fired from the same firearm.

THE COURT: From or in I think as it pertains to the cartridges.

MS. HACKWORTH: Yes, Your Honor.

THE COURT: And here is my strong suggestion, because now that I have seen enough of these pictures, including the ones you have shown this morning, is that I think the jury ought to be shown the pictures and the comparisons. Are you capable of doing that?

MS. HACKWORTH: We are, Your Honor. We have them. It's just a matter of getting them uploaded. We can certainly do that.

THE COURT: I just think that opinion would be better -- we would better inform the jury and they would better understand that if they actually saw the analytical work that was done and can see what Mr. Webb saw.

MS. HACKWORTH: Certainly, Your Honor.

THE COURT: All right. You have got a free trip to Atlanta.

THE WITNESS: Am I released, Your Honor?

THE COURT: Pardon me?

THE WITNESS: Am I released?

THE COURT: Is there --

MS. JOHNSON: I don't have any further questions, Your Honor.

THE COURT: All right. Yes. Thank you for being with us, and thanks for your help in kind of getting to the bottom of it.

THE WITNESS: Thank you, Your Honor.

MS. HACKWORTH: Your Honor, if I may, just for purposes of completing the record we made so far, we have prepared a copy of that last -- the document that Mr. Webb said had the modification based on the error that was made from his proficiency test.

THE COURT: Right.

MS. HACKWORTH: So we tender that as Government's Exhibit 4. And defense counsel said they have no objection.

MS. JOHNSON: That's correct, Your Honor.

THE COURT: My view is that, having now had this discussion this morning, that there is no reason for me to rule on the motion, that we have agreed to the resolution that is requested by the motion. Is that right?

MS. JOHNSON: That is right, Your Honor.

I would prefer if we could have just a one-page order setting out the specific language.

THE COURT: I will do that.

MS. JOHNSON: Thank you.

THE COURT: Now, the only question is in the order, since we are dealing with two types of evidence, one fragments and one cartridges, maybe we ought to express those separately with respect to the fragments, because one it would be fired from and the other would be fired in. But it would be the same language.

Would that make sense for everybody?

MS. JOHNSON: Yes, and I have no objection to that.

THE COURT: How about for the government?

MS. HACKWORTH: This is fair, yes. Your Honor, we agree with that.

THE COURT: All right. There were some other things in your motion, one of which was the hearing. You got your hearing.

The other was provision of information about I think maybe more than what was in the report. But now that we have had this hearing, you got a chance to hear his opinion. I assume those are now moot; is that correct?

MS. JOHNSON: That is moot. Actually, after I filed my original motion, the government produced additional discovery that took care of my discovery issues. So that is moot.

THE COURT: Okay, great.

I have reviewed the two PSR reports -- two PSR reports, one of which there is nothing. I'm going to look at it one more time because I didn't get a chance to do it except right before we came in.

In one I think there is nothing. The other has an inconsequential bit of information, but I'm going to show it first, Ms. Hackworth, to you because you would see it anyway. But I think probably that should be produced. But I don't think it's earthshaking.

But I will get that to you, Ms. Hackworth. If you would look at it right away, maybe we could get that delivered.

We have already talked to his defense counsel. He doesn't have an objection to that disclosure. So I think that can be done today too.

MS. HACKWORTH: Thank you, Your Honor.

MS. JOHNSON: Thank you.

THE COURT: So what other issues while we are all together can we discuss or that we need to discuss?

MS. HACKWORTH: I don't think we have anything else for the government, Your Honor.

MS. JOHNSON: We don't have any other pending issues on behalf of Mr. Jackson.

THE COURT: Mr. Hollingsworth, anything else from you?

MR. HOLLINGSWORTH: No other issues, Your Honor.

THE COURT: All right. So if you want to ask some more *voir dire* questions, I think those are due noon tomorrow, or any comments -- so I have given you the limiting instruction. If you want to make some suggestions on that, pen-and-ink them and fax them or PDF them to me.

But I think the return date for you to get comments on all the things that we discussed yesterday is noon tomorrow.

MR. HOLLINGSWORTH: Yes, Your Honor.

THE COURT: Agreed?

MS. JOHNSON: Yes.

MS. HACKWORTH: Yes, Your Honor.

THE COURT: And when am I going to get requests to charge specific to the case?

MS. HACKWORTH: I can prepare mine today, Your Honor.

MS. JOHNSON: I will do the same, Your Honor.

MR. HOLLINGSWORTH: Judge, if I can have till noon tomorrow, if that would be acceptable?

THE COURT: Okay.

MR. HOLLINGSWORTH: I have just a few.

THE COURT: This might even be the rare case if you actually sat down with each other, it's a pretty straightforward instruction that's within the pattern

instructions, I think maybe you could actually submit one that everybody agrees to, which would facilitate the charge conference.

But that's only if you have time to do that. But that would be helpful to the Court.

MR. HOLLINGSWORTH: Yes, Your Honor.

THE COURT: All right. If that's all, then we will be in recess and we will see you Monday morning, 9:30.

MS. JOHNSON: Yes, sir.

MS. HACKWORTH: Yes, Your Honor.

(Proceedings adjourn at 10:16 a.m.)

C E R T I F I C A T E

UNITED STATES OF AMERICA :
:
NORTHERN DISTRICT OF GEORGIA :

I, Nicholas A. Marrone, RMR, CRR, Official Court Reporter of the United States District Court for the Northern District of Georgia, do hereby certify that the foregoing 50 pages constitute a true transcript of proceedings had before the said Court, held in the city of Atlanta, Georgia, in the matter therein stated.

In testimony whereof, I hereunto set my hand on this, the 25th day of July, 2012.

/s/ Nicholas A. Marrone

NICHOLAS A. MARRONE, RMR, CRR
Registered Merit Reporter
Certified Realtime Reporter
Official Court Reporter
Northern District of Georgia