

1 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA  
2 IN AND FOR THE COUNTY OF CONTRA COSTA  
3 BEFORE THE HONORABLE **THOMAS M. MADDOCK**, JUDGE

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5  
6 THE PEOPLE OF THE STATE OF CALIFORNIA, )  
7 Plaintiff, )  
8 vs. ) **No. 5-110816-6**  
9 **JOSEPH BLACKNELL**, )  
10 Defendant. )  
----- )

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12  
13 PARTIAL TRANSCRIPT OF PROCEEDINGS - 402 Hearing

14 CLIFFORD SPIEGELMAN

15 DEPARTMENT NO. 16

16 BRAY BUILDING, MARTINEZ, CALIFORNIA

17 **January 3, 2012**

18 APPEARANCES

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21 Deputy District Attorney  
Contra Costa County

22 For the Defendant: ROBIN LIPETZKY, PUBLIC DEFENDER  
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24 Deputy Public Defender  
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25  
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27 License No. 10126

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I N D E X

WITNESSES

For the People:    Direct    Cross    Redirect    Recross    Voir Dire

(None)

For the Defendant:

SPIEGELMAN, CLIFFORD	2	36	68	70
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E X H I B I T S

For the People:                    Identification                    Evidence

(None)

For the Defendant:

(None)

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1 January 3, 2012

2 Proceedings

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4 (The following proceedings were held  
5 outside the presence of the jury.)

6 THE COURT: We're back on the record in the  
7 matter of People versus Blacknell. Mr. Blacknell is  
8 present with his attorney, and the People are represented  
9 by Mr. Butts for the prosecution.

10 And I believe we have another witness to call?

11 MS. BRACKMAN: Right. Should I go ahead and call  
12 him to the stand?

13 THE COURT: Please do so.

14 MS. BRACKMAN: I would like to call Dr. Cliff  
15 Spiegelman.

16 THE COURT: If you would approach the witness  
17 stand. When you get there, remain standing and raise your  
18 right hand and madam clerk will swear you in.

19 CLIFFORD SPIEGELMAN

20 Called as a witness on behalf of the  
21 Defense, having been first  
22 duly sworn, testifies as follows:

23 THE WITNESS: I do.

24 THE CLERK: When you're comfortable, get close to  
25 the microphone, and please state and spell your name for  
26 the record.

27 THE WITNESS: Clifford Spiegelman,  
28 C-l-i-f-f-o-r-d, S-p-i-e-g-e-l-m-a-n.

1 THE COURT: Thank you.

2 And, counsel, you may proceed.

3 MS. BRACKMAN: Thank you.

4 Just for the Court's information, Dr. Spiegelman  
5 has a back issue, so I've informed him that if he needs to  
6 get up he may do so.

7 THE COURT: You're welcome to stand if you need  
8 to. I've been there and stood for that.

9 DIRECT EXAMINATION

10 BY MS. BRACKMAN: Q. Good afternoon, Dr. Spiegelman.

11 A. Afternoon.

12 Q. Can you please describe for me your educational  
13 background?

14 A. I have a bachelor's degree from Buffalo with  
15 three majors, math, economics and statistics, and I have a  
16 master's in managerial economics and decision sciences, and  
17 a Ph.D. in applied math and decision statistics from North  
18 Western University.

19 Q. And subsequent to your completing your Ph.D.,  
20 have you had various academic appointments?

21 A. I have. I was at Florida State for a year and a  
22 half, and I've been at Texas A&M for over 25 years.

23 Q. Okay. And what is your current position there?

24 A. Distinguished Professor of Statistics.

25 Q. And the Distinguished Professor of Statistics,  
26 what distinction is that from the rest of the faculty  
27 there?

28 A. There are about 60, including emeritus status,

1 out of over 2000 faculty.

2 Q. And have you also conducted research in areas --  
3 or in issues related to statistics?

4 A. That's essentially been my whole career.

5 Q. Okay. And the bulk of your employment, what you  
6 do day to day, is as an academic; is that correct?

7 A. That's correct. I teach and research the  
8 Distinguished Professors of Research Achievement. So I do  
9 a lot of research and I've taught lots of students.

10 Q. Okay. And how many number of research papers or  
11 experiments or projects have you been involved in? Could  
12 you can give an estimate?

13 A. Refereed over 100.

14 Q. And do you also have affiliation or association  
15 with various professional organizations?

16 A. I do.

17 Q. Okay.

18 A. I'm a fellow of the American Statistical  
19 Association, I'm an elected fellow of the Institute of  
20 Mathematical statistics, elected member of the Institute --  
21 International Statistics Institute, I'm on the board of  
22 directors of the National Institute of Statistical Science  
23 and on various committees.

24 Q. And have you received any honors or awards with  
25 respect to your work in statistics?

26 A. Yes.

27 Q. Are there any that are of significant -- I -- how  
28 many would you say?

1           A.     Four -- four -- besides being a distinguished  
2 professor, one I consider major, the SACKS Award is an  
3 award given by my --

4                     (Court reporter interruption.)

5           THE WITNESS:   The SACKS Award is given by the  
6 National Institute of Statistical Sciences, a national  
7 award. I was the 9th recipient. And three of my papers of  
8 which I'm co-author, I think -- first author on all of  
9 them -- no, first author of two of them, have won awards  
10 from the American Statistical Association.

11          Q.     Have you also been a member of a committee  
12 with -- associated with the National Resource Council  
13 National Academy of Science?

14          A.     Yes, on compositional bullet lead. I think the  
15 report was issued in 2004.

16          Q.     So your area of expertise is what?

17          A.     Varied. I'm sort of a Jack-of-all-trades in the  
18 profession. But environmental statistics -- I co-edited a  
19 chemistry journal for 26 years. So I do chemometrics. I  
20 have -- I'm also a senior research scientist at the Texas  
21 Transportation Institute. I do mobility studies -- or help  
22 with mobility studies. And I also, among other things, do  
23 forensics.

24          Q.     And you said Jack-of-all-trades within the  
25 profession. The profession is a statistician; is that  
26 correct?

27          A.     That is correct.

28          Q.     Can you tell me what statistics is concerned

1 with?

2 A. Yes. The design of experiments and surveys, that  
3 is, data collection, analysis, and interpretation from  
4 those experiments, as well as theoretical underpinnings of  
5 all of the previous things I've said.

6 Q. And what role do statisticians play in design of  
7 experiments? For instance, do high-level federal agencies  
8 rely on statisticians in creating of experiments or  
9 studies?

10 A. Yes. And, in particular, in health areas.  
11 There's a requirement of all studies to have an  
12 experimental section, and that's so resources aren't  
13 wasted. Lives are at stake often in medical studies so  
14 they have to have well designed experiments and analysis  
15 plans. So the requirement is that there be such a plan.  
16 And I'm not aware of any instance where somebody other than  
17 a statistician or statisticians or epidemiologists wrote  
18 those plans.

19 Q. That's for agencies such as the National  
20 Institution of Health and the Federal Drug and Food  
21 Administration?

22 A. FDA, Food and Drug Administration, yes.

23 And other agencies, to differing extents, require  
24 statisticians on planning experiments because that's what  
25 we're experts in. Resources are not infinite, and they  
26 like to make sure if they spend resources that some benefit  
27 comes from them.

28 Q. So statisticians are necessary in planning an

1 experiment as well as interpreting data correctly?

2 A. Yes, that's correct. The experiment is linked  
3 with the analysis. So nobody should run an experiment that  
4 if they get data they don't know what to do with it. So  
5 they're linked.

6 Q. And you understand that the sort of issue that  
7 we're dealing with in this particular proceeding has to do  
8 with firearm and toolmark examination methodology as well  
9 as their underlying assumptions; correct?

10 A. That's what I've been told, yes.

11 Q. And can you please describe -- are statisticians  
12 acknowledged as being a relevant portion of the scientific  
13 community for firearm and toolmark examination?

14 MR. BUTTS: Objection. It's vague, and it calls  
15 for an opinion that this person is not qualified to give.

16 MS. BRACKMAN: I can lay the foundation. I  
17 wanted to --

18 THE COURT: Why don't you go ahead and lay the  
19 foundation.

20 MS. BRACKMAN: Okay.

21 Q. To your knowledge and your experience, do firearm  
22 and toolmark examiners utilize, advocate use of,  
23 statisticians for exactly the purpose you just described?

24 A. To some extent. I know the witness, John  
25 Murdock, testified in a 1984 proposal to the National  
26 Institute of Justice he recommended a statistician help  
27 with the study.

28 Q. And in fact you did review, as a part of your

1 preparation for today, a number of exhibits proffered by  
2 the prosecution experts, John Murdock and Dr. Hamby;  
3 correct?

4 A. Yes.

5 Q. Okay. And, in fact, one of those exhibits was  
6 written by a statistician; correct?

7 A. Yes, in part by a statistician, yes.

8 Q. You yourself are not a practicing firearm and  
9 toolmark examiner; correct?

10 A. That is absolutely correct.

11 Q. Are you familiar with firearm/toolmark  
12 examination methodology as well as their underlying  
13 assumptions?

14 A. Yes. As a statistician, not as a practitioner.

15 Q. And are you familiar with the studies and  
16 experiments proffered to justify a firearm and toolmark  
17 methodology?

18 A. I'm -- I've read over 60 papers. I have not read  
19 the 94 papers that Mr. Murdock has offered.

20 Q. And in doing so, you were reviewing them through  
21 the lens of a statistician with your particular expertise;  
22 is that correct?

23 A. Yes.

24 Q. Okay. And what was the -- what was your task?

25 A. My task was to understand what the authors were  
26 trying to do, understand how they went about doing it, what  
27 their hypotheses were what they stated or tried to state,  
28 looked particularly at the experimental design and the

1 factors they included, the numbers of firearm examiners,  
2 the number of weapons, the number of different kinds of  
3 ammunition, the different conditions of the firearms,  
4 looked at the data that they described and how they  
5 analyzed it and what conclusions they made.

6 Q. But was this for the purpose that you described  
7 as kind of the business of a statistician, which is  
8 evaluating the design and also the interpretation of the  
9 data?

10 A. Yes. My -- I would -- I did not look at it as a  
11 firearm examiner would, for sure.

12 Q. Okay. Now, you have previously testified as an  
13 expert witness; is that correct?

14 A. Yes.

15 Q. And that wasn't with respect to firearm and  
16 toolmark examination; correct?

17 A. That is correct.

18 Q. What was that -- what was the topic matter?

19 A. Compositional bullet lead.

20 Q. You did qualify as an expert in forensic  
21 statistics, though; correct?

22 A. That is correct, in Florida.

23 Q. Okay.

24 MS. BRACKMAN: Your Honor, at this point in time  
25 I would offer Dr. Spiegelman as an expert and member of the  
26 relevant scientific community in statistics, assessing  
27 experimental design and its method and application.

28 THE COURT: People?

1           MR. BUTTS: The assessment that he's part of the  
2 community, I don't believe that is part of his  
3 qualifications. As to the rest of it, I have no objection.

4           THE COURT: You object -- did you have any voir  
5 dire you wished to ask?

6           MR. BUTTS: No, Your Honor.

7           THE COURT: So as for qualified to testify as an  
8 expert in the area of statistics --

9           MS. BRACKMAN: Assessing experimental design.

10          THE COURT: -- assessing experimental design,  
11 method and application, I would find him qualified to  
12 testify.

13           As a member of the relevant scientific community,  
14 I don't see a sufficient basis for that. But he is an  
15 expert in his field, so he can testify as to that.

16          MS. BRACKMAN: Okay. Thank you.

17          Q. Dr. Spiegelman, you said that you reviewed a  
18 number of studies proffered to justify firearm and toolmark  
19 examination; correct?

20          A. Yes.

21          Q. Do you have, from a statistician's point of view,  
22 an opinion about the methodology?

23          A. Yes, I do.

24          Q. Okay. And can you please describe any particular  
25 points of that opinion?

26          A. Yes. It's primitive, at best, from the  
27 perspective of a professional statistician. Their  
28 hypotheses are not properly stated as we would teach in

1     Statistics 101.  Almost always they presume what they're  
2     trying to show.

3             So, for example, if they're trying to show to a  
4     practical certainty they can assess a match between a crime  
5     scene bullet and a suspect weapon, they sort of do one --  
6     we know we can do this so we'll do a few cases and see if  
7     we can do it.  Where the proper way to do it is suppose  
8     that they can't do this to a practical certainty.  So the  
9     hypothesis would be the examiners made substantial error  
10    and specify what substantial error is, is it 10 percent, 15  
11    percent or 5 percent, when they make these matches and the  
12    research hypothesis, or alternative, would be that they can  
13    do to a practical certainty, or whatever, with a 1 percent  
14    error rate, whatever they want to claim.

15            And if they do that, then there are statistical  
16    formulas for how many samples -- how many bullets they need  
17    to check, how many weapons they need to check, what  
18    conditions for the weapons, how many examiners, under what  
19    conditions.  And they don't do hardly any of that.

20            And then for the experiments, they sort of take  
21    easy cases.  There's a paper by -- let me pull it.  Here I  
22    have it, by Buckleton and Triggs and others.  Where they  
23    say the -- and this is, I think, Hamby's -- Dr. Hamby's  
24    reference --

25            Q.  Just for the sake of having a clear record --

26                    May I approach the witness, Your Honor?

27                    THE COURT:  You may.

28    BY MS. BRACKMAN:  Q.  You are indicating a document that

1 was provided to you in preparation for this hearing; is  
2 that correct?

3 A. Yes.

4 Q. And this document has up in the top, left corner  
5 it says, "CT Number 51;" correct?

6 A. Yes.

7 MS. BRACKMAN: And I would ask that the Court --  
8 this is a copy of Court's Exhibit No. 51.

9 THE COURT: The record will reflect that the  
10 witness -- did the People wish to examine that?

11 MR. BUTTS: No, Your Honor.

12 THE COURT: The Court -- the record will reflect  
13 that the witness is examining a copy of Court Exhibit 51.

14 You may proceed.

15 MS. BRACKMAN: Sorry to interrupt you.

16 THE WITNESS: Okay. Then on Page 144 of that  
17 exhibit, that's the published paper -- number, and the  
18 authors state that "We accept experimental foundation of  
19 the first belief," which is that firearms is -- can be done  
20 uniquely to a weapon, "but the experimental underlying" --  
21 "experiments underlying that belief could be faulted." And  
22 this is from somebody who believes in toolmarks as an  
23 agnostic. Faulted doesn't go halfway there. But there's  
24 an acknowledgment in this paper that the experiments needed  
25 to make the statement aren't there.

26 Q. Okay. I'm going to break this down a little bit  
27 just to make sure that those of us who don't regularly  
28 design experiments and know how they're supposed to be done

1 can understand it.

2 You started off saying that they have kind of  
3 a -- an assumption that they're trying to prove -- you  
4 talked about something called a null hypothesis; correct?

5 A. Yes.

6 Q. And you said that's not proper. What do you  
7 mean? From a statistician's point of view on a proper  
8 experiment, what would you do?

9 A. In part of it, formulation. You formulize what  
10 you don't want to be true as the null, the null hypothesis.  
11 So we can assume this. And the way the experiment proceeds  
12 is it gathers so much evidence as to make the null  
13 hypothesis implausible to believe.

14 Q. And is that how experiments pursuant to the  
15 scientific methods are conducted?

16 A. Yes, that's what we -- that's what we teach  
17 around the world in every stat course I know of.

18 Q. And is that, to your knowledge, the basis of that  
19 statistical understanding foundation of how to do so  
20 utilized in the scientific field broadly?

21 A. Yes. I know of, outside of forensic science, no  
22 science that doesn't do that.

23 Q. Okay. So all of science, outside forensic  
24 science, would have conducted an experiment in the way that  
25 you've just suggested?

26 A. Yeah. As far as I know. Chemistry Journal, I've  
27 been on National Cancer Institute Studies -- I have not  
28 encountered anybody that assumes true what they're trying

1 to show; that is, they're -- they're almost show  
2 experiments, what's in these papers.

3 Q. So that was one of the issues that you described  
4 with essentially how they're trying to prove the validity  
5 of their method; correct?

6 A. Yes.

7 Q. Now I want to talk a little bit about -- before  
8 we go to the specific experiments or alleged justifying  
9 studies -- about just some of the underlying assumptions.

10 You are familiar with the concept put forward by  
11 firearm and toolmark examiners of being able to make a  
12 match with a practical certainty; correct?

13 A. Yes.

14 Q. How is it that someone with your expertise as a  
15 statistician views that claim?

16 A. I was sent Mr. Murdock's testimony -- and this is  
17 truth under oath -- I laughed so hard and couldn't sleep --

18 MR. BUTTS: Objection. Nonresponsive.

19 THE COURT: Overruled. There's no jury here.

20 THE WITNESS: I laughed so hard that my sides  
21 actually hurt in the morning.

22 BY MS. BRACKMAN: Q. About how he characterized --

23 A. Yes. I mean, it's -- it's not credible in my  
24 opinion, and he's trying to make a distinction without a  
25 difference.

26 I mean, part of speaking or writing is to  
27 communicate to people, and he either is not communicating  
28 or is --

1           MR. BUTTS:  Objection, Your Honor.  It's  
2 nonresponsive.  We're not characterizing other witness's  
3 testimony.  We're answering a question.

4           MS. BRACKMAN:  I can rephrase, I think, to try to  
5 get to --

6           THE COURT:  Well, you may rephrase.  I think it  
7 may be going beyond the scope of the question.  So I'll  
8 sustain the objection and ask you to rephrase.

9 BY MS. BRACKMAN:  Q.  Some portion of, I think, what you  
10 were describing reviewing was how Mr. Murdock talks about  
11 this claim of individualization and how it relates to the  
12 broader field of science and statistics; is that correct?

13          A.  Yes.

14          Q.  Okay.  So as a statistician, putting aside how it  
15 is that he attempts to justify it, a claim of practical  
16 certainty -- what does that mean?

17          A.  I have no clue.

18          Q.  Okay.  Is it essentially a probabilistic  
19 statement?

20          A.  Yes, that's how I interpret it and how many other  
21 statisticians would interpret it and -- or any statistician  
22 I know -- we have a forensic group in the ASA -- would  
23 interpret it.

24          Q.  So if this terminology is a probabilistic  
25 statement, what would that normally require?

26          A.  It would require experimental evidence and  
27 experimental evidence up to certainty.  I've never seen --  
28 I've never seen another field claim certainty -- there's a

1 statement in the 2008 Ballistics Imaging Report that the  
2 less a field is advanced, the more certain they are of  
3 their conclusions. And I believe that is appropriate to  
4 the three pages from Dr. Murdock's testimony that talks  
5 about practical certainty.

6 Q. So how, within the scientific community, would  
7 you talk about probabilistic statements?

8 A. Well, you get an appropriate sample size and you  
9 make an estimate of whether there's a match or not and  
10 what's in the match, whether it's a unique source or a  
11 manufacturing batch. And then you would have a plus or  
12 minus number, a certain amount -- an error allowance,  
13 depending upon the quality of the experiment and the number  
14 of samples in the experiment.

15 So, for example, in a presidential poll or -- you  
16 know, seems to be elections going on. They say somebody  
17 has a certain percentage of approval and they say plus or  
18 minus 3 percent, and that's how it's done pretty much  
19 throughout the sciences.

20 Q. Okay. So there is an acknowledgment of a  
21 possible error rate; correct?

22 A. Yes.

23 Q. And is that determined by conducting appropriate  
24 experiments to determine that limitation?

25 A. Yes, appropriate experiments or surveys, yes.

26 Q. Okay. And what about the claim of uniqueness  
27 that is asserted as an underlying assumption by firearm and  
28 toolmarks examiners, as a statistician, what would that

1 require for someone to be able to make that claim?

2 A. You know, honestly, I have no idea. I'm not  
3 aware of any science that I've encountered, or anybody that  
4 I know of has encountered, that has shown uniqueness.

5 Q. What about -- are the -- is the firearm and  
6 toolmark examiner methodology able to show repeatability  
7 and reproducibility?

8 A. So repeatability being the same examiner would  
9 get the same answer if they look at the same evidence again  
10 and reproducibility whether a different examiner. Not to  
11 the extent that it would be required, say, by the National  
12 Institute of Standards and Technology where I used to work.  
13 Certainly, they do have a peer checking, but that's not  
14 even in the ballpark of what would have to be done to show  
15 reproducibility.

16 Q. And, in fact, have advocates or AFTE sort of  
17 leaders acknowledged that it's quite possible, and even  
18 likely, the different examiners would get different  
19 results?

20 A. Yes. I believe Steve Bunch has written some  
21 papers and commented that it's entirely possible that  
22 different examiners get different results. And if you  
23 want -- the Detroit Crime Lab is a case where they audit  
24 came up, found 10 percent of the cases in the audit out of  
25 200 cases, I think, 19 cases, where different examiners  
26 came up with different results.

27 Q. I want to get back to why it's important to know  
28 what the error rate is or -- is another way of calling the

1 error rate a false match rate or a coincidental match rate?

2 A. It's called -- I mean, the issue is if it's -- if  
3 they're not unique, if marks sort of go to manufacturing  
4 batches or coincidental matches on different manufacturing  
5 batches, that's one kind of mistake. And another kind of  
6 mistake is, there's a mistake in even linking it to that  
7 batch. So there's sort of two error rates lurking. But  
8 both are important.

9 National Institute of Standards, which the  
10 counterpart is the French Office of Weights and Measures --  
11 Bureau of Weights and Measures, they're sort of for  
12 commerce, at least in this country, and they do some  
13 forensics, particularly in fingerprints. In commerce in  
14 this country they set the standards, and they require all  
15 estimates or statements to -- you know, to have a plus or  
16 minus number on it.

17 Q. And is that so we know something about what level  
18 of confidence to have in the result?

19 A. Exactly.

20 Q. And from a scientific standpoint, that's  
21 important?

22 A. Yes. It's -- you know, I edited a journal and  
23 I've been on editorial boards for the American Chemical  
24 Society and the American Statistical Association. It's  
25 very important. As an editor we make sure that that gets  
26 done.

27 Q. We started talking about the experiments you said  
28 you were -- certainly haven't read every one, but you've

1 read scores of them; correct?

2 A. Yeah. There's a question on the list. I've read  
3 about scores of papers. You know, I don't know how many  
4 are on Mr. Murdock's list. I'm going to guess at around  
5 15.

6 Q. So of Mr. Murdock's, you've read about 15. But  
7 your estimate earlier was around -- between 60 --

8 A. 60 or so papers in the field of firearm,  
9 toolmarks -- and toolmarks, yes.

10 Q. And that's for purposes of evaluating the  
11 experimental design as well as interpretation of the data?

12 A. Yes.

13 Q. And I think that you started to say this in your  
14 answer previously. But you said that there's something  
15 about the sample size that they're using or the number of  
16 firearms or types of ammunition?

17 A. Yes. So, for example, there are number of  
18 studies where they have eight examiners participating and  
19 doing matches. And in almost all of these studies, they  
20 either get them all right or almost all right. And that  
21 makes a sample size of eight. And eight -- you know,  
22 sample size of eight -- you know, I forget what the  
23 uncertainty is, but it leaves a sizable -- way more than 10  
24 percent chance of error. I think it's 30 percent from  
25 memory. But that may be off. Substantial -- you know, you  
26 could say that 70 percent of examiners are likely to do as  
27 well as these, but 30 percent wouldn't.

28 And sometimes they use only one type of

1 ammunition. So then the sample size is one. This works  
2 for that particular type of ammunition and that particular  
3 batch because ammunition chemical composition varies from  
4 batch to batch.

5 For example, I -- the antimony level in a bullet  
6 determines its hardness. And even according to, I think,  
7 the SOP on the Contra County [sic], written by Murdock,  
8 is -- let's see, Bullet Composition and Velocity. So it's  
9 number two on a page from his SOP. Says that bullet  
10 composition matters. And they are doing these studies with  
11 only one type of composition in any particular experiment,  
12 mostly. There might be an experiment where they tried two.

13 Q. Are you able to, from such a small, discrete  
14 sample size, to extrapolate to the broader world of all  
15 firearms?

16 A. Very badly, yes.

17 Q. From a scientific standpoint as a statistician,  
18 would that be a valid means of extrapolating to the world  
19 of firearms?

20 A. They could do it, but they would be -- they would  
21 have to be allowing 95 percent error. We can do this  
22 from -- anything from certainty to a 95 percent error, they  
23 could do it, but it doesn't make you -- it doesn't lead to  
24 useful statements. Their experiments are badly lacking.

25 Q. Are there experiments blind as is understood in a  
26 scientific community?

27 A. Not that I'm aware. Some of the authors call  
28 their studies blind just because the participants don't

1 know the right answer. But then if that's the case, all of  
2 the exams I give to my students are blind. Most of the  
3 time in the scientific community when we refer to blind, we  
4 mean people don't know they're taking the test.

5 Q. Okay. And do these experiments mimic actual  
6 casework?

7 A. Not to my knowledge. And the paper that I cited  
8 before by Buckleton, Triggs and others, says that the --  
9 and this is Dr. Hamby's reference, "Can be criticized for  
10 not coming close to mimicking casework."

11 Q. In fact, that study talks about how -- that paper  
12 talks about how the tests were typically very easy because  
13 they were using a particular type of bullet that would  
14 most -- would be most susceptible to taking the markings?

15 A. That's correct. Toolmark depends on the hardness  
16 of the tool and the hardness of the surface taking the  
17 marks. And they're choosing, essentially, very soft  
18 bullets so they take marks real well.

19 Q. What about the use of the inconclusive results in  
20 the context of those studies?

21 A. So in the studies, the authors generally do not  
22 consider inconclusives, like we don't know if it matches or  
23 not as a wrong answer, saying that they're harmless in  
24 casework.

25 Because the tests aren't blind and the people  
26 know that the results can impact their career and the  
27 career of others in their field, they might be more  
28 inclined to make an inclusive than they would be in

1 casework. And in casework, they might not feel the risk to  
2 them or their profession is serious. And that's also  
3 pointed out by a number of authors.

4 And, also, I take issue with it not being  
5 harmless of -- in some cases it's an issue of whether  
6 there's one or more shooters and if the identified bullets  
7 go to one defendant and the unidentified ones might have  
8 gone to another defendant. That's not irrelevant to a  
9 case.

10 Q. The combination of those two last points, they  
11 know that they're being tested, the examiners in all of  
12 these studies, as well as the fact that an inconclusive  
13 result doesn't count as an error is contributing to this  
14 problem that you're talking about?

15 A. Yes.

16 Q. What about the -- going through, again, the  
17 ways -- the means by which the experiments don't mimic real  
18 casework. A lot of them are studies involving examiners  
19 being presented with known consecutively matched firearms;  
20 correct?

21 A. Yes. A number of them are, yes.

22 Q. And casework doesn't involve an -- an examiner  
23 getting two known consecutively manufactured firearms?

24 A. That would be very unusual, as I've been told.  
25 So the -- it's sort of like showing you can identify twins  
26 or triplets when you get to see all of the twins and  
27 triplets or some of the -- you know, two of the three  
28 triplets.

1           In casework, you know, it'd be pretty unusual to  
2 know that you're getting to see -- you know, to know what's  
3 around -- that there is a triplet.

4           Q.    And what they're relying on instead of having the  
5 consecutively manufactured firearms right in front of them  
6 is this concept of cognitive retention or best known  
7 nonmatch; correct?

8           A.    Now, that I don't -- in general matching, they  
9 use cognitive best known nonmatch, and there's a number of  
10 ways they go about it. And one way is using the same  
11 bullet and using a bad alignment to get it. But part of it  
12 is memory. And it's really an area for a cognitive  
13 psychologist, not a statistician.

14          Q.    That's what you were talking about. In front of  
15 you -- what these experiments are doing, like with your  
16 example of the twins or triplets, they're testing someone  
17 and they're putting in front of them three identical  
18 people --

19          A.    Yeah, and --

20          Q.    And then asking for the identification?

21          A.    Yeah. If we brought two, quote, identical twins  
22 in and we said, we'll show you we can identify them and we  
23 let you study them, you know, my guess is a large number of  
24 people will be able to find something different and  
25 separate them.

26                On the other hand, if we bring one of the twins  
27 in and said, have you seen this person, and then walk out  
28 in the hall and the other person is dressed similarly but

1 not the same twin, a great many people would stumble and  
2 say that's the person I just saw.

3 Q. Which is more akin to real casework; is that  
4 correct?

5 A. That's my understanding.

6 Q. What about the degree of subjectivity involved in  
7 their firearm and toolmark examiner methodology?

8 A. It's pretty high. All sciences -- all sciences  
9 have some subjectivity, but the standard operating  
10 procedure, SOP, should specify all important steps and  
11 in -- they haven't done it, at least the Contra County,  
12 which is a pretty good SOP compared to others that I've  
13 seen, doesn't specify what a striation is or what  
14 consecutively matching striations are. Just if you find  
15 your count is a certain number, then you're good.

16 So there's more left to subjective opinion than  
17 in any other nonforensic science I've encountered.

18 Q. Have the statistical foundations for firearm and  
19 toolmark identification been established?

20 A. No. And there's -- it's unusual to get two NRC  
21 reports saying --

22 MR. BUTTS: Objection. Nonresponsive.

23 THE COURT: He can explain his answer, but he has  
24 to limit his explanation to the answer of "No."

25 THE WITNESS: Okay. So it's no. And there are  
26 two NRC reports saying that, and it's also my independent  
27 opinion.

28 BY MS. BRACKMAN: Q. Let's talk about your opinion as a

1       statistician and the basis of your opinion and others with  
2       whom you've potentially talked about this, just so we  
3       understand what the sort of field of statistics or what  
4       statistics might have to say about this.

5               Are there members of your scientific community,  
6       statisticians, with whom you have discussed these  
7       particular issues with firearm and toolmark examination  
8       methodology?

9               A.     Yes.  There's a group of six or seven of us  
10       working with the ASA to promote the National Institute of  
11       Forensic Science.

12              Q.     ASA is?

13              A.     American Statistical Association.

14              Q.     Okay.  And these are others who are working  
15       academic statisticians; correct?

16              A.     Yes, they all are.

17              Q.     Can you please name whom those persons are?

18              A.     Karen Kafadar, from University of Indiana, a  
19       member of the 2009 NRC committee, Constantine Gatsonis,  
20       co-chair of the 2009 committee, Joe Gastwirth, editor of  
21       Law, Probability and Risk, Hal Stern, a member of a current  
22       NRC committee on fingerprints, Sandy Zabell from  
23       Northwestern, an expert on fingerprints.

24              Q.     And a statistician?

25              A.     They are all statisticians, except for Steve  
26       Pierson, who is the coordinator and science policy director  
27       of the American Statistical Association.  And I'm trying to  
28       think if I left somebody out.  If I did, I apologize when

1 the transcript comes out.

2 Q. You said that at least some of these were a  
3 member of a committee seeking to create a National  
4 Institute on Forensic Science?

5 A. Yes. That was the core recommendation on the  
6 2009 NRC report.

7 Q. They share your concerns and you've discussed  
8 those concerns with them?

9 A. Yes, at length.

10 Q. Let's talk about the NRC report -- let's talk  
11 about the National Academy of Science and the National  
12 Resource -- Research Council. How would you describe their  
13 reputation within the scientific community?

14 A. It's at the highest level. All living Nobel  
15 prize winners are members in the sciences and medicine.  
16 And it's the highest level.

17 Q. In conducting scientific research and  
18 investigation?

19 A. They do mostly investigation at panels at the  
20 request of Congress or federal agencies. They were set up,  
21 I think, during Lincoln's tenure.

22 Q. Okay. So they don't just decide on their own to  
23 start investigating something, it's with a prompt by  
24 congress?

25 A. Yes.

26 Q. And is this an inclusive or exclusive  
27 organization in terms of considering voices -- relevant  
28 voices in the community?

1           A.    They try to be fair and put together panels that  
2 can do the job.

3           Q.    With respect to the -- both the reports and  
4 findings that you just spoke about, you were on one of  
5 those two committees; correct?

6           A.    No, I was not.  I was on the 2004 report on  
7 compositional bullet lead.

8           Q.    Sorry.  The process, while they're investigating  
9 a field or forensic technique, is to -- what would that  
10 process involve?

11          A.    They put together a panel of experts within  
12 the -- the relevant sciences and in these cases  
13 statisticians, lawyers, forensic scientists of various  
14 sorts, whatever science is needed, lots of chemists on the  
15 panel I was on, manufacturing experts in the imaging and  
16 ballistics imaging, electrical engineers and the like,  
17 computer sciences in the imaging, and various specialties,  
18 and people of the highest caliber and reputation.

19          Q.    And do they give audience to actual practitioners  
20 engaged in the techniques that they are investigating?

21          A.    Yes.  On the panel I was on, the FBI was in on  
22 almost every meeting.  They were the only one doing  
23 compositional bullet lead.  We brought in firearm  
24 manufacturers, ammunition manufacturers.  Whatever was  
25 thought to be relevant was brought in.  And you can see the  
26 witness list from the other two -- the 2008 and 2009 panel,  
27 they brought in experts.

28          Q.    Including AFTE presidents and SWGGUN members;

1 correct?

2 A. Yes.

3 Q. SWGGUN is S-W-G-G-U-N, for Scientific Working  
4 Group on Guns for firearms and toolmarks; correct?

5 A. I don't remember.

6 Q. The SWG groups, the scientific working groups,  
7 are the FBI's sort of scientific community; is that correct?

8 A. I don't know.

9 Q. What was the ultimate conclusion -- I don't want  
10 to go through all of the specific findings. The Court has  
11 both of the reports that have been admitted. But what was  
12 the ultimate conclusion about firearm and toolmark  
13 examination by the committee?

14 A. That it -- the statistical foundation was not  
15 there. No claims should be made for it because there isn't  
16 one. And that they found that they could do class  
17 characteristics or essentially the brand of gun reliably.  
18 That's what I remember as the conclusion.

19 So they didn't think it was worthless, but they  
20 thought it was largely not supported. And they could --  
21 they thought they could reasonably tell the brand of a  
22 gun -- you know, if they thought he -- if they thought they  
23 did, they would likely get it right.

24 Q. And they in fact recommended additional research  
25 in order to potentially justify these claims; is that  
26 correct?

27 A. I know they wanted to do an error rate study and  
28 couldn't get participation, but I just don't remember.

1 Q. I'll get back to that in a second. But within  
2 your specific part of the scientific community, how were  
3 those reports received?

4 A. Very well. The Board of Directors of the ASA  
5 unanimously endorsed the reports. And by "unanimously,"  
6 there were some government members of the Board of  
7 Directors who, due to conflict of interest, recused  
8 themselves. But everybody who voted, voted yes.

9 Q. Okay. And following -- based on those reports,  
10 there were actually recommending the National Institute of  
11 Forensic Science to correct some of these issues; is that  
12 right?

13 A. Yes. That was the main -- that was the main  
14 recommendation of the 2009 report. There were some others,  
15 but that was the big one.

16 Q. But you also talked about how statisticians in  
17 the ASA -- those colleagues that you mentioned,  
18 independently said yes, we also are interested in this; is  
19 that correct?

20 A. Um --

21 Q. I thought you said there was a working group?

22 A. There is a working group. And we are trying to  
23 implement -- that is, the board of directors approved it,  
24 but I'm spending a lot of time on Capital Hill talking to  
25 congressional staff, senate staff, on what changes --  
26 there's tough budget issues and the issue is -- well, I  
27 don't necessarily think it's relevant here, but there's  
28 pretty much agreement that reform in forensic science has

1 to come. There's disagreement about what the form of that  
2 reform should be and how much it will cost.

3 Q. Okay. You said that there was an interest coming  
4 out of the -- was it the 2009 or 2008 report to actually  
5 conduct a proper experiment; is that correct?

6 A. That was 2008, the imaging firearms. It wasn't  
7 their purview to conduct a human error rate study, but they  
8 thought it would be helpful. And they approached the  
9 president of AFTE, Ann Davis, despite -- and she declined.

10 Q. Now, there's been some discussion or suggestion  
11 that that was because of a refusal to pay for AFTE  
12 participation. But you've read a large number of studies,  
13 experiments, published in AFTE's journal. And are, in  
14 fact, a lot of those done voluntarily without pay to the  
15 participants?

16 A. They say they're done by volunteers. They turn  
17 out kits at their professional meetings, anybody who wants  
18 one, take one and send in the results. So they do  
19 volunteer when their members are running a study.

20 Q. Are members of these committees themselves paid  
21 to participate in the work?

22 A. No. NRC -- the staff is paid. They arrange  
23 hotel rooms. They're paid. The actual NRC committee  
24 members are strictly volunteer. Nobody ever gets a  
25 paycheck.

26 Q. Prior to the last few years, were statisticians  
27 concerned with, mindful of how firearm and toolmark  
28 evidence was being used?

1           A.    No.  It's in journals that aren't -- I mean, I  
2  checked the AFTE Journal.  It's -- according to what I  
3  could find from WorldCat and other library sources, it's in  
4  17 university libraries in the country and they have  
5  forensic programs.  It's not widely available.  And there's  
6  no indication that it's in the Scientific Citation Index.  
7  So this stuff is not apparent to most scientists, I  
8  believe.

9           Q.    So there's not really reason for extrajudicial,  
10 outside the courtroom, focus on how this is being used?

11           MR. BUTTS:  Objection.  It's speculative.

12           THE COURT:  Question does sound speculative,  
13 Counsel.

14 BY MS. BRACKMAN:  Q.  Is there any reason that  
15 statisticians would be mindful, aware of this prior to  
16 being solicited to participate in National Resource Council  
17 Committees?

18           MR. BUTTS:  Objection.  Speculation --

19           THE COURT:  I'm sorry.

20           MR. BUTTS:  Same objection.

21           THE COURT:  Sounds like you're asking what's in  
22 the mind of other people.  So unless --

23           MS. BRACKMAN:  Outside a member of the community.  
24 He talked about it.

25           THE COURT:  He can give his opinion about the  
26 science that he's qualified to testify to, but he can't  
27 give an opinion about what other people might have thought  
28 or might not have thought unless he's talked with them.

1 I'll sustain the objection on the form of the  
2 question.

3 BY MS. BRACKMAN: Q. Prior to your involvement on the CBLA  
4 Committee in 2002, did you have any awareness of how CBLA  
5 evidence or firearm and toolmark evidence was being  
6 utilized in the courtroom?

7 A. None whatsoever.

8 Q. And what happened once your attention was turned  
9 towards it?

10 A. I was disappointed in the crime lab by what I saw  
11 presented as evidence to the panel.

12 Q. That's for CBLA?

13 A. CBLA, that's correct.

14 And, in fact, in part due to the panel and in  
15 part other reasons, that practice is not done in this  
16 country anymore.

17 Q. Okay. Statisticians were included -- have you  
18 heard other statisticians talking about this method or this  
19 use of science in the courtroom?

20 A. Only on the panel. There was another  
21 statistician, Karen Kafadar, on the panel, and we were --  
22 as far as I know -- oh, no. There was Alicia Carriquiry  
23 had done a study of Iowa state. I had never talked to her  
24 about it, but she had done a study. So there might have  
25 been an odd statistician here and there who knows something  
26 about it.

27 Q. Is it fair to say that in more recent years there  
28 has been more attention?

1           A.    You know, I know the people -- our working group,  
2 you know, Sandy Zabell, fellow who does fingerprints, had  
3 been involved in it awhile. I think Karen got involved  
4 when I got involved. I don't know. You know, there isn't  
5 a lot the attention even now, so it's hard to know whether  
6 the other attention was there before or not.

7           Q.    There has been a reaction, in part, to the 2008  
8 and 2009 reports; correct?

9           A.    2009, the Board of Directors approved it and  
10 they're not -- except for Karen and I -- Karen is actually  
11 on the board. I don't know that they're actually doing  
12 forensic studies.

13                    When you say interest -- I don't know what you  
14 mean. But there aren't a whole lot of people doing  
15 research in forensic science in the statistics field.

16           Q.    I guess what I'm asking is -- as a statistician,  
17 you are coming out and describing the limitations of how  
18 the experiments have been done and the underlying  
19 assumption now. Firearm and toolmark evidence has been  
20 admitted in the courts for many, many years. Prior to the  
21 last few years, was it that you agreed that it should be  
22 admitted or agreed with it or it was never looked at  
23 before?

24           A.    As far as I know, it was not looked at by many.  
25 And, you know, it's sort of a mystery -- if you asked me 10  
26 years ago if I'd be here at an evidentiary hearing, I would  
27 look at you kind of funny.

28           Q.    Based on your familiarity with what experiments

1 have been done, what is it that from a statistician's point  
2 of view, from -- with your particular scientific expertise,  
3 do you believe is an appropriate claim to be made?

4 A. I think when a gun is available and the bullet or  
5 casing is in reasonably good shape, they can claim that  
6 they can identify the brand of gun that fired the bullet.  
7 They can also, in my opinion, state that the bullet or  
8 casing is consistent with being fired from a particular  
9 gun.

10 And then I've put a caveat because CSI is real  
11 popular -- the testimony up to where I just said was  
12 popular back in the '30s. If you read the Gunther and  
13 Gunther, it's a pretty good book. I think that's how they  
14 testified then.

15 Because CSI shows are real popular, there's a  
16 pretty good chance if I was talking to a class, they would  
17 interpret that as a unique match. So I would suggest  
18 adding the number or percentage of other guns that would be  
19 consistent with the bullet found at the crime scene is  
20 unknown.

21 Q. So you believe that describing a class match as  
22 consistent with are what was supported based on your review  
23 of all of the various studies and experiments?

24 A. Yes. I don't think it's -- the scientific  
25 community isn't saying this is junk science. We're just  
26 saying it's oversold science. The statement I just gave  
27 you, I think would not be oversold and is supported by what  
28 they do.

1           Q.    Okay.  Now, you spoke about how Gunther and  
2 Gunther --

3           A.    Yes.

4           Q.    -- used basically that language of "consistent  
5 with"?

6           A.    Yes.  I think they -- half the book is on firearm  
7 toolmarks and how they did it -- it's really, you know --  
8 for somebody that likes that, it's pretty fascinating  
9 reading.

10                    The other half of the book is on the  
11 Sacco-Vanzetti case and the testimony that was given there.  
12 And I think that's the testimony that was given there.  And  
13 there was an issue of the examiner being allowed or  
14 asked -- he said the bullet was consistent with Sacco's  
15 gun, and he wanted to say but it would be consistent with  
16 many other guns and somehow he couldn't say that, and that  
17 was upsetting to him.

18                    But just said, you know, if they say they got the  
19 brand of gun right to a high degree of accuracy and they  
20 say the bullet was consistent with the fired weapon, that  
21 the defendant's weapon or the cartridge casing was  
22 consistent.  But they don't know how many other weapons  
23 could be consistent.

24                    You know, I think that's pretty accurate and not  
25 oversold and should be of some value to the prosecution, I  
26 would hope.

27           Q.    What about even if they're not saying this is a  
28 for-sure match but they're using language such as

1 "reasonable ballistics certainty" or "practical certainty"?  
2 As a scientist, is that appropriate based on what the  
3 experiments have been able to demonstrate?

4 A. As a teacher, I would say nobody -- you know, it  
5 wouldn't be understood. It's making a distinction without  
6 a difference. It just -- part of the reason for speaking  
7 is to communicate, and I just don't think it communicates  
8 what's needed.

9 Q. Because --

10 A. Which is some uncertainty.

11 Q. Some uncertainty, which as of yet we don't even  
12 know what that level of uncertainty is; is that correct?

13 A. That's correct. That's correct.

14 Q. So those are also inappropriate means of  
15 describing a conclusion; is that right?

16 A. Yes. I would think it's not supported by  
17 anything that I've read.

18 Q. Is there anything in the studies, the experiments  
19 that you have reviewed, your familiarity with that  
20 information that allows for a claim of individualization to  
21 be made?

22 A. No, not -- I mean, not remotely.

23 MS. BRACKMAN: Thank you. No further questions,  
24 although I do have marked an exhibit, the CV, that I would  
25 like admitted for purposes of the hearing.

26 THE COURT: And its number is?

27 MS. BRACKMAN: 55.

28 THE COURT: Court Exhibit 55 is marked for

1 identification.

2 Any objection for its admission for purposes of  
3 this hearing?

4 MR. BUTTS: I don't think I have seen that or  
5 have a copy.

6 MS. BRACKMAN: I can definitely give you a copy,  
7 but if you want to look at it now we can come back to it.

8 MR. BUTTS: We can deal with this -- we should  
9 probably finish questioning.

10 THE COURT: All right. I'll reserve the ruling  
11 on admissibility until we finish the questioning.

12 CROSS-EXAMINATION

13 BY MR. BUTTS: Q. Doctor, when you say the limitation of  
14 firearms identification should be with class  
15 characteristics to the brand of the gun, what do you mean  
16 by the brand of the gun?

17 A. A Remington .22 rifle, whatever model it is -- or  
18 whatever, you know, a Glock .87, or whatever -- whatever  
19 that is --

20 Q. So the make and model --

21 A. Yeah, make and model, yes. The specific model --  
22 because they have -- say, if it's a bullet, they have lands  
23 and grooves, angle and lifts and there's a table and they  
24 can match them. And if the bullet is in good shape and  
25 they have the gun, they can do that.

26 Q. So if there are 200,000 versions of a particular  
27 make and model, then in your view the experimentation and  
28 the tests that have been conducted in this field support

1 only a conclusion that a particular cartridge case came  
2 from one of these 200,000?

3 A. I'm going a little bit further. I'm saying they  
4 can't say it's consistent with the specific weapon, but  
5 they don't know how many of those other 200,000 might. So  
6 I'm not at all trying to say that all 200,000 would, but  
7 I'm saying they don't know whether it's three others or  
8 10,000 others match. That's what I'm telling you.

9 Q. With respect to the identification of cartridge  
10 cases, what factors increase the possibility of a  
11 coincidental match?

12 A. It would be poor markings, fouling, dirty firing  
13 pins, I have -- so damage -- this is from Dr. --  
14 Mr. Murdock's SOP, standard operating procedure, for his  
15 lab. Damage or wear of the firearm. Bullet velocity, how  
16 hard it strikes the breech face. Chamber to barrel  
17 alignment and damage to bullet won't matter. That's --  
18 loose fit in the chamber and corrosion. That's right from  
19 Mr. Murdock's SOP. There were others, but off the top of  
20 my head, that's it.

21 Q. What about the manufacturing process, in your  
22 view, increases the likelihood of a coincidental match?

23 A. Depending -- so, for example, if the lubrication  
24 of the weapon as it's being bored -- if as the breech face  
25 is being bored, if it's dirty, it leaves lots of particles,  
26 leaving scratches and those scratches can lead to, quote,  
27 individualization matches. But if the lubrication is  
28 clean, they won't be there. So it's more likely that

1 cartridge casings could be confused.

2           So the manufacturing does matter, but it -- there  
3 are -- there are so many aspects to the manufacturing --  
4 and I really rely on Mr. Tobin for that. But -- actually,  
5 at one point that we sat down and make a list of, like, 30  
6 things in manufacture that could affect the subclass  
7 characteristics, which is what you're talking about.

8           Q. No. I'm -- let me be clear. Let's exclude  
9 subclass characteristics, okay. And on that subject, when  
10 dealing with the issue of identifying individual marks that  
11 help identify a particular shell casing to a gun, would you  
12 agree that an experienced examiner can exclude subclass  
13 characteristics?

14           MS. BRACKMAN: Objection, Judge. I think --  
15 foundation. This is beyond his expertise. This is getting  
16 into knowledge of the actual examination process as well as  
17 the manufacturing process.

18           THE COURT: On two notes: The question deals  
19 directly with whether an examiner can exclude a subclass.  
20 The question -- the expertise of this witness is as to the  
21 statistics and the experimental basis, the statistics  
22 behind those basis. So I think the question is  
23 inappropriate for his expertise. I don't think he knows  
24 whether an examiner would make a mistake or not, at least  
25 he hasn't stated that opinion yet.

26           MR. BUTTS: The reason I asked, Your Honor, is  
27 because the doctor, I thought, brought up subclass  
28 characteristics and used that in an explanation to the

1 previous answer, which was in response to, I think, a  
2 question that was a proper one.

3 THE COURT: And I think he did reference one of  
4 the Court exhibits that he had reviewed, but I don't know  
5 that he has the expertise as a forensics or firearms  
6 examiner.

7 So I'll sustain the objection as to the form of  
8 the question. You may ask him another question.

9 BY MR. BUTTS: Q. You don't have any experience examining  
10 cartridge cases to determine whether they came from a  
11 particular gun; is that true?

12 A. That's absolutely true.

13 Q. And you've never looked in a comparison  
14 microscope at two different cartridge cases to look at the  
15 different markings that were left on them after having been  
16 fired?

17 A. Absolutely true.

18 Q. And you've never been involved in a study in the  
19 general field of firearms and toolmark identification;  
20 correct?

21 A. I had a proposal -- actually visited an automated  
22 toolmark. So with automation, I sat and watched the  
23 process.

24 Ben Barak (phonetic), who has written several  
25 papers that are on Mr. Murdock's list -- I actually visited  
26 the lab and I've seen the equipment that does that. But  
27 the actual human toolmark examination, I have not been  
28 involved in in any way, and that is correct.

1 Q. And in your field of statistics, you mentioned, I  
2 think, you had a background in chemistry?

3 A. I co-edit a chemistry journal, yes.

4 Q. And other things -- I think you mentioned  
5 something about transportation?

6 A. In transportation, I'm on the editorial board.  
7 And I was in proteomics, measuring proteins and peptides in  
8 blood to try to detect cancer early, yes.

9 Q. Any other subfields that relate to your expertise  
10 in statistics?

11 A. Environmental area. I really -- jack of all  
12 trades is appropriate, master of none, probably.

13 Q. Would you agree that familiarity in the field  
14 that's being studied is helpful when you're applying your  
15 statistical background?

16 A. Absolutely. And the more one knows, the better.  
17 But I have -- for a statistician looking at something,  
18 I've -- you know, I've done a bit, but I agree if I was in  
19 the lab and looked at the comparisons and did it myself  
20 even, because I like to do things myself, and I have run  
21 chemical instruments myself, that it's helpful, yes.

22 Q. And you lack this --

23 (Court reporter interruption.)

24 BY MR. BUTTS: Q. Ask if you can just wait because you  
25 come on to the last part of my question.

26 -- in the field of firearms and toolmarks?

27 A. Yes, he's exactly correct.

28 Q. You prepared an affidavit prior to your testimony

1 in this case?

2 A. Yes.

3 Q. And this affidavit you submitted in how many  
4 other cases?

5 A. This was a quick one. I was told Diana Garrido  
6 said they needed it quickly, so it was cut from others.  
7 I've done maybe seven or eight unique affidavits, something  
8 of that order. I haven't counted. And my guess is they've  
9 been Xeroxed and submitted in a lot of cases, tens -- many  
10 tens of cases.

11 Q. With your approval; right?

12 A. Um, yeah. They ask -- just generally, like the  
13 Public Defender's Service in DC asked if they can use them  
14 on some occasions, and I say yeah. So I don't really keep  
15 track of it.

16 Q. So you approve of the submission of your  
17 declaration without actually filling it out and signing  
18 it --

19 A. Oh, it's not signed. They just --

20 Q. Doctor, doctor --

21 THE COURT: Let him finish his question.

22 BY MR. BUTTS: Q. You agree -- you allow the use of your  
23 declaration without overseeing its submission and providing  
24 a signature?

25 A. That's correct. It doesn't go in -- it was --  
26 you know, for example, there was an Ohio case where the  
27 judge acknowledged seeing my affidavit but it wasn't  
28 submitted for that case or something. It's just -- you

1 know, like John Rolph's affidavit that I've seen in this  
2 case was talked about and presented in court, but he didn't  
3 submit it for this case. So like that.

4 Q. So including all of the times your affidavit, in  
5 whatever form it is, has been used, how many would you  
6 estimate?

7 A. It's truly a guess, but probably 30.

8 Q. And the affidavit in this case, did you bring it  
9 along?

10 A. No, no, I did not.

11 Q. Have you reviewed it?

12 A. I reviewed it before I signed it. I haven't  
13 reviewed it since.

14 Q. And carefully reviewed it?

15 A. Yes.

16 Q. You're familiar with it?

17 A. Yes.

18 Q. And would you agree that there is a heavy  
19 emphasis in it on the reports by the -- I'm going to call  
20 it the NRC Ballistics Imaging, I'll call it NRC, and the  
21 National Academy of Science Strengthening Forensic Science,  
22 A Path Forward?

23 A. Yes.

24 Q. You make references to those two -- the reports  
25 generated by those two groups throughout your declaration;  
26 is that correct?

27 A. That is correct.

28 Q. But you weren't on either of the committees that

1 produced those reports?

2 A. That is correct.

3 Q. Okay. And you're familiar with the NRC report,  
4 for example, and everything that took place in it because I  
5 assume -- did you read the report?

6 A. I did read the report once, yes.

7 Q. And have you spoken with committee members?

8 A. Yes. Both committees, yes.

9 Q. All of them?

10 A. Yeah, all of them. I know the statisticians  
11 involved and I have -- yes, all of them.

12 Q. All of the committee members or all of the --

13 A. Just the --

14 Q. Hold on a second.

15 THE COURT: Clarify your question.

16 BY MR. BUTTS: Q. All of the statisticians on each  
17 committee?

18 A. No. John Rolph and Alicia Carriquiry were on the  
19 Ballistics Imaging. Karen Kafadar and Constantine Gatsonis  
20 were on the Moving Forensic Science Forward, 2009  
21 committee.

22 Q. So are you attempting to tell me that those are  
23 all of the people that you've talked to from those two  
24 committees?

25 A. About those committees, yes.

26 Q. Okay. And in addition to having read the reports  
27 and talked to those people, what other sources of  
28 information do you have about all of the things that you've

1 testified about those committees and their reports?

2 A. Okay. On the Ballistics Imaging, John Rolph told  
3 me, and I'm going to quote him, that Ann Davis, president  
4 of AFTE, refused to participate -- have her group  
5 participate in a human error rate study.

6 And then I was writing something about weak  
7 forensic science as high cost for the American Statistical  
8 Association, ASA, newsletter. And I wanted to put that in.  
9 So I called John and I said, "Hey, John, can I quote you on  
10 that? You remember we were walking and you said this?"

11 And he said, "Well, the actual person who did the  
12 negotiation with Ann Davis was -- and he gave me the name  
13 of a staffer, and I know many staffers so I don't want to  
14 give the name. But it's the one who negotiated with Ann  
15 Davis. And he said, "Call them."

16 And I did. And I said, "John Rolph told me this,  
17 can I write that?"

18 And he said, "That's too strong. You can say she  
19 showed no interest."

20 And I said, "So I can write that she showed no  
21 interest?"

22 And he says, "Yes."

23 So I didn't wind up using it in the ASA  
24 newsletter, but at some point I wrote an affidavit on this  
25 and I put it in the affidavit. And the only thing I wrote  
26 is that she indicated no interest, as opposed to show no  
27 interest. But I don't see the big difference there. I try  
28 to be faithful to what they said and I didn't write she

1 refused.

2 Q. Who else did you talk to other than the staffer  
3 and the four people you mentioned?

4 A. No one.

5 Q. So that's the sum total -- we've covered the sum  
6 total of the basis of your information for everything that  
7 went on in these committees related to firearms and  
8 toolmarks and the reports that were prepared related to  
9 that issue?

10 A. Besides the reports themselves and -- I've -- and  
11 those four people, yes, that's correct.

12 Q. Okay. How many people were on the NRC  
13 committee -- you know, I mean Ballistics Imaging?

14 A. I remember looking at the list. I don't remember  
15 the number. But something like 20, approximately. I don't  
16 really know -- I did look at the number. I actually looked  
17 at everybody on it and where they were from, but, you know,  
18 that was years ago and I don't remember.

19 Q. Okay. Approximately 20?

20 A. Something like that, yes.

21 Q. And of the 20, how many were firearms and  
22 toolmark examiners?

23 A. I don't -- you know, I don't really know. Maybe  
24 none. I don't remember.

25 Q. None?

26 A. It may be none. I don't remember. I mean, you  
27 can open the report and there's this list of who's there  
28 and where they are. I don't remember, honestly.

1 Q. What about the NAS Committee, how many firearm  
2 and toolmark examiners are on that committee?

3 A. You mean 2009 --

4 Q. Remember I'm saying NRC so I don't have to keep  
5 saying it NRC equals Ballistics Image. NAS means --

6 A. I think from -- in this trial from your  
7 witnesses, I don't remember if it was Mr. Murdock or Dr.  
8 Hamby, it was none. I'm going from your testimony -- from  
9 your guy's testimony, the prosecution witness testimony.

10 Q. How many were there on that committee?

11 A. Approximately 20.

12 Q. On the NAS?

13 A. Yes.

14 Q. So about 20 on both committees?

15 A. I think that's my recollection, yes.

16 Q. And other than what Dr. Hamby or Mr. Murdock  
17 said, you don't have any knowledge of a firearms or  
18 toolmark examiner being on that committee?

19 A. Being on the committee? No. I mean, I've --  
20 I -- I don't remember seeing somebody I identified as being  
21 a firearm toolmark examiner. There were forensic  
22 scientists, but according to the testimony I read, their  
23 specialty wasn't firearm toolmarks.

24 Q. So in Paragraph 3 of your declaration, I'll just  
25 say in your declaration, did you declare that there's no  
26 scientifically valid evidence that firearm examiners can,  
27 under their current methodology, come to a reliable  
28 conclusion that a bullet or cartridge case was fired from a

1 particular gun?

2 A. Yes. I'm sure I said that. And I've --

3 Q. And did you --

4 A. Go ahead.

5 THE COURT: Let -- you may explain your answer.

6 THE WITNESS: Yes. Based on the NRC Reports, the  
7 people who addressed the NRC -- I mean, there were firearm  
8 toolmark people that came in as expert witnesses. And the  
9 60-odd papers that I've read in books.

10 BY MR. BUTTS: Q. In your declaration did you say that's  
11 also the opinion that's encapsulated in the NRC Report and  
12 the NAS Report?

13 A. Yes.

14 Q. Okay. So you're saying that both of those  
15 reports echo your opinion that I stated from your  
16 declaration?

17 A. Yes.

18 Q. And do you also state -- and I'm looking at  
19 Paragraph 7 of your report -- that both of those  
20 publications, NRC and NAS, state that the studies and data  
21 accumulated by firearms examiners, number one, do not  
22 demonstrate that firearms impart unique marks on bullets  
23 and cartridge cases, and, two, that firearm examiners can  
24 reliably connect marks on a bullet or cartridge case to a  
25 particular firearm?

26 A. Yes. And we may be not understanding each other.  
27 But I believe that the expert witnesses you have would say  
28 that an individual striae is not a unique mark. That is,

1 according to CMS it takes a collection of marks. So  
2 individual marks I don't think anybody is claiming are  
3 unique.

4 Q. Well, it -- I'm looking at your declaration and  
5 it seems to say in this Paragraph 7, maybe you'd like to  
6 look at it, that both of those reports, NRC and NAS, both  
7 state, and you agree with them, that the studies and data  
8 accumulated by firearms examiners fail to do two things:  
9 Number one, demonstrate that firearms impart unique marks  
10 on bullets and cartridge cases, and, number two, that  
11 firearm examiners can reliably connect marks on a bullet or  
12 cartridge cases to a particular firearm?

13 A. I agree with that. I mean, I -- if asked, I  
14 would write it again, and that's what my reading of the  
15 report says they say.

16 Q. Okay. I was looking at Paragraph Number 10. And  
17 correct me if this is wrong. You're referring to the NAS  
18 Report authors as having been unambiguous in their  
19 statements about the effect the report should be having in  
20 courts; is that accurate?

21 A. I don't recollect that. I mean, the -- their  
22 report was not written to tell a judge to do anything. The  
23 NRC deals with science and natural laws, not with manmade  
24 laws. But I know the committee members, and they would  
25 certainly hope that -- they would not expect the courts to  
26 ignore what they wrote, just that they're not writing for  
27 the courts. They're writing for other scientists or  
28 whoever paid for the report, National Institute of Justice

1 or congress, or whomever.

2 Q. And I'm referring only to the NAS. And in your  
3 opinion having this background, do you have an  
4 understanding of how the report was generated and who was  
5 involved in creating it, whether you think that the  
6 creators have been unambiguous in their statements about  
7 the effect that the report should have on the court?

8 A. They haven't been ambiguous, but the report was  
9 not directed for the courts. I mean, that wasn't their  
10 target audience. I think that they hope -- they would hope  
11 that the courts look at the reports and see that reform is  
12 needed in forensic science.

13 Q. Don't you go on to quote Judge Harry Edwards as  
14 an example of someone who has been unambiguous on the point  
15 that courts should be looking at what they're saying?

16 A. Yes. I mean, I agree with -- you know, the  
17 people I've talked to on the panel, which are just Karen  
18 and the co-chair, quote Judge Edwards frequently.

19 Q. So when you say the authors of Strengthening  
20 Forensic Science have been unambiguous in their statements  
21 about the effects the reports should have in the courts,  
22 you're referring to what people have told you Judge Edwards  
23 has said?

24 A. And I've read Judge Edwards' statements, yes.

25 Q. Do you believe that other members of that  
26 committee have been unambiguous in stating that the courts  
27 should be using this report in evaluating forensic -- or  
28 firearms and toolmarks?

1 MS. BRACKMAN: Objection. Misstates the  
2 testimony. He's been very clear that he wasn't trying to  
3 say what the courts should do, just what they expected the  
4 courts would do.

5 THE COURT: Overruled. It's cross-examination.  
6 If you understand the question, you may answer  
7 it --

8 THE WITNESS: I do understand it.  
9 Individuals on the committee, there might be some  
10 individuals that disagree, but the people I've talked to  
11 and the committee chairs are certainly conveying an  
12 unambiguous message.

13 BY MR. BUTTS: Q. But when you say the authors have been  
14 unambiguous in their statements, you're kind of implying  
15 that all of the people who wrote the report; right?

16 A. I think that's right. I mean, if I had this to  
17 write again, I would say the committee chairs.

18 Q. So that's a little oversold?

19 A. Yes.

20 Q. And have you read an affidavit by Dr. Jay Siegel?

21 A. I have not in connection with this case, but I've  
22 seen it -- I saw it when it first came out, I think.

23 Q. And that was an affidavit to clarify the position  
24 that he understood the committee was taking with respect to  
25 its -- the effects of its report on the courts?

26 MS. BRACKMAN: Objection. Vague. Can we clarify  
27 what committee, what report?

28 THE COURT: Fair enough --

1 MR. BUTTS: We're all talking about the same  
2 committee and the same report that we have been for five  
3 minutes.

4 THE WITNESS: I've seen the letter, yes. He says  
5 he thinks it shouldn't be used by the courts. I certainly  
6 agree that they weren't targeting the courts. I mean, they  
7 would just view it out of their league to start telling  
8 courts what to do, but they would also hope -- I was on a  
9 committee. We would also hope that the courts would read  
10 the documents. And I think the message is unassailable  
11 that forensic science needs improvement. I mean -- I would  
12 find it hard for anybody to read that document and come  
13 away and say forensic science isn't in need of improvement.

14 Q. Right now we're just talking about what people  
15 have said or what the purpose of this report was as far as  
16 its impact on the courts.

17 So you understand that one of the members of the  
18 committee actually said that the report was not intended to  
19 have an impact on the courts? Dr. Siegel.

20 A. I agree that's what he said.

21 Q. Okay. So when you say the authors have been  
22 unambiguous, not only is it oversold, it's actually false?

23 MS. BRACKMAN: Objection. Argumentative.

24 THE COURT: Hang on a second. The form of the  
25 question is argumentative. Sustained.

26 Next question.

27 BY MR. BUTTS: Q. Well, considering Dr. Siegel's  
28 affidavit, how would you characterize the section of your

1 declaration --

2 A. I would --

3 Q. -- at this point?

4 A. I would say at this point, better read that the  
5 co-chairs of the panel are unambiguous about how it should  
6 be used.

7 Q. Those are the two people you've talked to about  
8 it?

9 A. I've talked to Constantine Gatsonis, and I've  
10 read Judge Edwards' statements. I think he's pretty clear.

11 Q. And did you read a part of Dr. Siegel's -- you  
12 know, this is a little bit off the exact subject, but I  
13 found of it interesting.

14 Did you read the part of Dr. Siegel's affidavit  
15 where it said nothing in the report suggests that a test or  
16 method that has not been completely scientifically  
17 validated is invalid and therefore the evidence for which  
18 that test is used is inadmissible. Did you read that part?

19 A. I did read that part and I was taken aback by it.  
20 But I --

21 Q. How much? Did you find it --

22 A. Yeah, it's -- that statement is a bit ambiguous.  
23 If a forensic technique is used within the limits of what  
24 the science will allow, then of course it can be used. But  
25 if it's used beyond what the experimental evidence  
26 indicates, then it's not valid. So I think that statement  
27 by Dr. Siegel needs to be clarified by him a bit.

28 Q. And the Ann Davis thing, that was with respect to

1 the NRC Report?

2 A. Yes.

3 Q. And in your declaration, you're critical of AFTE  
4 in the context of failing to avail itself of -- or  
5 participate in error rate studies; is that correct?

6 A. Yeah -- not -- participate in error rate studies  
7 run by the NRC. They certainly participate in error rate  
8 studies run by their members.

9 Q. Quite a few of them?

10 A. Many, many of them, yes.

11 Q. Okay. And you take exception to their  
12 methodology?

13 A. Yes. The NRC -- I believe we wouldn't be having  
14 this hearing if AFTE had taken part in the NRC experiment.

15 Q. And the basis of your criticism as far as the  
16 lack of participation of AFTE is this anecdote involving  
17 Ms. Davis; is that correct?

18 A. The facts that I was told, that she showed no  
19 interest in participating and the fact that the chair of  
20 the committee, John Rolph, said she was asked to  
21 participate, yes.

22 Q. So Dr. Rolph said she was asked to participate  
23 and what else did he say?

24 A. She refused.

25 Q. Okay. And that was everything that he said  
26 about --

27 A. Yes. That's what he said and referred me to the  
28 staff who actually did the negotiation with Ann Davis.

1 Q. And the staff member said exactly what to the  
2 best of your memory --

3 A. The staff --

4 Q. Doctor, again, if you could just wait --

5 MS. BRACKMAN: Objection. Asked and answered.

6 THE COURT: Two things: One, I need you both to  
7 take a breath between questions and answers. And  
8 sometimes, in fairness, Mr. Butts, you do pause part way  
9 through an answer. So you take a breath and let him finish  
10 his pause. Second, don't jump on his answer with your next  
11 question. And, third, it's cross-examination. I'll allow  
12 that question to be asked again.

13 So start again with the question.

14 BY MR. BUTTS: Q. Everything the staffer told you that you  
15 remember about what Ann Davis' involvement in this failure  
16 to be involved in the error rate study with the NRC  
17 committee?

18 A. Yes. He said "refused" was too strong, but  
19 "failed to show interest" was accurate and that I could  
20 write "failed to show interest." That's it.

21 Q. And do you know the terms or the circumstances  
22 under which she was asked to generate interest among the  
23 members of AFTE?

24 A. Only from Mr. Murdock's affidavit.

25 Q. And from that, you understand that there was an  
26 issue regarding compensation for quite a bit of work that  
27 was asked to be done by various AFTE members; is that  
28 correct?

1 A. Yes.

2 Q. And you drew a correlation between other studies  
3 that you know AFTE members have participated in without  
4 compensation; is that correct?

5 A. Yes.

6 Q. And are you aware of the level of commitment of  
7 the correlated instances where AFTE members have  
8 participated versus what Ann Davis was asked to -- was  
9 asked to ask her AFTE members to do?

10 A. I can guess that NRC would have had much more  
11 challenging experiments.

12 Q. And much more time-consuming; is that accurate?

13 A. That would be my -- yes.

14 Q. And so given that understanding, how can you  
15 fairly draw that comparison or correlation?

16 A. I think it's pretty fair. As I said, I don't  
17 think we would be here if they participated. I mean,  
18 they -- the NRC would do it -- who is going to challenge an  
19 NRC error rate study? Nobody. They'd either have an  
20 acceptable error rate or they wouldn't, but it would be --  
21 you know, the study would be done and we wouldn't be saying  
22 they don't have an error rate.

23 Q. That's not my question. I'm asking you how you  
24 can draw a correlation that supports your conclusion that  
25 AFTE has been underinvolved in participating in an NRC  
26 error rate study when the situations, as you admit, are  
27 different?

28 MS. BRACKMAN: Objection. Speculation. He's

1 asking him to guess what it is that motivates them.

2 THE COURT: Well, I think the question does call  
3 for speculation as to -- the way it's formed. So I'll  
4 sustain the objection.

5 BY MR. BUTTS: Q. I'm asking you, Doctor, how you can draw  
6 the correlation -- because you agree you correlated the two  
7 scenarios; am I accurate?

8 A. Yes, I've connected them, absolutely.

9 Q. And given -- at the bare minimum, a huge work  
10 level -- or a work level difference, how can you fairly  
11 correlate these two to emphasize your point that AFTE is  
12 fallen down on the job?

13 MS. BRACKMAN: Objection. Relevance and  
14 argumentative.

15 THE COURT: On argumentative I'll sustain. I  
16 have the issue before me.

17 BY MR. BUTTS: Q. Wouldn't you agree that there's a  
18 distinction between the amount of effort that was asked of  
19 AFTE members for the NRC study versus the amount of effort  
20 that they would be required to undertake in the situations  
21 that you cited?

22 MS. BRACKMAN: Objection. Speculation.

23 THE COURT: Overruled.

24 THE WITNESS: Very likely.

25 BY MR. BUTTS: Q. Given that likelihood, why would you  
26 draw such a correlation?

27 MS. BRACKMAN: Objection. Relevance.

28 THE COURT: I'm going to overrule relevance as to

1 his statistical background and the validity of their  
2 studies and the validity of their testing. I'll allow the  
3 answer.

4 THE WITNESS: If you put together the effort in  
5 the many studies that have been published, I would expect  
6 that it's -- exceeds what would be done in this one study.  
7 But if you're going to pick one study, you know, a generic  
8 study from the literature, it would be way less work than  
9 what the NRC would do. But if you put together the many,  
10 many studies, it might be less work and effort for the NRC,  
11 and it would actually accomplish what would help the  
12 courts.

13 BY MR. BUTTS: Q. What other examples do you have to  
14 support your opinion that AFTE has been underinvolved in  
15 participating with the NRC in an error rate study?

16 A. Well, the DC Metropolitan Police Department was  
17 asked to participate in an NIJ study that I was the  
18 statistician for, and they said while they'd love -- I  
19 think "love" or "like" or "jump" at opportunities to  
20 participate with the university, they were going to pass  
21 this one up. So those are the two.

22 Q. And you had the direct communication with Metro  
23 DC Police?

24 A. Yes, yes.

25 Q. If you could just wait until I'm done --

26 A. Okay.

27 Q. -- that'd be great.

28 And you mentioned that these committees -- we'll

1 first start with NRC -- had involved people in the firearms  
2 and toolmark identification field, though not as members;  
3 is that accurate?

4 A. Yeah. That's my recollection, yes.

5 Q. That's your recollection of your testimony or of  
6 what you understood to be the case? Both?

7 A. Both.

8 Q. Now, how did they involve firearms and toolmark  
9 people, NRC?

10 A. They had, I think, Dr. Stephanopoulos -- I may  
11 have his name wrong, but it's in Dr. Murdock's testimony.  
12 He came in and said -- oh, no. It was Ann Davis. Excuse  
13 me. It was Ann Davis for the NRC. I got my panels mixed  
14 up. Ann Davis came in and gave a presentation and was  
15 there to answer questions and interact with the panel.

16 Q. So in your answer you referred to Mr. Murdock's  
17 testimony. Is that your basis of knowledge of Ann Davis'  
18 participation in --

19 A. No -- I'm sorry.

20 Q. -- in the NRC committee?

21 A. No. I mean, I knew from the report that she was  
22 there. And having been a panelist, I know what happens  
23 when they bring in somebody. They make a presentation and  
24 there's a question-and-answer. And I fully expect that was  
25 what was done. And I -- you know, I talked to John Rolph  
26 about it, and I think that's the impression I got from him.

27 Q. With regard to the NAS committee, you believe who  
28 were involved as an invited guest from the firearms and

1 toolmark field?

2 A. Stephanopoulos, or something of that order. I'm  
3 sure I misspelled -- or mispronounced the name. But the  
4 name is in the testimony of Mr. Murdock, and it's a  
5 committee member of Mr. Murdock who helped that committee  
6 prepare the 94 references that he feels should be read.

7 Q. So how did you know that this individual was  
8 involved?

9 A. It was in the NRC Report -- you call it the NAS  
10 Report, the NAS.

11 Q. Mr. Striupaitis?

12 A. That might be right, yes.

13 Q. What was his involvement with the NAS committee?

14 A. He made a presentation and he would have been  
15 available for questions.

16 Q. Are you familiar with the presentation?

17 A. I haven't looked at the presentation, no.

18 Q. So you don't know what information  
19 Mr. Striupaitis was able to impart as a firearms and  
20 toolmark examiner to the NAS committee?

21 A. I do not.

22 Q. Was he the only firearms and toolmark person who  
23 was invited to make a presentation to the NAS committee?

24 MS. BRACKMAN: Judge, I'm going to object on  
25 foundation. This seems to be questioning along the lines  
26 of this witness being an expert of how these proceedings  
27 were conducted.

28 He was qualified as a statistician. He testified

1 about these committees as what their prestige or level  
2 of -- what it means to statisticians, what those reports  
3 meant, not as somebody who is an expert on the procedure.  
4 He talked about his own experience. I think we're getting  
5 far afield from that.

6 THE COURT: Well, I'm going to overrule the  
7 objections. He has testified that he's based his opinions  
8 and his area of expertise on his brief review of the  
9 reports and in talking with statisticians on these  
10 committees, but I think it's appropriate to probe the  
11 depths of his understanding of the committees' views.

12 It is getting a little tangential going through  
13 his depth of the understanding of how many firearms  
14 examiners were on the committees. I think we can wrap up  
15 that area with one more question.

16 And then we're getting close to wrapping up the  
17 day so I'll ask you to move forward.

18 Do you remember the last question?

19 THE WITNESS: I don't.

20 THE COURT: Was the name you call name  
21 Stephanopoulos, and I think it was Striupaitis, was that  
22 the only firearm and toolmark person who was invited to  
23 make a presentation on the NAS committee?

24 THE WITNESS: The only one I recall.

25 BY MR. BUTTS: Q. Do you know Ann Davis to have tried to  
26 supply the NRC Committee with a number of documents?

27 A. I understand that, yes --

28 Q. And -- sorry?

1 A. Yes.

2 Q. Do you understand that not all of the documents  
3 were viewed by the committee?

4 A. That -- I talked to Karen Kafadar about that,  
5 who's with the NAS panel. And she says, "Just because the  
6 committee says they only read four papers or five papers,  
7 that's what they commented on, does not mean that that's  
8 all that was read." Her understanding is, people would  
9 read whatever they felt they had to read to understand an  
10 area.

11 Q. And you've mentioned Dr. Rolph in your -- are you  
12 familiar with the affidavit that he has written in response  
13 to some of the attempts to have firearms and toolmark  
14 evidence suppressed in court?

15 A. I am familiar with it.

16 Q. Okay. And how have you become familiar with it?

17 A. I think I saw it when it first appeared either on  
18 the AFTE website or from the DC Public Defender Service.  
19 And I actually asked John about it. He was on the Board of  
20 Directors of the National Institute of Statistical Science  
21 and I as well. At that time we overlapped. So we went out  
22 for a coffee break and I asked him about it.

23 Q. And you don't mention Dr. Rolph's affidavit in  
24 your declaration; do you?

25 A. I do not.

26 Q. Would you agree that Dr. Rolph, in his  
27 declaration, has downplayed the significance of the NRC  
28 Report as far as the acceptability of firearms and toolmark

1 evidence in court?

2 A. So I read that differently than -- you know, I  
3 think we're honestly reading it from different  
4 perspectives. As a panelist, I can just say I shudder at  
5 the thought of telling a court what they should admit into  
6 evidence or not. It's not our expertise. It's not our  
7 position. We're way out of place if we try to do that. So  
8 that's how I read his statement about admissibility of  
9 evidence.

10 There's no way in heck -- pardon my language.  
11 But a panel wouldn't attempt to tell a judge what they  
12 should decide. I mean, it's way out of the expertise.  
13 He's -- the panel isn't mainly lawyers, and the panel isn't  
14 skilled on what's good evidence. I mean, the panel just  
15 knows what's good science.

16 So I read his comment of that as saying, hey,  
17 we're scientists. We're not trying to tell the Court what  
18 they should do. And so that's why I didn't think it was  
19 relevant.

20 Q. Would you agree that Dr. Rolph, in his affidavit,  
21 downplayed the significance of the NRC Report regarding  
22 criticism of the general validity and uniqueness of  
23 toolmark evidence?

24 MS. BRACKMAN: Objection. Relevance of his  
25 impression of what this declaration, which is a court  
26 exhibit, which the Court can read itself -- I don't see how  
27 it's relevant.

28 THE COURT: Response?

1           MR. BUTTS: Your Honor, the witness has a prior  
2 declaration in which, I believe, 12 or so paragraphs out of  
3 20 refer to, and rely on, the NRC and NAS Report. So  
4 examining his background and understanding on what these  
5 reports mean, especially given his limited understanding --  
6 or not limited, but his understanding having certain limits  
7 to it, I think, is appropriate.

8           THE COURT: Well, you haven't qualified your  
9 question in terms of his analyses of the statistical  
10 significance of what Dr. Rolph was talking about or whether  
11 it was in regard to statistical -- statistically  
12 significant experiments or surveys.

13           So I'll sustain the objection as to the form of  
14 the question and let you rephrase.

15 BY MR. BUTTS: Q. Would you agree that the NAS Report has  
16 been limited by stating in the report in its summary that  
17 it would not be feasible to develop a detailed evaluation  
18 of each discipline in terms of its scientific underpinning  
19 level of development and ability to provide evidence to  
20 address the major types of questions raised in criminal  
21 prosecutions?

22           A. I fully agree with that.

23           Q. Okay. And you mentioned some studies but -- and  
24 you mentioned some studies with -- where eight examiners  
25 were used. Are you familiar with any studies where  
26 questioned bullets or shell casings were sent to a larger  
27 pool of examiners who were asked to identify whether these  
28 objects, either bullets or shell casings, were produced

1 from a particular barrel or firearm?

2 A. Yes. And I think I have one of those papers in  
3 front of me. But the answer is yes. There is a few with  
4 hundreds of examiners. But then again, there's just a few  
5 weapons involved and one type of ammunition. So the sample  
6 size for ammunition is one or a few. The sample size for  
7 number of guns is one or a few. The sample size for the  
8 condition of the barrel is one or a few.

9 So there were many factors that the sample sizes  
10 have to be right across the board. So yes, there are  
11 studies where there are many examiners, not a lot, but  
12 there are some. But then there are limits on the sample  
13 sizes for the other factors in the experiment.

14 Q. Are you familiar with the 2009 study by Hamby and  
15 Brandich regarding the identification of bullets fired from  
16 10 consecutively rifled 9-millimeter Ruger pistol barrels,  
17 a research project involving 507 participants?

18 A. Yes, I am. And I have it in front of me.

19 Q. Okay. And so there you have 10 barrels; right?

20 A. But one manufacturer -- 1 batch of 10  
21 consecutively manufactured barrels, yes.

22 Q. 500 different examiners?

23 A. Yes. But why the 1 batch of 10 matters is  
24 because if the lubrication was dirty when those barrels  
25 were being rifled, it would have been dirty for all of  
26 them, and they would have had lots of marks that are easy  
27 to use. If the lubrication was clean while they were  
28 rifled, they would not be quite so easy.

1           So it's a flaw in the experiment -- so rather  
2 than using 10 consecutively manufactured barrels, it would  
3 have probably been better to take a random set of 5 groups  
4 of 2 consecutively manufactured barrels and the barrels  
5 taken under different manufacturing conditions, clean  
6 lubrication, dirty lubrication, different -- electronic  
7 rifling and other kinds of rifling. So that's where I'm  
8 going.

9           But I do understand that there are studies that  
10 for a factor of 2 have more than one or 2 things, but 10  
11 isn't a big number by the way for an experiment to draw a  
12 conclusion or practical certainty.

13           Q.    The last subject that I'll cover with you is CMS.  
14 You're familiar with that concept as it applies to firearms  
15 and toolmark identification?

16           A.    Yes.

17           Q.    And do you mention it in your affidavit that you  
18 submitted in this case?

19           A.    I did not. The affidavit wasn't made -- you  
20 know, Diana Garrido said she needed an affidavit right  
21 away. The affidavit that it was edited from was from DC  
22 PDS and they don't use -- the DC NPD doesn't use CMS, but  
23 that's why it wasn't mentioned.

24           Q.    You are critical in this declaration of the field  
25 and their ability or lack of ability to articulate their  
26 matching criteria?

27           A.    Yes. Less so for CMS, but still -- it's much  
28 better than not using it.

1 Q. So was this declaration prepared prior to you  
2 receiving the Standard Operating Procedures for the Contra  
3 Costa County Crime Lab?

4 A. Exactly, yes.

5 Q. So if you were to add to this declaration now  
6 that you know the quantitative CMS was used -- is used by  
7 the Contra Costa County Crime Lab, how would you insert  
8 some information?

9 A. I would -- I would have said that consecutively  
10 matching striations is good and this Contra Costa SOP is  
11 the best that I've seen but still lacking -- particularly  
12 for CMS, it's lacking a firm definition of what a striation  
13 is and a firm definition for what consecutively matching  
14 striations are. It's left at an intuitive level.

15 Also, if I had the SOP from estimating class  
16 characteristics, there's a statement that the -- a one  
17 width and one land should be measured and multiplied by the  
18 number of lands and widths and divided by pi and that gets  
19 to the diameter of the bullet and that's used for class  
20 characteristics.

21 And I would have said there should have been an  
22 uncertainty on those measurements because nobody can  
23 measure things exactly. And that would have been helpful.  
24 But, otherwise, I mean, the SOP for Contra Costa County --  
25 and I've seen several, although it's still lacking in some  
26 respects, is the best one that I've seen by far.

27 Q. And the criteria is what?

28 A. The matching --

1 MS. BRACKMAN: Objection. Foundation.

2 THE COURT: I'm sorry. Foundation? What  
3 foundation?

4 MS. BRACKMAN: He's asking him about criteria.

5 MS. GARRIDO: I'm sorry to interrupt, but my  
6 client is requesting a comfort break, which apparently has  
7 reached emergency levels. So I apologize. So if we could  
8 do that question quickly, perhaps.

9 THE COURT: How much longer do you have on your  
10 questions?

11 I'm inclined to sustain the objection. But --  
12 how he would know what the criteria that Contra Costa  
13 County used.

14 MR. BUTTS: Okay.

15 Q. Now, finally, your opinions that you've been  
16 expressing here in court, is it your testimony --

17 THE COURT: Hang on a second. I think we need to  
18 take our emergency break. We'll take a brief recess. And  
19 as soon as he comes back, we'll ask the question.

20 MS. GARRIDO: We'd be willing to waive his  
21 appearance if we continue in his absence. I understand  
22 we're under some tight time constraints now.

23 THE COURT: Are you willing to waive your  
24 client's appearance while he takes his break?

25 MS. GARRIDO: Yes.

26 THE COURT: You may return to your seat. Your  
27 break is over.

28 BY MR. BUTTS: Q. Is it your testimony that the

1 statisticians who share your viewpoint include the six  
2 people and maybe one other person that you testified to?

3 A. Yeah, and many of my colleagues at Texas A&M -- I  
4 mean, I have not encountered anybody I've talked to about  
5 forensics generally or firearm toolmarks that think it's  
6 justified.

7 MR. BUTTS: No other questions.

8 THE COURT: Any redirect?

9 MS. BRACKMAN: Thank you.

10 REDIRECT EXAMINATION

11 BY MS. BRACKMAN: Q. You've described how -- your  
12 experience with the failure of the firearm and toolmark  
13 community to assist them to conduct adequate experiments  
14 involved a study proposal through the National Institute of  
15 Justice; is that correct?

16 A. That was the one I was -- wanted to do, yes.

17 Q. And that was with DC Metropolitan Police --

18 A. And the DC Public Defender Service.

19 Q. So that was distinct from AFTE's and Davis'  
20 refusal with the NRC Committee; correct?

21 A. Yes.

22 Q. And you also have participated as an NIJ reviewer  
23 of studies, in particular, one that Dr. Hamby referenced to  
24 the Court?

25 A. I asked that this not be brought up. I'm being  
26 asked to violate -- the reviews are confidential and I  
27 would like to keep it confidential, and I would love this  
28 to be stricken from the record.

1 Q. Okay. I'm -- I misunderstood my basis of  
2 information. I would ask that that happen. I did not mean  
3 to get into confidential information with the --

4 THE COURT: So far I only have that he was asked  
5 to participate in a review of studies referenced, and I  
6 take it he has not discussed any aspect of the reviews --

7 MS. BRACKMAN: I think that the issue is that  
8 they can't be identified for what -- anyone is a reviewer.

9 THE COURT: Is that what you're saying?

10 THE WITNESS: The number of statisticians that  
11 know firearm toolmarks is pretty small. If I'm questioned  
12 about the specifics, it's going to be clear who the  
13 reviewer is. You might as well go ahead --

14 MS. BRACKMAN: I'm sorry. I did not mean -- I  
15 did not mean -- until a --

16 THE COURT: You're withdrawing your question and  
17 asking another question.

18 MS. BRACKMAN: Okay. It's late in the day.

19 Q. You are an NIJ reviewer -- you are considered an  
20 authority such that they ask you to review these materials;  
21 is that correct?

22 A. That is correct.

23 Q. Now, the prosecution characterized your criticism  
24 of the lack of AFTE's participation to be that they  
25 shouldn't quibble about money, essentially.

26 As a statistician, as a member of the scientific  
27 community, do you have a broader concern about their --  
28 about the fact that these studies have not been completed?

1           A.    I -- I -- I mean, I'm really concerned.  This was  
2 their chance to get an error rate that the scientific  
3 community would accept.  It would have been a -- yeah, it's  
4 hard.  But, you know, we all volunteer.  We do a lot of  
5 volunteer work in many ways.  This -- you know, as I said,  
6 I don't think we'd be here if they did that study.

7           Q.    So it's not just that you --

8                   (Court reporter interruption.)

9           MR. BUTTS:  Objection.  Leading.

10          THE COURT:  It is leading.  Sustained.  I know  
11 what his opinion is because he stated it twice.

12          MS. BRACKMAN:  Okay.

13          Q.    Very quickly.  CMS, you agree is a better  
14 practice; correct?

15          A.    I agree it's a good step forward, yes.

16          Q.    Does that utilization of CMS change your opinion  
17 about what it is can be a proper conclusion by a firearm  
18 and toolmark examiner?

19          A.    No.

20          Q.    You still believe it should be limited to what  
21 you described previously?

22          A.    Yes.

23          MS. BRACKMAN:  Thank you.  No further questions.

24          THE COURT:  Recross?

25                                   RECROSS-EXAMINATION

26 BY MR. BUTTS:  Q.  What have you been asked to review?

27          A.    The Miami study.

28          Q.    By Fadule?

1 A. Yes.

2 Q. And you've been asked by who to do that?

3 A. National Institute of Justice. I was one of the  
4 reviewers. They will post the report when it's released  
5 with anonymous reviews, which are now no longer anonymous.

6 Q. And you have what expertise in firearm and  
7 toolmarks that you haven't disclosed that qualifies you to  
8 conduct such a review?

9 A. Because there was experimental evidence, they  
10 wanted a statistician who knows what firearm toolmarks is  
11 and who knows what experimentation is, and that qualified  
12 me to be a reviewer.

13 Q. Is there anything that you haven't disclosed to  
14 us regarding your knowledge in firearms and toolmarks that  
15 qualifies you?

16 A. No.

17 Q. So you have reviewed in depth that one particular  
18 study?

19 A. That is correct.

20 Q. Which involved any sort of experimentation or  
21 validation with regard to uniqueness?

22 A. It was whether -- I think the central question,  
23 whether firearm toolmark examiners could correctly identify  
24 a weapon to a bullet.

25 Q. And -- I'm sorry --

26 A. Yeah. I think it was bullets, not cartridge  
27 casings. But I could be -- this is -- I did it over a year  
28 ago, and it doesn't particularly stick in my mind.

1 Q. Do you know how many participants there were?

2 A. A few. It wasn't hundreds. It was several.

3 Q. And the conclusion of the study was that firearms  
4 examiners could identify a bullet to a particular gun?

5 A. Yes. And it was -- it was sort of a funny study.  
6 They didn't base it on their experiment alone but on the  
7 wealth of literature. So they didn't make conclusions  
8 based on their own study, but on their own study plus the  
9 existent literature.

10 Q. And you would agree that you haven't done an  
11 exhaustive review of the literature on the subject of  
12 uniqueness and firearms and toolmark examination; is that  
13 correct?

14 A. Yeah. I don't know that your experts have done  
15 exhaustive either, but they've done much more than I have.

16 MR. BUTTS: No other questions.

17 THE COURT: Any more questions for this witness?

18 MS. BRACKMAN: No.

19 THE COURT: Thank you, Doctor, very much for  
20 coming in.

21 Does anyone want him subject to recall?

22 MR. BUTTS: No, Your Honor.

23 MS. BRACKMAN: No.

24 MS. GARRIDO: No.

25 THE COURT: Thank you. You're excused. If there  
26 are any exhibits -- I don't think you have any court  
27 exhibits.

28 MR. BUTTS: I have it.

1 MS. BRACKMAN: The District Attorney does.

2 THE COURT: Thank you. Have a safe trip.

3 All right. We'll start with our jurors at 9:00  
4 o'clock. There's been a suggestion we have counsel and the  
5 defendant here at 8:45.

6 We will attempt to get you copies of the  
7 questionnaires, and we have apparently accomplished that.

8 Anything we need on the record before I let my  
9 poor, beleaguered reporter go?

10 MS. GARRIDO: No.

11 (Recess taken.)

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1 STATE OF CALIFORNIA )  
2 ) ss.  
3 CONTRA COSTA COUNTY )

4 I, JENNIFER A. BURNETT, CSR, RMR, CRR, do hereby  
5 certify:

6 That I am a Certified Shorthand Reporter of the  
7 State of California;

8 That I was a duly appointed shorthand reporter by  
9 the above-named court in the foregoing entitled court and  
10 cause;

11 That I fully, truly and correctly took down in  
12 shorthand writing all of the proceedings had and all of the  
13 testimony given in said court and cause at the hearing in  
14 said matter;

15 That I thereafter fully, truly and correctly  
16 transcribed the same into typewriting;

17 That the foregoing is a full, true and correct  
18 transcript of my shorthand notes taken at said hearing and  
19 at the time and place therein named.

20  
21 IN WITNESS WHEREOF, I have hereunto  
22 set my hand this 4th day of April,  
23 2012.

24  
25  
26  
27 \_\_\_\_\_  
28 JENNIFER A. BURNETT, CSR, RMR, CRR  
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