IN THE COURT OF QUEEN'S BENCH OF NEW BRUNSWICK

TRIAL DIVISION

JUDICIAL DISTRICT OF FREDERICTON

BETWEEN:

HER MAJESTY THE QUEEN

- and -

ALLAN JOSEPH LEGERE

TRIAL held before Honourable Mr. Justice David M. Dickson and a Petit Jury at Burton, New Brunswick, commencing on the 26th day of August, A. D. 1991, at 10:00 in the forenoon.

APPEARANCES:

Graham J. Sleeth, Esq.,)
Anthony Allman, Esq., and) for the Crown.
John J. Walsh, Esq.,)

Weldon J. Furlotte, Esq., for the Accused.

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Proceedings of October 17 & 18, 1991

Dolores Brewer,
Court Reporter.

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1 COURT CONVENES - 9:30 A.M. (Accused viewing from cell.)

THE COURT: Well, we will have the jury in, please.

MR. WALSH: My Lord before that we have the matter of that summary chart that Doctor Bowen wishes to rely on 5 in giving his evidence. We wish to make argument on that.

THE COURT: Well, this chart is - this is not an exhibit?

MR. WALSH: No, it's not My Lord. When Doctor Bowen testifies --

10 THE COURT: This chart was used in the voir dire, wasn't it?

MR. WALSH: Not the identical chart but --

THE COURT: Something like it.

MR. WALSH: Something like it. This summary chart Doctor 15 Bowen wishes to rely on to demonstrate the conclusions that he has made, as you can see, he will have gone through a number of autorads. This chart relates to the first blot, the first gel, first membrane. In that membrane, as Your Lordship will 20 remember from the voir dire, there was 22 substances put in that -- or 22 lanes in that membrane and he ran it across a number of probing and generated a number of autorads, and the conclusions he has 25 drawn with respect to each probe, whether they're inconclusive, whether they match, the results of the monomorphic marker, the results of the sex typing, and the frequency that he has assigned to any matches he found are summarized in this chart. It's a 30 memory aid that I think is very important for the jury. It becomes a test of memory if the Doctor is only allowed to relate orally his findings because it can become very confusing and makes it much

1 more difficult for other witnesses - expert witnesses to talk on whether or not they confirm the results or what opinion they have with respect to the results. I have some law that I wish to --

5 THE COURT: Yes, but are you addressing now the question of simply providing the jury with copies of this or the business of --

MR. WALSH: No, I don't want to provide the jury with copies. We have a chart of this that's foam-backed.

10 I don't think it's necessary to actually provide the jury with copies since the chart will be up in the courtroom.

THE COURT: Well, you're talking about the - putting this in as an exhibit. Is that what you are addressing

15 now?

MR. WALSH: Yes, that's correct, My Lord. As a demonstrative aid. It's a chart similar to that. The Doctor would use it to summarize the conclusions that he has drawn. He will go through all the autorads but

20 then this will act as the summary of his conclusions. Without it it is going to be very difficult for the jury to follow. They have his oral testimony, mind you, but I mean dealing with the number of substances

25 that we're dealing with and the number of probings and the number of autorads generated it becomes a test of memory - it serves to aid no one. With respect to the law, My Lord, I would refer to McWilliams On Evidence, his third edition text,

30 page 7-3. He says "A photograph, sketch, diagram or survey can often more fully, clearly and accurately portray or describe persons, places or things than a witness can by oral evidence. They are not subject

1 to the difficulty inherent in all evidence of absorbing and relating the massive detail and then remembering it. The jury can conveniently refer to them and their details during the trial as points
5 arise." He goes on to deal with the question of relevancy and he says:

> "It is submitted that as with all evidence a graph must be relevant. For instance, it may illustrate the facts on which an expert bases his opinion, illustrate or magnify the
> 10 detail of objects described in the testimony, verify testimony ..."

- and they go on to a number of things that are not probative. I'm saying that by analogy - I'm referring to McWilliams by analogy, what he is referring to. My learned friend, Mr. Sleeth, just
15 gave me a note and he's correct, he reminds me that in accounting cases where they're dealing with numbers and figures, that accounting summaries are certainly permissible to allow the jury to more fully understand the evidence. They are tasked with
20 remembering as well as judging and --

THE COURT: Well, just going on from that point, the last column, everything on that summary chart excepting the legend, perhaps, and the frequency column was on an exhibit that was admitted at the voir dire.
25 MR. WALSH: Yes.

THE COURT: As a convenience certainly at that time.

MR. WALSH: Yes, it was for the convenience of the Court.

THE COURT: The frequency column was not included in that.

30 MR. WALSH: No, it wasn't. It simply wasn't included because when they did up the graph for the - the chart for the voir dire they didn't have time. They were in a hurry or under time details.

1 THE COURT: Well that's understandable, but this witness will be -- What about these frequency figures that are shown here? Are these the figures that he will in fact be using?

5 MR. WALSH: Yes, exactly. That's the best estimate calculation of frequency that he has generated at the R.C.M.P. Lab. What he will do, as he is testifying, My Lord, he will gradually reveal the conclusions that he has drawn and this chart will be supported -
10 or his oral evidence is going to mirror this particular chart. It's, again, for a memory aid. If I may, My Lord, I would refer you to "McWilliams", again, "On Evidence", page 610, and under "Summaries" in R. V. Scheel, 1978 42 C.C.C. (2d), 31, the
15 Ontario Court of Appeal, Mr. Justice Martin approved the practice of admitting summaries to assist the Court in dealing with a mass of evidence, citing Wigmore and a number of other decisions. Although in Scheel the original mass of evidence was also
20 tendered, Wigmore and the said cases support the admission of summaries alone provided the original documents or records are available in court for the opposition to inspect and test by cross-examination and obiter the Court seemed ready to accept this
25 as well. Doctor Bowen's testimony is subject to cross-examination. This is a summary of his conclusions as an aid to the jury in remembering what his testimony is. It will also be an aid in terms of other experts that are testifying.
30

1 THE COURT: Well, Mr. Furlotte do you have any serious objection to this?

MR. FURLOTTE: My Lord I object to the summary part being put in as an exhibit because while the Crown is
5 saying it is - it's a summary of what Doctor Bowen is going to testify to, I agree with that, but it's only a summary not of the facts - of factual evidence. A lot of this evidence is - a lot of the opinions, I should say, of Doctor Bowen are going to
10 be in dispute. I agreed to the other two booklets which depicts what exhibits were placed in what lanes for the test parts and I am not contesting that part of Doctor Bowen's testimony, however, the opinions that Doctor Bowen testifies, the weight that the
15 jury should put on his opinions, that is what is in the summary chart. The jury themselves might not want to place as much weight on Doctor Bowen's opinions as he cares to place on them. Some members of the jury for one reason or another may not find
20 or make as many matches as Doctor Bowen has made or as any expert witness the Crown is calling in support of Doctor Bowen's opinion. The figures and the frequencies themselves are - they are definitely in dispute by the Defence. They are not even accurate
25 according to the Crown's own witnesses because some of the Crown's own witnesses are going to come in and change these frequency numbers.

I would submit, My Lord, that providing this
30 as an exhibit for the jury to sit and stare at during the testimony of the Crown witnesses and the testimony given under cross-examination of the Crown witnesses, they're going to place more emphasis on the summary

1 chart which is staring them in the face throughout the whole trial and after the trial rather than listening to the explanations and the arguments of - explanations of crown witnesses and the arguments
5 of the defence in cross-examination. I think it would be totally distracting and it's a psychological aid to enhance Doctor Bowen's opinion rather than to present the - I suppose the facts, accurately. It may summarize Doctor Bowen's opinion but I would
10 submit, My Lord, that by submitting such a chart it's strictly going to distract from the testimony given by the expert witnesses. Once the jury would look at this summary chart they are going to be more at awe at all the great connection rather than
15 paying attention as to how the connections were made.

I would submit, My Lord, that it would be very prejudicial to Mr. Legere to have this put into evidence.
20
THE COURT: Wouldn't it, Mr. Furlotte, though, in your cross -- You presumably will be cross-examining the witnesses as to say the frequency on the frequency questions.

25 MR. FURLOTTE: On the frequency and as to some of the matches.

THE COURT: Yes. But on the - well, even on the matches or on the frequencies isn't it going to make it more understandable of what your points are that you are
30 trying to make on cross-examination by having that chart - the jurors having that chart in front of them rather than you'll be talking about the

frequency as to probe D1S7 as it applies to exhibit 109 and so on. You know yesterday you talked for hours, I don't think I'm exaggerating, about the Hardy-Weinberg theory and about the Product Rule, and my impression was the jury didn't understand what you were talking about.

MR. FURLOTTE: You're absolutely right, My Lord, and I feel the onus is on the Crown to educate the jury as much as they can so they can understand how the evidence fits in. How the principles fit in.

THE COURT: The Crown, if I may say so, had the witness explain the Hardy-Weinberg rule, the Product Rule, and after that you came away from it, you went back to it, you came away from it, and the same thing would happen here, would it not. You wouldn't score any points without this material in front of you.

MR. FURLOTTE: My Lord I don't expect to score any points with witnesses who I feel do not want to cooperate in trying to educate the jury. I felt in cross-examining Doctor Waye I was trying to assist the jury more than assist the Defence's case so the jury could understand DNA evidence. I don't want the jury just submitting to authority of these witnesses and taking their final opinion on blind faith just because these are highly educated men coming in and forming an opinion.

THE COURT: Well, that's right, and of course I've pointed out in our earlier voir dire discussions that the traditional methods that Defence Counsel employ in going after expert witnesses is to (a) recognize that they're never going to outwit the expert witness in

1 his own field and, (b) to concentrate on a few points where you think you might undermine his evidence and go after those points. You know it may take only 20% or 10% of the time that it takes

5 for him to give his direct testimony but by wandering over a whole field of things and having the expert witness merely reinforce on cross-examination what he says on direct examination doesn't avail the defence of anything at all. I've made this point

10 before. I made it numerous times at the voir dire when the cross-examination went on interminably and when you were losing ground on your cross-examination at the voir dire if I may say so.

MR. FURLOTTE: My Lord I feel when I'm reaching the truth

15 of a matter I'm not losing ground, and what I want before this Court and before the jury is the truth of how DNA works and how it should be applied and when it can be applied and when it can't be applied. I'm not scared of the truth. I told you that at

20 the voir dire and I'll tell you again at the trial. What I want before this jury is for the truth of DNA evidence to come out so they can then place weight on the reliability of it. I don't want them baffled to no ends by brilliant expert witnesses

25 who are attempting to try and conceal certain things about DNA evidence. Let it all come out was my position at the voir dire and that's my position at the trial. I will argue the truth at the end.

30 MR. WALSH: If I may on just a couple of factual points when he's finished.

MR. FURLOTTE: Yes, wait until I've finished, please.

1 MR. WALSH: I'm sorry, I thought --

MR. FURLOTTE: And, My Lord, I believe the summary chart if it's put before the jury, again, it's only trying to put before the jury the opinion of the expert
5 witness without the expert witness having to go through DNA procedures, the Hardy-Weinberg formula, the whole array, and it's going to distract from the jury and it's going to distract from my ability to do cross-examination because once the jury sees the
10 final results in front of them -- DNA is too complicated for them to understand it totally but I feel that the more I can get them to understand it the better chance I have at the argument at the end of the trial. And if this summary chart is put in,
15 the final results of all the experts' testimony, they don't care what the experts have to say any more, they're going to go to sleep.

That's my final position.

MR. WALSH: Just in rebuttal, briefly, My Lord.
20
THE COURT: Well, I don't want to hear--

MR. WALSH: No, but he made a factual statement that I feel needs to be corrected. Doctor Bowen's numbers I don't believe there's a crown witness going to
25 dispute those numbers. What the population geneticist will do is put confidence intervals around those numbers to show the scale but that doesn't change the best estimate of frequency that he's actually made. I just wish to point out that fact.

30 THE COURT: Well, I am thoroughly convinced, actually, that without a chart or a summary like this before the jury both the evidence given on direct examination

1 and the evidence given under cross-examination would be meaningless to the jury, or it would be most difficult for a jury to appreciate or understand, and in saying that I hope I'm not favouring either 5 the Crown or the Defence. I think it applies equally to direct examination and to cross-examination, and certainly if Defence witnesses are called, or expert witnesses are called and they are going to produce equivalent summaries in a visual form to 10 summarize their findings I would permit it in that circumstance as well. So my instruction is that the Crown may use this. Now, I do this, Mr. Walsh, on the understanding that the evidence of the witness will confirm or touch on, in any event, these figures 15 given in this and the findings shown in the summary.

MR. WALSH: I can appreciate that My Lord.

THE COURT: I am sure I have your undertaking that that will be the case.

20 MR. WALSH: Yes, My Lord. I can explain to you that the way the Doctor will reveal those numbers, he will put another chart over the top and he will reveal them as his evidence is given, then he will reveal the conclusion.

25 THE COURT: There are things, mind you, stated in the legend on this, for instance item 1I, vaginal swab reportedly from N. Flam, well that's a matter for the jury ultimately to determine whether the swab which reputably is from Nina Flam was in fact from 30 her. The jury have got to make a finding of fact on that. But for the purpose of the opinions or views

1 or findings that the witness has made his findings are predicated on the notion that that is in fact, and of course we will have to make that clear to the jury.

5 MR. WALSH: That's right. Otherwise what will happen is there will be a constantly putting the question (reportedly from) otherwise they have nothing to put it in context with.

THE COURT: I'm not sure I would have used the word

10 (reportedly). I might use the word [reputably] but I don't think it makes the slightest bit of difference. Well, that is my ruling on that.

While we're on this topic - or not while we're on this topic, while the jury are excluded here, I

15 don't think I should delay longer delivering a decision on the application that was made last Thursday. I am not going to grant that motion. I don't think in giving my reasons for coming to that conclusion it would either be necessary or desirable for me to try

20 to attach responsibility for the events that led to the dismissal of one of the jurors from the jury or from the exclusion of two persons from the courtroom or for interviews or events that occurred after that I think for me to deal with those matters and perhaps

25 try to attach blame is only going to complicate this trial unduly and Lord only knows we want to avoid complications where that can be done.

The main issue, or the bottom line as some

30 might say, is that has the jury been contaminated by these events, and it's my firm view and opinion that they have not been contaminated certainly to

1 any point where their usefulness as a jury in this trial is affected in any way.

You know these incidents, the dismissal of the jury, the exclusion of people from the courtroom,
5 some of the outbursts that have occurred and which have only propounded and emphasized some of the earlier points, they're mere ripples in the whole sea here - you know. The jury has put most of these things out of their mind long ago. I'm sure
10 they attach no importance now to the fact that one of the jurors was dismissed other than that they are relieved that there is not one of their number who may be embarrassing them by having some truck or trade with somebody outside their number and who may
15 be carrying tales. I'm sure the jury must be relieved at that. And I haven't seen the slightest bit of evidence that the jury feel compromised in any way, and I don't know how they could be, really, from the events that have occurred. I think
20 they have put that out of their mind; I'm sure the jury are prepared to put out of their mind some of the outbursts that the Accused has perpetrated in recent days. A jury puts these things out of their mind. Juries - there's a built-in compassion,
25 you know, for an Accused in a trial, if one must look at it from that point of view. I've seen it operate in many, many jury trials before, myself.

So those are my reasons which I will give at
30 this time. Now, we will have the jury brought back.

1 Just before you do, on this question, Mr. Walsh, of the use of this chart, I don't know just at what point you want to have this produced in evidence or tendered as an exhibit. I'm just thinking out loud
5 here. Perhaps you should have your witness give his conclusions or start his conclusions and then produce the chart at that point. There's no point, I suppose, in having him run through the whole thing verbally and then say now will you indicate that on
10 the chart. How do you precisely propose to do it?

MR. WALSH: Well, there's a number of ways that he could do it. One that I would suggest that might be an appropriate one is take the first -- It only relates to the first gel membrane and when he does a
15 probing he may have one or two autorads that he made from that probing. He will show them on the slide projector - not the slide projector, the overhead. Then we have a light box, My Lord. That's the manner in which they read them in the lab. He can
20 put the light box in front of the jury. After he does each probing he will take those off the slide, bring them over and put them on the light box and let the jury view them themselves. Then what he could do is go to the summary chart and reveal the
25 conclusion, reveal that much of the conclusion that he has reached at that point. And then we'll just proceed in that order.

THE COURT: Well, I guess probably when he's reached the
30 point where he is starting to do that perhaps the thing then is to tender this in evidence, or put it in evidence, and you can register your objection,

1 Mr. Furlotte, and --

MR. FURLOTTE: Well, I think my objection is registered now. I don't have to do it again.

THE COURT: It's on the record anyway. So perhaps that's
5 the time to do it.

(Jury in. Jury called, all 11 present. Accused viewing proceedings from holding cell.)

THE COURT: Now, Mr. Walsh, you had a witness on the stand.

10 MR. WALSH: Yes, I recall Doctor John Bowen.

DIRECT EXAMINATION BY MR. WALSH OF DOCTOR BOWEN:

Q. Doctor Bowen, just very briefly just to refresh our memory as to where we're going to go, yesterday I
15 asked you how many tests you actually conducted or how many gel membranes you actually ran in relation to this case and you said 4, is that correct?

A. That is correct.

Q. Just to refresh our memory from Doctor Waye, that
20 means that the first test you would have done you took a gel and you put a number of items into the gel, is that correct? Went through the RFLP procedure, applied a number of probes and generated autorads for each probe that you did, is that
25 correct?

A. That is correct.

Q. Then the second test you would have done is the second gel you would put some more items in that and gone through the procedure again, generated autorads
30 and probes, is that correct?

A. That is correct.

1 Q. What we are going to do now, Doctor, is we are going to go through the first gel that you did in relation to this case.

THE COURT: I might ask one question at this point. Is the

5 gel you use a reusable gel or do you -- I mean do you throw it away after putting one sample through or after putting several samples through and use another substance as a gel or --

A. Yes. Once the gel has been transferred it is dis-

10 carded and then for a new - a second analysis one produces a second gel and then discards it after it has been transferred.

MR. WALSH: Doctor Waye's testimony - you were in court for Doctor Waye's testimony. Doctor Waye was ex-

15 plaining the procedure that you would use for one gel, one test, is that correct?

A. That is correct.

Q. And you have done four in this case?

A. That is correct.

20

Q. And each time you did one test or one gel you would generate a number of autorads for that particular test, is that correct?

A. That is correct.

25 Q. And then you would move to a completely new gel, new membrane, and put different substances on that, go through the whole procedure again and generate autorads, and did that four separate occasions?

A. That is correct.

30 Q. With respect to the first gel that you ran how many lanes were in that gel?

A. There were 22 lanes in that gel.

1 Q. I am going to show you a number of items and you tell me whether or not they were contained in a particular gel. Exhibit P-109 is blood reportedly from Lewis Murphy. Was that contained in the first
5 gel that you ran?

A. Yes, it was.

Q. Exhibit P-110, reportedly scalp hair taken from the accused in 1986, was that in the first gel that you ran?

10 A. Yes, it was.

Q. And exhibit P-111, reportedly pubic hair taken from Legere in 1986, was that run in the first gel?

MR. FURLOTTE: My Lord maybe we could save a lot of time here. I would admit that everything the Crown
15 Prosecutor wants' to go through, and books I believe that he wants to give to the jury so they can follow, I would admit that all of these were placed in the gels. I think we could save a lot of time.

20 MR. WALSH: Well, I thank Mr. Furlotte for that concession and I think that would - we could facilitate a lot of time.

THE COURT: By doing that?

MR. WALSH: Yes. I could go right to the books that I
25 have prepared.

THE COURT: Well, I would - having looked at the book here I would think that would save time, perhaps, and would be a good thing. What you plan to do is give to the jury members a summary of some of these items?

30 MR. WALSH: It's a summary of all the items that went into the first test. It sets out what lane they're in.

1 When they go to view the autorad they'll know what lane they're in. It will refer to the identification number that they --

THE COURT: Well, why not do it this way? Why not
5 distribute -- Have you got one for each juror, or one for every two?

MR. WALSH: We have one for every two, yes.

THE COURT: Why not distribute that and then why not you - can you tell us or tell the court, including the jury
10 of course, what this represents in brief so that it will have some meaning as the witness goes through.

MR. WALSH: Sure.

THE COURT: Or you may have the witness --

MR. WALSH: It would probably be better if Doctor Bowen did
15 that. I have a grey folder containing two pages enclosed in plastic headed "First Gel Membranes Lane Loading Identifications". I would move, please, to have that entered as an exhibit.

THE COURT: So that will be exhibit P-160.
20
MR. WALSH: With your permission, My Lord, I'll distribute it.

THE COURT: All right. These are all identical? You're satisfied they are?

25 MR. WALSH: Yes, My Lord. Doctor Bowen I would ask that you refer to the exhibit that's just been marked, it's headed "Lane Loading Identifications Gel #1, Membrane #1", and if you would, Doctor, would you explain what these mean.

30 A. This list of samples is the actual order in which the various items that I received referring to this particular case were loaded on to an analytical gel. The first lane --

1 MR. WALSH: This was after you extracted the DNA from the substances, is that correct?

A. This was after I extracted the DNA, digested the DNA and then loaded it on to the gel. The first

5 lane refers to the DNA marker. Doctor Waye presented this forensic case example, P-158(10), which has on the flanking ends a marker. The marker that we use is a one kilobase marker produced by a company named BRL FS Research Laboratories. The

10 marker itself is just a standard-sized set of fragments that we use to determine the size of the fragments produced by the RFLP technology. It is actually a ruler that we use visually and the computer uses it. So it is used to flank the

15 samples. So the first lane contained the DNA marker, the second lane contained my item 157 which is reportedly a blood standard from Lewis Murphy, court exhibit P-109. The second lane --

THE COURT: Excuse me. Lewis Murphy - to make this

20 meaningful in some way where is -- has his name come up in any of the evidence?

MR. WALSH: Yes, My Lord, that was a person that they took blood from in relation to the Daughney matter.

25 About a month ago I think that evidence was called. If you remember, Constable Michel Page was involved, took him to a hospital and had blood taken from him.

Okay, lane number 1 would be the DNA marker?

30 A. That is correct.

Q. And that's something that your lab uses as kind of a ruler, is that correct?

1 Q. Lane number two you have said is blood reportedly from Lewis Murphy - the DNA from the blood of Lewis Murphy. What is lane number three?

A. Lane number three contained DNA extracted from known
5 samples, my items 56A and 69A, reportedly the scalp hair and pubic hair standard from Mr. Legere, court exhibits P-110 and P-111.

Q. Why did you put both of them in the same lane?

A. The amount of DNA present in those hair samples, in
10 fact there was only three scalp hairs and three pubic hairs with very little sheath material or epithelial type cell material attached to those hairs, that I considered it in the best interest of obtaining a result to combine those samples so that I would have
15 sufficient DNA to analyze.

Q. Is that a standard practice that can be followed?

A. It is a standard practice within the DNA unit, yes.

Q. Lane number four.

A. Lane number four contained a known blood sample
20 reportedly from Donna Daughney, my item 115(b) which refers to court exhibit P-105. Lane five contained another blood sample reportedly from Linda Daughney, my item 140(A) which refers to court exhibit P-108.
25 Lane six contained DNA extracted from vaginal swab reportedly taken from Nina Flam, my item 1(i)which I designated "F" for female fraction which refers to court exhibit P-101. Lane seven contains the male fraction of that self-same swab, my item 1(i)which
30 again refers to court exhibit P-101.

Q. Okay, I'm going to stop you there. Yesterday you talked about a differential extraction in semen, is that right?

1 A. That is correct.

Q. When you took the vaginal swab you were attempting to separate the vaginal epithelial cells associated with the woman and separate the male DNA associated
5 with the actual semen, is that correct?

A. That is correct.

Q. And what you are referring to - and correct me if I'm wrong, Doctor, what you are referring to in lane 6 is the female epithelial cells that you attempted to
10 extract away from the semen, is that correct?

A. That is correct.

Q. And lane number 7, when you talk about the male fraction you're talking about the DNA that you extracted from the semen?

15 A. That is correct.

Q. From the same vaginal - both of them were taken from the same vaginal swab?

A. That is correct.

20 Q. And the vaginal swab would have been marked your number 1(i) and it's court exhibit P-101.

A. That is correct.

Q. Continue, please.

A. Following the same line of thought, lane 8 contained
25 the female fraction of a vaginal swab reportedly from Nina Flam. It was my item 1(j) and I designated "F" for female fraction which refers to court exhibit P-102. Again, as a differential extraction was performed on this swab lane 9 contained the DNA marker
30 again and lane 10 contained the male fraction of the vaginal swab reportedly taken from Nina Flam. This was my item 1(j) and again refers to court exhibit P-102.

1 Q. Okay. Lane 8 and lane 10 refer to a separate vaginal swab taken from Nina Flam - or reportedly taken from Nina Flam, is that correct?

A. That is correct.

5 Q. And lane 8 is the female epithelial cells DNA that you attempted to separate, and lane 10 represents the male DNA from the semen that you extracted, is that correct?

A. That is correct.

10 Q. From the same vaginal swab, P-102?

A. That is correct.

Q. Continue, please.

A. Lanes 11 and 12, again, are a differential extraction of the same vaginal swab, a vaginal swab reportedly
15 taken from Donna Daughney, my exhibit 109. For the female fraction it was designated "F", and that was loaded into lane 11 which refers to court exhibit P-103. In lane 12 was the male fraction of that same swab, again, reportedly taken from Donna
20 Daughney, and it refers again to court exhibit P-103. Lane 13 and lane 14 refer to the differential extraction of a body swab reportedly taken from Donna Daughney. It is the -- The female fraction was loaded into lane 13, refers to my item 110 which
25 I designated "F" for female fraction, and this refers to court exhibit P-104, and lane 14 was the male fraction of that same swab, my item 110 which again refers to court exhibit P-104. Lane 15 on the second page was the female fraction of a vaginal
30 swab reportedly taken from Linda Daughney. This refers to my exhibit 134 which I have designated

"F" for female fraction. It was obtained from what is now known as court exhibit P-106. Lane 16 contained another set of DNA markers. Lane 17 contains the male fraction of a vaginal swab reportedly taken from Linda Daughney, my item 134 which again refers back to court exhibit P-106. Lanes 18 and 19 contained the differential extracted products of a vaginal swab reportedly taken from Linda Daughney - excuse me, a body swab reportedly taken from Linda Daughney. In Lane 18 was loaded the female fraction of my item 135 which I designated "F" which refers to court exhibit P-107, and lane 19 was loaded the male fraction of my item 135 which refers to court exhibit P-107. In lane 20, designated "NM", was loaded the female control DNA which is a standard allelic control that we use in the R.C.M.P. lab.

Q. That's a preview until you know what that female's DNA will show with each probe. You know that in advance?

A. That's correct.

Q. That's run as a control for your test?

A. That is one of the controls for the test.

Q. One of the controls.

A. Lane 22 contains --

Q. Lane 21.

A. Excuse me. Lane 21, designated L2, contains male control DNA, again an allelic control that we use within the R.C.M.P. lab, and lane 22 contains another set of DNA markers.

Q. Lane 20 is the female control, lane 21 is the male control?

A. That is correct.

1 Q. Before we proceed further, Doctor, there is evidence at this trial that the semen substances, particularly in regard to Donna and Linda Daughney, were exposed to heat, smoke and soot from a house fire. What, if
5 any, effect would these elements have on the accuracy of any part of the DNA typing you performed?

A. It wouldn't have an effect on the accuracy. It would have an effect on the ability to obtain high molecular weight DNA sufficient for analysis.

10 Q. But you did in fact obtain high molecular weight DNA sufficient for analysis, is that correct?

A. That is correct.

Q. So would this have any effect any further on?

A. No, it would not.

15 Q. There is also evidence at this trial that the semen substances found on Donna and Linda Daughney were exposed to a laser called a lumilight. Are you familiar with the lumilight?

A. Yes, I am.

20 Q. What if any effect would this light have on the accuracy of any part of the DNA typing you performed?

A. It would have no effect whatsoever.

Q. In fact your lab has actually done tests with lumi-
25 lights?

A. That is correct.

Q. There is also evidence that the scalp hair reportedly taken from Legere in 1986 which would be 56A/69A, your item what's now in lane 3, was stored on slides
30 fixed by a substance called Permount by Duff Evers at the Hair and Fiber Lab. What, if any, effect would this have on the accuracy of any part of the DNA typing you performed?

A. It would have no effect.

Q. In fact your lab has done studies with respect to Permount?

A. Yes, I have done a lot of studies on the effects of Permount.

Q. After extracting -- So at this point you loaded-- We're up to what the jury have in their hands. You have loaded the DNA substances in the lanes in this gel, is that correct?

A. That is correct.

Q. What, if any, precautions did you take with respect to the loading of the substances you have identified?

A. Well, all standard laboratory procedures were followed in the sense that all samples were identified and marked appropriately so that they would not include the possibility of mixing samples. Samples were loaded with a blue dye so that one would not double-load a well because since the blue dye is present in the well one would know that there is a sample already in that gel well and that all precautions were taken to load them in the appropriate order.

Q. What, if anything, did you do next after you loaded the DNA in the lanes as described in what the jury have in their hands now?

A. Once the samples were loaded the current was applied to the gel. It was allowed to run overnight and the following morning I stained the gel with ethidium bromide to see if it ran according to expectations.

Q. And what, if anything, did your controls tell you about the gel electrophoresis you did?

1 A. The fact that the blue marker dye had gone to the bottom of the gel indicated that the current had been applied overnight, that the gel had run as expected. The ethidium bromide told me that the
5 DNA had run in the lanes as expected and that the system was in effect following expected expectations.

Q. Now, do you have the laser pointer on you, Doctor?

A. Yes, I do.

Q. Would you just point on the exhibit P-158(6) would
10 you just show at what stage we're at now, Doctor?

A. We're at this stage where we have actually produced a gel and run it and now it is ready for Southern blotting.

Q. Okay. So at this point the DNA that you cut up
15 using the digesting enzyme is separated according to length on this gel?

A. That is correct.

Q. What did you do next?

A. Following the staining of the gel and photographing
20 the results the gel was placed in an alkaline solution to denature the DNA, to separate the strands of DNA, so that on transferring that DNA to a membrane it would attach to the membrane in single-stranded
25 form, and this is this step here on exhibit P-158(6) known as Southern blotting.

Q. On P-158(4) you were talking about denaturation. Can you describe it on that particular molecule, what exactly was happening?

30 A. Well, what is happening is that the natural form of DNA is the double-stranded double helix, the twisted ladder effect that Doctor Waye alluded to in his

1 discussion of the biology of this DNA typing. What one does is by treating the DNA molecule with alkali, sodium hydroxide in this case, one can separate the strands of the DNA such that the base pairing is
5 separated so that one does not have a G-C base pair. The two strands are separated.

Q. So at this stage you have your length of DNA cut up in sections according to this enzyme cutter and then you denatured it so it's split up the middle between
10 the bases, is that correct?

A. That is correct.

Q. Something similar if you had a ladder, you sectioned up the ladder and then you started cutting up the rungs, center of the rungs?

15

A. That is correct.

Q. Separated that way. Continue, please.

A. Following the treatment of the gel with alkali and a membrane was placed on top of the gels to allow the DNA from the gel to be transferred to that nylon
20 membrane. This was the Southern transfer process described by Doctor Waye two days ago.

Q. It's shown on that particular schematic?

A. It is shown on the schematic P-158(6) at the bottom here, the Southern transfer.
25

Q. Then what, if anything, did you do, Doctor?

A. Following transfer, the DNA was fixed to the membrane by heating it. Subsequent to that the membrane was treated with a radioactively labeled probe such that
30 the probe could hybridize to the region of interest. Following hybridization the excess probe was removed by washing and such that only the specific

1 complementary DNA fragments were located and bound by the probe. Following that, the membrane was placed underneath an x-ray film and it was allowed to expose the film for a matter of hours or days at
5 minus 70°. Once the x-ray film had been exposed for a suitable amount of time it was then developed and the x-ray film, or autorad as we term it, was then analyzed.

Q. What probes did you apply - hybridize to the membrane
10 that you produced? What probes did you actually -- What areas of the DNA did you look at with the probes?

A. As shown in P-158(3), Doctor Waye gave evidence on the type of polymorphic areas that we are interested
15 in for forensic identification. In this particular case I looked at D1S7, a highly polymorphic area on chromosome 1, D2S44, D4S139, D10S28, D16S85 and D17S79. Those were the polymorphic regions that I looked at using these various probes. In addition
20 to that, for control probes I looked at D7Z2, the monomorphic probe --

Q. That shows one single band a certain base pair across. That's a control to see if the test is run
25 properly.

A. That is a control we use, yes. And the sex typing probe, DYZ1, which determines whether it is a male or a female sample.

Q. When we look at P-158(9), when you got to the step
30 at the top here, the first step shown on P-158(9), correct, what you would be doing is, for example, taking the probe that identifies the area D1S7,

1 applying it, going through the whole process, generating autorads from that, is that correct?

A. That is correct.

Q. Then you would strip the membrane of that probe,
5 pick another probe identifying the area D2S44, hybridize it again, go through the whole process and generate another set of autorads to look at, is that correct?

A. That is correct.

10 Q. And you would keep repeating this process with the highly polymorphic areas you wanted to look at, is that correct?

A. That is correct.

Q. Then when you finish doing all of those and generating
15 the autorads then you would apply the monomorphic probe, D7Z2, to see if you were getting true readings or correct readings, something of that effect, to see if the test worked properly.

A. It is a measure of the accuracy and precision of the
20 test.

Q. And the last probe you would apply, you would hybridize, would be the sex typing probe to see what the sex of the samples were that you had loaded in.

25 A. That is correct.

Q. That is another control to see if the test is working properly, is that correct?

A. It is a control, yes.

Q. Doctor, you have generated autorads with respect to
30 the 22 lanes that are shown in the booklet the jury have in their hands, is that correct?

A .That is correct.

1 Q. Do you have them with you?

A. Yes, I do.

Q. How many autorads do you have in this booklet?

A. There are 12 autorads.

5 MR. WALSH: My Lord I have a booklet containing 12 autorads. It's marked - it's a black booklet marked "First Gel Membrane". At the beginning of the booklet I understand, Doctor, is an identical - lane-loading identifications which are identical to the

10 previous exhibit, is that correct?

A. That is correct.

Q. I would move to have those marked as an exhibit. These are the original autorads?

A. Those are the original autorads and then the last

15 page contains a template which I will be using for overhead projection.

MR. WALSH: And just so we understand, the template - it simply shows the numbers associated with each lane.

A. It depicts the item numbers that I used for the

20 exhibits and identifies each of the lanes.

Q. And they're set out in the grey booklet the jury have now?

A. That is correct.

MR. WALSH: My Lord I would move to have it entered as an

25 exhibit.

THE COURT: That will be exhibit P-161.

(Clerk marks booklet exhibit P-161.)

MR. WALSH: While that's being done perhaps you would explain --

30

THE COURT: Do they have to be numbered (1) to (12) or --

MR. WALSH: It might be best just for clarification purposes.

1 THE COURT: 161 then, (1) to (12). And the template added is - well, it's included in P-161, I just make that clear. There's just one template?

MR. WALSH: Just the one template. Would you explain to
5 the jury, please, Doctor Bowen, how you propose to demonstrate your results to the jury?

A. I propose to first project the autorad for each of the probings on the screen so that we can follow through the matches that were made, and then I would
10 propose to use the light box in front of the jury so that they can see how these autorads would be interpreted in a normal laboratory setting, and then I --

Q. Okay, a light box is this particular item here, is that correct?
15
A. That is correct.

Q. Just so we can give a quick demonstration so nobody gets taken aback by this machine, it's something similar to what's used to read x-rays, is that correct?
20
A. That is correct.

Q. Is this the type of device that you would use in a forensic lab to look at autorads?

A. It is somewhat similar to what I use, yes.

25 Q. And the reason you're putting them on the -- You're going to put the originals on this overhead projector for what reason?

A. So that everyone in the courtroom can see the matches called. Generally one does not make a match as one
30 would see it on a projected image. One would look at the image on a light box to call the matches.

1 Q. And I take it you would take some time to study an autorad in looking at all the - whatever it shows?

A. Yes. It is a process that takes time and a lot of care and thought.

5 Q. Are you prepared to show the jury, for example, any matches that you found?

A. Yes, I am.

Q. You indicated, Doctor Bowen, that particularly the substances at the crime scene were close to limits

10 of sensitivity. They deal with small amounts of DNA, is that correct?

A. That is correct.

Q. How does that work with respect to the autorads that are going to be demonstrated?

15 A. Since we're dealing with limits of sensitivity bands that are low in quantity of DNA will show up as very faint bands. If one loads large amounts of DNA one gets very dark intense bands. Smaller amounts of DNA results in fainter bands.

20 Q. Is it important that the - to look at the color of each band in terms of one is dark, one is light, or is it their position in relation to each other?

A. It is actually important only to look at the

25 distance that the particular fragment has migrated from - in this particular example, P-158(10), from the top of the gel. From the distance it migrated from the origin.

Q. Whether it's dark or light?

30 A. Whether it's dark or light is only a factor of how much DNA was actually loaded in that well.

1 Q. I can't remember if it was with you Doctor or with Doctor Waye but just, again, so the jury is clear on this, the probes that you are applying, that you have applied to generate these autorads that are in
5 evidence, are some of these probes more sensitive than each other in the sense that one probe may pick up smaller amounts of DNA than the other would?

A. Yes. As Doctor Waye mentioned two days ago there is some difference in the sensitivity of these probes.
10 They're not vastly different. We're looking at two or threefold differences in sensitivity.

Q. What, if any, effect does it have - the stripping process? Each time you apply one of these probes you strip the membrane of the probe and reapply
15 another one. What, if any, effect does that have on the amount of DNA that you would have available to look at on the membrane?

A. With continuous stripping of a membrane one loses a small amount of DNA from that membrane with each
20 stripping. It can reduce your ability to obtain a result with subsequent probings.

Q. In terms of being able to see the DNA?

A. That is correct.

Q. That is something that is expected in forensic labs?
25
A. It was expected at the time. I think with some of the newer membranes that we're using now it is not as much of a problem.

Q. Doctor Bowen, I understand that when you start this
30 with respect to the autorads, the 12 autorads associated with this first membrane, you think it's best to go through the whole series of them at one sitting without having a break, is that correct?

1 A. That is correct.

MR. WALSH: My Lord, if I may at this time, I would perhaps suggest for the benefit of the jury that we have a break now and then when we do sit they can go through
5 them all at once. Up until noontime.

THE COURT: Yes. It's going to take a little while. How long does it take you to go through them?

MR. WALSH: It's going to be difficult, My Lord. We'll do our best to be finished at least the first set
10 of autorads by noontime. We don't want to break in the middle of his presentation. It would be much more difficult for the jury. It's too disjointed that way.

THE COURT: Well, we'll retire now then for a short break
15 and come back and continue.

I was wondering if the jury might take exhibits P-158(6) and (9), the two charts showing the sequence of events. It might be that you would want to look at those.
20
(Jury excused for break.)

THE COURT: There is one other point that I -- there's two points I wanted to mention. One is I had intended when I dealt with the matter of the application for the mistrial to make a further remark, perhaps
25 mainly for the benefit of the media. There was reference made on Tuesday morning of this week to a television broadcast that had dealt with a new matter that doesn't affect us here, it affects the Renous Institution, perhaps indirectly affects us,
30 but in that connection I want to say this, that I think it's obvious to everyone that there are people

1 out there, I won't be more explicit than that about it, who would by hook or by crook do everything they could to disrupt this trial and bring it to an end, I suppose, if possible, and I can only implore of 5 the media representatives that they don't allow themselves, either through gullibility or otherwise, to be drawn into any scheme like that. I have every confidence that the members of the media who have been in attendance through the trial and who are 10 listening now to what I have to say, I have every confidence in their abilities and their desire not to do anything of that nature. I perhaps have a little less confidence in members of the media who aren't present and who don't hear these words and 15 who are absent, perhaps the bosses of those who are here. I suppose we might call them in some respect absentee landlords. I don't say that maliciously, but they don't have the benefit of knowing our thinking here and what we're saying and they perhaps 20 act quickly on some of these things, so if any of the members here could train their bosses or other members of the media who aren't here to appreciate what we're trying to do that would be appreciated as well.

25 I don't think I need say anything more. I don't want to say anything more about it. This is a voir dire session so what I am saying, of course, can't be reported.

30

The other matter I wanted to deal with was the exclusion of the Accused from the courtroom. I know that I've got to be fairly firm about these matters. I have said before that I am uncomfortable, personally, with the Accused out of the courtroom because it's an exceptional step to have to take, and I want to bend over backwards to accommodate an accused and to let him see what's going on and see what's going on firsthand rather than through a television monitor. He can only be blamed for his predicament in this respect but, nevertheless, we have to make certain allowances, and I think that it would be difficult perhaps to see this presentation that's about to be made on the video camera. I don't know how well it would pick it up. If it's like a baseball game you may see it better on TV than you do in the Sky Dome. But I think I will direct that the Accused be brought back to the courtroom following the recess and before the jury returns, but in directing that I am not lessening in any way my resolve to see that this trial is conducted with the proper decorum and according to the rules. I have explained before that an Accused has the right to speak up only at certain parts of a trial. One is when he pleads; another is if he chooses or the election is made to have him give evidence at a voir dire session; and the only other time in a trial is if he should be included in witnesses called by the defence. And those are the three occasions during a trial when an accused has the right to speak, and I am not going to tolerate his exercising, or claiming, or purporting to exercise

1 the right to speak at other times, and I will take a more serious view of it if it occurs again.

So we will recess now for 15 minutes or so and then carry on.

5 (RECESS - 10:56 - 11:25 A.M.)

COURT RESUMES. (Accused present. Jury called, all present.)

THE COURT: I may say just before we commence to the jury that I have lifted the order in respect to the

10 exclusion of the Accused from the courtroom. Among other things, it would be difficult to follow this presentation, perhaps, on the screen here over the monitor and I think there is good reason to have him returned at this stage.

15 So would you continue, Mr. Walsh, please.

MR. WALSH: Thank you My Lord. Doctor Bowen if you would then, please, if you would take us through the first gel with the 22 lanes that are set out in the grey booklet. I'll ask you to speak up, Doctor Bowen,

20 particularly when you are over there and with that machine running.

Now, we have a chart up here, a schematic that's marked P-158(3). The schematic is identified as a

25 schematic of the chromosome showing the highly polymorphic areas corresponding to the probes that are used. What are you going to put on the overhead at this time?

A. The first hybridization with this particular membrane,

30 membrane one, was with D2S44 which is marked PYNH24. That is the common probe name that we have for that particular locus. This is the template that I will

1 be using to indicate the lanes as they were loaded on this particular gel, subsequent membrane.

Q. Okay. Before you put that on I am going to ask you, again, just so we get oriented, point with your laser,

5 please, to the schematic of the chromosomes and point to the probe area that you will be showing with this autorad.

A. It's D2S44.

Q. Chromosome 2.

10 A. Chromosome 2.

Q. Okay. At the top, this is the template, now how does that - if you could just briefly take us through the grey books that the jury have, from left to right. We just want to make sure that we are

15 familiar with what's going to be presented. Could you take us through, please?

A. Well, as will be presented on the screen, the lanes will go from top to bottom. The lanes are loaded from left to right as indicated in the grey book.

20 The first lane contains a marker, molecular weight marker, the DNA marker as indicated in lane 1 in the grey book. Subsequent lanes are identified according to my item numbers as I extracted DNA from these particular items and the cross-references given in

25 the grey book with the court exhibit. The first lane contains molecular weight marker as I said. Lane 2 contains DNA extracted from exhibit 157(A), reportedly the blood sample from Lewis Murphy. Lane

30 3 contains DNA isolated from the known scalp and pubic hair sample reportedly from Mr. Legere, my item 56A and 69A. The 4th lane contains the known

1 blood sample reportedly from Donna Daughney, my item 115(b). The 5th lane contains blood reportedly from Linda Daughney, my item 140(A). The 6th lane contains female fraction of the differential extraction

5 of the vaginal swab reportedly from Nina Flam, my item 1(i) designated "F" for female fraction, and lane 6 contains the male fraction of that same swab.

THE COURT: Wasn't that lane 6? You're mixed up.

A. Sorry, lane 7 contains the male fraction of that

10 swab.

MR. WALSH: You are referring to lane 7 as being 1(i)?

A. 1(i), the male fraction of the vaginal swab reportedly taken from Nina Flam.

Lane 8 contains the female fraction of a vaginal

15 swab reported from Nina Flam, my item number 1(j) which I have designated "F" for female fraction.

Lane 9 contains, again, the DNA marker which I have designated "M".

Lane 10 contains the male fraction of the

20 vaginal swab reportedly taken from Nina Flam, item 1(j).

Lane 11 contains the female fraction of a vaginal swab reportedly taken from Donna Daughney. It is my item 109 which I have designated "F" for

25 female fraction. And lane 12 contains the male fraction of that same swab.

Lane 13 contains the female fraction of a body swab reportedly taken from Donna Daughney. It is my item 110 which I have designated "F" for

30 female fraction, and lane 14 contains the male fraction of that same swab.

1 Lane 15 contains the female fraction of a vaginal swab reportedly from Linda Daughney. It is my item 134 which is designated "F" for female fraction.

5 Lane 16 contains the DNA marker which I have designated "M".

Lane 17 contains the male fraction of the vaginal swab reportedly taken from Linda Daughney, my item 134.

10 Lane 18 contains the female fraction of a body swab reportedly taken from Donna Daughney, my item 135 which I've designated "F" for female fraction, and lane 19 contains the male fraction of that same swab.

15 Lane 20 is designated "NM". It is the female allelic control used by the R.C.M.P. lab. Lane 21 contains a lane designated L2 which contains DNA extracted from the male control used by the R.C.M.P. lab. And lane 22, again, contains the DNA marker

20 which I have designated "M".

Q. And so I understand, the first autorad you're going to show here is an autorad generated from hybridizing the area of D2S44 with a probe.

25 A. That is correct.

Q. Okay. So you're looking in that area of the chromosome on the DNA chain for those samples. Just give people a minute, Doctor, to orientate themselves to what is there.

30 A. This particular autorad is the very first result of testing the D2S44. It is the 23 hour exposure of the probing. Again, one can see the molecular weight

1 markers as indicated which are used for a measurement or a type of ruler so that we can determine the size of the bands, and you can see various patterns in each of the lanes.

5 Q. Okay. Now, would you just describe on the gel electrophoresis that separated the items in the lanes, would you just run from top to bottom where they would be for each lane or pick a lane and show where it would run.

10 A. I'm not sure I understand the question.

Q. Where would the large fragments be and where would the small fragments be as they're separated?

A. The fragments would separate from top to bottom. The large fragments would be at the top of the gel

15 closest to the original well, the sample well in which they were loaded, and the bottom of the screen would indicate the small or the lower molecular weight fragments as they have migrated further through the gel than the large fragments at the top

20 of the gel.

Q. All right, Doctor, would you take us through that particular autorad, please, and explain your findings.

A. The forensically significant findings or --

25 Q. Whatever you wish to - whatever you prefer to do.

A. The forensically significant findings in this particular autorad are with respect to item 56A and 69A. One sees a pattern, the larger band here and the lower band here, that matches a pattern in my

30 item 135. This is the body swab reportedly from Linda Daughney. This is the male fraction of that particular body swab. One can see a band here and

1 a band here. The large molecular weight band if one scans across the autorad matches visually the bands seen in items 56A/69A and, again, if one scans across the lower band, the smaller band, one
6 can see a very faint band present here.

Q. 56A and 69A is the DNA purported to be from what?

A. It is the DNA sample extracted from the scalp and pubic hair samples reportedly from Mr. Legere.

Q. What, if any, other conclusions can you draw from
10 that particular autorad?

A. There are several other patterns present on these in the particular lanes. Some are from known samples. The known sample from Lewis Murphy in lane 2, 157(A), and the known samples from Donna and Linda Daughney
15 in lanes 4 and 5. One can see a pattern in lane number 6 which does not match that of Mr. Legere because in the female fraction one can see some faint bands in the male fraction of that same swab reportedly from Nina Flam that match the bands
20 found in the female fraction, my exhibit 1(i) which I have designated "F", and 1(i), the male fraction. There is a fair amount of background that one can see, nonspecific binding of the probe in this particular hybridization, which sort of masks some
25 of the bands but there are no apparent bands in some of the wells, particularly lane 10. The bands in lane 11, the female fraction of the vaginal swab reportedly taken from Donna Daughney, you can see the female fraction and in fact the male fraction of
30 that same vaginal swab matched the profile found in lane 4 for item 115(b) indicating that there is

1 female DNA in the female fraction that matches the
victim and that there is carry-over of that DNA into
the male fraction. It is not a complete separation
of the female DNA from any possible male DNA in that
5 fraction. There is nothing apparent in the body
swab reportedly taken from Donna Daughney which
would be my item 110F and 110 which are lanes 13 and
14. The female fraction of the vaginal swab reportedly
taken from Linda Daughney, lane 15, indicated as
10 item 134F again matches the known sample reportedly
from Linda Daughney loaded in lane 5, item 140(A).
One can see a visual match between them indicating
that the swab apparently contains DNA from that
particular individual.

15 Q. So her blood - the DNA reportedly from her blood
matches the DNA from the female fraction of the swab
purportedly taken from her?

A. That is correct. Again, there's a slight carry-
over of the female pattern into the male fraction
20 of that particular vaginal swab, lane 17, my item 134.
There's a very slight carry-over of that same
pattern.

Q. Because of an incomplete differential extraction?

25 A. That is correct. In lane 18, item 135F, the female
fraction of the body swab reportedly taken from
Linda Daughney there is no pattern visible, and as
I have indicated previously, in the male fraction
of that same swab, item 135, lane 19, there is a
30 visual match between patterns seen in this lane and
the pattern in lane 3.

1 Q. So the DNA purported to be taken from the hair of Legere matches the male fraction of the body swab of Linda Daughney?

A. That is correct. In lane 20 one can see the pattern

5 obtained with the female control, lane 21 the pattern obtained with the male control, and finally lane 22, the molecular weight marker.

Q. What conclusion can you draw from the lane number 2, item 157(A), blood standard reportedly from a

10 Lewis Murphy?

A. One can see from this pattern that it does not match any of the patterns obtained with any of the other samples.

Q. What conclusion can you draw from that?

15 A. Therefore, the donor of the sample in lane 2, reportedly Lewis Murphy, could not have contributed the DNA found in lane 19, the male fraction of the body swab from Linda Daughney. He is thus excluded as a possible donor.

20 Q. Do you have another autorad associated with that?

A. Yes, I do. That was exhibit P-161(1). This will be exhibit P-161(2).

Q. Now, would you explain to the jury before you put

25 that on what that is?

A. This is a second probing of the membrane. It was done at a much later date in fact. It is a probing with the same probe used in the original autorad that I showed. It is for locus D2S44 on chromosome

30 2. It is just done a second time at a much later date.

1 Q. What was your purpose of doing it a second time at a much later date?

A. With the first hybridization one can see a lot of background noise on that particular autorad. This

5 is nonspecific binding to the particular membrane at that time.

Q. That's that black haze that was on the --

A. Yes. It manifests itself as a black haze on the membrane. What I have done is gone back, reprobed

10 it with the same probe so that I could obtain a clearer and cleaner result, and that is apparent here in this particular exposure of that second probing. One can see much clearer the bands that matched from lane 3, the DNA sample extracted from

15 my item 56A/69A, and the band patterns seen from item number 135, the male fraction of the body swab reportedly from Linda Daughney.

Q. The conclusions that you drew on the first autorad, did they change any when you put your second auto-

20 rad on, this second autorad here?

A. There were no changes in the conclusions. It's just a cleaner result.

Q. I understand now, Doctor, you would like to demonstrate

25 to the jury using the light box, taking these things and putting them on the light box, is that correct?

A. That is correct.

MR. WALSH: With your permission My Lord.

THE COURT: All right.

30 MR. WALSH: Now, Doctor, you will be close to the jury but you'll still have to speak loudly, and would you just show them on the light box the matches that you called.

1 A. We don't have the benefit of a template as we did on the overhead but what we have here is a match between lane 3 and lane 19. This is more or less how one would visualize these things when inter-
5 preting autorads. Obviously one would be sitting much closer to the light box. This is a visual match, as I described previously and, again, on the second exposure, P-161(2), we have the cleaner result in the sense that we don't have as much back-
10 ground noise as we did in the first probing with this particular probe. We have a cleaner result and one can readily see the visual match between lane 3 and lane 19.

Q. Lane 3, again, for the jury, is the scalp and pubic
15 hair reportedly taken from Legere?

A. That is correct.

Q. And lane 19 is the male fraction of the body swab reportedly taken from Linda Daughney?

A. That is correct.
20
Q. And you have excluded lane 2, the blood standard reportedly from Lewis Murphy, as being the donor of any of those substances.

A. That is correct. He shares a band with the individual
25 in lane 3, however, the lower band here does not match therefore he is excluded as being similar to the DNA sample extracted from the scalp and pubic hair, my item 56A/69A, and also excluded as being a possible donor of the DNA sample found in the male
30 fraction of the body swab reportedly from Linda Daughney.

1 Q. Okay. And, again, we may be redundant but just to make sure that we all understand, some of these bands as you have demonstrated on the slide and which are evidence here, some are dark, they vary in intensity
5 in terms of color, what is the reason for that?

A. The difference in intensity is solely based on the amount of DNA in that particular sample. I had very limited amounts of DNA from the known sample, the pubic and scalp hair sample reportedly from Mr.
10 Legere, and I was only able to extract a minimal amount of DNA from the question sample, the male fraction of the body swab reportedly from Linda Daughney, thus they are very faint when they appear on the autorad. Where I had more DNA of course more
15 DNA was loaded in various wells so that one could readily visualize the bands found in those particular lanes. I loaded the total amount of DNA that I had available to me from these question samples and from the sample reportedly from Mr. Legere.
20

Q. It's not the color density that you're looking at; it's the position on the --

A. One is merely looking at how far these particular fragments of DNA migrated from the sample wells.
25 Sample wells are loaded approximately up at this position in the gel and they migrate according to size towards the bottom of the autorad, thus the large molecular weight fragments, the large fragments are at the top of the gel and the smaller fragments
30 are at the bottom of the gel. This fragment is larger than this fragment and so on.

1 Q. I understand, Doctor, that you have brought a chart that summarizes your conclusions and in particular summarizes the conclusions that you drew from testing the second chromosome highly polymorphic
5 areas that you have just shown, is that correct?

A. Yes, I have.

MR. WALSH: If you will bear with me My Lord. If you could -- whenever the jury is completed looking at the -- Perhaps you could take those off Doctor.

10 THE COURT: May I ask the witness, are these autorads - these photographs - they're not subject to deterioration? I'm just thinking in terms of preservation as exhibits.

A. No, that is actually how I would actually preserve
15 them myself. They can be scratched and damaged with water or any material - they can be stained - but if kept properly they will not deteriorate.

THE COURT: They don't fade if they're left exposed?

A. No.

20 MR. WALSH: I apologize My Lord. It's just that in a court-room it's very difficult to demonstrate without pulling things around. I have here - is this the chart that you prepared, Doctor?

25 A. Yes, it is.

Q. Summarizing your conclusions?

A. Yes, it is.

Q. Does it accurately represent the conclusions that you have made and associated with all the autorads
30 you have looked at on this first gel?

A. Yes, it does.

MR. WALSH: My Lord I would move to have this entered as an exhibit.

1 THE COURT: This would be exhibit 162. P-162.

(Clerk marks chart exhibit P-162.)

MR. WALSH: Doctor, would you, please, using this summary chart, or part of it, summarize the conclusions that
5 you drew from the two autorads that you have just shown with respect to the chromosome 2. That area of chromosome 2, D2S44? And speak up, please, Doctor.

A. Summarizing this first column are the item numbers
10 that I have used for identification.

THE COURT: Are you going to use this screen again?

MR. WALSH: Yes, we will, My Lord, when we go to the next autorad.

THE COURT: Well, maybe we should operate with the lights
15 on here.

A. Summarized here in this first column are all the item numbers that I used for identification. The first column is item 1(i).

MR. WALSH: If the jury would take their grey books out
20 there and just so that you are familiar with 1(i), 1(i) corresponds to lane 7, the male fraction of the vaginal swab, is that correct?

A. That is correct.

Q. And the next one you have shown there?
25
A. Is 1(j).

Q. 1(j) corresponds with lane 10, the male fraction of the vaginal swab reportedly taken from Nina Flam.

A. The next column is 109.

Q. 109 corresponds to lane 12, the male fraction of
30 vaginal swab reportedly taken from Donna Daughney.

A. That is correct. The next column is 110.

1 Q. That would be lane 14, the male fraction of a body swab reportedly taken from Donna Daughney.

A. And the final column - row - is 135.

Q. And 135 corresponds to lane 19, the male fraction of
5 a body swab reportedly taken from Linda Daughney, is that correct?

A. That is correct.

Q. Linda Daughney I believe you said.

A. Linda Daughney.

10 Q. It's a male fraction of a body swab reportedly taken from Linda Daughney?

A. That is correct.

Q. What is this next column you are showing us?

A. This next column indicates the matches that I have
15 called for this particular locus, D2S44, which were the two autorads that I've shown you previously. This is for chromosome 2. The results were inconclusive for 1(i), 1(j), 109 and 110. There were no foreign patterns that I could see within those
20 particular lanes. One match that I did call is between the DNA isolated from item 135 and that matched a profile found with item 56A/69A, the DNA extracted from the known scalp and pubic hair sample reportedly
25 from Mr. Legere.

Q. And the other ones you have marked inconclusive by putting a star in that area.

A. Yes.

Q. Why, again, would you just explain why you called
30 those inconclusive?

A. There were no forensically signfiicant matches found within those particular lanes. Some of the lanes you

1 you will remember that we saw matches that matched the victim or the female fraction of a particular body swab or a vaginal swab. That there was no foreign DNA indicated or seen in any of those lanes.

5 Q. Speak up a little bit more, Doctor. Just to refresh our memory you indicated yesterday that there's three calls you can make: Inclusion; exclusion; or inconclusive. Is that correct?

A. That is correct.

10 Q. The match between 135, 56A and 69A is an inclusion.

A. That is correct.

Q. The other four you have shown there are inconclusive.

A. That is correct. It is inconclusive with respect to item 56A/69A.

15 Q. Does that exclude 56A and 69A at this point?

A. It excludes him of being a donor of any of the DNA patterns seen in those particular lanes.

Q. On the --

A. On this particular chromosome.

20 Q. Because of the amount of DNA that was involved.

A. That is correct.

Q. And with respect to lane number 2 which you don't have shown there, 157(A) which was Lewis Murphy, you indicated that he was excluded as a donor of any

25 of those substances?

A. That is correct.

Q. So just so I understand this, 1(i), 1(j), 109 and 110, where you've got them inconclusive, that means that you couldn't call them.

30 A. That is correct.

1 Q. One way or the other.

A. That is correct. There's insufficient foreign DNA in any of those samples to make a conclusive call.

Q. You couldn't say whether he was included or excluded?

5 A. That is correct, with respect to exhibit 56A/69A.

Q. In relation to chromosome 2.

A. That is correct.

Q. Okay. In addition to that -- That's a visual match you're showing there, or you have demonstrated?

10 A. That is correct.

Q. Did you do something in addition to a visual match with respect to the visual match between 135 and 56A and 69A? Did you do anything else to confirm your visual match?

15 A. The visual match was confirmed by a computer analysis. As we have said before, it has to fall within our 5.2% percent match window that is currently in use in the R.C.M.P. The autorads, of course, were scanned using the computer scanner as described by

20 Doctor Waye two days ago.

Q. And did they fall within the 5.2% matching window?

A. The matches called fell well within the matching window of 5.2%. In fact they were less than 2%.

25 Q. Okay. Have we finished with this particular aspect of the matter?

A. Yes.

Q. And you wish to move on to another probing?

A. Yes.

30 Q. Which chromosome, using the schematic over here, which chromosome are you looking at now?

A. With respect to the schematic P-158(3) I am looking at D1S7, the locus on chromosome 1.

1 Q. So you have stripped the autorad, stripped the membrane of D2S44, and now you're hybridizing another probe, D1S7, to look at a separate area of the DNA chain, is that correct?

5 A. That is correct.

Q. Continue from there.

A. Again, we see several patterns in many of the lanes. The forensically significant matches that I did call with this particular locus, D1S7, are the matches

10 between lane 3, 56A/69A, my item numbers, the matches between lane 3 and lane 10, item 1(j), the male fraction of the vaginal swab reportedly taken from Nina Flam. One can see a faint band that matches the upper band here and again a faint band that

15 matches the lower band here. The second match called with this particular locus was the match between lane 3 and lane 19 which contained the male fraction of the body swab reportedly from Linda Daughney. Again, you can see the visual match between the

20 upper band and the lower band.

Q. Were there any other conclusions you could draw from that?

A. There was one other conclusion one could draw, again, the donor of the DNA found in lane 2, reportedly

25 Lewis Murphy, item 157(A), could not have contributed the DNA found in these particular lanes, lane 10 and lane 19.

Q. So he's excluded?

30 A. He's, again, excluded.

1 Q. Is there anything else you wish to -- Perhaps if you would explain, when you call them a match, as you have done here, between lane 3, the hair reportedly from Legere, lane 10 - the male fraction being 1(j), the male fraction of vaginal swab reportedly from Nina Flam, and lane 19, item 135, the male fraction of a body swab reportedly from Linda Daughney, when you call that a match what is that consistent with?

10 A. The samples are consistent with having originated from the same individual as the donor of item number 56A/69A.

Q. As?

A. As consistent with having originated from the same--

15 Q. And your conclusion - if we could just back up a bit, between the - on the previous probe between 135, 56A and 69A?

A. The match is consistent with the donor of exhibit 56A/69A as having - being a possible contributor of

20 the DNA found in item 135.

Q. Did you refer to your computer with respect to the visual matches that you called?

A. Yes, I did. The matches were scanned and fragment sizes determined for these matches and, again, they

25 are well within the match window of 5.2%. In fact they were less than 2%.

Q. Are you completed with the slides? I am going to ask you to put them on the light box for the jury. And, again, which is the medium in which to look at

30 these autorads, the slides or the light box?

A. They are interpreted using a light box.

1 Q. Would you show the jury, please, your forensically significant conclusions?

A. This is exhibit P-161(3) and it is for the locus D1S7 found on chromosome 1. The matches were found

5 between lane 3, lane 10 and lane 19.

Q. You have on the summary chart a summary of your conclusions with respect to that autorad?

A. That is correct.

Q. Perhaps, Doctor, if you would just show the jury

10 once more. Give them a chance to orientate themselves.

THE COURT: The jury are probably saying where are the marks in lane 10. Can you show them?

A. Yes, they are right here. They are quite faint but

15 they are fairly distinct bands. One can easily see the shape of the band even though they are faint.

MR. WALSH: In a forensic lab are you used to dealing with faint bands?

A. Yes. One often encounters faint bands with forensic

20 samples.

Q. And, again, this is because of the small quantities of DNA that you are given?

A. That is correct.

Q. Do you have any reservations with respect to the

25 calls that you made?

A. No, I do not.

Q. Would you refer to your summary chart, Doctor, and explain to the jury the conclusions that you have drawn.

30

1 A. With respect to the forensically significant matches that I have called, this locus D1S7, chromosome 1, I found a match between item 1(j) and item 56A/69A.

Q. So 1(j) is the male fraction of vaginal swab

5 purportedly taken from Nina Flam.

A. That is correct. I also found a match between item 135 and item 56A/69A.

Q. And that, again, is the male fraction of a body swab reportedly taken from Linda Daughney?

10 A. That is correct. The results with respect to looking at the patterns found in items 1(i), 109 and 110 were inconclusive with respect to item 56A/69A. There was not sufficient DNA or there was no DNA present in those samples that I could detect.

15 Q. For that particular chromosome?

A. For that particular chromosome.

Q. You could neither include or exclude?

A. No, I could not.

Q. You can't make a call in that regard?

20 A. That is correct.

Q. Continue.

A. Subsequent to this analysis the membrane was stripped to remove the probe or locus D1S7 and re-hybridize with probe or locus D4S139.

25 Q. Is that on the schematic, the area that you're looking at now?

A. Yes, it is. On P-158(3) it is locus D4S139 found on chromosome 4.

30 Q. Would you please explain to the jury what, if any, forensically significant findings you made with respect to this autorad?

1 A. There were several findings with respect to this particular probe. I might mention at this point that D4S139 is one of our most sensitive probes and therefore capable of detecting smaller amounts of
5 DNA. With respect to the forensically significant matches there is a match between the DNA profile found in 56A/69A, lane 3, and two of the bands found in lane 7, item 1(i), the male fraction of the vaginal swab reportedly from Nina Flam. You will
10 notice that there are two bands of larger molecular weight also present in that particular profile and if you look in lane 6 you can see that they match the female fraction of that particular vaginal swab reportedly from Nina Flam, thus it is a mixed pattern.
15 Q. So you have, if I understand you correctly, where 1(i) is you have female epithelial cells that you weren't able to separate and male DNA from the semen?

A. That is correct. One has a mixed pattern because of the incomplete separation of the female fraction
20 from the male fraction.

Q. And in lane 1(i) those top two bands match the female fraction, being the epithelial cells that you were able to separate on that swab?

25 A. That is correct.

Q. And the bottom two bands in lane 1(i) match 56A/69A?

A. That is correct.

Q. The bottom two bands of 1(i) being the male fraction of the swab?

30 A. That is correct. There is also a match between lane 3, or item 56A/69A, and lane 10, the male fraction of vaginal swab reportedly taken from Nina Flam.

1 In this case I was able to obtain a much clearer separation and one does not see any residual bands in the female fraction. One sees just the two bands that correspond to the male DNA.

5 THE COURT: That was a separate swab?

A. That was a separate swab.

THE COURT: As I understand.

MR. WALSH: That's correct, My Lord.

A. Yes, My Lord. In addition, I was able to detect a

10 visual match between lane 3 and lane 14 which contains DNA extracted from the male fraction of a body swab reportedly taken from Donna Daughney. One can see visual matches in the upper band and the lower band. And the final forensically significant match was

15 between lane 3 and lane 19, the male fraction of the body swab reportedly taken from Linda Daughney, my item 135. One can see the match between the upper band and the lower band.

20 Q. Did you check those visual matches against your computer?

A. Yes, I did.

Q. And what were your conclusions?

A. Again, the matches fell well within the match

25 window of 5.2%, in fact they were all much less than 2%.

Q. This visual match that you matched up with the computer, the visual match between 56A/69A in lane 3, the hair reportedly from Legere, with lane 7,

30 the male fraction of vaginal swab reportedly from Nina Flam and lane 10, 1(j), the male fraction of vaginal swab reportedly from Nina Flam, and lane 14, item 110, the male fraction of the body swab

1 reportedly from Donna Daughney, and lane 19, item 135, the male fraction of the body swab reportedly from Linda Daughney is consistent with what?

A. Having come from the same source.

5 Q. Do you wish to show those as well to the jury on the light box?

A. With this particular autorad, I believe it's P-161(4), one can see the visual match between lane 3 and the lower two bands of lane 7, the DNA

10 profile found in lane 10, the profile seen in lane 14, and the profile seen in lane 19.

Q. Just give the jury a chance to orientate themselves to that and then I'll ask you to do it again so they are clear as to where you are referring to. (Pause.)

15 Perhaps, Doctor, if you would just refer to it once more so they are familiar with your opinion.

A. The visual matches between lane 3, the bottom two bands found in lane 7, the profile seen in lane 10, the profile seen in lane 14, and the profile seen

20 in lane 19.

Q. And the lane 7 I think you said there's four bands in that lane?

A. Yes.

25 Q. Would you just show them what the other two bands relate to?

A. It's actually much clearer on the light box than it was on the overhead but one can see two distinct bands in lane 6, the female fraction of the vaginal

30 swab reportedly taken from Nina Flam, and the upper two bands found in lane 7, the male fraction of that same swab.

1 Q. And lane 2, the blood standard reportedly from Lewis Murphy, your conclusion?

A. It, again, is excluded as a possible source for these samples.

5 Q. Doctor, in DNA typing, I've asked you that for each of the last three chromosomes you have looked at, but you have an exclusion on the first one you looked at. Would you actually do that again to exclude the person?

10 A. No, I do not. Once you have an exclusion at a single locus one does not have to go on to further tests.

Q. Doctor, I understand that the conclusions you drew on that autorad or from that chromosome test, or the test on that particular aspect of that highly poly-

15 morphic area of the chromosome, you summarized those?

A. Yes. With this particular locus, D4S139, I have seen a visual match between item 1(i) and 56A/69A.

Q. 1(i) being the male fraction of the vaginal swab reportedly taken from Nina Flam matches the scalp

20 and pubic hair standard reportedly taken from Legere?

A. That is correct. I have seen a visual match between item 1(j) and 56A/69A.

Q. And that is a match between the male fraction of the

25 vaginal swab reportedly taken from Nina Flam and a scalp and pubic hair standard reportedly taken from Legere, is that correct?

A. That is correct. The results with respect to item 109 were inconclusive. The visual match between item

30 110 and 56A/69A --

Q. Now, that's between -- 110 being the male fraction of a body swab reportedly taken from Donna Daughney and

1 the scalp and pubic hair standard reportedly taken from Legere?

A. That's correct. And item 135 and 56A/69A there was a visual match.

5 Q. And that is, again, 135 is the male fraction of a body swab reportedly taken from Linda Daughney with the scalp and pubic hair standard reportedly taken from Legere?

A. That is correct.

10 Q. And you called 109 inconclusive?

A. Again, I was not able to include or exclude Mr. Legere as being the donor of any male DNA found in that particular sample.

Q. Do you have any reservations about the calls that you 15 have made?

A. No, I do not.

Q. You are moving to another chromosome now, Doctor?

A. That is correct. This is the probe for locus D17S79 as seen on the chart P-158(3). It's on chromosome 20 17.

Q. So now we're looking at another area of the DNA chain?

A. That is correct.

25 Q. Another of these highly polymorphic areas?

A. That is correct. With this particular hybridization one can see several bands in the upper quadrant of the autorad. These bands are actually residual probes of the previous hybridization which was in this case 30 D4S139. It is a result of incomplete stripping which has been mentioned previously.

1 Q. The sensitivity of the previous probe, you said it was your most sensitive probe, D4S139?

A. It is a more sensitive probe and thus more difficult to strip.

5 The band patterns seen in the lower quadrant of the gel are the patterns with respect to D17S79, the locus on chromosome 17.

Q. What, if any, forensically significant conclusions did you draw from this autorad?

10 A. One can see a match between the profile seen in lane 3, item 56A/69A, and that's in several lanes, lanes 6, 7, 8 and 9. Now, what we see is the female fraction of the vaginal swab reportedly taken from Nina Flam in lane 6 also matches the male fraction

15 of the same vaginal swab in lane 7, item number 1(i). And, again, it matches the female fraction of the vaginal swab reportedly taken from Nina Flam, my item 1(j)F found in lane 8, and again it matches the male fraction of the vaginal swab reportedly taken

20 from Nina Flam in lane 10. So, apparently, one has a profile match between the female victim and the donor of item 56A/69A.

Q. At this probing?

25 A. At this probing.

Q. Is that an unexpected result?

A. It happens occasionally. There are individuals that share the same profile, that's why we look at several different loci in order to distinguish between

30 individuals. Now, the only forensically significant match that was called with all these particular profiles was the profile seen in lane 10, the male

1 fraction of the vaginal swab reportedly taken from Nina Flam, my item 1(j). The reason that I called this a match to lane 3 is the fact that I have never before seen even with our most sensitive probes any
5 indication of the female's pattern in that particular lane.

Q. That indicates to you what about your differential extraction?

A. The differential extraction seemed to be complete
10 thus I was capable of separating completely the female fraction from the male fraction. This was not the case as we have seen with lane 7, the male fraction reported from - a vaginal swab reportedly from Nina Flam, my item 1(i). Previously we saw a
15 mixed pattern, some carry-over of the female fraction into the male fraction. Therefore, I do not feel justified in calling a match between item 56A/69A in lane 3 and item 1(i) in lane 7, because that could have been contributed totally by the female.
20
THE COURT: By what?

A. The female.

MR. WALSH: By the female fraction. The epithelial cells from that swab. Because Nina Flam matches -- Or
25 what purportedly comes from Nina Flam matches what purportedly comes from Mr. Legere at that probing?

A. That is correct. The other match seen visually with this particular locus was the match between lane 3, item 56A/69A, and lane 19, item 135. The bands are
30 slightly blurry and one can see some nonspecific binding in the middle here and thus I stripped the membrane and reprobed it in order to remove any doubt

1 that this particular pattern in the upper quadrant was from previous hybridization and to see if I could clean up this particular pattern as seen in lane 19.

Q. Do you have that reprobing here?

5 A. Yes, I do.

Q. This, again, is an autorad of the same area on the chromosome?

A. The next autorad?

Q. Yes, the next one.

10 A. The first one was P-161(5) and the second probing with that same locus is P-161(6).

Q. Just so we don't have any confusion, you say the next locus is P-161 -- what did you say?

A. The next autorad is P-161(6).

15 Q. Okay. You're referring to the exhibit number that's been assigned by this Court?

A. That is correct. With this stripping and rehybridization with the locus D17S79 on chromosome 17 one does not see the bands in the upper quadrant that I

20 indicated on the previous hybridization which were a residual probe from locus D4S139.

Q. This confirms that they were as a result of incomplete stripping?

A. That is correct. In addition, the patterns seen here

25 are much cleaner and the match between 56A/69A in lane 3 and the match with lane 19, my item 135, is much cleaner and clearer.

Q. Did you confirm your visual matches with the computer?

30 A. Yes, I did.

Q. And what were your conclusions?

1 A. The matches all fell within the match window of 5.2%, in fact they were all less than 2%.

Q. Do you wish to demonstrate those two autorads to the jury on the light box?

5 A. Yes, I do. This is the first probing with the locus D17S79, and the second probing with the same locus. One can see the match between lane 3 and lane 10, and lane 19. Again, one can see the extra bands seen in the upper quadrant of this first

10 probing, I believe it's P-161(5), the court exhibit number, and if one superimposes the two autorads from previous hybridization which was for locus D4S139, which would be exhibit P-161(4), one can see that one can superimpose these bands on top of

15 each other and that they actually were derived from the previous hybridization. One can see also that these bands are slightly indistinct. This sort of shadow which is not a band sort of interferes with the pattern and on subsequent reprobing with that

20 same locus one can see you'd get a cleaner pattern for lane 19, item 135.

Q. Doctor Bowen if you would just move towards my desk a little bit so the people on the end can see.

25 A. And, again, we have the matches between lane 3, lane 10 which is a little faint on this one - it's much easier to see from here, and lane 19.

Q. You have also summarized your results?

A. Yes, I have.

30 Q. From those probings at that chromosome.

A. The results are summarized on this chart where the results - patterns seen with item 1(i) were

1 inconclusive with respect to 56A/69A. There was a match between the pattern seen in 1(j) and 56A/69A.

Q. So you're calling a match between the scalp and pubic hair standard reportedly from Legere and the

5 male fraction of the vaginal swab reportedly taken from Nina Flam?

A. That is correct. With respect to item 109 the results were inconclusive. With respect to item 110 the results were inconclusive, and with respect

10 to item 135 there was a match between the profile found in item 135 and profile obtained from 56A/69A.

Q. That is between 135 being the male fraction of a body swab reportedly from Linda Daughney and item 56A/69A, scalp and pubic hair standard reportedly taken from

15 Legere?

A. That is correct.

Q. Do you have any reservations with respect to those calls?

A. No, I do not.

20

MR. WALSH: My Lord I may suggest that we take our lunch break. We have some ways to go and we will never --

THE COURT: Yes. Well, you can finish this aspect of it in the very near future. I mean it's going to take a little longer is all.

25

MR. WALSH: Yes, it's taking a little longer than we anticipated. We just want to go slow that we don't --

THE COURT: Yes, so we will take a recess now until 2 o'clock.

30 (NOON RECESS - 12:40 - 2 P.M.)

1 COURT RESUMES. (Accused present. Jury called, all present.)

THE COURT: You had further questions?

MR. WALSH: My Lord, yes, I would recall Doctor Bowen.

DIRECT EXAMINATION OF DOCTOR BOWEN CONTINUED:

5

Q. Doctor Bowen, before lunch I believe we finished with the probing at D17S79 on the 17th chromosome, is that correct?

A. That is correct.

10 Q. And you have summarized your conclusions on that chart there, is that correct?

A. That is correct.

Q. You are now moving to another probing at a different area of the DNA molecule?

15 A. Yes.

Q. Before we go any further, you were using the term this morning [male fraction], [female fraction]. In simplistic terms, the male fraction is equivalent to the semen, the female fraction is equivalent to

20 the female vaginal cells, is that correct?

A. That is correct.

Q. Okay.

A. The next probe is for locus D16S85 found on chromosome 16.

25 Q. How sensitive is this probe? You indicated that D4S139 is one of your more sensitive. How does D16S85 compare?

A. It is one of our least sensitive probes. This is court exhibit P-161(7) and actually there were no

30 forensically significant matches called with this particular probe. One can see some bands present in lane 3 which is the DNA extracted from the known

1 scalp hair sample purportedly from Mr. Legere, item 56A/69A, but in the other lanes that we have seen previous patterns that have matched the pattern found in lane 3 with this particular probing there is very 5 faint bands, smudge bands, poorly defined bands that were ruled inconclusive, therefore, there was no statistical weight given to this particular locus.

Q. Could you give an example to the jury of what you are referring to when you say faint bands, poorly defined 10 bands?

A. In lane 1(j), item 1(j) which is lane 10, one can see a fuzzy band which appears to match the upper band found in lane 3. There is a fuzzy area down here that I would not wish to interpret one way or 15 the other. There is no evidence to exclude the donor of item 56A/69A as being a possible contributor to that particular pattern but there is no desire to include him due to the fact that the bands are indistinct, fuzzy and very faint.

20 Q. I would refer you to lane 19, 135. Could you compare that and why you call that inconclusive?

A. Again, there are smudges and indistinct bands that appear in lane 19 that are similar to what one would 25 see in lane 3. The fact that this looks as though it's a split band, it's indistinct, it's not well formed, this one is very faint, I did not wish to call this as an inclusion.

Q. So you have called it what?

30 A. An inconclusive result.

Q. In whose favour would that call be?

1 A. The conservative philosophy of the R.C.M.P. is to bias all results in favour of the defendant, or the accused.

Q. Did you attempt to clean that up any?

5 A. Yes, I did. There is also, I might mention at this point, a few extra bands present here. These, again, are from a previous hybridization due to lack of complete stripping.

Q. The next autorad you are going to show is a reprobing

10 of the same area of the chromosome?

A. That is correct. This is court exhibit P-161(8) and, again, no call was made on this particular probing. One can see an upper distinct band in lane 3 for item 56A/69A. The lower band in this particular

15 probe is indistinct, therefore, I would not wish to make any comparison to any other lane. Again, in lane 19 one has two fuzzy indistinct bands that apparently are in the same region as one sees in lane 3. Again, due to conservative philosophy, we

20 do not make a conclusive call. This was ruled inconclusive.

Q. D16S85, you say this is the least sensitive of your probes?

25 A. Yes, it is the least sensitive of the probes and actually for forensic case work we have dropped the use of this particular probe. We only use it now for paternity studies where there is generally a lot more DNA available for analysis.

30 Q. Okay, Doctor, perhaps if you would we will let the jury see the autorads on the light box.

1 A. Again, with the first attempt at probing for locus D16S85, chromosome 16, one can see fairly indistinct bands in lane 3 and, again, as Mr. Walsh pointed out, there are some fuzzy smears, very indistinct
5 bands, looks like several lines going through there, that are in the same region as what one sees in lane 3 but not good enough quality to call as a match so, therefore, it was termed inconclusive. There's no reason to exclude, as I said, based on the evidence
10 seen in these autorads otherwise if there were bands in other regions that one couldn't define as a band one would therefore exclude the donor of item 56A/ 69A as being a potential contributor for that pattern.
15
Q. The question for you is whether - and correct me if I'm wrong - the question for you is whether you included those bands or you didn't, is that correct?

A. That is correct. And in this case I did not include them due to the fact that they were not distinct
20 enough. They're not well enough formed. Again, in the second probing with the probe for the locus D16S85, this particular bottom band in lane 3 is indistinct, a little smeary, therefore I did not wish to make any conclusive call based on that
25 pattern.

Q. I will ask you if you would then, summarize those conclusions on the summary chart, please.

A. Actually, this is the simplest column to summarize
30 because all the calls for items 1(i), 1(j), 109, 110 and 135 were inconclusive.

1 Q. I take it now, Doctor, we are going to move to another chromosome, another probing?

A. That is correct. Now, this is the final polymorphic probing for locus D10S28 found on chromosome 10.

5 Q. What, if any, forensically significant calls did you make in relation to that probing, that autorad?

A. There were three forensically significant matches called at this particular locus. First, one can see that the pattern found in lane 3 for item 56A/69A

10 matches the pattern seen in lane 10. The upper band matches and the lower band matches.

Q. Lane 10 being 1(j)?

A. Lane 10 being for item 1(j), the male fraction of the vaginal swab reportedly from Nina Flam. Again,

15 there is a visual match between the pattern in lane 3 and the pattern seen in lane 14 which is the pattern for item 110, the body swab reportedly from Donna Daughney. And, finally, there is a visual match

20 between patterns seen in lane 3 and in lane 19, the pattern found from item 135 which is the male fraction of the body swab reportedly from Linda Daughney.

Q. You are saying that's a visual match. Those things

25 all visually match each other.

A. They are all visual matches, yes.

Q. And what is that consistent with?

A. They are all consistent as having been derived from the same source.

30 Q. And did you have occasion to confirm your match with the computer?

1 A. Yes. The matches were confirmed by the computer and they were all found to be much less than the match window found in the R.C.M.P. - used by the R.C.M.P. which is 5.2%. In fact they were all less than 1%.

5 Q. Are there any other things that you wish to point out to the jury?

A. Not at this particular stage.

Q. Fine. Those are all your forensically significant calls?

10 A. Yes, they are.

Q. And, again, I know we are being redundant, but lane 2, the blood reportedly from Lewis Murphy?

A. The blood reportedly from Lewis Murphy, item 157(A) in lane 2, again, is excluded as being a potential

15 source of these samples.

Q. And, again, to explain the bands in that particular lane, 157(A), they seem to be so dark and big, why is that?

20 A. These bands are very dark because there's much more DNA loaded in that particular well as compared to lane 3.

Q. The same with 115(b), blood standard purportedly from Donna Daughney?

25 A. Yes.

Q. I take it that means you had lots of DNA to work with?

A. Yes.

Q. You wish to show that autorad to the jury on the

30 light box?

A. Yes. For locus D10S28 the matches were found between lane 3, lane 10, lane 14 and lane 19.

1 Q. Lane 3 is 56A/69A?

A. Yes. Lane 10 is the male fraction of the vaginal swab reportedly from Nina Flam, item 1(j). Lane 14 is the male fraction of the body swab reportedly
5 from Donna Daughney. And lane 19 is the male fraction of the body swab reportedly from Linda Daughney. Although these bands here are quite faint if one looks at them closer up, perhaps the back row, they are very distinct clear bands.

10 THE COURT: Would you indicate the faint ones, the very faint ones at the bottom, please?

A. It's lane 14. They are very faint but if one gets a little closer they can see that they are very distinct bands.

15 MR. WALSH: Doctor, in addition to looking at the color to find the band, how well formed the band is does that have a bearing in your decision as to whether to call something or not call something?

A. Yes, it does.

20 Q. For example you referred to D16, the previous auto-rad, and you called them inconclusive. Now, you were referring to light bands with respect to one lane there, the item 110, reportedly from Donna
25 Daughney, a body swab, why did you call that and not call D16?

A. The basic difference is the form, the shape of the band. If it's a very fuzzy band it can be easily confused with background nonspecific binding of the
30 probe to the membrane. With distinct bands one is more capable of visualizing the size of the band, where it is positioned on the autorad, and it is not confused with nonspecific binding.

1 Q. We're showing the jury here today, and showing every-
one else in this court using these slides and the
light box, what if any bearing does experience in
reading autorads come in to actually interpreting
5 them?

A. Although it's a simple technique, it's pattern
recognition, I mean as Doctor Waye said any five
year old can actually recognize patterns, with
forensic samples we're dealing with some background,
10 some nonspecific binding, and conditions that are
generally beyond our control, therefore, it's
necessary to have a fair amount of experience in
looking at these autorads in being able to determine
what is a band, what is not a band, and justifying
15 the interpretations made.

Q. Do you have any reservations with respect to the
calls that you made on this particular autorad?

A. No, I don't have any reservations.

20 Q. You have summarized your results again on the chart
over there?

A. Yes, I have. Now, for locus D10S28 the call for
item 1(i) was inconclusive. There was a visual
match between the profile seen in item 1(j) and
25 56A/69A.

Q. 1(j) being the match between hair reportedly from
Legere and the male fraction of the vaginal swab
reportedly taken from Nina Flam?

A. That is correct. The call for item 109 was incon-
30 clusive. There was a visual match between the pro-
file of item 110 and 56A/69A.

1 Q. That is between, again, hair reportedly coming from Legere and the male fraction of a body swab reportedly taken from Donna Daughney?

A. That is correct. And a visual match between profile,
5 item 135, and 56A/69A.

Q. That, again, is the DNA in the scalp and pubic hair reportedly from Legere and the male fraction of a body swab reportedly taken from Linda Daughney?

A. That is correct.

10 Q. I understand, Doctor, that completes the application of the highly polymorphic probes.

A. That is correct.

Q. So you have covered chromosome 1, 2, 4, 10, 16 and 17. Those are the areas of the chromosomes you
15 looked at?

A. Yes, it is.

Q. Now, you applied another probe after that?

A. Yes. At this stage I applied the probe for locus D7Z2, the monomorphic probe.

20 Q. That's on chromosome 7?

A. That's correct.

Q. And that is a probe that will show bands that are the same in everybody?

25 A. That is correct. As one can see here, human DNA will exhibit a band the size of twenty-seven thirty-one base pairs with this particular locus. The fragment of interest is right along here. This is twenty-seven thirty-one base pairs or thereabouts.
30 So what we see is human DNA in most of the lanes with the exception of the lane for 110, item 110F, the female fraction of the body swab reportedly from

1 Donna Daughney and lane 135F, the female fraction of the body swab reportedly from Donna Daughney.

Q. What does that indicate to you?

A. It indicates to me that there was no DNA in those
5 sample lanes.

Q. No DNA from the female epithelial cells off of that swab that was on the body?

A. That is correct.

Q. Would that be an expected result?

10 A. Judging from my quantification and yield gel, yes, I was expecting it. I also have a longer exposure of that particular probe.

Q. When you say a longer exposure could you explain the difference between that and actually reprobing
15 the same area?

A. This is an exposure that was done sequentially to this particular exposure. This was a 17 hour exposure. What I did then was simply place another x-ray film on top of the membrane and let it expose
20 for a slightly longer period of time so that I could get a darker exposure. And, again, one can see the monomorphic band at twenty-seven thirty-one and, again, even with the longer exposure one does not see any human DNA in the lane for item 110F, the
25 female fraction of the body swab reportedly from Donna Daughney, and for item 135F, the female fraction of a body swab reportedly from Linda Daughney.

30 Q. What, if anything, does your view of the monomorphic marker - what, if anything, does that tell you about the test that you did with the other probing?

1 A. The monomorphic marker basically tells us that the results are precise and accurate. The computer scanning actually lets us know it's accurate by how close it is to the known or expected value of
5 twenty-seven thirty-one base pairs. The fact is that since these all line up visually on the auto-rad it tells me that there is no evidence of band shifting in any of the lanes. That none of the lanes ran anonymously in the sense that they all ran as
10 true to the value.

Q. The use of the monomorphic marker, is that something-- That's a control for determining whether your test is correctly done, is that correct?

A. That is correct.

15 Q. So it's an added feature?

A. Yes.

Q. Is that used everywhere?

A. No, it isn't actually used everywhere. Several forensic laboratories have employed the monomorphic
20 probe as we have, others haven't.

Q. But this is an added feature, not a less feature so to speak?

A. No, it's an added feature of the R.C.M.P. system.

25 Q. Okay, Doctor.

A. Again, these represent the autorads for locus D7Z2. This is exhibit P-161(10) and P-161(11) is the longer exposure of that same hybridization, and again one can see the monomorphic band visually across the
30 autorad indicating that the result is precise. The computer sizings also told me that it was within the match window and therefore the results are accurate.

1 Q. To be clear, this probe is not meant to differentiate between people; it's meant to try to find a band that's the same in everyone?

A. That is true. It is meant to show that the band that 5 is present in everyone is in the correct position on the gel therefore indicating that the result for that particular band is accurate.

Q. You have, I understand, Doctor, summarized your conclusions on the chart as well.

10 A. That is correct. The conclusions summarized in the summary chart indicate a plus sign where the monomorphic marker gave a band and that band was on your measurement imprecision of twenty-seven thirty-one base pairs. So, therefore, there's a plus sign for 15 item 1(i), 1(j), 109, 110, 135, indicating that the DNA in those particular lanes ran true to their expected situation.

Q. You have applied another probe as well, I understand, to this gel, Doctor.

20 A. Yes. The final probe applied to this gel, or this membrane actually, was the sex typing probe for locus D6Z1 on the "Y" chromosome. Again, this particular locus reveals a monomorphic band for 25 males at thirty-five sixty-four base pairs which is within this area. Now, this is why we have a female and a male control on our gels because it is in a sense a negative test. Only males will give you a band of thirty-five sixty-four base pairs, therefore, 30 one has to have a female present to make sure that there's no error in the way this particular probe is reacting with the membrane, it should give a negative

1 result. And, as you can see, there's no band present at thirty-five sixty-four base pairs. The male control in lane - for item designated L2, excuse me, the female control is designated "NM", the male
5 control is designated L2 in this autorad, this lane 21, one does have a band at thirty-five sixty-four base pairs, therefore indicating that the probe reacted correctly with this particular membrane therefore one can call results that one has seen. The male probe
10 indicated a band at thirty-five sixty-four in lane 2, that of a male suspect, a blood sample reportedly from Lewis Murphy. It gave a band at thirty-five sixty-four for the known sample reportedly from Mr. Legere, item 56A/69A. There is no indication of a
15 band in lanes 4 and 5 which are for items 115(b) and 140(A) respectively. These are known blood samples from Donna Daughney and Linda Daughney respectively. There is no band in the female fraction of item 1(i)F which is the female fraction of the vaginal
20 swab reportedly from Nina Flam, however, there is a band at thirty-five sixty-four in the male fraction of item 1(i), the male fraction of the vaginal swab reportedly from Nina Flam. Again, there is no band in the female fraction of item 1(j) designated "F",
25 the vaginal swab reportedly from Nina Flam, however, there is a male band in the lane for item 1(j), lane 10, the male fraction of the vaginal swab reportedly from Nina Flam. In lane 11, item 109 designated "F" for female fraction of a vaginal swab reportedly
30 from Donna Daughney there is no band present at thirty-five sixty-four. However, for the very first

1 time in lane - for item 109, the male fraction of a vaginal swab for Donna Daughney, we are seeing some foreign DNA. We see a faint - with regard to other bands - a fainter band at thirty-five sixty-four.

5 Q. What is that? That's the first time you have seen DNA in that particular sample?

A. I believe we have seen some indication of DNA patterns that match the sample found in lane 115(b), the known sample reportedly from Donna Daughney.

10 Therefore, we have seen no foreign DNA in that particular sample and yet with this faint band one has some evidence of a very small amount of male DNA which obviously was insufficient for detection using the polymorphic probes that we have used

15 previously. The "Y" specific probe is our most sensitive probe, therefore, will pick up very small amounts of male DNA as compared to any of the other probes that we have used.

20 Q. So there was a very small amount -- From that you are saying there was a very small amount of male DNA from the male fraction of the vaginal swab taken from Donna Daughney?

A. That is correct. No conclusion can be reached on the

25 lane for item 110F. Since we did not have a band at twenty-seven thirty-one using the monomorphic probe we did not detect DNA with that probe therefore a negative result with the "Y" probe does not mean -- It doesn't mean it's a female in this particular

30 case since the monomorphic probe did not give us a result. The result is still insufficient DNA for any form of analysis.

1 Q. Doctor, I'm just going to ask you to speak up a bit more.

A. Lane 14, item 110, the male fraction of the body swab reportedly from Donna Daughney, again, we have
5 a band at thirty-five sixty-four base pairs indicative of male DNA. In the next three lanes there is no band present. These are for items 134F and 134, the female and male fractions of a vaginal swab reportedly from Linda Daughney, and in item 135, the
10 female fraction of a body swab reportedly from Linda Daughney there is no band present indicating the DNA of 134F and 134 came from a female, however, since there is no indication of DNA using the mono-morphic probe with 135F the result does not mean it
15 was female just because there wasn't DNA present. There was a band present in the lane for item 135. Lane number 19 there is a band at thirty-five sixty-four indicating male DNA. Again, the female control, "NM", did not give a band and the male control gave
20 us a band at thirty-five sixty-four.

Q. Doctor, does that autorad help you explain to the jury the amounts of DNA that you would have been working with? You have called matches between l(i) -
25 involving l(i), l(j), l(i) being a male fraction from the vaginal swab of Nina Flam, l(j) another male fraction of another vaginal swab, 110 being a male fraction of a body swab reportedly from Donna Daughney, and 135, a male fraction of a body swab
30 reportedly from Linda Daughney. That sex typing probe, does that give you any indication of how much DNA was relative to each?

1 A. Yes, it does. We can show the summary chart. One can see that for, to begin with, item 135, the lower row, I have found 5 matches with 5 different hypervariable highly polymorphic probes. If one looks
5 at the result with the sex typing probe the band at 135 is the most intense as compared to the other regions that I have found matches. The second most intense band is for item 1(j) and, again, by referring to this chart I was able to find 4 matches across the
10 hypervariable probes. If one then looks at item 110 I was able to obtain two matches. It is the third most concentrated amount of DNA present in that lane. With item 1(i) I was able to get only one hypervariable probe to match. It is the 4th most intense
15 band. And the least intense band found with item 109 I was only able to get the sex typing probe to work, as indicated in this last column of the summary chart.

20 Q. So what you are saying is that the intensity of the bands as shown there is consistent with why some of the probes you had more matches than others?

A. That is correct. It's simply a factor of how much DNA was present in that particular lane and whether
25 the probes were sensitive enough to pick up that DNA.

Q. And the lane with the most male DNA from the unknown source?

A. Was the lane for item 135, lane 19.

30 Q. And that's the one that you had the most matches with?

A. That is correct. It was the male fraction of the body swab reportedly from Linda Daughney.

1 Q. You are going to show those on the light box?

A. Yes. Again, this is exhibit P-161(12) and it is the probe from locus DYZ1, the sex typing locus. Again, we can see that there's an indication of a male in
5 lane 2, lane 3, lane 7, lane 10, lane 12, lane 14, lane 19 and lane 21.

Q. I take it from what you are saying, Doctor, you got a predictable result.

A. Yes.

10 Q. Doctor, I understand that you attached and determined a statistical significance with respect to the probabilities of those matches shown on the summary chart, is that correct?

A. That is correct.

15 Q. Before I get you to do that perhaps what I will ask you to do -- Well, maybe we will do this now and we will move to the second blot. Would you sooner go to the second blot now or do the statistical significance?

20 A. It doesn't matter to me.

Q. Well, perhaps we will do that then.

THE COURT: Do you want those moved back or -- What are you going to do now Mr. Walsh?

25 MR. WALSH: We are going to -- the Doctor is going to show what statistical significance he assigned to those matches.

THE COURT: Do you suppose we could have -- He would probably prefer to sit down during that, would he,
30 or -- In any event, could we have those moved back a little. You can either stand or sit as you wish. You are using this exhibit 162, are you?

1 A. Yes, P-162.

MR. WALSH: Doctor, just so we have this in context, correct me if I'm wrong, but you have given your opinion as to the existence of matches between the DNA extracted

5 from hair reportedly from Legere and semen on vaginal swabs reportedly from Nina Flam, is that correct?

A. That is correct.

Q. You have also given your opinion that these matches

10 mean that the samples are consistent with having come from the same person, that is reportedly Legere, is that correct?

A. That is correct.

Q. What, if any, opinion can you give that would assist

15 the jury in determining the probability that these samples are from the same person, that is reportedly Legère? In other words what is the significance of the matches that you have found?

A. By referring to the data base, the Caucasian data

20 base, and using very fundamental rules of statistics for population genetics, in particular the Hardy-Weinberg equation and the Product Rule, one can derive statistical significance for these matches. For the match between item 1(i) which is the vaginal

25 swab reportedly from Nina Flam, it is the male fraction of that vaginal swab, for the match between item 1(i) and item 56A/69A where there was a match at 1 locus, in particular D4S139, the estimated

30 frequency of occurrence in the Caucasian population is 1 in 68 males.

1 Q. Would be expected to have that particular pattern?

A. That is correct.

Q. Continue, please.

A. For the match between item 1(j) which is the male
5 fraction of the vaginal swab of Nina Flam --

Q. That would be the one that had the most DNA on it?

A. It's the second largest amount of DNA.

Q. Compared to the first swab --

A. It had more DNA present than the first swab. Where
10 there is a match across four loci, in particular
D1S7, D4S139, D17S79 and D10S28, matching the pro-
file obtained from item 56A/69A, the estimated
frequency in the Caucasian population is 1 in 5.2
million males.

15 Q. You're estimating that's how many would be expected
to have that same pattern?

A. Yes.

Q. Now, Doctor, you have given your opinion, and correct
20 me if I'm wrong, you have given your opinion as to the
existence of certain matches between the DNA extracted
from the hair reportedly from Legere and semen on
body swabs reportedly from Donna and Linda Daughney,
is that correct?

25 A. That is correct.

Q. You have also given your opinion that these matches
mean that the samples are consistent with having come
from the same person, that is reportedly Legere, is
that correct?

30 A. That is correct.

Q. What, if any, opinion can you give that would assist
the jury in determining the probability that these
samples are from the same person, that is reportedly

1 Legere? In other words what is the significance of those matches?

A. Again, by referring to the population data base created for Caucasians in Canada one can derive a
5 statistical significance for these matches. For item 110, the male fraction of the body swab reportedly from Donna Daughney, there was a match between locus D4S139 and locus D10S28 with the DNA profile found in item 56A/69A. The estimated
10 frequency of occurrence of this profile in the Canadian Caucasian population is less than 1 in 7,400 males.

Q. Would be expected to have that same pattern?

A. That is correct.

15 Q. Now, the next one, 135, according to the last auto-rad you have shown, the sex typing autorad, which between 110 and 135 which both purport to be body swabs, 110 from Donna Daughney, 135 from Linda Daughney, which of them had the most DNA on the
20 swab?

A. Item 135 had more DNA than item 110.

Q. Continue.

A. For the DNA profile, item 135, which matched at
25 locus D2S44, D1S7, D4S139, D17S79, D10S28, in fact 5 loci which matched DNA profile obtained from item 56A/69A, the estimated frequency of occurrence in the Canadian Caucasian population is less than 1 in 310 million males.

30 Q. And that last one, 135, between all those samples, 1(i), 1(j), 109, 110 and 135, 135 had the most DNA of all of them?

A. That is correct.

1 Q. So you were able to do more probing as a result.

A. I was able to achieve a result more often with that particular --

Q. More often. The male fraction shown on 110 con-
5 sistent with semen and the male fraction on 135 consistent with semen, between the two of them are they consistent as coming from the same person or from different people?

A. They're all consistent with having originated from
10 the same individual.

Q. And you use the R.C.M.P. Caucasian data base for those projections?

A. Yes. The R.C.M.P. Caucasian data base dated December 3rd, 1990.
15
Q. And are those precise figures or estimations?

A. These are estimates. These are often referred to as best estimates. They are generally considered conservative and reliable.

Q. There will be other - I understand - other experts
20 who will look at those figures and explain the significance of estimates and best estimates.

A. That is correct. I believe Doctor George Carmody will handle that aspect.

Q. Have other experts associated with this case reviewed
25 the calls that you made in relation to these charts and the statistical frequency that you assigned to them?

A. Yes. There have been several experts that have
30 independently analyzed these results.

Q. Without getting into what their opinions are, who has looked to your knowledge?

1 A. The autorads and statistical significance has been analyzed by Doctor John Waye, Doctor Ron Fourney of the R.C.M.P., Doctor Ken Kidd, and Doctor William Shields. The statistical analysis has been also
5 looked at by Doctor George Carmody.

Q. Doctor, I understand that you did another blot, another gel, and put samples - different samples in another gel, is that correct?

A. That is correct.

10 THE COURT: How long would this aspect of it take Mr. Walsh?

MR. WALSH: It shouldn't take as long as the first aspect. There are not as many samples and it is not as complex My Lord. You may wish to take a break now.

15 THE COURT: I'm just thinking of breaking the afternoon up as closely as possible into two parts. This is going to take a fair amount of time.

MR. WALSH: I'll put Doctor Bowen out on the limb there My Lord. You're on your own, Doctor.

20 A. Judging by how things are proceeding it probably will - it will probably take the rest of the afternoon I would imagine to complete.

THE COURT: Well, I think we better have a recess now then.

(RECESS - 3:05 - 3:30 P.M.)

25

COURT RESUMES. (Accused present. Jury called, all present.)

MR. WALSH: Doctor Bowen before the break you were indicating that you had did a second gel and you put different samples in another gel, is that correct?

30 A. That is correct.

1 Q. And the procedure that you followed, how does that compare with the procedure you described with respect to the first gel?

A. The procedure followed was identical as used in the
5 first gel and the same as Doctor Waye expressed two days ago.

MR. WALSH: And, My Lord, I have at this time the separate lane loading identification for the second gel to identify what went into it. I have shown this to
10 Mr. Furlotte.

THE COURT: That will be exhibit number P-163.

MR. WALSH: And with your permission, My Lord, I have copies for the jury.

THE COURT: All right.
15
(Clerk marks grey folder exhibit P-163.)

MR. WALSH: I will give you P-163. Would you just explain to the jury what they relate to? What did you actually load in those lanes in that gel - second gel?
20
A. This particular gel contained some known samples that I obtained at a later date with regards to this particular case. The first lane contained the DNA marker, the ruler that we used. Lane 2 contained
25 DNA isolated from my item 335. It was a blood stain reportedly from Mr. Legere. It is court exhibit P-112.

Q. What did you take that blood stain off of?

A. The blood stain was taken off some tissue. The third
30 lane contained DNA from a male control designated L1. The 4th lane contained DNA isolated from item 83A, a known pubic hair sample reportedly from Mr.

1 Legere. The 5th lane contained DNA designated "NM" which is the female DNA control. And lane 6 contained the DNA marker.

Q. Did you have exhibit P-112 and exhibit P-113, the
5 blood and the pubic hair standard, did you have them available to you at the time that you ran your first gel?

A. No, I did not.

Q. And what was the purpose -- Would you explain to
10 the jury the purpose of doing this particular gel? What, if anything, were you attempting to do?

A. These were additional known samples reportedly from Mr. Legere. The purpose was to see if they were consistent with having come from the same donor and
15 that in fact they could be matched to the original known sample, my item 56A/69A.

Q. So you were going to do a comparison from this gel, the autorads you generated from this gel to the autorads that you generated in this first gel?
20
A. Yes.

Q. I don't think we've touched on that. We've talked about comparisons within the same gel lane to lane. Can you tell the jury something about a gel to gel
25 comparison, comparing from one autorad to another autorad?

A. A gel to gel comparison is slightly more difficult in the sense that one does not have samples run on the same gel thus flanked by the same markers. One
30 has to rely first of all on a visual match which, again, is, as I said, slightly more difficult, therefore one relies much more on the computer scanning

1 and the fragment sizes generated by the computer for the comparison to make sure that these matches that you see visually fall within the match window for the R.C.M.P.

5 Q. Is there any difference between what you would expect to find in terms of the percentage within the match window when you're comparing within the same auto-rad, same gel, as when you're comparing it from gel to gel or from an autorad to an autorad?

10 A. It has been demonstrated that the match window or the precision of the matches within a gel are much closer, much tighter than what one would obtain through a gel to gel comparison.

Q. You still have the same 5.2% matching window?

15 A. Yes, we still use 5.2% as our matching window and in order to call a match conclusive it must fall within that window.

Q. So hypothetically speaking, if you had a 1% - say for example 1% within the match window on a lane to

20 lane comparison where would you expect it if you were comparing from gel to gel, from an autorad to an autorad? Would it be closer to the 1 or closer to the 5.2%?

A. It would probably be closer to the 5.2%. 2 or 3%.

25 Q. You have indicated you followed the same procedure as you followed in what you explained this morning with respect to the first gel, is that right?

A. That is correct.

30 Q. And what, if anything, did your controls associated with the extracting of DNA, the quantifying of DNA, the digestion of DNA, the electrophoresis of the DNA, what, if anything, did those controls tell you?

1 A. The controls told me that the gel and the samples in the gel ran as expected and that there was no cause for concern.

Q. And the probes that you used then with respect to

5 this gel?

A. The probes used with respect to this gel are identical to the probes used in the first gel, the six polymorphic probes and the two control probes, D7Z2 and DYZ1.

10 Q. Do you have autorads with you - original autorads associated with that particular probing?

A. Yes, I do.

Q. How many autorads are there?

A. I believe there are 9 autorads and 1 template.

15 Q. And at the beginning of this book you have the copy of exhibit P-163 showing the lane loading identifications at the front of the booklet.

A. That is correct.

MR. WALSH: My Lord I would move to have these entered as

20 as exhibit.

THE COURT: That will be P-164(1) to (9). And the template would be included generally.

(Clerk marks black book with autorads P-164(1)-(9).)

MR. WALSH: Doctor, I understand that you wish to show these

25 autorads in the same fashion on using the overhead projector?

A. Yes.

MR. WALSH: My Lord, perhaps if I may make a suggestion to

30 streamline the procedure, these don't have as many samples in them, perhaps we could show all the autorads on the overhead projector one after another and

1 then I'll just have to set the light box up once and I'll just ask the Doctor to put them on one after another in the same fashion.

THE COURT: I would think that would speed it up a little.

5 DR. BOWEN: Again, this is the template for that particular blot, gel 2, membrane 2. The first lane contained the marker DNA samples. The second lane contained DNA extracted from my item 335 which is court exhibit P-112. The third lane is designated

10 L1. It is the male control DNA. The 4th lane contained DNA isolated on item 83A, a known pubic hair sample reportedly from Mr. Legere, court exhibit P-113. The 5th lane contained DNA isolated from NM, the female allelic control. And the 6th lane

15 contains the molecular weight markers.

The first autorad is for locus D2S44 located on chromosome 2. There's a visual match between the known sample, item 335, blood reportedly from Mr. Legere, and the lane 4, item 83A, the pubic hair

20 sample reportedly from Mr. Legere.

Q. What, if any, comparison did you make between -- What is that consistent with? The fact that there's a visual match between 335 and 83A.

25 A. They are consistent with having come from the same source.

Q. And what, if any, comparison did you make - visual comparison did you make between the bands you see in lane 335 and 83A with the bands that you saw on the

30 autorad on the first blot at D2S44?

1 A. The comparison was made between the known sample, item 56A/69A, and any matches found with that particular known sample on the first blot for D2S44.

Q. They matched or didn't match?

5 A. They did match.

Q. And that is consistent with what?

A. The samples involved having originated from the same source.

Q. And did you check your matches with the computer?

10 A. Yes, I did.

Q. Both from lane to lane and gel to gel?

A. Yes, I did.

Q. What, if anything, did the computer tell you?

15 A. The within gel comparisons are well within the match window. They are both under 1%. The gel to gel comparisons are, again, well within the match window of 5.2%. They were all less than 2%.

Q. Okay, let's move to the next probe.

20 THE COURT: Well now before you turn that off, will you indicate the markers that correspond, that match you say.

A. The bands that match are this particular band, the upper band here, the faint band here, the lower band

25 here, and again the faint band there.

MR. WALSH: Okay, Doctor, in 335 the bands are very dark, and in 83A they are very light. Why is that?

A. There is a large amount of DNA in item 335. There was very little DNA isolated from item 83A.

30 Q. And 83A was what?

A. Was the known pubic hair sample.

1 Q. And you're isolating the DNA from what part of the hair?

A. The root sheath.

Q. And 335 you're isolating the DNA from blood?

5 A. Yes. A fair amount of blood.

Q. You said a fair amount?

A. Yes. The next hybridization was locus D10S28 on chromosome 10 and, again, the DNA profile found in item 335, the known blood sample reportedly from Mr.

10 Legere, and the pattern found in lane 4 for item 83A matched visually. One can see the comparison between the upper band here and the lower band here.

Q. And that's a visual match in your opinion.

A. That is a visual match.

15 Q. And that's consistent with what?

A. Having come from the same source.

Q. And did you look to the computer to determine - confirm your match?

A. Yes, I did.

20 Q. And the results?

A. The results for within gel comparisons were well within the match window, in fact they were less than 1%.

25 Q. And did you make a comparison between that particular autorad at D10S28 and the autorad D10S28 that you generated on the first blot?

A. Yes, I did.

Q. And what, if anything, did you find?

30 A. Again, the samples visually matched and this was confirmed by the computer. The items 56A/69A and all items at that particular known sample matched on the original gel.

1 Q. Continue, please.

A. The third hybridization was with locus D1S7 on chromosome 1. Again, there's a visual match between lane 2 and lane 4, lane 2 being DNA isolated from

5 item 335, the known blood stain reportedly from Mr. Legere, and lane 4 being DNA isolated from item 83A, the known pubic hair sample reportedly from Mr. Legere.

Q. That is consistent with what?

10 A. They are consistent with having come from the same source.

Q. And did you look to your computer?

A. Yes, I did. For within gel comparisons they were well within the match window, in fact less than 1.1%

15 or equal to 1.1%.

Q. Did you make any comparison between this autorad, this probing at D1S7, and the one that you did on the first gel?

A. Yes, I did.

20 Q. What, if any, conclusions did you arrive at?

A. The samples in lane 2 and lane 4 again matched the item 56A/69A and any items matched with that particular probe on the first gel for that particular

25 probe, yes.

Q. And the computer - did you look to the computer on that one?

A. Yes, I did, and again they are within the match window, this time slightly higher, but they were all

30 less than 3.5%.

Q. Continue, please.

1 A. The 4th hybridization was for locus D17S79. Again, the profile found in lane 2 and the profile in lane 4 are a visual match, that is the profile of item 335, the known blood sample reportedly from Mr.
5 Legere and the known pubic hair sample reportedly from Mr. Legere.

Q. And that's consistent with what?

A. Having come from the same source.

Q. And did you confirm this with the computer?

10 A. Yes, I did. And, again, they were both well within the match window of 5.2%, in fact they were less than 1%.

Q. And what, if any, comparison did you make between the probing on this autorad with the probing that
15 you did on the first gel membrane?

A. The profiles found in lane 2 and lane 4 matched the profile obtained with item 56A/69A on gel number 1 and in fact matched any profiles matched by item 56A/69A on that particular gel.

20 Q. And the computer quantification of that?

A. Again, the computer quantification on the gel to gel comparison was well within the match window. They were all less than 3%.

25 Q. Do you have another probing, Doctor?

THE COURT: Well, would you show us the actual markers there before you move on?

A. I'm sorry. The match is here, the upper band and the lower band.

30 THE COURT: What about that other lane where they seem to be almost comparable, lane 5?

1 A. Lane 5? There is a visual match there but --

THE COURT: To my inexperienced eye.

A. There appears to be a visual match between the upper band but the lower band does not match. The lower

5 band is here. This band is actually higher.

MR. WALSH: And NM is just - to refresh our memory is what?

A. Is the female allelic control.

Q. This is for what probing Doctor?

10 A. This is the 5th hybridization. It is for locus 3'HVR which corresponds to D16S85 located on chromosome 16.

Q. Now, that particular probe, you testified earlier about that as to its sensitivity.

15 A. Yes. It is our least sensitive probe and it is quite apparent that in lane 4 one does not see evidence of -- Well, there's a slight indication of one or two bands there but one would have to really strain to see them. With lane 2 one can easily see

20 the two bands in the profile for item 335 which is the known blood sample reportedly from Mr. Legere.

Q. What, if any, conclusion did you draw about that?

A. I did not conclude from this particular hybridization that there was a visual match here.

25 Q. What did you call it?

A. I called lane 4 inconclusive and actually went back and rehybridized with the same probe at a later date.

Q. And when you rehybridized it were you able to do

30 anything with that?

A. Yes, I was.

1 Q. This is the same probe that on the first gel, Doctor, correct me if I'm wrong, that you called them all inconclusive?

A. That is correct. With the second hybridization with
5 the same probe for locus D16S85 I was able to obtain a result this particular time. There is a visual match now between lane 2 and lane 4, the upper band and the lower band, lane 2 being the DNA isolated from exhibit 335, the known blood sample reportedly
10 from Mr. Legere, and lane 4, the DNA isolated from item 83A, the known pubic hair sample reportedly from Mr. Legere.

Q. Did you check the quantification on the computer?

A. Yes, I did, and they were well within the match
15 window. They were both less than 1.5%.

Q. What, if any, comparison -- Did you make a comparison between this probe and the probing in the first blot?

A. No, I did not. Since I called the first one incon-
20 clusive I did not make that comparison.

Q. Since you called the calls on the first gel membrane inconclusive there was no comparison to make?

A. Yes.

25 Q. Continue, Doctor, please.

THE COURT: And the bands you're talking about?

A. The upper band in lane 2 and the upper band in lane 4, and the lower band in lane 2 and the lower band in lane 4.

30 These are the results for probe - for the locus D4S139 on chromosome 4. Again, there is a visual match between lanes 2 and lanes 4. There is the

1 upper band in lane 2 matching the upper band in lane 4. The bottom band in lane 2 matching the lower band in lane 4, lane 2 being the known blood sample reportedly from Mr. Legere, item 335, and lane 4
5 being the known pubic hair sample reportedly from Mr. Legere, item 83A.

Q. Did you look to your computer on that particular match?

A. Yes, I did. For the within gel comparison the
10 match was within the match window. It was less than 2.5%.

Q. And did you make any comparison between this particular autorad on this gel with the same autorad on the previous gel?
15
A. Yes, I did and, again, the computer indicated that the matches between lane 2 and lane 4 with the known sample item 56A/69A were within the match window and in fact within the match for all the matches called for 56A/69A on that first gel.
20
Q. Continue, Doctor.

A. This is the result for the monomorphic probing, the probe for locus D7Z2 on chromosome 7, giving us the monomorphic or invariant band at twenty-seven thirty-one base pairs.
25
Q. This is the one that you want to determine if you're looking for a band the same in everybody?

A. That is correct.

Q. And what, if anything, does this tell you?

30 A. This tells me that the results are both accurate and precise.

1 Q. Now, would you just show again the bands that you are referring to?

A. The band is twenty-seven thirty-one base pairs in lane 2, lane 3, lane 4, and lane 5.

5 This autorad shows the results for locus DY21 on chromosome Y, the sex typing locus, indicating a band at thirty-five sixty-four base pairs in lane 2, lane 3, in lane 4, indicating that these three individuals are male, that is the DNA isolated from 10 335, L1, the male allelic control, and 83A, the known pubic hair sample reportedly from Mr. Legere. There was no band present in the female allelic control designated NM thus indicating that the test and probing gave the expected result.

15 Q. Those are the probings that you did with respect to that particular gel membrane, the second --

A. That is correct.

Q. I would ask you, Doctor, just to show the jury on 20 the light box just in the order in which you showed them on the overhead projector and speak up, please, so everyone can hear you.

A. This first autorad is for locus D2S44 which is on chromosome 2. Again, we have a match between the 25 patterns found in lane 2 and lane 4, the upper band and the lower band.

Q. And you compared that particular - those matches with the same probe on the first gel - you compared them to 56A and 69A?

30 A. That is correct, and they matched. This next autorad is locus D10S28. Again, there is a visual match between lane 2 and lane 4.

1 Q. And you made a comparison between those matches and the same probing on the first gel?

A. Yes. Again, these two samples matched lane 3 or item 56A/69A on the first gel in all comparisons
6 made with that particular item.

This is the autorad for locus D1S7 on chromosome 1. Again, we have a match between lane 2 and lane 4 for this particular locus.

Q. And the comparison that you made between that
10 particular autorad on this gel with the same probing on the first gel?

A. Again, these samples both matched item 56A/69A on the firt gel in all comparisons made with that item on the first gel.
15
This autorad is for locus D17S79 on chromosome 17. Again, there is a match between lane 2 and lane 4 on this particular autorad.

Q. And what, if any, comparison did you make between that and the same corresponding probe on the first
20 gel?

A. The samples on lane 2 and lane 4 matched item 56A/69A on the first gel in all comparisons made with that item on the first gel.

25 These are both autorads for locus D16S85 on chromosome 16. The first one was ruled inconclusive. There is a very faint band in the upper quandrant here but the lower band is not visible.

Q. I would ask you to speak up again, Doctor, please.

30 A. On the second hybridization with the same probe for locus D16S85 one can see the visual match between lane 2 and lane 4.

1 Q. From what you have testified previously, you made no calls - nothing to match to with respect to the inconclusive calls you made on the first gel?

A. No. All the results were inconclusive, therefore,
5 a comparison wasn't made, or isn't made.

This is the result for locus D4S139 on chromosome 4, and there is a visual match between lane 2 and lane 4 as described previously.

Q. And what, if any, comparison, again, did you make
10 between that probing and the probing you made on the first gel?

A. The DNA isolated -- The DNA profiles for lane 2 and lane 4 matched the profile obtained from item 3, lane 3, item 56A/69A, on the first gel and all
15 matches made on that particular gel, the first gel.

This is the autorad for the probing for locus D7Z2, the invariant band or the monomorphic band, which gives us a band at twenty-seven thirty-one
20 base pairs as seen here indicating that the results are both accurate and precise.

Finally, this is the autorad for locus DYZ1 on the "Y" chromosome for males. Gives a band at thirty-five sixty-four base pairs as seen in lane
25 1, 2 and 3, and the female control in lane 4 does not give a band, as expected.

Q. Doctor, you don't have a summary chart, obviously, for the second gel membrane, is that correct?

A. No, I do not.

30 Q. Would you please summarize your conclusions - the conclusions that you drew from your findings on this second gel, the autorads you have just gone through with the jury, would you summarize those conclusions

1 on the second gel in relation to your findings on the first gel?

A. To summarize the comparison between gels, item 335, the known blood sample reportedly from Mr. Legere
5 on gel 2, and item 83A, the known pubic hair sample reportedly from Mr. Legere on gel 2 match lane 3, item 56A/69A on gel 1 which is the known pubic and scalp hair sample reportedly from Mr. Legere, and it also makes all the same matches as item 56A/69A
10 as found on gel 1.

Q. All the matches that are summarized on this chart?

A. All the matches that are summarized in this chart would match item 335 and/or item 83A on the second gel.
15

Q. Correct me if I'm wrong, on this chart where you have 56A/69A you could substitute 335?

A. Yes.

Q. Or 83A?

A. That is correct.
20

Q. And the same with all the others?

A. That is correct.

Q. The statistical frequency that you assign to those matches, the four probe match - is that what they
25 would call a four probe match, Doctor, between 56A/69A and 1(j)?

A. Yes. Matches at 4 loci. A 4 probe match is an inadequate way of explaining that.

Q. And this would be obviously a one probe match, that
30 is with 1(i), 110 would be a two probe match, and 135 would be a five probe match?

A. That is correct.

1 Q. And you can substitute 335 or 83A for 56A and 69A? It's the same matches and the same statistical frequencies?

A. Would obtain the same statistical frequencies, yes.

5 Q. From a qualitative point of view, and based on your experience, the four probe match between the male fraction of the vaginal swab reportedly from Nina Flam, being 1(j) and 56A/69A, or 335, or 83A being the blood or hair purportedly from Legere, the

10 statistical frequency is 1 in 5.2, that's your best estimate. From a qualitative point of view what does that mean?

A. Best estimate was 1 in 5.2 million.

Q. 5.2 million.

15 A. The qualitative point of view would be that this was a rare event. That in fact the possibility that this DNA found in item 1(j) could have possibly come from someone other than the donor of 56A/69A, 335 or 83A, reportedly Mr. Legere in all 3 cases, is remote.

20 Q. And with respect to the five probe match between 135 which is the male fraction of the body swab reportedly from Linda Daughney, and the blood and/or hair purportedly from Mr. Legere, you have assigned

25 a statistical frequency of 1 in 310 million males. From a qualitative point of view in your experience what does that mean?

A. The bottom line is that for item 135 we have a five probe match between 56A/69A, item 335 or item 83A.

30 The possibility that it came from someone other than the donor of these three samples would be extremely remote.

1 Q. I am going to cover, if I can, I am going to cover the statistical numbers, the numbers that you had assigned to those matches. Without even putting a probability figure on those matches, particularly the
5 four probe match and the five probe match, apart from identical twins have you, in your experience, ever seen a four or five probe match using these highly polymorphic probes between different individuals?

A. No, I have not, and in fact I have never seen it
10 between brothers and sisters.

MR. WALSH: If I might just have a moment My Lord. I believe those are all my questions on this particular aspect.

Doctor, I understand that you also did -- You
15 have also indicated that you did in relation to this case - that you also did a third gel?

A. Yes, I did.

Q. And you loaded samples into that particular gel in the same fashion as you did with the other two?
20
A. Yes, I did.

Q. Would you, please -- We're not going to go through the autorads but would you please tell the jury what if any samples you were comparing?

25 A. Do you want all the item numbers or just in general terms?

Q. Just in general terms.

A. On the third gel were, again, three known samples reportedly from Mr. Legere, a blood sample and two
30 different known hair samples, a known hair sample from Father Smith and a questioned hair reportedly found on the leg of Father Smith, and, again, the

1 allelic controls and various markers on that gel.

Q. Okay. You said a known blood sample and two known hair samples purportedly from Legere?

A. That is correct.

5 Q. Okay. And you did the same probings that you did this morning and previously, is that correct?

A. That is correct.

Q. Now, would you tell the jury what were your conclusions with respect to that?

10 A. The conclusions with respect to the known samples reportedly from Mr. Legere and the known hair sample reportedly from Father Smith was that the questioned hair sample could not have originated from either of those two individuals. It was excluded. They were both

15 excluded as a possible source for that particular hair.

Q. That's that one hair that purportedly was found on top of Father Smith's leg?

A. That is correct.

20 Q. And you did a 4th --

THE COURT: Let me just get that straight. You say that didn't come from either Smith or from --

A. Mr. Legere.

25 THE COURT: The accused.

A. That is correct.

MR. WALSH: And what kind of a hair was that Doctor Bowen?

A. That was a single hair. It had a root sheath.

Q. And with respect to the - you also testified this

30 morning that you did a 4th gel membrane.

A. That is correct.

Q. I'm using the term gel membrane meaning you started from the gel and then you transferred it to a membrane.

1 I believe in the lab you used the term 'blot'.

A. Blot or membrane, generally, yes.

Q. What, if anything, did you put in this particular blot?

5 A. That particular blot had, of course, flanking marker lanes but it also had known samples from five additional suspects in this particular case.

Q. And did you do the same RFLP typing tests that you described with the first and second blots?

10 A. Yes, I did.

Q. And what, if any, conclusions did you draw?

A. The five additional suspects were all eliminated as being possible sources for the question samples on blot 1 or gel number 1. They were excluded as

15 potential sources of the DNA found in that gel.

Q. And on the third blot?

A. And on the third blot. The questioned hair sample on the third blot.

Q. So the five suspect people that you had on the 4th

20 blot you excluded them as being a possible source, as a donor of any of the samples that you have mentioned?

A. That is correct.

25 Q. And that would be the same as what you did with the suspect Lewis Murphy?

A. That is correct.

Q. He was excluded as well?

A. That is correct.

30 Q. Doctor, is there anything else that you believe would be of significance or assistanceto the jury that I haven't covered in my questions? I have reviewed my

1 notes, I don't see anything, in case there's something I did forget.

THE COURT: That's a very dangerous question to ask. You don't know what he's going to come out with.

5 MR. WALSH: Well, I've taken a calculated chance, My Lord.

A. I can't think of anything offhand.

MR. WALSH: That's fine, My Lord, I have no further questions.

THE COURT: Well, you're going to be more than 9 minutes

10 Mr. Furlotte?

MR. FURLOTTE: Definitely.

THE COURT: Well I think we had better not start now then. We will recess now until --

MR. WALSH: My Lord we have had a discussion - and perhaps

15 if I just had a moment we might be able to do something here. (Pause.) My Lord I had discussions with Mr. Furlotte. Doctor Waye is here. He certainly would like to get back to the hospital he works with, and we believe that we could get through

20 Doctor Waye's testimony in the next ten minutes. Mr. Furlotte doesn't expect that he will have any questions for Doctor Waye. And what we could do --

MR. FURLOTTE: I have about two questions, I believe, very

25 short.

THE COURT: Well, if you could fit that 10 minutes into 9 minutes we'll let you do it.

MR. WALSH: The other option, My Lord, is I don't think he'll make it out tonight - the other option is he

30 be the first thing in the morning. I don't know what you prefer. We're getting late in the day and the only thing I'm a little worried about it --

1 THE COURT: Well, we've had quite a bit of evidence thrown at us today and I would be inclined to - if it doesn't make any difference with Doctor Waye I would suggest it be morning. I think the jury
5 would agree.

And he's probably grown to love Fredericton now anyway and wants to stay here.

MR. WALSH: I think it's more prudent, My Lord, with Mr. Furlotte's permission to take Doctor Bowen off at
10 this time, recall Doctor Waye in the morning for a short period, and then put Doctor Bowen back on for cross-examination by Mr. Furlotte.

THE COURT: All right. Well, just generally tomorrow, I believe the jury, again, as I understand through the
15 Court Constable are anxious to get away at 1 o'clock because of appointments and so on so I think we can only go until 1 tomorrow.

MR. WALSH: I can put Doctor Waye on first thing in the morning.

20 THE COURT: Oh, yes, I'm not saying this with reference to-- Well, put Doctor Waye on and get him away and out of here, but -- That's a good pun, isn't it? And then go on with Doctor Bowen. Well, you'll just have to see how far you get.

25 MR. WALSH: Well, it's up to the cross-examination of Mr. Furlotte.

THE COURT: Well, we won't put any limits on Mr. Furlotte there. All right, so we'll have the jury back at
30 9:30 and we promise to have you away by -- I believe it is the fact that some people do have medical appointments or something.

(Jury excused.)

1 (Discussion re order of calling witnesses.)

MR. WALSH: The other matter, My Lord, would be the question of the voir dire associated with Sergeant Poissonier and perhaps we will have a discussion of counsel,
5 more appropriately a fight, as to what witnesses get on where associated with that.

THE COURT: We will have to leave that up to counsel to try to work that out.

MR. WALSH: It's just a scheduling of all the various
10 witnesses and we're trying to determine where we can hold the voir dire of Sergeant Poissonier and not disrupt the other witnesses we have coming.

THE COURT: So you shouldn't discuss this, Doctor Bowen, with anyone, of course, until you are finished.
15 Well, we will recess for the day.

(COURT ADJOURNS TO OCT. 18, 1991 @ 9:30 A.M.)

20

25

30

1 OCTOBER 18, 1991 - 9:30 A.M.

(Accused present. Jury called, all present.)

THE COURT: I forget whether the discussion took place in the presence of the jury or whether it was after the
5 jury went out, but yesterday afternoon before we adjourned it was decided that this witness would be stood aside and Doctor Waye would be called by the Crown to complete his testimony. I think you were present, perhaps, when we had that discussion.
10 Okay.

MR. WALSH: My Lord, I would recall Doctor Waye.

DOCTOR JOHN WAYE, recalled, previously sworn, testified as follows:

15 DIRECT EXAMINATION BY MR. WALSH:

Q. Doctor Waye, when you testified previously you indicated that you had occasion to review the case specific evidence conducted by Doctor Bowen in relation to this particular matter, is that correct?

20 A. That is correct, yes.

Q. Would you tell the jury what you did in relation to this particular matter?

A. On several occasions, I believe the first time late in 1989, and again May of this year and, of course,
25 this week, I have looked at the autorads visually and made visual calls.

Q. You were present in court when Doctor Bowen testified yesterday and the day before, is that correct?

A. Yes.

30 Q. And were you present in court when he explained his results and demonstrated the autorads to the jury?

A. Yes.

1 Q. What, if any, opinion did you arrive at with respect to the calls that Doctor Bowen made in relation to this - particularly in relation, first of all, to the first gel membrane?

5 A. Yes. Going through that membrane I would agree with the logic behind all the calls and the visual assessment of all the calls as being matches.

Q. And the second gel membrane that contained the two samples?

10 A. Two standards. Yes, I would agree with his calls that those samples had patterns that matched across all the loci.

Q. And the comparison he made between the second gel and the first gel?

15 A. Well, he didn't directly compare them to each other but he gave you values as to their sizes that the computer gave, and what he said indicated that yes the two standards on the second gel matched the standard as well as all the samples that matched

20 the standard on the first gel, and I would agree with that.

Q. And the third gel he just simply testified with respect to the third gel and that is that one hair -

25 the exclusion of that one hair purported to have come from on top of the leg of Father Smith. Did you see that particular gel?

A. Yes. Some time ago I saw that data.

Q. And do you agree or disagree with those conclusions?

30 A. I agree that it's an exclusion.

Q. And the 4th gel he testified yesterday related to five suspects. What, if any, opinion -- Did you have occasion to see that gel?

1 A. Yes, I reviewed that gel several times.

Q. And what, if any, opinion did you arrive at in relation to Doctor Bowen's opinion with respect to that?

5 A. I agree that all those individuals were excluded clearly.

Q. You have seen the statistical significance that Doctor Bowen assigned to the matches associated with the first and second blot, is that correct?

10 A. Yes.

Q. And they are summarized in the chart that's marked P-162, the summary chart. What, if any, opinion do you have with respect to the estimated statistical significance that Doctor Bowen gave to those

15 matches?

A. I agree with his calculations using that data base and given those matches at those loci those are the numbers that are the best estimate or the point estimate that you would obtain from those matches.

20 Q. Based on your experience what, if any, significance do those figures, particularly the four probe and the five probe match, what, if any, significance do those figures have for you from a qualitative point of view?

25 A. Well, they're indicative that those types of patterns would be, in my opinion, extremely rare in the population, 1 in 5.2 million and 1 in 310 million.

30 Q. Do you have any reservations with respect to your assessment of the case specific evidence in this matter?

A. None whatsoever.

1 Q. And the opinions you arrived at, did you arrive at them independent from Doctor Bowen or in consultation with Doctor Bowen?

A. At times both. I have looked over the data by my-
5 self or with people who are neutral to the case, people who have no knowledge of what's in any of the lanes. Of course I have looked at the results while Doctor Bowen is presenting them or in his presence.

10 Q. The actual opinion you arrived at, would you consider that to be an opinion you arrived at independent of Doctor Bowen or because of Doctor Bowen's opinion?

A. Independent.

MR. WALSH: I have no further questions My Lord.
15 THE COURT: Cross-examination Mr. Furlotte.

CROSS-EXAMINATION BY MR. FURLOTTE:

Q. Doctor Waye you say you reviewed all the autorads that Mr. Walsh has referred to in gel 1 and gel 2?

20 A. Gel 1, gel 2, 3 and 4 as well.

Q. 3 and 4. And did you find any mistakes that Doctor Bowen had made aside from general agreement?

A. Mistakes in calls?

Q. Yes.

25 A. There were calls that Doctor Bowen said were inconclusive and, like him, I could see the bands myself, they were faint, the bottom band - I'm talking about D16S85 in particular, there were matches that I may have called that he called inconclusive. I don't
30 dispute his call of inconclusive. I agree with his logic that the bands were faint and to be conservative it would be correct to call those inconclusive.

1 Q. And aside from D16S85 were there any other autorads that may have been just as faint as that one, the one that you decided was inconclusive?

A. There were bands that were faint. Again, it's
5 experience comes into play and it's not just faintness, it's your ability to recognize it as a band and your level of confidence in recognizing it as a band that comes into play as well. It's not just density. There certainly are bands that if you
10 took a densitometer or a machine that would measure how dense the bands are, there are bands that are that faint but there's other characteristics of those bands that give you confidence in calling them a band, or give me confidence in calling them a band.
15 Q. And that's where you need the experience I assume?

A. Yes, and the whole assessment experience always helps, yes.

Q. Other than the probing for chromosome 16 were there
20 any other mistakes that you may have noticed Doctor Bowen --

MR. WALSH: He said any other mistakes. I don't think there's any --

MR. FURLOTTE: Well, okay, were there any -- That's not
25 a mistake; that's just a judgment call. Were there any mistakes that you saw that Doctor Bowen had made in his assessment or interpretation of the autorads?

A. No, I don't think there's anything wrong with what
30 Doctor Bowen called on any of those autorads.

Q. Were there any signs of degradation?

1 A. There were in particular some of the lanes - the female fractions, for instance, there was some trailing from the bands, yes. That's not unusual.

Q. Was there any signs of incomplete digestion?

5 A. Not appreciable, no.

Q. Now, you mention you agree with Doctor Bowen's summary chart and his calculations on frequencies.

A. Yes, it's just mathematics.

Q. It's just mathematical. And I believe you used the

10 term it is the best estimate.

A. It is a point estimate or a best estimate. That doesn't --

Q. And would that be a best estimate from the Crown's point of view or from the Defence's point of view?

15 A. I'm not in either of those positions so --

Q. Is that the only estimate you can come up with? You say it's the best estimate.

A. Well, it's an estimate. We call it a best or a

20 point estimate because it's based on the actual frequencies. There are things that you can do statistically to put confidence intervals either way and, again, there's people much more qualified than myself, statisticians, that will talk about

25 that later I believe.

Q. You have testified in court before as a - to be able to calculate the frequencies?

A. Yes.

Q. And when you gave -- In other cases when you

30 testified in court did you give confidence intervals?

A. No.

1 Q. Did you feel at that time that they were necessary or not necessary?

A. There was generally somebody testifying after me who was a statistician who would present confidence

5 intervals and do that type of analysis.

Q. In all the cases that you have testified in or just some of them?

A. In some of them.

Q. Would that be the prior - the earlier cases or the

10 latter cases that confidence intervals were entertained?

A. Confidence intervals were always entertained. The first case that I was involved in, the first couple of cases that I was involved in I would be the only

15 witness going to court. Confidence intervals were known. I'm not a statistician so I didn't enter them into evidence, and a statistician didn't present evidence after me so they weren't entered into

20 evidence. In subsequent cases statisticians also gave testimony and that would be part of their testimony.

Q. Are confidence intervals entertained now because defence experts have been able to prove that there

25 is substructure to a statistical significant degree?

A. Confidence intervals - we just finished saying - have been around as long as the point estimates have. We have always applied those types of tests to the evidence. Again, I didn't present them be-

30 cause it was outside of my field in earlier cases. So I don't think entertain is the correct word.

1 They were always in place. They were in place long before defence experts probably knew of the phrase.

Q. Is this another -- Upper confidence intervals, is this another way to reflect measurement imprecision?

5 A. All it is is a way of expressing your absolute faith in a point estimate. If you look at a variable such as sample size in a number of observations you can derive a point estimate, say in this case of a single observation 1 in 68. That number, depending
10 on how many people you looked at, if you looked at hundreds of thousands of people and derived a frequency of 1 in 68 you would probably have a very tight confidence interval. You've looked at a large number of events and this is how often it happens,
15 1 in 68. And your confidence intervals might reflect that. It would be 1 in 68 but your 99.9% confidence interval would be from 1 in 63 to 1 in 71. If, however, you only looked at a 100 people your confidence in that number would waiver a bit.
20 It might be 1 in 55 to 1 in 78. It would be a little broader that you're absolutely certain that that number is 1 in 68. So it depends on how many people you look at.

25 Q. So it's still a guessing game?

A. No. Not at all.

Q. But without a 100% confidence.

A. I am not aware of a 100% confidence interval. The tables that - again, I'm not a statistician so it's
30 outside of my expertise, but the tables that you refer to when you derive a confidence interval are fairly simple. There will be level of confidence

1 and it will go 95% confidence, 99, 99.9, and then you just keep adding nines afterwards, and the variables will be how many observations you saw and how many events you looked at, and it will tell
5 you, if it's 1 in 68 and I looked at 10,000, you can go along that table and find out what the upper and lower confidence intervals are for those observations.

MR. FURLOTTE: I have no further questions.

10 THE COURT: Re-examination?

MR. WALSH: Very briefly, My Lord.

REDIRECT EXAMINATION BY MR. WALSH:

Q. Mr. Furlotte asked you a question with respect to
15 he said any mistakes, but you talked about there was some calls on D16S85 that Doctor Bowen called inconclusive that you may have called a match, is that correct? Do I understand that right?

A. Yes, I could see the bands.

20 Q. You're referring to D16S85 - you're referring to the probe that Doctor Bowen testified yesterday was the least sensitive of probes?

A. Yes.

Q. You said you understood the logic behind Doctor
25 Bowen calling those inconclusive.

A. Yes.

Q. Because Doctor Bowen called them inconclusive in whose favour was he making the call?

A. In favour of the accused.

30 Q. Mr. Furlotte raised the issue of confidence intervals. Perhaps at this time, if you would, could you as simply as possible, could you explain to the jury if you're putting a confidence interval around the

1 number what are you actually doing?

A. To my mind it expresses, as the word says, how confident you are of that number is a reflection of reality, and to even bring it down to simpler terms,
5 if you wanted to know, for instance, the chances of flipping a coin and getting heads or tails, if you flipped the coin three times and you got heads twice and tails the other time, coming up with a frequency of two-thirds the chance of getting a tails, probably
10 you'll have very little confidence in it because you haven't looked at enough events. If you flipped the coin 50 times you'll be very close to 50/50. In that instance you've looked at enough events and if you go to those tables you'll have good confidence
15 that it's either 24 heads, 26 tails or vice versa. Something in the ballpark of 50/50. In that case you've looked at enough events and the statistician will tell you you've looked at enough events and you can have good confidence that it is 50/50 where-
20 as in the first case you haven't looked at many events and your confidence interval will reflect that.

Q. Does the confidence interval - is it used because of the size of the population that you're looking at,
25 the size of your data base? Is that the reason for the confidence interval?

A. It's one of the reasons. Again, if you wanted, to use Mr. Furlotte's phrase, 100% confidence, you would
30 have to analyze literally everyone. That certainly isn't the case so you're always going to have to express some sort of confidence interval because you

1 have analyzed less than all the Caucasians. You've analyzed a sample.

Q. Is the use of confidence intervals an accepted part of expressing a frequency?

5 A. Yes.

MR. WALSH: I have no further questions, thank you My Lord.

THE COURT: Thank you very much, Doctor Waye, and I take it that's the end of this witness's testimony.

MR. WALSH: That's correct, My Lord.

10 THE COURT: Thank you very much for coming.

MR. WALSH: I'll recall Doctor John Bowen for cross-examination.

DOCTOR JOHN BOWEN, recalled, previously sworn,

15 testified as follows:

CROSS-EXAMINATION BY MR. FURLOTTE:

Q. Doctor Bowen you mentioned you were a member of TWGDAM?

A. That is correct?

20 Q. When did you become a member of TWGDAM?

A. I believe I first attended a meeting in October of 1989.

Q. And, again, maybe for the benefit of the jury would you explain basically what organization TWGDAM was.

25 A. TWGDAM is the Technical Working Group of DNA Analysis Methods. It is sponsored by the Federal Bureau of Investigation in the United States and it's a group of individuals from State Crime Labs, one or two labs in Canada that are all interested

30 at that time in implementing and/or had implemented DNA typing in case work.

1 Q. And one of the purposes for the operation of TWGDAM was to set standards for laboratories?

A. One of the purposes was to get together to reach some sort of agreement on guidelines for various

5 aspects of DNA typing, yes.

Q. And for quality assurance also?

A. That is correct.

Q. And were all the quality assurance guidelines or programs adhered to by the R.C.M.P. lab in Ottawa?

10 A. The guidelines - the original TWGDAM guidelines were - the spirit of them were followed by the R.C.M.P. We have in actual fact developed our own set of guidelines for the biology section in the R.C.M.P. which is very similar, if not completely similar,

15 to the TWGDAM guidelines.

Q. Did TWGDAM set some guidelines for quality assurance such as say proficiency testing of the technicians?

A. The guidelines I believe state proficiency testing for the analyst, yes.

20 Q. For the analyst, which you are an analyst?

A. That is correct.

Q. And is there -- And that also called for open and blind proficiency testing?

25 A. I don't have the original guidelines in front of me but I believe open and blind proficiency testing was mentioned in the original guidelines, yes.

Q. And did anybody ever do proficiency testing on your work?

30 A. Yes.

Q. When?

1 A. I was proficiency tested in September of 1989 and I have completed another test this year and am currently working on another proficiency test.

Q. Is there any blind proficiency tests done on your
5 work?

A. We haven't been able to set up blind proficiency tests to this date. I am not aware of any lab having been able to do that. We have proficiency testing from outside agencies but none that are totally
10 blind.

Q. Okay. Now, maybe you can explain --

THE COURT: Just on that, what is a blind --

MR. FURLOTTE: That's the next question My Lord.

THE COURT: All right, go ahead.

15 MR. FURLOTTE: Maybe you could explain to the jury what a blind proficiency test is and the purpose for it.

A. The blind proficiency test is essentially a test of the ability of the lab to perform an analysis
20 correctly. A blind proficiency test is a test in which neither the agency that has received the test or in particular the analyst handling that particular test is aware that it is a proficiency test. For example a blind proficiency test would be a case
25 submitted to the laboratory without anyone knowing that it was not a real case.

Q. And rather than -- The analyst would be handling what appears to him as unknown samples.

A. He would be asked to process the samples as he would
30 in case work. He would assume it was an actual case and would handle it in accordance with the protocols in that particular laboratory.

1 Q. And I suppose the person conducting the blind proficiency test would know exactly what each of the samples were. They would be of known substances to the people conducting the test?

5 A. I'm not quite sure I follow. The analyst would not know exactly what they were. They would be submitted as exhibits for analysis. He would have certain information reported to him as to which were standards and which were question samples and

10 that's all he would know, as in a typical case.

Q. Do you know if blind proficiency tests have been conducted on other labs?

A. I'm not aware of any other labs conducting blind proficiency tests on DNA typing at this stage. We

15 have, as I said, when we first began certain - there was only one or two people employing DNA analysis in the R.C.M.P. and those people also were very much involved in the case work acceptance. It would have

20 been very difficult to set up a blind proficiency test at that stage. Within the next year or so we hope to start employing agencies that can submit blind proficiency tests to the R.C.M.P.

Q. Why is quality assurance necessary?

25 A. I think that anyone would realize that with tests of this probative value it would be definitely a requirement that the lab that is performing the test is performing it in a correct fashion, and proficiency testing is one means to establish that they are able

30 to obtain a reliable result.

Q. And it's not uncommon for laboratories -- In proficiency testing that it might be found out that laboratories

1 can make mistakes on a rate of anywheres from 2 to 30% of the time.

A. I am not aware of any lab having error rates of 2 to 30% of the time with DNA typing, but I imagine

5 with certain types of testing it is possible, I don't know.

Q. But if proficiency tests aren't done then we would never know, would we?

A. Well, that is why we are trying to establish

10 proficiency testing within all labs, and from our analysis and from what we've seen so far that is certainly not the case that the error rate is 2 to 30%.

Q. So in comparison, an open proficiency test to a

15 blind proficiency test, what's the difference between those two?

A. An open proficiency test is simply a test where the analyst knows that it is a proficiency test. He does not know the end result. He is not aware of

20 what he should actually obtain as a result. He just is aware that it is a proficiency test.

Q. But he's going to be on his best behaviour to make sure he doesn't make any mistakes and he's going to

25 take his time.

A. I believe with the personnel that we have in place that they will handle a proficiency test just as they would any other case which is with the best of their ability.

30 Q. Hopefully.

A. No, I can personally guarantee that they would.

1 Q. Did you read the O.T.A. Report?

A. Yes, I have, some time ago.

Q. Do you know whether or not they address proficiency tests in that?

5 A. Yes, they do.

Q. That were conducted on --

A. Yes, they do.

Q. And they addressed proficiency tests that were conducted on DNA laboratories?

10 A. Yes, they did.

Q. And do you know whether or not they found that DNA laboratories made mistakes where maybe an innocent person would have been convicted - could have been convicted?

15 A. I am aware that one or two labs did make errors in their proficiency tests.

Q. Which the results if it was not a proficiency test and it was actual case work an innocent person would most likely have been convicted.

20 THE COURT: Well, is that quoting from the report or is that your own language Mr. Furlotte?

MR. FURLOTTE: Well, my memory is not that great to quote word for word My Lord.

25 THE COURT: No, but I mean do they actually use that in the report or is that your language, you know, where an innocent person is convicted? Is that in the report I'm asking?

MR. FURLOTTE: I can't say for certain but -- I'm not

30 even sure if I can find it.

THE COURT: Well, my concern is this. You're creating the impression that that is in the report, that that is language used in the report. I question whether that's --

1 MR. FURLOTTE: I can get around that. The question was, the mistakes that are made in those DNA labs, that they would have come to court saying that maybe that the frequencies would be 1 in millions when actually
5 they weren't even analyzing the proper samples?

A. If my recollection is correct on the types of errors made in those proficiency tests, were that the persons were excluded. They were falsely excluded.

Q. You believe it was false exclusions?

10 A. I believe so, yes.

Q. False positives.

A. False negatives.

Q. Was it a matter of getting the DNA samples mixed up in different lanes or getting DNA - maybe a suspect's
15 DNA mixed in with evidence DNA?

A. I believe one of the proficiency tests, I believe it was with Lifecodes Corporation, there was a - perhaps it might have been Cellmark, I can't recall --

Q. It was one of the private - one of those two private
20 corporations?

A. One of the two private companies did switch samples on a proficiency test, inadvertently.

Q. So that's one reason why proficiency tests and blind proficiency tests should be conducted?
25

A. It would certainly address certain issues as sample mix-up and that sort of problem. Unfortunately, a proficiency test would only tell you what happened in that particular case sample that they're handling.

30 Q. Yes. So there's no doubt that there could be a lot of mistakes being made that you never know.

1 A. Well, human error is something that has always been admitted to.

Q. Now, when you conduct your frequencies, your end result, there is no way you can calculate for

5 possibility of error to begin with, is there, before you even get to the frequency stage?

A. There is no calculation for error at that stage, no.

Q. So if there's a 10% chance or 20% chance that labs

10 are making mistakes in the first stage of the process doing their DNA typing then there's no way you can account for that in the end?

A. I take exception to the possibility that there's a 10% or 20% chance of a lab making an error in the

15 early part of analysis, but if it were so high then one could not take that into account, no.

Q. But without proficiency testing we just don't know how to rate labs, do we? Like a student going to University. If you don't have to write exams we

20 just don't know what the student is capable of doing.

A. Essentially, to address that issue, that is why all forensic labs are engaging in proficiency testing.

Q. But you don't know of too many of them that follow the blind proficiency testing.

25

A. Well, as I say, it's something that is in the process of being established. As I said, we have done the best we can with proficiency testing. Today we have open proficiency testing and we have proficiency tests submitted by outside agencies.

30

Q. But you have never had a blind proficiency test done on you, have you?

A. Not to my knowledge.

1 Q. Now, you mentioned that you acted as a defence consultant in a process called PCR?

A. That is correct.

Q. Polymerase chain reaction?

5 A. That is correct.

Q. And that's, again, to analyze DNA in forensic cases?

A. That is correct.

Q. And I believe you stated that after you consulted with the expert witness for the Crown somehow he

10 toned down his evidence or did they withdraw the charge?

A. Actually, a statement was admitted in the Court of Queen's Bench based on what both experts could agree with and the Accused was acquitted.

15 Q. And the Accused was acquitted. But at the preliminary hearing that Crown expert went to court and give testimony under oath as to what his opinion was.

A. That is correct.

20 Q. And if his opinion would have stood at the trial the Accused would have likely been convicted.

MR. WALSH: Oh! I don't even know how to -- I've got to object to it, and in all my legal training I - I know that's a wrong question and I just can't find - I

25 can't put my thumb on what's wrong with it because it's so wrong.

MR. FURLOTTE: It sure is My Lord.

THE COURT: Well, we seem to be getting into trying some other case now. There are probably a hundred different

30 factors that entered into this thing, negotiations between counsel, all sorts of things, and we don't want to try that other case.

1 MR. FURLOTTE: Let me put it this way.

THE COURT: That's all I can say.

MR. FURLOTTE: My Lord this type of evidence was brought up in direct examination. I think I have the
5 opportunity to pursue it. Had that expert witness went to trial without the benefit of your experience--

THE COURT: Had he gone to trial, not had he went to trial.

MR. FURLOTTE: I'm saying --

THE COURT: That's not good English.

10 MR. FURLOTTE: I'm saying without the benefit of Doctor Bowen's experience the evidence to be given by the Crown's expert witness would have been highly prejudicial to the accused?

A. I would presume so.

15 Q. So even expert witnesses make mistakes?

A. I don't believe that it essentially could be called a mistake. There were certain aspects of the analysis that were deemed unreliable and it's partly
20 why the R.C.M.P. is still researching the polymerase chain reaction prior to implementation. It's a fact that in this particular case a second analyst had never looked at the results and in fact that is a policy that we have in place within the R.C.M.P.
25 that always all results are analyzed by a second analyst to confirm that opinion prior to going to court.

Q. Okay. The point is, Doctor, sometimes expert witnesses' opinions are not very reliable?

30 A. I think that this particular individual had he been given more opportunity to look at the results and do further studies he could have established what he wanted to establish. It was just there was

1 insufficient data to state positively what he wanted to say in that particular case.

Q. I believe you stated in direct examination you run four analytical gels?

5 A. For this particular analysis that I have presented, yes.

Q. For this particular analysis. What about for the case?

A. One additional analytical gel has been run.

10 Q. And without giving the name of the other individual who it was run with, I assume you compared it with Mr. Legere's DNA?

A. Yes, I did.

Q. And what was the purpose of that?

15 A. It was basically to establish whether a certain individual could be possibly the father of, in this particular case, of Mr. Legere.

Q. And that individual would have come from the Miramichi area - Newcastle?

20 A. That is correct. I believe. I'm not exactly sure where he came from but that was my understanding.

Q. That was your understanding. And your findings would indicate that it was --

25 A. It was certainly consistent with having a father of Mr. Legere, yes.

Q. Because he shared four bands as Mr. Legere did?

A. With each of the four loci that I looked at he shared one band.

30 Q. He shared one band?

A. That is correct.

1 Q. So you would kind of expect that common band sharing if he was the father?

A. That is correct.

Q. Would it be uncommon for Mr. Legere to share four

5 bands with somebody who wasn't related to him?

A. It's always possible that he could share a single band at each of the loci with somebody that is not related to him.

Q. But highly improbable?

10 A. No, I wouldn't say it's highly improbable.

Q. What would be the odds?

A. Well, not being a statistician I wouldn't even assign an odds to the paternity issue.

Q. Now, did you find in your interpretation of the

15 autorads that there was complete or incomplete digestion of the DNA you tested?

A. To the best of my recollection there is very little evidence of incomplete digestion.

Q. And what about degradation?

20 A. There was certainly degradation in some of the samples, particularly some of the known samples from Linda and Donna -- reportedly from Linda and Donna Daughney. In some of the female fractions

25 of the vaginal swabs there was indications of degradation.

Q. Any degradation in the evidentiary samples?

A. Again, in some of the female and male fractions of some of the swabs.

30 Q. And the male fractions?

A. Yes. There was some evidence of degradation. None in the samples that I called a match on.

1 Q. Now, maybe you could explain to the jury what degradation is?

A. Degradation is a fact of life. Once a sample is deposited somewhere various factors can cause the
5 DNA to break down. Heat, excessive sunlight, many environmental factors, bacterial growth, will cause the DNA to break down and actually become smaller pieces, and essentially this is manifested in the autorads as I showed yesterday as one can see lane
10 background or dark smears underneath the bands that one can see in the various lanes.

Q. Now, you say it breaks down in pieces; that the DNA breaks up before it's actually being analyzed or before you actually cut it up with your molecular
15 scissors?

A. That is correct.

Q. So it could already be broken up before you reach the stage of cutting it up with your molecular scissors?
20

A. Yes. It is randomly broken to a certain extent. In fact the DNA that we isolate is never fully intact chromosomal DNA. It is somewhat broken up during the process of extraction.

25 Q. So could that affect say the fragment lengths that might occur after it's cut up with your molecular scissors?

A. It can, but the fact is since it's a random process what happens is one does not get any distinct bands.
30 One gets a series of fragments that creates a smear on the autorad or it is not visible at all.

1 Q. That's if there's complete degradation or just partial?

A. Partial. If it's complete degradation one ends up with just a smear or nothing at all. No band

5 pattern.

Q. You still have the probings of the first gel in the slide projector?

A. They were never in the slide projector. They're in the booklet.

10 Q. Okay, you used the overhead here. Maybe we could use this again Doctor Bowen. Let's start with the first one again, the first probing of the D2S44.

THE COURT: This is the first gel, is it?

MR. FURLOTTE: This would be the first gel.

15 A. This is P-161(1), the first gel, the autorad for locus D2S44.

THE COURT: 160(1), is it not?

A. 161.

20 THE COURT: I'm sorry, 161. Yes. But the key to it is P-160.

A. The key to this is P-160.

THE COURT: If the jury want to refer to P-160.

MR. FURLOTTE: Now, you mentioned there is a lot of non-

25 specific binding on this autorad?

A. Yes. One can see nonspecific binding in the fact that one has areas of darkness between lanes. In fact the general graying --

MR. WALSH: Excuse me. Doctor Bowen and Mr. Furlotte are

30 close together and with Doctor Bowen's voice it's going to be very hard to hear. I would just remind Doctor Bowen, again, to speak up loudly, please,

1 particularly if your back is to the jury.

A. One can see a certain amount of graying in the entire background of this autorad and certain areas where there's more concentrated grayness and that is non-
5 specific binding on the probe, the membrane.

Q. Now, I see something in lane 109F and I suppose in 134F to a smaller degree. In the smear that goes down you see some darker spots in that smear.

A. In this particular lane, this one?

10 Q. Is that all nonspecific binding?

A. Well that is due to degradation. In fact one way of diagnosing degradation is the fact that there is nothing above the band patterns that one sees in these particular lanes. It's fairly clean. When
15 you get degradation the fragments that one could normally obtain have been broken down to a certain extent and therefore would all be smaller than the original or the normal situation where the DNA had not been degraded. So one often sees a trailing of
20 smaller fragments in the particular lane that just essentially creates a smear in the gel and that is diagnostic of degradation.

Q. Now, I believe your next probing is a - you kind of clean this one up a bit. (Pause.) So in lane 109F
25 we still see this degradation?

A. Yes. One can see degradation. We call it general smearing in the lane. And in 134F.

Q. But these little darker spots here, those would be I suppose partial fragment lengths - or they would
30 be fragment lengths of some degree?

1 A. It's apparent from this that there's degradation products in here, smearing. It looks like there may be a partial transfer of this area that causes sort of a line going upwards in the lane. These
5 are generally degradation products.

Q. Now, normally they would belong to the two dark bands?

A. That is correct.

Q. So because those two dark bands have lost some of
10 its substance, I suppose, they are not going to -- They're going to travel actually further in the gel then what they normally would if there was no degradation?

A. No, no, no. Not at all.
15
Q. No.

A. What we are seeing here is the true size of these fragments because there's such a preponderance of them. The smearing we see is due to random breaking of the fragments such that one just gets fragments
20 of all different smaller sizes creating a smear.

THE COURT: The jury aren't hearing it. You're just wasting your time talking, Doctor. You're talking to - I don't know who you're talking. Mr. Furlotte
25 I guess. And Mr. Furlotte it's in your interest to keep the Doctor's voice up as well because there's no point in your asking the questions unless the jury can hear the answers.

MR. FURLOTTE: I quite realize that My Lord. Now, maybe
30 you could explain again, Doctor, as to these little pieces of degradation, why they --

1 THE COURT: Now, would you just come this way so the jury can see what you're talking about too. There, that's good.

MR. FURLOTTE: Again, Doctor Bowen, maybe you could just
5 explain as to why the degradation does not interfere with the migration of those top bands in 109F?

A. The degradative products are just smaller fragments. They would run according to their size in the gel as any fragments, remembering that there are actually
10 millions of fragments of DNA within the gel that have been loaded in that particular sample lane. These fragments are all different sizes and they migrate independent of one another, therefore, small degradative products would have no effect on the
15 mobility of the true fragment that one sees, these particular bands.

Q. So you're saying it doesn't shorten up the true fragments?

A. By the fact that we have a band pattern - a definite
20 band pattern no, it does not shorten up the true size of the fragment. If say randomly these fragments were broken up in various regions within the Hae III sites, the areas where the molecular scissors
25 cut, then one sees a smaller smear of fragments because it's random.

Q. And I believe you stated that this degradation is caused by something like environmental insults.

A. Certain environmental insults will create degrada-
30 tion, yes.

Q. And what is contamination?

1 A. Contamination is actually when some sort of substance is added to the sample prior to it being isolated as DNA or subsequent to its isolation as DNA.

5 Q. And contamination would actually slow down the migration of the fragment length through the gel?

A. No, that's not necessarily true at all.

Q. How would --

A. Contaminants - some may have no result whatsoever,

10 some may cause differences in mobility.

Q. Differences in mobility?

A. That is correct.

Q. Now, maybe we could go to the third. I believe that is D1S7 - locus D1S7.

15

A. Yes, D1S7 on chromosome 1.

Q. Now, I notice you made a comparison here to between DNA in Mr. Legere's lane, lane 3, and also in 1(j). And, again, where would the two bands be?

A. The upper band is here, and the lower band is here.

20

Q. There's a lower band there?

A. Yes.

Q. Would that lower band be any more distinct than the bands in the autorad for D16?

25 A. The band itself, if one looks at the autorad on the light box, is much cleaner and well-defined than the bands that I detect from D16.

Q. Okay. Maybe you could take out the probe for D16, the autorad I should say, and compare both of them

30 on the light box for the jury.

A. Sure.

1 Q. And for myself. Now, again, where would the one be for D1S7?

A. The bands for D1S7, lane 1(j), the upper band is here and the lower band is there.

5 Q. The lower band in here somewhere. Where would the bands in the probe for D16 be that you wouldn't call?

A. This fuzzy area here and this area here.

Q. So these are too faint to call but there's one in here that is sufficient to call?

10 A. I'll repeat myself and say that it's just not the intensity of the band; it's the shape of the band itself. These are very fuzzy nondistinct, non-discrete bands. This one has almost two lines going through it that, you know, in my estimation does not

15 meet the standard for a band, therefore, I did not make this call.

Q. How about in lane 3 for Mr. Legere's DNA sample from his hair? Were they distinct enough to call?

A. This one could probably be called. Again, this one

20 here is very faint. There's a lot of lane back-ground here that --

Q. But you were able to pick it out?

A. Oh, of course, I could pick it out.

25 Q. But it would be too faint to call also?

A. In my estimation. Since this is a forensic case I am attempting to be conservative and, therefore, am not determining that to be a suitable band to make a call on.

30 Q. Where is the one in 1(j) again?

A. The band - the upper band is here and the lower band is here. One can see a line right across the lane.

1 It's probably difficult to see from the back row I appreciate, but from the front row it may be a little simpler to see.

Q. When you did these probes you did give them -- You
5 had the computer size them?

A. That is correct.

Q. Even though you might -- Well, this one here you are saying it's sufficient enough to call but this one where you say it's inconclusive, too faint, you
10 did have the computer size what you believed to be bands?

A. That was essentially for my benefit so that the bands or the faint areas, the smudges that we see there, I could confirm as potentially being from
15 the same individual and not reason to exclude Mr. Legere as being a potential source of that sample.

Q. Okay, Doctor, maybe we can put these back in their proper envelopes. Okay, maybe we'll go on and -- Maybe we'll put D1S7 back up again. I want to have
20 a look at it. That's fine, Doctor. You can take it out and put up the next one.

THE COURT: Which one is this now?

A. This is the autorad for the locus D4S139 on chromosome 4 and is court exhibit P-161(4).
25
MR. FURLOTTE: I believe you stated this was your most sensitive probe?

A. That is correct, of the polymorphic probes.

Q. Of the polymorphic probes, yes. And I believe in lane 1(i) you have mixed DNA in that lane?
30
A. Yes. The sample in lane 1(i), the male fraction of the vaginal swab reportedly from Nina Flam, has

1 four distinct bands in that lane which is indicative of a mixed sample.

Q. Now, I notice in your probes - or in your evidentiary lanes you have known samples from Linda Daughney and

5 known samples from Donna Daughney, but you do not have known samples from Nina Flam.

A. That is correct.

Q. Is that your usual procedure?

A. Not normally. I did not have a sample of Nina

10 Flam's within my possession at the time of this particular gel.

Q. But under normal circumstances isn't it preferable to have the known sample from the suspect before you run any tests?

15

A. The known sample from the --

Q. I'm sorry, known sample from the victim.

A. It's something that we like to have. It's not necessary in order to complete the analysis. What

20 it can do is confirm the identity or the continuity of that particular swab by matching up the female fraction with the victim.

Q. Now, in 1(j)F, also, that's evidence of degradation?

A. Yes. One can see a lot of evidence in 1(j)F here,

25 particularly towards the bottom one can see a fairly heavy smear of small degradation product.

Q. And, again, 109F it appears at the bottom there appears to be some --

A. Again, in this particular swab sample there is a lot

30 of degradation in that particular sample.

Q. Which would appear to be distinct bands at the bottom?

1 A. One gets these round blobs, yes. I would hesitate to call them distinct bands. They are definitely distinct blobs, yes.

Q. Maybe we can go on to the next one.

5 A. The next autorad is for locus D17S79 on chromosome 17 on the chart there, and this is the first hybridization for that particular probe, court exhibit P-161(5).

Q. I believe you said there was a lot of - not non-

10 specific binding but incomplete stripping from the prior probe.

A. That is correct.

Q. Which remained on this one.

A. One can see the banding pattern in many of the

15 lanes from the previous hybridization which was D4S139.

Q. And I believe for this probing you called the match in lane 1(j) but not lane 1(i), and would you ex-

20 plain that again for the jury, please, why you would call one lane a match with Mr. Legere and not the other?

A. Okay. This particular interpretation is not based solely on this particular autorad. The interpretation

25 of a case depends on the entire analysis. One looks at the entire set of autorads that one has produced in order to come to some sort of conclusion for each lane, thus what I will be explaining is based on what I have seen in other autoroads - other probings

30 for this particular lane. What I have in lane 1(i)F is a pattern that matches that of lane 3 for item 56A/69A, thus it is apparent that the female fraction,

1 the female portion of this particular vaginal swab, item 1(i), is the same as Mr. Legere, the assumption being made that the victim shares the same pattern as Mr. Legere in lane 3.

5 In lane 1(i) the male fraction of that particular vaginal swab, again, we see the same pattern. Similarly for lane 1(j)F which is the female fraction of a separate vaginal swab reportedly from Nina Flam, and 1(j), the male fraction of the

10 same vaginal swab reportedly from Nina Flam. Now, with previous hybridizations I have seen a single pattern in lane 1(i)F, presumably that of the victim. In 1(i), the lane for item 1(i), I have seen a mixed pattern with one probing. With other

15 probings I have only seen a pattern that is similar to that in 1(i)F, the female fraction of that swab. Since this pattern matches that of the female fraction I have determined that it is the best way to proceed is to just call that as a match to the

20 female fraction. This is not our most sensitive probe. I cannot determine whether any of this particular pattern is contributed by a male individual, someone other than the victim. There-

25 fore, it was called inconclusive for this particular probe.

Q. Okay, because of something you know?

A. Because of something I know. Again, the analysis is based on examining the entire set of autorads, not

30 on one particular autorad. Now, with the swab 1(j) I did achieve a clean separation of the female fraction in lane designated lane 1(j)F and the male fraction in 1(j).

1 Q. How do you know you obtained a clean separation?

A. Even with our most sensitive probes I was not able to pick up any of the female fraction seen in lane 1(j)F. There was no carry-over of that particular
5 pattern into lane 1(j). Since this is not our most sensitive probe I would feel it correct to call that a contribution by the male pattern that I have seen previously in this particular lane and, therefore, I included it as potentially coming from the same
10 donor as lane 56A/69A, because it is a visual match and this was confirmed by the computer.

Q. So like in this particular probe what you believed to be a DNA profile for Nina Flam is identical to the DNA profile for Mr. Legere?
15
A. Yes.

Q. And on the bands in 1(i)F which is the female fraction you are saying that that is just Nina Flam?

A. That is correct.
20
Q. There is no male DNA in there?

A. That is correct.

Q. But on the one for 1(i) you are saying, well, that could be Nina Flam or it could be Allan Legere, or it could be both?
25
A. That is correct. Based on previous knowledge, in fact the probing for D4S139 where I had got a mixed pattern, there is evidence of some male contribution but in my estimation the fact that this is a less
30 sensitive probe, I have never seen the male contribution in any of the other hybridizations, therefore, I conclude that probably 90% at least of that

1 particular pattern is that of Nina Flam, and I see no reason to include Mr. Legere as contributing part of that pattern.

Q. And I understand in 1(j), since you have never seen
5 any DNA of Nina Flam in that lane before, then you assume it's all Mr. Legere's?

A. I assumed that it came from the same potential donor, yes.

Q. Or at least it's similar to Mr. Legere's. Not
10 necessarily Mr. Legere's but similar to Mr. Legere's?

A. That is correct.

Q. The bottom band which I suppose I could say it looks to be a little more intense than the D1 probe in 1(j) --

15
A. This band here?

Q. Yes. We were questioning the intensity of the D1 probe. Remember we compared D1 with D16 on the light box here for the jury.

A. That is correct.

20
Q. Which we found that was quite light, the bottom one, in D1 also.

A. Yes.

Q. Would that be about the same intensity on D1 as in
25 this one or is this a little more intense?

A. I think it's probably a little more intense than what we saw in D1. The band is probably a little less sharp though than what we saw with D1.

Q. This one looks to be a little more blurry.

30 A. It's a little fuzzier. It's still well formed. There's still a definite formation of that particular band.

1 Q. Okay, the next one is -- Wait now, maybe I don't want to move on just yet. I believe on that one also you said there was a lot of nonspecific binding in lane 135.

5 A. There is some nonspecific binding. One can see a darkness in this particular region of the autorad.

Q. Now, I believe maybe for the benefit of the jury we could describe in this probing as to what you would call inconclusive because you can see a mobility
10 difference in two bands. You take the top band in 135 and the top band in 134. You see a visual difference in those two bands so you would call that inconclusive if you were calling a match?

A. This particular band here in my estimation is
15 slightly higher than this particular band. They would certainly share the same bin.

Q. They definitely share the same bin, that's no problem, but because you see a visual difference in these two you would call that inconclusive?
20
A. Well, it's inconclusive because there's no band - lower band there.

Q. No, just matching the two bands you see a visual difference, and when you see a visual difference you either call it inconclusive or an exclusion?
25
A. Generally when one sees a distinct visual difference it's an exclusion.

Q. When you generally see a distinct visual difference it's an exclusion.

30 A. Unless there's some sort of reason to believe that one lane did not move in an appropriate fashion.

1 Q. So because you can see a distinct visual difference between the top band in 134 and the top band in 135 you would call that an exclusion?

A. Well, an exclusion is based on the entire pattern,

5 as I have said, and I mean the pattern is not there.

Q. I just want to stick to one criteria here for your interpretation of autorads. So because you see a visual difference between the top band in 134 and 135 that would be an exclusion as to your opinion

10 as an interpretation?

A. I would want to look at the results for the D722 before I made that particular call.

Q. But you definitely wouldn't call that an inclusion?

A. It's slightly different to my eye, yes.

15 Q. And your eyes are the best test rather than the computers?

A. Yes, that's true.

Q. Just so we get the general feeling what's an inclusion and what's an exclusion here, maybe we

20 could go on to the next one, Doctor.

A. The next one is the second hybridization for that same probe, court exhibit P-161(6).

Q. And, again, this is the probe that you called inconclusive in your summary chart under lane 109,

25 the D16S85.

A. This is D17S79, the second probing.

Q. This is D17 or D16?

A. No, D17, the second hybridization where there was found to be a match between 1(i) and 56A/69A, and

30 135 and 56A/69A. It is the same as we were just looking at.

1 Q. Right. Okay. So, again, you called D17 in lane 135, you called that a match, and would you point out the bands again?

A. The band that matches is the upper band in 56A/69A

5 and the upper band in 135, the lower band in 56A/69A and the lower band in 135.

Q. Maybe we could take that one, Doctor, and again compare that with D16 which you said was two faint --

A. On the light box?

10 Q. On the light box.

A. Will I get the first probing too? Do you want all the autorads that we have for these particular loci?

Q. If you want to get the first one too, yes. Which is the D16 one that you found inconclusive because of

15 faint bands?

A. These two bottom ones are for locus D16S85. This is lane 135 and, again, a second hybridization with the same probe, lane 135, and these both were determined to be inconclusive.

20

Q. And compared to the D17, would you point out the bands again?

A. In D17S79 --

Q. Lane 135.

25 A. Lane 135, actually the second hybridization of this particular probe, there's the two bands there and, again, here are the two bands.

Q. Now, in D17 do those look - those faint marks, do they look more like smears than lines?

30 A. They're certainly fuzzy bands, there's no doubt about it, but if one looks at the background in these particular lanes it's absolutely clean, therefore, this --

1 Q. Except for up top here.

A. Yes, there's a slight nonspecific binding up top here. You can see that sort of a measles pattern, a very faint measles pattern up here.

5 Q. Any reason why that couldn't be nonspecific binding?

A. No, because in my opinion, after having looked at many autorads, that is a band and it is also in this particular probing.

Q. When you clean this up -- This is the first one?

10 A. That is the first one.

Q. This is the cleaned-up model?

A. That is correct.

Q. Now, when you clean this one up you took away one of these fuzzy spots?

15 A. That is nonspecific binding.

Q. That's nonspecific binding. Does that middle part look any different than, if I can find it over here, than that?

20 A. Yes, it does, because it doesn't follow across the well as these do. These go right across the well. This goes up and down and there's actually a circular pattern to it. If you follow the pattern up close.

25 Q. Maybe you could explain to the jury again how you clean this up, the nonspecific binding?

A. This was simply stripped and at a later date rehybridized for the same probe. Remember we have improper stripping in this particular autorad which

30 is the first probing for D17S79. We can see the previous hybridizations present in the upper quadrant of this gel and we have cleaned that up by restripping and rehybridizing.

1 Q. But we still got a lot of nonspecific binding in this one all at the bottom here, and right there --

A. Some of this is nonspecific binding, yes.

Q. -- that would almost look like a band going across

5 there except fainted out in the middle.

A. Except it happens to be precisely between lanes.

Q. At least part of it is precisely between lanes. Part of it isn't.

A. And, again, I wouldn't call that a band. It's

10 definitely a hot spot right there.

MR. FURLOTTE: Okay, that's fine, Doctor. We'll put them away and maybe it would be an appropriate time for a break, My Lord.

THE COURT: Yes, I think the timing would be right for

15 that. The jury can take out with them whatever they like. You can request of Mr. Sears anything you want brought out to look at in the jury room, or perhaps not look at anything.

(RECESS - 11:10 - 11:40 A.M.)

20

COURT RESUMES. (Accused present. Jury called, all present.)

THE COURT: Just before you resume, Mr. Furlotte, the Court Reporter told me during the recess she felt that she might have some difficulty picking up that

25 last part of the cross-examination from the tape because both Mr. Furlotte and the witness were keeping their voices quite low, and I was wondering could you perhaps run through that again comparing the bands in the two lanes D16 and D17. I think that's

30 what it pertained to.

MR. FURLOTTE: Is that when we had probes 16 and 17 up on the light box?

1 THE COURT: On the light box that was, yes. Do you suppose you could do that again just to ensure that that -- And could we put the microphone right over to the very corner of the board. I think the part
5 involved in that was comparing the faintness or otherwise the ability to distinguish the bands in the two lanes using those two probes.

MR. FURLOTTE: Okay, Doctor, I guess maybe for the jury you could just point out as to which autorads are
10 for D16 and which are for D17?

A. The top two autorads are for D17. This is court exhibit P-161(5) and P-161(6). The bottom two autorads, are for D16S85. This is court exhibit P-161(7) and court exhibit P-161(8).
15
Q. Okay. Now, would you point out again for the jury which bands you found on D16 to be too faint for interpretation?

A. I found the bands on court exhibit P-161(7) in lane
20 135 to be too indistinct to call as bands. The bands here, the upper band here and the lower band there.

Q. And what were the reasons for being too indistinct? Just because of the faintness or because of their
25 shape?

A. It is partly due to the faintness, partly due to the shape and the background in that particular lane.

Q. Okay. What about lane 3, Mr. Legere's lane itself?

A. In Mr. Legere's lane itself in lane 3 the upper band
30 is quite distinct, the lower band is a very faint shadow.

1 Q. Would you be able to interpret the lower band in Mr. Legere's as a band?

A. I would not wish to, no.

Q. You would not wish to. Is that for forensic purposes

5 or for just --

A. For forensic purposes I would not wish to interpret that as a band. It's too fuzzy, too faint, to give any credible --

Q. But if you were analyzing fruit flies would you call

10 it?

A. Possibly in the research laboratory. One would certainly want to probably rehybridize and try again to see if one can bring it up somewhat, but possibly in a research lab someone may call that a

15 match.

Q. Okay. Now, again, in the one that you cleaned up, that would be 161(8).

A. 161(8). Again, one can see the lower band is still

20 fairly fuzzy. It's a little better defined than in the previous hybridization. This is the lower band in lane 3. However, again in lane 135 we have too much indistinctness there in both the upper and lower band to make a positive call for forensic purposes.

25 Q. Okay. And maybe while we're on the subject here, I notice for probe 16 that the one you cleaned up on, all the bands appeared to be a little fainter. Is that the only way you could get the nonspecific binding off?

30 A. No. This is a consequence of the fact that this membrane has been stripped and reprobed several times, I believe this probing, P-161(7), was done in

December of '89 and this reprobing of the membrane after several stripping and rehybridizations was done in March of '91. Thus with the sequential stripping and rehybridizations one loses some of the DNA bound to that membrane and thus with the least sensitive probes it becomes more difficult to achieve a result.

Q. Okay. What if you left that in its - I don't know if you can call it the hybridization stage - for a longer period of time, or do you get a darker picture?

A. No, you would not. In fact how you could achieve a darker picture would be to expose it for a long time.

Q. Okay, maybe that's the word I was looking for, exposure.

A. Yes. In this particular instance this is a six day exposure in December of '89. This is actually an 11 day exposure with two screens which we use to enhance the image in March of '91.

Q. Okay. Now, maybe you could point out, again, in the top autorads here for D17 as to which ones you have called clear enough to declare a match?

A. The match has been declared between lane 3. The upper and lower bands are distinct. I believe that's lane 10, the upper and lower bands are there. That is item 1(j). And lane 135. And this is the second exposure of that - second hybridization at a later date. These are fairly faint in this exposure. What this one --

1 Q. Okay. The bottom one in lane 135 on the second exposure for D17, how is - why is that one clearer than say the top band in lane 135 for the second exposure of D16, this one and this one?

5 A. It's not that much clearer. It's the fact that the bottom band is less clearer that I would make the inconclusive call.

Q. Okay. Doctor, maybe you could keep out the D16's to put on the overhead projector. Now, this is D16 on

10 the screen?

A. That is correct.

Q. This is the first probing or the second probing?

A. This is the first probe, court exhibit P-161(7).

Q. And that probing was processed when?

15 A. In December of 1989.

Q. December of 1989?

A. That is correct.

Q. And I understand although you ruled that one in-

20 conclusive you still did computer sizings on - what you are telling the court today is that the bands are too faint to call.

A. Yes. I actually asked the computer to size anything it saw in these areas on lane 3, the upper

25 area, the lower area, and in lane 135 in the upper area and the lower area.

Q. If you were going to -- Say Mr. Legere in the lane 3, the top band, and what appears to be a top band in lane 135, would you point them out to the jury,

30 please? That one there is Mr. Legere's lane?

A. That lane, and lane 135.

1 Q. If you were going to call it a band can you see a distinguishable difference in lane migration between those two marks?

A. No, I cannot.

5 Q. If they were closer together might you be able to tell the difference?

A. Well, part of the problem with calling a visual match in this particular band is it seems to have a dark area here and then a gap and a darker area down

10 here, so it's very difficult to determine where precisely that band lies. That's part of the problem in making conclusive calls.

Q. When your computer sizes these bands or markers how does it judge where to begin with the marker? Does

15 the computer go to the center of the mark - the black mark?

A. The computer finds the center of the intensity at the markers.

Q. And that's how it does its sizing?

20 A. That is correct.

Q. You can see the control markers in lane 21?

A. Yes, I can.

Q. Do you notice the intensity of that - well, we could

25 take both lane 20 and 21. Now, would you put on -- Just to notice the intensity now, would you put on the next autorad for D16 which was taken in March of 1991. Notice those intensities in lane 21 appears to be a lot less intense than the original probing.

30 A. Lane 21 and 22?

Q. Yes.

A. Sorry, 20 and 21.

1 Q. 22 is the marker lane.

A. I can't tell looking at this. I'd have to take it to the light box.

Q. Okay, maybe you can bring it on the light box.

5 This is lane 21 on the first probing of D16?

A. That is correct.

Q. And lane 21 of the second probing of D16?

A. That is correct.

Q. The second probing the bands appear to be a little

10 fainter?

A. That is correct.

Q. And that's for control where you would have lots of DNA in it.

A. That is correct.

15 Q. Is there any reason why you should have less intensity for a control lane on a second probing to that degree?

A. Yes. As I mentioned previously, this first probing was done in December of 1989. The second probing was done in March of '91. There was very many - a

20 large number of strippings and rehybridizations intervening and with each stripping and rehybridization one loses a small amount of DNA thus it's not surprising at all that there's a slight less intensity in the second hybridization.

25 Q. Now, Doctor, I understand there wasn't enough evidentiary samples - DNA samples left for the defence to get its own experts to run their own tests?

30 A. There was not enough of the DNA left from the evidentiary samples that I examined for a second analysis using the RFLP analysis that I have used

1 here. Possibly there was enough DNA left to do an analysis involving polymerase chain reaction.

Q. Which has not been done?

A. Which has not been done.

5 Q. But you say the polymerase chain reaction is really not developed enough for the R.C.M.P. or --

A. I would hesitate to use it in this sort of instance. I think a year or two down the road one could possibly reanalyze these samples using the polymerase

10 chain reaction as it has been developed and researched.

Q. But some police agencies obviously are actually using it to go into court.

A. Some police agencies are using various forms of the

15 polymerase chain reaction for forensic analysis, yes.

MR. LEGERE: How convenient. Not enough to make another test yet the papers in November said that you had enough evidence to bring this to court and here

20 again in December of '89 you never made the first test, you never made the second one until March, '91, but how could they say in November of '89 that they had all the tests done.

25 THE COURT: Well let's ignore that outburst and --

MR. LEGERE: It's true.

THE COURT: -- continue on Mr. Furlotte. Another word -- Another word and out the accused goes again.

MR. LEGERE: I'm just saying, Your Honour, they can alter

30 those autorads.

THE COURT: Out you go. Out you go. Mr. Sheriff, take the Accused out, please.

1 MR. LEGERE: They can alter those autorads, Your Honour. He can play with them all day and he can make it look like me. That's why there's no more examples left. There's 35 test cases waiting for this in
5 New Brunswick in the courts and I'm the perfect person to get down for this here because there's 35 other guys waiting for this test to go and Mr. Bowen is not -- He's very prejudicial with this case. It's in his interests to find me guilty and he god-
10 damn well knows it too.

THE COURT: Excuse me, just a minute, until we get the monitor turned on.

(Accused removed from courtroom.)

THE COURT: This order is made under section 650 of the
15 Criminal Code like the earlier orders.

Now, what you just heard, members of the jury, was not evidence which you should consider.

Now, would you go ahead Mr. Furlotte, please.

MR. FURLOTTE: Okay, Doctor Bowen, for the process for
20 running the test on D16S85 was in December of 1989.

A. That is correct.

Q. And the next probe you run was D10S28?

A. I believe so. That is correct, yes.

25 Q. And when was the next probe run for D10S28? Does it tell you on the autorad itself?

A. That would tell you the date of the exposure for that particular autorad. The test was run in November of 1990.

30 Q. November of 1990?

A. That is correct.

1 Q. Now, why did you wait from December of 1989 until November, 1990, 11 months, to continue with the testing of the case of Allan Legere?

A. It wasn't really a matter of just sitting and
5 waiting. At the time I completed the last probing, the probing for D16S85, in December, in January of 1990 I went to a meeting at TWGDAM and that was followed by closing the lab for renovations. During that time frame I worked out of a small lab in
10 another building processing cases that I had to examine for court purposes that I had to testify in court on, and I had court dates for. Therefore, this particular case was laid aside for a period of 11 months nearly. On top of that, in May of 1990 we
15 began our first training course for new and veteran staff which involved most of my time in terms of preparing lectures and orchestrating the training program for these individuals. Subsequent to that, I believe sometime in the summer of 1990, I received
20 additional exhibits which had to be examined for this particular case. And, finally, the last probing, the last polymorphic probing, the data base was in the process of being developed for this particular probe during that time frame also and
25 thus I was not able to use it for case work until we had established the data base for that particular probe.

Q. But you didn't have any intentions of using the
30 probe - what is it? - D10, the next one that followed? D10S28. This is the one you ceased in December of 1989. After you run D16S85 which you found inconclusive for everything you ceased operations until

1 November of 1990?

A. I believe I was working on other aspects of this particular case prior to that time.

Q. Other aspects of this particular case, but as far
5 as for running your probes and sequence you didn't run the D10S28 until November of 1990?

A. That is correct.

Q. Okay, just to try to keep things in proper context here. Now, you said you were looking for a match
10 on five probes, four to five probes to begin with?

A. No. We generally use -- When we initially start a case work we use five probes as part of our panel of polymorphic probes for looking at case work.

Q. But you run six here?
15
A. That is correct.

Q. But your original intentions you were only going to run five until the D16 failed?

A. No. That had nothing to do with ceasing the analysis
20 until November. Essentially, at the time we were considering implementing the use of D10S28 and it just so happened the data base happened to be prepared during the summer of 1990 and I was able to start implementing the use of D10S28 during that time frame.
25
Q. I believe you - in your initial report you made a statement to the effect that you need at least three probes for positive identification. What you feel is positive identification.

30 A. I don't believe that was the wording in the report.

Q. I may be wrong. I will check that. Okay, I'm sorry, just to establish identity rather than --

1 I think I used the word 'positive' but you have just to establish identity.

A. Yes. It should be fully realized that these are preliminary results and under normal circumstances

5 profiles from at least three different DNA probes would be used to establish identity.

Q. So once your D16S85 failed to show any results you drew an inconclusive. You had three probes for identity on 1(j) from the D1S7, the D4S139, and the

10 D17S79, is that correct?

A. Yes.

Q. And for the evidentiary sample in lane 135 you had four probes that you found a match.

A. That is correct. I was able to obtain a result

15 with four probes.

Q. And you didn't feel it was sufficient to be able to come to court with a three probe match on 1(j) and a four probe match on lane 135?

A. If those were the only results that I could obtain

20 then I would have come to court prepared to produce those results.

Q. Now, you showed us the relatively small difference in migration of the two bands on the screen as to

25 what you would constitute an exclusion, and I believe I showed you on the probe the D17S79 in lanes 134 and 135. Are you sure you couldn't or didn't make that kind of an identification in D16S85 when you first interpreted?

30 A. I'm positive I never made such an identification.

Q. Now, the D16S85, you continued to use that probe in your second and third gels that you run?

A. That is correct.

1 Q. And the second and third gels you run you had Mr. Legere's samples in those also?

A. That's correct.

Q. And I believe both yourself and Doctor Waye testified
5 that you - or at least yourself testified that you never cross - you didn't compare a gel to gel with gel 1 to either - I forget which - either gel 2 or gel 3 with the D16 probe because you originally found it inconclusive?

10 A. No, I did not make a forensic comparison. I have the comparison from my own notes, yes.

Q. Because you did the sizings in the first gel for D16S85.

A. That is correct.

15 Q. Then you did the sizings for D16S85 in the second and third gels?

A. That is correct.

Q. And you did those sizings of all Mr. Legere's samples?

20 A. That is correct.

Q. Now, in either the second or third gel for D16S85 if you compare your computer sizings, gel 1 and I forget - either gel 2 or gel 3, if it's necessary
25 look it up, if you don't remember, you did find a comparison of computer sizings of 5.5%.

A. That is correct.

Q. Which is outside your match window?

A. That is correct.

30 Q. Now, if you saw on D16 in the first gel, if you were able to see a very small difference because they are so far apart, you can see a difference, I believe you stated that even though if they were decided as

1 bands you wouldn't be able to see a distinctive difference between Mr. Legere's lane and lane 135, is that right?

A. I'm sorry, I don't quite follow.

5 Q. Do you recall if I asked you when we had D16 up on the board in lane 3, the top band for Mr. Legere, and lane 135, the evidentiary sample, if you were able to see a distinct difference between the migration of those two top bands? Do you recall me

10 asking you that?

A. Yes, I do.

Q. And I believe you said that no you still couldn't see a distinct difference.

A. I couldn't see a distinct difference, the problem

15 being that the bands were not well defined and there was problems in interpreting them as bands so there's a problem with making that analysis in my mind to determine whether these are actually a good match or not. The match window that I used for this

20 particular case on computer scanning showed me that those bands, as the computer saw them, were a match. But I still, because of the fact that the bands were indistinct and not properly formed, did not call that a match.

25 Q. When Doctor Waye testified I believe he testified that the match window was formed by running thousands of tests of the monomorphic probe which is known base size, thousands of times, and they formed a match

30 window by taking the widest degree of discrepancy that they found in their computer sizings.

A. It was actually based on 600 individuals.

1 Q. On 600?

A. Yes.

Q. Okay. And he expected it wouldn't be uncommon for - or be expected that if they run his profile today

5 it would measure and then tomorrow the difference might be somewhere around 2%.

A. That is correct.

Q. But you did those same tests with Mr. Legere and you found a difference of 5.5%.

10 A. On one occasion.

Q. On one occasion.

A. On reprobing that blot it happened to fall within 5%.

Q. So you run Mr. Legere's --

15 MR. WALSH: The Doctor, I don't think, finished his answer My Lord.

THE COURT: Yes, well finish that answer.

A. On reprobing that membrane with the same probe it

20 happened to fall within 5% on that particular hybridization, the problem being --

MR. FURLOTTE: And one other occasion.

A. The same membrane. And the reason being that the markers were slightly overblown in the first

25 hybridization such that the computer could not pick out the exact center of the density and gives us a certain measurement imprecision in the terms of the reliability of that particular result. Furthermore, I would like to mention that even though our

30 match window is 5.2% across 600 individuals we saw the extreme range as being 5.6%. We chose 5.2% because 99% of the time that we did this analysis

1 the values fell within 5.2% thus we felt it a much more conservative match window.

Q. But out of the three times that you run Mr. Legere's DNA samples on one of the occasions you would not

5 even be able to identify Mr. Legere's own known samples?

A. Actually, I ran Mr. Legere's known sample a total of 7 times and on one occasion with one probe I ruled it inconclusive because it fell slightly out-

10 side our match window. On reprobing with that same probe it fell within our match window.

Q. Okay. You run Mr. Legere's a total of 7 times. Okay, but you're talking because different times in the same gel?

15

A. That is correct. And these all gel to gel comparisons within gel comparisons.

Q. Also, in probe D1S7 although you are within your 5.2% match window for D1S7, the blood stain you run on Mr. Legere, for the second band you found a

20 discrepancy of 5.1% which just barely made your match window.

A. That's correct.

Q. And for the D16S85 in one gel, for the second band

25 in the blood sample you found a discrepancy of 5.2% in comparing Mr. Legere's own DNA fragment lengths.

A. That is correct.

Q. And in the third gel, again, for that same band you found a discrepancy of 5.5%.

30 A. I guess if -- I'm sorry, I don't have the numbers in front of me but I think that's --

Q. Would you like to see my notes?

1 A. No, that's fine.

Q. So it seems that everytime you take the gels the discrepancy is getting further.

A. I think I indicated at the very outset that a gel to
5 gel comparison is a little more difficult in the sense that because gels are under slightly different conditions one can approach the match window. We've empirically observed greater discrepancies, as I've said, 5.6% with the monomorphic probe across 600
10 individuals across many gels. We have just decided arbitrarily to take 99% of those values and use that as our match window and that happens to be 5.2%.

Q. But when the R.C.M.P. formed the match window they formed their match window because of the comparisons
15 they were making between gels, not within a gel.

A. That is correct.

Q. And I understood the testimony yesterday that comparisons within a gel you would expect them to be tight.
20

A. In general they are much tighter.

Q. In general. And possibly around the 1% level.

A. In general they are - they can go 2 - 3 - 4% within a gel. Depends on the samples and the state of that sample.
25

Q. And the most you would expect them to be from gel to gel would be the limits of your match window, 5.2%?

A. No. The most that we have empirically observed is 5.6%. It just happens we choose 5.2% to be conservative.
30

Q. So how great is your measurement imprecision? You pegged it at 5.2% but how great is it actually?

1 A. As I said, empirically we have observed up to 5.6% with the monomorphic probe.

Q. The 5.5% would, if you were looking at two band widths, and the band widths that we're dealing with
5 here are - I guess when you're 5.5% out you're dealing with a fragment length of 959 base pairs. Maybe I could --

A. I could find it in my notes but it would probably take a minute.

10 Q. On the third gel when they differed by minus 5.5% the computer sized it at 959 base pairs.

A. That is correct.

Q. And if you had on your autorad a band that the computer would size at - I suppose if we added
15 5.5% -- Well, let's go back to the original. The original was 1015 base pairs?

A. That is correct.

Q. And the third gel you run it at 959 base pairs which was 5.5% less?

20 A. That is correct.

Q. Now, if you run fragment lengths on the same autorad and at roughly the thousand base pair level and you saw a band which the computer measured at 1015
25 base pairs and the computer measured the other one at 959 base pairs, you would be able to see a distinct difference between those band migrations, would you not?

A. I don't know. I would have to run the test - run
30 the two samples side by side that had those base pairs on the - sizes on the same gel to say that there's a distinct visual difference.

1 Q. I notice also on the D16S85, the first probing, first gel, that for lane number 2, Mr. Murphy, you scored three bands rather than two in his lane.

A. That is correct.

5 Q. But people normally just have two bands.

A. That is correct. I was confirming by scoring that third band that in fact I had poor stripping from the previous hybridization and confirming the size of that band to match it back to the previous
10 hybridization.

Q. You didn't think that there might be actually three bands and then score it.

A. No, I was trying to confirm that that fainter third band was in fact an artifact of poor stripping.

15 Q. There are circumstances where individuals will continuously show up with three bands rather than two?

A. I wouldn't say continuously show up with three bands.

Q. Well the same individual.

20 A. We have observed with one or two of our probes, in particular D4S139, certain individuals do display three, four, and even on very rare occasions five band patterns. This is something that we have ob-
25 served with that particular probe. I do not believe we have seen anything with the three band pattern with that probe D17S79 and, as I said, it was a distinctly fainter band that I scored than the other two bands and I was just confirming in my mind that
30 particular band came from the previous hybridization, Subsequently I did strip and rehybridize that membrane and that third band was not there the second time.

1 Q. Okay, maybe we could, again, get you at the overhead projector and put the probe up for number 10 chromosome, would be photograph number 8 in the booklet. Now, this is for the D10S28?

5 A. Yes. This is for locus D10S28 found on chromosome 10 and it is court exhibit P-161(9).

Q. And I believe in lane 1(j) you scored two bands.

A. That is correct.

Q. And would you show the bands that you scored and

10 made a match with Mr. Legere's?

A. This is the upper band in lane 1(j), the upper band in 56A/69A, the lower band in 56A/69A and the lower band in 1(j).

Q. That lower band is quite faint, again?

15 A. It is faint but if you look at it using the light box it is distinct formed.

Q. And I believe you also scored two bands in lane 110 as matching Mr. Legere's two bands?

20 A. That I did. Lane 110, the upper band that matches the band in lane 56A/69A, and the lower band that matches the band in 56A/69A.

Q. Okay now, Doctor, would you take that one off the overhead projector and would you put that on the

25 light box and compare it with D16. Which one would be the autorad for D16?

A. The second autorad here is the autorad for D16. It is P-161(9). Court exhibit P-161(9).

Q. This one is for 10?

30 A. This is D10S28.

Q. That's D10S28, okay.

A. Sorry. TBQ7 is the familiar probing for D10S28.

THE COURT: Keep your voices up, gentlemen, please.

1 MR. FURLOTTE: Maybe you could point out to the jury the faint bands in lane 110 and 1(j) on the D10S28 autorad and compare it to the faint bands on the D16.

5 A. These are the bands in lane 10 which is my item 1(j) for the D10S28 and there and the lower band there, and the band in lane 110, item 110, upper band here and the lower band here.

Q. And the faint bands in D16 that you would not score?

10 A. The bands that I did not score on D16 were in lane 135 here, the upper band, and the lower band here, and the lane 3, the upper area here and the lower darkened area there.

Q. So, again, the ones in D16 are not clear enough to

15 call but the ones in D10 are clear enough to call in your opinion?

A. That is correct. They are well-formed bands. Any intensity that one sees there is against a very clear background and in fact if one examines this closely,

20 it's very difficult to see from the back row as I have said, and possibly even the front row here, but there is a very sharp band in those areas. It's well-defined as opposed to admittedly a darker smudge here but the problem is these are not well

25 defined. They're smudges.

Q. Again, in lane 115, which is lane number 4 in D10, we see a lot of degradation in there?

A. Yes, that is degradation product and with this

30 particular probe the degradation products seems to give you almost band-like appearances. We have seen with D4S139 that particular hybridization we have blobs for degradation product. The degradation

1 products in D10S28 has a more defined almost band-like appearance but it is definitely by the fact that there's nothing up here indicates that this is actually degradation products of what would have been
5 fragments of these particular sizes.

Q. Where I am concerned with, Doctor, is the degradation in lane 115 is we have what appears to be a distinct band even above the lower band which would mean that we would have pieces of DNA fragment lengths that
10 are actually longer in length than the bottom band.

A. Yes, of course.

Q. What implications would that have on interpreting autorads?

A. They're degradation products of the larger band.

15 Q. They're just degradation products of the larger band?

A. Yes.

Q. Yet they're still large enough to be even - show up on the autorad as being larger than the smaller band.

20 A. Correct. There's quite a size difference between these bands. This is approximately one thousand base pairs. This is almost four thousand base pairs. It's four times the size.

25 Q. The next question, when you're interpreting autorads what would prevent somebody with a single-banded pattern having degradation of his DNA analysis and on the autorad it would show up as a two band because the bottom one would be lighter. If that one wasn't
30 there at all and we only had one of these degradation bands showing you would probably score that as a two-banded pattern.

1 A. It is possible, but as one can see, one has a ladder effect with degradation and therefore it's diagnostic of degradation.

Q. But in this particular one.

5 A. In all examples.

Q. All examples. They all have the ladder effect.

A. Yes.

MR. FURLOTTE: Okay, we can put these away then. My Lord I am not going to be able to finish with this witness

10 today so maybe if you wanted to break now it might be an appropriate time before I get into the mono-morphic probes and the next gel.

THE COURT: Well, my only concern is that -- What is the Crown's program? You're bringing in Doctor

15 Kidd, is it, on Monday?

MR. WALSH: Yes, My Lord. Perhaps if Mr. -- I don't want to put Mr. Furlotte on the spot. Do you have any projection as to how long you would be on Monday?

20 I know how difficult it is for counsel to make these projections. I don't mean to put him on the spot. Just trying to get an outside estimate.

MR. FURLOTTE: I'm not sure how much more nit-picking I've got to do My Lord.

25 MR. WALSH: Half a day perhaps.

THE COURT: You haven't been doing as much nit-picking today as you did the day before yesterday.

MR. FURLOTTE: Well, My Lord, when you go nit-picking you're looking for a louse.

30 MR. WALSH: Would the outside time frame be half a day?

MR. FURLOTTE: Oh, definitely outside -- I'm hoping an hour, no more than an hour and a half.

1 MR. WALSH: That's not a problem.

THE COURT: Well, then shall we stop now then. Does that create any great problem in scheduling or anything?

MR. WALSH: Oh no, My Lord. No, no. I've built in a
5 cushion there. I recognize the problems that can occur so I'm not that --

THE COURT: Well, we wanted to expect a full day's worth of duty from the jury here and I talked about 1 o'clock and it's only 25 to 1 now but I guess we'll
10 call it a full day.

Well, again, I just want to caution the jury before you retire, I just want to caution you we're sort of approaching the end of this exercise now. We're not totally there but out of 243 crown wit-
15 nesses we're down now to three more to hear, perhaps 4, perhaps one other briefly. But we're sort of getting to the end and please don't mess the thing up by talking to people you shouldn't talk to or
20 letting anyone talk to you. I mentioned the matter of correspondence the other day. I remember years ago in another matter not related to criminal trials or to any trial as a matter of fact, I got a letter through the mail once signed by somebody and I wrote
25 a letter back to that person in which I expressed my displeasure at their having written in the way they did, and I was later very much embarrassed to find that the letter hadn't come from that person at all. Somebody else had written to me to embarrass the
30 other person and had signed the other person's name to it. So, you know, it often occurs to me I wonder if this ever happens to a jury that you get letters.

I have no way of knowing and you're perhaps - if you got something with somebody else's name signed you'd probably be too embarrassed to speak to them about it. But if you do get that sort of thing, you know, take it for what it's worth, put it right in the waste paper basket. That's where it belongs.

Also, with regard to newspaper reports or media reports, I know it's hard to resist perhaps reading what's going on, but remember reporters put their interpretation on things and it may be what you consider important and it may not be what you consider important, and it may be inaccurate in some cases, and I have noticed some inaccuracies. I would say the reports in all are probably fairly well written but they don't always put the -- different reporters don't put the emphasis on the same things and they're not what you and I might say are the important things. So please bear that in mind if you see or read or hear anything about the case.

So we will see you again on Monday morning. As far as timing goes -- Well, I guess I gave an indication a week or so ago about possible timing of the trial and I don't think there's much reason to depart from that at the present time. It looks as though probably in the next two weeks all the evidence and all the other proceedings might be wound up. But one can only estimate these things.

As we go along through next week I'll perhaps give you some better indication of what might be happening. I have, I think, indicated before that once the time comes when the evidence is all completed and the time comes for you to retire to

1 consider your verdict you are locked up at that
stage, whether for one hour or five hours or twenty-
nine hours, or seventy-two hours is up to you people,
but you aren't allowed to separate. So I do want to
5 give you a little advance notice, of course, when
that point is being reached so you can make your own
plans accordingly.

So will you retire then, now, please, and we
will see you on Monday at 9:30.

10 (Jury excused.)

THE COURT: Nothing else?

MR. WALSH: My Lord one thing. When Mr. Legere made his
comment that he did, again, you had indicated that
the jury should perhaps ignore that comment, and I
15 can understand the context in which it was made, but
Your Lordship has pointed out before that the jury
can take into consideration statements and conduct of
the accused while in the courtroom and, as far as
the statement that he made this morning, from the
20 Crown's respectful position it's - we don't mind the
jury considering the position he's taken with --
My understanding is that he was accusing Doctor
Bowen of having manipulated these things so that he
could get Mr. Legere so to speak, and that kind of a
25 position if that is the position he wishes to take
I certainly don't mind the jury hearing that.

THE COURT: Well, I don't suppose the jury any more than
myself could repeat now what the devil he said.

30 MR. WALSH: That was my understanding of the gist of it
My Lord. I couldn't repeat it exactly either.

1 THE COURT: Well, I will be asking the Court Reporter perhaps to type up that section of it first for myself and -- Presumably you get copies of anything she types for me so - I mean all counsel do.

5 MR. WALSH: We have one final matter, My Lord, and if we could have a five minute recess counsel would like to discuss the matter and perhaps we could use some time -- If you could give us five minutes My Lord we would appreciate it.

10 THE COURT: You mean here in --

MR. WALSH: If we could break for five minutes and then perhaps come back, or not. We could let you know whether it would be necessary to come back into the courtroom.

15 THE COURT: All right. So we will recess for five minutes.

(RECESS.)

THE COURT: Well, this is - in the absence of the jury this is another brief hearing and I believe, Mr. Clerk, the monitoring facilities are turned on.

20 MR. CLERK: Yes, My Lord.

MR. ALLMAN: My Lord it's going to be a very brief hearing indeed. We did discuss the possibility of doing the voir dire on the question of Sergeant Poissonier's evidence this afternoon but I think everybody feels 25 we don't want to do it this afternoon. For Mr. Furlotte's benefit, the timing that we have in mind is this. We know that we have got to finish John Bowen's evidence on Monday morning. After that we 30 have got Doctor Kenneth Kidd who has to be out of here by Tuesday evening so we're not going to waste any time. We will put Doctor Kidd on right as soon

as John Bowen is finished. Whenever Doctor Kidd finishes we will then move into the voir dire on Sergeant Poissonier. If Doctor Kidd finishes Tuesday lunch time then we will do Sergeant Poissonier's voir dire Tuesday afternoon and so on down the scale. We would also want, as soon as we have done the voir dire of Sergeant Poissonier, depending on what Your Lordship rules, it may be that what Mr. Furlotte wants to ask none of it is proper, it may be that some of it is proper, we would want to go on and put Sergeant Poissonier on as soon as you have made a ruling on the voir dire.

THE COURT: This was right after Doctor Kidd?

MR. ALLMAN: Yes. Doctor Kidd is finished --

THE COURT: Before going on with your other --

MR. ALLMAN: This is what we have in mind but it depends on Your Lordship to some extent. We have in mind we finish with Doctor Kidd, we do the voir dire on Sergeant Poissonier. If Your Lordship was able relatively soon after that to give us a ruling then we would put Sergeant Poissonier in before the jury right after the voir dire. If there were problems with that, if you didn't feel able to give us a ruling right away, then we would have to make some other arrangements.

THE COURT: Well, I think you can count on the fact that I might want to have a recess or something like that but I think you will find that whatever ruling I give or direction I give will be given without delay.

MR. ALLMAN: Well, that will be of great assistance to us.

1 THE COURT: And with regard to Doctor Kidd on Monday --

MR. WALSH: He's flying in Sunday night, Sunday at supper-time, and I tried to get a cushion because of problems that may occur in the trial and I believe he's got - 5 scheduled to be out Wednesday. To get out of here Wednesday.

THE COURT: Wednesday morning?

MR. WALSH: I'm not quite sure. Constable Charlebois is not here but Wednesday sometime.

10 THE COURT: You said he goes to Italy or goes --

MR. WALSH: Well, he goes to Italy sometime the end of this month. I don't know that he's going this week but I wanted to make sure I didn't have any problems and I could get him on as early as I can. He has other 15 commitments.

THE COURT: I know that you, Mr. Furlotte, can't commit yourself on the length of the cross-examination but do you see any great difficulty about him getting away by --

20 MR. FURLOTTE: I don't anticipate any problem.

THE COURT: No problem. Fine. Then we'll adjourn now until Monday morning.

(COURT ADJOURNED TO MONDAY, OCTOBER 21, 1991)

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30