That's correct.

Q. And then finally, this sample of this swab off this knife, and I've gone through your random match probabilities for just about everything you tested was in the trillions. There were a few in the millions, but this one is at 670,000. That, just my limited experience of DNA, seems like an exceedingly low number. Can you give us an idea of what would contribute to that? Is that the same answer as why we're at six locations?

A. Exactly. Because there's less information available. It's like at -- in these other samples, we've had information available at nine DNA locations. At this one there's only information at six. In some cases it's only partial information. At some locations it, um, we've had to entertain additional possibilities at those locations, and all of that has been factored into the random match probability of 1 in 670,000. So it is still a reasonable number. It's, um, obviously less than the -- some of the other numbers at nine STR loci, but it is still suitable for comparison and delineation between individuals.

Q. All right. And just so I'm clear, August 20th, you get a -- you have a consultation with the

FIS officer we heard from, Constable Steve Kearon, right? And he says, I'm going to send you this knife, but he also talks about some clothing but he's still drying it and stuff, right? The knife, is it clear from your notes when the knife arrives, and was there a bit of a rush placed on the knife because it was so early in the investigation?

A. What it says is various swabs, and she writes "knives", because this was the consultation that Johanne Almer had.

Q. Mm-hm.

A. And it says "knives to come", but then she has an arrow pointing to the word "swabbed", meaning it sounds like the -- not the knives so much but the swabs are coming from the knives.

Q. Right. Okay. So at some point you're able to get back to the police with a result that says, you know, we haven't tested all the clothes or anything but, you know, that there is a male and female profile on one of the swabs from this knife of interest, right?

A. That's correct.

Q. When were you -- I didn't see that in the contact log. Does someone, when you're sort of rushing and it's early in the investigation, does

someone actually just phone the officer in charge and say, Hey, we've got some initial results back on this knife and it's a mix and there's a male and a female? Or did they -- does everybody have to wait for the report?

A. There are times that what we would call a verbal result is given, especially if it's necessary to proceed with the investigation, to guide the course of the investigation.

Q. Obviously a note is made of that when you do that, right?

A. That's correct, and there is no indication here that I had these results for a verbal result to be transferred or transmitted to the police.

Q. And you don't have a recollection of doing it independently from the notes?

A. No.

Q. No. And there's no way to tell from your -- all those documents up there when the police would have first found out that there was some female DNA on the knife.

A. The results were interpreted and reviewed in December of 2007 and they were transmitted in the form of that report.

Q. Okay.

A. They were dated December 17, 2007.

Q. You talked a little earlier about the number of bleeders. You tend to take more swabs when you've got more than one bleeder.

A. That's correct. That again goes to forming part of the case examination strategy.

Q. And you contacted Detective Gallant, who was Detective Giroux's partner at the time on August 29th, I guess he -- you had left him a message and he called back, right?

A. Yes.

Q. And this consultation, as I can best understand it, gives you a little bit more of a summary, some information about what the -- is being revealed by witnesses and other aspects of the investigation?

A. Yes.

Q. Suggesting that Ms. Kish had a knife on her, right? And then right down near about four fifths of the way down the page, it says, "Re: Nicole Kish, clothing", semicolon, "only need to find blood on one". Could you help us with that entry?

A. What that means is that if I examine one

piece of clothing and find alternative bleeders other than Ms. Kish on her clothing, then there's no need to examine the other pieces of clothing. So what it's saying is if you find, and again --

Q. So you're talking about her clothing.

A. Yes.

Q. Right.

A. So if there's some bleeder other than her on her clothing, then it doesn't need to be examined further.

Q. I see.

A. So it's basically -- what it's saying to me is that I can examine the clothing in a step wise fashion. I don't have to look at every single piece of clothing from her all at once.

Q. So it helps you to narrow down what needs to be done immediately and then what can go into the regular schedule kind of thing.

A. Well, not even the regular schedule. It's just if you have 40 items, which ones do you examine first.

Q. Okay. And then just before I leave this and we break for lunch, just below that it says, "Re: Timelines, three of accused are Americans in Canada illegally, may be eligible for bail, could be

a flight risk. Nicole Kish is Canadian". Can you just put in context in your case consultation with Detective Gallant why you wrote this? Why this was an important fact. Again, we have to get some stuff done urgently?

A. That's correct. Basically what it's saying is if you have individuals who are eligible for bail and in this particular instance may be able to flee the country, does that pose an increased public safety risk, which is one of the factors we have to take into consideration when determining a case examination strategy.

Q. Okay. Thank you. Your Honour, is this an appropriate time to break?

THE COURT: Yes. 2:15.

---LUNCHEON RECESS (12:59 p.m.)

---UPON RESUMING (2:14 p.m.)

MS. MIDDLEKAMP: Sorry, Your Honour. If I can just address you briefly before we continue

the cross-examination. As noted by Mr. Registrar, I showed a number of photographs to Ms. Sloan from the Centre of Forensic Sciences. I anticipate that my friend will actually be adding to that so ones my friend has completed with the photographs. We will ask that the whole bunch become an exhibit at that point if that's agreeable to the Court.

THE COURT: Thank you.

MS. MIDDLEKAMP: In addition, Your Honour, my friend was cross-examining Ms. Sloan with respect to information that was provided to her. The Crown's position is obviously it is hearsay evidence. If the object of my friend's cross-examination is to explore her case strategy, then the Crown is content on that basis, but the Crown isn't agreeing that that information can go in for the truth of its contents.

THE COURT: Thank you.

MR. SCARFE: That's all I was doing.

Q. So I think we've pretty much resolved the knife issue and I wonder if we could move next to the pages 5 and 6 of the summary and talk a little bit about Ms. Kish and the examinations that were

done on her clothes. Right?

A. Mm-hm.

Q. So first of all, as -- if I'm reading these dates right, there were sort of four separate testing sessions which were created four separate reports, so first one was report you filed December 17, 2007, and that's the bottom of page 5, right?

A. That's correct.

Q. All right. And at that time, I'll just check my notes, you recall that the first examination -- I take it whenever there's a report it means something's been examined and some results have been received.

A. That's correct.

Q. If somehow I get mixed up and there's a second report, just correct me, okay? But somewhere before December 17, 2007, the first examination, Ms. Kish's black skirt with a selected and seven samples were tested.

A. That's correct.

Q. All right. And essentially at that point, Ms. Kish was on Ms. Kish seven times, right?

A. Yes. The DNA profile from the blood samples she cannot be excluded as being the DNA donor on her own samples. On her own clothing.

Q. And then there's no more testing of her clothes until January 19, 2009. We'll call that the second round.

A. Right. And as you remember from the preliminary, I would imagine the second report is actually written in February of -- 27th of 2008. The January 19, 2009 report replaces the February 27, 2008 report because there was an error in that report, and the January 17, 2009 report is an amended version of that report. So it's not as if we've gone two years without there being a report. It's actually only been two months after the date of this report.

Q. All right. So testing, examination session number two was actually in February of 2008.

A. The report detailing those examinations was -- was reported then.

Q. And what was tested then in 2008, then, in the second set, was the halter top.

A. That's correct.

Q. Nothing -- no shoes in that round. If I'm reading it correctly.

A. That's correct. The halter top was the next item that was examined at that point.

Q. And essentially one, two, three , four,

five samples were taken from the halter top?

A. That's correct.

Q. And Ms. Kish was on four of those five samples, bleeding on her own halter top?

A. That's correct.

Q. All right. And then on a couple of those samples there's -- there's unknown male profile number four, which we sort of attribute to Mr. Wooley.

A. It's unknown male profile number four. I don't know if it comes from Mr. Wooley or not.

Q. Right. But when we look at everything that was tested all over Mr. Wooley, there's lots of unknown profile number four, including on his hands.

A. That's correct.

Q. Right. So that's the second round testing, a halter top. And then the third round of testing you look at is July 3, 2009 is when the report's created, so we'll assume somewhere in the first half of 2009 there was a third round of examination and testing.

A. That's correct.

Q. And from each of Ms. Kish's shoes, four swabs were taken.

A. Four samples. That's correct.

Q. Four samples from each shoe for a total of eight samples, and at the end of that examination of all eight of those samples, Ms. Kish is bleeding on her shoes and no one else.

A. There's no DNA profile other than that attributable to Ms. Kish detected on her shoes. That's correct.

Q. And then the fourth round of testing comes fairly soon after -- oh no. Sorry. 13 months after. And as I understand it, that's the July 14, 2010 report.

A. That's correct.

Q. So somewhere in a month or two leading up to the July 14, 2010 report, we -- you guys got the shoes out again and you took four more swabs from each shoe.

A. Yes. The shoes were actually resubmitted at that point.

Q. Resubmitted.

A. Yes.

Q. Okay. You don't test the tread under the toes of the right and left shoe until the last round. It's not something you would do in the first round, and I guess the common sense suggestion I want to make there is what's on someone's soles

generally has the least investigative value.

A. In this particular instance, yes. That would be, given the case circumstance that are given to us so far, there is ample possibility for somebody to have transferred blood onto the sole of their shoe potentially simply from walking in it. We are also, to a certain extent, looking for blood that may have been transferred in a manner that bloodstain pattern analysis, which we're starting to verge into that area based on information that was provided to me by the police of certain potential actions that may have occurred, based on, ah, witness testimony or witness accounts.

Q. Mm-hm?

A. And that there is an officer of the Toronto Police who is looking at these items to -- in my -- in my understanding in this way, so we're looking for not necessarily blood that is there because of a contact, but blood that may be there because of some -- some action, which is another reason why we're not looking at the sole of the shoe so much.

Q. Okay. In a case like this, where there's a street fight, more than one bleeder kind of thing, obviously a lot of this testing is designed to

create associations or relationships between the various parties. See who had contact with who.

A. Potentially, yes.

Q. Right. And part of the reason that a sample from the underside of someone's shoe has such little investigative value is because blood falls on the ground and gets stepped on.

A. Potentially, yes.

Q. And so it's harder to draw an inference or conclusion that this person had contact with this person because they've got the blood on their shoe.

A. In that location, yes.

Q. Right. And can -- so can we generally say that the higher you go up on someone's body the greater the investigative value of the sample, if it turns out to be someone other than the person?

A. No, we cannot.

Q. You can't say that.

A. No. In this particular case, um, the reason that I believe we started with the outer clothing on the upper parts of Ms. Kish's body; i.e., a shirt and a skirt, would have to do with the nature of Mr. -- if we were looking for an association between her and Mr. Hammond, and given the kinds of injuries that he sustained, then

perhaps if they had close contact with each other, the transfer might have been more detectable on those upper pieces of clothing. If there was a different allegation, then maybe looking at the shoes first is the more appropriate way to examine the items.

Q. But given these allegations, it made sense to look at stuff above the shoes first.

A. That's correct. There were eventually, there were some -- some of these items were examined in order to hopefully clarify some of what other information the police had received with respect to whether Mr. Hammond may have been kicked by a potential perpetrator in this matter. So that's why we went back to look at the shoes not only of Ms. Kish, but of the other involved parties in this matter.

Q. Mm-hm. So to be clear about these items, the four rounds of testing on Ms. Kish, it's in the fourth round that we discover that mixed sample where I guess essentially Ross Hammond's bodily fluid appears on her shoe, right?

A. That's correct.

Q. And by the fourth round of testing or the final round of testing, by my count, there have been

28 samples examined. Have you ever counted up between the four reports how many samples?

A. I have not.

Q. You have not.

A. But I would -- I would take your number as being relatively close, if not exact, to the number of samples that were examined. There were numerous samples examined in this case.

Q. Okay. Well, maybe we should just go through it. On December 17, right? And that's the bottom of page 5, you've got seven, right?

A. Yes.

Q. Then January 19, 2009, not including the consent blood sample, just the clothing, right? You've got five samples from the halter top, right?

A. Yes.

Q. So now we're up to 12. Then on July 3rd, four samples from each shoe for a total of eight, right? That brings us to 20?

A. 20.

Q. And then we go back into another four on each shoe, July 14, 2010 report, we're up to 28.

A. That's correct.

Q. That's a pretty high number for, you know, based on all the other cases you've done, it's

unusual that -- to be taking that many samples from one person's clothing.

A. It's not that unusual where you have a situation where you have at least five -- you have five DNA profiles in this case. You have four unknown profiles initially, plus the DNA profile from Mr. Hammond, so you have potentially five bleeders in this matter. So and given the amount of blood staining that was present, it's not an unreasonable number of samples.

Q. I wasn't suggesting reasonable or unreasonable.

A. Just a lot.

Q. It's unusual. That you'd have a preponderance of factors that would suggest -- cause you to test 28 different samples from one person's clothing.

A. It would not be -- did you say unusual?

Q. It doesn't happen all the time.

A. No, it doesn't, but given the circumstances of this matter, given that there are at least five bleeders that were detected, um, it's not unusual for the circumstance.

Q. Okay. And given again the facts of this case and the fact that it sort of made more sense to

do the skirt and the halter top first, you'd agree that this one sample that's found on the side of the toe of the inside shoe have less investigative value than if it had been on her halter top.

A. Not necessarily. It depends on what allegation we're addressing. If we're addressing the allegation of, um, has there been some sort of association between these individuals where there has been a transfer of some bodily substance? Then perhaps that's quite meaningful in this case.

Q. Okay. But certainly --

A. But I can't -- I can't make that judgment just based on that -- that one piece of evidence. That would have to go into the totality of the evidence, which I'm not the judge of.

Q. Of course. Just take a quick look, you've got the photo number two you've already looked at. Thank you, Ms. Fineberg. I'm just going to move that over. You have to forgive me. I'm a little bit colorblind, but could we just figure out exactly -- I kind of lose the line of 43-6 once it hits the shoe there and you've got these different areas. See how the sole of the shoe sort of comes up and then there's this lighter gray area and then there's I guess a cap?

A. It was termed a black toe tap to delineate it from the rest of the shoe.

Q. Right. Um, it's right on the edge between the sort of gray middle area and the cap itself, right?

A. That's correct. It's sort of in the area. It's still on the edge of the toe cap where the -- I believe the lighter part is called the mid-sole and then you have the bit of the bottom of the sole coming up at the front of the shoe.

Q. Okay.

A. So it's kind of where three different pieces of the shoe come together.

Q. Where the sole and the little border between the sole and the toe cap, and the toe cap. Those three pieces, right?

A. That's right.

Q. And just to look again a close-up very quickly, that ruler there, is that centimeters or inches?

A. That's in millimeters.

Q. Okay. So ten of those would be a centimeter.

A. That's correct.

Q. And so that spot, I mean, just

extrapolating from what you're looking at, is less than a centimeter from the actual sole of the shoe, right?

A. I would say it's somewhere between, um, a centimeter to 2 centimeters from the sole of the shoe. If we look at the overall photo of where this sample was taken.

Q. Mm-hm?

A. Which is --

Q. Number two?

A. -- sample two.

Q. Yeah, which we just had up there.

A. Yes.

Q. But if we were to look at 6 here, and if we were able, as part of this photo, to take this measurement reference and put the zero on the -- zero line on the spot, and measure the distance to where the gray area ends and the sole starts, I mean, common sense is that would be less than a centimeter, right?

A. Yes, but the actual sole bottom of the shoe is approximately 2 centimeters away, because the black portion that we see on the right side of this photo, if we look at the overall photo which is photo two, if we go toward the right side of the

picture, we're looking at probably at least -- around two centimeters. We haven't measured the distance but I would disagree that to the bottom of the shoe we're only talking about a centimeter.

Q. So I guess to the edge of the sole it would be less than a centimeter, but to actually go around the corner and get to the bottom of the sole it would be a little more.

A. That's correct.

Q. Okay. That's great. And the last thing I want to ask you about before we leave these pictures, these labels that are on here, black material on toe of medical -- or sorry. Medial side under stereoscope.

A. Yes.

Q. What's a stereoscope?

A. A stereoscope is a microscope. It's a magnifying device for looking at small stains or doing a very, very close examination of an item. So it's basically like a magnifying glass but it's a little bit bigger, a little bit more sophisticated and it has an attached light source to look at surfaces for very, very small stains.

Q. Were you able to see this stain before you looked under the stereoscope?

A. I don't know.

Q. You don't know? Mini-swab versus swab, you see here where it says in the circle "mini-swabbed as 43-" --

A. "6".

Q. What does that mean?

A. We have two different kinds of swabs in the biology section. There's a normal cotton swab, which is a sterile swab.

Q. Like a Q-Tip?

A. Like a Q-Tip. Exactly. It's only got cotton on one end, it comes in its own special tube, and that tube is sterilized for single use. And it's got a cotton -- piece of cotton on it approximately the size of what you would think of as a Q-Tip. A mini-swab is still a swab, but it's got a very, very small amount of cotton on it. It's very tiny and it's used specifically for swabbing very small items or very small stains, so you can get into certain locations or also it allows you to concentrate your stain on the swab and not have your material defuse through that big wad of cotton at the end of a normal swab.

Q. So from the stereoscope and the use of the mini-swab we can conclude that this 43-6 is a

very small stain.

A. Yes. If you would like the measurements for that stain I can see if that was written in the work notes.

Q. Sure.

A. So that sample is described as being heavy red brown, approximately round, approximately one millimeter in diameter.

Q. Diameter. That's all the way across as opposed to radius.

A. Yes. That's correct.

Q. So we've got a one millimeter round, darkish reddish stain where we described it on the shoe, and of the 28 samples, that's the only time we find Ross Hammond on anything Nicole Kish was wearing.

A. Of the 28 samples that were taken from her articles of clothing, that is the only sample from which there is a DNA profile from which Ross Hammond cannot be excluded.

Q. Okay. So let's move on and contrast that to Ms. Watts. It can be found at the bottom of page 1 and all of page 2 and the first item on page 3, correct?

A. Yes.

Q. And her as well, her stuff was examined in four different phases, right? You've got that very first examination in the report on December 17th and those are the hand swabs, right?

A. That's correct.

Q. And so in 2007, nobody tested anything beyond the hand swabs of Faith Watts, right? In 2007?

A. There were two items said to have come from Faith Watts. A Leatherman multi-tool and an Ozark Trail multi-tool tool -- multi-tool that were also examined for the presence of blood on the December 17, 2007. So there were four items that were said to come from Ms. Watts.

Q. I should have restricted it to clothing and shoes, but I understand. Thank you. So then in 2009, we had that January report which was actually the replacement of the February 2008, and still at that point nothing of Ms. Watts has been examined beyond what we've talked about. The two hand swabs and a -- and items I guess from her backpack, the multi-tool and the knife?

A. They were just said to come from her. I'm not sure of the exact location from her , but yes, that's correct.

Q. And then somewhere around July -- sorry. July of 2009, there's a report dated July 3rd which is the first examination of her left boot, right?

A. Her left and right boot.

Q. Oh yeah. Her left and right boot. And how many samples of her left and right boot were taken then?

A. From her left boot there were four samples, and from her right boot, there were also four samples taken.

Q. Right. Okay. And of those four samples that were reviewed I guess some time in May or June of 2009, you found two on the right boot, 71-1 and 71-2, that came from Mr. Hammond.

A. From which Mr. Hammond could not be excluded. That's correct.

Q. Sorry. From which Mr. Hammond could not be excluded. And those two items, we've already seen them, but they're in photos numbers, ah, I've got it right here somewhere. So 71-1 and 71-2 on the first examination of her right boot revealed two mixed samples with either a major or minor profile coming from someone who cannot be excluded as Ross Hammond. Am I saying that right?

A. Sorry. You're talking about 71-1 and

71-2?

Q. Yes. In the July 3rd report.

A. The sample 71-1 and 71-2 are single source samples. There is no mixture in those samples.

Q. Oh I see. Yes. Of course. So there's no Nicole Kish. It's just Ross Hammond.

A. That's correct.

Q. Okay. And 71-1, just showing you photo number 28 which I think has already been shown, but you can see from the photo that it is sort of on the side of the sole.

A. That's correct.

Q. The rubber, the sole?

A. Yes.

Q. And --

A. Again, it is a round, small stain.

Q. Mm-hm. And again it's somewhere between a centimeter or two, or ten to 20 millimeters from the bottom of the shoe.

A. That's correct.

Q. Very close to the bottom of the shoe. And then 71-2 seems a little more interesting in that it is located quite a bit farther up the shoe, consistent with the -- or from the top of these Doc

Martin boots, one, two, three, four, five, six, seven, eight, it's sort of on the same level height-wise as the eighth eyelet from the top?

A. That's correct.

Q. And it as well is a fairly small stain, right? Kind of like the one we just talked about? Ms. Kish? Maybe a millimeter across in diameter?

A. Yes, it's very small.

Q. All right. But nonetheless you found some of Ross Hammond's blood on Faith Watts' shoes, so you go back and do some more testing, right?

A. Yes.

Q. And you actually do that within eleven days, you create another report, four more samples on the left, four more samples on the right boot.

A. I think the two reports are separated by a year.

Q. Oh, you're right. I keep -- I said that before. It's about 13 months. 12 and a bit months. And then again, like Ms. Kish, it's not until the last report that you actually take a sample from the bottom of the piece of footwear. That comes in the 2010 examination?

A. None of the -- none of the samples come from the bottom of the shoe. They come from lower

down on the shoe but they are still on an undersurface. They are not on the sole of the shoe.

Q. Oh. So the only person whose the sole of their shoes was tested was Ms. Kish?

A. Now, these are on the edge of the sole. These are not on the bottom surface of the sole.

Q. No, I understand, but you -- you were just talking about Ms. Kish?

A. Right.

Q. And I had all that about the height having more investigative value which you didn't really agree with but, um, I think you did agree that no tests were done on the sole of the shoe until the fourth round of testing on Ms. Kish.

A. On Ms. Kish's shoe, there is an actual sample taken from the underside of the sole.

Q. The underside. That's what I mean.

A. Yes. So in that case I misunderstood you, if -- because in this case there is no sample from Ms. Watts' shoes taken from the underside of the sole.

Q. Well, why wouldn't you -- why would you test the underside of the sole of Ms. Kish but not Ms. Watts?

A. It would be the nature of the appearance

of the stain.

Q. Oh. So maybe you examined the bottom of Ms. Watts' boots and there was no blood there. There were no stains? Or maybe it's just because it has such insignificant investigative value.

A. I would not say "insignificant". Maybe of less significance in a set of particular circumstances. There was blood detected on the bottom surface; i.e., the treads region of the left and right boot from Faith Watts. That testing --

Q. So there was blood on the underside of the soles of Faith Watts but no samples were taken or tested.

A. That's correct.

Q. So in the second round of -- or the last round of Ms. Watts' clothes being tested, which I guess is about fourth round in 2010, you find two samples on the left boot, 70-5 and 70-8, right?

A. Yes. There were two samples from the left boot of Faith Watts, sample 70-5, and 70-8, from which Ross Hammond cannot be excluded as the donor of the male DNA profile at nine STR loci.

Q. And if I could ask Ms. Fineberg to show us just quickly again photo number 22 and then number 25? I seem to have put it aside somewhere

but... 22 is on the Elmo before you, and that appears to be right on the top of the toe cap.

A. That's correct.

Q. 70-8 also from the looks of things appears to be on the top of the toe cap?

A. That's correct.

Q. But when you were giving your evidence you said that one of them was lateral top and the other was just top. Is there a difference?

A. Yes. It's a delineation between those two samples, just to be able to tell them apart. One is more to the side of the toe, to the outer side of the toe of the boot, and one is more on the top middle of the toe of the boot.

Q. All right. And so we know that lateral refers to the outside of our foot and medial is the inside of our foot. By using the word "lateral", you didn't mean to imply that one of the samples was not on top but on the side. You're just saying it's closer to the side.

A. It's closer to the side. Yes.

Q. Okay. So in the end, if I have this right, and in contrast to Ms. Kish where there's one sample that appears to come from Mr. Hammond , with Ms. Watts, when you look at the boots, we're up to

about seven, aren't we?

A. Seven samples that --

Q. Come back where Mr. Hammond is either on his own or a contributor and can't be excluded as the source.

A. Yes. There are seven samples in total from the left and right boot from which he cannot be excluded as a contributor, either solely or as part of the mixture.

Q. And then just to close off on Ms. Watts, in addition to the seven samples on the boots, there's also two that we went through that come off her gray shorts.

A. That's correct.

Q. Just on the back of the back leg that are both -- both appear to come from Mr. Hammond. And I think we already looked at photos of that. Is that right? Page 2, first two items?

A. Yes, there are two samples that were taken from the back of the gray cut-off pants from which Mr. Ross Hammond could not be excluded as the donor of the DNA profile on the blood -- on the pants.

Q. And just to be clear, the testing that revealed these nine samples, none of it was done in

2007 or 2008. It only came as a result of some evidence that came out at the preliminary hearing, that you went back and did a more thorough examination of the boots and the shorts of Ms. Watts? Do you remember them contacting you and giving you a little more case information?

A. Yes.

Q. Yeah.

A. It arose out of, um, additional discussions and the need to examine more items or more samples from existing items to assist in attempting to clarify that information.

Q. Right. And just to close up a rather embarrassing point that I encountered with a prior witness, you received a -- an e-mail from Detective Sergeant Gary Giroux on Monday, August 31, 2009, at 10:04 a.m. where he says:

> "Subject, Nicole Kish prosecution.
> Monica, I expanded on the original Chief's Report based on the areas that are now resulting from the ongoing preliminary hearing."

Did you see that in your Case Contact logs? Or do you remember it? I have a copy if you want. It's just after page 37.

A. I think you and I have organized our files slightly differently so I'm -- it's going to take -- I know of what you speak. I simply have to find it.

Q. Oh, that's all right. I've got a clean copy of what was sort of sent over on a -- which sort of takes your Case Contact logs, starts with that thing on August 20th we talked about, um, goes on to August 29th, September 6, '07, November 19, '07, then it goes to April of '09 and just after that is this e-mail. Does that help?

A. Yes.

Q. Okay. And a Chief's Report is something that an officer in charge of a homicide often puts together for the -- to make sure that the Chief of Police that he works for is kind of up-to-date on stuff, right?

A. I looked at it as more just an expanded case history.

Q. Right. So it was passed on to you because there was some information that they wanted to convey that was new.

A. That's correct.

Q. Right? And that's on the last page labelled page 12 here. And not so much for the truth of the contents but to fill in where I left off with Detective Sergeant Giroux:

> "The Crown Attorney is now requesting that the shoes/boots of Watts and Wooley be examined by an expert and bloodstain pattern analysis to try and determine the way in which the blood was deposited. As a result of this, additional biological testing" -- or sorry. "As a result of this, additional biological testing may be requested with regards to other blood stains on the boots and shoes of Watts and Wooley to try and determine the concentration of blood staining attributable to the accused" -- or?

A. "Deceased".

Q. Sorry. "Deceased". And then in the last paragraph:

"At the completion of this process, the Crown Attorney and investigating Homicide Squad police officer will have to make a determination as to whether or not Faith Watts is extradited back to Canada from the United States to stand trial for second degree murder."

Do you recall getting that e-mail and reviewing it?

A. I recall receiving it and reviewing it, yes.

Q. So basically, just about two hours -- or two years after the alleged offence date of August 9th, the investigation kind of shifts its focus away from Nicole Kish and begins to focus more on Ms. Watts. I see my friend rising so just hold on to your answer.

MS. MIDDLEKAMP: Your Honour, in fairness, just in terms of the document that was provided to the witness and the Chief's Report, additional items were requested to be tested for two persons, not just one, so my

objection is just that the question is not necessarily showing the whole picture. It's not just one person that further items were requested for. It was both Ms. Watts and Mr. Wooley.

THE COURT: My concern frankly would have been different, and that is I'm not sure how this witness speaks to what the focus of the investigation is. Surely that's something you ask the officer in charge.

MR. SCARFE: Absolutely. I -- I guess I should narrow the question to a focus of, ah, what is the term. The case examination strategy.

Q. You were being asked to sort of shift your focus and your case examination strategy from this one female to now sort of look at two females, right?

A. I would say that both have always been looked at. Um, but there were -- there was additional information provided that it was asked if there -- if DNA analysis could help to clarify a situation by doing further DNA testing on a variety of items.

Q. Okay. Fair enough. At one point you and

one of the previous Crown Attorneys on the case went up to Forensic Identification Services, had a meeting with Aimee Lukings, used to be Aimee St. Amand?

A. Thank you.

Q. And a guy named Albrecht (ph), and the purpose of the meeting was to pull out some of the items and see if you could figure out the way in which the blood or bodily fluid landed on this -- various items, right? It's called blood pattern analysis?

A. It's called bloodstain pattern analysis and that wasn't my purpose. That was Detective Albrecht's purpose. He is the -- he was, to my mind, the bloodstain pattern expert in this case. I am not a bloodstain pattern expert. While I have had some training in that area, I am not an expert in that area.

Q. Understood.

A. I went up there, um, in the company of Sedalia Feriera (ph) and Gary Giroux to look at these items to see if there were any further samples that Detective Albrecht would want examined in order to be able to, um, write a blood stain pattern analysis report in order to be able to do that

analysis by knowing what -- which samples may have come from what individual. And so that was -- that was the purpose of that examination, was to see are there any samples on these shoes that were indicative of a particular mechanism of deposition that should be sampled for DNA, to aid in the bloodstain pattern interpretation aspect of the case.

Q. Okay. So why did you go? I don't understand. I mean, they could have gone up there, pulled out all these items, right? Albrecht, with his expertise and bloodstain pattern analysis could have said, Hey, I see something that may be worthy of testing because I can provide an opinion as to how that was deposited. What was your role?

A. What stains might be best for testing from a DNA perspective.

Q. Okay. Are -- are -- oh, okay. And when you were up there you had a look at a bunch of different items that -- some of which may not have been submitted at any point to the Centre of Forensic Sciences, right?

A. The only item that had not previously been submitted were the pants from Faith Watts.

Q. So I'm just going to show you a picture

and ask you if you recognize it. What we've got here is a green shoulder bag. Have you ever seen that before? Just for the record, this is from Ms. Watts. Exhibit 47 I think.

A. I have not seen that item before. It has not been submitted to the Centre of Forensic Sciences.

Q. Okay. I notice on Exhibit 57B that a companion exhibit of items not fully examined, that there is some mention of a swab that had been taken from the rear of the green shoulder bag, CFS number 25, FIS number S47?

A. Sorry? I missed the item number you were asking about.

Q. Sorry. Very last page of 57B, items not fully examined. The other chart or the companion chart. You've got the very last page open there?

A. I do.

Q. And you see there's an item listed there, swab of blood from the rear of the green shoulder bag, and I guess it's mentioned in a report December 17th and January 19th. December 17, 2007 and the January 19, 2009 report was the amendment to the February 2008 report.

A. Yes.

Q. Have you seen pictures of this item?

A. I have not.

Q. You've never been consulted with respect to whether that's an item that was worthy of testing?

A. No.

Q. No --

A. I have not examined this item or I have no recollection of discussions, nor do I have any discussions documented about this swab, because this -- this was a swab taken from this bag and submitted which was not examined at the Centre of Forensic Sciences.

Q. Right. But it's mentioned in a couple of your reports.

A. It's mentioned as a swab that was not examined. Not a swab taken by us, but a swab submitted by the officers.

Q. Right.

A. Right.

Q. So looking at this photo now, with a whole bunch of, and again, excuse me for being colorblind, but would that be something you'd be interested in testing? Trying to find out the degree of connection between Ms. Watts and

Mr. Hammond?

A. Again, it kind of comes back to, um, we've already formed now a connection between Ms. Watts and Mr. Hammond. Do we need to continue establishing that connection for a different purpose which might be the purpose of bloodstain pattern analysis.

Q. Mm-hm.

A. At that point, I would say it would have been at the behest of someone else that I would have examined this item, if deemed necessary.

Q. So looking at it though, you wouldn't have refused it if you had been asked to examine it.

A. It might not have been the first item on the list and I don't know if there would have been reason to examine it. But --

Q. Well, in your trained eye, do you see blood on this item?

A. I don't know. There are obviously visible reddish brown stains that could be tested to see if they are blood.

Q. Okay.

A. And DNA testing could be done if they turned out to be blood, but I don't know that simply by looking at those stains in those pictures.

Q. Thank you. Would it be -- is there any objection to making this the next exhibit? Or giving it to Ms. Fineberg and asking her to add it as the group exhibit?

MS. MIDDLEKAMP: Your Honour, that's a picture, to my understanding, it's a picture taken by a forensic identification officer, so my submission would be I don't take issue with that being an accurate photograph taken by an FIS officer, but it should go in on its own, because the other photographs that were put in before were all Centre of Forensic Sciences photographs.

MR. SCARFE: As long as it's in.

THE COURT: Exhibit 58.

---EXHIBIT 58: Photograph - produced and marked for identification.

MR. SCARFE:

Q. So if I understand your last answer correctly, the theory sort of per -- formed with respect to the relationship between Watts and

Hammond and I guess once you're up to nine samples there's no reason to keep testing and testing and testing everything, right?

A. Not for the purpose of determining an association. If there's other rationalities for doing it, then yes, it could be done, but if the question is: Is there a potential association between these individuals, then that question has been answered.

Q. Okay. And similarly, when you went up to Forensic Ident Services with Albrecht and Ms. Fereira and Ms. Lukings, formerly Ms. St. Amand, were you ever shown or given an opportunity to look at either a photo or the actual pants of Jeremy Wooley? Does that seem familiar to you? That meeting, if it helps, was December 1, 2009.

A. Yes. And I know from that meeting that this item was not discussed or shown to me at that time. I am just checking the list of items submitted to the Centre of Forensic Sciences to see if it was ever submitted.

A. This item was not submit to the Centre of Forensic Sciences.

Q. Okay. But at the time of the meeting, it's pretty clear that four different things had

been submitted and examined with respect to Mr. Wooley. Those original swab of left hand, swab of right hand, but in addition, there was the right running shoe and the left running shoe, correct?

A. That's correct.

Q. And on each running shoe you took how many samples? Is it four again? I have three each but I could be wrong.

A. There were three samples taken from the one shoe and one sample taken from the other shoe, so three from the right and one from the left.

Q. Why would you do that?

A. There was more staining evident on the left shoe than on the right shoe.

Q. So three from the left, one from the right. Not because somebody --

A. Sorry. There were three on the right and one taken from the left. I apologize.

Q. All right. And the reason was simply there was more staining.

A. That's correct.

Q. Not that some people tend to kick more with their right foot than their left. That didn't play any part of it.

A. No.

Q. Right. And in the end, from the right running shoe, I think we have heard this, sample 72-3 appeared to have a contribution from Mr. Hammond --

A. That's right.

Q. -- on Mr. Wooley's shoe. Photograph 40? Again, this is a little bit difficult to read but 72-3, it's actually labelled, equals Ross Hammond on the photograph that's been filed, but how far off the ground is that spot?

A. I would say within a centimeter.

Q. Within a centimeter to sort of the bottom of the side of the sole, and then a little farther if you were going to measure it around the corner?

A. That's correct.

Q. Okay. So much like the sample on Ms. Kish, in a similar -- side of the shoe, pretty close to the bottom?

A. That's correct.

Q. And also very tiny, like a millimeter across?

A. That sample was actually much larger than that. There is a portion of the stain taken from in the area of 72-3. The actual area of staining is approximately 4.7 by 1.2 centimeters on the side of

the shoe.

Q. Substantially larger than the ones you were talking about before.

A. Yes.

Q. All right. So at that point you, it's fair to say, sort of establish the beginning of a relationship between Mr. Wooley and Mr. Hammond. You found some of Mr. Hammond's blood on the shoe of Mr. Wooley.

A. Yes.

Q. All right. And just looking at the Case Contact logs from December 1, '09 at that meeting, and there's just part I can't really understand. See where it says -- have you got it in front of you?

A. Yes.

Q. See where it says item 72 and item 73 on the left?

A. Yes.

Q. And those are obviously the shoes we just talked about. What does it say to the right of it? "[Import] spatter noted by" something?

A. It says "Impact spatter noted by Irv", being Detective Albrecht --

Q. Or Detective Albrecht's first name is Irv?

A. That's correct. "No further examination at this time given other evidentiary material", and I do not know what that other evidentiary material is, other than I was told that there was no further work that was required.

Q. Okay. Your limited knowledge of blood spatter analysis, impact spatter --

A. I'm basically reporting what he has stated. That there is impact spatter visible on this item.

Q. Well, you were there. He showed it to you, right?

A. Yes.

Q. And impact spatter means you can sometimes tell how it's been deposited as opposed to a smear or transfer or that kind of thing.

A. That is -- that is actually another method of transfer --

Q. Right.

A. -- of deposition, but yes, that it was indicative of impact spatter which is indicative usually of some sort of force acting on a blood source in order to disperse the -- the blood into smaller stains.

Q. Right. Well, that sounds pretty

important. You were at this meeting. Do you know why you eventually noted there's no further examination at this time given other evidentiary material?

A. I do not know why -- not I, but this is what I was told at this meeting. That there was other evidentiary information.

Q. Mm-hm.

A. I don't know what that evidentiary information is.

Q. All right. So once you establish that there's a connection between Hammond and Wooley from the shoes, isn't it normal to go back and start examining other items from Mr. Wooley? Like would the pants be the next logical option?

A. In some situations, yes.

Q. And do you have any role in deciding or recommending in the consultation, you say, Maybe we ought to look at these pants?

A. I have some role, but, again, I don't know what potentially had already been detected or not detected on these pants in the course of an examination by FIS or what -- what information they had.

Q. Well, can you tell by looking at the photo whether there's reddish brownish staining?

A. I can't tell anything from this photograph.

Q. Okay. Fair enough. We'll just put that away. You talked before about Ms. Kish's halter top and skirt having a lot of blood on them.

A. There is a, as noted in the work notes, there is, um, on the skirt, on the one surface, there is red brown staining noted on approximately 80 percent of that surface. That's correct.

Q. And then on the halter top, there wasn't a percentage given but it was something to the effect of a continuous, visible over the front --

A. Over most of front and back, some areas stiff to touch.

Q. So enough blood had gone on there that when it dried it actually created a sort of -- a solider --

A. A stiff texture.

Q. A stiff texture. And then my friend asked you about the possibility of there being someone else's blood mixed in all of that and you talk about two possibilities. One was that if there's another sample there it may have been masked or diluted. The second possibility you gave I think was that we just, of all the little sampled areas that we had

picked, we just never hit that other sample, right?

A. If there was another blood source there, that is a possibility, yes.

Q. And then of course there's a third possibility that there's nobody else's blood anywhere.

A. If there was another blood source there, yes, correct.

Q. Okay. Those are my questions. Thank you.

THE COURT: Did you propose to make the picture of Mr. Wooley's pants an exhibit?

MR. SCARFE: Well, I had thought about it but of course she said I've never seen the item, I can't tell anything about it, so I'm happy to do it if my friends prefers but I didn't think I'd laid the proper foundation to make it --

THE COURT: It's something that was shown to the witness and for the purposes of the record it seems to me even if it goes in as a lettered exhibit for identification, there should be some way of --

MR. SCARFE: Absolutely.

MS. MIDDLEKAMP: Your Honour, in addition, when the FIS officer testified there was a CD

provided with the JPG numbers, and pictures of his pants I believe were included.

MR. SCARFE: They're already in.

MS. MIDDLEKAMP: So if my friend happens to know the JPG number we can cross-reference it. It might already be an exhibit.

THE COURT: Well, for the moment can you mark it Exhibit C for identification, and if we can find the JPG number we can record that subsequently?

MR. SCARFE: And I only showed the front of the pants so I'll leave the back.

THE REGISTRAR: Exhibit C, Your Honour.

---**EXHIBIT C:** Photograph - produced and marked subject to further identification.

THE COURT: Thank you.

MR. SCARFE: Anything else, Your Honour?

THE COURT: No. Thank you. Re-examination?

MS. MIDDLEKAMP: Your Honour, if I could just have a moment's indulgence, please?

THE COURT: Yes.

MS. MIDDLEKAMP: Thank you for that indulgence, Your Honour. I don't have any questions in re-examination for the witness.

THE COURT: Very well. Thank you, Ms. Sloan. You can step down.

MS. MIDDLEKAMP: Oh. Sorry, Your Honour. What I had discussed earlier with you was entering the series of photographs from the Centre of Forensic Sciences as an exhibit all together.

THE COURT: That will be Exhibit 59 I believe.

THE REGISTRAR: 59, Your Honour.

---EXHIBIT 59: Series of photographs - produced and marked for identification.

MS. MIDDLEKAMP: Thank you, Your Honour. As indicated previously, Your Honour, Ms. Sloan was the one witness scheduled for today. We have Dr. Pollanen scheduled to start for 1:00 p.m. tomorrow.

THE COURT: I take it you have no one before Dr. Pollanen.

MS. MIDDLEKAMP: We don't. Sorry, Your Honour. Yes.

THE COURT: I just wanted to get that clear. So then we'll adjourn until tomorrow at one o'clock.

MR. SCARFE: Maybe just as a scheduling matter, so I know where we're going, I think my friends, once Dr. Pollanen is done, my friends are going to close their case and I guess the next step after that before the issue of any defence evidence would be to make submissions on the Section 7 motion, and I'm just hoping that Your Honour will give me a day and let me come back on Monday to make those submissions. If not I should know that.

THE COURT: I'm content to proceed that way. Unless the Crown has a different view.

MR. THOMPSON: I'm content to continue in that manner as well.

MR. SCARFE: That helps me a lot.

THE COURT: All right. Thank you.

---COURT ADJOURNED (3:05 p.m.)

---THURSDAY, FEBRUARY 10, 2011

---UPON RESUMING (1:00 p.m.)

THE COURT: Mr. Thompson?

MR. THOMPSON: Yes. Good afternoon, Your Honour. I'm just making good on a promise that I had made earlier about providing you with the actual dying declarations from the three parties involved, and my friend's content that I let Your Honour have that. I don't know if you want to file it as an aid or just -- I don't think it has to go as an exhibit, but...

THE COURT: Mr. Scarfe?

MR. SCARFE: I'm in Your Honour's hands. I've reviewed it. I agree with it.

THE COURT: Perhaps we'll mark it as Exhibit D for identification.

THE REGISTRAR: Exhibit D, Your Honour.

---**EXHIBIT D:** Document regarding dying declarations - produced and marked for identification.

MS. MIDDLEKAMP: Your Honour, the next witness for the Crown is Dr. Pollanen.

---MICHAEL POLLANEN: SWORN

---EXAMINATION IN-CHIEF BY MS. MIDDLEKAMP:

MR. SCARFE: Your Honour, before my friend begins, if it assists the Court I take -- we take no issue with Dr. Pollanen's qualifications.

THE COURT: Thank you.

MS. MIDDLEKAMP:

Q. The first thing I'd like to do is show you a copy of your *curriculum vitae*. Can you just indicate for us whether that is a copy of your *CV*?

A. Yes.

Q. Your Honour, I'm going to ask to file a copy of the *CV* as the next exhibit?

THE COURT: Exhibit 60.

THE REGISTRAR: Thank you.

MS. MIDDLEKAMP: Your Honour, I'm handing up two copies. One is for the exhibit and one is for Your Honour.

THE COURT: Thank you.

---EXHIBIT 60: *Curriculum vitae* of Dr. Michael Pollanen - produced and marked for identification.

MS. MIDDLEKAMP: Your Honour, I understand that counsel concedes Dr. Pollanen's qualifications and that he can testify as an expert in forensic pathology. Even though that expertise is conceded I'd like to briefly highlight some of his qualifications.

Q. Dr. Pollanen, I understand that you completed your medical degree at the University of Toronto?

A. Yes.

Q. And you also are -- have been a member of the Royal College of Pathologists since 2001?

A. Yes.

Q. You received your diploma in Medical Jurisprudence and Forensic Pathology in 2002?

A. Yes.

Q. And you have been a Staff Forensic Pathologist with the Forensic Pathology Unit of the Office of the Chief Coroner since 2003?

A. Yes.

Q. And since 2006, you have been the Chief Forensic Pathologist with the Ontario Forensic Pathology Service?

A. Yes.

Q. I understand that you were assigned and you performed the postmortem examination on Ross Hammond?

A. Yes.

Q. Your Honour, I understand that it's not in issue for the trial regarding the continuity of the body and that it was Ross Hammond that Dr. Pollanen performed a postmortem examination on.

MR. SCARFE: That's correct.

THE COURT: Thank you. Just before we go any further, being familiar with the evidence that forensic pathologists sometimes give, are we going to be looking at any pictures

that people in the public gallery might want to be alerted to in terms of their content?

MS. MIDDLEKAMP: Yes, Your Honour. We -- the Crown will not be showing any photographs and my understanding from my friend is that he will not be showing any photographs either. However, the sketch diagrams that are often prepared in the course of postmortem examinations will be before the Court.

THE COURT: I'm less concerned with those. Thank you.

MS. MIDDLEKAMP:

Q. Dr. Pollanen, I understand you prepared a report of your postmortem examination?

A. Yes.

Q. And I also understand that you amended the original report, and that amendment was completed on January 16, 2009, and you provided an amended report dated January 19, 2009?

A. January 18, 2009.

Q. Have you had -- thank you. Have you had an opportunity to review that report from January 18, 2009?

A. Yes.

Q. Have you made any changes?

A. No.

Q. Do you adopt all of the findings in your report?

A. There are some correlations with the diagrams that we will discuss in terms of how the wounds are described and the, um, addition of one wound that's on the diagram that's not recorded in the report.

Q. So we'll go through that. Okay. Another question I have for you is are the findings recorded in your report your own observations unless specifically noted?

A. Yes.

Q. Were all of the injuries and trauma that you observed noted in the report?

A. Yes, and the diagrams.

Q. I also understand that you prepared a number of diagrams which detail the locations of the injuries that you observed?

A. Yes.

Q. I'm going to show you a copy of the report dated January 18, 2009, and as well a copy of the diagrams that were prepared. Are those copies of your report and diagrams?

A. Yes.

Q. Your Honour, I'll ask if these could be the next exhibit labelled A and B? A could be the report and B the accompanying diagrams?

THE COURT: Exhibit 61A and B.

MS. MIDDLEKAMP: And I have a copy for Your Honour as well

---**EXHIBIT 61A**: Report prepared by Dr. Pollanen - produced and marked for identification.

---**EXHIBIT 61B**: Diagrams prepared by Dr. Pollanen - produced and marked for identification.

MS. MIDDLEKAMP:

Q. If we could then, using your report as a guide, if we could then turn to I understand the first thing you reported on was an external examination?

A. Yes.

Q. And can you tell us what you noted with

respect to Mr. Hammond?

A. Well, at the time that I saw the body obviously Mr. Hammond was in the morgue. He was presented to me after a period of hospitalization, so in addition to the injuries that I've described, there was also evidence that he had undergone both medical and surgical therapy.

I generally found him to be a well-nourished and well-developed man. In addition to the various observations that I will describe to you, he had a stature of five eight and his weight was recorded as 300 pounds. I should explain that that does not represent his weight as it would have been in life prior to hospitalization because during the course of medical treatment, this man had received quite a lot of fluid and that fluid had accumulated into his tissues and body cavities and that's a -- that's actually a common thing that we see in people that die under these circumstances.

Q. And in your opinion, so you've indicated to us that the weight he was at the time of the postmortem examination was 300 pounds. What would be the best indicator of his weight just prior to his death?

A. Well, any information about his weight

during life close to the time of death would be the best indicator. So if he was weighed at some point in time or observations about his body size.

Q. And you've detailed, as I understand, at paragraph 5 on page 1 of your report, the medical and surgical interventions that you noted?

A. Yes. And essentially what those are is that he required various medications to be put directly into his bloodstream, so he had various intravenous lines in his body. As well as he needed to have assistance for breathing with a breathing tube, so those are the things that I found at autopsy that really related to his treatment.

Q. As well I understand that you noted that there was a thoracotomy incision in the body?

A. Yes.

Q. And where was that?

A. It was on the left side of his chest, and it was essentially just beneath his left nipple.

Q. And you also noted that rigor mortis was present?

A. Yes.

Q. And also liver mortis on the posterior aspect of the body?

A. Yes.

Q. And as well I understand that you noticed that there were some source, I could say, associated with where dressings were present. Can you tell us about that?

A. Yes. I found that in addition to the swelling of his body, there were multiple blisters on his skin and that's a feature that we also see with people that are critically ill and they're in hospital for some period of time. In addition, there were some areas of reddening of the skin, um, that were related to tape from, ah, bandages. That's -- sometimes people's skin reacts to the tape.

Q. And turning to page 3 of your report, I understand that the first -- the first heading there is Signs of Recent Injury?

A. Yes.

Q. And I also understand that Mr. Hammond's body showed various injuries that essentially related to two types of injuries?

A. Yes.

Q. And can you tell us what those two injuries were and describe them for us?

A. Well, in general, the two types of injuries that were present on the body were injuries related to, um, sharp force, sharp force injuries,

and then blunt force injuries. Sharp force essentially are wounds that are created by a pointed or bladed instrument and blunt injuries are caused by impact on firm or unyielding surfaces. So common sharp force injury would be a stab wound, and a common blunt force injury would be a bruise. And those types of injuries were present at autopsy.

Q. And I also understand that the main injuries that you observed on Mr. Hammond's body were stab wounds?

A. Yes.

Q. And can you take us through the observations -- actually, firstly, can you describe the stab wounds for us?

A. Well, a stab wound is an injury that really has features on the skin surface and then features deeper in the body, because it represents the penetration of the body by an instrument. A sharp instrument. So we see on the skin surface a wound that is usually elliptical in shape and these -- and that represents division or cleavage of the skin as the -- as the weapon is penetrating into the skin, and then as you -- as the weapon goes further down, it will damage the tissue underneath the skin and that's what we call a wound tract. So a stab

wound really is what we call a penetrating injury.

Q. And in terms of the depth of stab wounds, how do they vary?

A. Well, some stab wounds can simply be nicks just limited to the very surface of the skin. You might think of those as really punctures, and then you can have wounds that are shallow in the sort of qualitative sense of the word, meaning that they go down into the skin, probably into the fat and then perhaps sometimes down into the muscle. Those would be relatively shallow wounds.

Then, if a wound, if the instrument is penetrated rather more deeply into the body, you may breach a body cavity such as your chest cavity or your abdominal cavity, and indeed, if an organ is near the surface of the penetration, then you'll have the organ injured.

Q. And I understand that the most medically significant wounds will involve the internal organs?

A. Yes.

Q. At paragraph 1 of your report, you described two stab wounds?

A. Yes.

Q. And I understand those were on the posterior aspect of the chest?

A. Yes.

Q. And where would that be then, just to describe it? Is that on the back of the body?

A. Yes.

Q. And as well you describe five stab wounds that are on the interior aspect of the chest?

A. Yes.

Q. And can you tell us about the observations that you made on the front of the chest?

A. Well, just to introduce the stab wounds of the chest, because it might be helpful to consider their course and tract by knowing the following, and that is that we have multiple stab wounds on the front of the chest, to the back and this man had undergone a surgical procedure and, as a result, some of the anatomy was changed on the inside, you know, relative to the surgeon's attempts to save his life, and so when I get the -- this man's chest it's already been opened and surgical intervention has taken place. So what I'm essentially doing is reconstructing what I -- what information I can from the appearances of the tissues, both on the surface of the skin and then inside the chest, so that places some limits on what

I can say in terms of, for example, the depth of wounds and also their precise course. The best example of that is, we'll come to it in a moment, but when the doctors operate on the chest, particularly when they open the chest in the manner that they did in this case, they may sometimes cut through stab wounds, so in other words, the surgeon is actually making a sharp force injury themselves, therapeutically obviously, and you may incorporate wounds in that path. So --

Q. And -- or sorry. Keep going.

A. So just -- so in other words, the anatomy is somewhat changed because the surgeons have operated in the chest. Now, also, fortuitously, when surgeons go into the chest in this manner they repair damage, so I can detect what damage was repaired by the surgeons as well.

Q. And just in terms of how the surgical intervention impacts your ability to measure the depth, I understand that in order to measure the depth, you'd need to have two fixed points of reference?

A. Yes.

Q. And one would be at the top and one would be at the bottom?

A. Right.

Q. If you can -- can you just describe for us how the surgical intervention affects your ability to have those two fixed points of reference?

A. Well, essentially when the chest is opened up by the surgeons, they dissect tissues, so they're no longer suspended in the usual anatomical locations, so that does provide a bit of a limit. The other part of that is that if you're trying to measure a wound depth, for example, in a soft part of the body that's compressible like fat or muscle, essentially, because the tissue has a lot of give, it's actually quite difficult to get an accurate measurement.

Q. With respect to this particular case, were you able to observe the top part in terms of having a fixed reference point at the top?

A. Yes.

Q. If we could then turn to paragraph 2 of your report, at that point I understand that you describe one of the stab wounds in more detail?

A. Yes.

Q. And can you tell us what you observed?

A. Well, in the text that follows I'm describing what I can about the stab wounds really

from the front of the body, really on the surface of the skin, and then going down deeper into the chest. The first wound that I've described is, and may I point on the diagram?

THE COURT: Yes.

THE WITNESS: The first wound that I've described is visible on the diagram in the left -- sort of the left upper chest zone by the armpit. And this wound was a typical stab wound, and what I found was when I looked at the upper corner of the wound, it was somewhat notched. I attempted to draw it there.

MS. MIDDLEKAMP:

Q. You're just pointing to the upper right-hand corner of the diagram?

A. Yes. A notched wound. And when I went down into the tissues underneath, I found that this wound went into the fat and the pectoral muscles, the chest muscles, but it did not enter into the chest cavity itself.

Q. And something I neglected to do before, we have a larger size diagram to your left there that's on a board. Is that an accurate depiction of your diagrams?

A. Yes.

Q. Your Honour, I'll ask if that could just be the next exhibit?

THE COURT: We'll make it Exhibit 61C so it's part of the --

MS. MIDDLEKAMP: Yes. Thank you, Your Honour.

THE REGISTRAR: 61C, Your Honour.

---EXHIBIT 61C: Large diagram from post-mortem examination - produced and marked for identification.

MS. MIDDLEKAMP:

Q. So we have that up but we'll also put it on the screen if that assists you with respect to describing it. And now when you tell us that this wound did not enter into the chest cavity itself, what does that mean to you regarding the depth of the wound?

A. Well, it fits into that essentially shallow category.

Q. Would you describe that wound similarly as superficial?

A. You could say superficial, yes.

Q. And in the next paragraph, paragraph 3 on page 3, you describe other -- a cluster of stab wounds on the front of the chest?

A. Yes.

Q. Can you tell us what you observed?

A. Well, if you look on the -- on the diagram, really in the centre of the front of the chest, there is a cluster of three stab wounds. This cluster showed medical intervention so the wounds had been closed either by metal staples or by stitches, and what I found was, upon dissection, or, rather, I'll just tell you about the thoracotomy first.

So in addition to these three wounds that are essentially in the centre of the chest, I've already told you that there was a -- an incision that the surgeons had made on the left side of the chest, and when I put that, the edges of that wound, surgical wound, together, and inspected along the margin of the surgical incision, I found that I could reconstruct a separate wound. So this -- essentially this produced a cluster of four in the centre of the chest, and this is actually something that we see relatively commonly when surgeons are

rapidly opening the chest. They may actually incise through stab wounds. So essentially, if you think about the front of the chest, we have one shallow or superficial wound and then four in the centre, which one of which is incorporated into the surgeon's cut and then three others.

Q. And now I understand that two of the stab wounds, as indicated on your diagram, measured 2.7 centimeters in length?

A. Yes.

Q. And then another measured 2.2?

A. Yes.

Q. So there's a total of five stab wounds on the front of the chest?

A. Yes.

Q. And now I understand that you then turned to the anterior aspect?

A. Yes. By dissecting the chest. And so what I found when I dissected the chest, um, and I'm now dealing with these four stab wounds that are really in the centre, when I went down, I thought I could find three discrete wound paths in the chest wall, so I could track three going down. This -- these wound paths showed evidence of bleeding, not surprisingly because it's damaging tissue, and then

in addition, another feature of this was that the ribs attached to the breast bone, through a softer bit of tissue known as cartilage, and that cartilaginous zone on the chest was breached by penetration, and that becomes important because beneath that area of the body we have the heart, and you'll hear in a moment that the heart was injured. So I found damage to those cartilages.

But when I went further down into the chest, I found both bleeding, I found surgical intervention in the form of a thoracotomy, and essentially at that point in time, it was very difficult for me to link up the wound paths into the chest itself. So in other words, I can trace the wound paths going down into the chest. I then essentially -- they enter the deeper chest structures but I can't link them up with the injuries that are then presently lower down, and this is partly because of the surgical intervention. Having said that, I do know the nature of the injury is deeper down.

Q. And just so I understand, you found three discrete hemorrhagic paths and that was in the anterior wall?

A. Yes.

Q. And then you also found a separate, which is the one that you're describing, that cuts into the cartilage of the left fourth rib?

A. Yes, and also, as I indicated, on the right side of the -- just at the bottom of the chest in the midline you'll feel a little projection.

Q. And you're just pointing to --

A. Yes.

Q. -- the centre of your chest?

A. Yes, and there is a little projection there and I found damage in that area too on the right side.

Q. And ultimately you concluded that there could be additional wound paths but they are obscured by the surgical dissection?

A. Yes. It's often very difficult to trace individual paths through the chest like this after surgical intervention. But what I found when I went deeper was that the sac around the heart had been opened by the surgeons, and when I examined the remainder of the sac's lining, I couldn't actually see any breaches in it other than the one that the surgeon made.

When I looked at the heart itself, I found two stab wounds on the heart. One of

the stab wounds was right at the bottom of the heart, and this was sutured by the surgeons, and it did not go through the full thickness of the heart itself. So we have -- we have chambers in our heart that accumulate blood and then the chambers contract and pumps the blood out, and so in other words, what I found in this particular wound is that the penetration had gone into the wall of the chamber but not directly into the chamber, yet the surgeons had repaired that.

Then separately in the heart I found another stab wound. This one was different though. This one was actually through the wall and entered into the chamber, and of course the surgeons had sutured that wound closed.

Q. And in terms of seriousness, did you come to any conclusion just respecting that stab wound that entered into the interior chamber of the heart?

A. Well, that would be a fatal wound, um, because it would breach the heart and cause internal bleeding.

Q. And at this point in your report I understand that you then turn to the anterior aspect of the chest - or sorry - looking at the body from the back?

A. Yes.

Q. And can you tell us what you observed there?

A. There were additional stab wounds on the back. So if we start on the back of the body really towards the base of the neck, and really between the point of the back of the neck and the shoulder there was another stab wound. This stab wound, as we've already discussed, was shallow or superficial, so this was only going into the soft tissues.

And then really on the opposite side of the chest near the armpit, back of the armpit really, there was a separate stab wound. This stab wound I've tried to draw its nature on the diagram here and I've called it irregular but periodic, and essentially what that means is that unlike the typical elliptical wounds that I have described, the margin of this wound had these regular features to it. Irregularly regular, I've described it. So you should take from that that it's not just simply cleanly cut through in that region.

Q. And I understand that this wound enters soft tissue only?

A. Yes.

Q. And can I ask you for these two that

you've just described, were they -- where they enter into the soft tissue only, are you able to tell the exact depth of either of those wounds?

A. No.

Q. And why not?

A. Because of the softness of fat and muscle. The whole problem getting fixed reference points.

Q. And would you describe both of these wounds as being shallow or superficial?

A. Yes.

Q. And having described the injuries that you observed on both the posterior and anterior of the chest, do you then go on to look at and describe sharp force injuries of the upper extremities of the body?

A. Yes.

Q. And can you tell us what you observed on the upper extremities?

A. Um, I found some similar stab wounds, and I should start off by saying, um, all of these stab wounds were shallow or superficial. So these wounds did not go into the chest cavity as the ones did on the front.

And if we -- so if we continue on the

right arm, at the -- on the back of the right arm, there was a stab wound, and this stab wound only entered the soft tissues.

Then on the left side, there was a similar, in a somewhat lower location but on the same surface of the arm, there was a separate stab wound, and I've indicated that this wound, although limited to soft tissue, had a somewhat irregular shape and it is drawn as a bit of a notch on one margin of the wound.

Continuing down the left forearm, there was another wound. I've called it a sharp force injury, and it consists of you can almost sort of think of it as a type of butterfly wound, and it represents two stab wounds meeting at a corner. This I've basically called it a double stab wound appearance, and this is -- this wound is also limited to the soft tissues.

And then the diagram also shows in the posterior, in the back of the body on the left side, really sort of at the, um, midpoint between the back of the chest and the back of the abdomen, a separate one centimeter wound, stab wound, also shallow.

So these represent the wounds that were present on the front and the back, the backs of the

upper limbs, and there were additional sharp force injuries on the hands.

Q. And if I can just take you back to the -- one of the wounds on the posterior that you've previously described, and it's in your report on paragraph 8. This is the wound that you've described as being irregular periodic?

A. Yes.

Q. And I'm wondering if you can tell us what the potential causes are for irregular margins of a wound such as the one that you've described?

A. Well, there are, in general, there are different ways margins can be irregular, and I'll probably not give you an exhaustive list but I can give you the common causes. By and large, the most common is movement. So if, for example, you have an instrument coming in like a knife, and the -- it's penetrating the skin, if there's any movement of like, for example, rotation or twisting of the instrument, you may have irregularity on one margin, or on a corner for that matter. So that type of, um, irregularity we see frequently, and usually in the form of little fish tails or notches on wounds.

The other feature might be that you have more of a compound wound, so in other words, you

look at the wound and you see one wound, but in fact it may represent more than one penetration, and I think that an example of that is what we've seen in the forearm with this almost like butterfly wound where you have two stab wounds meeting together. Sort of looks like one wound but it's actually two wounds coming together.

And then the other feature would be if the instrument itself has some characteristic that has left a mark on the skin, and this is -- this is actually quite difficult to deal with sometimes, or often in forensic pathology, because of the variability of the wounds that can be created, but I'll give you one example. If you have sometimes knives with a hilt, so in other words you have a, um, at the base of the blade between the handle and the blade you have a surface, and somebody is stabbed with a hilt knife, around the stab wound you may have an impression of that hilt mark. So something about the knife may leave a trace in the wound, so as it works with the base of the knife, it may also work with the cutting edge of the knife.

So for example, in some knives that have irregularities or serrations or other features, depending on how the instrument is penetrating into

the body, whether or not, for example, it's coming in at an angle and scraping and tearing the skin, you may actually have some irregularities from that.

So really, I've given you three mechanisms there. One is relative movement, the second is compound wound, and the third would be a trace from an instrument. I should point out that it's probably just limited by how long I'm thinking about this. There probably are other explanations for that.

Q. Okay. Now, you talked about observing sharp force injuries on Mr. Hammond's hands?

A. Yes.

Q. And can you describe to us what you observed?

A. Well, there were two sharp force injuries. You can see one of these is on the back of the left hand in the web space between the thumb and the first finger, there was a shallow cut into the skin. And then on the thumb of the right hand, essentially the tip of the thumb was amputated off.

Q. And can I ask you, is there anything in particular that you can say about these two injuries?

A. Well, injuries of the hands are often

seen with so-called defensive posturing.

Q. And having described -- or does that describe in entirety the number of sharp force injuries that you observed on Mr. Hammond's body?

A. Yes.

Q. And having described those, did you then turn to indicating the other injuries that you observed?

A. Yes.

Q. And can you tell us what observations you made with respect to other injuries? You've told us previously about blunt force injuries and you defined that for the Court. Were there other types of injuries that you observed?

A. I found blunt force injuries on the body in various locations. Most importantly on the head and face. And if we just start off with the -- with the diagrams, what I found was on the -- if we start off with the frontal view of the face, I found a small abrasion on the forehead. When I went deeper into the face by dissection, I actually found that the right cheek showed some hemorrhage and this was also associated with bruising inside, in the inner lining of the mouth on the right side. And this area of bruising was really mostly present underneath the

skin. The bruising of the inside of the mouth was really in the same general area so basically a bruising inside the cheek and on the inside of the mouth. There were I called it a focal conclusion present. A small area of bruising associated with the upper eyelid on the left side, and on the bridge of the nose there was a small area of bruising.

On the back of the head there were, on the surface, so I'm dealing now with the surface because we're going to go underneath the scalp in a moment. On the back of the head there was another type of wound, really over the back of the head, called an abrasion, and an abrasion is essentially a scrape. So it's where the skin has come in contact with a surface and has just damaged the very upper layer of the skin. In addition to that, on the back of the right ear there was an area of bruising.

And if we go to the next diagram of the head, this now -- sorry. That's the neck, but I can do that one now too.

Q. No, we'll move to the final diagram that shows the head.

A. So now this view of the head represents what was present once the scalp was examined underneath, so the way we do this is we dissect the

scalp off of the skull. Everything is reconstructed at the end of the autopsy but we do this to examine the brain and also to examine the tissues on top of the skull, and what I found in the course of that dissection were areas of bruising that you see diagrammed. Really on this -- the upper diagram shows the top of the head; the dome of the head. You can see a bruise in the upper forehead zone, and then a separate bruise in the right sort of forehead temple area, a larger bruise at the crown of the head and then a separate area of bruising on the right side of the back of the head near the ear.

Q. And on your diagram you've noted sizes, and that's -- those are the dimensions of the bruises?

A. Yes. These bruises represent contact points, so where the head has come in contact with an unyielding surface or a surface has come in contact with a head, damaging the scalp tissue and causing bleeding underneath.

Q. And can I just ask you, we understand in this case that Mr. Hammond was the subject of medical intervention and ultimately you performed a postmortem examination on him. Does the gap between when he's in the hospital and then when you perform

that intervention, assuming injuries caused prior to him being in the hospital, does that -- does that have any impact in terms of the dimensions of the bruising that you see in the head?

A. Yes. So the bruises that, as you see them, represent impact sites but the size of the bruise does not really inform us now at autopsy of the -- of their original size. They may have been smaller at the time. They may have been the same size. And the reason for that is as you are in hospital with bruising in your scalp tissues, the bruising may spread in the tissues and appear larger at the end.

Q. And in terms of sort of being able to come to a conclusion regarding what sort of object or surface impacted in those areas of bruising, does that also play a role?

A. Well, it could, for example, if you have a circumstance where the head is impacting over a very broad area, that would tend to give you a larger bruise than if it's in contact with a relatively narrower surface.

Q. I'll try to rephrase it. So if I understand what you're saying, it could, like the bleeding that happens after can expand the size of

the bruise, and so in order to be able to come to any kind of determination about what size of object may have contacted the area of the body where it's bruised, that is -- that is somehow impacted by the fact that there is bleeding that's occurring while he was still in the hospital?

A. Precisely.

Q. And having described all of the area of bruising or contusions that you observed upon dissection, I understand that you then describe injuries that you saw on the front of the body below the mid-point of the body?

A. Yes.

Q. And can you tell us what you observed?

A. Essentially what I found was over the knees there were early scabbed abrasions. Scrapes on the knees.

Q. And having described all of your observations with respect to the external examination and the dissection that you told us about, do you then go on to describe your findings on the internal examination?

A. Yes.

Q. And I understand that when you looked at the neck and respiratory system, you noted some

injuries in the neck?

A. I did, yes.

Q. And I understand that those were attributed to medical intervention?

A. Yes.

Q. And can you tell us how you came to that conclusion?

A. Well, what I found was, and as is diagrammed here, on the right side of the neck there was a -- quite an area of bruising underneath the skin and it actually is a very good example of the concept that we were just discussing about the spreading of bruises, because one of the places where doctors put in intravenous lines is in the side of the neck. They try to put the cannula in the jugular vein, and so in so doing, you will obviously create damage to the tissue that bleeds, and so the -- there was actually quite an extensive area of bruising on the right side of the neck, but this was associated with the needle punctures, and the size of the bruise really just indicates elapsed time. That the blood is, what we say, dissecting into the tissues.

Q. As well on your internal examination you make notations regarding your observations in the

body cavity. You've told us about how you had already observed that the pericardium had been surgically opened?

A. Yes.

Q. Was there anything else that was remarkable in terms of the body cavity or the cardiovascular system?

A. Well, the, um, as I've indicated, this man received fluids through intravenous, and as a result, some of that fluid was accumulating into his abdominal cavity. That's actually a common thing that we see. In his heart, in addition to the stab wounds, I found bleeding on the inner lining of the heart and that is a good indicator of shock from blood loss.

Q. And you also look at the digestive system and other areas of the body. Was there anything else that was remarkable or notable?

A. Not specifically relevant, no.

Q. And then on page 7 of your report you talk about ancillary studies and further studies. I understand that a portion of the fourth left rib cartilage that you previously described to us was retained for further examination?

A. Yes.

Q. And can you tell us what your findings were, if any?

A. Um, I found that the cartilage was cleanly cut.

Q. And you've described it as not having irregularities or patterned injuries?

A. Yes.

Q. Your Honour, if I could have a very brief indulgence?

THE COURT: Yes.

MS. MIDDLEKAMP:

Q. Dr. Pollanen, I'm going to show you what's been labelled as Exhibit 28 on this trial and it's a photo board indicating a series of photographs of a knife. Now, I understand that you've previously been shown photographs of a knife?

A. Yes.

Q. And do those photographs up on the board accurately depict the photographs that you were previously provided of the knife?

A. Yes.

Q. And can I ask you, is it possible that the stab wounds and all of the sharp force injuries that you previously described were caused by this knife?

A. I could not exclude that.

Q. Now, I just asked you about your findings with respect to examining a portion of the fourth left rib cartilage, and you described it as not having any irregularities or patterned injuries. Does that have any impact on your opinion with respect to the possibility, or that you cannot exclude that this knife caused all of the sharp force injuries and stab wounds that you have previously described?

A. So the issue here is the following: If you have irregularities in cartilage that represent the effects of some particular nature of a weapon, and those leave a trace in the cartilage, then there is some positive observation that the pathologist can work backwards to, as it were, some factual foundation to say that this irregularity might be due to this -- this instrument or this portion of an instrument. It's not entirely clear that it works the other way though. In other words, the lack of some specific observation does not allow us to say, therefore, you can exclude that particular instrument. This is an area where it's not entirely settled or clear area right now in terms of how we can use evidence of this type to include or exclude

instruments.

So from my point of view, if you had positive features, you're in a better position to make an inference.

Q. Ultimately then, I understand your opinion is that you cannot exclude that knife from having caused the injuries.

A. Correct.

Q. And also on page 7 of your report you go into your opinion. Can you tell us what your opinion is in this case?

A. Well, this is -- this man has multiple injuries that I've described to you. They include blunt as well as sharp force injuries. The main injuries that are medically significant are in the chest. The injuries in the hands I've described as so-called defensive wounds and we've also talked about injuries to the head, and those injuries to the head represent impact sites. The most significant wound, from my point of view, is the stab wound that completely penetrates the heart, opening one of its pumping chambers, and this of course results in internal bleeding. Something that we haven't described in detail in this so far is that I found evidence in the body of shock, and

indeed with examination of the brain under the microscope, there was evidence that the brain would -- had been starved of oxygen because of the trauma and, as a result, the brain had undergone what we call necrosis or death, and that's a common finding after cardiac arrest.

Q. And what is your opinion regarding the cause of death?

A. I gave the cause of death as stab wounds of chest.

Q. Your Honour, if I may have a brief indulgence?

THE COURT: Yes.

MS. MIDDLEKAMP: Your Honour, those are my questions for the witness.

THE COURT: Cross-examination?

---CROSS-EXAMINATION BY MR. SCARFE:

MR. SCARFE: Thank you, Your Honour.

Q. Thank you for coming, Dr. Pollanen. I should be relatively brief. As part of an autopsy do you usually take a sample of blood and send it over to the toxicology department?

A. Yes.

Q. Right. And there are some cases where you wait to get those results back before writing up your autopsy?

A. Yes.

Q. And sometimes not.

A. Correct.

Q. And here the toxicology was relatively insignificant.

A. Yes.

Q. Yes. And the reason why the toxicology was insignificant is because this man lived for about 48 hours, and whatever was in his system would have been eliminated.

A. Yes, and also he's been transfused and his blood has been diluted from intravenous fluids.

Q. And because of the rush to save his life, there was no pre-transfused blood available.

A. I'd have to go back through the notes to confirm that but that is often the case.

Q. Okay. And if there's no pre-transfused blood available, and he lives for 48 hours and is transfused, there's no way to determine what his blood alcohol content would be --

A. Not that I --

Q. -- at the time of the incident.

A. Not that I know of.

Q. We've had a -- I don't know if you have, but we've had a chance to observe Mr. Hammond shortly after the incident that led to his injuries lying on a sidewalk in a City TV video. It's all very shocking and stuff, but what I guess as a kid growing up I always thought, if you got a stab wound in the chest you'd be like a geyser, but in fact it didn't appear there was that much blood. Can you explain that for us?

A. Yes. When you have a stab wound to the heart the bleeding is largely internal, and in fact there may be very little external blood. It's in fact somewhat very surprising to go to scenes where somebody has been stabbed in the chest and there's virtually no blood to see. Now, of course, the forensic identification officers might find it with specialized techniques but it's quite common that the bleeding will be essentially all internal.

Q. Which brings me to the injuries to the hands. I think most people at some point in their life have had their hand or finger cut making breakfast or whatever. That can lead, despite the smallness of the wound, to very extensive bleeding.

A. Yes.

Q. Because you have so many blood vessels in your hands and they're very close to the surface.

A. Yes.

Q. So you would have expected that where the right thumb was, in a sense, the very tip was amputated off, to create quite a bit of bleeding.

A. Well, I think, for example, if you cut the tip of your thumb off, yes, you would bleed. How much you would bleed and how quickly would be determined by what's happening to the rest of you. So for example, if you're in shock and you have very low blood pressure, you may not bleed quite a lot from your amputated thumb. It would depend really on the circumstances of the case.

Q. Mm-hm.

A. So I could conceive of circumstances where you would bleed quite vigorously or not.

Q. Okay. And just to follow-up, that wound to the left hand that was somewhere in the area of the webbing that's between the finger and thumb?

A. Yes.

Q. Is that an area that has a lot of blood vessels in it?

A. Yes.

Q. Arteries and that stuff? You'd expect --

you could conceive of circumstances where that would bleed a lot too.

A. Yes.

Q. Now, I want to talk a little bit about this knife, and you've explained in great detail about the three of four wounds and the cluster to the chest, one of which breached the heart wall and into the heart cavity and one of the chambers and is, in your opinion, the most medically significant wound.

A. Yes.

Q. And you've explained the depth is hard to calculate for a number of reasons, and one of those reasons is that if it's in a soft part of the body, the muscle and the skin is very elastic and will give, so it's hard to know how much it was compressed.

A. Yes.

Q. But in the case of the four wounds to the front of the chest, right? That's a harder part of the body.

A. Yes.

Q. Right? And most people have a reasonably thick distance from the very surface of their chest to just how far you'd have to go in in order to

cause that fatal injury that you described by going into one of the heart chambers.

A. Yes.

Q. All right. Now, I know you've been sent and viewed pictures of this knife that is an exhibit before us and still up on the board.

A. Yes.

Q. Have you seen the actual knife?

A. I don't recall that.

Q. Mm-hm.

A. I may have.

Q. And with no disrespect to the photographer here, it's a little difficult from this to figure out exactly how long the blade is, isn't it. Because of the placement of the ruler at the time of the photography?

A. I mean, you could estimate it I suppose.

Q. You could estimate it, you could sort of do something like that with your glasses and measure it and come to the conclusion it was maybe five centimeters long? You've seen thousands of --

MS. MIDDLEKAMP: Your Honour, if we're going to talk about the measurement of it, I mean, to do it that way, that we've looked at it as well and I disagree that it's only five

centimeters long.

MR. SCARFE: Okay. That's fine. That's a matter for anyone who is reviewing the evidence.

Q. But whatever the distance, you've examined in your lengthy career thousands of stab wounds, many to the chest, and how far is it from the surface to that -- to get inside that cavity generally?

A. I haven't examined thousands of stab wounds. A lot of stab wounds.

Q. A lot of stab wounds.

A. Yeah.

Q. Hundreds.

A. Yes. I would say that the best way to answer it is this: That we're all different. We all have different chest sizes. Our chest walls are thicker or thinner. I mean, I think that's sort of common knowledge. If you think about it and look around the street, you'll see people that are thinner and people that are not so thin.

I will say this though: That when you look at the anatomy of the chest, the heart is relatively close to the surface of the chest. It's essentially right underneath the breast bone. So

it's, for example, there are other important anatomical structures such as very large arteries which are present at the back of the chest that would not be easy to perforate or penetrate with a -- with a knife.

Q. Okay.

A. We see them frequently perforated by bullets, but not by knives. So the heart, because of its anatomical situation, is in a position and a place in the chest that makes it vulnerable to stabbing.

Q. Okay. So when my friend Ms. Middlekamp asked you if this knife, I think you said this knife could not be excluded from all of the sharp force injuries.

A. Correct.

Q. Would -- you have considered the approximate length of the blade and the distance to the inside of the chamber punctured.

A. Generally. I mean, the point is that I can't give you measurements. I'm not able to give you measurements in this case. I think that you're in the -- we're in the range that you couldn't exclude a knife of those dimensions.

Q. So looking back on the injury you

examined and looking at the photo of that knife, you're satisfied that that blade could go deep enough to cause that injury.

A. I think that's a reasonable statement, yes.

Q. Yeah? Okay.

A. I think, if I just give you one other insight into that, the other thing that we see with penetration of the chest is that you may actually compress the chest down when you are penetrating it, so the actual distance travelled, as it were, may be shorter, but, you know, to be frank, I don't know the precise dimensions involved in this case.

Q. Okay. When a -- from time-to-time you get a case like this where there's been a lot of surgical intervention, right? And you described I guess what is a fairly standard procedure in a case like this where the surgeon basically does a cut and goes through -- in between the ribs to try and get in there and suture up the wounds, right?

A. Yes.

Q. It's called a thoracotomy?

A. Yes.

Q. Okay. And you've also talked a little bit about some wounds have characteristics or features

to them, and we'll come to that in a minute, but is it generally accepted that most surgeons here in Toronto don't use serrated blades to do their scalpel cutting? What we think about from science class? It's a smooth edged blade?

A. Yes.

Q. Okay. So with respect to -- well, let me, before I get to that, you indicated that at the end of the autopsy, you retained something and that was a piece of the cartilage somewhat on the fourth rib on the left side?

A. Yes.

Q. All right. Is that common? To retain a body part before sort of letting the body go off for burial?

A. It really depends on the case.

Q. So it's not something you do in every case.

A. No.

Q. No. And at the time you did that, you hadn't seen pictures of this knife or consulted with anybody about this issue, trying to sort of relate the knife -- the features of the knife to any particular wound. Why did you do that?

A. Because often questions come of that

nature.

Q. Okay. And you anticipated questions. If I can suggest this, one of the questions you anticipated was you described the wound on the back by the -- just near the left armpit as having irregular -- irregularities or being periodically irregular, and then obviously wondering whether that -- those features were replicated in the other wounds in the body. Is that why you retained the piece of cartilage?

A. I don't -- I can't tell you if that was precisely the track of my thinking but it's a reasonable track of thinking, yes.

Q. Okay. And so in trying to learn as much as you can about the cause of death and the mechanism of death, it's often a question that comes up about whether a knife like this could be excluded from one or more of the wounds, correct?

A. Yes.

Q. And so just looking at this knife, I just I know we did all of this at the preliminary hearing, but looking at I guess the bottom left photo, you can sort of divide the blade of the knife in half.

A. Yes.

Q. And the portion of the knife that is closer to the tip has the kind of fine, regular serrations that you might find in a kitchen knife or bread knife or something like that, right?

A. Yes.

Q. And then the second half of the knife, the half closest to the handle, has some pretty distinct features on it.

A. Yes.

Q. You don't see this in every kitchen store you go to. Or camping store. There's a couple of very large -- there are three large indentations and in between the two end ones, you've got three distinct ridges on the knife do you see that?

A. Yes.

Q. Yes. And that's -- that certainly can't be excluded from the wound that you described that we just talked about on the back by the armpit which you drew with a series of little ridges along the margin of what's often an elliptical wound, correct?

A. Yes.

Q. And that prompted questions in your mind, seeing the sort of regular or the maybe the features of a knife like this being reflected in a wound like that?

A. Raises the issue, yes.

Q. Certainly raises the issue. And that's the only wound where you've seen sort of a complex pattern?

A. That's correct.

Q. Right. And you had a chance to review your preliminary hearing transcript before coming here today?

A. Yes.

Q. And I know that when we see a pattern, there's generally three explanations, right? But for this wound in particular, the one we're talking about with the more complex pattern, I think what you told us when I was asking you questions at page 74 of the transcript was for movement to be the explanation, it would have to be a pretty complex series of movements to leave that kind of a pattern on that particular wound.

A. Yes.

Q. So I would take it from that that the more likely explanation is the pattern that we see in that wound has more to do with the features or characteristics of the instrument, would be the most likely explanation?

A. I think that's a reasonable inference.

Q. All right.

A. And this, just to go back to what I said before, the pathologist, or in fact anyone analyzing this, is in a better circumstance because you're working backwards from some positive feature. In this case, you know, we've described it differently but some type of regularity on one margin of the wound.

Q. Mm-hm. Now, taking into account the fact that there was medical intervention in the chest, that when you got right into the depth of it you could find the wound paths but you couldn't necessarily relate them to the wound paths closer to the surface even when you pressed stuff together and tried to analyze it, in all four of those wound paths or I guess seven partial wound paths, you didn't see anything that suggested that the instrument that was used to create those four wounds, you didn't see anything that reflected characteristics or features. It all appeared to be smooth pathways, right?

A. Correct.

Q. And having seen the knife and understanding that that's part of our factual matrix here, I know you can't exclude it from the four

chest wounds, but doesn't it surprise you that you don't, with a knife pattern as complex as that, doesn't it kind of surprise you a little bit that you don't see any indication in any of those wound paths of the characteristics that are before us?

A. I don't place a lot of weight on surprises. I think the point that I've indicated here is that if you find positive features, you can work backwards to some extent. I mean, there are issues with, you know, the extent to which you can make those inferences as well. I don't know if it works the other way. I don't know if we have sufficient information to know it works the other way.

In other words, because they're not there, is that sufficient to bolster one possibility or another? I'm not sure -- I don't know if that's the case. The -- that's really the best that I can do in terms of helping you understand what the wound paths tell us in this case. I would say, however, that if you had evidence of, for example, a wound like that elsewhere, you could develop the same line of reasoning.

Q. But what you're saying is that you can't glean anything from the absence of those features or

characteristics in the wound?

A. That's essentially it. The absence of evidence is not evidence of absence. The point is if you have a really good feature that you can look at and you can correlate it with another feature in the manner that you have with the periodic margin, it makes sense to me, it's logical, it's a reasonable inference. I'm just not sure it works the other way.

Q. Well, let's -- and we're almost done, and I appreciate your being careful, but wouldn't common sense dictate, with the greatest degree of respect, Doctor, that a wound with that kind of a jagged, identifiable set of characteristics, if jammed into somebody's chest four times in a row, that the absence of any evidence of tearing or irregularity in the wound, doesn't that seem unlikely?

A. As I've been recently reminded, experts come to give expert testimony, not really common sense views. I don't think that the science here permits a firm inference. As I said, I wouldn't exclude it.

Q. You wouldn't exclude what.

A. I wouldn't exclude other possibilities, because the wounds are not -- they don't have a feature to them that would allow me to work

backwards in the same way that we can work backwards with the other wound.

Q. It's funny, we're sort of stuck in this absence of evidence versus positive evidence. What about the presence of these four elliptical, smooth wounds in the chest. Can anything be gleaned about the characteristics or lack thereof of the instrument, obviously an instrument caused those wounds. Can you say anything about, is what I'm suggesting to you, isn't the presence, positive presence of smoothness and perfect ellipses in the wounds, indicative of a non-serrated object?

A. No.

Q. You don't --

A. Because if you have a pointed instrument coming down and dividing tissue, it's not the serrated edge that's dividing the tissue. It's the -- if you picture a knife --

Q. Mm-hm?

A. -- sort of going down into something, it's not the serrated edge that's causing the tissue damage. The margins are caused by the point dividing the tissue.

Q. Okay. Often times though you can tell by looking at the two edges of the wound which was the

sharp side.

A. No.

Q. You can't?

A. You can tell by looking at which corner is blunt, if it's a single or double edge, generally speaking.

Q. So you can tell if it has two sharp sides to it or just one sharp side?

A. Actually it works the other way. It comes back to the same logical pattern. If you have a stab wound and you have one blunted corner, it often will inform you that it's a single edged weapon. But it doesn't work the other way around.

So in other words, if you have two sharp corners, it doesn't exclude a single edge. It's compatible with a double edge but doesn't exclude a single edge. It comes back to this whole quandary of we don't have the experiments behind it to determine what weight to put on negative evidence, as opposed to working from positive observations.

Q. Of course what's negative and positive is often an issue. For example, you get a knife wound with two blunt edges, you conclude that there is an absence of a sharp edge on the instrument that went in?

A. I don't know how a knife could have two blunt surfaces. It wouldn't be a knife. A knife has one cutting surface.

Q. Right. So you'd be able to conclude something about the nature and the characteristic of the instrument when either the absence of pointed elliptical or the presence of two blunt edges. So it does work in reverse, doesn't it?

A. Well, it would work in reverse, I -- first of all, it's not a knife that we're talking about because the instrument, if I have your hypothetical correct here, what we have is we have a pointed -- something that's pointed but it has two blunt edges.

Q. Well, that would be necessary to create an elliptical wound with two blunt edges on the side, wouldn't it? It wouldn't be a knife, it would be something else?

A. It would probably be a blunt instrument that would tear the skin as opposed to incise it.

Q. Right.

A. I don't think it would make a stab wound. It would make some type of penetrating wound but it wouldn't be a stab wound.

Q. Last question. Those four chest wounds we

talked about, you can't exclude the possibility that they may have been caused by a different knife than the one we see. Something without serrations.

A. Correct.

Q. Those are my questions.

THE COURT: Re-examination?

MS. MIDDLEKAMP: Nothing in re-examination. Thank you, Your Honour.

THE COURT: Doctor, can you just clarify something for me? I may have missed something that's obvious but there were five stab wounds on the back, correct?

THE WITNESS: On the posterior surface of the body including the upper arms, yes.

THE COURT: All of which you described as superficial.

THE WITNESS: Yes.

THE COURT: And there were also five stab wounds on the front.

ANSWER: Yes.

THE COURT: Correct?

THE WITNESS: Yes.

THE COURT: So when I read paragraph 1 of your report that says there are two stab wounds of the posterior aspect of the chest

and five stab wounds on the anterior aspect of the chest, how do we deal there with seven as opposed to the ten that we just described.

THE WITNESS: Because the stab wound on the left back was not in the protocol. In the written protocol. And I've talked about the back being not including the backs of the arms.

THE COURT: All right. So if we eliminate the two stab wounds on the arms and this other stab wound in the low sort of left shoulder blade, that the other ones are the seven you refer to in paragraph 1.

THE WITNESS: Yes.

THE COURT: Do I have that?

THE WITNESS: Yes.

THE COURT: Anything arising from that?

MR. SCARFE: No, sir.

MS. MIDDLEKAMP: No, your Honour.

THE COURT: Thank you very much, Doctor.

THE WITNESS: Thank you, Your Honour.

MR. THOMPSON: Your Honour, that's the last witness for the Crown today and I did indicate to Your Honour that the Crown would like to close its case today, and I'm not

resiling off that position. The Crown is going to close its case except for I want to -- either want to -- we have three witnesses coming in today for interviews that were not available last night. I don't anticipate any of those witnesses being called by the Crown but, nonetheless, it's incumbent upon me to at least go through them and make sure that they cannot provide this court with any additional evidentiary evidence on behalf of the Crown. My friend may call them. And on that basis alone I will close but the caveat that I may want to reopen with respect to one of the witnesses. My friend is content with that. Either I formally do it that way or I just -- that's our last witness for today. Whatever Your Honour prefers. I don't anticipate calling them.

THE COURT: If you do decide to call any of these witnesses, are they available tomorrow? Is that what your plan would be?

MR. THOMPSON: I actually hadn't gone down that path. I thought my friend wanted to go to Monday but I don't know if they will be available tomorrow. I know they are available

coming tonight for their interviews. I was anticipating if that was the case, and as I say, I don't anticipate calling them but nonetheless that we would do it Monday morning. Court's indulgence.

I think I'm going to stick with that position. My friend's in the position that he's prepared to go as of Monday. As I indicated, I'm not -- I don't want to be in a position where I have to ask permission as opposed to beg indulgence, so I'd rather be in the "beg indulgence" position as opposed to the other.

THE COURT: I'm not insisting that you make a firm commitment, Mr. Thompson, I'm just trying to anticipate that if one scenario plays out, when are we going to address these potential witnesses, whether we would do it tomorrow so that we can continue with the defence application on Monday or --

MR. THOMPSON: Well, I would be in a position to go forward tomorrow, but I know my friend -- and I -- I just don't know what's going to result. I may not know until seven or eight o'clock tonight. My friend's actually going

to be there at the same time so but I want to inform the Court that I think my friend doesn't want to be in the position where he's got to call everybody back tomorrow morning in the event that we don't proceed.

MR. SCARFE: The sense I get, Your Honour, is that my friend is just keeping his options open. He's probably less than 10 percent likely to call any further civilian witnesses and so to have everybody come from Hamilton and Stony Creek tomorrow to hear the words, That's it, doesn't make any sense, so I'd be content, if there is one witness he decides he wants to call, we can do that Monday and then dive right into the submissions.

THE COURT: Very well. And the application that you wish to argue on Monday I take it is the stay application that arose out of the lost evidence that you --

MR. SCARFE: It seems this would be the appropriate time to finish that, yes, and so following that, I anticipate calling some defence evidence, and if we are able to finish all the submissions on Monday or by midday Tuesday, would we -- you would need

some time to prepare a ruling. I just want to anticipate when we start setting witnesses up.

THE COURT: Well, I need time to reach a conclusion which may be different than the time necessarily to prepare a ruling.

MR. SCARFE: Oh absolutely. Yes.

THE COURT: So --

MR. SCARFE: Do you anticipate you'd need more than a day?

THE COURT: No.

MR. SCARFE: No. Okay. So probably the safest thing is to line up the defence evidence for Wednesday of next week.

THE COURT: If you anticipate spending all of Monday dealing with the argument on the motion, then yes. If we are going to be finished the argument on the motion by, again, assuming no further evidence from the Crown, by lunch hour or early part of the afternoon then I would have thought that we could schedule defence witnesses for at least if not first thing Tuesday morning, by Tuesday after lunch hour.

MR. SCARFE: Very well. Thank you, Your

Honour.

THE COURT: Is that helpful?

MR. THOMPSON: That's good. Thank you, Your Honour.

THE COURT: All right. Then Monday the 14th.

---COURT ADJOURNED (2:32 p.m.)