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MR. CONNOLLY: Yes, sir.

THE COURT: -- we strike the capital letter B and insert in its place the letter 0?

MR. CONNOLLY: Yes, sir. It doesn't change the argument whatsoever. It's just factually more appropriate.

THE COURT: All right.

MR. CONNOLLY: Your Honor, the defendant believes that this process, although we don't know what the conclusion would be, of course, is of critical importance to the defense. The issue is on those scrapings whether or not they came from the decedent ultimately. If they did not come from the decedent, then the case is radically different than if they did come from the decedent. If those blood scrapings came from the decedent, then it is not extraordinarily helpful to the state or the defendant.

THE COURT: Excuse me, blood scrapings from?

MR. CONNOLLY: The decedent's fingernails, your Honor. There were at least three scrapings, is my understanding, and the state

has fortunately brought in their forensic person who can answer any technical questions. But it's my understanding that there are several, any way, scrapings from underneath the decedent's fingernails.

Those scrapings were typed as type A with an H factor present. The defendant is type O. So, the scrapings did not -° did not emanate probably from him. The question is were they from the decedent. If they are from the decedent, the evidence is only of marginal utility. If they are not from the decedent, then the evidence is overwhelming from the defendant's perspective. The possibility which exists that this evidence is exculpatory compels me to request that the court grant a continuance so that we can get that analyzed.

We have been not dilatory in this matter. We have been working to try to get this issue resolved. There is a long delay in the processing of this kind of material. There's only one laboratory in the United States that can do this work. To that end I've made available that information to the Assistant Attorney General who has followed it up on at

least a couple of occasions. So, we have been cooperating with discovery and appreciate the state's openness in that matter and I've been attempting to reciprocate.

So, we have a position where we have some evidence which is potentially extraordinarily exculpatory and we just simply request some time in order to get it processed.

THE COURT: Well, in reading the material that you sent and the article by the authors in Trial Magazine we only have an indication that one jurisdiction - Florida - has accepted this analysis as having scientific reliability within the scientific community which would bring it within the -- the admissibility under our Rules of Evidence.

MR, CONNOLLY: If I may respond first to that, your Honor, the Florida court did not approve the particular process. Since I've requested -- it: approved an analagous process which is substantially different than the DNA process that's done by the California laboratory. There are several types, as the article explained, of DNA and I provided that for the court's information. I do believe that

we -- if we get to the point where the evidence needs to be offered as far as scientifically reliable, I think that we can make that burden. That As a problem nonetheless. I don't anticipate that if the results are favorable to the defense that the state will simply lie down on that, I think that's a foundation issue. I am in good faith indicating to the court that I think I can get it *into* evidence regardless. I think that the evidence is important to have analyzed and then to make that determination later.

THE COURT: Before I give the state the opportunity to respond, is there anything that magic about the DNA analysis? And I ask that question for this reason. Here in Maine we have companies like Ventrex that that's all they do is blood analysis and they do take blood samples. They're doing it for hospitals now. I don't pretend to understand the process. I do not have a scientific mind, but a- but the thing that I find it hard to believe is that there's only one place in the United States that does this type of work, assuming that we have enough of a scrapings sample here that would allow *any*

laboratory to perform this type of analysis.

MR. CONNOLLY: That's the problem right there, your Honor. It's -- the material, it's my understanding, is of such limited quantity that no other process is readily available to do an analysis; that in the process of doing a testing and analysis some of the product is used up. Rut more importantly, there is a larger need of quantity in order to do any reasonably reliable test. That particular process that's done by the California lab takes a small amount of the material and basically reproduces it and' since -- as soon as they do that once, they can do it a million times and then they have a sufficient quantity to do any analysis that might he available. That other analysis, in addition to DNA, could be other types of proteins, enzymes or antigen work-ups that's possibly available once they have the ability to reproduce the sample. And there is no other place in the United States to my understanding that can do that. To that end, not to speak for the state but I believe that they have contacted the F.B.I. Lab and the state lab here and it is not currently within their capacity to do these

type of tests.

So, the answer is there s only one place that can do it. Scotland Yard does it and they have used these types of tests on a number of cases, the first one being the Leichestershire Ripper case, so-called.

THE COURT: According to the article, it first came here as a result of its use in the English court system.

MR. CONNOLLY: Exactly, such as fingerprints and other technological innovations seem to come out of English criminology where they seem to have a little better indicia of the importance of the technological progress. So, the English seem to be on the cutting edge of this. But in the United States a number of these tests are starting to be used and and the person I talked to in California indicated she has an enormous amount of American cases and there are cases pending in dozens of jurisdictions in which this test is going to attempt to he offered.

THE COURT: Thank you.

Mr. Wright?

MR. WRIGHT: Your Honor, rather than try to

misexpJain the process or what is at issue and what will become, I suppose, more familiar to all of us in the next several years, I did ask Ms. Brinkman to come down from the Crime Laboratory. She's here. If I may offer her as kind of back up, square one without being presumptuous about some of the fundamental things that are going on. and what DNA is and so on. T think it might help all of us if we start at the begining and kind of work through it and then focus particularly on what's going on in this case with the evidence that we know exists.

THE COURT: It's perfectly all right with Me.

Mr. Connolly?

MR. CONNOLLY: Your Honor, Mr. Wright and I have discussed this. I've no objection for the purpose of this hearing to have the evidence technician testify or discuss with the court, whatever the appropriate procedure is.

THE COURT: Thank you.

MR. WRIGHT: And to save a little bit of time as well, Mr. Connolly and I did discuss the fact that we would stipulate for the purposes of this hearing Ms. Brinkman's expertise in the

field of chemistry. She has testified on a number of cases. She has not, I will tell you, done any DNA tests herself but she has a workinc knowledge of it, I think she will tell you.

JUDITH BRINKMAN, having been duly sworn by the clerk, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. WRIGHT:

Q Ms. Brinkman, just so the record is clear and I'm sure the court already knows but could you state your occupation?

A I'm a forensic chemist with the Maine State Police Crime Lab.

Q And as part of your work you have from time to time done work in the field of serology and with other body fluids?

A Yes. Uh huh.

Q All right. Now, correct me if I'm wrong and maybe I can ask a couple of leading questionsto get you into this, but the process of DNA is somewhat different from the traditional process involved in serology of the analysis of blood as we have used it to this date, correct?

A Right. The present day things that are very common in the courtrooms are the ABO blood

grouping and enzymes and proteins. DNA, which is called deoxyribonucleic acid - that's its big name, goes by DNA - is genetic material that makes up each one of us. The DNA is what tells the - tells the body what types of proteins and enzymes to make, what blood type the person should be. So, what we've actually done when this system becomes very, you know, new to the field is we went one step backwards or one step forward closer to the actual determination of what makes this person unique from any other person.

So, the advantage, if it works out ideally, which I suppose it may or may not in a given case --

A Uh huh.

or may or may not as we learn more about the process, but ideally the advantage of the DNA work as opposed to traditional serology work is what?

A It should make it more unique. It should be like a fingerprint, much more discriminating from one person compared to another except for in identical twins because identical twins have the exact same DNA. Each of the rest of us have

our own unique DNA irregardless of our brothers or sisters or anyone else. We have only our DNA. And it's like your DNA is what determines . your fingerprint. So, in actuality we've even taken the fingerprint and gone to the source of that fingerprint.

Q Now, are you familiar in general with -- at least with the kinds of methods or technologies that are being used or that some laboratories are undertaking to employ in the use of DNA?

A Yes.

Q To make it useful as a forensic tool for us?

A Uh huh. There are three different methods that are being looked at right now. One is called an RFLP and that is short for restriction fragment length polymorphism. So, it's easier to go with RFLP . So, that's one that the F.B.I. is working with and doing case work on . The other method is PCR, polymerase chain reaction. That i.s the method that is being done in question here that is in California. The third method is strictly in the stages of research and that is where they're trying to take the DNA and do a sequencing where you look at each section and you just find out exactly what's in each area.

That is the best, the most ideal, of course. That's the hardest one to do and it's still in its research stages.

Q Now, let's see you refer to the laboratory in California, which is what Mr. Connolly, I take it, was referring to a few moments ago when he spoke. The name of that laboratory, if I understand it - correct me if I'm wrong - is the Forensic Science Associates?

A Yeah. That's what I understand.

Q All right, and to your knowledge with respect to the PCR technique or process or method - call it what you will - is that laboratory the only one that you know about which is doing in any active way the PCR work?

A Yes. Uh huh.

Q Okay. Now, what -- if you could tell us before we go on to talk about that laboratory, by the way, what is the role of the F.B.I. or the F.B.T.'s position, if you know, with respect to these two kinds of tests, the RFLP and the PCR?

A All right. It's my understanding that the F.B.I. is now doing case work on RFLP. I'm not sure if they testify at all regarding that but they are accepting cases. PC,R is in the F.B.I.

Laboratory still In its research stages. They feel it has potential to at some future date be of great value. Right now they are hesitating before doing case work because there are questions that they want answered before they begin to do it.

Q I take it then from what you say that at least to this stage the RFLP is the more widely employed technique?

A Yeah. ℑM huh.

Q And if you know is it that technique, the RFLP, which has begun to become accepted in the courts?

A It's one that I know of in a few jurisdictions and I know of a few state labs as well as the federal laboratories who are starting to introduce it into their -- you know, into their case work.

Q All right, how about the PCR technique by comparison?

A The PCR technique right now is one that's been introduced to most of the symposiums and seminars that you go to. It's the one that this organization, the Forensic Science Association foresee; this organization is the one that's

introducing it to the forensic community. So, its not at all in any other lab.

Has it, if you know, become accepted to any extent in courts throughout the country, the PCR process?

A I don't know of any. There might be. I don't know of any.

Q Is there a difference in the -- as between the RFLP and the PCR as between the precision or the discrimination possible --

A There is, yes.

Q in analyzing blood? How precise can we be with one and how precise can we be with the other, potentially at least?

A Okay, with everything you do, with the system working great the RFLP should tell you a -- a discrimination factor of one in, say, a million people or one in, say, a billion. It depends on however many steps they took. But the statistics that they have come out with in their written reports say that this type of DNA is found in one in five million individuals, along those lines. In PCR the best that they can get is a point five to twelve percent, which says one in five thousand. That, is the best

percentage-wise that they can break it down. And that is inherent in the testing that they're doing. So, that's the ideal conditions.

Q All right. Is traditional serology work or can it be as precise as the PCR testing?

A Tt can be. You can do grouping on blood down to specific levels to get it, you know, within two to five percent depending on if the person that the blood you're testing is a rare type versus a not rare type. So, it can get that low. Unfortunately, you usually don't have that much blood or it's degraded. So, it rarely does but it has a potential to.

All right, fine. So, in some cases, at least, traditional serology work might be more discriminating or precise as PCR?

A Or as much so.

Q Or as much so. Okay. And then T want to turn your attention to this case and ask you the same kinds of questions too.

A Okay.

Q But before T do that, let me ask you one other question with respect to the amounts of blood. How much do you need as you understand it to do these kinds of tests, the RFLP and the PCR, and

then after we talk about this then let's talk about what we've got in this case then?

RFLP they will tell you that you need a stain about the size of a dime to at least come close to -- to getting any results. In the PCR what you -- what's unique about this is they're hoping that it takes a very minimal amount to work with, What I've read in the research is like five milligrams which would be equivalent to one drop of material. Unfortunately, that is their ideal conditions. At the present time they're not able to work with that little amount but it's still a small amount compared to the other one that they can work with and it's like was mentioned before, it -- it's because what they take they use that as their building block to make more of the same thing. That's why they can use such small amounts.

Q All right. Now, let's turn our attention then to what blood evidence there is in this case and for purposes of this hearing I know you haven't brought any samples with you and so on but can you tell us, first of all, did you receive a quantity of blood which was represented to you to he the whole blood of Dennis Deschaine, the

defendant?

Yes, I did. Uh huh.

Q And also a quantity of the whole blood of Sarah Cherry, the victim?

A Yes.

Q Okay, and what did you do with respect to those quantities of blood?

A Each of the whole bloods was grouped in their grouping system so that we could put them within their blood type and It was found that Sarah Cherry was a blood type A and Dennis Deschaine is 0 blood type.

Q All 'right. Did you also receive fingernail clippings --

A Yes.

Q -- of Sarah Cherry taken from -- as you understand it, from the autopsy?

A Yes.

Q And did you test those, determine whether those had any substance on them?

A Uh huh.

Q And if so what did you find?

A Yeah. Underneath each of the fingernail clippings -- and they weren't very long. They were about a quarter of an inch or so long. And

T had -- I believe I had ten from the left hand and from the right hand. And I used -- I worked with those as if they were two separate items. And from each of the right and left hands it was found that there was human blood. You could see the red crust . And it was found to be human blood and it was found to contain A and H antigens, And -- and A and H antigens is consistent with someone with A blood type.

Q It: appeared from your typing within the ABO system --

A Uh huh.

Q - that , as I take 1_, to be Sarah Cherry's own blood on her fingernails?

A Yes.

Q Given what: you did, was there any reason to believe or to think that you would have a mixture of her blood with anybody else's blood?

A There was nothing that led me to believe that there was a mixture. If someone had scratched someone hard enough to make them bleed and cause crust underneath the fingernails, you would expect to find tissue, some type of skin material or something indicating that there -- you know, that there had been scratching or you

would expect to find some type of trauma to the nail such as broken nails or something like that and there didn't -- they didn't appear to be that way.

Q No tissue attached? No broken nails?

A Nothing like that, no.

Q Now, you. mentioned the H antigen which I take it if you believe this to be Sarah Cherry's blood, would necessarily be a part of A type blood?

A *Right, A* blood type individuals have both A and H antigens.

Q All right:. Now, Mr, Deschaine's blood has type 0. Does type 0 have an H antigen?

A Type 0 does have H; nothing else, just H *antigen.*

Q I take it then It -- it is for that reason, the presence of the H antigen, which -- which raises the theoretical possibility that that blood found on Sarah Cherry's fingernails could have come from somebody with type 0 blood?

A That's right. That's right.

Q Can it come from any -- from type AB?

A Based on the testing --

Q Or type B?

A Right. Based on the testingT concluded there

is no B antigen so that that leaves out the people in the population who have B blood type or AR blood type. The only donors of this blood could be A individuals or 0 individuals.

All right. By the way, what percent of the population has type 0 blood?

A Forty-five. Approximately forty-five.

q And type A?

A Approximately forty-one.

in performing the particular tests that you did within the ABO system, how much of the blood was necessary for you to -- to employ or use up?

A Oh, what I -- what I did was I was afraid that if I started to mess with the nails themselves, trying to remove the blood, that I wouldn't be able to test: it at all. So, I used the nails with the blood adhering and I had to use up eight of the ten. And the two that are left are the thumbnails and they -- they -- you know, they're about a quarter of an inch long and a twelve year old -- they're probably the size of mine. And that's all that was left.

Q All right. Now, at our request- my request, did you discuss this case with the Fore,nslc Science Associates in California, more

particularly Jennifer Mehavolin?

A Yes, that's who T spoke with, TM huh.

Q *And lay out for her the farts of the case as we* know them such as when it occurred, climatic conditions, how much blood we had, factors of that sort?

A **Yes.** Uh huh.

First of all, with respect to the quantity, did you explain to her how much blood you had left that we could ship out to California potentially and whether or not that was -- the amount or quantity was something they could work with in *any realistic fashion?*

She said realistically it was going to be difficult. Theoretically they should be able to do its realistically their bench work process hasn't been as successful as they like. So, therefore, what described to her didn't sound like the possibility of getting good results.

Q *Did you* -- did *you* speak *with her* about the presence or absence of skin tissue?

A Yes, did and she she also kind of concurred with my opinion that if there was a mixture involved *here, you would* expect to find something along those lines tissue, some

4Scation that there -- that would lead you to %vo that there was a mixture.

oh, let me jump ahead for just a moment to aa you that if this process, the court to allow the defense to undertake it, how would it take to send this stuff to the story for which I guess we understand is - only place to do it? How long would it take or them, first of all, to get to it and then aecondly, to actually do the test; so that in total how much time would pass before we'd get anything back?

Okay, they have a three to four month backlog. So, it would at least be three months until they could start on the case. The PCR process is a five day process and to enable them to analyze the results and do their paperwork it would be another three weeks thereabouts before the results were received back here, So, it would -- optimistically, it would be four months, possibly five to six.

And that would he the earliest time in which we would bear, first learn of any results from California?

Right. Uh huh.

Q Yes. One other Area -- a couple other areas perhaps want to ask you about. First of all, as you understand the circumstances of Sarah Cherry's death keeping in mind the weather, how does climate and so on -- how does that bear upon things with respect particularly to the potential for doing DNA work?

Because of the -- the weather conditions were about ninety degrees and very humid, the DNA or any -- you know, any biological fluid for that matter begins to break down. DNA itself, however, has bondings that are delicate bondings and which, you know, in a climate, weather that isn't good for biological fluids they will begin to break down. Tf degradation has occurred, PCR cannot be done. Also that there is a possibility of degradation just because of the weather conditions..

Q Did you discuss that with Ms. Mehavolin in California as well?

A Yeah, She specifically said with sunlight At couldn't be done at all but T understand the body was not under direct sunlight and, like, the weather conditions could affect it.

Q Oh, by the way, that -- does the possibility. of

degr4ation of blood in DNA or DNA in blood, I guess is the way to put it, similarly affect the ABO system, typing system or not?

A The ABO typing system is probably the most: tie system of testing for all the groups ,done serology. It's just because of the nature of molecules we are testing for. They are very 4arable, especially compared to some of the DNA nd proteins we test for.

Q e, there might be in some cases then, a given easse, you'd have a greater chance for degradation before the blood even reaches the ratory with respect to DNA than you would with respect to ABO serology work, right?

A That's a possibility, right. That's a possibility, Uh huh.

THE COURT: Let me see if I understand this. Our blood grouping today, we either have an A type, an 0 type or is it -- what, AB in addition is the third type?

A Or B.

THE COURT: Or B?

A That's the fourth type,

THE COURT: Okay, and you have an H factor in an A type and in an 0 type; is that right?

Okay, the H factor can be found in all four.

THE COURT: Tn all four?

A But what happens is the H is the first thing that you have in your -- in your cells. Tf you have the correct gene, genetic code, this H will be made into A. Tf you have the correct code, that H will be made into B. If you have no code at all, the H remains H and we call you an 0 blood type. And, so, what happens in an A is some of this H remains with you. Likewise, some of the H gets used up making the B. More of it gets used up making B. So, when we do our testing we tend not to find the H If you're an AB type person. Tf you're an 0, all you've got is the H. You have nothing else..

THE COURT: So, you came to the conclusion as a result of the blood samples obtained from the fingernails of Sarah that the blood was consistent with either an A or an 0; is that correct?

A Right. Right.

THE COURT: Was it consistent with some other blood type?

A No. No.

THE COURT: It was not consistent with the

t' right.

THE COURT: And it was not consistent with *wh AR?*

Tht's correct.

THE COURT: So, it would have had to have from either one of those two sources or perhaps both?

Or perhaps both. The problem with this testing is we cannot count how much H is there. We know tt's there. We know A is there. We don't know whether the H is in such a great abundance that we're dealing with two blood types or whether It's in a normal amount so that it could just come from the average person. And that's really the problem. We can't quantitate it to determine if there's such an abundance there that there's a possibility of a mixture.

THE COURT: But based upon your testing you have come to the conclusion to a reasonable degree of scientific certainty that the blood type that you obtained from Sarah Cherry's fingernails did not come from a B or from an AB?

IA

14 A That's correct. Uh huh.

THE COURT: Thank yon.

rt follow-up on that, what is the likelihood it came from type 0, Mr. Deschaine's type, sing others, among --- he being among forty-five ent of the population?

A Thre is a possibility that it's there. There's possibility that it is just her blood alone without anyone else's. And there's a poosibility that it's a mixture of her blood with another A type. You can't tell exactly whore it came from. We know that there's a there for sure because the A was found. The H is kind of the funny one because the H can be explained as having come from her or we get involved with another blood type that could have given it.

Q What's the likelihood of that?

A I think it's unlikely based on two things: The condition of the fingernails with no tissue and whatnot and also the facts of the case and some of the other items that I received and where blood was found on those items I received.

Q Okay. Oh, I -- I assume what the DNA process can do is if you have a mix of -- of two people's blood, whether it's Sarah Cherry's and Dennis Deschaine's or Sarah Cherry's and -- and

body else's in this world, the DNA actually **breaks** It down so you've got one reading that sb..s it to be Sarah Cherry's and -- and one that shows it can be someone else's?

A *Tfiat's right.*

And the way that's done, I take it, is you send whole blood and they do a DNA on Sarah prately and Dennis Deschaine separately and get a precise reading of the DNA structure?

That right. They will be able to test the blood from the victim and the suspect to determine their DNA known substance, what they Actually have. Then they take the sample which IA the question and see if there is -- if this cn be attributed to just one of them or to both of them.

THE COURT: And it would also -- as I understand what you have testified to, it would tell you whether or not the blood from Sarah Cherry's known thumbnails -

Thumbnails, uh huh.

THE COURT: -- whether or not that was from someone other than either Mr. Deschaine or from Sarah Cherry; is that correct?

It should be able to tell you whether it's Sarah

'rry's blood or hers and another person's or Alter person's.

THE COURT: Right.

MI huh.

THE COURT: And, so, it could conceivably rule out Mr, Deschaine as being the person's **blood** found under her thumbnails; is that roet?

lly if the test works it could.

THE COURT: Under ideal conditions?

Right, it could give you that.

THE COURT: But based upon what the lady at *the* lab has told you it's problematical at best; Is that correct?

That's correct.

THE COURT: Considering the -- number one, the quantity as well as the the atmospheric conditions between the time of her death and the time that it was discovered; is that correct?

A That's correct. Uh huh.

THE COURT: Now, you mentioned in response to questions from Mr. Wright that there were blood samples obtained from other sources?

Uh huh.

(1 And that was -- was that correct?

A Some of those turned out to be A blood type also. The items were mostly items that -- there IA was a handkerchief -- some of this I'm just doing by memory. There was a handkerchief --

THE COURT: Male or female? What we normally consider a male's handkerchief or a woman's handkerchief?

Well, it was one of those handkerchiefs -- it was a bandanna.

THE COURT: Bandanna?

And it was rolled up and -- and put -- a safety pin was put in it: as if you used it as a neck decoration. I think this would be unisex. I'm not sure if a guy or girl would wear this. I think a twelve year old would probably wear something like that,

THE COURT: All right.

There was also a scarf. The scarf was somehow around the neck/mouth area and it also had blood on it and I believe her t-shirt had a little bit around the neck area and that's about it.

THE COURT: And the types of -- the type of blood that you found on those, the sources, were those type A, which was her blood?

Right . it was either type A or it came up

inconclusive and which one was which, I'm not sure. Yeah, but it stayed consistent with being her blood type.

THE COURT: Mr. Wright?

Something occurred to me as you were asking Ms. Brinkman a question and that is if DNA can take a single quantity of blood, a given quantity of blood and break it down and determine that it's perhaps a mix of two bloods, why can't you do it with -- or can you, with -- with traditional serology work? I take it you did not do so in this case? You found just type A?

A Right.

That is, for instance, why can't you find A and also 0 in fingernail clippings, say, where you might be able to do it with DNA work?

I'm not sure I understand the question.

1 All right. Maybe that's not let me try again.

A Okay.

Q Well, you found with Sarah's fingernails type A alone?

A Right:.

Q Assume with me for the moment that the blood of

ringernails because of the presence of an H antigen in it also contained most logically type O blood?

A All right.

Q Is It that you could you not find the type O blood on the quantity of her fingernails that submitted to you?

A when we're grouping these, we're grouping All. You can't separate the A and if 's a mixture if there's a mixture, you separate it. You can only work with it as and then do the interpretation later. An A od type person has the A and H. So, when you sme the A and H assuming that you don't have a mlX re, you say that's A blood type.

Okay.

A f someone brings in a possibility that there might be a mixture, then you have to say based on my results there is a possibility of an A and An O blood typing mixed. Without: the inference of a mixture it would lead you to conclude as to A blood. And I've based that answer on that without the assumption of a mixture.

Q Uh hub,

A Going just with A.

Okay. So, the A and if you have -- if you locate within the A the H antigens, it makes the possibility of an 0 type?

That' right.

All right, but the DNA process -- the PCP, DNA process can break it down?

The DNA process should be able to tell you that you've got, you know, things that are consistent with her and you've got things that are net ccnNistent with her and hence should not mask

They should point to another person if t re's a mixture there.

Al. right, in theory, ideally?

That's right.

All right. Did you determine whether either Sarah Cherry or Dennis Deschaine was what %s called a secretor; if so, does that have any hearing on this?

Roth individuals are what is known as h.tsecretors and that is deals with the A and H antigens and being in other body fluids. In this case we're dealing with blood. So, it -- it is irrelevant to this discussion.

Okay, whether one is a secretor or not deals with -- not with blood but other body fluids?

That's right. That's right.

THE COURT: With those samples that yoli took from her fingernails did you test for type 0? Well, what you're doing is you are making one test and *in your one test you are* testing for the A antigen and the B antigen and the H antigen. if you get positives for the A and H, then you say that that's an A blood type because that's what you expect to see with an A blood type, So, theoretically you are at the same time testing for 0 blood because if you get a negative on the A and a negative on the B and a positive on the H, then that tells you you have 0 blood type,

THE COURT: All right. So, it would be from the tests that you took you were able to rule out an 0 type

No.

THE COURT: -- under her fingernails?

No, that's not correct because we have the A and the H both coming up positive. If we have -- if we are not dealing with a mixture, if there's only one person's blood type, we know that that is an A because those people have A and the H. The minute you introduce a mixture into the

eoncept, the A and the H can be attributed to an A person and the H could also be attributed to an 0 person. So, in our initial testing you are -- you are testing for all three blood types -- all four, and depending on what comes up positive and negative and depending on the facts you are dealing with on a case is how you make your interpretation.

q Tf you find type A --

Vh huh.

re you always going to find the H and type again?

Most likely. Not always but most likely.

kay. So, most likely when you. find type A there is the possibility that you have type 0 as well?

Theoretically it has to be taken into consideration, yeah.

Rut in this case you reached the conclusion what had you was type A, not type 0 --

A That's

Q because that's what the whole tests showed you?

A Yeah, right. I was basing it on no mixtures. I was under the understanding that she had been

bleeding and other things supported that and, so, I assumed that that's what it was.

Q Okay.

MR. WRIGHT: Thank you. I guess that's all I have.

THE COURT: Mr. Connolly?

MR. WRIGHT: Thank you, your Honor.

CROSS-EXAMINATION

Y MR. CONNOLLY:

Brinkman, there are a series of proteins and 4ntlgens which are identifiable in individual sod groups; is that correct?

A t's correct.

Q nd there are dozens if not hundreds of those?

A There are dozens and hundreds.

Q `here are twelve that are forensically forensically common, right? The roat4on which I say forensically significant is you have to test in forensics for something that people have different such as not on an enzyme or 1 otein basis but for how come there are people who are blue eyed and green eyed and brown eyed. So, you have a difference in the population. So, you could test for that theoretically and group you into the green eyes

they're doing enzyme groupings. Possibly
do, uh huh.

If I were to represent to you during the
rse of the discussion Jennifer Mehavolin
those are routinely done there, would
be routine in the test procedure that's
eg offered by the defense?
might be if the decedent and suspect are
erent types. It might be relevant.
ry of the other enzymes or proteins or
that may be available?

hat would be of consequence if, for
.pi, there was a protein or an enzyme which
inconsistent with the decedent found in the
That would be forensically significant?
right:.
milarly, if there was a protein or antigen
was dissimilar to the defendant's, that
Also be significant as long as it was
milar to the victim's also?

Now, in reference to the degradation that
been discussed here due to the humidity, in
discussion with Jennifer Mehavolin has she

indicated to you that despite that there is still a possibility that the results would be obtained with degradation with the CPR because of the way the state of technology is; they're testing only one section of all of the DNA terial that a person has and it really is -(I on whether there's one section of the DNA eh has broken down or not and that's *"0 thing that they wouldn't know until they 'Ve tried?

A That was my point. We can't know until we try it.

Q Now it wasn't degraded to the point where you couid not perform an ABO test although ABO tests are -ubject to degradation as well?

A They are also less susceptible.

Q To *some* extent. However, a DNA test is more dur than whole blood groupings?

A The DNA breaks -- begins to break down, begins to denature at about ninety-five degrees and that's useful In CPR testing. They use that '.eept. And what happens is you begin to view hydrc_.n bonds - is what it's called - begin to break down. Past that point once you have other tl ttgs such as humidity and whatnot, not only

ar the hydrogen bonds breaking down but you're beginning to get the bond which joins one side. You have a two-sided object. And then they fall apart. Then your bonds on each one of these , ides begin to break. Then your compounds making up each of these begins to fall apart.

Q ' t°s how they do the test. That's how they cause it to reproduce, by breaking it in half. and then making it reproduce; isn't that right?

A That' right.

Q So, an analogy would be somewhat like a zipper or with

A I never thought of it that way. Yeah.

Q Where it forms together?

A in huh.

Q They break down.

A That can occur from --

Q Humid ty causes it to separate?

A Okay that's from the temperature.

Q I'A Aorry, from temperature. That is the pr$ ess essentially they used to reproduce the DNA material in the lab?

's right.

t hey break the bond and then they repr duce it and once they reproduce it, once

they just keep doing it to the tenth
have you?

t- the fact there may be some degradation
rust exclude the test, that a positive test
come about?

a possibility.

even Jennifer Mehavolin has been able
t:t~is kind of testing under circumstances
where it was considered all but hopeless;
her areas, for example, that ABO testing
back inconclusive and the proteins and
tests came back inconclusive but the DNA
was able to determine some identification;
that: right?

know. I didn't ask her that.
you aware she's had favorable results in the
cuss, however?

t:he CPR test has been successful.
briefly, the fact that there is an H factor
a+ nt would mean that the -- assuming a
ture, would mean that the contributor of the
H factor could be either in the **A** population or
in the 0 population which would equal
rox.imately, oh, eighty-five percent of the

nti, . population; is that right?

A Atat's right.

Q So, the mere fact that there's an H factor present does not lead to the conclusion that the defendant provided that?

That's right.

Q It just means that he would be one of eighty some odd percent of the population that could have contributed that?

A That's right.

Q)n the other hand, in reference to the Availability of the H factor the secretor factor does become important, does it not, in that when the H factor is present in a known secretor the possibility of that H factor is in lower percent: i_le? In other words, in most ' ances when you have a type **A** who is a known retor the availability of the H factor is A, likely?

A Is for other body fluids.

Q not in reference to blood whatsoever?

A In reference to blood, no.

MR. CONNOLLY: May I have just a moment, Honor?

. CONNOLLY:

Q 10 It its true, is it not, that if this test
10 successful, it will give us a world of
loformation that is not currently available?
A If there's a mixture there, it could.
Q If there's not, a mixture there -- assuming it is
not a mixture, it could still give us a world of
info mation. For example, it could say if the
test Is favorable, if the test is --
A Succese[q] ful.
Q Thank you, very much. Yes, successful. If the
test Is successful, it could exclude the
dece nt from having contributed the blood?
A If the test is successful, it could -- it could
show that It's just the victim's blood or it
could show that it's the victim and another
perso 's blood and there is a possibility of
that not being the defendant. There's a
possibility of that being the defendant.
Q And there's a possibility that it could be-
some me else entirely?
A Yeah
Q And the possibility of being someone else
entirely would be, in fact, higher than it would
be to be the defendant in that it is -- it is
type A with no indication of a mixture; isn't

that correct?

A Say that again?

Q Sure. If there is no mixture and you indicated based upon the lack of trauma, the lack of skin -

A Right.

Q -- that it's most likely not a mixture and if it is

A Rig

Q -- hen it is most likely not the defendant's el because it's type A, not type 0; isn't it?

A If not the victim's at all?

Q Cor p ct.

A Correct. If we're not talking about a mixture and it's not the victim's, yes. We have to have the being attributable somewhere. It would have to be an A blood type if it's not the vic

Q And hat would categorically exclude the def dant?

A He t,i gtbt still be involved if we're talking abo a mixture.

Q If e're not talking about a mixture, it would exclude the defendant?

it's not the victim's?

t's not the victim's and it's and it's

mixture, the defendant would he excluded?

's right.

CONNOLLY: That's all I have.

REDIRECT EXAMINATION

WRIGHT:

do you think the likely result if we

ook four to six months here to have this

going to be as you understand the

evidence that you've got and the techniques

avai ?

I'm going to throw a little common sense

his. I don't know if everyone's aware of

of the case but the victim was found

very small pin pricks around the neck

Tn the photographs - and I didn't view

body myself, I only viewed the photographs

received all of the clothing - the hands

were s such with rope around each end. The --

t hell the hands were not straight. They

were l e this and they were like this. And

e was blood here, plus the handkerchief was

otid the neck in some manner and the scarf was

there around in this general area also. So,

based on this with the blood on the neck, the blood on the scarf and the nails right here, I Ism just using my version of common sense say most likely that is her blood. She was in this manner. She was bleeding at that I didn't see the hands to know whether blood on the hands. All I received the small nails and there was blood under nails. That's -- now, that's just my tion.

as I understand the kind of likelihood, If time Is taken to perform this test, it's show it's Sarah's blood?

s what I would that would be my opinion. h is something that you've already concluded least the blood type is consistent with

blood typing that has been done is

kt with that,

WRIGHT: Okay. Thank you.

RECROSS EXAMINATION

BY MR CONNOLLY

There are other theories for which the explan i of the tying, the binding of the hands and the presence of blood under the nails

could be espoused, certainly?

A Absolutely.

Q And those given the current state of your knowledge of the facts of the case are likely from -- not as likely as the other scenario?

A Yeah -- no. See, I don't know any other theories. I've just dealt with pretty much what I've seen and the clothing I've received and there's no blood on other items that I received such as the -- the jeans; you know, the shoes. It's not like there was somebody bleeding all over something. And I do know that I've seen blood in this general area and the hands at the scene were left in that general area.

Q But they were bound, were they not?

A They were bound.

MR. CONNOLLY: Okay,

MR. WRIGHT: Nothing further.

THE COURT: Thank you. You may step down.

MR. CONNOLLY: Nothing further.

MR. WRIGHT: I have no other witnesses for you.

THE COURT: Thank you.

Argument?

MR. CONNOLLY: Very briefly, your Honor. I

reAd this book about a year ago on Sacco and
tti and the author was named Miller and he
ever al chapters on forensic analysis of the
pon used in the Brighton bank robbery in
Itch two men were executed. His conclusions
4 dramatic in the sense that the forensic
l ienee was -- which was available at that
at the time Sacco and Vanzetti was tried
very different than what we had when the
was written in '62. The conclusion based
forensic tests dramatically changed the
c.e that existed at the time, the
retation of the evidence. I am very
abled by the fact of myself sitting in a
ten, fifteen years from now and saying
ei DNA test, which by then will certainly be
on usage such as fingerprint evidence was
accepted and ultimately became common
I nee among criminologists, that had this
been done the results may be different.
This is a situation, Judge, where -- and it's
onrprise to the state that the defendant in
o instance does not have a clear memory of
incident, if indeed he was involved. There
circumstantial evidence. There is very

little other forensic evidence which links this defendant. This new procedure potentially could completely exculpatate him. The state would certainly not have to stop their prosecution or any such thing as that but it could be profound, I think. And I think it is incumbent upon the defense to argue as strongly as possible that this should be attempted.

We are dealing with a situation that yes, there will be delay and yes, delay is a negative thing in the criminal justice system. But at the same time, the case has not been languishing. It is not extremely old. It is - incidents took place last July. Civil , for example, as the court is well aware, *many, many, many months for discovery to* The state is very cooperative in ilding discovery. The defendant has been ing on this matter. These are cutting edge n logies. It is something that could t`c l ndly affect everything in the case and I tk that it is incumbent on the court to allow leeway. Even if the court ultimately 4rmInes there may be only a ten percent that the tests would be exculpatory, then

the ten percent chance it would be exculpatory given the fact that there are no eye witnesses n. the case, that there's circumstantial evidence which is pursuasivebut at the same not ultimately conclusive as to the ndant doing the deed, I think this evidence be allowed to go forward and that's my 2nt.

THE **COURT:** Thank you.

Mr. Wright?

WRIGHT: Your Honor, a couple of comments thought just occurred to me that may not occurred to Mr. Connolly as well. It might possible option In this case. It struck me Me. Brinkman was testifying that she did not h cause the capabilities of the crime entry here, I guess, are just not such that can 6o it for the, say, the PGM, for pie. It may be possible, it occurs to me, **well** within the time that we still have to try to send both the whole blood test h Cherry and Dennis Deschaine to the Laboratory and ask them -- as you know, Spaulding, the director of the serology unit is from Maine and treats us nicely. It

may be possible, it seems to me, for us to send that with my calling him on fended knees and begg trig for him to see whether he can test the whol blood to see what results we have on the paw and maybe that will answer the questions that in the alternative it appears might nece itate a delay of as much as a half a yea I throw that out as a thought and eer if the court wishes me to I would und ke to do that. The thought had never occ teed to me until Ms. Brinkman was tes ying. Maybe that's an option.

As to, however, the more particular tests and the rea for the delay that Mr. Connolly wishes to -- wishes to have, several factors led me ultima ely to oppose his request for continuanee. It's true that he and I have discussed the possibility of undertaking this test. After I spoke with Ms. Mehavolin in Cal fornia and Ms. Brinkman and tried to underst and a little bit better what was going it seemed to me on balance that we would be with nothing more than we already know: likelihood, the great likelihood that the is Sarah's alone.

It should be kept in mind that the blood was found on her fingernails. I can represent to you that there was blood also on her hands, although those were not seen by Ms. Brinkman, in an area in which she had been bleeding to some greater or lesser extent. I can say to you that there were stab wounds in the upper chest area and under her neck and that is precisely where her hands were found bound. There was blood consistent with that on the scarf that was around her neck and appeared to have been the ultimate cause of the strangulation as well as a bandanna which my recollection is was stuffed in her mouth. I may be wrong about that but I think that was the case. Mr. Connolly confirms my memory of that.

The court might ask me then gosh, Mr. State, why don't you want this test done? If it comes back AA a type O, it could prove that it's Bonnie Deschalne's blood and yes, that's true. On the other hand, it would do no more than tell us that it is forty-five percent of the population. That may or may not be of terrific news to a jury. It certainly doesn't hurt the state's case if this test were to come back to

4i* of A and 0, nor given all the
es did I feel it was terribly
the other hand, what we do not have
ttws , which you would think we would
fit: were somebody else's blood, is the
If something such as skin tissue. And
s:resent to you that at least my
inn is that while Mr. Deschaine's body
small scratches on them, they were not
significance as to have caused him to
p led. The likelihood, therefore, that
is blood from him is so remote, I think,
h really hill.
top of all that we have to consider, it
to me, the test itself, the PCR test which
1ne that is at issue here, That does not
she same reliability as the RFLP. The
1. is on line with the RFLP. They are not
!pie with the PCP.. They are studying it I
II you, as Ms. Brinkman did as well. It
haps be a useful tool.. It may not be. I
't know. And they are not certain about
jet to testify about it. They are testifying
t the RFLP. The Florida case which
Connolly has submitted to you concerns not

test but the RFLP test and that, it fts to me, is important to note. That's the t4n that's becoming accepted and that's not the test that is available in this case because of the small quantity of blood which remains. Only the PCR test is available and as to that there are questions even now as to its reliability. In top of that, given the particular circumdances of this case, the very small quantity that is left which even from Jennifer Behavon in California greatly reduces the likelihood of any successful result as well as the possibility of degradation which again throws if not a wild card into this certainly greatly reduces the likelihood of a successful result, on balance it has led me to think that what we are doing here is doing nothing more than delaying a case which is, as the court knows, very troubling to the community emotionally. They want it over with. It is, as far as can I tell, the only reason that this case should not go to trial as scheduled six weeks or so from now and to my mind, I guess, what I'm saying is the short delay isn't worth th gamble. I don't think we're going to learn

very much and what we're going to wind-up with is six months is all of us asking ourselves why did we do this; why did we delay this awful thing for six months rather than get it over with.

I concede that there is the theoretical possibility of a successful result that may be helpful to one side or the other but the theoretical possibility is not very great and the realistic likelihood here is that we're going to find Sarah's blood.

So, for all those reasons I chose ultimately after discussion with Mr. Connolly to think that we ought to get this case over with.

THE COURT: Thank you, Mr. Wright.

Mr. Connolly?

MR CONNOLLY: Your Honor, I would like respond briefly. First of all, in reference to the issue of the bound hands, I do not want to give away trial strategies. I can inform the court that I in good faith have a very good answer to that argument and I would greatly appreciate not have to reveal that during the course of this hearing. I think that it's arguable, of course, Mr. Wright's position, but

1here are contrary theories and I would greatly prefer to leave that at that,

Secondly, insofar as the PCR test not being as rel what we have right now. The ABO test indicates, as Ms Brinkman indicated, a forty to forty-five perc ant possibility of one group or another. We're dealing according to what we have here on anal iftis is -- is a one in five thousand chance, which a statistically much more certain proc dure than the ARC) procedure currently,

I nsofar as PCR not being acceptable, I think tha that is a bridge that we should cross in refe renee to foundation when the time comes. There courts that: are currently dealing with this exact test and I don't have a curriculum or resume of where it has been. accepted or offer 4, but I am under the assumption, under J,4 nderstanding that it has been offered in cape ages in Oregon and it has been offered in other areas as well. And by the time trial comes around I think in good faith that an ap lU to foundation can be established.

Try reference to the test not likely being si essful, we don't know what the likelihood of

[illegible] is. All we do know is that there is a [illegible] t some level that this will be [illegible] evidence, that it is profoundly [illegible] evidence goes according to the [illegible] hope In addition, however, it is [illegible] that the Forensic Services lab can do [illegible] other enzyme and protein tests, the PGM [illegible] for example, and we can get. that done [illegible] in one fell swoop.

Finally, there's one thing I do wish to -- to [illegible] at this point. Should the motion be [illegible] and the test performed on the behalf of [illegible] that it would be work product. I want that to be brought out right now. Mr. Wright has had access to the people at Forensic Services Lab but basically if we are going to be forced to -- to pay for it, it is under our control and it is work product and it would not he revealed to the state unless and until we determined that we would attempt to use it. So, I just want to make that issue very clear, that's -- Mr. Wright and I get along very well and such but these are important issues and I want the court to understand that as well, that I'm not going to he just generally handing

it over to them until T make a determination that it may he useful at trial. So, I want to be up front about that as well, sir.

THE COURT: There are a number of things about this that concern me. While it may be that counsel, defense counsel has a trial strategy to explain the position Of the hands in the area of the bleeding, the testimony of Ms. Brinkman as well as the acknowledgment by counsel is that there were puncture wounds in the area of the collarbone and the neck area where there was a scarf and a bandanna and this bleeding was in an area where Sarah Cherry's hands were found at the time the body was discovered.

The source of this blood which is sought to be analyzed under the PCR method is under the fingernails and we have no skin tissue mixed in there. Tt is strictly blood. The PCR process, test process Itself based upon what I have heard here this morning cannot he attested to as having the same reliability, whether it is greater or lesser, than the known RFLP. According to the testimony of Ms. Brinkman, the ratio in the RFLP is something like one in five

whereas the ratio in the PCR is around one in five thousand.

We have here the blood type of Sarah Cherry is known to be type A. We know that the blood type of Mr. Desehaine is type O. So, we know that the blood sample, the blood quantity under the fingernails and on the fingernails of Sarah Cherry was not the blood of Mr. Desehaine. It is consistent with Sarah Cherry's blood. The only thing that the PCR test would show other than what we already know is the possibility that the blood under the fingernails of Sarah Cherry was from someone other than Sarah Cherry with a type A blood. It is questionable as to whether the remaining quantity of blood is sufficient to allow a test to even be conducted. There is also the possibility that because of atmospheric conditions at the time her body was discovered that there was degradation between the time of her death and the time her body was discovered and the blood taken from her fingernails as a consequence of the weather.

Weighing everything in balance here, the most that we have and under the best of conditions in

favorable to the defendant is the possibility that the blood under the two remaining thumbnails was the blood of someone other than Sarah Cherry and other than Mr. Deschaine and the possibility of that happening is so remote that I cannot grant the motion to continue this case for purposes of performing that PCR test. And, so, for those reasons the motion must be denied, the motion to continue must be denied.

There were some other matters on the motion to compel discovery. I gather that that's not going to be a problem?

MR. CONNOLLY: No, sir. I don't anticipate -- the only thing that I was requesting is at some point an order be entered so that any scientific or expert testimony that the state intends to offer be reduced to writing. They do that as a matter of course Anyway,

MR. WRIGHT: I guess I'm not clear what Mr. Connolly thinks he's lacking but whatever it is, I'll take care of it.

MR. CONNOLLY: No, I don't believe I'm lacking anything just that if there is

will oA expert witnesses later on that are going to testify to any additional matter, that I be prov ded with a written document. I have, I beli.eve, everything the state intends to use. I don' believe I'm lacking anything. I just want to make sure that later on that that does not occur.

THE COURT: And I gather that you gentlemen may want to pursue that --

MR. WRIGHT: PGM.

THE COURT: PGM test through the F.B.I.?

MR. WRIGHT: Yeah, I -- it really just had not occurred to me that that would be a oossibility, something that might be possibly ', elpful here.

THE COURT: You may want to put in a cal] to Mr. Spaulding --

MR. WRIGHT: Yeah.

THE COURT: -- at the F.B.I. Lab.

MR- WRIGHT: Yeah.

THE COURT: And see if there's some way he can expedite that.

MR. WRIGHT: 1'11 do that. That may be as useful as the PCR business would have been otherwise.

THE COURT: All right.

MR. CONNOILY: Your Honor, it's my understanding the trial date's March 6th am I correct?

THE COURT: That's correct, in Rockland.

MR. **CONNOLLY:** **Yes,** sir, understood. Thank you judge.

(10:04 a.m.)

CERTIFTC A TE

I hereby certify that the foregoing-is a correct transcript-of my stenographic notes-of the testimony and proceedings at the hearing in the above-entitled cause.

DATED: February 2 3 1 - -. 9 6 9 .

Mary A. Riley

Official Court Reporter