yourselves or allow anyone to discuss it with you or form or express any opinion on the case.

The Court will recess until 1:30.

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MONDAY AFTERNOON SESSION, OCTOBER 17, 1988

THE COURT: Call your next witness.

MR. McGINTY: The State calls Joe Serowick.

The STATE OF OHIO, to maintain the issues on its part to be maintained, called as a witness, JOSEPH SEROWICK, who, being first duly sworn was examined and testified as follows:

DIRECT EXAMINATION OF JOSEPH SEROWICK

BY MR. McGINTY:

Q Sir, could you state your name and spell your last name for the record.

A My name is Joseph Serowick.

Q And how are you employed, sir?

A I'm employed by the City of Cleveland, the Department of Police, in their forensic laboratorty as a civilian scientific examiner.

Q And how long have you been so employed?

A I have been employed there for approximately two years.

Q And could you tell us of your educational

background?

A I've received a Bachelor of Science degree in biology from Demoyne College in Syracuse, New York. I have also received a Master of Science degree in the field of forensic science from the George Washington University in Washington, D.C.

Q And are you a forensic scientist, sir?

A Yes. I work as a scientific examiner.

Q What was your Master's thesis in, what was the subject?

A The subject of my Master's thesis was the deterioration of hair in soil.

Q Okay. Regarding the aging processes effects on hair, particularly in bodies that have been buried directly in dirt?

A That is correct.

Q Now, do you have expertise in the field of hair and hair analysis?

A I have been, I have taken courses and have studied the literature of hair examination in quite a bit of detail, yes, I have.

Q And tell us of your training in hair analysis.

A In graduate school I received, part of a course was in hair analysis. I also, in the course of my thesis, analyzed hair on a very large scale.

Q Did you have to become very familiar with the analysis of hair in general before you could begin to note the differences in deterioration of hair in buried bodies, in that type of hair analysis?

A That is correct.

Q And have you testified as an expert before in the Court of Common Pleas?

A Yes, I have.

Q Approximately how many times?

A Approximately twenty times.

Q And what are your fields of expertise?

A My fields of expertise in the forensic science laboratory are serology and also hair examination.

Q And do they both primarily rely on microscopic examination?

A Hair analysis more so than the serology, yes, microscopic examination has a lot to do with it.

Q Could you tell us, sir, did you have an occasion to examine the bag that has been marked as State's Exhibit Number 1 for purposes of identification, and the washcloth contained therein?

A Yes, I have.

Q Tell the jury how you recognize a product that you have examined before.

A I recognize this particular piece of evidence

because it has the laboratory number, 248836 and also my initials and the initials of a co-worker.

Q And what are your initials, jsut so we recognize them, and your co-worker's?

A My initials are JMS and RR is my co-worker.

Q Who is the co-worker?

A My co-worker on this was was Renette Reed.

Q Was this property, first of all, received in due course from the Cleveland Police who had delivered it to the S.I.U. lab?

A That is correct.

Q And the normal course, the detective or police bring it to the S.I.U. lab and it's assigned a number?

A That's correct.

Q When you do your analysis, do you always refer through that number?

A Yes. All of our evidence is cataloged by that particular number.

Q And is that number contained on that towel next to your initials?

A Yes, it is.

Q Now, what testing did you do first with this towel?

A Initially I observed the towel with the naked eye and tried to find any type of discoloration or stains which may be some semen or blood.

Secondly, once I found a stain that may be semen, I tested it for the presence of acid phosphatase, which is an enzyme found in seminal fluid which is used as a preliminary indication of the presence of seminal fluid.

Q Is that more or less a field test?

A It's a wet chemical test that sometimes can be used in the field.

Q And what was the reaction, positive or negative for seminal fluid?

A Upon initial testing, the stains were positive for acid phosphatase.

Q Now, do only males eliminate or pass on seminal fluid from their bodies?

A Seminal fluid only comes from the male ejaculate, which is during intercourse.

Q Does the famale in any manner or shape emit seminal fluids?

A They do not. They don't secrete seminal fluid at all.

Q Coninue. After your acid phosphatase test, what test was next?

A After the acid phosphatase test, I performed what is known as a P-30 test. P-30 is a protein which is found in seminal fluid to the exclusion of anywhere else in the body. Therefore, it is considered a confirmatory

test for the presence of seminal fluid.

Q What type of test does that involve, sir?

A That particular test involves what is known as a crossover electrophoresis type of a test.

Q And what were the results of the electrophoresis test?

A The results of that particular test was positive. Therefore, I concluded that P-30 was present. And since P-30 was present, I concluded that indeed, seminal fluid was present.

Q On that towel that is contained in State's Exhibit Number 1?

A Yes.

Q Or washcloth?

A In the encircled area, yes.

Q Therefore, based on your testing, your educational background and your experience -- and by the way, on your experience have you had the occasion to examine other items before for, whether it be seminal fluid or hair?

A Yes.

Q Numerous times?

A Yes, sir, numerous times.

Q Is it a common procedure?

A Yes, it is.

Q Based on that experience and your examinations that

you described here, do you have an opinion within reasonable scientific certainty as to whether seminal fluid was emitted and contained on that washcloth?

A Yes, I do.

Q What is that?

A My conclusion is that the encircled area of this washcloth does have seminal fluid on it.

Q Now, did you have an opportunity to test the seminal fluid itself?

A Yes, I did.

Q And how did you accomplish that?

A After determining that seminal fluid was present, I attempted to determine which, ABO antigens, if any, were found in the seminal fluid. I accomplished that by performing an absorption inhibition test on a piece of this cloth.

Q Why were you looking for the ABO fluid type; what would that tell you?

A ABO antigens are molecules found in seminal fluid. They are genetically controlled, and it is a way by which we can identify one sample of seminal fluid from another sample of seminal fluid.

Q And what else can you determine from that ABO type?

A I can determine secretor status and I can also determine which ABO antigens are present.

By secretor status I mean that while everybody in this courtroom has ABO type in their blood, 80 percent of the people also secrete their ABO antigens in their body secretions; their saliva, their semen, their sweat, their tears, et cetera. Twenty percent of the population do not secrete those particular substances in those fluids. Therefore, by testing this seminal fluid, I can determine whether the person who deposited this seminal fluid was in fact a secretor or a nonsecretor.

Q Was the person that deposited that seminal fluid on that wash rag a secretor?

A Yes, he was.

Q Okay. And to be sure now so the jury understands your probabilities, four ot of five people are secretors; is that correct?

A That's correct.

Q One in five is not?

A That is correct.

Q And this individual was a secretor?

A Yes, he was.

Q Now, are you able to determine the blood type or further classify the ABO type from the testing you described?

A Yes. I was able to determine which of the ABO substances were in te seminal fluid.

Q And which ABO substances were in this seminal fluid on State's Exhibit 1?

A I found B antigens and also H antigens, which is consistent with AB blood, which is conducive to AB type.

Q So from your testings are you able to determine with scientific certainty what type of blood the secretor was who deposited the seminal fluid on State's Exhibit 1, the washcloth?

A Yes, I was.

Q What was his blood type?

A The ABO type of the donor of this seminal fluid was type B.

Q And what percentage of the population is type B?

A Approximately 20 percent of the black population is type B.

Q Does it differ significantly between the white and the black population?

A Not much, a couple of percentage points, but ont that much.

Q And you have already described that 80 percent are secretors. Based on those two, what portion of the general population does AB secretor eliminate as far as blood type?

A AB secretor constitutes approximately 16 percent of the population.

Q So if we understand you correctly, sir, that 84 percent of the population, male population would be unable to deposit that seminal fluid on State's Exhibit 1?

A That is correct.

Q Now, did you have an occasion to learn, through me, through the medical records or whatever -- or did we submit, I don't recall -- the blood type of Jennifer Tennant?

A Jennifer Tennant submitted a saliva sample, which was taken by myself. And I tested the saliva, her saliva, for the presence of ABO antigens. And I determined that she was a secretor of type B.

Q So by coincidence the victim is also a B secretor?

A That is correct.

Q And the defendant, Anthony Green is a B secretor by your testing?

A Through the blood samples and the saliva samples submitted by the defendant, he was determined to be indeed a type B secretor.

Q All right. You determined, you said you determined earlier from the blood type of the depositor of the seminal fluid on the rag to be a B secretor, was that a male or female who deposited the seminal fluid which you tested?

A A female cannot produce or secrete seminal fluid; therefore, a male must have secreted that particular body fluid.

Q Do you have an opinion, based on the same factors listed before, as to the type of blood, an ABO type, that the secretor who deposited the seminal fluid on State's Exhibit Number 1 was, blood type?

A The blood type of the man who deposited this particular seminal stain was type B.

Q Now, Mr. Serowick, did you have an opportunity to examine a hair that was also found on State's Exhibit 1?

A Yes, I did.

Q And submitted to the lab as such?

A Yes. It was found right on the rag.

Q And it was submitted right on the rag?

A It was found right on this towel here.

Q And after it was found, what did you do with the hair, as far as analysis?

A Once the hair was found, it was recovered from this particular towel and placed in an envelope so that it would not be lost.

Q Okay. Was that envelope marked by you and everything else?

A Yes, sir, it was marked by me with the laboratory number and the date which it was found, and my initials.

Q Is that the standard procedure?
A That is the standard procedure, yes.
Q Approximately how many hours have you spent in your expert analysis of this single hair?
A In the comparison of that single hair, with various standard samples obtained about it, from the defendant, I spent approximately 25 to 30 hours analyzing that particular hair.
Q Did you have assistance in that 25 to 30 hours?
A No, sir. I would say 99 percent of the work was done by me. However, others did observe the hair while it was under the microscope, yes.
Q You might note to another co-worker, observe this or observe that or whatever?
A Exactly.
Q Now, can you tell us of the semantics or what region of the body that you concluded this hair came from?
A Looking at the hair itself, it was very difficult to determine from which area of the body it came from.

But it's very important to compare a hair with the hair from the particular part of the body that it's from. So for that reason I examined the hair and compared it to samples of hair taken from the defendant's head, chest, leg and pubic area.

Q Now, you said it's very important to examine and compare the hair from the area, from the region in which it was found.

Could you tell the jury, is there a difference between different areas of the body, the hair, such as a pubic hair compared to scalp or chest hair?

A Yes. There are numerous differences between say for example a pubic hair and head hair, differences in diameter and various other characteristics.

Q For example, type, root, whatever. What are the differences?

A Some of the difference are in the length of the hair and the type of, what is known as the medula, which is a part of the hair, which is a particular cell type found in hair.

There are certain areas of the cortex of the hair, such as cortical fusi, which are almost like little holes or air pockets in hair, which are more prevalent in pubic than head hair.

Q Are they readily distinguishable?

A Under some conditions a head hair can be distinguished from a pubic hair. However, sometimes it's very difficult because of overlapping in different characteristics. There is variation in head hair, there is variation in pubic hair and sometimes this variation

overlaps. And so sometimes it's difficult to determine one region from another by just looking at the hair.

Q What was the first type of hair I submitted to you on Court ordered sample?

A The first sample of hair, I compared this unknown sample to the submitted pubic hair of the defendant.

Q What is your analysis of your examinations of the pubic hair with the hair found on the towel?

A I found that the diameter of the hair on the towel was such, was smaller than that of the pubic hair sample; and therefore, I determined that it did not come from the pubic region.

Q Did the testing, based on your experience, determine that the characteristics of the hair found on the towel were inconsistent with that of pubic hair?

A That is correct.

Q Now, did you have an occasion to note or dissimilate the racial characteristic of the hair such as Mongoloid, Caucasian or Negro?

A Yes, I did.

Q Are those the three basic racial characteristics of hair?

A Yes, sir. The Caucasian hair are hairs from Europe and the middle east, areas of that type. Mongaloid hair are hairs taken from the far eastern Oriental type

people, and also American Indians. And Negroid hair is taken from Africa and places like that.

Q Are there differences in the characteristics of the three hairs, differing in the diameter?

A There could be some difference in diameter.

Q How about cross section?

A The cross section is probably the most distinguishable characteristic. The Negroid hair is flatter, almost ribbon shaped. Whereas the Caucasion hair is more of oval shape. And Oriental is more of a circular shape.

Q Is there also differences in pigmentation and cuticle and undulation?

A There are various characteristics that are also used. However, as I said before, a lot of times there is variation within the racial sample. And it's sometimes difficult to determine, looking at one particular hair, whether it is of a particular racial group.

Q Based on this particular hair, were you able to determine the racial origin?

A Yes, I was.

Q And what was that?

A I found it to be of a Negroid type of a race.

Q Now, did you, in your 25 or 30 hours, did you have an opportunity to examine the characteristics of the hair used in this comparative analysis?

A Yes, I did. I categorized that hair, yes.
Q Now, if I would cover the major characteristics individually, did you have an opportunity to test and note the color?
A Yes, I did. Using a comparison microscope, I found the color to be a dark brown.
Q Are there different shades amongst Negroid hairs other than black and brown or gray?
A Well, there are several shades of brown that could be found, also gray and perhaps a lighter brown.
Q Was this a match?
A The hair that was found on the towel was a, in respect to color, was a match to the head hair of the defendant.
Q And did you pull the hair yourself of the defendant, or was it submitted to you through the hospital or whatever?
A I did not pull the head hair of the defendant. However, I was present when the sample was taken.
Q Where was it taken? Well, never mind. It was taken in your presence?
A Yes, it was.
Q And that was the same. Approximately how many hairs do you pull in each region?
A Approximately 50 to 100 hairs were taken from each

region, the head, the chest, the pubic and the chest region.

Q And when you are discussing here and now the hairs, are you discussing the characteristic comparison of the hairs that were plucked from the defendant in the head region and compared to the single hair found on the towel?

A That is correct.

Q Did you have an opportunity to observe and determine the pigment distribution?

A Well, yes. The pigment of a hair is the way that a hair shows color. Pigment granules are found in the hair and that's what gives the hair color.

They can be distributed in several ways. They could be evenly distributed, they could be clumped in various regions, they could be clumped toward the outer edge of the hair or clumped towards the inner edge of the hair.

So there is some bit of variation on the distribution.

Q On the hair that you looked at on the towel, was there any evidence of any treatment?

A I did not note any type of treatment on the hair, no.

Q So that we all understand what you mean by

treatment, could you explain possible treatments that go into a hair?

A There are several ways a hair can be treated and that can be recognized, such as bleaching or dying or permanent waving. Treatments such as that can be readily seen under a microscope and identified as such.

Q And how about Jerry curls or this other type of treatment people put in their hair themselves?

A Yes, that can sometimes be observed as well.

Q Was a treatment determined from the hair plucked from the defendant or the sample?

A I could not detect any.

Q Now, did you have an opportunity to examine the medula of this hair found on the towel and the hairs found plucked in your presence from the defendant?

A Yes, I did.

Q Could you tell us what the determinations were that you made from that?

First of all, tell us what the medula is in the hair.

A A hair, in general, if I may digress a bit, are formed by three basic layers.

The first, outer-most layer is known as the cuticle area, which are approximately five to ten layers of very flat transparent, translucent cells. And they

are formed in such a way that they form an intricate pattern. They are layered on top of each other.

The second layer is the major part of the hair, which is known as the cortex. And in the cortex is consisted of a protein known as keratin, along with pigment granules and that type of thing.

The middle inner-most layer of the hair is known as the medula. The medula is an amorphous group of cells running down the shaft of the hair right in the middle.

Q So in your observation of the shaft of this hair, the medula, what did you observe?

A I observed that the medula in the questioned hair was present or it was discontinuous. What I mean by discontinuous is that the medula is usually seen as a dark line running down the hair. And sometimes this shaft of cells isn't seen at all in a hair. Other times you can see this medula running from the tip all the way down to the root of the hair so it's a continuous type of medula.

In this particular case, I saw a combination. Most of the hair had a medula in it, but there are breaks in it and what is known as a discontinuous medula.

So that type of medula was found on the questioned hair and also on the standard sample hairs from the head of the defendant.

Q That were taken from the defendant. So the possibilities are consistent line of the shaft or absence of a shaft, absence of a color shaft?

A Correct.

Q Or discontinuous, a bit of the shaft, a bit of the color, a bit of the shaft?

A That is correct.

Q The defendant's hair sample taken from him in your presence and the one found on State's Exhibit Number One--

A That's right, they had a similar medula type.

Q Have you seen all three types in hair examination?

A Yes, I have seen those types of medula, yes.

Q And in color, Negroid hair, have you seen different color or treatments?

A Yes. There is a wide variety, yes.

Q Have you seen different pigment distribution in hair?

A Yes.

Q Tell us about the root of the hair.

A The root of the hair is what anchors the hair to the head. It is known as the follicle of the hair. And it can take several forms, one of which is a, has the appearance of a bulb. It is kind of a circle and it takes on the appearance of a bulb.

The next is elongated and takes onthe appearance of a ribbon shape. And those are two basic forms of a root.

Q Have you ever heard of them as described as like an onion or like a carrot? The one like a bulb as the onion type and the longer ribbon type would be the carrot?

A I've never heard that terminology, but it's similar to that, yes.

Q So what type did he have?

A He had a bulbous type of a root. Both the questioned hair and also the standard hair sample from the head of the defendant.

Q Now, as to the minor characteristics of a hair, did you have an opportunity to also observe those?

A Some of them, yes.

Q And did you notice the pigment sizes on the hair?

A Pigment size is a fairly relative type of a reading. Basically you can take a reading, you can measure the size.

However, in this case I just basically looked at the pigment granules and determined that they were approximately of an average size. And the pigment size, the granule size of the defendant's standard sample from his head was consistent with the relative sizes of the pigment granules found on the questioned hair.

Q Can you tell us what the vacuoles are?

A Vacuoles, also known as cortical fusi are little pockets in the hair that are either filled with air or a liquid. And they are seen under the microscope and they can be compared. And I observed some of these cortical fusi in the defendant's standard head hair sample and also in the questioned hair. And they were found to be similar.

Q Did you have an opportunity to examine the cuticle margin of the hair?

A Yes. Again, the cuticle margin is the outer area of the hair and due to these cells being laid on top of one another, they form an edge.

If you would look at, for example, a woolen hair from a sheep, you would see that there is a very serrated, almost like a saw-tooth appearance to the hair, due to the edges of these different cuticle cells.

However, in human hair, that type of a serration or saw-tooth appearance is very, very less pronounced, unless the hair is treated in some way. And I observed this particular cuticle margin on both the questioned hair found on the towel and also on the standard head hair sample of the defendant. And again, these were found to be similar.

Q Now, referring to the tips of an individual's hair,

do the tips vary from person to person?

A They could, yes.

Q And what are the possible tip variations?

A A tip can take on several characteristics. If it is uncut it has a natural taper which kind of tapers into a point. Or if the hair is cut you could see an angle by which it was cut, either by a razor or clippers or whatever. Sometimes the edge is blunted or sometimes the ends are split.

And there are various types of combinations of tip types. It could also be singed. If there was an excess of drying and heat, such would cause the tips to be hinged a little bit. So you could tell that also.

Q In this instance did you have an occasion to note the similarities or dissimilarities of the tip types between the two hairs?

A Yes, I did.

Q And what was that?

A I found that both the questioned hair and many of the hairs from the standard hair sample of the defendant were found to have a natural taper to them.

Q Now, based on these various comparisons of the major and minor characteristics of the hair used in your comparative analysis, were you able to reach a conclusion based on your experience, your training and your

education, between the standard sample taken from the defendant in your presence and the hair that you found on State's Exhibit Number 1?

A Yes, I can.

Q And what is that, what is your opinion?

A My opinion is that the hair found on this particular towel is consistent with the head hair standard sample taken from the defendant in my presence.

Q Now, Mr. Serowick, so we understand your opinion and your testimony, is it possible by todays scientific standards to determine with certainty whether an individual's, whether two individuals' hair matches?

A No, there is no way that I could look at a hair and then look at a hair sample and say that this particular hair came from this person and no other: to the exclusion of all else. There is no way scientifically at this point through microscopic comparison to individualize any hair whatsoever.

Q The most you can have is that they are dissimilar and similar in the manners you have described?

A That is correct.

Q Now, have you in your testing, education or training also taken hairs from one individual, find that there can even be dissimilarities from the hairs on the same individual on a standard controlled testing?

A Yes, that is correct. Hairs are, have a highly variable range of characteristics. Two hairs taken from any one person may have dissimilar characteristics in medula or diameter or any of the other types of characteristics that I've discussed.

What you are interested in is looking at the variation of a standard sample and seeing, determining if the questioned hair follows within that sphere of variability, if the questioned hair falls into that spread of variability. Because as I said, different hairs from the same person may indeed have different characteristics. But it's the patterns and it's the variations that we are looing for when examining hair.

Q Now, for the sake of example for the jury, if we were in your laboratory and the jury was present and we walked up to Detective Zbydniewski and plucked two hairs, two off the top of her head and handed them to you, or you plucked them yourself and put them under your microscopic analysis and all the testing procedures, and it was within all of our sight here, would you be able to scientifically state a conclusion under the standards prescribed by that science, with a certainty that those two hairs came from the same individual?

A Unless I actually saw them plucked from the same individual, I could find they were similar in the

characteristics, but I couldn't say they matched, that they were coming from the same individual.

Q It's a possibility of two hairs matching from two different individuals?

A There have been several studies into that particular question. And to be honest, there is not a lot of concensus to that question. However, various studies have done, I recall a study that said one in 40,000 would be a pretty good estimate.

Q Do different studies differ on the number, the remoteness, one in 20,000 or one in 40,000 or one in 80,000?

A It would depend on the type of test they made and how viable the study is. There have been a number, and this is what they came up with.

Q Is the possibility that two hairs from two different people having two characteristics in the major categories as being extremely remote?

A It would be very difficult to find that, yes.

MR. McGINTY: Thank you. No further questions.

THE COURT: You may cross examine.

MR. DRAPER: Thank you, judge.

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CROSS EXAMINATION OF JOSEPH SEROWICK

BY MR. DRAPER:

Q Good afternoon, Mr. Serowick.

A Good afternoon, sir.

Q Let me start off by saying, I'm Jim Draper, and Mr. Chavers and I represent this young man. Since my level of sophistication regarding hair is not very good and I want to understand what you are saying, I have some questions for you.

You are saying that there were some similarities with at least one controlled sample, and that you took several samples from this young man; is that correct?

A That is correct. I took a sample from his head, his chest, his pubic area and his leg.

Q And they were submitted to you on at least two different occasions?

A They were submitted on two different occasions.

Q Which partly accounts for this 30 hours that you spent with one hair, looking at different samples and comparing them to your control sample?

A I compared the control hair to different samples.

Q After the hairs were brought to you, you knew they were voluntarily given to you, don't you?

A Yes.

Q Incidentally, after comparing all of that, your

conclusion here is that they are similar?
A That's correct.
Q And you are not telling the ladies and gentlemen of the jury that the hair that was in that control and the hair you took from this young man's chest and from his head -- wherever you got them -- you're not saying they are the same, are you?
A As stated, it would be impossible to individualize a hair in that manner.
Q Impossible as relates to comparison techniques?
A Excuse me?
Q Impossible as it relates to comparison techniques?
A By the way I compared it, it would be impossible.
Q The way you compared it. But the way you compared it is not the only way scientific tests can be performed?
A There are other tests.
Q And you have heard of DNA fingerprinting?
A Yes, I have.
Q And experts in that field suggest that it's almost one hundred percent accurate.
A That's correct.
Q You didn't do that, did you?
A I did not compare the hairs in that manner, no.
Q All right. Let me ask you, Mr. Serowick, to tell us -- incidentally, before I get into that -- now you are

talking about comparison and basically you are talking about looking at hairs under a microscope?

A That's correct.

Q Two hairs juxtaposed to each other?

A Well, using a comparison microscope.

Q Now, you are forensic personnel, aren't you?

A Yes, I am.

Q Before we get much further in this, you didn't examine any fingerprints that were lifted from any crime scene connected with this case?

A I don't analyze fingerprints as part of my job, no.

Q To your knowledge, anybody in your SIU unit do any such test?

A I would have no knowledge one way or the other whether they were analyzed or not.

Q As far as you know it didn't happen?

A I don't have any knowledge either way.

Q Do you anticipate anybody coming in here to testify or not?

A I don't know.

Q Could you find out?

A I could find out.

Q Would it be very difficult to find out?

A I could ask my supervisor. That would be simple enough.

Q Now tell us, Mr. Serowick, how specimens get into your hands.

A Which specimen, sir?

Q Any specimen. You don't go out and investigate, do you?

A At times I do, yes.

Q You didn't go out on this case, did you?

A No, not -- to clarify, I was present at the taking of the standards of hair from the defendant. I was present at the time, and the hair never left my custody at any time.

Q Mr. Serowick, did you go to Cleveland Clinic on May 29th or any date thereafter and investigate this case?

A No, I did not.

Q That's what I'm talking about. I don't want to play games. I'm asking you simple questions about your investigation.

MR. McGINTY: Objection.

Q Did you go out in the field and investigate this case? Did you go to the Cleveland Clinic?

A No, I did not.

Q I'm just asking you. Tell the ladies and gentlemen how you got the evidence. That's simple enough, isn't it?

A The evidence was collected by either a patrolman or

our detective unit, placed in a property envelope, and a tag was made for that particular piece of evidence. And it was either brought to the property unit which transferred it to us, or the detectives transferred it to us. Personally I'm not sure which.

Q I see. Do you have your lab card with you?

A No, I do not.

Q Well, is it in the courtroom? Do you have a copy of your lab card?

MR. McGINTY: Where do you have them?

Q Would you get it so we can talk about it?

A Absolutely.

Q As a matter of fact, we will get all your cards with this thing. Now, you gave the ladies and gentlemen of the jury lab number 248836; is that correct?

A That is correct.

Q And that's the lab number that you have been testifying about in here today?

A Part of it, yes.

Q Part of it? Tell the ladies and gentlemen what 248836 purports to be; what specimen, what evidence you got and assigned under that name, under that number?

A Under that particular number the following was included. One multi-brown colored comforter from a bed. One white washcloth, which is this. One pair of light

green panties. One set vaginal swabs. One tube of urine. One tube of blood. One envelope containing hair samples. And one chux. A chux is a piece of hospital linen that is placed under the patient for examining purposes.

Q Mr. Serowick, we could be a little more specific, I suspect. Let me show you what has been marked as State's Exhibit Number 2. Is that the comforter that you talked about? Does it look like it?

A Sir, I'll be honest, I don't recall what the comforter looked like. It was just a multi-colored brown.

Q You said in your report it came from where?

A I don't know where it came from, sir. It was submitted to me. I did not have any firsthand knowledge of where it came from, sir.

Q You saw it, you examined it?

A Yes, I did, sir.

Q What would you stylize, what would you characterize a comforter to be?

A A bedspread-type of thing.

Q You examined this bedspread, this brown comforter, didn't you?

A I examined the brown comforter, yes.

Q Did you find any hairs on it?

A No, I did not.
Q Any pubic hairs?
A No, I did not.
Q Any chest hairs?
A No, I did not.
Q Any head hairs?
A No, I did not.
Q All right. Your card says, does it not, that a hair was found in the crouch area of the panties, stains in the crouch of the panties and on the washcloth?
A That's what it says, sir, yes.
Q And tested positive for seminal fluid?
A That is correct.
Q But you don't have, you haven't seen the panties in here, have you?
A I have not seen the panties here in the courtroom, no.
Q I see. I see you haven't. Tell me about that seminal fluid on that washcloth that you identify as being the one that you examined. With what degree of certainty can you say they came from the same person?
A I have, I would have no way of knowing. They came, they are both Type B, which is approximately 16 percent of the population.
Q Well, we are going to get to Type B and 16 percent

of the secretors. But your answer is you can't tell, can you?

A I can't tell which. I can't tell if they were the same, no.

Q And I don't care what percentage of the population or what the race is, there are secretors and nonsecretors in all races?

A That is correct.

Q There are people with B antigens in all races?

A That is correct.

Q But you didn't determine from that whether the antigen was positive or negative, did you?

A The what?

Q The antigen.

A It's not positive; A, B or O.

Q So it's neutral?

A It's B.

Q Does not blood have a negative or positive characteristic?

A That would be another type, that would be another blood type known as the RH type.

Q You didn't go as far as getting an RH fluid?

A There is no RH in seminal fluid, just blood.

Q I'm asking you, Mr. Serowick, you have testified 20 times in court and you have your B.A. and your Masters in

hair or whatever, hair testing or whatever. I'm asking you, it could be positive or negative, couldn't it?

A That's correct.

Q So the seminal stains that you talk about in your report that we don't have in here, in this courtroom, could have come from two different individuals, couldn't it?

A They could have, sure.

Q It could have been from sexual activity with husbands, boyfriends, anybody in the world, and an alleged attacker, couldn't it?

A That's correct.

Q Now, you got a rape kit from Mt. Sinai Hospital, didn't you? Didn't you have a rape kit?

A I received a rape kit. I don't recall whether it was from Mt. Sinai or not, sir.

Q Let me just suggest to you that this young lady indicated she went to Mt. Sinai Hospital and that's where you would have gotten it from if that's where she went.

A That's right.

Q And you examined that?

A Yes.

Q Wet vaginal swabs and all that kind of thing; it was in a rape kit?

A That's correct.

Q Any of this seminal fluid that you talk about on this wash towel, that wasn't found at the hospital, was it?

A No, it was not.

Q So it didn't corroborate what you found?

A No, it did not.

Q And Mr. Serowick, this cloth here -- incidentally, that wasn't brought to you by the clinic police, was it Officer Beck?

A That was brought to me by a patrolman Berner.

Q So that was Cleveland Police that brought that to you?

A I would assume so, yes.

Q Not the clinic police, all right. Now, tell me this, did you retrieve the hair from this washcloth?

A Yes, I did.

Q And hold that up for me, please, because your expertise is far greater than mine in this.

These three layers where you have the holes in that would come from your testing, I take it?

A That would come from the testing of the seminal fluid, yes.

Q And you cut whole pieces out of that?

A That's correct.

Q Now, where would the hair have been found?

A I don't recall where I found the hair on the towel.
Q Now, you don't recall where you found the hair on the towel?
A But it was on the towel.
Q But it wasn't a pubic hair?
A I didn't -- it was not, no, sir. I don't know, it could have --
Q Well, wait a minute.
A It did not match the pubic region of the defendant.
Q I do know that much about the law of exclusion; a thing either is or isn't. Didn't you testify to the ladies and gentlemen of the jury that it was not pubic hair?
A That is correct.
Q If you want to maintain that this young man was a person who was the assailant, it certainly wasn't his pubic hair, was it?
A It was inconsistent with his pubic hair, yes.
Q So if somebody wiped a pubic hair, again in your expertise, wiped a pubic region hair with that cloth, and somehow miraculously one pubic hair was imbedded in the cloth, it certainly wasn't his pubic hair that was imbedded in the cloth?

MR. McGINTY: Objection. Commentary.

THE COURT: Overruled. He may

answer.

A I lost my thought.

Q It wasn't his pubic hair, was it?

A No, it was not.

Q So no hair from the comforter, and I take it there certainly wasn't any from the panties, as best you can recall?

A There was a hair found on the panties, yes.

Q It wasn't Negroid hair, was it?

A No, it was no.

Q So we can cross that one out. Vaginal swab was negative for semen?

A That is correct.

Q And an envelope containing hair evidence that was submitted to you on May 31, 1988 -- you see that notation? Along with this other list of things?

A Yes, sir.

Q It says, hair from washcloth delivered on this date. And what is that name on there?

A Oh, okay. The hair found on the washcloth was turned over to Donald Nitskoff, which is an independent analyst, who was going to analyze the hair and the samples from the defendant.

Q I see. Now, what I'm getting at, that clears that up for me, thank you, Mr. Serowick.

But in your papers there, don't you show -- read the list with me, if you have it there. One chux. That's what you explained to the ladies and gentlemen?

A That's correct.

Q And one envelope containing hair evidence?

A That's correct.

Q What I'm trying to find out is what hair evidence is that that was in that envelope.

A Okay. When in Mt. Sinai, when they collect a rape kit, they collect a pubic hair sample from the victim and they place it in an envelope. Sometimes they pluck the hairs, other times they clip the hairs. Or sometimes they comb the pubic area of the victim to see if there are any loose hairs that may have been deposited by the suspect.

Q So the combing of the vaginal area, wouldn't you agree that it would be far more likely to find hair that was deposited after some act such as vaginal intercourse as opposed to some fortuitous piece of hair that falls down on a towel that you could find? Isn't that the purpose of combing the vaginal area?

A Yeah. The purpose of combing the vaginal area is to see if there are any loose hairs that may have been deposited by the perpetrator.

Q Well, since we didn't find any on the comforter,

tell the ladies and gentlemen how many hairs you found in the hair sample you got from the victim.

A I did not analyze it.

Q Analyze it or not, you know there were no hairs found.

A I don't know, sir.

Q You anticipate anybody from your unit is going to come in here and testify about it?

A Excuse me. The hair?

Q Yes.

A I don't recall whether there was hair or not.

Q You are the hair specialist at Cleveland Police SIU?

A That is correct.

Q Anybody test it, it would be you?

A That's correct.

Q They certainly wouldn't give it to Miss Reed?

A No, certainly not. I looked at it. I don't recall if there was hair there or not.

Q So your towel test turned out to be your naked eye with the hair that you found imbedded somewhere on the washcloth, right so far?

A My naked eye, sir? I don't know.

Q The first part of the test is you looked with the naked eye?

A Yes. The first part of the test is looking with the naked eye.

Q When you are looking with your eye is when you found the stains?

A That's correct.

Q Now, Mr. McGinty asked about whether the likelihood of two individuals matching. Do you remember that line of questioning just before he was done with you?

A Yes. I do.

Q And quite candidly you indicated that -- this might be maybe a proper euphemism -- the jury is out on that?

A Using microscopic methods you cannot individualize hair, no.

Q One set of forensic scientists would say yes and some would say no. And I suspect the truth would be somewhere in between, but we don't know.

A On the individualization question?

Q Yes.

A We're working on it, but it's very difficult.

Q I know you are working on it. I don't intend to question that.

You don't know in fact, for these ladies and gentlemen of the jury having to decide this important question here and now, on that question the jury is out.

A I can't determine that.

Q Of course you can't. I appreciate that.

Okay. Let me talk to you about the semen. Now, there is semen stains on the panties. We don't know who that belonged to. And there are some semen stains on that towel?

A Yes, there are seminal stains found on both the towel and the panties, yes.

Q Now, you talk about secretor and nonsecretor. So that I can understand you, and I think I did, if I'm a scretor, though any number of my body fluids you can determine the antigens in my blood?

A Your ABO type, that's correct.

Q Yes, my ABO. If I'm a nonsecretor you have got to have the blood?

A If you're a nonsecretor, there are no ABO antigens there.

Q Secretors are one out of --

A Four out of five, 80 percent secretors, and so 20 do not.

Q And the B-positive, we don't know this RH factor. I sound intelligent, but we don't know whether it was positive or negative?

A No, we don't know the RH, no.

Q But the antigen, of those that have the BH antigens are not as common as those that have O, for instance, or

some other?

A That's correct. The H antigens or just the O's are much more common than the B's.

Q And on the black males, it's about 20 percent of us that have the B antigens?

A Yes.

Q I have B antigens. I know about B antigens. So out of a thousand, 200 would have it?

A That's correct.

Q So we are not talking about some miniscule number, but it is less than the whole?

A That's correct.

Q One moment, please.

THE COURT: Take your time.

MR. DRAPER: Thank you, your Honor.

Q So let me just go back through. Incidentally, you have three holes cut out there. What do they represent, Mr. Serowick?

A They represent the --

Q On the washcloth?

A On the washcloth they represent the areas where I cut out when I was analyzing the towel for the P-30 and the A.I., et cetera.

Q When you did the P-30 and the A.I., again you are dealing with the seminal fluid?

A That's correct.
Q Did you cut out all the areas that had the possible seminal fluid?
A No, I did not.
Q If you look at the towel you can see some discoloration still? I don't know what I'm looking at, but there might be some still in there; is that what you are saying?
A That's correct.
Q Now, let me go through this again. On May 31st is when you got the chux, envelope containing the hair evidence from the hospital, tube of blood, tube of urine, one wet vaginal swab, one pair of light green panties. They weren't yellow? Light green?
A No.
Q One white washcloth and one multi-brown colored comforter?
A That's correct.
Q And out of that evidence you found a hair that was somewhere imbedded in that washcloth; am I correct?
A That is correct.
Q And then after that -- that was May 31st?
A That is correct.
Q And now on June 6th you received blood and saliva samples from Anthony Green?

A That is correct.
Q Then on June 8th you received another sample of saliva from Anthony Green?
A No, sir. That particular saliva sample was taken from Jennifer Tennant.
Q Oh, I see. That's when you found out she had B antigens also?
A That is correct.
Q Now, we are to August. August 5th you got another, you got a pubic hair sample from this young man?
A That is correct.
Q And you were able to find out, to a fair degree of certainty that that wasn't the pubic hair, at least it didn't match his pubic hair?
A That is correct. There were some uncharacteristics.
Q That's like DNA fingerprinting, he couldn't change his?
A No, it's not like DNA fingerprinting. DNA fingerprinting individualizes a person and hair has different characteristics, so it's not an individualized thing.
Q Okay. It's not individualized, but certainly he can't change the character of his hair.
A No.

Q If he tried to with some chemicals, you could detect that?

A If he attempted to change his hair, I would be able to see it.

Q The pubic hair, at least it wasn't his. That was on August 5th. And then you got another set of hair from various other places, right; head?

A Yes.

Q Chest?

A Head, chest, et cetera.

Q This is the testimony that you were having with Mr. McGinty here when you talked about the hair was found to be similar in size and construction to the known hair sample?

A Of his head.

Q But inconsistent in several others?

A Right.

Q Oh, I'm sorry, I went to another card. that's the other card. The pubic hair was inconsistent.

Now, you are telling the ladies and gentlemen that there are some similarities?

A With the head hair, yes.

Q And there is a possibility, Mr. Serowick, that there is a guy that is running around out there now that has similarities, isn't it a possibility?

A Sure.

Q Very good possibility.

A Anything is possible, sir.

Q Surely, sir.

MR. DRAPER: Thank you very much.

THE COURT: Are you going to be long?

MR. McGINTY: Ten minutes, your Honor.

THE COURT: It's a good time for a break.

Ladies and gentlemen, you are admonished not to discuss the case among yourselves or allow anyone to discuss it with you. You are not to form or express any opinion on the case at this time.

We will recess for ten minues.

(Thereupon, a recess was taken.)

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THE COURT: All right. You may redirect.

MR. McGINTY: Thank you, your Honor.

REDIRECT EXAMINATION OF JOSEPH SEROWICK

BY MR. McGINTY:

Q Mr. Serowick, I submitted to you a sampling of the pubic hair of the defendant or had you pluck it or whatever at the end of July, beginning of August; correct?

A Let me just be sure here.
Q The first sample.
A It was the 5th of August at the time, yes.
Q Was it the 5th of August you analyzed it or the 5th of August it was given to you?
A It was given to me on the 5th of August.
Q And was the first sample only pubic hair?
A The first sample was only pubic hair.
Q And did you examine that pubic hair and compare it to the known samples?
A Yes, I did.
Q I'm sorry, that's confusing. Did you compare the pubic hair samples that were taken from the defendant to the single hair that was found on the towel?
A Yes, I did.
Q And what conclusion did you reach, what did you tell me or what test did you send over?
A I found that while the hair on the towel was consistent in some ways to the pubic region, it was inconsistent in others; and therefore, I could not put it, I could not find it similar to the pubic sample.
Q Okay. So did you request other hairs from me at that point from other regions of the body?
A Yes, you did.
Q From your first analysis did you suspect it was a

pubic hair of the defendant's that you had? I mean, from your analysis of the hair found on the towel and the analysis of the pubic hairs, did you suspect that it was not a pubic hair that was on the towel.

A I thought that maybe it may be a hair of some other semantic origin.

Q So did you request hairs from the other semantic region of the body?

A Yes, I did.

Q Now, your conclusions that you reached are the ones you told us earlier about the hairs and the consistencies in all characteristics?

A That is correct.

Q And you know that we give test samples or copies of the test to the defense and that's what they are referring to, the state does, as they conduct their examination?

A That is correct.

Q Now, we heard a number of questions about DNA and DNA testing and DNA fingerprints. And we heard from the defense counsel if there was a conclusive test then the jury wouldn't have to think at all, they would know conclusively whether it was him or it wasn't him, correct?

A I would say so, yes.

Q If there was a DNA fingerprint so-called test, there would be conclusive ability, wouldn't there, to know?

A It would be an individualization, yes, it would.

Q Now, DNA testing, explain that a little bit to the jury, and what the so-called DNA fingerprint is.

Now, a year ago or I'd say several years ago, did you ever hear of DNA fingerprints? Was the term ever used?

A As of when I graduated from graduate school back in '86, they still, there was no mention of that in my course work at all.

Q It's a recent phenomenon, is it not?

A Yes, it is.

Q First of all, do you know of a single criminal case in the City of Cleveland, or using the Cleveland Police where any DNA testing has ever been done?

A No. The Cleveland Police Department has never utilized DNA typing at all.

Q Do you presently have the capability of doing DNA typing?

A Our laboratory does not have the capability. However, we can send it to a commercial laboratory for analysis.

Q In fact, are you and I involved in that in the

first case ever in the history of this county?
A Yes, we are.
Q Now, does DNA require blood for the DNA testing of the original sample?
A I'm sorry?
Q When we go to DNA, are we talking about a DNA testing coming from a testing of blood?
A It could come from a testing of any cellular material, blood, semen, any type of cellular material.
Q But you heard the 100 percent probability cited by the defense counsel, is it in fact a 98.7 percent probability, even at DNA testing?
A Yeah, it's not 100 percent. At this point there is still some room for experimental error.
Q So even with a DNA testing, if there was DNA testing, if there was one capable on this type of case, that there would still be room for error, it would still be possible that two people could have the same type of DNA typing?
A It would be much more remote, but yes, it would be.
Q So the possibility always exists in these cases, we are dealing with probabilities?
A Right, probabilities. Nothing is absolute.
Q Tell the ladies and gentlemen how many cases in the history of the State of Ohio have used DNA sampling with

blood samples?

A I'm aware of only one.

Q And was that within the last month?

A Yeah, it was very recent.

Q And as the samples that are done, first of all, do they hav to be sent out of state in the single laboratory in the United States that is capable of doing the DNA testing at this point?

A They have to be sent out of state. There are several laboratories.

Q There are several?

A Yes.

Q Where are they located?

A One is in Maryland, one is in New York. And there is a third one in California.

Q And the one outside Washington, D.C., in Maryland, do you know, is it a very expensive test?

A It's extremely expensive.

Q And does it require fresh blood taken from both the victim and the defendant?

A Yes. The known standards are taken as blood.

Q And how many samples a year or how many possible sex case analyses take place in the Cleveland Police Department per year, approximately?

A If I recall, last year we processed over 600 rapes.

So that's --

Q And are there different samples taken?

A And there are different samples for each case.

Q Are there hundreds if not thousands of gross sexual imposition type offenses?

A Yes, numerous.

Q So are we dealing in the thousands when we are dealing with numbers of samples?

A Yes. Because each case has several samples to them. So we would be talking several thousand samples per year.

Q Are we dealing with those costs that are in several hundred or $500 range per testing?

A Yes. I believe one analysis of a particular sample, whether it be an unknown standard or known standard would be to a cost of $585.

Q So if we did a thousand of those tests, how many policemen would we bring off the street in the City of Cleveland if we maintain the same budget?

A I wouldn't know that. But it would be several.

Q But it would be an expensive test?

A It's extremely expensive.

Q Now, you were asked questions about the fingerprints and you have no expertise in fingerprints, do you?

A No, I do not.
Q Are you aware that three latent fingerprints were lifted from the scene and do not match the defendant?
A I was aware of that.
Q From a mirror or other surface areas, okay. Are you aware that fingerprints can last on a scene for years?

MR. DRAPER: Objection. He expressed no expertise.

THE COURT: That's true.

Q Sir, are you aware if you touch that counter, a year from now your fingerprint may still be there?

MR. DRAPER: Objection.

THE COURT: Sustained.

Q Now, regarding the panties we heard the coloring question by the defense counsel, what color? You said light yellor on your sheet?
A I said light green, sir.
Q What color does it also resemble?
A It was a lightish, it was a pastel kind of a greenish, a yellow, green type of a thing.
Q Now, you were asked whether there was a hair found by the defense counsel, but he stopped you when you attempted to say what type of hair or whose hair it was. Did you have an opportunity to observe that hair?

A Which hair was that?
Q The hair found on the light yellow or greenish panties.
A Yes, I did.
Q And what type of hair was that?
A It was found to be a caucasian hair.
Q From what region of the body was that hair?
A I would have to look at it again. But since it was in the panty area, I would assume it was a pubic hair.
Q Did it match the color and general type of the victim, Jennifer Tennant?
A I don't know. I did not receive a hair sample from her.
Q Did you have an opportunity to, was it a caucasion hair?
A I would say so, yes.
Q And you didn't look at, then you didn't bother taking the hair sample from the Mt. Sinai rape kit and compare it to the panty?
A No.
Q You didn't do that, okay. Now, you described seminal fluids and vaginal fluids. Do vaginal fluids flow from a female in a downward fashion?
A Yes, they do. The vaginal secretion would be secreted by the female.

Q Now, you were questioned about the rape kit. Sir, were you aware that this invididual female rape victim testified that she scrubbed --

MR. DRAPER: Objection.

THE COURT: Approach the bench.

(Thereupon, a discussion was had at the side bar and off the record.)

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THE COURT: The objection is withdrawn, you may proceed.

Q Sir, you were asked a number of questions about the rape kit and the testing at Mt. Sinai, and are you familiar with Mt. Sinai's procedures?

A I've received several kits from them, but as far as how they do their testing, I have never witnessed it.

Q You were asked about a combing and a sample and you had a list of items that they submit in the rape kit. You called one item a hair sample. Do you recall what I'm talking about?

A Yes, sir. There was an envelope containing hair evidence.

Q Is that obtained from a combing of the victim?

A I don't know whether it was a combing or a plucking. I'm not sure which one. But I would have to look at it again.

Q Whichever. But if a victim washed herself and scrubbed her crouch area twice before submitting, before going to the hospital or calling the police, then that would be of little or no help, would it, sir?

A Obviously if she had washed herself and scrubbed herself it would be a lot less likely that there would be any type of evidence remaining in her crouch area.

Q Now, as to the chux, is the chux a sheet that goes under the woman when a pelvic examination is taking place?

A That is the way I understand it, yes.

Q And when the combing is taking place, or the examination, any hair that would fall from a pubic region would hopefully fall on to the chux and be collected?

A That is correct.

Q Would that, sir, serve any purpose if again, the woman scrubbed herself twice in a bathtub and washed herself down thoroughly before going to the hospital for this rape kit?

A It would be much less likely that there would be anything there.

Q Now, we also have a tube of blood and a tube of urine which can be used to determine a blood type?

A The blood can, yes.

Q Also a wet vaginal swab. Now, sir, if a rape

victim goes to the hospital without washing, is it possible from the vaginal swab to take a seminal fluid from the interior of the woman for later testing as to blood type?

A Yes. That's how it is done a lot of times, yes.

Q Is it far less likely if a woman has washed and indeed put soap inside herself and washed, being disgusted with what happened?

A It would be much less likely you would find any evidence in a rape kit after a woman had washed herself in such a manner.

Q Now, the question regarding the hairs in defense counsel's question, there is a possibility that it could be -- the possibility question.

Is it possible if Detective Zbydniewski went over and plucked two hairs from Mr. Draper's head, handed them to you, or 50 hairs in one envelope and one hair in the other and analyzed them, though you don't see the plucking, and it's meticulous, the manner in which the evidence is handled and it's taken to you; would it be possible for you to conclusively determine and conclusively state by the scientific standard to which you are limited, that those hairs definitely match?

Would you ever under any circumstances be able to say that the 50 hairs and the one hair came from the same

head?
A No, I wouldn't be able to say that. No.
Q So no matter how it happens and what the tests are, all you can do is discuss possibilities and probabilities; is that correct, sir?
A That's correct. The best I could do is give you a probability.
Q Okay. Now, you were asked, regarding on the back of the lab card 248836, what the last statement was, and you said it was a statement that the hair from the washcloth was delivered to a Donald Nittskoff; is that correct?
A That is correct.
Q And that, sir, is an expert hired by the defense to examine the same hair that you did?
A That is correct.
Q And does he have a lab here in Cleveland?
A Yes, he does.
Q A private lab where he does analysis for defense teams?
A That is correct.
Q And so he does his own analysis from the same samples you use?
A That is correct.
Q The plucked hairs and the hairs found on the towel?

A That is correct.

Q First of all, sir, are you familiar with the fact that half the population is female? Is that correct?

A That is correct.

Q So 50 percent of the population is eliminated in the possibilities, right?

A That is correct.

Q Now, the secretor eliminates merely 20 percent; 80 percent of the people fit into the secretor category; do they not?

A That is correct.

Q All right. Now, the B blood, the B category eliminates approximately 80 percent of the male population; is that correct? Or what percentage did you use when you say 84? Are you combining secretor and B?

A A secretor, 16 percent of the population are B secretors. Meaning 84 percent are not. So 84 percent in this case could be eliminated.

Q Okay. Now, what percentage does the B blood type alone eliminate from the secretor? It's a little lower than 86 percent, isn't it?

A The original, yeah. And 20 percent of the population are secretors.

Q What percentage of the population are Type B blood? See what I'm looking for?

A Twenty percent have B blood and 16 percent are B secretors.

Q Together it works to 86 percent?

A 84 percent.

Q Which leaves 16 percent of the population. Now, the hair analysis, and you discussed fully the hair analysis, does the hair analysis eliminate the vast majority of the population falling into the category of the same characteristics; the color, pigment distribution, treatment or lack thereof, the medula characteristics, the root type, the cortex texture, the pigment size, the vacuoles, the cuticle margin, the shaft variation and the tip type?

A Yes. I would say that that analysis eliminated a large percentage of the population.

Q You term was, large percentage?

A That's correct.

Q Now, the defense counsel discussed the question of good possibility. Is there a good possibility that someone could have the same type of hair characteristics as the hair that was found on State's Exhibit 1 by you?

A It's possible that somebody else could, yes.

Q It's possible, but is it a good possibility?

A I would say somewhere about -- sure, it's a pretty good possibility.

Q Somewhere in the United States there is going to be someone certainly with that hair characteristic pattern?
A Sure. I would say that there is a good possibility that someone in this United States has a similar pattern.
Q Now, when you examine a case, are you confined to the scientific end of your analysis of the case?
A When I look at a case I try to focus my attention to the scientific, the objective scientific aspect of it, yes.
Q So you are not in court when there is identification or at a photo lineup or anything else, if there are identifications?
A No, I'm not.
Q You are not part of the physical history to find out whether the defendant had access, the defendant from whom the hair sample is taken, had access to the scene or knowledge to get to the scene or any of those physical factors that a detective would do?
A No, I'm not aware of that.
Q Your analysis strictly is here on probabilities?
A Right. It's a probability on physical evidence.
Q And in your blood work, in your serology work and the other aspect of your training, is it always a matter that you testify to and you determine always a matter of probabilities?

A That's correct. It's all based on probabilities.
Q You can never be absolutely certain, can you, sir?
A Not at this point, no.
Q In other words, some future date in science, perhaps science will be so particular that you would be able to make a scientific certainty as to serology?
A That is our goal, yes.
Q But in the state of the art right not, we are not there, are we?
A No, we are not.
Q As to the possibility, sir, there is also a possibility, is there not, that this building will be struck by a meteor, right, over night?
A I would hope not, but there is a possibility, yes.

MR. McGINTY: Thank you, sir, no further questions.

MR. DRAPER: Just a couple of questions.

THE COURT: All right.

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RECROSS EXAMINATION OF JOSEPH SEROWICK

BY MR. DRAPER:

Q Mr. Serowick, other than Mr. McGinty's questions, what is your base of knowledge with regard to the state of the art in DNA in Ohio, in the court system in

particular?

A What is my knowledge?

Q Other than what he suggested in his questions.

A I'm a member of the Ohio Criminologists Association, which is an association of all the forensic serologists and all the forensic scientists in the Ohio area and I am constantly in contact with these people, getting updates on what they are doing in their lab, and we have meetings to discuss these types of problems.

Q Now, based on your membership in that association, that tells you how many courtrooms in this, in our great State of Ohio and indeed Cuyahoga County, that DNA testing has occurred; is that right?

A Well, I can find out, yeah.

Q Well, I don't want to know what you can find out, I want to know what you talked to Mr. McGinty about. You don't know of your own knowledge?

A Of what?

Q Of how many courtroom in this state that DNA testing is being utilized; how many cases are in progress?

A I only know one.

Q The one he talked about, the one you are involved with with him; is that right? But you don't know what is happening in Hamilton County, for instance, as of this

moment?

A No, sir.

Q Or Lucas County?

A I know there was one somewhere, sir.

Q Or Wood County?

A No, sir, I don't know.

Q Or you name it. All right. That explains it.

Now, let me ask you this; Mr. McGinty asked you about the vaginal testing. You are concerned with what is presented to you in your laboratory, are you not?

A Yes, sir.

Q You don't go to, you don't do pelvic exams?

A No, sir.

Q That is certainly not your area of expertise?

A No, it is not.

Q You wouldn't even purport to be an expert --

A No, pelvic exams is not my forte.

Q The physician who did the examination could come in here and certainly answer some of those questions about the exam, but not you?

A Well, the physician would be a better test of that particular piece of information, yes.

Q Now, finally about the blood business with the DNA. Isn't it a fact that one of the beauties of DNA is that it can be done on basically any type of cell?

A Any type of cell can be used to perform DNA typing.
Q Hair, fingernail scraping, you name it. It has to do with the soma, it can be used?
A Fingernails are dead cells, they are not living. Therefore, they cannot be used. However, hair, if you pulled the root and you have living tissue at the root of the hair, you can use that. But hair itself is dead.
Q Mr. Serowick --
A Sir, you are asking me a question.
Q Maybe you misunderstood me. Did I not say fingernail scrapings? What does that suggest to you?
A The cutting or scrapings of fingernails. The debris found on fingernails.
Q Does that make sense to you in terms of DNA testing, scrapings underneath the fingernails? Does it make sense to you?
A It could.
Q Then you know what I'm talking about.

THE COURT: You may step down.

MR. McGINTY: Thank you, Mr. Serowick.

THE COURT: Call your next witness.

MR. McGINTY: The State of Ohio rests, pursuant to the admission of the exhibits.

THE COURT: The jury gets an early break, subject to some motions we will have.