

1 (Witness excused)

2 SHERRY CULHANE, called as a witness on behalf of
3 the State, having been first duly sworn, on her oath
4 testified as follows:

5 THE CLERK: Be seated, please. Please state your
6 name and spell your name for the record.

7 THE WITNESS: Sherry Culhane, S-h-e-r-r-y C-u-l-
8 h-a-n-e.

9 DIRECT EXAMINATION

10 BY MR. VOGEL:

11 Q Would you please tell the jury what your occupation is,
12 Sherry?

13 A I'm a serologist at the Wisconsin State Crime Laboratory
14 in Madison.

15 Q And what is a serologist?

16 A I'm responsible for the identification and the examination
17 of various types of biological evidence. This is primar-
18 ily in the form of whole blood, dried blood stains, body
19 fluid stains such as semen, saliva, hairs and some natural
20 fibers.

21 Q How long have you been an employee of the Wisconsin State
22 Crime Laboratory?

23 A A little over a year and a half.

24 Q Prior to working for the Wisconsin State Crime Laboratory
25 where were you employed?

1 A I was employed with the Jefferson Parish Crime Laboratory
2 in Louisiana and I worked there for a little over three
3 years.

4 Q Do you have a degree?

5 A Yes, I do.

6 Q What is your degree in?

7 A I have a bachelor of science degree in biology with a
8 minor in chemistry.

9 Q Where did you receive your degree, by the way?

10 A At Mississippi College in Jackson, Mississippi.

11 Q Did you begin working for the crime laboratory in
12 Louisiana--

13 A Yes, sir.

14 Q --after you graduated from college?

15 A That's correct.

16 Q Are the services of the crime laboratory; that is, your
17 services as a serologist, available to both prosecutors
18 and defense attorneys?

19 A Yes, sir, they are.

20 Q And in this particular case was there hair submitted to
21 you for analysis and for comparison?

22 A Yes, there was.

23 Q In terms of analysis, you brought along all the various
24 things that were submitted to you in that box you have
25 with you here, is that correct?

1 A Yes, I did, yes, sir.

2 Q What I'd like to do is direct your attention to one item,
3 that being Item D-12. Is that how it's marked in your
4 report?

5 A If I could refer to my--

6 Q Sure. You have a report like I have?

7 A Yes.

8 Q And Mr. Bolgert has one?

9 A Yes. D-12 is listed as a head hair sample that was
10 reportedly collected from [REDACTED].

11 Q Fine. Why don't you take that out, if you can.
12 (Exhibit #29, Crime Laboratory receipt, marked for
13 identification by the Clerk)

14 Q Before we do that I'm going to show you what's been marked
15 as Exhibit 29 and ask if you recognize Exhibit 29.

16 A Yes, this is a copy of the receipt that I filled out
17 myself when the evidence was brought into the Laboratory.
18 It lists all the evidence that I received.

19 Q All right, and who was it, if you know, that brought that
20 in to you?

21 A Sergeant Kolanczyk.

22 Q His name is on the top there?

23 A That's correct.

24 Q And for agency it says Manitowoc County Sheriff's office?

25 A Yes, sir.

1 Q I've had you pull out Item D-12. Item D, which was sub-
2 mitted to you, what was Item D?

3 A Item D was actually a sexual assault kit that was
4 collected from the victim.

5 Q All right, and when you go through the sexual assault kit
6 then you use the Item D as the reference number for the
7 various things that are inside of the kit, is that a fair
8 statement?

9 A Yes, sir.

10 Q All right, now, I've asked you to pull out Item D-12,
11 which apparently you've done. I'll have that marked as
12 Exhibit D-12.

13 (Exhibit #30, Item D-12 of a Crime Laboratory
14 sexual assault kit, marked for identification by the
15 Clerk)

16 Q Could you just tell the jury what is contained in
17 Exhibit Number 30?

18 A It's an envelope that's labeled, "Pulled head hair." It
19 has my initials and date and the laboratory number that we
20 use for reference, which in this case is 85-1051. I also
21 have some slide holders here. They're glass slides
22 mounted in here with the hair samples that I examined.

23 Q When you received Item D-12 and all of the items in the
24 sex crimes kit from Item D itself, how were they packaged
25 or how did you receive them when you got them?

1 A They were packaged in these plastic bags. After I did
2 the examination I did that. I received them in this box
3 and it was sealed here with the tape. I opened this
4 myself and put my number and initials on the outside.

5 Q So when you received them from Sergeant Kolanczyk he gave
6 you Item D among other items in that condition, closed?

7 A Right, that's correct.

8 Q Did you open up the sex crimes kit yourself?

9 A Yes, I did.

10 Q Then you looked at Item D-12 yourself; in other words,
11 you took the envelope, then you worked with the envelope
12 in terms of your examination, is that correct?

13 A Yes, sir.

14 Q Now, I'm going to back off for a second. You indicated
15 that part of your job as a serologist would be to examine
16 various different types of things from the human body,
17 including hair. What I'd like you to do is tell the jury
18 what you do as a serologist in the comparison of hair.
19 Just explain to them, if you will, what one has to do as
20 a serologist to compare hair, a standard of hair with the
21 one you're comparing it with.

22 A Okay. Hair analysis is basically comparative type study.
23 We have what's called a comparative microscope. It has
24 one objective that you can look into and you have two
25 fields of vision. On one side we place the questioned

1 hair, whether it be a recovered hair or from some object,
2 and on the other side we place the sample that we're
3 comparing it to. The hairs are taken and mounted on a
4 glass slide. I mount them in perfect mount in saline,
5 which is a chemical solution, and I add a glass cover
6 slide to them and actually place them under the scope and
7 the fact that I can see two fields of vision at the same
8 time, I can compare the hairs side by side.

9 Q All right, how long have you been doing that in terms of
10 your own experience in hair comparisons?

11 A I did that in the capacity when I worked for the Jefferson
12 Parish Crime Lab and I've also done that since as a
13 routine procedure since I've been at the Laboratory here.

14 Q Do you have an opinion as to approximately how many cases
15 you have worked on in which you've been asked to make hair
16 comparisons?

17 A Hundreds of cases. I don't know an exact number.

18 Q Do you have an opinion as to how many individual hair
19 samples you've actually looked at and tested under a
20 microscope and compared?

21 A That would have to be hundreds also. Most cases that
22 involve some sort of sexual assault there is hair to be
23 examined so it's a routine procedure that's done.

24 Q All right, are there characteristics that you look for in
25 the comparison of hair?

1 A Yes, sir.

2 Q Can you tell, for example, the difference between a human
3 hair and animal hair?

4 A Yes, sir.

5 Q How do you tell the difference?

6 A Human hair has more follicle structures that are specific
7 to human head hair. There is differences in the root
8 structure. The root structure in a human hair is differ-
9 ent from that, say of a dog or cat. The internal struc-
10 ture, such as the medulla, which is the center portion of
11 the actual hair, is different in an animal than a human
12 hair. The cuticle, the outer layer of the hair, is
13 different in an animal than in human hair. Most struc-
14 tural features are different in animals than they are in
15 human hair.

16 Q Are you able to tell the difference between, once you
17 determine that it is in fact human hair, what part of a
18 body the hair is obtained from; in other words, body
19 region?

20 A Yes, sir.

21 Q How do you do that?

22 A Well, there are different types of hair. There is head
23 hair, there is axillary hair. By that I mean hair that--
24 like on your hands, on your arms. There is pubic hair,
25 which would be in the pubic area. Those all have different

1 structural features that are specific to that area of the
2 body.

3 Q In your comparisons and your examination of hairs do you
4 look to see what the method of removal of a hair is; in
5 other words, cut off versus being pulled out of the human
6 body?

7 A In some instances that's important.

8 Q And do you look to determine the difference of racial
9 origin; as an example, a person of oriental descent versus
10 a white caucasian versus a black, that sort of thing, are
11 you able to make differentiations of the race of a human
12 being based upon the hair?

13 A Yes.

14 Q Can you tell the jury how you would do that?

15 A Again, these are all characteristics. Each-- For
16 instance, hair from caucasians are shaped differently.
17 They're usually very smooth diameter, the diameter is very
18 consistent along the length of the hair. Hair that is of
19 negroid origin is quite different. It's flat in some
20 areas, larger in other areas. These are all morphological
21 features that are specific to a particular race.

22 Q In looking at and examining hair do you determine or can
23 you determine whether or not hair has been color treated,
24 such as dyed, bleached, that sort of thing?

25 A Yes, sir.

1 Q How do you do that; what do you look for?

2 A In a case of hair that is bleached you can look for a, say
3 a person has black hair and it's been bleached blond. You
4 can-- along the area of hair that is closer to the scalp
5 will be a dark color. Then you'll see a very distinct
6 line where the color is bleached out and there is none
7 there. Hair that is permed has quite a lot of damage to
8 the hair. There's a lot of the cuticle of the hair is
9 broken and frayed. It's very obvious under a scope.

10 Q Can you look at hair to determine whether or not there is
11 any disease of the scalp or of the hair itself? Do you
12 understand my question?

13 A Not--

14 Q Do you look for any sort of infestation or any disease
15 about the person from looking at the hair?

16 A Unless it's a very obvious sort of thing, as in the case
17 of pubic hair, pubic lice or something like that that's
18 very obvious, you can actually see an egg sack. That's
19 not a very common occurrence.

20 Q And is damage to the hair significant in examining hair?

21 A In some instances.

22 Q The hair comparison itself, when you put the hair under
23 the microscope and you indicated you use a comparison
24 microscope--

25 A Yes, sir.

1 Q Explain to the jury what that means.

2 A As I said before, it's just a comparison. By that I mean
3 I have two fields of vision and in one side I can put the
4 questioned hair, which would be standard hair that is
5 pulled from a suspect or a victim on one side and then I
6 can put the hair that I am questioning as to its-- as to
7 the origin of that hair on the other side and I can
8 examine the two at the same time so I can see any differ-
9 ences that show up, any similarities and since they're
10 side by side it's very easy to see differences.

11 Q Would it be a fair statement to say that Item D-12, which
12 I have had you take out of there, which you have identi-
13 fied as the standard, that you examined Item D-12, the
14 standard, and compared it against other hairs that were
15 submitted to you for analysis against the standard, D-12?

16 A I compared them to hairs that I recovered.

17 Q All right, I misspoke. Did you as part of your job as a
18 serologist examine the various items of clothing, that
19 sort of thing, and look for hairs first?

20 A Yes, I did.

21 Q And then once you found those hairs did you identify where
22 they came from and make note of that?

23 A Yes, I did.

24 Q And then once you did that did you do a comparison with
25 Item D-12, the standard, against the hairs that you found?

1 A That's correct.

2 Q Could you explain to the jury how you go about looking for
3 hairs on things that are submitted to you?

4 A If I am looking for hairs, like on a piece of clothing, I
5 just simply lay the clothing out and look to see any
6 obvious hairs that are there. In some instances we take
7 sweepings and in that particular case I-- I don't
8 specifically take the sweepings, I look at-- after the
9 sweepings are done I look through them and extract hairs
10 that are obviously there.

11 Q Now, in this particular case, again, we've identified
12 Exhibit Number 29 as a list of things that were submitted
13 to you that you received from Mr. Kolanczyk. Did you
14 receive from him an item which is on the sheet which is
15 identified as paper bag purportedly containing a brown
16 T-shirt?

17 A Yes, I did.

18 Q And that is identified as Item F?

19 A Yes, it is.

20 Q Do you have Item F there?

21 A Yes, I do.

22 Q You can just take the brown T-shirt out if you will,
23 please. Now, can you tell me if you look at Item F, the
24 Brown T-shirt, and in looking at Item Number F, if you
25 examined it for the presence of any hairs?

1 A Yes, I did.

2 Q I refer you to Page 3 of your report.

3 A Yes, sir.

4 Q How many head hairs were recovered, if you know, from the
5 brown T-shirt, Item F?

6 A Three.

7 Q How did you go about, in regard to specifically Item F,
8 looking for any hairs?

9 A If I can refer to my notes.

10 Q Sure.

11 A Okay, in this particular instance I actually looked
12 through the sweepings that were taken and extracted the
13 hairs that I found.

14 Q Who did the sweepings?

15 A Michael Haas.

16 Q Michael is here today, isn't he?

17 A Yes, sir.

18 Q Is there some container that would show where the
19 sweepings were placed or deposited? You're holding up--

20 A And also this.

21 Q Could we have a sticker and I'll mark the entire contents.
22 (Exhibit #31, plastic bag containing brown T-shirt,
23 marked for identification by the Clerk)

24 THE COURT: You're marking a plastic bag then that
25 contained--

1 MR. VOGEL: Contained everything, referring to
2 Item F on her report, the brown T-shirt and the sweepings
3 and everything else she'll talk about.

4 Q So you're saying that there were sweepings done and they
5 ended up with this filter?

6 A That's correct.

7 Q Those are three head hairs?

8 A Yes, sir.

9 Q Now, what did you do in regard to those three head hairs
10 in relationship to Item D-12, that being the standard that
11 was submitted to you for comparison, allegedly coming from
12 the victim?

13 A Okay, I mounted the three hairs on a microscope slide and
14 I examined each one separately with reference to the
15 standard hair that was reportedly taken from the victim.

16 Q Explain then what you did in terms of your actual
17 comparison.

18 A Again I looked for certain structural features that were
19 present in the standard that might also be present or
20 might not be present in the recovered hairs.

21 Q In relation to two of the three that you compared, and
22 I'll refer to your report, you said three head hairs were
23 recovered, etc., what, if anything, did you find about two
24 of the three?

25 A They were found to be inconsistent with her head hair.

1 Q And the third one that you examined, is it possible that
2 we know which one it is in your packet there, the third
3 one?

4 A Yes, it would be the smaller hair.

5 Q Is it marked?

6 A It's my Number 2.

7 Q It says F Number 2 on there?

8 A Right.

9 Q And you're saying there is a hair, a head hair, in here,
10 is that correct?

11 A Yes.

12 THE COURT: That's a microscope slide you have?

13 THE WITNESS: Yes, sir.

14 Q All right, now, you took Item F-2 of Exhibit Number 31
15 and you compared that with the standard, which would be in
16 Number 30. Do you want to open that up and show me the
17 standard? All right, there are a number then, of
18 standards, is that a fair statement?

19 A Yes.

20 Q Did you compare Item F-2 with the different hairs that are
21 part of the standard?

22 A Yes, I did.

23 Q So in other words, Item Number F-2, you multiply compare
24 them, is that a fair statement?

25 A Yes.

1 Q I'll show these to Mr. Bolgert. Would it be a fair state-
2 ment to say that the standards that I've been referring to
3 as D-12 in fact each of these slides are marked D-12 by
4 yourself?

5 A Yes, they are.

6 Q Each one, D-12, F, D-12, D-12, is that correct?

7 A That's right.

8 Q And each one of these are a microscope slide, just like
9 F-2?

10 A Yes, they are.

11 Q In comparing the standards, the D-12's with Item F Number
12 2, what specifically did you do to make that comparison?

13 A Again I mounted the recovered hair on one side of the
14 scope and the standard hairs on the other side of the
15 scope and I compared for similarities and dissimilarities.

16 A As the result of your comparison of Items D-12, the various
17 standards, and F Number 2, the suspect hair, do you have
18 an opinion to a reasonable degree of scientific certainty
19 in the field of serology as to whether or not Item Number
20 D-12, the standards, and F-2 are consistent?

21 A Yes, I do.

22 Q In your field of serology is it possible to render an
23 opinion saying this hair is the same as this hair, A is
24 the same as B?

25 A By that you mean coming from the same individual?

1 Q Well, I was going to get to that. Just in general terms
2 is it possible in the field of serology to say A is
3 exactly the same as B?

4 A I can say that they're similar.

5 Q So if I were to take two head hairs from my own head and
6 show them to you and have you compare them, the best you
7 can say is that they are consistent and that they're
8 similar?

9 A That's correct.

10 Q You can't say definitely they both came from Denis Vogel,
11 the D.A. from Manitowoc County?

12 A No.

13 Q That's true of all hair comparisons, isn't that right?

14 A That's correct.

15 Q Is it possible to eliminate, to positively eliminate in
16 comparison various hairs; in other words, by saying yes,
17 positively A is not similar to B or A is not consistent
18 with B?

19 A Yes, it is.

20 Q And I believe before you testified that there were two
21 hairs that you recovered from the brown T-shirt that you
22 did eliminate, is that correct?

23 A Yes.

24 Q And on the third one your opinion is that they are
25 consistent?

1 A Yes.

2 Q I know you brought a lot of other evidence with you. Did
3 you make comparisons of other suspect hairs, if you will,
4 against the standards; that is, Item D-12?

5 A Yes, I did.

6 Q And about how many other hairs did you compare against the
7 standard items D-12? If you want to go through your
8 report for continuity's sake, that's okay. All I'd like
9 you to do is just tell me where the hairs are recovered
10 from in terms of Exhibit 29 and what you came up with.

11 A Okay, I recovered four head hairs from some white paper
12 sheets that were used at the hospital for the victim to
13 undress on. Three of these head hairs were found to be
14 consistent with the head hairs collected from her. One
15 hair was found to be inconsistent with her head hair.
16 Again, I recovered two head hairs from this particular
17 T-shirt that were found to be inconsistent with her head
18 hairs. One of the hairs was found to be consistent with
19 her head hairs. I collected a pubic hair from some socks
20 that were submitted. However, no conclusion could be made
21 due to the fact that the pubic standards were similar to
22 each other, that being the standard from the victim and
23 the standard from the suspect in this case were very
24 similar, so I could not make a conclusion as to the origin
25 of the questioned hair. Two hair fragments were recovered

1 from a pair of blue pants. Again, they were inconsistent
2 with the head hair that was collected from Penny Beerntsen.
3 A They were what, inconsistent?
4 A Inconsistent. Three head hairs were recovered from a pair
5 of green corduroy pants and again they were found to be
6 inconsistent with Item D-12, which is the head hair
7 standard from the victim. One head hair was collected
8 from the sweepings of clothing on Item O, which I believe
9 was a blue T-shirt and a pair of green pants. This head
10 hair was also found inconsistent with her head hair, the
11 head hair from the victim.
12 Q Would that be it?
13 A Yes, it is.
14 Q So based upon your examination of the recovered hairs you
15 found hairs from a paper sheet which you believe is this
16 paper sheet where she would have undressed or would have
17 been standing prior to recovery?
18 A (Nods)
19 Q And those were consistent with her own head hairs?
20 A Yes, sir, three of those.
21 Q And one was not consistent?
22 A That's correct.
23 Q You found one head hair on Item Number F, the brown T-
24 shirt, that was consistent, is that a fair statement?
25 A Yes.

1 Q You indicated that the pubic hairs, pubic hair of the
2 victim and of the defendant, were similar and, therefore,
3 could not be compared?

4 A That's correct.

5 Q Did you do any comparisons against the standard D-12 with
6 any other hairs that were submitted to you?

7 A No.

8 Q I didn't mean in the sex kit itself but in general terms
9 did you do a comparison since the time that the sex kit
10 was submitted to you of any other things that were
11 submitted to you?

12 A Aside from the hairs that I just mentioned I did not
13 compare the head hair standard with any other hairs.

14 Q All right.

15 (Counsel approached the bench)

16 Q Did you compare the head hair that was F-2 against any
17 other hairs that were submitted to you for comparison?

18 A Yes, I did.

19 Q Can you explain to the jury, if you know, where the head
20 hairs or the hairs came from that you were to compare
21 against F-2?

22 A Yes, I was-- After I had done the work on this particular
23 case I was submitted additional samples that were head
24 hair samples reportedly collected from Steven Avery and,
25 also, head hair samples that were reportedly collected
from Lori Avery.

1 Q And did you then compare F-2, which was the head hair
2 found to be consistent with the victim with the two submit-
3 ted to you regarding Mr. Avery, the defendant, and Lori
4 Avery for comparison?

5 A Yes, I did.

6 Q Do you have an opinion to a reasonable degree of scientific
7 certainty in the field of serology as to whether or not
8 Item F-2 was consistent with the head hair submitted to
9 you from the defendant, Mr. Avery?

10 A Yes, I do.

11 Q What is your opinion?

12 A The standard that was submitted that was collected from
13 Steven Avery was found not to be consistent with the
14 recovered hair that's designated as my F Number 2.

15 Q All right, did you again do the comarison of the hair
16 sample submitted that would have been from Lori Avery and
17 compare that with Item F-2?

18 A Yes, I did.

19 Q To a reasonable degree of scientific certainty in the
20 field of serology do you have an opinion as to whether or
21 not those two were consistent?

22 A Yes, I do.

23 Q What is your opinion?

24 A My opinion is that they were not consistent.

25 Q Do you have those with you?

1 A Yes, I do.

2 Q The ones that were submitted?

3 A Yes.

4 Q Would you just take those out, please? First of all,
5 let's put away, back in 30, what goes in 30.

6 A Okay, and put back in 31 what goes back in 31.

7 Q What is contained in both of these envelopes, what was
8 submitted to you?

9 A This contains the head hair sample that was reportedly
10 collected from Steven Avery. It's designated as my
11 Laboratory Number 85-1682.

12 Q And the other envelope?

13 A Is again-- I labeled it. It was submitted under the same
14 laboratory number, 85-1682, and this is the head hair
15 sample that was collected from Lori Avery.

16 Q Let's get those two marked as exhibits.

17 (Exhibit #32, hair sample from Steven Avery; and
18 Exhibit #33, hair sample from Lori Avery, marked for
19 identification by the Clerk)

20 Q I had marked Steven Avery as 32 and Lori Avery as 33.
21 Why don't you just open those two. Contained in 32 do we
22 just have the hair from Mr. Avery or do we have any items
23 of D-12 in that packet?

24 A No, just the hair from Mr. Avery.

25 Q And in 33 we just have the hair from Lori Avery and we

1 don't have any items from D-12, any comparisons, is that
2 correct?

3 A No.

4 Q Can I assume that in these packets we have the slides of
5 the hair just like you have shown us before?

6 A Yes.

7 Q How many different comparisons did you make against the
8 standard, that being in this case F-2? How many different
9 hairs did you look at and compare?

10 A I don't recall right offhand. Some of those slides may
11 have more than one hair on there. What we do when we're
12 looking at a standard, people's hair falls into different
13 ranges. All people, a person, all the hair from one
14 particular person is not identical, it falls into a certain
15 range of characteristics and when we look at a specific
16 standard we look for similarities within that particular
17 sample, so we look at the number of hairs that we feel is
18 necessary to get a picture of what that person's hair
19 looks like.

20 Q And did you get an adequate sampling of the hairs that Mr.
21 Steven Avery submitted to compare against the standard,
22 that being F-2?

23 A Yes, I did.

24 Q Did you get an adequate sampling of Lori Avery to compare
25 against the standard F-2?

1 A Yes, I did.

2 THE COURT: Let me see, which is the standard F-2,
3 whose hair is that?

4 MR. VOGEL: That would be the hair that was found
5 on Item F, the brown T-shirt that this witness has testi-
6 fied is consistent with that of the victim.

7 Q Was that the extent, then, of your analysis of Exhibits
8 32 and 33?

9 A Yes, it was.

10 MR. VOGEL: Judge, regarding this, that's all the
11 questions I have. There's other evidence perhaps. Mr.
12 Haas is going to be testifying briefly. I would ask the
13 right to recall this witness if necessary before she
14 leaves today but I've finished questioning her as to the
15 hair.

16 THE COURT: Any cross?

17 CROSS EXAMINATION

18 BY MR. BOLGERT:

19 Q Ms. Culhane, is it possible to prove identification by
20 hair analysis?

21 A No.

22 Q Is the hair of many people consistent with each other?

23 A Yes.

24 Q Is it unusual for hair from different people to be
25 consistent with each other?

1 A No, it's not.

2 Q For example, is it unusual for the hair of white
3 caucasians to be consistent with each other?

4 A No.

5 Q If, for example, you took hair from ten different people,
6 would it be unusual to get consistencies between the hair
7 from those different people?

8 A No.

9 Q It would be usual, wouldn't it?

10 A Yes, it would be.

11 Q Other than the standards that you have spoken of, did you
12 have any other standards?

13 A I did have a pubic hair standard.

14 Q But of head hair did you have any standards other than the
15 ones you testified about?

16 A No, sir.

17 Q You had no standards that were purportedly from hospital
18 or ambulance personnel?

19 A No, sir.

20 Q Do you have any standard purportedly from the husband of
21 the victim?

22 A No, sir.

23 Q Any standard purportedly from a Diane Messman or John
24 Gould?

25 A No, sir.

1 Q Any standard from any of Mr. Avery's children?

2 A No, sir.

3 Q The hair that you found from the white sheet that was
4 inconsistent with the victim's hair, did you analyze it to
5 determine if it was consistent with Mr. Avery's?

6 A No.

7 Q Regarding the general condition of the clothes submitted
8 to you, were they dirty?

9 A Yes.

10 Q Could you venture an opinion as to the last time they may
11 have been washed?

12 A No.

13 Q A long time ago?

14 A I can't say.

15 Q The hair that was found on the brown T-shirt, did it have
16 any distinguishing characteristics?

17 A By distinguishing do you mean unusual characteristics?

18 Q Yes.

19 A No.

20 Q Isn't that what makes it possible for you to find a hair
21 inconsistent with another, that it has some distinguishing
22 characteristics?

23 A Well, by distinguishing if you mean characteristics
24 specific to that hair, yes, it does. It has nothing out of
25 the ordinary or unusual that would make it rare or anything
like that.

1 Q What is it about the hair that makes it possible to
2 distinguish it from any other hair?

3 A The structural features. By that I mean the presence of a
4 medulla, which is the center portion of the hair, the
5 color, the diameter.

6 Q Are any of those structural characteristics rare?

7 A No.

8 Q Are they common?

9 A Yes.

10 Q Are you able to give the opinion as to probability of the
11 hair from that brown T-shirt being from the same source
12 as the D-12 sample?

13 A I don't understand what you mean by-- I--

14 Q The hair on the brown shirt, that's consistent with the
15 D-12 standard. Can you give an opinion as to the proba-
16 bility whether they're from the same source?

17 A No.

18 Q All you can say is that it's not impossible that they're
19 from the same source, isn't that correct?

20 A That's right.

21 Q And if you were given other standards and compared it
22 against that hair from the brown T-shirt it could be
23 consistent with some or all of those, isn't that right?

24 A It's conceivable, yes.

25 Q You testified that you also had some scrapings that

1 purportedly were from beneath the fingernails of the
2 victim, is that right?

3 A Yes, I did receive fingernail scrapings.

4 Q Was there evidence of blood underneath the fingernails?

5 A Yes, there was.

6 Q Did you also analyze some scrapings that were purportedly
7 taken from the fingernails of the defendant, Mr. Avery?

8 A Yes, I did.

9 Q Any blood under those fingernails?

10 A No.

11 Q Were you able to type the blood that was found underneath
12 the fingernails of the victim?

13 A No, I wasn't.

14 Q That's all I have, thank you.

15 THE COURT: Any redirect?

16 MR. VOGEL: Just a couple questions.

17 REDIRECT EXAMINATION

18 BY MR. VOGEL:

19 Q In regard to the fingernails of the defendant, the
20 scrapings of the fingernails of the defendant, you indi-
21 cated you found no blood. Did you find anything you could
22 examine, anything of substance that you could examine to
23 try to make some determination as to what it was?

24 A There was what I would call, what I referred to as dirt.
25 I did not identify it but it was just a sandy type

1 material. I made no identification on that.

2 Q That's all, thank you.

3 RE CROSS EXAMINATION

4 BY MR. BOLGERT:

5 Q I have one further question: Is it possible for hair from
6 the same source to be inconsistent; two hairs from the
7 same head?

8 MR. VOGEL: Beyond the scope, Judge.

9 THE COURT: The question can be asked and answered.
10 It is beyond the scope.

11 Q Did you hear the question?

12 A Would you repeat it, please?

13 Q Is it possible for two hairs from the same source to be
14 inconsistent with each other?

15 A It's possible for two hairs from the same source to have
16 some features present and some features not. When I use
17 the term inconsistent I mean there are features that
18 exclude that hair. I would not say that's the case from
19 hairs from one particular person. I would say there are
20 in some instances hairs from the same person have charac-
21 teristics that are present in one hair that might not be
22 present in the other but the overall picture is a con-
23 sistent picture. I don't know if that answers your
24 question or not.

25 Q If you had two hairs from one head and you compared them,

1 is it possible they would be inconsistent?

2 A That's difficult to answer.

3 Q Again, I'm asking you your opinion to a reasonable degree
4 of scientific certainty so if you don't have an opinion
5 then please say you don't have an opinion.

6 A It's just that I use the term inconsistent differently
7 than the way you're using it. When I use the term incon-
8 sistent in hair comparisons I'm using it as a limitation
9 type connotation. Again, if there's two hairs from the
10 same person, again all I can say is some structural
11 features might be present in one and not in the other,
12 which means they might look different under the scope.

13 Q Well, if they have different structural features can two
14 hair--

15 MR. VOGEL: Judge, I guess this is really going
16 beyond the scope. I know the Court wants to grant some
17 leeway.

18 THE COURT: I think he's reached some point of
19 ambiguity between himself and the witness. I guess I'll
20 give him a reasonable period of time to see if he can
21 establish a common denominator or understanding between
22 them.

23 MR. BOLGERT: I've got to do this fast?

24 THE COURT: Yes, that's a good way of interpreting
25 it, Mr. Bolgert.

1 Q If you have two hairs that have different structural
2 makeups is it possible you can still make a determination
3 they're consistent? Two hairs from the same head can have
4 different structural composition, is that right?

5 A Yes.

6 Q Okay, and isn't it-- again, I don't want to redo every-
7 thing, but isn't it a fact that there's different struc-
8 tural composition that helps you determine whether hairs
9 are consistent or inconsistent?

10 A Right, but when determining whether one hair is consis-
11 tent or inconsistent with the standard I'm looking at a
12 range of characteristics, a broader range of character-
13 istics, so three or four hairs might have a structure and
14 three or four hairs might not but the overall picture is
15 it's present in some hairs, say the medulla for instance,
16 it's present in some hairs and not present in the other
17 hairs.

18 Q Thank you, that's all I have.

19 (Witness excused)

20 MR. VOGEL: I'd like to offer into evidence
21 Exhibits 29, 30, 31 and 32. I believe those were the
22 ones, and 33.

23 THE COURT: Which ones again?

24 MR. VOGEL: Twenty-nine through 33.

25 THE COURT: They're received.