

State of New Jersey

v.

Larry L. Peterson

March 6, 1989

Testimony of Joseph Petersack
Forensic Scientist with New Jersey State Police
Laboratory System

1 again?

2 A. The purpose of this questionnaire is just to obtain
3 some information that will help us do the analysis.

4 In particular, for example, if the victim is
5 bleeding we ask one question, it says, "Indicate whether
6 victim or suspect were bleeding and from what source?"

7 So at least it gives us an idea where blood may be
8 from. In analyzing blood it's important to know if a
9 person has been transfused. Because if there's somebody
10 else's blood that has been used to transfuse them it may
11 lead to misleading blood groupings. So we ask questions
12 like that. And there's other questions here of the same
13 nature.

14 MR. FURLONG: I have nothing further, Your
15 Honor.

16 THE COURT: Okay.

17 MR. RILEY: Nothing further, Judge.

18 THE COURT: Thank you very much for your
19 testimony, Mr. Low-Beer.

20 (Witness excused.)

21 MR. RILEY: Mr. Petersack, please.

22 J O S E P H R. P E T E R S A C K, having been duly sworn,
23 testified as follows:

24 DIRECT EXAMINATION BY MR. RILEY:

25 Q. Mr. Petersack, by whom are you employed, sir.

1 A. I'm employed at the New Jersey State Police
2 Laboratory system in West Trenton, New Jersey.

3 Q. How long have you been employed there, sir?

4 A. I have been employed for approximately nine and a
5 half years.

6 Q. I would like to review with you, sir, some of
7 your background information such as your educational
8 background. What educational background do you possess?

9 A. Yes. I have a B.A. degree in chemistry from Trenton
10 State College. I have 30 graduate credits towards a Master
11 of Forensic Science from John Jay College of Criminal
12 Justice; degree is pending completion.

13 I have two internships in the field of forensic
14 science; one at the laboratory where I presently work, and
15 one at the New York City Medical Examiner's office.

16 I have taken an extensive blood stain analysis
17 course at the FBI Academy. Also attended international
18 symposium on the forensic application of electrophoresis
19 also at the FBI Academy. While at the laboratory I was
20 trained in the methods and procedures utilized in the
21 examination of, identification, and analysis of evidence
22 concerning biological fluids and stains such as blood,
23 semen and saliva.

24 I have been a member of Northeastern Association of
25 Forensic Scientists for ten years.

1 Q. Have you, sir, been admitted as an expert
2 witness in the field of forensic science, more specifically
3 the field of trace evidence evaluation in the course of
4 your career?

5 A. Yes, I have.

6 MR. RILEY: Your Honor, I would ask that Mr.
7 Petersack be qualified as an expert in the field of
8 forensic science, more particularly the area of trace
9 evidence evaluation.

10 THE COURT: Any questions?

11 MR. FURLONG: No, your Honor.

12 THE COURT: All right. I find Mr. Petersack
13 is an expert in the area of forensic science and, in
14 particular, in the area of trace evidence examination.

15 Q. Mr. Peterson -- I'm sorry, Mr. Petersack, I
16 would like to begin to ask you some questions with regard
17 to some tests that you performed at the request of the
18 Burlington County Prosecutor's Office. I recognize that
19 your notes have been taken to be photocopied.

20 Would you feel comfortable by beginning the
21 questioning or would you rather wait for your notes?

22 A. That's no problem.

23 Q. Okay. I want to direct your attention, sir,
24 to this particular case, State of New Jersey vs. Larry
25 Peterson. Did there come a time when you were requested by

1 your supervisor to engage in some forensic testing with
2 regard to some submissions by the Burlington County
3 Prosecutor's Office?

4 A. Yes, I did.

5 Q. I'd like to direct your attention, sir, to
6 jeans that were submitted to you, along with a pair of
7 female panties for evaluation.

8 A. Yes.

9 Q. Do you have records or notes with regard to
10 that?

11 A. Yes, I do.

12 Q. And would you tell the jury, please, what
13 specimen numbers we will be talking about, particularly the
14 jeans the panties, and review with them the results of your
15 tests?

16 A. Yes. It would be my laboratory case number
17 168311-C, and it would be my specimen number 23, a pair of
18 pink panties, and my specimen number 24, a pair of
19 bluejeans.

20 MR. RILEY: And for the record, your Honor,
21 the pair of pink panties is S-56 in evidence, and the jeans
22 are S-53 in evidence.

23 THE COURT: Okay.

24 Q. Would you advise the jury, sir, the types of
25 tests you performed and the results of those tests?

1 A. Yes. The request for examination on these two
2 specific items were to see if there was any seminal stains
3 identifiable on these two items.

4 What we have to do with the items is to first
5 visually look at them to see if there might be any visual
6 stains, maybe a yellowish stain or a whitish stain on the
7 garment.

8 Once an area is located visually or not located
9 visually, we then swab the garment with a piece of filter
10 paper and we try to screen the item for a semen stain. We
11 do that by looking at an enzyme called acid phosphatase.
12 This enzyme is an enzyme found in semen in really high
13 concentrations.

14 So, upon screening an item or an article of clothing
15 for this enzyme, acid phosphatase, and if we get a positive
16 reaction, it gives us an indication that a semen stain
17 might be present.

18 Once this is performed, then we get a positive test
19 on that, we then look further.

20 Our next step would be to take stain or an area that
21 reacts positive acid phosphatase and then examine it for
22 the presence of spermatozoa. Spermatozoa are actually male
23 reproductive cells that are found in the male ejaculate.

24 If we are able to locate a spermatozoa in a stain,
25 we can positively identify it as being a semen stain.

1 If in lieu of a spermatozoa search we do not find
2 any spermatozoa, we then look for a protein called P-30,
3 which we perform at the laboratory.

4 The P-30 protein is found uniquely only in seminal
5 fluid, so in lieu of a spermatozoa, where we don't find any
6 spermatozoa in a stain, we look for this P-30 protein.

7 If a positive result occurs on the P-30 protein,
8 then we can then say that it is positively a semen stain in
9 lieu of not finding a spermatozoa.

10 Once a stain has been positively identified as being
11 a semen stain, we then try to group that stain. We try to
12 identify it or give it some kind of a label to help us to
13 characterize that stain as to possible source of the stain.

14 We do that by looking for what we consider the A/B/O
15 blood types. This is what we are all most familiar with.
16 There are four main types, mainly type A, type B, type O,
17 and type AB. We try to identify this in a semen stain.

18 After that is identified, we then try to look for
19 some additional genetic markers. These are genetic markers
20 that are like the A/B/O in that they occur in different
21 forms.

22 One of the markers that we look for is called PGM,
23 or phosphoglucosmutase. It is a real long technical name,
24 but basically it's an enzyme found in semen and other body
25 fluids that has a label, has a specific type that we are

1 able to identify in semen stains.

2 Q. Now, utilizing the procedure that you have
3 just outlined for us, did you apply that procedure to the
4 two submitted items?

5 A. Yes, I did.

6 Q. Let's take them individually, sir. The
7 panties which have been marked in evidence as S-56 in
8 evidence would be your lab number, I believe, 6580.

9 A. I'm sorry.

10 Q. I'm sorry. No. It wouldn't be 6580. 23.
11 Lab number 23. Oh, have you found it on your --

12 A. I have it on my report. I don't have my notes with
13 me because they are not here.

14 Q. Would you prefer to testify from your notes
15 or --

16 A. At this point I'd probably be better if I had my
17 notes.

18 THE COURT: Okay. We want to photocopy the
19 witness' notes and photocopying machines being what they
20 are, apparently something's fouled up.

21 So,, we will have to check that out. If you
22 ladies and gentlemen will step into the jury deliberation
23 room we may have you back in two seconds. I don't know.

24 (The following took place out of the presence
25 of the jury.)

1 THE COURT: The Prosecutor, I take it, is
2 checking it out, right?

3 MR. RILEY: Yes, sir. We have a trial
4 investigator taking the notes either to the seventh floor
5 or back to our office. She's been told to return here as
6 quickly as possible.

7 THE COURT: Right. Okay.

8 (Pause.) I'm going to take a recess myself.
9 I'll be available the moment the reports are here.

10 If you want to step off the stand, Mr.
11 Petersack, that's perfectly okay.

12 (Court recessed at 12:02 p.m.)

13 (Court reconvened at 12:15 p.m., out of the
14 presence of the jury.)

15 MR. RILEY: The witnesses is recovering his
16 original notes, Judge. Apparently the machine reordered
17 the original paper and then ate other pieces of paper.

18 THE COURT: The fickle finger of fate was
19 bound to get involved here.

20 MR. RILEY: Yes. He should be available
21 within moments.

22 THE COURT: That's all right. Would you let
23 the jury know we'll be starting in a minute or so. We'll
24 probably finish him before lunch.

25 MR. RILEY: Judge, I apologize for that delay.

1 Normally these things are done --

2 THE COURT: That's all right.

3 THE COURT: Okay. Bring in the jury.

4 (The following took place in the presence of
5 the jury.)

6 BY MR. RILEY:

7 Q. Mr. Petersack, now that we've fought the
8 battle of the photocopy machine, I'd like to ask you some
9 questions with regard to the three page report that you
10 prepared in preparation for this case. And if you find it
11 necessary to make reference to your notes, that would be
12 appropriate.

13 A. Okay.

14 Q. Now, I want to ask you some questions in a
15 summary fashion and have you explain where you found
16 certain items and explain that to the jury and we will find
17 the S numbers which relate to that so the record is clear
18 as to what you're referring to.

19 A. Okay.

20 Q. Since your lab numbers are going to be
21 different from our exhibit numbers which we've just given
22 the last few days.

23 Okay. Now, the presence of seminal material, could
24 you indicate for us, sir, where you found seminal material?

25 A. Okay. Seminal material was identified on the jeans,

1 my specimen number 24.

2 Q. Okay. And we've indicated that was S-56, I
3 believe.

4 MR. FURLONG: No. 53.

5 MR. RILEY: 53.

6 THE COURT: That's right.

7 Q. Okay. And you've indicated to us where else
8 did you find some seminal material?

9 A. We didn't find material -- seminal material, but we
10 found spermatozoa, specimen number 23, the panties.

11 Q. The panties which we found to be --

12 THE COURT: 56.

13 Q. S-56. Now, the vaginal swab and the vaginal
14 smears, did you find any seminal material or any
15 spermatozoa on either one of those two items?

16 A. No, I did not.

17 Q. On the vaginal swab, did you find blood?

18 A. Yes. It reacted presumptively for the presence of
19 blood.

20 Q. Now, sir, I want to review with you the items
21 that you found reactions for blood. Okay. You've
22 indicated on the vaginal swab. Where else, sir?

23 A. On the anal swab, my specimen number four. That was
24 positive for the presumptive test of blood. My specimen
25 number seven, the oral swabs was also positive for the

1 presumptive test of blood. And the right fingernails
2 scrapings, my specimen number 10B, also positive for the
3 presumptive test of blood.

4 Q. Now, those items would have been found in the
5 rape kit, correct?

6 A. That is correct.

7 Q. I believe that's S-58 in evidence. Okay.
8 Where else did you find blood?

9 A. On specimen number 21, the sweatshirt, was positive.
10 There was an area that was checked that was positive for
11 the presumptive test of blood. Specimen number 22, the
12 bra, there was an area that tested positive for the
13 presumptive test of blood.

14 Q. Slow down, Mr. Petersack, please.

15 S-54, your Honor in evidence, is the yellow
16 sweatshirt. And S-57 in evidence is the bra.

17 Go ahead, sir.

18 THE WITNESS: And specimen number 29 is a
19 piece of wood from the scene that was reacted positive for
20 the presumptive test of blood.

21 Q. And that would have been lab number 29 of the
22 State Police lab number, sir?

23 A. That's correct.

24 Q. Okay.

25 Which, your Honor, for the record, that is

1 contained on the board which we will later move into
2 evidence at a later time. Just so the record is clear, lab
3 number 29 is presently on the white poster board.

4 THE COURT: Does it have an exhibit number?

5 MR. RILEY: S-60 I believe -- 16.

6 THE COURT: Very good.

7 Q. Now, you've indicated to us, sir, you found
8 certain items of seminal material and you've also indicated
9 to us that you do certain tests to determine blood
10 groupings if possible?

11 A. That's correct.

12 Q. Could you explain to the jury the science
13 behind that, what is done and how does it work?

14 A. Yes. When we find or try to identify a semen stain
15 and we try to group it again referring back to the A/B/O
16 blood type, we're able to identify an A/B/O blood type on a
17 stain based on a person's secretor status.

18 What we mean by that is a person who is a secretor,
19 eighty percent of the population are referred to as
20 secretors, are people that would be expected to secrete
21 their A/B/O blood type into their other body fluids.

22 So, for example, if we were to take a person who was
23 a blood type A and they secreted, they were a secretor, and
24 we took a saliva sample from them, at the laboratory we
25 would be able to determine without examining their blood,

1 we would be able to determine from the saliva sample that
2 they were a blood type A. That is a practice that we use
3 at the laboratory.

4 We examine these semen stains when identified for
5 the presence of A/B/O blood group what person is secretor.

6 Twenty percent of the population are not secretors.
7 These would be individuals that you would not expect to
8 find their A/B/O blood type in their other body fluids,
9 whether it be saliva, semen or perspiration.

10 So, if we examine the semen stain from a person who
11 is a nonsecretor, we would not be expected to be able to
12 determine their A/B/O blood group.

13 Once that is determined, we then perform other tests
14 for additional proteins; namely, I mentioned before PGM and
15 another enzyme which is peptidase A. These also occur in
16 different forms.

17 For example, PGM, the phosphoglucomutase enzyme,
18 occurs in three most common forms and we refer to them as
19 Type 1, Type 2, 1 ne, and a Type 2.

20 Peptidase A, the other enzyme that we look for in
21 semen stains, also has three main types, the same numbers
22 are given: Type 1, Type 2, and a Type 2,1.

23 So, in essence, going back to the semen stain, we
24 first try to group it and then try to determine two genetic
25 markers.

1 The greater we are at determining what the A/B/O
2 blood type is, what the genetic markers are, the greater we
3 are able to take those results and compare them back to a
4 victim or suspect to see if these results could have come
5 from either/or.

6 Q. Was there enough seminal material found on
7 either the panties or the jeans that would allow you to do
8 such a procedure and type?

9 A. We found semen stains that we cut out. We
10 identified them as in fact being positive semen stains on
11 both the panties and the jeans.

12 We attempted to perform the A/B/O blood typing on
13 the jeans and the panties. Both results were inconclusive.

14 In other words, we could not make a determination of
15 what blood group was present in those two stains.

16 We also attempted to perform the enzyme analysis on
17 the PGM and the peptidase A enzyme for specimen number 23,
18 the panties.

19 The results for both PGM and peptidase A were
20 inconclusive. We could not make a positive determination
21 as to type.

22 Also on specimen number 24, the jeans, both for PGM
23 and peptidase A. The results were also inconclusive. We
24 would could not make a positive determination as to the
25 type present in that stain.

1 Q. Thank you, sir.

2 MR. RILEY: I have no further questions.

3 THE COURT: Mr. Furlong?

4 CROSS-EXAMINATION BY MR. FURLONG:

5 Q. Before I ask you anything, Mr. Petersack, can
6 I just see your -- let me show you what -- I've got a
7 photocopy of that. I can't read it. I think it's page one
8 of three.

9 A. This one?

10 Q. Yeah. You got a photocopy, too?

11 A. Well, that's --

12 Q. Better photocopy. Can you tell the jury what
13 the difference is between spermatozoa and semen?

14 A. Yes. When -- at the laboratory, as I explained
15 earlier, we look for spermatozoa first. If we find
16 spermatozoa, we're able to conclusively state that a semen
17 stain is present.

18 If in lieu of not finding spermatozoa, we then look
19 for the P-30 protein, we just call it semen. Basically
20 it's the same thing, only when we're able to locate a
21 spermatozoa, the other we cannot, we look for the P-30
22 protein.

23 Q. Difference in the type of test you use to
24 determine the presence of the substance; is that correct?

25 A. One is -- a search for spermatozoa is microscopic

1 examination.

2 Q. Means you look for it --

3 A. We look for it on a slide.

4 Q. Okay.

5 A. The sperm -- the semen, the P-30 protein is done
6 with an immunological exam.

7 Q. When you say immunological exam, do you mean
8 you put something on the specimen to see if it reacts?

9 A. No. What we actually do is we take a piece of
10 stain, the stain is cut out, placed in a test tube. A
11 small amount of liquid is placed on top of the stain. That
12 extract, which would contain the P-30 protein if present,
13 is then put onto a electrophoresis plate. We do a
14 crossover electrophoresis run.

15 Q. Let me stop you right there. Spell
16 electrophoresis.

17 A. E-L-E-C-T-R-O-P-H-O-R-E-S-I-S

18 Q. Okay. Go ahead.

19 A. A crossover electrophoresis technique. And we run
20 the anti-P-30 antisera versus the semen stain in the middle
21 of this plate. You get a positive result when the P-30
22 protein is present and we call the stain positive for
23 semen.

24 Q. The difference between the microscopic
25 examination and the immunological test is that one is a

1 subjective analysis by the scientist looking into a
2 microscope and the second is one where you basically look
3 for an objective response to a known set of reactions to
4 chemicals, correct?

5 A. That's correct.

6 Q. All right. Although even in the second case
7 it's to a certain extent subjective in that you have to
8 analyze the coloration or something on the result?

9 A. We get a band that is sustained, a blue color when
10 we get the result and that's basically compared to a
11 control that's run side by side to the plate, so it's very
12 easy to interpret.

13 Q. Okay. Real quick. What -- what's that word?

14 A. Skin.

15 Q. All right. Is this mine or is this yours?

16 A. That's mine. Top one is --

17 Q. In fact that's yours, too?

18 A. Okay. Yes.

19 Q. Now, with respect to spermatozoa, what is the
20 length of time -- assume for the sake of argument that a
21 person ejaculates inside of a woman. How long -- and
22 assume further that the woman is deceased immediately
23 thereafter, so there's no bathing, douching, changing of
24 clothes or anything of that sort.

25 How long will that spermatozoa remain chemically

1 active or biologically active such that you could detect it
2 if it were present?

3 A. There have been reports in the vaginal canal from
4 anywhere from 72 hours up to a week.

5 Q. All right. If someone admitted to having
6 ejaculated inside of Miss Harrison within three or four
7 hours of her death, you would expect that -- or let me ask
8 you the question this way: Would that substance be
9 preserved at the time, let's say, of an autopsy 24 hours
10 later?

11 A. It's Possible.

12 Q. Statistically you can't give me an answer?

13 A. No, I cannot.

14 Q. Then if the substance is preserved, let's say,
15 within the 24 hour period and assume again that in fact
16 there was spermatozoa and it made it on to the slide,
17 wouldn't it then be important to test that within, let's
18 say, that 72 hour framework?

19 A. No. No, sir. If it was there and the swab was
20 taken and we examined it, it wouldn't matter when we
21 examined it if it was present on the slide. Once it's on
22 there, it is on there permanently.

23 Q. Okay. So once it is fixated on the slide,
24 then it's okay for you to analyze --

25 A. That's correct.

1 Q. -- six months later?

2 A. That's correct, years later.

3 Q. Okay. With respect to the seminal
4 immunological test, how long will seminal fluid last for
5 purposes of that test?

6 A. For the P-3 protein, to my knowledge, there's no
7 actual study done that I know of. However, from my own
8 experience at the laboratory, I have taken a semen stain at
9 room temperature for several months and still have
10 successfully gotten a P-30 protein to work.

11 Q. All right. To synopsise your findings based
12 on your review of the various items submitted to you, there
13 were positive reactions to the spermatozoa and the seminal
14 material on two different items, correct?

15 A. That's correct.

16 Q. All right. One was a microscopic analysis and
17 one was the immunological test?

18 A. That's correct.

19 Q. Okay. And you weren't able to do any more
20 than that in terms of identifying according to blood type
21 or origin; is that correct?

22 A. That's also correct, yes.

23 Q. All right. With respect to, for example,
24 either one of those materials, were you able to determine
25 the presence of human spermatozoa?

1 A. We -- it's human spermatozoa. Once it's
2 spermatozoa, it's human. The P-30 protein is specific for
3 humans. And the spermatozoa, due to their size, shape and
4 conformity to controls would be human spermatozoa.

5 Q. Can you conclude from your tests that the
6 victim had sexual intercourse within a certain amount of
7 time of her death?

8 A. No, I could not.

9 Q. Okay. With respect to the 10B, the right
10 fingernail scraping -- I'm sorry. I think -- yeah, yours
11 says right fingernail scraping on your specimen result,
12 correct?

13 A. That's correct, from my report, yes.

14 Q. What you actually get is the end of the
15 fingernail; is that correct?

16 A. That's correct.

17 Q. All right. Now, is there skin attached to the
18 fingernail itself?

19 A. We just saw that in my notes, does say that on
20 occasion there was a little bit of skin attached to some of
21 the nails when they're cut. That's not unusual to find
22 out, not skin underneath the fingernail but skin attaching
23 to the nail when it's cut.

24 Q. All right. So, where that says skin, is that
25 a reference to the victim's skin which basically attached

1 to that portion of the nail?

2 A. Right. It wasn't loose skin. It wasn't loose.

3 Q. The best you can say is that the nail itself
4 reacted positively on the reagent test for blood?

5 A. For the presumptive test for blood, yes.

6 Q. Are you able to determine human blood?

7 A. No. We -- it was QNS, too small a quantity.

8 Q. QNS?

9 A. Not sufficient to do anything further.

10 Q. You couldn't even determine whether it was
11 animal blood or human blood?

12 A. That's correct.

13 Q. So, it was a microscopic quantity so small
14 that you couldn't even perform that test?

15 A. That's correct.

16 Q. It was -- was it visible to the naked eye, if
17 you can recall?

18 A. Yes, it was.

19 Q. Can you tell whether or not the blood was the
20 blood of the victim or some other party?

21 A. No, I could not.

22 Q. The other -- how many fingernails clippings
23 did you have available to you to examine, if you know?

24 A. Yes. According to my notes, two clippings.

25 Q. Does that mean one from each?

1 A. Two clippings that reacted. There might have been
2 more present, but there was two that reacted positive KM.
3 I don't know how many actually without looking at the
4 druggist's folds that they are in right now.

5 Q. Would it have been yours or someone else's job
6 to analyze those fingernail clippings for the presence of
7 foreign skin material?

8 A. I would look at the item. I'm not a skin expert.
9 There is no one at the laboratory who is a skin expert, but
10 if there was something that gave an indication that it was
11 skin, from my experience, I would pass it on to someone who
12 was -- we'd have to send it on to another lab that would be
13 qualified to determine that it was in fact skin.

14 Q. And I take you found no such material and
15 therefore did not forward it out?

16 A. That's correct.

17 Q. Oh, incidentally, when you check clothing for
18 the presence of seminal, you check for the presence of
19 seminal material by running a swab that is dipped in a
20 chemical agent on the clothing?

21 A. No. The actual clothing is checked with a filter
22 paper. It is a round circular disk that is wet with
23 distilled water, is moistened. It is then placed in
24 contact with the garment. The garment is swabbed or placed
25 in a certain area if we're trying to locate one stain and

1 then we put the chemical reactants on the actual filter.
2 paper, not on the garment itself, on the filter paper, and
3 that presence of a positive result in a filter paper would
4 give us an indication that a stain was present and once the
5 stain is identified, then we go cut it out and perform
6 additional analyses.

7 Q. Okay. Now, if you can't see an obvious stain
8 to the eye, you're looking at pair of panties, there's no
9 visible dried, caked area or anything like that, it would
10 be your practice to take the piece of paper and rub it over
11 the entire garment?

12 A. Our first thing, especially in a pair of panties,
13 would be to examine the crotch area, the most common area
14 to look. And then if we were unsuccessful on finding a
15 stain in the crotch area, then we would do what you just
16 suggested.

17 Q. So, that would also be true for a pair of
18 pants if you're looking for blood?

19 A. That's correct -- for semen.

20 Q. For semen rather?

21 A. For semen, we would do the same thing, do the crotch
22 first and then examine other areas.

23 Q. So, if the pair of pants is 28 inches long and
24 it's two legs, you got to run down the entire length of
25 both legs, correct?

1 A. That's correct.

2 MR. FURLONG: Nothing further, your Honor.

3 THE COURT: All right. Any redirect..

4 MR. RILEY: No, sir.

5 THE COURT: Thank you very much for your
6 testimony, Mr. Petersack.

7 Ladies and gentlemen, we're going recess for
8 lunch. We'll ask you to be back at 1:30. We will try to
9 start at that time.

10 Thanks a lot, ladies and gentlemen.

11 (The following took place out of the presence
12 of the jury.)

13 MR. FURLONG: Your Honor --

14 THE COURT: We are going to have a motion. We
15 are not?

16 MR. FURLONG: Excuse me just for a second. I
17 want to place on the record what it is that Mrs. Oeffler
18 turned over to me because she didn't prepare a receipt.

19 She gave me Mr. Petersack's handwritten notes,
20 there is a three page report that refers to, let's say, the
21 first thirty-odd item that he analyzed.

22 There is a seven -- looks like 7/28/88 report
23 reference suspect's bluejeans, which have you, appears to be
24 a three page report also.

25 I assume -- these appear to have Mr.

1 Petersack's initials on it, which is why I make mention of
2 it.

3 There is a biochemistry bloodstain analysis,
4 but these are forms, your Honor, 7/29/88, one page; anagen
5 bloodstain analysis sheet, 7/29/88, one page; seminal stain
6 analysis, 9/25/87, two pages; anagen bloodstain analysis
7 sheet, 9/25/87, one page; and biochemistry bloodstain
8 analysis results, one page, 9/25/87.

9 MR. RILEY: Your Honor, Mrs. Oeffler also has
10 Gail Tighe's handwritten notes, copies of the notes.

11 MR. FURLONG: I was going to put this on the
12 record, your Honor, also --

13 THE COURT: Yes.

14 MR. FURLONG: If you don't mind.

15 In addition to the requests and results
16 previously supplied, I have -- from Gail Tighe, I have a
17 little difficulty reading the top of the first photocopy.
18 It appears to be 4/26/88. It appears to have her
19 signature, two pages -- well, one page.

20 Then the next page has 4/28/88, looks like a
21 two-pager, dated something like 10/30/87.

22 Then there is a diagram page, also 10/30/87,
23 diagrams of the sticks, one, two pages.

24 Then there's another, 10/30/87, looks like
25 hair slides, hair comparisons, two pages.

1 Then there are some -- this appears to be a
2 duplication of what I received before, one, two, three
3 pages of what I received before with respect to the
4 fingernail clippings and what have you, and a one page
5 evidence receipt lab -- evidence receipt log indicating
6 they had sent it on to the evidence.

7 There was also one additional analysis
8 questionnaire that was presented to me or that I observed,
9 the one that was undated by Mr. Low-Beer, but presumably
10 preceded the 7/21/88 questionnaire that I previously had
11 been provided with.

12 I think that covers all the laboratory
13 information.

14 THE COURT: Okay.

15 MR. FURLONG: Thank you.

16 (Court recessed at 12:40 p.m.)
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State of New Jersey

v.

Larry L. Peterson

March 6, 1989

Testimony of Gail Tighe
Forensic Scientist with New Jersey State Police
Laboratory System

1 concept that's coming from one of the lawyers or elsewhere
2 which they don't understand.

3 What I think is an appropriate way to handle
4 it is to ask you to write down your question on a piece of
5 paper, perhaps when we take the next recess, and give it to
6 Mrs. Slater, who will give it to me, and I'll review it
7 with the lawyers.

8 If I can respond to it, I will and, you know,
9 we will explain to you whatever the situation is. You need
10 not be afraid to write down the question. I can't tell you
11 until I see the question whether it's one that we can
12 answer.

13 We're going to have some technical testimony.
14 I will try to keep the witnesses talking slow, and they're
15 going to be using slides to illustrate their talks. If
16 anyone can't see, please speak up and let us know, or if
17 you can't hear we also would like to know as well.

18 All right. I think that we are ready to
19 proceed with the next witness.

20 MR. RILEY: Yes, sir. Thank you. Gail Tighe,
21 please.

22
23 G A I L T I G H E, having been duly sworn, testified as
24 follows:
25

1 DIRECT EXAMINATION BY MR. RILEY:

2 Q. Mrs. Tighe, I'm going to stand back here and
3 ask you some questions. I'm going to try to avoid this
4 camera. They've alerted me they don't like a picture of my
5 back; much rather have a picture of you.

6 I'm going to stand back here so I can hear your
7 voice. In the event I'm having a problem I'll ask you to
8 speak into the microphone or raise your voice.

9 A. Okay.

10 Q. That microphone is fairly sensitive. If you
11 want to station it in front of yourself so you can get the
12 benefits from it.

13 Mrs. Tighe, where do you work?

14 A. I work for the New Jersey State Police Laboratory in
15 West Trenton.

16 Q. And what title do you hold there?

17 A. Senior Forensic Scientist.

18 Q. Now, when did you first begin working as a
19 forensic technician for the New Jersey State Police?

20 A. Approximately ten years ago.

21 Q. And in the course of the past ten years have
22 you had occasion to receive certain training, academic
23 training or on the job training, with relation to concern
24 forensic skills?

25 A. Yes, I have.

1 Q. Would you briefly outline to the jury what
2 your background is in relation to these training sessions
3 in your skill?

4 A. Okay. I work in the trace evidence area of the
5 laboratory and I've received on the job training from
6 principal scientists. I've attended seminars and workshops
7 pertaining to trace evidence.

8 Trace evidence area of the laboratory deals with
9 hairs, fibers, paint, glass, basically evidence that isn't
10 blood or drug or tox type evidence.

11 I've also attended several courses given by the FBI
12 in the area of trace evidence, hairs and fibers, glass,
13 gunshot residues, that was given in Quantico, Virginia.
14 I've taken proficiency tests and received on the job
15 training.

16 Q. Are you a member of any professional groups?

17 A. Yes, I'm a member of the NEAPS, Northeastern
18 Association of Forensic Scientists.

19 Q. Now, we're going to be talking about two basic
20 areas of testimony today. One is related to wood, and the
21 other is related to hair comparisons.

22 Have you had occasion to receive training
23 specifically in both those areas?

24 A. I've received training in the area of hairs and in
25 the wood analysis in the area of physical fits.

1 Q. Okay. And have you had occasion to be
2 admitted as an expert witness in the area of forensic
3 science and more particularly in the areas of trace
4 evidence evaluations in the past?

5 A. Yes, I have.

6 MR. RILEY: Your Honor, I would ask that Mrs.
7 Tighe be admitted as an expert in the field of forensic
8 evidence, trace evidence evaluation.

9 THE COURT: All right. Any questions?

10 MR. FURLONG: Just a couple, Your Honor.

11

12 VOIR DIRE EXAMINATION BY MR. FURLONG:

13 Q. Mrs. Tighe, I understand you have a Bachelor
14 of Arts in art education from Trenton State College; is
15 that correct?

16 A. That's correct.

17 Q. That's in 1975?

18 A. Yes.

19 Q. And then after - this is what I'm a little
20 unclear on - after that you didn't return to Mercer County
21 Community College for chemistry until 1979; is that
22 correct?

23 A. Yes.

24 Q. All right. Between 1975 and 1979 I take it
25 you had a couple of other jobs before you went to work for

1 the State Police; is that right?

2 A. Approximately a year and a half outside of college.

3 Q. Okay. And you attended the FBI Academy
4 Introduction to Hair and Fibers School, January 26th, '86
5 to 2/7/86; is that correct?

6 A. Let me double-check. January of '86 to February
7 '86. It was a two week course.

8 Q. In addition to hairs and fibers you mentioned
9 that you do trace analysis on all different kinds of items;
10 is that correct?

11 A. Yes.

12 Q. What percentage of your workweek, let's say --
13 is it a 40 hour work week?

14 A. Thirty-five.

15 Q. Thirty-five, pardon me. And of that 35 hours
16 what percentage would you say is devoted specifically to
17 hair analysis?

18 A. Probably the majority or a good percentage of our
19 case work is in the area of hairs and fibers.

20 Q. That's my next question. Can you
21 differentiate between hairs and fibers between the
22 percentage of time that you normally spend?

23 A. The majority of cases are requesting hairs and
24 fibers or combination usually.

25 MR. FURLONG: I have nothing further, Your

1 Honor.

2 THE COURT: All right. I find Mrs. Tighe is
3 qualified as a forensic scientist in the area of trace
4 evidence, and we will permit her to testify in those areas.

5
6 CONTINUED DIRECT EXAMINATION BY MR. RILEY:

7 Q. Mrs. Tighe, in the course of your employment
8 with the New Jersey State Police at the forensic laboratory
9 did there come an occasion when you were asked to do
10 certain evaluations with wood fragments submitted in the
11 matter of State of New Jersey v. Larry Peterson?

12 A. Yes, I have a request here.

13 Q. Now, Mrs. Tighe, we prepared a board, a heavy
14 white poster board, and on it are certain plastic
15 containers which contain certain sticks.

16 We've utilized the State Police laboratory numbers
17 not our Burlington County laboratory numbers. So if you're
18 going to make reference to these items you can use your
19 State Police numbers.

20 A. Okay.

21 Q. Okay. Now needless to say a number of items
22 were presented to you by the members of the Burlington
23 County Prosecutor's Office and you were requested to do
24 what, ma'am?

25 A. We received a Request for Examination, which is a

1 sheet of paper with a list of specimens on it, and we
2 received these items, sticks. And I was requested to
3 compare specimens, number 25 and 26 which are the stick
4 items, with specimen 27 through 31, and determine if 25 and
5 26 may have originated from 27 through 31. They wanted to
6 know if they were from the same source.

7 Q. Now if you would, we have that sitting right
8 there in the area of the courtroom where hopefully everyone
9 can see. Could you come down to that display there and
10 begin to tell the jury what sticks did you match together,
11 using your laboratory numbers, and if you could - I have a
12 red marker - and if you could mark either an arrow or a
13 line which could link the sticks that you feel are
14 connected one to another?

15 A., I'll explain a little bit how we do our physical
16 fits. Well, what we're attempting to do is physically fit
17 these sticks back together. So first we visually look at
18 it to see if we find any ends that look obviously like they
19 fit back together. If we have what looks like a fit, we
20 use a stereo microscope and it's a microscope that views
21 three dimensional objects, and we look at it under there to
22 see if we can find the ends that piece back together?

23 I want to put on a pair of gloves first.

24 Okay. This is specimen -- our laboratory specimen
25 25 and it has a physical fit to specimen number 31.

1 Q. If you could come down to the well of the
2 courtroom possibly and show the jury how they fit together?

3 A. This piece is number 25, and this one is specimen
4 number 31, and you can see the ends. Okay. You visually
5 look at it, and if you look at it like this it be difficult
6 to tell if it's actually a physical fit.

7 But if you look at it you can see the center and
8 there's ridges and grooves and raised areas. And when you
9 look at it under a stereo microscope it's magnified so that
10 you can see how it actually pieces back together. You can
11 see where the grooves fit into the ridged areas. So this
12 was one physical fit that I did.

13 Q. And that would have been lab number 25 and lab
14 number 31, correct?

15 A. Yes.

16 MR. RILEY: And for the record, Your Honor, it
17 would be S-18 for identification and S-19 for
18 identification. If Your Honor please, I'll draw an arrow
19 between these two.

20 THE COURT: Very good.

21 THE WITNESS: Okay. Another physical fit was
22 with our laboratory number specimen 27 and 30. Again, this
23 was physically fit the same way the other sticks were
24 physically fit, and you can actually turn them and you can
25 see where they fit together.

1 There was another stick, 29. I have is a diagram
2 here showing all the physical fits which helps. Okay.
3 This is how it goes. All right. You can actually see this
4 physical fit here the way it -- you can actually see the
5 physical fit. It fits right in the grooved area, okay; and
6 this fits here to this. Again, you line it up and you can
7 actually see the physical fit.

8 2. Were you able to confirm those through the use
9 of the stereo microscope?

10 A. Yes. 27 and 29 --

11 MR. RILEY: Okay. So let me mark the
12 relationship that existed between S-15 for identification,
13 Your Honor, which is lab number 27, S-16 for identification
14 which is lab 29, lab 30 -- I'm sorry, lab number 30 and for
15 identification S-17.

16 Q. Those were all the physical match-ups.

17 A. Yes, they were.

18 Q. Now as part of your job did you photograph
19 those physical match-ups before returning the evidence back
20 to the Burlington County Prosecutor's Office?

21 A. Yes, these were photographed. We have a photography
22 department and they handle all our photography work, and
23 they were photographed before they were sent back.

24 MR. RILEY: Your Honor, I have had marked at
25 the break a number of items for identification. I will

1 show them to Mr. Furlong at this time.

2 MR. FURLONG: Pass.

3 Q. Mrs. Tighe, I'm going to show you a series of
4 photographs starting with S-69 for identification and ask
5 you please what's portrayed there?

6 A. Okay. This is a photograph of all of the sticks
7 laid alongside in a row, specimens 25, 27, 29, 30 and 31.

8 Q. And the State Police lab numbers are
9 predominantly shown in the photograph?

10 A. Yes, they are.

11 Q. S-70 for identification?

12 A. Okay. This is our specimen number 29 and 30.

13 Q. S-71 for identification?

14 A. Specimen 27 and number 30.

15 Q. S-72?

16 A. Specimen 30 and specimen number 27.

17 Q. S-73?

18 A. Specimen 30 and 27.

19 Q. 74?

20 A. Specimen number 31 and specimen number 25.

21 Q. And S-75?

22 A. And this is specimen number 31, and specimen number
23 25.

24 Q. Now, do those photographs all accurately
25 depict what you recall those sticks to look like at the

1 time that you made the initial match-ups?

2 A. Yes. We have a photograph showing all the sticks
3 and then there's other photographs showing where the
4 physical fits take place.

5 MR. RILEY: Your Honor, if there's no
6 objection I ask that S-69 through S-75 be admitted into
7 evidence at this time.

8 MR. FURLONG: None, Your Honor.

9 THE COURT: Okay. Take them in evidence.

10 (Whereupon S-69 through S-75 was received and marked
11 into evidence by the Clerk.)

12 MR. RILEY: Your Honor, also I would like to
13 move into evidence at this time this display board upon
14 which S-15, S-16, S-17, S-18, S-19, S-20 and S-21 are
15 portrayed. They're all stick and stick fragments.

16 THE COURT: I think we should get another
17 additional sticker number indicating it's a whole poster
18 board, even though the exhibits are individually marked. I
19 guess that would make it S-76 in evidence. Any objection?

20 MR. FURLONG: No.

21 THE COURT: S-76 in evidence.

22 (Whereupon S-15 through S-21 and S-76 were received
23 and marked into evidence by the Clerk.)

24

25

1 Q. Mrs. Tighe, you recall I asked you some
2 preliminary questions about hair evaluation --

3 A. Yes.

4 Q. -- hair analysis.

5 Your Honor, if possible, I'd like to remove
6 the easel and ask Mrs. Tighe to --

7 THE COURT: Let Mrs. Slater help you. You've
8 got to get that down lower or it comes apart.

9 MR. RILEY: Let me move this first and I'll
10 get these out of the way.

11 THE COURT: We have a collapsing bulletin
12 board.

13 Q. Mrs. Tighe, you've indicated to us that part
14 of your job with the State Police is to do hair
15 examinations, correct?

16 A. Yes, it is.

17 Q. And you provided our office with a series of
18 photographs that would better aid you in describing to the
19 jury how you do this job?

20 A. Yes.

21 MR. RILEY: Your Honor, we have a series of
22 transparencies that have been prepared and I've also
23 prepared photocopies of those transparencies to circulate
24 and of course with the defense and also with the jury, so
25 that the jury would be able to follow along with Mrs.

1 Tighe's presentation.

2 THE COURT: All right. That sounds fine to
3 me. Do you want those to be given an exhibit number as a
4 package or how do you want to handle that?

5 MR. RILEY: Well, your Honor, I guess we could
6 label the transparencies as we discuss them and make
7 reference to the title. Each one has a short title.

8 THE COURT: Okay. That is fine. Does she
9 need them for another case? You can label the Xerox paper
10 just as well. We'll work out a suitable -- we'll figure
11 that out.

12 MR. RILEY: All right.

13 THE COURT: You want to give them individual
14 numbers or a package?

15 MR. RILEY: I think a package would be easier,
16 Judge.

17 THE COURT: Okay. So, that S-77 will be human
18 hair diagrams.

19 (Whereupon a group of diagrams was marked as
20 Exhibit S-77 for identification by the Clerk.)

21 MR. RILEY: Judge, I'm going to circulate them
22 at this time and then we'll go through them in order.

23 THE COURT: Okay.

24 (Whereupon the diagrams were circulated among
25 the jurors.)

1 THE COURT: Everybody should have six sheets
2 of paper when you're done.

3 A JUROR: Seven.

4 THE COURT: If you have seven, you're okay, as
5 long as you have six.

6 BY MR. RILEY:

7 Q. Okay. Mrs. Tighe, I'm going to put these on
8 the screen in the order that you indicated you wished to
9 follow. If for some reason they're out of order, let me
10 know and I'll straighten them out.

11 And if you would, once I put them on the screen, if
12 you would advise the jury what they represent and basically
13 indicate to the jury the importance of the material that's
14 contained on the sheets, okay?

15 A. Okay. Before we start any hair examination or
16 comparison, it is a good idea to understand a little bit
17 the different parts of a hair or what a hair consists of.

18 This is a diagram showing a hair growing out of the
19 skin. This is your layer of skin. This is the actual
20 hair, the hair shaft, the part that's beneath the skin is
21 the root.

22 Okay. Basically the hair is made up of these three
23 major parts: The cuticle, the cortex and the medulla.

24 An easy way to understand what a hair is, is to look
25 at just an ordinary pencil. You have the yellow part of

1 the pencil is the outer edge or the cuticle of the hair.
2 The wooden part is the body of the pencil. It's also the
3 body of the hair which is the cortex. And then you have
4 the lead running through the center of the pencil, which is
5 equivalent to the medulla. It's the center part of the
6 hair. You see the darkened line there.

7 In a pencil you also have an eraser which represents
8 the root and you have a point which represents the tip.
9 It's similar to a hair.

10 Okay. In this diagram here, this is showing a cross
11 section of a hair. It's just like taking a hair and
12 slicing it and looking at it straight on. This little
13 circle here is the medulla, equivalent to a pencil, the
14 lead part.

15 Okay. Then you have the body of the hair, which is
16 the cortex, and in this area you have the pigment granules.
17 This is the part that gives the hair color. You have the
18 cuticle, which is the outer edge of the hair.

19 Okay. You can go to the next slide.

20 Q. Okay.

21 A. Okay. When we look at hairs, not all hairs look the
22 same. If we took everybody's hair on the jury and looked
23 at it, there is a lot of differences just besides the
24 color.

25 If you look, there's different things in a hair that

1 we're looking at. This is the medulla. You have
2 differences in the medulla. Some medullas are continuous.
3 It is just a heavy line running through, right through the
4 hair. Some of them are discontinuous. They have like
5 breaks. Some are fragmentary. You have big gaps. In some
6 hairs you might not even not even see any medullas.

7 This is an example of the cuticle, the outer surface
8 of the hair. And those all are the scales. Okay.

9 On different people's hairs, the cuticle can look
10 different. Some people's hair's more damaged from weather,
11 hair dryers, just natural, the way the hair is, and it
12 could be smooth; it could look rough.

13 Okay. Next diagram. This is just basically showing
14 you different cuticles. This is what a cuticle of a human
15 hair looks like.

16 In many cases we are asked to determine is it human
17 or animal and these are different cuticles of animal hairs.
18 So, you can differentiate, is this hair human; is it animal
19 hair, and these different cuticle structures help
20 differentiate that. Okay.

21 These diagrams -- these next three diagrams look a
22 little complex. They have basically the different parts of
23 a hair. What they're showing is the three different
24 growing stages of a hair.

25 This is called the anagen stage. This is the first

1 stage. This is when a hair is growing. It's growing out
2 of your head, and you can see the basic parts of the hair,
3 and this is the root down here and it's coming right out of
4 your skin.

5 Okay. As the hair grows, we have the next phase.
6 We need to see this a little better.

7 Q. Okay.

8 A. Okay. This is called the catagen phase. This is
9 when a hair is in a resting stage. It's finished growing
10 and it's getting ready to fall out. And the shape of it
11 starts to get more bulbous-looking, which is the root.

12 Okay. And the next diagram. Okay. This is the
13 telogen phase of a hair, and this is the actual final
14 stages of a hair when it's finished growing and now it is
15 going to fall out of your head. You can see it separates.
16 This is your skin, skin cells down here. You have a nice
17 rounded bulb and your hair just will fall out at this
18 stage.

19 Most hairs are in the growing stage. They're
20 growing and then they finally reach this stage and then
21 they fall out.

22 Okay. What we do in the laboratory is we're asked
23 to do hair comparisons, and what we want to do is we want
24 to see if hairs compare. There's many different
25 characteristics that we look for in a hair.

1 It's like in that pencil. We look at the cuticle.
2 We look at the medulla to see if it's fragmented,
3 continuous. In hairs sometimes you can see if they're cut,
4 if they're damaged. This all can help relate to an
5 individual.

6 Some of the other characteristics we look for is the
7 length of the hair, the diameter of the hair, the pigment,
8 the color of the hair, the root, the condition of the root,
9 the condition of the tip.

10 Some of the artificial things with the hair, if
11 somebody's hair has been dyed, artificially treated or
12 permed, if there's damage to the hair, some hairs split, if
13 there's foreign material on the hair, sometimes you get
14 dandruff, dirt, whatever you have. If you don't wash your
15 hair for while you could pick up different things in your
16 hair. That's another thing that we look at on a hair.

17 This is a picture of a view through a comparison
18 microscope. Okay. What this is, is actually looking at
19 two different hairs and it is a microscope that can view
20 two slides at the same time, and it just splits the screen.

21 So, we take everything into consideration, and when
22 you look at it side by side, you're looking at all these
23 features of a hair.

24 Basically in our comparisons we request fifty
25 control samples. This is what we call controls. And they

1 take samples from somebody's head, different parts, front,
2 back, and we want to get a range to get an idea of what
3 somebody's hair looks like.

4 We get fifty from the suspect, fifty -- at least
5 fifty from the victim. Pubic hairs we request twenty-five.
6 It sounds like a lot of hairs, but a lot of the hairs are
7 ready to fall out. You're losing those hairs and they're
8 being replaced.

9 Okay. We look at those control samples. We look at
10 the victim's. We look at the suspect's. We look at them
11 separately to see all these characteristics, if they've
12 been treated, the color, the pigment, the length, we look
13 at them side by side. This kind of helps out with your
14 memory.

15 You can actually see, is the color the same as this
16 one? Does it have the same medulla? You're looking at the
17 range of all those hairs side by side.

18 We want to see if we can tell the difference between
19 the victim's, suspect's hair. Can you distinguish this
20 person's hair from that person's hair?

21 When we decide we can -- we can do that, then we
22 look at our question hairs. These are hairs that are found
23 and they want to know if -- do they compare to the
24 victim's? Do they compare to the suspect's.

25 We take our questioned hair and we view it next to

1 our controls. We see if that hair fits into the range of
2 the control sample. This is all part of our comparison.

3 Q. Okay. Now, you've indicated to us that you
4 tend to require a large number of controls?

5 A. Yes.

6 Q. Now, You've indicated to us that you request a
7 large number of control hairs from the victim and the
8 suspect, correct?

9 A. Yes.

10 Q. For what purpose is that, ma'am?

11 A. Okay. That's to get a range. If you took one hair
12 out of somebody's head, you took another hair, they could
13 be a little bit different. Some people have frosted hair.
14 Some people's hair is gray. They are not going to be all
15 the same. The idea is to get a range.

16 If you take fifty hairs off of somebody's head, you
17 can get an idea, you can get a range of what that person's
18 hair looks like.

19 Q. For instance, I could take a piece of hair
20 from the left side of my head and compare it with a piece
21 of hair from the right side of my head and they may not be
22 an identical match?

23 A. That's correct.

24 Q. But if you took fifty of my head hairs, you'd
25 be able to establish a range, correct?

1 A. Right. That's what you're trying to find, a range.

2 Q. And if the questioned hair, the hair that we
3 don't know who that belongs to, falls within that range --

4 A. That's correct.

5 Q. -- that would be the determination that you
6 would seek to perform, correct?

7 A. For comparison, yes.

8 Q. Okay. Now, in response to requests from the
9 Burlington County Prosecutor's Office, did you evaluate
10 hair samples from a victim of a homicide by the name of
11 Jacqueline Harrison?

12 A. Yes, I did.

13 Q. And did you also compare or evaluate samples
14 of hair submitted by the Burlington County Prosecutor's
15 Office from the Defendant, Harry Peterson?

16 A. Yes.

17 Q. And did you also review seven separate
18 questioned hairs after having identified and established
19 the ranges between the victim in this case and Mr.
20 Peterson?

21 A. Separate -- seven separate?

22 Q. I'll give -- let me make it more specific:
23 Three pubic hairs of the Defendant located on lab number --
24 sample 29 is a stick known as lab sample 29?

25 A. Yes. These were questioned hairs.

1 Q. Okay. And we know that lab sample 29 is on
2 the item we just marked. You found three questioned hairs
3 on lab sample 29?

4 A. Yes.

5 Q. And did you evaluate --

6 A. Yes.

7 Q. Okay. What was the -- what was the result of
8 the evaluation of the hairs found on lab sample 29?

9 A. Okay. On specimen 29, three Negroid pubic hairs
10 were removed from the stick, specimen number 29, and they
11 exhibit the same physical and microscopic characteristics
12 as the victim's control pubic hair.

13 Q. Okay. Let me stop you for a moment. We have
14 three of the victim's pubic hair or match the victim's
15 pubic hair?

16 A. Yes.

17 Q. Lab sample 29, correct?

18 A. Right.

19 Q. All right. What else appears on lab sample
20 29?

21 A. Okay. There was also three Negroid pubic hairs from
22 specimen 29 exhibit the same physical and microscopic
23 characteristics as the suspect's control pubic hair,
24 specimen number 42.

25 Q. All right. So, we have three pubic hair

1 matches from the victim and three pubic hair matches from
2 the Defendant, Mr. Peterson, all on lab 29?

3 A. Yes.

4 MR. FURLONG: Your Honor, I'm going to object
5 to the form of the question not only being leading but use
6 of the word match.

7 THE COURT: Well, I think we will allow the
8 leading here in order to make some clarity. There's no
9 chance of misleading the witness.

10 The term match is something which the witness
11 is being careful to explain. She's talking about
12 comparisons. She will explain that I'm sure.

13 BY MR. RILEY:

14 Q. Yes. Explain -- when I use the term match,
15 what does that term mean to you, ma'am?

16 A. Okay. Match is another term like comparison. It
17 means it fits the same criteria, fits into the range. It
18 matches or it also compares.

19 Q. Now, lab specimen number 18 -- excuse me.
20 Before we move away from 29, was there any other hair or
21 hair fragment found on lab number 29?

22 A. Okay. There was a Negroid head hair fragment
23 removed from the stick, specimen 29, that exhibited the
24 same physical and microscopic characteristics as the
25 victim's control head hair, which was specimens 13A through

1 D.

2 Q. So, to summarize, on lab specimen 29 we have
3 seven total hairs. Three match the pubic hair samples of
4 the victim; three match the pubic -- when I say match, I
5 mean within the ranges that you've established; three match
6 the pubic hair samples submitted by the Defendant, Mr.
7 Peterson; and one head hair fragment which matches the head
8 hair submissions of the victim?

9 A. Correct.

10 Q. Correct. Okay. Now, lab number 18, a
11 fragment which was recovered from a body bag which was used
12 to transport Mrs. -- Miss Harrison. That would be the
13 first paragraph of your report.

14 A. Okay. Would you like me to read that?

15 Q. Yes.

16 A. A Negroid head hair fragment from the body bag,
17 specimen number 18, exhibits the same physical and
18 microscopic characteristics as the suspect's control head
19 hair, specimens number 36 through 39.

20 Q. Okay. So, as I understand it, that means that
21 the hair fragment found in the body bag is a microscopic
22 match to Mr. Peterson's hair?

23 A. That's correct.

24 Q. And lab fourteen --

25 A. Okay. Three Negroid pubic hairs present in the

1 pubic combings, specimen number fourteen, okay, exhibit the
2 same physical and microscopic characteristics as the
3 suspect's control pubic hairs, specimen number 42.

4 Q. So, from what I understand you to tell us that
5 within the pubic hair combings of the victim, Miss
6 Harrison, three Negroid pubic hairs were found which in
7 your opinion microscopically match those of the suspect,
8 Mr. Peterson?

9 A. Yes.

10 Q. Now, we have been discussing match throughout.
11 It is true, isn't it, that the whole science this type of
12 analysis is not as precise, say, as fingerprint?

13 A. That's right.

14 Q. And there is theoretically a chance that a
15 head hair or another body hair of one person could be
16 microscopically identical with that of another, is it not?

17 A. That's right.

18 Q. What impact at all on your opinion does it
19 have that there are a total of six microscopically
20 identical pubic hairs which match -- and I use the term
21 match advisedly -- match Mr. Peterson, and one head hair
22 fragment, seven altogether?

23 A. All right. Well, we have --

24 MR. FURLONG: Your Honor, I'm going to have to
25 be heard at sidebar. I'm sorry.

1 THE COURT: Okay. Fine.

2 (The following took place at sidebar, out of
3 the hearing of the jury.)

4 MR. FURLONG: Your Honor, I'm going to object
5 specifically to this witness giving any opinion beyond the
6 boundaries of the opinions contained in the laboratory
7 report supplied in discovery.

8 Mr. Riley handled that, I think, artfully by
9 having her simply read precisely what she recited in the
10 laboratory report, and it says that there are microscopic
11 characteristics, which suggests that the hairs compare.

12 Now, if she is going to give a supplementary
13 opinion now that because of the number seven hairs in
14 conjunction with one another, that that makes it far more
15 likely that there is no mistake or some other such
16 comparison type analysis, I would suggest that's beyond the
17 scope of the laboratory report previously submitted and
18 there is nothing in the handwritten notes supplied to me
19 this morning that suggests anything to that extent.

20 Now, this is indeed the single most
21 significant evidence in the case. And we danced around
22 this issue last year and again during pretrial and
23 certainly we made efforts to have our hair expert discuss
24 with Mrs. Tighe what she did and what her conclusions were.

25 And then we debriefed our expert to determine

1 whether or not she was going to be giving opinions or
2 analyses beyond that which is contained in this report.

3 And we were satisfied as a result of that entire process
4 that that was all she was going to say.

5 THE COURT: I'm not sure I'm completely with
6 you. How many hairs found on the victim matched those of
7 the Defendant?

8 MR. FURLONG: We're using that word march
9 again. They found a total of seven hairs, three from the
10 victim, three from the stick, and a fragment in the body
11 bag. Those seven are deemed -- those are the seven which
12 are recited in the laboratory report which she read into
13 the record and --

14 THE COURT: That resemble the hairs of the
15 Defendant?

16 MR. FURLONG: Right.

17 THE COURT: Three on the victim, three on the
18 stick and one on the body bag?

19 MR. FURLONG: Right. Now, she is apparently
20 now about to be elicited -- or an opinion is about to be
21 elicited that because of the combination of those seven
22 hairs and some aspect that she can be more certain of this
23 opinion than that which is otherwise scientifically
24 reliable.

25 The case law suggests that she is permitted to

1 give the opinion which she has given up to this point and
2 that indeed Mr. Riley is entitled to ask her whether or not
3 this is as certain as fingerprinting, as indeed I would be.

4 But to now ask her to give an opinion beyond
5 that, because of the combination of the seven, there is
6 nothing in this report, either this first one or the
7 supplementary report which says, "By the way, I'm even more
8 convinced in this case than I would be in another case
9 because of the concatenation of the hair samples from three
10 different sources."

11 And I would object strenuously to any such
12 opinion being elicited.

13 THE COURT: What's the State's opinion?

14 MR. RILEY: Judge, the accumulation of the
15 evidence, the number of hairs, goes to the weight of her
16 ultimate opinion, which is that they match.

17 THE COURT: All right. And you agree that's
18 not in the written report, right?

19 MR. RILEY: No, sir, it's not.

20 THE COURT: It's not a discussion of the
21 weight?

22 MR. RILEY: Right.

23 THE COURT: Well, based upon my awareness that
24 there has been every effort to make State's experts
25 available for discussion and to make material available,

1 I'll permit the testimony and we will go from there. Okay.

2 MR. FURLONG: Okay.

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(End sidebar.)

MR. RILEY: Your Honor, I ask that the Reporter read back my last question, please.

THE COURT: Okay.

THE REPORTER: Question: What impact at all on your opinion does it have that there are a total of six microscopically identical pubic hairs which match -- and I use the term match advisedly -- match Mr. Peterson and one head hair fragment, seven altogether?

THE COURT: And you may respond to that question, ma'am?

A. Okay. Well, let me explain a little bit about a hair comparison.

MR. FURLONG: Your Honor, I object as being not responsive. Either she can answer the question or she can't.

THE COURT: The lawyer who poses the question can object to it being nonresponsive but not otherwise. I overrule the objection. You may proceed.

THE WITNESS: With a hair comparison what you're trying to do is see if a hair fits within a range. If you have a comparison it's either an indication that that hair came from that person, or came from someone else that has the same exact characteristic that that person's hair has. It's not a fingerprint, it's a match, class

1 characteristics.

2 Okay. If you add the numbers -- if you have more
3 than one hair that matches or compares it will add to the
4 chances of it fitting into the category of highly likely
5 that it came from an individual.

6 Q. Now, you've indicated to us in your earlier
7 presentation about other characteristics of individual's
8 hairs you mentioned such things as dirt or debris or things
9 of that nature. Do you recall that testimony?

10 A. Yes.

11 Q. Okay. Do you recall from reviewing your notes
12 in preparation for your presentation today what your
13 observations were with regard to any of the foreign
14 substances that you discussed with us earlier?

15 A. Okay. Specimen number 18, which was a head hair
16 fragment from the body bag, had some of the damage that I
17 was explaining. It had splits throughout the hair where
18 the hair actually separates, and it also had debris
19 clinging to it. You could actually see it under the
20 microscope clinging to the hair. This also was present,
21 the splits and the debris in the suspect's control hairs.

22 Q. And that type of debris, would that tend to
23 make it more personal to the individual?

24 A. It adds more of an individual characteristic to it,
25 yes.

1 Q. Now, you've also at the request of the
2 Prosecutor's Office you did hair evaluations on three other
3 individuals, a Mr. David Sutton, a Mr. Arthur Walley, and a
4 Mr. R.B. Elder; do you recall that?

5 A. Yes, that's right.

6 Q. Do you have the reports on that?

7 A. Yes.

8 Q. Okay. Let's start with Mr. Sutton. Did you
9 get sufficient number of controls from Mr. Sutton to do the
10 evaluation that you've just explained for us in detail as
11 they related to Mr. Peterson?

12 A. Yes, I did.

13 Q. What result occurred when you compared the
14 samples of Mr. Sutton's hair and the questioned hairs at
15 the lab?

16 A. The questioned hairs did not compare to Mr. Sutton's
17 hairs.

18 Q. As to Mr. Elder's hairs, did you get a
19 sufficient number of controls, both head and pubic hair
20 now?

21 A. Yes, I did.

22 Q. From both Mr. Sutton and Mr. Elder, head and
23 pubic hair?

24 A. Yes.

25 Q. To make the type of evaluation that you just

1 explained for us?

2 A. Yes.

3 Q. And what was the result of that?

4 A. There was no comparison there.

5 Q. And Mr. Art Walley, Arthur Walley?

6 A. Yes.

7 Q. Did you get sufficient controls from him?

8 A. Yes, I did.

9 Q. And both head and pubic hairs?

10 A. Yes.

11 Q. And did you do the same type of analysis with
12 the microscope as you explained to us earlier?

13 A. Yes. They were compared to the questioned and the
14 question did not compare to his hairs.

15 Q. So the questioned hairs, the hairs that we're
16 trying to ascertain who they belong to, in effect the seven
17 hairs that we mentioned, the one head hair fragment and the
18 total of six pubic hairs, do not match in anyway to Mr.
19 Sutton, Mr. Elder or Mr. Walley, correct?

20 A. Correct

21 MR. RILEY: Thank you, Judge.

22 THE COURT: All right.

23 MR. RILEY: I have no further questions.

24 THE COURT: Very good. Cross-examination?

25 MR. FURLONG: Yes, Your Honor.

1 CROSS EXAMINATION BY MR. FURLONG:

2 Q. First of all, Mrs. Tighe, so that we
3 understand each other, you have in front of you a series of
4 laboratories reports, Request for Examination,
5 questionnaires, and your own handwritten notes; is that
6 correct?

7 A. Yes, that's correct.

8 Q. Can I just see what you have here in your
9 file? See if I have something different than what you
10 have.

11 You have referred to during the course of your
12 testimony reports with respect to hair analysis done, or
13 reports dated 11/23/87, correct?

14 A. Yes, that's that one.

15 Q. And in this particular packet you have the
16 Request for Examination that I mentioned, questionnaires,
17 your own handwritten notes?

18 A. Yes.

19 Q. The actually tests you performed, sketches, et
20 cetera?

21 A. Yes.

22 Q. We have also the diagrams?

23 A. Diagrams.

24 Q. A hair comparison. I guess a little yellow
25 piece of paper reminding you how to give the standard

1 lecture?

2 A. Yes.

3 Q. Your resume?

4 A. Yes.

5 Q. And another report dated 5/2/88?

6 A. Right.

7 Q. Correct. And this is the report with
8 reference to Messrs. Walley, Elder and Sutton; is that
9 correct?

10 A. Yes, that's correct.

11 Q. And this too has handwritten notes?

12 A. Yes.

13 Q. With respect to the 11/23/87 report?

14 A. Okay.

15 Q. Is it fair to say -- maybe I missed it. Are
16 the first three responses or the first three sentences on
17 your 11/23/87 report referring to hair comparisons
18 involving Mr. Peterson?

19 A. Yes, they are.

20 Q. Okay. Now, each one of these lines is in fact
21 one sentence; is that correct?

22 A. I --

23 Q. I mean --

24 A. I believe it is.

25 Q. There is reference to specimen 18, reference

1 to specimen 14 and a reference to specimen 29; is that
2 correct?

3 A. Yes.

4 Q. Okay. Is there any other mention on that page
5 or the following page of anything about the combination of
6 those seven hairs or the presence of debris?

7 A. No.

8 Q. In fact, if I read these three seriatim into
9 the record it simply says "a Negroid head hair fragment
10 from the body bag, specimen 18, exhibits the same physical
11 and microscopic characteristics as the suspect's control
12 head hair, specimens 36 through 39."

13 Is that an accurate reading?

14 A. Yes.

15 Q. Okay. Now how big is a head hair fragment?
16 What makes it a fragment rather than a hair?

17 A. Well, a fragment usually is a smaller hair and it
18 either is missing a root or a tip or the ends of it.

19 Q. How big, a millimeter, fraction of a
20 millimeter?

21 A. Well, if someone has a fourteen inch hair and it's
22 only six inches long it could be a hair fragment.

23 Q. How about in this case?

24 A. I don't believe I measured it. No, it wasn't
25 measured.

1 Q. Do you have a present recollection as you sit
2 here today how long it was?

3 A. I have a little diagram in my notes that I drew of
4 it to give you an idea what it looked like.

5 Q. May I see that?

6 By the way, do you know where the body bag was
7 before you got this particular hair?

8 A. No.

9 Q. You don't know whether or not the Burlington
10 County Medical Examiner reuses its body bags?

11 A. I do not know where it came from.

12 Q. You have no idea; is that right?

13 A. Right.

14 Q. Okay. With respect to the second entry on
15 your 5/2/87 report it says, "Three Negroid pubic hairs
16 present in the pubic combings, specimen 14, and three
17 Negroid pubic hairs removed from the stick, specimen 29,
18 exhibit the same physical and microscopic characteristics
19 as the suspect's control pubic hair specimen, number 42."
20 Correct?

21 A. Yes.

22 Q. Okay. After that there's nothing more about
23 positive comparisons between Mr. Peterson as the suspect
24 and questioned hairs; is that correct?

25 A. No, that includes the seven hairs.

1 Q. That's three and three, right?

2 A. Right.

3 Q. Now what is transference; do you know?

4 A. Transference --

5 Q. The concept of hair transference.

6 A. The --

7 Q. And how is it that someone's pubic hairs get
8 into someone's else pubic hairs?

9 A. It's from contact.

10 Q. Or transference?

11 A. Transference.

12 Q. I take it that in your experience you can find
13 questioned pubic hairs that don't relate to the person from
14 whom they are removed by virtue of the contact of some
15 foreign person?

16 A. Yes, that's true.

17 Q. True?

18 A. It's possible.

19 Q. Well, that's presumably I mean a person
20 wouldn't pluck out his own pubic hairs and put them in
21 somebody else's, would they?

22 A. I wouldn't think so, no.

23 Q. Would it be important -- let me ask you this
24 question: Did you find any other pubic hairs or any other
25 hairs in the pubic combings from the victim which did not

1 relate together the victim or the suspect?

2 A. Okay, that's in specimen number 14 which is the
3 pubic combings.

4 Q. Pubic combings specimen 14, how many hairs
5 were taken out?

6 A. Okay out of the pubic combings?

7 Q. Yeah.

8 A. I don't believe I have that recorded, the actual
9 number. There's approximately 40 hairs in the pubic hair
10 control of the victim.

11 Q. Approximately how many?

12 A. 40.

13 Q. 40?

14 A. In the control.

15 Q. In the control?

16 A. Of the victim's, right.

17 Q. In other words, pubic hairs that were removed
18 from the morgue table presumably that they could say
19 definitively these are the victim's pubic hairs?

20 A. Right.

21 Q. In the pubic combings those would be hairs
22 that are actually loose; is that correct?

23 A. Yes, that were actually combed.

24 Q. Well, in other words, those loose hairs could
25 either be from the victim in that they fall out during a

1 please in which they're not growing, correct?

2 A. Yes.

3 Q. Or they could be somebody else's hairs?

4 A. Yes.

5 Q. And you could, in fact, have more than one
6 other person's hair in the pubic region; isn't that
7 correct?

8 A. Yes, you could have that, yes.

9 Q. You're looking in the sky like you think that
10 that is a little unlikely?

11 A. No. You could have on the pubic combings that there
12 are hairs that are on the outer edges of the pubic hair
13 region and sometimes there in the pubic combings or
14 controlled pubic hairs.

15 Q. In your Request for Examination you -- in
16 fact, in your questionnaire one of the questions that's
17 asked of the investigating officers is: Do you know
18 whether or not anybody is alleged to have had intercourse
19 with the victim? Correct?

20 A. In the questionnaire?

21 Q. In the bio-analysis questionnaire.

22 A. I don't believe I read that.

23 THE COURT: Could I stop you. I need to see
24 the lawyers on a scheduling matter on the record, okay.

25 (Whereupon the following sidebar discussion

1 took place out of the hearing of the jury.)

2 THE COURT: They gave me a note a couple of
3 minutes ago - always nappy to see one of these - it says,
4 all employees are to be released between three and 3:30.

5 What it says to me is maybe road conditions
6 are bad. They usually don't shut down the County very
7 often. I thought I better tell you now. That perhaps you
8 can call off your medical man for this afternoon. We'll
9 get as far with this witness --

10 MR. RILEY: Are you going to be a long time
11 with her.

12 MR. FURLONG: Yeah. I'm going have to make a
13 motion that we break it right now, or if you want go a
14 little bit longer -- I plan to spend more time with her,
15 quite frankly, than any other witness in the case, from
16 soup to nuts. I don't know if I want to get to 3:29, and
17 well, the Judge says, we got to stop. I know that it's --

18 THE COURT: I don't know what the whether is
19 doing out there.

20 MR. FURLONG: Why don't I take a shot at it
21 rather than have her come back.

22 MR. RILEY: If we could.

23 THE COURT: It would be good if you could
24 finish.

25 MR. FURLONG: I will do my best.

1 (End sidebar.)

2 THE COURT: You made proceed.

3 Q. For openers, Miss Tighe, I take it the Request
4 for Examination of evidence is something that you look at
5 before you conduct your analysis; is that correct?

6 A. Yes.

7 Q. So that you know from looking at particular
8 specimens whether a specimen is designated as a victim's
9 control hair or a suspect's control hair?

10 A. That's right.

11 Q. So you know what the knowns are.

12 A. Yes.

13 Q. And a suspect is identified as the suspect,
14 he's got a big S, right, not big S but typewritten S?

15 A. Yes.

16 Q. Then what you have are a series of questioned
17 hairs which neither are identified as victim or suspect,
18 correct?

19 A. Correct.

20 Q. My question for you is, have you recorded
21 anywhere the total number of unknown or questioned hairs
22 that were retrieved by the public combings of the victim?

23 A. No, I don't believe I have it written down.

24 Q. Now as you sit here today do you have an
25 estimate, you know, like five, ten 20, 30?

1 A. No.

2 Q. To your recollection did you identify all of
3 the questioned hairs in the pubic combings?

4 A. In the pubic combings I separated the ones that were
5 obviously victim's hairs.

6 Q. Okay --

7 A. Because obviously in pubic combings you're going to
8 get stray victim's hairs.

9 Q. Well, would you have been interested in
10 knowing, and this is a hypothetical, would you have been
11 interested in knowing the identity of those persons who
12 admitted to police investigators --

13 MR. RILEY: Your Honor, may we be heard
14 briefly at sidebar?

15 MR. FURLONG: This is hypothetical.

16 THE COURT: Well, I'll see you at sidebar.

17 (Whereupon the following sidebar discussion
18 took place out of the hearing of the jury.)

19 MR. RILEY: Judge, Mr. Furlong is straining to
20 the area which is protected by the Rape Shield Law. He is
21 attempting to interject the fact that she had sex with at
22 least two other people that night in a manner which is
23 impermissible.

24 MR. FURLONG: Well, ordinarily I'd say there's
25 some probity to that argument. However, both Mr. Walley

1 and Mr. Sutton, whose hairs were taken and were presented
2 for analysis with negative results, both admitted to police
3 investigators that they had sex with her between midnight
4 and four a.m.

5 THE COURT: Did they say sexual intercourse?

6 MR. FURLONG: Sexual intercourse. Walley even
7 admitted to having ejaculated in her.

8 THE COURT: Well, it would -- let's see, is it
9 particularly probative in this case?

10 MR. FURLONG: Yeah. The whole theory --

11 MR. RILEY: Keep your voice down.

12 MR. FURLONG: The whole theory is that the way
13 a Defendant or suspect's hairs get into the victim's pubic
14 area is somehow a transference takes place during sexual
15 intercourse. For some reason this witness cannot say
16 whether she identified all of the questioned hairs. She
17 can say that neither Mr. Sutton nor Mr. Walley compared
18 with those that were mounted. But I don't think she ever
19 compared them to those that weren't mounted.

20 MR. RILEY: I think if you ask her she'll tell
21 you that there are no loose hairs that have been uncounted
22 for.

23 MR. FURLONG: I think I asked her that about
24 three different ways --

25 THE COURT: I don't think so.

1 MR. RILEY: I don't think you have.

2 THE COURT: But also I'm not sure where we're
3 at. What about the fact -- what if these three men
4 according to third parties admitted that they had
5 intercourse with the victim, is that admissible?

6 MR. FURLONG: I would say so because one of
7 them is one of the last persons to see her alive.

8 THE COURT: But it's not an admission against
9 interest.

10 MR. FURLONG: It certainly goes to the
11 credibility of this particular piece of forensic evidence.

12 THE COURT: How are you going to get it in?

13 MR. FURLONG: I'm going to put Mr. Walley on
14 the stand and ask him --

15 THE COURT: That's okay. You're representing
16 you're going to do that.

17 MR. FURLONG: We're going to make every
18 effort --

19 MR. RILEY: That's a big difference.

20 THE COURT: Do you know where they are?

21 MR. FURLONG: I haven't spoken to Mr. Call
22 today to determine whether or not each of these guys have
23 been subpoenaed. I believe Mr. Sutton has been subpoenaed.
24 Mr. Walley's whereabouts -- I'm frankly not certain of Mr.
25 Sutton's whereabouts. I know we sent an investigator --

1 THE COURT: Why don't you make it abstract.
2 If other people agreed -- said they had intercourse, then
3 whatever the time period is would that be important for you
4 know. Leave the names out until you can produce the
5 evidence.

6 MR. RILEY: That's --

7 THE COURT: I think the probative value is the
8 same and then you can go from there.

9 MR. RILEY: Judge, I still think we have a
10 problem with the rape shield law.

11 THE COURT: Well, the rape shield law may be a
12 problem except that that requires a pretrial application.
13 But on this case if the application were made I think I
14 would have to admit it anyway about having intercourse
15 immediately prior to because it may account for positive
16 sperm and so forth. The man is charged with rape, I think
17 the facts are so strong that I would have to permit the
18 testimony.

19 MR. RILEY: Okay.

20 (End sidebar.)

21 Q. Miss Tighe, first of all, let me ask you if
22 the presence of foreign pubic hairs in the victim's pubic
23 combings puts you in a position to draw the conclusion that
24 someone had sexual intercourse with the victim? Can you
25 say that?

1 A. Can I say that?

2 Q. Can you give that opinion?

3 A. It's a possibility but I can't say that's the
4 only --

5 Q. Okay. Now hypothetically if more than one
6 person has -- if more than one person admitted to having
7 had vaginal intercourse with the victim within four hours
8 of her time of death are you in a position to give an
9 opinion as to whether or not you would expect to find pubic
10 hairs in the pubic combings that do not relate to the
11 victim but do relate to one of those other sexual partners?

12 Do you understand the question?

13 A. No. Could you repeat the question?

14 Q. Yeah. Assume hypothetically that a victim,
15 deceased, and the body is recovered, therefore without any
16 douching, cleaning or showering or what have you; that the
17 police interview a variety of people and they determine
18 that there are three people in their judgment who have had
19 sexual intercourse with the victim within four hours of one
20 another, okay.

21 The body is taken to the morgue and pubic combings
22 are taken. A comb is run through and the loose hairs are
23 gathered up.

24 Now, what -- are you in a position to give an
25 opinion as to whether or not you would expect to find pubic

1 hairs from each of those three individuals who admitted to
2 having intercourse?

3 A. Could I give an opinion on that?

4 Q. Can you give an opinion?

5 A. I've never done any studies on that, no.

6 Q. How can you tell me whether or not with
7 respect to Mr. Sutton and Mr. Walley that you conducted an
8 analysis of their pubic hairs against all the questioned
9 pubic hairs from the combings or all the hairs from the
10 combings?

11 A. Yes, the pubic hairs.

12 Q. All the pubic --

13 A. Pubic hairs.

14 Q. How many --

15 A. I don't have the number written.

16 Q. Okay. So you do know -- you did all the
17 tests, you just don't know what the number is?

18 A. Yes. There were pubic hairs from the victim in the
19 pubic combings also in addition to --

20 Q. Questioned --

21 A. Questioned hairs.

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1 Q. With respect to the hairs found on the stick,
2 were you able to determine a suspected point of origin of
3 those hairs, first with respect to the victim?

4 A. Okay. Out of the --

5 Q. Specimen 29. I'm sorry.

6 A. Specimen 29. Could you repeat the question?

7 Q. Yeah. Let me go back. Specimen 29, which
8 appears to be an eight inch wood stick broken at both ends
9 with hairs, bush along hedgerow, which I'll suggest to you
10 means it was found in a bush along a hedgerow some distance
11 from the body, were you able to determine, first of all,
12 how many hairs were on that stick?

13 A. Okay. I have three hairs that were characteristic
14 of the victim's pubic hair, one hair fragment that was
15 characteristic of the victim's head hair, and the three
16 hairs that were characteristic of the suspect's.

17 Q. How many hairs did you find on the stick?

18 A. That would be seven.

19 Q. Those are seven that you just counted. How
20 many other hairs were on the stick, if you know?

21 A. That's all. I believe that as far as my notes
22 indicate that there was the seven.

23 Q. Those are the seven that you analyzed; is that
24 correct?

25 A. Yes.

1 Q. Okay. Now, first of all, you don't know how
2 many hairs were on the stick when the stick was retrieved,
3 correct?

4 A. I removed the hairs from the stick.

5 Q. Oh, let me go back. When the stick was
6 retrieved from the hedgerow, you weren't there, correct?

7 A. Correct.

8 Q. So, if any hairs were lost from the stick in
9 its transference from the hedgerow to an evidence bag, you
10 would not have any way of knowing that, correct?

11 A. Correct.

12 Q. Now, when it was presented to you, was the
13 stick in an evidence bag?

14 A. It was in a manila envelope.

15 Q. All right. Were there any hairs in the
16 envelope?

17 A. Loose?

18 Q. Loose.

19 A. No. I have -- I received them, took them off the
20 stick.

21 Q. Well --

22 A. Pulled them off.

23 Q. I appreciate that. Were there any hairs in
24 the envelope?

25 A. No. I have no indication of that.

1 Q. Well, you didn't write anything down about
2 that, correct?

3 A. Correct.

4 Q. Okay. Now, were there any other hairs that
5 you found on the stick but simply did not analyze?

6 A. Not that I have indicated, no.

7 Q. Okay. Again, nothing written down about that,
8 correct?

9 A. Right.

10 Q. All right. With respect to the hair fragment
11 from the body bag, were you given an envelope with hairs
12 and hair fragments from the body bag?

13 A. Yes.

14 Q. Okay. How many hairs and hair fragments did
15 you receive from the body bag?

16 A. Okay. In my notes I have several hairs.

17 Q. Oh, is several as specific as we're going to
18 get?

19 A. Yes, I believe so. Several.

20 Q. More than five?

21 A. Several is usually more than three.

22 Q. Needless to say, you don't have a specific
23 recollection as you sit here today what you did a year and
24 a half ago; is that correct?

25 A. That's correct.

1 Q. Okay. Now, you have no present recollection
2 of how long that hair fragment from the body bag was. How
3 about a hair fragment from the fingernail clippings that
4 you analyzed?

5 A. Okay. I have indicated it was a tiny hair fragment.

6 Q. It was in fact so small it was incapable of
7 analysis; is that correct?

8 A. That's correct.

9 Q. And you also found some fibers in the one
10 fingernail clipping; is that correct?

11 A. Yes.

12 Q. And those fibers were so small as to be
13 incapable of analysis; is that correct?

14 A. Yes.

15 Q. Did you look at the fingernails under the
16 microscope?

17 A. Yes, fingernail clippings.

18 Q. Fingernail clippings. I'm sorry. Now, does
19 the New Jersey State Police have available to it gas
20 chromatography for purposes of hair analysis?

21 A. No. We don't do hair analysis on GC.

22 Q. Okay. You're aware that's still an evolving
23 technology that's really not ready yet for commercial use?

24 A. I believe they have done studies with it, but we
25 don't use it as part of our procedure.

1 Q. How long has microscopic comparison of hair
2 fragments been going on as far as you know?

3 A. You mean when does it date back to?

4 Q. Would it be fair to say it hasn't really
5 changed much in the last fifty, sixty years?

6 A. I think it's pretty much stayed microscopic, the
7 same type of analysis.

8 Q. And the analysis basically consists of you
9 looking in the microscope and saying, "I think this hair is
10 the same as this hair"?

11 A. Yes.

12 Q. Okay. Now, with respect to neutron activation
13 analysis, that too is an evolving technology which just
14 isn't available yet for your use; is that correct?

15 A. I believe different studies have been done, but
16 right now as far as I know microscopic is the way it's
17 done.

18 Q. Right. Now, that's really all you have
19 available to you, correct?

20 A. Yes.

21 Q. All right. And you can't say with any
22 mathematical precision what the range is of a particular
23 hair coming from a particular source and being comparative
24 to another source; is that correct?

25 A. That's correct.

1 Q. The best you can give me, and no disrespect,
2 is your judgment that the particular hairs that were
3 questioned compared microscopically to Mr. Peterson's
4 hairs; is that correct?

5 A. Yes. Basically that's the way hair comparisons are.

6 Q. That's the nature of the business, right?

7 A. Yes.

8 MR. FURLONG: Can I have just have a moment,
9 your Honor?

10 THE COURT: Surely.

11 Q. How many other hairs did you in fact analyze
12 during the course of your overall analysis, just relating
13 to November, '87?

14 A. In this case?

15 Q. In this case.

16 A. Numbers of hairs or suspect's or --

17 Q. Number of hairs total. Can you give me a
18 gross quantity?

19 A. Including controls and --

20 Q. Whole ball of wax.

21 A. I couldn't give you anything accurate but there
22 was --

23 Q. Let's break it down. Were there about fifty
24 controls from the victim there?

25 A. There was a sufficient amount, so --

1 Q. I appreciate that.

2 A. Yes.

3 Q. I'm just wondering what the number was.

4 A. Yes, fifty.

5 Q. You felt, I believe you testified, that fifty
6 is a good number for a sufficient quantity to really
7 understand the range even on an individual from one side of
8 the head to the other and so forth?

9 A. Yes. That's correct.

10 Q. And likewise. You got something on the order
11 of fifty minimum from Mr. Peterson, correct?

12 A. Yes.

13 Q. And not in November of 1987, but some six or
14 eight months later you get hair samples from Mr. Sutton and
15 Mr. Walley and Mr. Elder; is that correct?

16 A. Yes.

17 Q. And once again you're looking at fifty plus
18 samples from each; is that correct?

19 A. That's correct.

20 Q. And then how many questioned hairs were
21 presented to you from any source, victim's clothing, pubic
22 combings --

23 A. I don't have --

24 Q. -- sticks?

25 A. I don't have a number -- that would include

1 combings? That was the number that matched her -- the
2 victim's controls?

3 Q. Well, they were questioned and then you were
4 able to label them as victim's hair.

5 A. Right. I don't have any total number on questioned
6 hairs.

7 Q. Would you say in excess of a hundred?

8 A. Questioned hairs?

9 Q. Questioned hairs, including those which you
10 later matched to the victim.

11 A. I couldn't really give a number because I don't have
12 anything written down. I don't recall.

13 Q. There were in fact hairs found in other areas
14 other than simply the body bag and the pubic combings of
15 the victim and the stick; is that correct?

16 A. Yes. That's correct.

17 Q. There were hairs found in the victim's
18 clothing?

19 A. Okay. Check my specimens. Okay. Victim's clothing
20 were specimens 21 -- yes. There was hairs recovered from
21 the victim's clothing.

22 Q. Do you know whether there were hairs collected
23 from the crime scene itself irrespective of the victim and
24 the stick that you previously testified about?

25 A. That were not submitted?

1 Q. That were not submitted.

2 A. I don't know.

3 Q. You have no way of -- well, I suppose you have
4 a way of inquiring. You have no way of knowing whether
5 there were additional hair samples that simply weren't
6 submitted for your analysis?

7 A. No, I don't know.

8 Q. Okay. Then with respect to Mr. Walley, Mr.
9 Elder and Mr. Sutton, what you did in May of 1988, was take
10 the questioned hairs which you had already identified as
11 those of Mr. Peterson and compared them to Walley, Sutton
12 and Elder, correct?

13 A. Correct.

14 Q. And you determined at that time that they
15 weren't Walley's, Sutton's or Elder's, correct?

16 A. Yes.

17 Q. All right. At the point in time when those
18 hairs were submitted, did you question anybody from the
19 Burlington County Prosecutor's Office as to why they waited
20 until after they had your first opinion before they
21 submitted these additional samples?

22 A. No.

23 Q. Did you ever talk to anybody from the
24 Burlington County Prosecutor's Office about the manner in
25 which these specimens were selected?

- 1 A. How they were collected?
- 2 Q. How they were collected.
- 3 A. No.
- 4 Q. How about why they were collected?
- 5 A. Why they -- yes. They were additional suspects --
- 6 or additional hairs to compare. They --
- 7 Q. I'm sorry. They were additional suspects did
- 8 you say?
- 9 A. They were additional hairs to compare.
- 10 Q. Well, on the additional hairs were they given
- 11 the S code for suspect?
- 12 A. Um, yes, they were.
- 13 Q. Did you in fact talk to anybody from the
- 14 Burlington County Prosecutor's Office about these
- 15 particular specimens?
- 16 A. Before they were submitted?
- 17 Q. Before they were submitted.
- 18 A. Yes.
- 19 Q. Who was that you talked to?
- 20 A. Um, Mike Riley.
- 21 Q. Did you ever talk to Sergeant Contreras or any
- 22 of the Technical Services Unit personnel about those hairs?
- 23 A. I -- I can't recall from back -- this was back in
- 24 May. It is possible.
- 25 Q. And what was the text of your conversation

1 with Mr. Riley?

2 A. His question was he had additional controls to
3 submit and wanted me to compare the questioned hairs to
4 these additional controls.

5 Q. And did he tell you how quickly he wanted
6 those results?

7 A. No.

8 Q. He didn't tell you he had a pending trial date
9 and he needed a quick turnaround on that particular
10 analysis?

11 A. On a lot of cases they ask for them in a specific
12 amount of time, but you got to do it as long as it takes.

13 Q. Did you question him as to why in particular
14 these three gentlemen were singled out for control
15 analysis?

16 A. Just as additional suspects.

17 Q. Did you ask?

18 A. I didn't -- I didn't get into detail, no.

19 MR. FURLONG: Your Honor, I know the time
20 constraints we are operating under. I have no further
21 questions of the witness.

22 THE COURT: Very good.

23 MR. RILEY: Just a couple, Judge.

24 REDIRECT EXAMINATION BY MR. RILEY:

25 Q. Mrs. Tighe, you've indicated to us that there

1 were some hairs found in the clothing of the victim. Do
2 you recall that?

3 A. Yes. I have that written down.

4 Q. Okay. Those hairs would be consistent with
5 whose hairs?

6 A. Okay. They were consistent with the victim's hairs.

7 Q. Now, I asked you back in May to look at those
8 other three gentlemen's hairs, correct?

9 A. Yes.

10 MR. FURLONG: Yeah, I think we better go to
11 sidebar.

12 MR. RILEY: No. That's all right. You asked
13 her. I'm going to ask her.

14 BY MR. RILEY:

15 Q. What did I say to you about those three
16 gentlemen? Do you recall?

17 A. I don't recall exactly but I know --

18 Q. Would it refresh your memory if I told you --

19 MR. FURLONG: Your Honor, I'm going to have to
20 go to sidebar before Mr. Riley testifies.

21 THE COURT: Okay.

22 MR. RILEY: Your Honor, I'll rephrase the
23 question and get on to another area.

24 BY MR. RILEY:

25 Q. Mrs. Tighe, you've indicated to us that the

1 hairs from these other three individuals do not match,
2 correct?

3 A. That's right.

4 Q. Are they close in any way? Are they very much
5 different?

6 A. No. They were totally different.

7 Q. Are there any -- pardon me if I sound
8 facetious in this, but were there any wild hairs or loose
9 hairs that were submitted to you from the victim or the
10 crime scene that do not match either the victim or Mr.
11 Peterson?

12 A. Other than possible body hairs that weren't pubic or
13 head, no, I don't believe so.

14 Q. So, my understanding is what you are telling
15 is is that every hair that was known as a questioned hair
16 has been identified as either belonging to the victim or
17 belonging to Mr. Peterson?

18 A. Yes.

19 Q. Thank you.

20 MR. RILEY: Judge, I have no further
21 questions.

22 THE COURT: Any recross?

23 MR. FURLONG: Yes.

24 RECROSS EXAMINATION BY MR. FURLONG:

25 Q. Those are the hairs that were in fact

1 submitted to you; is that correct?

2 A. That's correct.

3 Q. All right.

4 MR. FURLONG: I have nothing further, your
5 Honor.

6 THE COURT: Okay. Thank you for your
7 testimony, Mrs. Tighe.

8 Okay. We have a windowless court room, but
9 I'm told it's snowing out and I propose to recess early.

10 So, when I call you back in, we're going to
11 excuse you for the day. We are going to take a recess for
12 a couple minutes though while I see if I can get a weather
13 forecast about what it will be like tomorrow.

14 Usually if a storm starts this soon, by the
15 time the next business day starts the roads are reasonably
16 decent, but it's worth making a phone phone call and I'll
17 have further instructions for you.

18 So, if you'd like to step into the jury
19 deliberation room, we should be back with you in a matter
20 of minutes.

21 (The following took place out of the presence
22 of the jury.)

23 THE COURT: Could I see counsel in chambers?
24 We will make a quick weather check.

25 (Court recessed at 3:15 p.m.)