

1 for biological fluids.

2 Q. Okay. What you received are swabs; is that
3 correct?

4 A. That is correct.

5 Q. And you do your analysis on the swabs and reach
6 whatever conclusions you have; is that correct?

7 A. That is correct.

8 Q. When we talk about presumptive, do we mean we
9 presume that there's some material there and then the
10 confirmatory means that, yes, what we thought was there
11 is, in fact, there; is that what it means?

12 A. It means -- basically, yes. It means that we
13 indicated a substance to be there presumptively and then
14 we would confirm that it is indeed detected.

15 Q. Are you able to tell a source of material? In
16 other words, if you're not told that this swab is, say,
17 from a mouth as an example, are you able to determine
18 that, in fact, it comes from the mouth, the fluids come
19 from the mouth; are you able to do that?

20 A. I am not.

21 Q. Your report then focuses on the vagina, anus,
22 and so forth because that's where you were told to look;
23 is that right?

24 A. My report does state vaginal, anal, as well as
25 known saliva swabs. And that is the evidence I was

1 requested to test, yes.

2 Q. Okay. You were told that; is that correct?

3 A. I was told what? I'm sorry.

4 Q. The swabs given to you were from the vagina,
5 from the anus; is that correct?

6 A. This indication was on the outside of the
7 envelopes, yes.

8 MR. GREENLEE: No further questions.

9 MR. McCLEES: No further questions, Your
10 Honor.

11 THE COURT: All right.

12 MR. McCLEES: May this witness be excused?

13 THE COURT: Any objection?

14 MR. GREENLEE: No.

15 THE COURT: You are excused. Thank you,
16 ma'am.

17 MR. McCLEES: May we very briefly approach?
18 This has nothing to do with Ms. Kelley.

19 THE COURT: Thank you, ma'am.

20 (At the Bench, on the record)

21 MR. McCLEES: I have an indoor plumbing
22 issue, Judge.

23 THE COURT: You do?

24 MR. McCLEES: I have one more witness. May
25 I have a very brief break?

1 (Open court, defendant and jury present)

2 THE COURT: We're going to take a brief
3 break. You may visit the indoor plumbing. This is only
4 a 15-minute break.

5 (Recess)

6 (Open court, jury and defendant present)

7 THE COURT: Call your next witness.

8 MR. McCLEES: State calls Courtney Head.

9 (Witness sworn)

10 **COURTNEY HEAD,**

11 having been first duly sworn, testified as follows:

12 **DIRECT EXAMINATION**

13 **BY MR. McCLEES:**

14 Q. I'd like to start by asking you to introduce
15 yourself to the jury and spell your name for our court
16 reporter.

17 A. My name is Courtney Head. C-o-u-r-t-n-e-y.
18 H-e-a-d.

19 Q. Who do you work for?

20 A. I work for the Houston Police Department Crime
21 Lab.

22 Q. And what do you do in the crime lab?

23 A. I'm a criminalist specialist in the crime lab.
24 So, I'm a supervisor. I oversee a pretty small working
25 group of about eight individuals. In addition to being

1 a supervisor, I also am qualified to do screening,
2 serology cases, and DNA analysis.

3 Q. Can you give us -- before we go into the DNA
4 analysis, can you give us a background as to your
5 education, training, and your experience, both general
6 and specifically regarding DNA?

7 A. Sure. I have an undergraduate degree from
8 Ouachita -- O-u-a-c-h-i-t-a -- Baptist University in
9 biology and chemistry. I have a masters degree in
10 forensic science from George Washington University. I
11 have been working in the field for approximately 12
12 years. I worked at a private forensic DNA laboratory
13 for about four years in Virginia. I moved to Dallas and
14 was employed by the Dallas County Medical Examiner's
15 Office, as well as the Dallas Police Department before
16 coming to the Houston Police Department about
17 two-and-a-half years ago.

18 I have been trained in serology for that
19 entire 12-year period. And I also have been doing DNA
20 testing for that long as well.

21 Q. Do you have training and experience and have a
22 particular set of expertise in doing DNA analysis?

23 A. Yes.

24 Q. What is DNA?

25 A. DNA is basically what makes you who you are.

1 You get half of your DNA from your mom, half of your DNA
2 from your dad. Most DNA is pretty much the same. It
3 kind of makes us all look the way we do. You know, your
4 head sits on top of your neck, everybody has two arms,
5 two legs, eyes, nose, mouth is kind of all in the same
6 spot, but there are differences in the DNA that
7 obviously makes everyone look a little different from
8 each other. And it is those differences in the DNA
9 strand that we're looking for that are important to us
10 forensically.

11 Q. Is it possible to take a known source of DNA
12 and compare it to an unknown source of DNA to see if
13 there's a match?

14 A. Yes, that's possible.

15 Q. Okay. How do you go about doing that?

16 A. First, we would take a sample and the initial
17 step is to extract the DNA from whatever sample it might
18 be. In this case, I believe -- I'll just use the
19 example of the vaginal swab. We need to extract the DNA
20 from the swab and clean it up and first open the cells
21 to get the DNA out and clean.

22 Q. How do you do that?

23 A. We use different chemicals. And, basically,
24 we -- in this case, semen was detected by an analyst
25 that I was -- I had -- I'm sorry. I had that

1 information prior to my extraction. So, I know I needed
2 to do a differential extraction, which allows me to
3 separate sperm cells from epithelial cells. And
4 epithelial cells are basically cells that make up your
5 skin and they're also in the vaginal cavity. So, I
6 would separate those two --

7 MR. GREENLEE: Objection. Nonresponsive at
8 this point in time.

9 THE COURT: Sustained.

10 Q. (By Mr. McClees) What did you do next?

11 A. After I extracted the DNA?

12 Q. Yes, ma'am.

13 A. I quantified the DNA. So, basically, I want to
14 know how much DNA I actually have. And I would use an
15 instrument that would actual quantify this information
16 and tell me how much DNA is in my sample.

17 Q. After that, what do you do?

18 A. After I know how much DNA I have, I need to
19 make copies of that DNA. That process is call PCR or
20 polymerase -- p-o-l-y-m-e-r-a-s-e -- polymerase chain
21 reaction. This is basically like a copy machine and it
22 copies the DNA strand thousands of time.

23 Q. Okay. From that point, what do you?

24 A. After I have the DNA copied, I would put the
25 sample into a genetic analyzer.

1 Q. Let me stop you there. What is a genetic
2 analyzer?

3 A. A genetic analyzer is an instrument that
4 basically separates the DNA strands that I cleaned up
5 and kind of takes pictures of it as it scans through the
6 instrument. And this is ultimately what makes a DNA
7 profile.

8 Q. These genetic analyzers, do they have regular
9 up-keep and are they maintained?

10 A. Yes. They have maintenance that we do every
11 week as well as semiannual calibrations.

12 Q. Is this one that was used in this case, was it
13 maintained properly? Was it working properly?

14 A. Yes, it was.

15 Q. All right. So, take us through. Did you do an
16 analysis in this case?

17 A. This case being incident 005797410.

18 Q. That number you just said is the Houston Police
19 Department offense report number, correct?

20 A. Yes, it is.

21 Q. That is the offense report for the case
22 involving Brittaney Rivers as the victim, correct?

23 A. That's correct.

24 Q. Okay. Did you do an analysis in that case?

25 A. Yes, I did.

1 Q. Okay. Did you analyze anything from a rape kit
2 that was done from Brittany Rivers?

3 A. I did.

4 Q. What?

5 A. I analyzed the vaginal swabs and the anal swabs
6 and also the known saliva sample from Brittany Rivers.

7 Q. All right. And in doing that, are you able to
8 create a profile?

9 A. Yes.

10 Q. Okay. And you do that through that system that
11 you just talked to us about?

12 A. Yes, I did.

13 Q. Now, once you got that profile were you able to
14 compare it to other buccal swabs?

15 A. Yes.

16 Q. Okay. What did you compare it to?

17 A. I compared the DNA profile from the evidence
18 samples to the reference samples, which was a known
19 saliva sample of Brittany Rivers, a buccal swab of Kent
20 Queeny, and a buccal swab of Carlton Penright.

21 Q. Okay. And in doing that, you compare,
22 essentially, the buccal swabs -- well, you compared all
23 that stuff together, right?

24 A. Yes.

25 Q. All right. And did you have any findings?

1 A. Yes, I did.

2 Q. What were the findings?

3 A. For the vaginal swabs, as I explained earlier,
4 I separated the vaginal swab into what we call a sperm
5 fraction and an epithelial cell fraction. And in the
6 sperm fraction, I found it to be a mixture of DNA from
7 at least two individuals. And I could tell that I had a
8 major contributor. So, basically, when we get a DNA
9 profile, that's a mixture and I can tell there's a major
10 component and a minor component. That means one person
11 is contributing DNA at a much higher level than a second
12 person that may be contributing DNA at a much smaller
13 level.

14 Q. Okay. Who was the major contributor to the
15 vaginal swab?

16 A. The major contributor, Carlton Penright could
17 not be excluded as the major component of this mixture.

18 Q. All right. When we say cannot be excluded --
19 well, we'll go over that in just a minute. The minor
20 contributor, were you able to determine who the minor
21 contributor was?

22 A. I could say that Kenneth Queeny could not be
23 excluded a contributor to the minor component.

24 Q. Okay. Let's talk about the anal swab. Did you
25 do any testing on that?

1 A. Yes, I did.

2 Q. Tell us what you found.

3 A. I also find in the sperm fraction of the anal
4 swabs, again, a mixture of DNA from at least two
5 individuals. And I also found a major component and a
6 minor component. Carlton Penright could not be excluded
7 as a contributor to the major component of the DNA
8 mixture.

9 Q. And did you have any findings as to the minor
10 component?

11 A. Yes. Kenneth Queeny could not be excluded as a
12 contributor to the minor component.

13 Q. Okay. So, on each we have a major component
14 where Carlton Penright cannot be excluded as the
15 contributor and the minor component where Kenneth --

16 A. Kenneth Queeny.

17 Q. There you go. Kenneth Queeny could not be
18 excluded as the contributor to the minor component,
19 right?

20 A. Yes.

21 Q. All right. Let's take this to the next step.
22 When we say: Can't be excluded, let me ask you this.
23 What are the chances that you would find the same
24 genetic profile that you found that would also match
25 Carlton Penright on the vaginal swab in the population

1 in general?

2 A. Well, we broke it down into four different
3 population groups.

4 Q. Okay.

5 A. I can give you the statistics for each
6 population group.

7 Q. Okay.

8 A. It is 1 in 1.1 quintillion for the Caucasian
9 population group; 1 in 190 quadrillion in
10 African-Americans; 1 in 62 trillion for Southeast
11 Hispanics; and 1 in 680 quadrillion for Southwest
12 Hispanics.

13 Q. Now, you said for African-Americans it's 1 in
14 190 quadrillion?

15 A. Yes.

16 Q. With that -- that's a large statistic, isn't
17 it?

18 A. It's a very large number.

19 Q. Can you say with a reasonable degree of
20 scientific certainty that the defendant is the source of
21 that DNA profile?

22 A. Yes.

23 Q. Okay. Now, let's talk about the anal swab.
24 Same question. Let's talk about the major contributor
25 here. How do those statistics break down?

1 A. The statistics for the Caucasian population
2 group is 1 in 1.1 quintillion; it is 1 in 190
3 quadrillion for African-Americans; 1 in 62 trillion for
4 Southeast Hispanics; and 1 in 680 quadrillion for
5 Southwest Hispanics.

6 Q. Do you know how many people are even on the
7 planet?

8 A. I think, perhaps, a little over 6 billion.

9 Q. And 190 quadrillion, is that higher than
10 6 billion?

11 A. Yes.

12 Q. Okay. So, on the anal swab, can we also say
13 with a reasonable degree of scientific certainty that
14 the defendant is the source of that DNA for the major
15 contributor to that DNA you found on the anal swab?

16 A. The defendant being Carlton Penright, yes.

17 MR. McCLEES: Pass the witness.

18 **CROSS-EXAMINATION**

19 **BY MR. GREENLEE:**

20 Q. Ms. Head, let me ask you a question. What
21 exactly is the science behind DNA? Not what it is. We
22 know what it is. What is the science behind DNA?

23 A. The science behind DNA is basically trying to
24 determine based on certain genetic markers on the DNA
25 strands that are determined forensically to see if we

1 can take an unknown DNA sample and compare that to a
2 known sample of DNA.

3 Q. Now, when you do your DNA analysis, you do your
4 DNA on something that has been given to you; is that
5 correct?

6 A. That's correct.

7 Q. In this case, you did an analysis on swabs; is
8 that right?

9 A. Yes.

10 Q. Let me ask you this question: What can be a
11 source of DNA material? Is that a proper phraseology,
12 DNA material?

13 A. Yes.

14 Q. What can be a source of DNA material?

15 A. Well, it can be epithelial cells, it can be
16 sperm cells.

17 Q. Let's talk about epithelials for a moment.
18 Those are skin cells; is that correct?

19 A. Yes.

20 Q. This right here (indicating)?

21 A. Yes.

22 Q. So, then would it be true then that if -- can
23 you also get DNA material from blood?

24 A. You can.

25 Q. Okay. So, with regard to skin cells if, for

1 instance, you have a situation where someone has a
2 scratch or an abrasion, could that be a source where you
3 could get epithelial cells?

4 A. It depends. If it's a blood sample, then
5 actually we can get DNA from the white blood cells that
6 are contained within that blood sample. It's also
7 possible you can get DNA from epithelial cells in that
8 situation as well.

9 MR. GREENLEE: May I approach the witness,
10 Your Honor?

11 THE COURT: You may.

12 Q. (By Mr. Greenlee) I'll show you what's in
13 evidence as State's Exhibit No. 11. You see some marks
14 there. See those marks (indicating)?

15 A. Yes, I do.

16 Q. Would those be the kind of surfaces that you
17 think you could get DNA material from?

18 A. Yeah. I would expect you could get DNA from
19 that.

20 MR. GREENLEE: May I approach?

21 Q. (By Mr. Greenlee) In order to aid the jury,
22 what we're talking about in this exhibit is that on
23 these -- what appears to be scratches. You see those
24 (indicating)?

25 A. Yes.

1 Q. That would be the kind of marks that you could
2 get epithelial cells from; is that correct?

3 A. Just so I'm clear, I believe you would
4 definitely get a DNA profile from whoever's neck that is
5 and you also might get a DNA profile from someone that
6 may have scratched that person as well.

7 Q. That was the question.

8 A. Okay.

9 Q. When there is contact from one source to
10 another source, you could leave DNA material on that
11 surface; isn't that correct?

12 A. That's correct.

13 Q. That's the beauty of DNA when you think about
14 it --

15 A. Yes.

16 Q. -- that what we may think as irrelevant or
17 minor, you could check to see if it, in fact, exists; is
18 that correct?

19 A. That's correct.

20 Q. When we talk about DNA in terms of what DNA is,
21 which is genetic markers that makes us the way we are,
22 the way we look, and those sorts of things, it would
23 also be true, is it not, that when we talk about
24 percentages of DNA, at least 97 percent of monkey and
25 human DNA are same, is that correct, maybe even higher

1 than that?

2 A. I don't know for certain, but it sounds fairly
3 accurate.

4 Q. Okay. So, we're talking about a relatively
5 small window, I would assume, at this point in time, are
6 we not?

7 A. Yes.

8 Q. Somewhere in 3 percent or so? It's what makes
9 us human beings, is the short version.

10 Now, when -- in this particular case what
11 was submitted to you, of course, was sperm?

12 A. Yes.

13 Q. You did your analysis on those swabs?

14 A. Yes.

15 Q. DNA will tell us the presence of something.
16 You cannot tell when that got there, can you?

17 A. No.

18 Q. So, you have no idea how long that DNA material
19 was where it was; is that correct?

20 A. No, I don't.

21 Q. For instance, if I leave DNA material, say, on
22 the end of this table, you can extract it, and you come
23 back in 20 years, all that can be said is, well, some
24 time in the last 20 years it was left there; is that
25 correct?

1 A. That's correct.

2 Q. You cannot tell the jury that a particular DNA
3 sample was left on a given date; is that correct?

4 A. That's correct.

5 Q. DNA does not do that?

6 A. No.

7 Q. It just shows the presence of material?

8 A. Yes.

9 Q. When we talk about then a major and minor
10 contributor -- and if we talk about this whole notion of
11 exclusion, talking about fingerprints -- I know you're
12 not a fingerprint expert, but fingerprints would be
13 inclusive, meaning it's on the table again, my
14 fingerprints come back to me; is that correct?

15 MR. McCLEES: Hold on, Your Honor. I
16 object. That's outside the scope of this witness'
17 expertise.

18 MR. GREENLEE: Let me ask this question.

19 THE COURT: Sustained. Where are you going
20 with all of this?

21 MR. GREENLEE: I'm trying to make a
22 determination as to what DNA says as opposed to what it
23 does not say. That's all.

24 THE COURT: All right. Go ahead.

25 Q. (By Mr. Greenlee) DNA excludes populations,

1 does it not?

2 A. It can.

3 Q. It does not say: It's this particular person,
4 it just excludes populations with these big numbers?

5 A. I think I am saying that with the reasonable
6 degree of scientific certainty that person's DNA profile
7 is consistent with that individual once you get to a
8 number that that's high statistically.

9 Q. You're saying it's absolutely correct,
10 absolute, or still talking about certainty?

11 A. I wouldn't say absolute, but a reasonable
12 degree of scientific certainty.

13 Q. Fair enough.

14 We then talk about major and minor
15 contributors, obviously, we're talking about an amount.
16 Would that be accurate?

17 A. Yes.

18 Q. Okay. When we're talking about a sexual
19 assault case as an example, and if we're talking about a
20 major contributor, if someone were to engage in sex
21 without the use of, say, a condom, they could be a major
22 contributor if, in fact, there was ejaculation; would
23 that be accurate?

24 A. A lot of it depends on timing, but, yes, that's
25 possible.

1 Q. Again, because we can't tell -- DNA does not
2 tell us when it was deposited, we don't know when that
3 occurred; is that correct?

4 A. That's true. I mean, there are some scientific
5 papers that have been published about how long -- in
6 this case we're talking about sperm -- so how long sperm
7 can last in certain cavities, vaginal cavity, anal
8 cavity, those types of things. So, I think there are
9 some time constraints that can be put just knowing the
10 fact that there was sperm found inside the vagina. It
11 can't last for 20 years like your DNA could last on that
12 table.

13 Q. We don't know. Bottom line is we do not know?

14 A. Right.

15 Q. Certainly do not know in this case?

16 A. Right.

17 Q. So, that if someone is a minor contributor,
18 that might be because that person may have used a condom
19 so that there was less material left in the vaginal
20 cavity; is that possible?

21 A. That's possible.

22 MR. GREENLEE: No further questions.

23 MR. McCLEES: Very briefly, Your Honor.

24 **REDIRECT EXAMINATION**

25 **BY MR. McCLEES:**