Witness: Rodney Oswalt

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Phase: Guilt

Examinations: Direct – David Harris; Cross – Mark Geragos; Redirect – David Harris; Recross – Mark Geragos

Day 1 of 1 for this witness

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Direct Examination by David Harris

JUDGE: Okay.

CLERK: Raise your right hand. Do you solemnly state that the evidence you shall give in this matter shall be the truth, the whole truth and nothing but the truth, so help you God?

OSWALT: I do.

CLERK: Be seated. State and spell your name for the record.

OSWALT: Do I get to set up for a second here?

CLERK: Sure.

OSWALT: Okay. Thanks. My name is Rodney D. Oswalt. Last name is spelled O-S-W-A-L-T.

CLERK: Thank you.

OSWALT: Thank you.

JUDGE: Go ahead.

HARRIS: Mr. Oswalt, who are you employed by?

OSWALT: California Department of Justice, crime lab assistant.

HARRIS: And what do you do for the California Department of Justice?

OSWALT: I work as a criminalist.

HARRIS: How long have you been employed there?

OSWALT: I've been employed with the California department for about ten years.

HARRIS: And involving what you do as a criminalist there, do you have any background, education, or training that allows you to be a criminalist?

OSWALT: Yes.

HARRIS: Can you tell us about that?

OSWALT: Well, I'll break it into a couple of parts. There's about four or five parts that I usually like to run through when they ask me this question, which happens usually every time in court. The first part is formal education. I have a Bachelor's of Science in Forest Management from Humboldt State, graduated magna cum laude. My first two years, actually, I attended UC at

Riverside. I was a biology/chemistry major there, then finished up at Humboldt my last three years and a quarter. I also have a Master's of Science in Environmental Management from the University of San Francisco. And that is pretty much it for my formal education. Post-graduate education and training I received for the most part -- I'll turn this way, at the California Criminalistics Institute. It's also called CCI. It's the training branch of the Department of Justice, the California Department of Justice. And at that institute I received several classes, given by people who are experts in their own field. Notably, with respect to hair evaluation and comparison, I received training that was a one-week class in hair evaluation and comparison given by Jim Bailey, who has worked for the -- I think it's the Los Angeles Sheriff's Office for a number of years doing hair examinations. But I don't know if he does them anymore. He's now doing controlled substance, or something like that. I've also received basic microscopy class over and above what I received in college, and --

HARRIS: Let me stop you there for a second.

OSWALT: Yeah.

HARRIS: What is microscopy?

OSWALT: Oh, good point. If I say a word that you folks don't understand on the jury, if it's okay with his Honor, just raise your hands. If I see it, I'll go back and –

GERAGOS: There would be an objection, Judge.

JUDGE: Yeah.

GERAGOS: It's non-responsive. It also asks for interactive –

JUDGE: It's the district attorney's –

GERAGOS: -- participation.

JUDGE: -- so you'll have to clear it up. Go ahead.

HARRIS: If there's a –

OSWALT: I'm sorry.

HARRIS: -- word I don't understand, I'll just raise my hand.

(Laughter)

OSWALT: If it's longer than five letters? Okay. Microscopy is the use of the microscope. So basic microscopy is how the microscope works, how to get the full measure of -- of its utility out, and how to put it to its greatest effect. And then I took an advanced microscopy class, too.

HARRIS: Now, you were starting to say that you had this class in -- in hair. Do you specialize for the Department of Justice in a particular area?

OSWALT: Where I work, which is the Central Valley Crime Lab, one of ten field labs within the Bureau of Forensic Services spread throughout the State of California, I'm the only person there that does hair evaluation and comparison. And I've been doing that for the last six years.

HARRIS: Now, you say hair comparisons and evaluations. What are we talking about?

OSWALT: When evidence comes in, and hair is considered trace evidence, the little itty-bitty stuff that you may find at a crime scene -- hopefully that wasn't too scientific -- it may be -- the trace evidence may be paint, could be fibers, could be hairs, could be glass. But in the case of hair, when it comes into our lab, the agency that submits it, which we handle a five-county area in the Central Valley, we have over a hundred agencies, if they submit evidence to us, or if we collect evidence at a crime scene involving hair, I would usually be the one that will look at it. And usually that will involve doing an evaluation, which means looking at the hair and trying to glean some type of characteristics from it that may be probative or useful in an investigation.

Following that, they may ask for a comparison, which means compare the unknown hairs, or the hairs that are collected at a crime scene, which would also be considered or known as evidence hairs, to known standards. In other words, those hairs that come from a known source, which could be from the suspect, from the victim, or other people that may be affiliated with the crime scene itself.

HARRIS: Can you give us an estimate of how many times that you might have done these comparisons or evaluations?

OSWALT: That gets back to the other parts of my background and experience. Since September of '98, I have done -- and I don't know the exact number, and in the prelim I -- I had to answer somewhere between 40 and 50 cases, different individual crime scene cases that have come in. Within those crime scene cases there may be multiple hair comparisons or evaluations, because you're not getting just one hair, you may be getting several, You may be getting several hundred. And throughout that process you may be doing multiple comparisons, multiple evaluations. And that's probably the best answer I can give on that question.

HARRIS: Now, you're saying there was -- there was other parts of your background, education or training. Were there some other parts that we hadn't covered?

JUDGE: Well, let me ask you some questions. Describe your on-the-job training. You already told us your formal education. What is your on-the-job training?

OSWALT: I was going to get to it. Thank you. The on-the-job training. After I took the classes at CCI, you're not allowed to do hair comparisons and to submit reports or render a conclusion until you've done some on-the-job training, which follows after the education we've taken at CCI. Specifically I would go back and run different experiments and do actual -- some hair comparisons under controlled cases that are overseen at that time by my lab supervisor, who is John Yoshida. He's also what -- he's considered competent or proficient in doing hair comparisons. And those are terms that are used, when you attain a certain level of proficiency, they say you have a competency to do that type of work. That involves, in my case, three to 400 hours of doing experiments; doing follow-up reading, scientific journal reading; actually looking at a lot of different kinds of hairs, both human and nonhuman; and doing some test cases with unknown hairs with standards.

JUDGE: You're the author of any articles or -- about hair comparison and evaluation?

OSWALT: No.

JUDGE: Okay. How many times have you qualified as an expert in the field of hair evaluation and comparison?

OSWALT: I believe five times.

JUDGE: Okay. Where?

OSWALT: In three counties. Stanislaus, Merced and San Joaquin.

JUDGE: Go ahead.

OSWALT: Superior courts.

JUDGE: Go ahead. Are you going to get into the subject matter? Then I'll let Mr. Geragos voir dire him, if he wants to.

HARRIS: That's fine.

JUDGE: Do you have any questions as to his expertise, Mr. Geragos?

GERAGOS: No.

JUDGE: He's being offered as a expert. Okay. Based upon the witness's qualifications and background, the court will accept Mr. Oswalt as an expert in hair evaluation and comparison and he's qualified to give an opinion accordingly. Go ahead.

HARRIS: Thank you. Mr. Oswalt, I want to direct your attention back to -- let me try this again. Are you familiar with BFS case number CV dash 02 dash 010941?

OSWALT: Yes.

HARRIS: Is that the case involving the Modesto Police Department's investigation that brought you here today?

OSWALT: That is correct.

HARRIS: So when evidence comes into the -- let me back up. What does that CV stand for?

OSWALT: Central Valley.

HARRIS: When evidence comes in from an agency, such as the Modesto Police Department, is it assigned a particular case number by the Bureau of Forensic Services?

OSWALT: Every case number -- every case that comes into our lab is assigned, usually, a unique case number. And I say usually because there are some exceptions to that, but that's usually the case, yes.

HARRIS: So the number that I was just giving, was that the case number that was assigned to the evidence that was submitted to the Ripon laboratory?

OSWALT: That's the unique case number for this case, yes.

HARRIS: Now, I'm using the term "Ripon." Is that also -- that's the general location of where the Central Valley Laboratory is at?

OSWALT: Ripon is small town just north of Modesto. That's where the Central Valley Lab is located.

HARRIS: So I want to direct your attention. Did you conduct an examination that had a suffix of 00006?

OSWALT: Yes. That's -- the suffix is the -- the specific request that the agency asked to be run on a particular item of evidence, or items of evidence. Yes, I am familiar with that.

HARRIS: Did you look at a particular piece of evidence for that particular assigned case number and report number?

OSWALT: I looked at item 140 -- well, evidence that came from item 144, it was called 144 A.

HARRIS: Was this identified by the packaging or the reports that came in to you as being a hair that came from some pliers?

OSWALT: When evidence -- yes. Both on the packaging and on documentation that accompanies the evidence.

HARRIS: Did you take a look at and examine that particular hair?

OSWALT: I did.

HARRIS: Let me go through this. When you received it, was it in a sealed condition?

OSWALT: It was.

HARRIS: I have marked -- a couple already in evidence, but I have some additional photographs marked.

JUDGE: 164. How many have you got?

HARRIS: Be four additional ones.

JUDGE: A through D.

(People's Exhibits 164 A through D marked for identification)

HARRIS: Mr. Oswalt, I'm going to show you the photographs that were just marked, also two additional that have already been marked. Have you look at these briefly. See if you recognize them.

OSWALT: I recognize all of them.

HARRIS: Starting with what has been marked as 164, the photographs, do they accurately depict the items that are in the photographs?

OSWALT: I believe they do.

HARRIS: And did you take these photographs?

OSWALT: I did.

HARRIS: Starting with 164 A, can you describe for us what we see in this particular photograph?

OSWALT: Three packages. The package -- packaging on the left I call a small manila envelope. As you can see from the writing, it says "hair from pliers," spelled P-L-Y-E-R-S. I didn't write that, but that's how it came in. The middle brown paper bag -- (Laughter)

OSWALT: -- and the brown paper bag to the right is -- contains two brushes.

GERAGOS: That's Modesto.

OSWALT: One is at the bottom in parentheses the acronym black and blue brush. Sometimes I have a hard time trying to say that real quickly. And then the one on the right in parentheses, BRO means brown, or was to represent brown brush.

HARRIS: Now, looking at these particular packages -- I'm not sure you can see it, but if you can't see it up on the screen, let me know and I'll bring it back to you. The item up on the left up on the screen, the manila envelope you're describing, does it bear the item number 144 A that you were describing?

OSWALT: Yes, it does.

HARRIS: And looking at the black/blue brush, does it also have an item number of 26 A, the middle bag?

OSWALT: Correct.

HARRIS: And the bag to the right, which has the representation of brown brush, does it have 26 B?

OSWALT: Correct.

HARRIS: Now, up here at the top, we're going through those numbers. Do you see at the top that case number that was assigned to it by your laboratory?

OSWALT: I could make it out pretty clearly, yes.

HARRIS: And let me try that. The bag in the middle, do you also see it with your initials on the left side of that bag in the middle?

OSWALT: That's more clear, yes, I do -- I do see that.

HARRIS: Now, the one at the top, does that indicate that there's a date of 1/22 up there? 1/22/03?

OSWALT: Yes.

HARRIS: Now, when you received the packaging that we're talking about -- this is the one you described that hair was in a sealed condition -- did you also remove from evidence some items

that Modesto Police Department had brought for you to do the comparisons?

OSWALT: Could you repeat that, please.

HARRIS: When you were going to examine this hair from the pliers, did you have to have something else to compare it to?

GERAGOS: Objection. Vague.

JUDGE: Well, were you given –

GERAGOS: You can do an examination about comparison.

JUDGE: But were you given some -- were you given some reference samples to compare the hair from the pliers to?

OSWALT: They were contained in the two bags on the right, 26 A and 26 B. There were hairs that were attached to the brushes in 26 A and 26 B that I -- that I used to compare to the hair -- hair fragments that were in the smaller envelope on the left, 144 A.

HARRIS: All right. I want to go to what was previously marked as 120 B. Is this that same package for 144 A and its contents?

OSWALT: Yes. The packaging that you saw early -- in the previous photo is to the right, and that's the reverse side of the packaging. And the small white cardboard box is what was inside of that packaging. That was also tape-sealed, and when I opened it, that's what I saw inside. At the bottom is what I use for scale and what I try to put in the photos when I do take pictures.

HARRIS: Showing you a more closeup, 120 C, is that a more closeup photograph of the hair as you found it in the package? Or you used the term fragments?

OSWALT: Yes. I use the term fragments. I -- I saw it, when I took the evidence from that cardboard box, that there were two hair fragments.

HARRIS: Showing you 164 B, is this the contents of that white box from 144 A that's now been removed and placed on some type of protective sheet?

OSWALT: Correct. When I take evidence out, when I take hair evidence out and look at it, one of the first things that I'll do is take a photograph of the packaging. What I'll always try to do. In some cases that may not happen, but I usually try to do that. Then I take the evidence out from the packaging. To help preserve the evidence from contamination and inadvertent manipulation of losing something that may be on the hair, I'll put it underneath or between a clear plastic sheet protector. And what you see there is the sheet protector that has the two fragments that came from the white line 9 cardboard box, item 144 A.

HARRIS: Now, looking at this -- these hair fragments, was there debris on them when you first observed them?

OSWALT: Yes. You can see in the center of the photograph at the top, the longest hair fragment has a thin piece of what was a greenish I call it vegetative material that was attached to the hair fragment. And on the shorter hair fragment below, there is also something that was adhering to the hair fragment, about mid shaft on that hair fragment. You can see it hanging from it. That would be called trace on trace.

HARRIS: I wanted to go into this now because you keep using the term "hair fragment." Is there some difference between a hair fragment and a hair?

OSWALT: Well, that's the terminology I use to understand or to make clear in my notes. If I'm looking at a hair that has a root, I'll call it a hair. If the hair is lacking a root structure, I call it a hair fragment. It may be something as small as an eyebrow hair, but if it has a root on it, I'll call it a hair. If it's lacking a root, in my notes I usually try to differentiate and call it a hair fragment. In this case, both of those pieces of hair there were lacking a root structure. Therefore I called

them hair fragments.

HARRIS: Okay. When you -- so you document this, as you've been describing to us; took these particular photographs. Do you examine these hairs any closer than that, just looking at them, taking pictures?

OSWALT: Well, you run through -- this is considered non-destructive testing, okay? When you do a microscopic examination, what you're trying to do is to glean as much information or evaluation in general terms. Hair evaluation. Trying and glean as much information as you can without destructively or somehow destroying the evidence. If you run it through a chemical analysis, or something like that, you're going to use part of that, and that part is gone forever. So what I usually do will be a visual evaluation, and in my notes I may include, you know, gross length or try to take an approximate length, approximate hair color, what the curl may look like, other physical features that I can see with the unaided eye. I'll photograph it, and then I'll do what's considered low power magnification, stereomicroscopy. There's that word again.

HARRIS: That's a new term there.

OSWALT: Yes. Stereo just means you're using a microscope that allows you to see a little bit of three dimensionality. You can actually see the hair, looking down from above. Similar to the type of microscopes that people will use when they're looking at insects or plant -- plant parts, or things like that. You're not getting into or inside of the material. You're looking at the outside of it. And stereomicroscopy allows you to be able to see some depth to what you're looking at. So you're looking at it from above, but you're not looking at it in any great magnification. And this magnification will be about ten -- in this case my microscope I used about ten to 63 times the original size of whatever I'm looking at. That's low powered magnification. I'll use a form, or note, or combination of a form or -- that I prepared, along with handwritten notes, to write down what I see. And the characteristics will include whatever you can see on the outside, or the morphology. That's another term. Use kind of the structure of something you're looking at.

HARRIS: Let me stop you there for a second. Do hairs have structure?

OSWALT: Many things have structure. Hairs have a unique structure, and they're composed of different parts. And from those different parts of the hair you can glean different -- you can -- you can make different observations.

HARRIS: What type of structures can you glean information from?

OSWALT: Well, there's the root. You know, the hair is attached -- in the -- in the skin what's called a hair follicle, some kind of little tube that penetrates the skin. And inside that tube in the skin is where the hair grows. And at that growing region of the hair, that is what is considered the hair root. And you can look at different characteristics about that hair in terms of its life stage, because hair will go through a growing stage, a stage where it's in transition between growing and resting, and then there's a stage after that which is the resting stage, prior to when it will naturally fall out or be shed, from combing or whatever means. And you can see different changes in the root. You can see it actually morphologically change. When it's actively growing, it -- if you pull it from the scalp, or pull it from some part of the body, you get an actively growing hair, that root is called an anagen root. A-N-A-G-E-N. That hair root will look, under a microscope, and sometime with the unaided eye, as if you had taken a rubber band and snapped it, but the rubber band doesn't quite go all the way back to its original shape. It looks very pliable. It will have some bends and curls to it and things like that, but you can easily tell when you get some hairs what an anagen hair root looks like. That's an actively growing root.

When it's in transition to the next phase and it's getting ready to go to sleep, or rest, that's called a catagen phase. C-A-T-A-G-E-N. And in that phase the hair is starting to go from a pliable state to a state where it's getting more hard and more like a lollipop shape in human hair. And if you were to pull that hair out at that point in time, you may very likely see a little bit of tissue

come with it, from the follicular sheath, from that tube in your skin. And you can say Ahh, okay, that's catagen. We've got a little tissue tag we call it that's attached to the root.

If you go to the next stage, that's the resting stage that's called telogen, T-E-L-O-G-E-N. I don't know what the Latin or Greek for that means, but it's the resting -- resting stage of the hair. And in that stage the hair starts -- the hair root starts to harden up, turn into a little bulb, and it's getting ready to pop out of the skin when you comb or briskly bring your -- well, I can't do that very likely, but when you -- when, you know, you're combing your hair, and I don't see too many of those anymore, most of mine have fallen out, the rest are, luckily, hanging on by a thread, but you'll see them, when they've been naturally shed, there will be a nice little hard bulb to that -- to that root. It doesn't have too much tissue attached to it, although sometimes it will. That's just the root. If you transition into the other characteristics of the -- of the rest of the hair, you've got the hair shaft, you've got the end of the hair, which is the tip end or the distal end, which means the farthest away from the skin. And all those --

HARRIS: Let me stop you there.

OSWALT: Yes.

HARRIS: You're talking about the hair having structure and you're starting to use these different things. Is there -- you were saying there's a term for the closest part of the hair to the head?

OSWALT: Yes. This is the -- this is the language of -- of hair weirdos like myself. Kind of an oxymoron that a bald guy would be doing hair analysis, but, hey, stranger things have happened. Yes.

HARRIS: So what –

OSWALT: You've got to -- you've got to laugh if you're looking at hairs all day, or you just go -- you go crazy.

HARRIS: In terms of the -- this language that you're talking about –

OSWALT: Yes.

HARRIS: Or terminology –

OSWALT: I'm getting there. I'm sorry. The area of the hair, the root hair, or the root part of the hair, that is called the proximal zone of the -- of the hair. And proximal means close to or closest. So if I say proximal, if I lapse into this lingoese, that means the closest area of the hair nearest the root or nearest the scalp. If I say distal, that means the tip end, the opposite end. The end of the hair farthest away from the root and the scalp. And if I say medial, that just means middle. The middle part of the hair shaft.

HARRIS: Okay. When you were -- to go back a little bit, and we'll get back to the characteristics in a minute. You were describing for us what is depicted in 164 B, these being two hair fragments. Without a root or without it being on somebody's head, how can you tell if it's proximal or distal?

OSWALT: Well, that gets into the characteristics of the hair shaft itself. And I brought along a pencil. This is what we get to use. It's our high -- high-cost visual aid that the state provides us with, but I wanted to use this as a visual example of how -- how to understand the characteristics of a hair shaft, as well as the root and the distal end. If you take the -- the eraser end of the pencil, that will be the root end. If you take the hair shaft -- we'll get to that in a second -- if you take the distal end, or the tip end, in this case let's say somebody had their hair cut. This would be a nice, even cut, sometimes sharp if it's been a recent cut. Over time it may round the edges so you can say well, it hasn't been cut very recently. As opposed to, you know, a pointed end, and this is not accurately depicting how a hair, human hair, head hair would be. It would have more of a general taper until it goes to a fine tip. Unless something is happening to the end of

the hair to cause it to split or get frayed, or something like that.

HARRIS: Let me just interrupt there again, kind of me raising my hand.

OSWALT: Sure.

HARRIS: When you say there's a general -- a gentle taper, are you referring that the entire length of the hair, that there's some kind of tapering from the proximal to the distal end?

OSWALT: If you talk about human head hair, you don't see -- you don't notice that taper until you get maybe to the final third of the hair, maybe the final fifth of the hair, and then it starts to taper. And you'll get a nice, general, long taper to, in many cases, a very fine tip, if something is happening to harm that or mechanically abrade that hair or damage it. And mechanically could mean clothing could be brushing up against it, or something else is happening. But going back to the structure of the hair shaft –

GERAGOS: Objection. Non-responsive.

JUDGE: Overruled. Go ahead.

HARRIS: If you can just continue with your description of the structure of the hair shaft.

OSWALT: Okay. With this pencil, you've got the paint on the outside. It's usually a thin -- thin coat of paint. That paint would represent a structure in the hair called a cuticle. And the cuticle covers the hair and provides some of the major strength to the hair. The cuticle is a hard coating, but it consists of overlapping scales of keratin protein, or something that -- of a protein material that provides armor to the rest of the hair. Kind of like a knight's mail would, that overlapping scales of metal armor that the Knights of the old Round Table would wear. You see something similar in shape and form to the cuticle.

Underneath that is the cortex. That's the bulk of the hair, which is represented here by the -- by the wood fiber making up the pencil. That's made up of long fibers out of protein. And then in the center, the graphite or the pencil lead represents what's called the medulla, which is actually a series of cells that have died over time and they're just dead air space inside. That's what you see is just dead air space. Getting back to the cuticle, to answer your question from back when about how can I tell the root end from the tip end. These scales overlap like the petals on a rose, or petals on a flower or the sepals before the flower opens, so those green things that enclose the flower bud. And those tips point towards the distal end or the tip end of the hair. So by looking under a microscope, you can tell, without having the root there, which end is the proximal end, nearest the scalp, and which end is the distal end, away from the scalp.

HARRIS: Now, besides from what you've just been describing, do hairs have other characteristics?

OSWALT: Yes. They have characteristics of color. They have characteristics of curl. They have -- you'll have a different shape to the hair shaft, depending upon where it may come from the body, and depending upon the person's genetic makeup. I don't like to use the word "race" because anymore that is becoming a very ambiguous term in -- at least looking at hair. Because my brother has black, curly, kinky hair, and he can make a very nice Afro. So if I was to look at his hair and say, Oh, that hair came from a black person, I would be dead wrong. But that was a characteristic that used to be evaluated by hair microscopists. I don't go there. I think that's too much of a -- of a reach. But there's curl, color. If you look inside the hair there's things called cortical fuci, which are little void air spaces inside the hair that twinkle like little stars when you shine them with a certain light from above and you're looking at them with a microscope. There's ovoid bodies, which are globs of pigmentation. And then there's the pigmentation itself. And in hair, when you look at hair that's naturally colored hair -- pigmentation is not fluid. It's not a liquid that's been exuded into the hair shaft. It's actually little granules, they look like little granules of pigment, of color, that have been produced by certain special cells at the base of the

root. And those have been pushed into the cortex, the center part of the hair. That gives your hair the color. The aggregation and distribution of those little bits of pigmentation, where they're at, how much there is, all of that is another characteristics you look at. So if -- there's internal microscopic characteristics and there's gross macroscopic or external characteristics that we look at.

HARRIS: Now, you were mentioning that, as you go through and do an examination of a hair, that you either make notes or you use some kind of form. What type of form is that?

OSWALT: It's a one-page form that basically across the top will have the case number, my place to put my initials and the date. It will say stereoscopic low powered magnification hair examination form. And then it will an area where I can put what evidence item I'm looking at across the top, and then along the side it will list the characteristics that I'm going to be observing, or try to observe. And then within the middle of that matrix, or series of boxes, growing column, and I will add my observations that I see. And so some of those forms there's -- there's empty boxes at the bottom that I could -- that I can write some conclusions, or unusual characteristics that I may see. And I'll do that both for the low powered magnification, and then for the next level of microscopy, which is the high power magnification, or use what's called a comparison compound microscope.

HARRIS: Looking at the hairs that are up there, 164 B, that came from the 144 A evidence item, did you do this kind of evaluation that you've been talking about?

OSWALT: Yes, I did.

HARRIS: Do you do it like they're there both at the same time? Or did you compare them separately?

OSWALT: The two hair fragments?

HARRIS: These two hair fragments.

OSWALT: Actually I did both. What I'll usually do is do a characterization. I call it a characterization. I'll take -- excuse me, I'll take each of the individual evidence hairs, or the unknown hairs. And I'll characterize them. In other words, I will try to add a face, if you want to call it that, to what those hairs look like by observing different characteristics that I see and writing them down. And in some cases I may make notations between those evidence hairs -- and I think I did in this case you know, in terms of color or length, or something like that. Something that may be different, or similar. But yes, I'll do usually always a characterization of the evidence hairs, and in some cases I'll actually inter-compare them, or look at them amongst themselves.

HARRIS: Now, as you examined these two particular hair fragments -- let's just start from the beginning -- did you take any measurements?

OSWALT: Yes.

HARRIS: What did you find?

OSWALT: Well, the easiest measurement is to take the length of the hair fragments. And it doesn't take a scientist to look at the photo up there and say that one's longer than the other probably by, you know, one's two-thirds longer than the other. In this case the top hair, which I've labeled 144 A, one of two. It was four and three-eighths inches long.

HARRIS: I'm sorry, what was that again?

OSWALT: Four and three-eighths inches long.

HARRIS: Now, that particular hair, did you give it -- you were describing it "one of two." Did you give it kind of a designation at that point in time of 144 A-1? Or just you called it one of two?

OSWALT: Well, actually I think, if I look at my notes, I may have used both of those designations, but I stuck with one of two through the process. So it would be 144 A, one of two. And the numbering gets -- can get very convoluted if you don't keep track of them very carefully. The hair below that -- the hair fragment below that was 144 A, two of two. And that length -- and I always use approximate -- is one and five-eighths inches long. I'll usually go to either a quarter or an eighth of an inch, but if you give me some hairs that are very curly and you're trying to sit there and straighten them out for purposes of taking a length, approximate is a better term than to say Well, that's exactly what I measured, because I could be off an eighth of an inch. But that's what I got.

HARRIS: You were telling us about this kind of visual examination. I want to go back to the trace on trace, as you described it. When you start to do this examination, do you do anything to preserve the trace on trace, the two other items?

OSWALT: Yes. In order to be able to do the hair evaluation, you obviously don't want to keep manipulating those hairs when you have something like that attached to it because you don't know what kind of value that other evidence may have. So one of the first things I will do, after I photographed it, made initial documentation, and placed it in this -- in this format, is I removed those two pieces of attached material and separated them out, photographed them, documented them and set them aside. And then I continued on with the hair evaluation.

HARRIS: When you say you set them aside, did you go through the process of preserving them in some fashion?

OSWALT: Yes. What I will do will put them in what's called a glassine paper bindle. And glassine is just a type of paper that we use. It looks like a very fine sheet of -- almost like wax paper, but not quite. But it's -- I call them a glassine paper bindle. And I fold the paper, make a little area that the hair will fit into, place -- or in this case the trace evidence, place that in there, I'll label it on the outside. And then what I'll do is I'll put that inside of a coin envelope, a small manila envelope, and then put that aside. But I'll keep that evidence with the other evidence that I'm looking at.

HARRIS: Now, you said that you separated the trace evidence or the trace on trace evidence there, those two items, and you continued on with your examination. What did you find as you went through examining these two particular hair fragments, one of one and two of two? Or one of two and two of two?

OSWALT: What did I find. Well, the long and the short of it was that I noticed some differences in color variation between the two hair fragments. And what I try to do when I do an evaluation, and do a characterization, is I try to, in this case, personify the hair, give it as many -- make as many observations as I can to see if there's anything that will separate or help to establish any similarities between other hairs that I may look at. What I noticed between the two is that there was some differences in color, or color variation. I also noticed differences in the ends of the hair fragments, which were interesting. And I noticed similarities in the internal microscopic characteristics when I looked at those hairs under higher powered magnification. What I noticed on the longer hair fragment, on the proximal end, the end nearest the scalp or the root end, nearest the root end, is that it had what appeared to me to be a broken or torn end. I called it stair-stepped in my notes. I've referred to it as stair-stepped. It wasn't cleanly cut off. It had kind of a stair step to it. And I'm using my hand to indicate how a stair would be going -- going up or down a stair. There's a bit of the hair, one end of that, that stuck out from the other. It looked as though it had been torn or somehow crudely -- crudely sheared. The other end of that hair fragment, which is the top one, 144 A, one of two, it had a marked -- I called it a marked splayed or frayed end.

HARRIS: What -- what does that mean?

OSWALT: Well, all -- all of those indicate that the hair was mechanically damaged at that point. And, actually, a portion of that hair shaft was damaged to that same extent where it looked as though the hair -- if I can use the pencil again, and this is the end of the hair. If something had come down upon it quite hard, and actually just mashed that hair and actually caused the fibers of that hair to spread out a little bit. And there is no nice, clean cut. There was no nice tip that you could see there. It was mashed. Splay means, you know, like if I use my hand, the fingers of my hand mean splay. If I take my hand like this, bunch my fingers together and I was to push on my hand like that, my fingers would spread out. That's what I'm trying to mean by splayed. And frayed just means that you could see fibers in just little mini fibrils or fibers that you could see that were at the end of that one fragment. For the smaller fragment, the one below that, 144 A, two of two, on the proximal end -- that would again be the end of that fragment that would be towards the scalp -- I saw this mashing or splaying. And this is on the proximal end of this fragment, as opposed to the distal end of the fragment I just talked about. So the smaller fragment, proximal end, it had this similar mashing, splaying and fraying. On the distal end of that small fragment, the one below, that ended in a nice -- I think I said cut. Cut end. I may have said later on in the notes there was some rounding to the edges, but it appeared to me to be cut. So there was some differences between the four ends of those two hair fragments. There were some similarities in the internal microscopic characteristics, and there were some dissimilarities in color variation. And the interesting thing -- one of the interesting things about hair is the fact that they're not consistent. If you look at your fellow jurors just for a second, if you were to look closely -- you can't look at my hair; won't do any good; there isn't too much of it -- but if you look at anybody else's hair, if it's natural, hair in its natural state, you'll see variation within -- on a person's head hair that may range, you know, several different colors or several different variations or hues of color, from a dark brown to medium brown to a light brown. Or there may be a light brown, golden brown and reddish brown. You may have some clear hairs. So the color and the color variation, as you go from the root to the tip, is going to vary also. At the root end you may start with a nice, dark, brown hair. By the time you get to the -- to the tip end, through natural sun bleaching or through other treatments, you may end up with a clear hair or very light brown hair. And there is a gradation sometimes, and you may see abrupt color changes from artificial color treatments. So there's a lot of variation that you can see.

What is the challenge to a hair examiner is to look at those differences and similarities and to try to -- try to look at what I call the constellation of characteristics. You look at all those characteristics, and if you have standards that you can look -- you can compare them to, known standards, what you try to do with the known standards is to develop what's called a range of variation. That's what I call it. And in mathematics you'd call this set theory, where you have those little circles and you'd have those overlapping circles, and if somebody shared characteristics and you say Oh, that's great. But, in hair, what you're trying to do is trying to establish a range of variation. And then what you do with evidence hairs is you try to look at those characteristics and say Well, do those characteristics fall within or without that range of variation. If they fall without, then you exclude them. If they fall within, you'd say Well, they could be the donor. They could be the donor. And if you can't -- can't make any good determination, you say inconclusive.

HARRIS: Now, you say that you try and look at -- to make this determination, this constellation determination, look at known or reference samples. With regards to the examination of these two hair fragments that we're looking at, were you provided with a hairbrush for Laci Peterson?

OSWALT: Two, actually.

HARRIS: I'd like to put up on the screen, show you a photograph, 164 C. Do you recognize this?

OSWALT: Yes, I do.

HARRIS: And what is this that we see?

OSWALT: This is what was considered or called the blue/black hairbrush to the left, packaging to the right, and, again, the scale that I used in the photographs above that, and my notations below the hairbrush.

HARRIS: Showing you 164 D, what do you see depicted in this photograph?

OSWALT: Again, it's the blue slash black hairbrush to the right. To the left is again a clear plastic sheet protector with a white piece of paper inside, and between the white piece of paper and the clear plastic sheet protector are the hairs and fibers that I retrieved or recovered from that hairbrush. And, again, the scale on the left.

HARRIS: So you get this reference sample, you take the hairs off of that. Do you start to make a comparison or do the same kind of examination that you've been describing for that particular reference hairs?

OSWALT: Yes. It gets a little bit more involved, if you want to call it that, when you look at a standard sample. And a reference sample should be representative, or at least the best you can get in terms of representation -- representation from that person's specific part of the body. If you're going to compare head hairs, you want to have a head hair standard, obviously. You don't want to compare head hairs to armpit hairs or pubic hairs, or something like that, because the characteristics will be different. Likely will be different. In this case the head hairs from the hairbrush -- and they were, given the characteristics that I saw, head hairs -- I evaluated those visually and under low powered microscopy and under high-powered microscopy. And when I did that, what I would do with the forms and my notes, as I just mentioned with the standards, I had to prepare a range of variation. In other words, I'll have to show for color what were the various colors I saw in the hair, what did it range from. Did it range from a dark brown to a clear, from a black to reddish brown, from whatever to whatever. I'd have to establish a range for color. I'd have to establish a range for each of the characteristics that I saw, and for each of the characteristics that make up the hair shaft, the roots and the tip. When I did that, I then had the standard properly characterized. And a range variation established. Since I've already done that for the evidence hairs, I could now compare the two. And what I would do at that point is I would take the evidence hairs, excuse me, I would put them under the high-powered microscope, and I would take some of the reference standards, and I would do what's called authoritative sampling. Not random sampling; authoritative sampling. And what I mean by that is I'm looking at the range of variation. I want to get what is from here to there. What is from left to right. What is from this end to that end. And I want to get hairs -- hairs from the standard that represent a good representation of that range. That's why I do authoritative sampling.

JUDGE: Let's do this by question and answer.

HARRIS: Mr. Oswalt, did you -- besides the black/blue brush you mentioned there was another brush?

OSWALT: Yes.

HARRIS: What type of brush was that?

OSWALT: A brown brush.

HARRIS: So did you have these two kind of reference sample brushes for you to use?

OSWALT: I did.

HARRIS: And you've described for us how you went through this particular report, making your notes. Did you do that with the two hair fragments, the black/blue brush and also the brown brush?

OSWALT: I did.

HARRIS: I'd like to have marked next in order.

JUDGE: 165.

(People's Exhibit 165 marked for identification)

HARRIS: Mr. Oswalt, I'm going to present to you what was just marked 165. Have you take a look at this and see if you recognize it.

OSWALT: Yes, I recognize it.

HARRIS: And what is this?

OSWALT: It's one of the forms that I used in the evaluation of the evidence hairs and the reference standards, using low powered microscope work.

HARRIS: And this is that form that you were -- that you were describing for us already?

OSWALT: That's correct. That's one of them.

HARRIS: Let me go ahead and can you describe for us what we're seeing up on the screen?

OSWALT: A lot of hen scratching. These are my notes. These are the notes that I took when I did the low powered microscopy evaluation for the hair fragments one of two, which is the left column, two of two, which is in the column to the right of that one, about the middle of the photo -- or the overhead. And in the two left -- two right columns, excuse me, you can see item 20 -- I have a little pointer here. Is it okay if I use it?

HARRIS: Yes.

JUDGE: Sure.

OSWALT: Okay. Right there is item 26. That was the blue and black brush. 26 B is the brown brush. And then, again, I just mentioned 144 A, two of two. And 144 A, one of two, or fragment one. And if you go down those columns, those are the different observations that I made, again, using a low powered microscope, given the characteristics that I was looking at across or down this column here to the far left, what is the source, color, curl. And you can read those as you go down.

HARRIS: Now, as you went through this and you documented your observations of the two hair fragments and comparing them to the reference samples, what did you find?

OSWALT: I'm sorry, I was getting to the right page of my notes. Could you repeat that, please.

HARRIS: As you went through and did the comparisons of the two hair fragments and compared them to the reference samples that you had, what did you find?

OSWALT: Well, the low powered microscope work that I did here, I noticed that the characteristics, at least at this level of evaluation, the two hair fragments themselves -- themselves fell within the range of variation for those characteristics that I could see in the -- in the hairs from 26 A, the blue and black brush, and from a majority of the hairs in 26 B, which is the brown brush. And when I say a majority of the hairs in 26 B, the reason I say that is because there was also some nonhuman hairs and some -- a good many fibers, non hair fibers that were also -- that also came from that brush. So that's why I'm qualifying that statement.

HARRIS: Now, when you -- when you do these comparisons, just ask -- kind of raising my hand kind of question; can you distinguish between human hairs and animal hairs?

OSWALT: In many cases you can.

HARRIS: And can you distinguish between hairs and fibers?

OSWALT: That's usually a lot easier.

HARRIS: So you are saying that you don't include the animal hairs, don't include the fibers, you're just looking at the human hairs that you found from the two reference samples?

OSWALT: Well, I make note of the fact, but when I do the hair evaluation, I obviously, you know, don't evaluate them -- that would be an apples to oranges comparison, so I don't look at the animal hairs when I'm, you know, comparing head hairs from this, which is a human source, to a reference standard, which is human head hairs, too. Yes.

HARRIS: So is this where you stop -- actually before we go on to something else, you had described for us earlier the --

JUDGE: Can I ask a question?

HARRIS: Yes.

JUDGE: Mr. Oswalt, you said it fell within the hair characteristics of the samples. Would you explain what you meant by that.

OSWALT: Well, what I was trying to muddle my way through a minute ago is I was trying to give an overview of what you do in a hair evaluation, where you try to establish a range of variation for the reference standards. In other words, how does each characteristic vary, and how far does it vary. When you establish that range of variation for those characteristics, what you then do is you look at the evidence hairs that you have, and you look at those characteristics and those observations that you have made, and you make a determination Well, can you say, or can I say, that those characteristics from those evidence hairs fall within the range of variation for the standards, do they fall without, or outside, or is there just not enough information to make a good -- a good conclusion.

JUDGE: And your conclusion was?

OSWALT: That it fell within. That those hair -- the two evidence hair fragments had characteristics that, for the most part -- and then this is also important to make a distinction -- fell within the range of variation for those -- for those characteristics of the standards. You may get, on any one hair, certain characteristics that may be an outlier. They may not show what is represented in the hair sample that you got. And that's another, you know, stone that you -- that's thrown in the way of the hair examiner. So he has to -- he has to go through all of that, sift through that and say Well, what kind of conclusions can I make that are -- that I -- that I -- that I can live with that I feel are representative and that are fair and worthwhile to make.

JUDGE: Go ahead.

HARRIS: Now, when you're talking about falling within and falling without this range of variation, if somebody falls outside of that range of variation, is that also referred to as an exclusion?

OSWALT: When you look at all the characteristics and you look at the dissimilarities, and if they are significant, I would exclude them.

HARRIS: Now, moving on to another point, we see up there on that particular item on the screen the left hand column where it says "Ends" and there's a P and a D. The P stands for proximal and the D for distal that you've been describing?

OSWALT: That's correct.

HARRIS: Now, going across from the left to the right in that particular column, there's a little drawing there that says jagged cut or torn slash broken. Is that what it says up there?

OSWALT: Yes, that's correct.

HARRIS: And that drawing there, what was that drawing representing?

OSWALT: That was a drawing -- and I will do that sometimes with the hair ends, to make a note to myself as to what I saw. If I don't take a photograph of it. That was the stair-stepped proximal end of the longest hair fragment that I saw.

HARRIS: Now, moving across -- or, actually, it would go down -- to the first column going down. That's fragment one of two?

OSWALT: Yes, that's correct.

HARRIS: So the distal end of that particular hair fragment, that's the one that appears mashed, splayed and frayed?

OSWALT: Yeah. That's -- that's right there. And that's what I wrote, appears mashed, and I believe I even underlined it, comma splayed, frayed. And then there's a diagram or a little picture that I wrote just to give -- again, to refresh my memory as to what I saw. If I didn't take a photograph of it.

HARRIS: Now, moving over to the second item, so that would be hair fragment two of two, where the one in the box with the P, does it also indicate it appears mashed, splayed and frayed?

OSWALT: Yes. That's that box right there. That's correct. And the picture below it, again a representation of what I saw when I made -- when I made the observation.

HARRIS: And then beneath that one for the same hair fragment, is that what you were describing before as cleanly cut?

OSWALT: Yes. Right there. Cleanly cut.

HARRIS: And you also have a drawing or sketch to represent what you recall?

OSWALT: To the right of the words, yes.

HARRIS: Now, you were talking about -- the court was looking at the clock.

JUDGE: Well, I'm thinking about the court reporter. Is it about time for you?

REPORTER: (Nods head)

JUDGE: All right. We'll have to take the morning recess for the court reporter. We'll come back in 20 minutes. Ten minutes to 11:00 we'll pick up. Remember the admonition.

(Midmorning recess)

GERAGOS: I just want to indicate for --

JUDGE: Let me -- This is People versus Peterson. The record should show the defendant's present with counsel. Go head, Mr. Geragos.

GERAGOS: Thank you, Your Honor. Yesterday I indicated I had shown the jury a couple of photographs that I pulled out of a report and had marked them and Marylin was kind enough to photocopy just those items. They're quadruple Y 1 and quadruple Y 2 and we've substituted.

JUDGE: Substituting the photos for the originals?

GERAGOS: Exactly.

JUDGE: Okay. All right. Okay. The record will so reflect.

GERAGOS: Thank you.

JUDGE: All right.

Mr. Harris, remember where you left off here?

HARRIS: Yes.

HARRIS: Mr. Oswalt, you talked to us about your chart and indicated that you had made some drawings on there as you went and then you were also saying about, about something that photographs these if I can hair fragments from the end also photographed?

OSWALT: Ultimately, they were.

HARRIS: And this is at a later point in time when it was being repackaged and sent to the FBI?

OSWALT: That's correct.

HARRIS: Did the photographs that you took at the time still represent the hair ends or hair fragment ends as you saw them when you did your initial examination?

OSWALT: Yes, they did.

HARRIS: I'd like to have marked next, four photographs.

JUDGE: People's 166. How many have you got there?

HARRIS: Four.

JUDGE: A through D.

(People's Exhibit No. 166, A through D was marked for identification.)

HARRIS: Mr. Oswalt, I am going to present to you or show you 166 A through D. Ask you to look at these particular photographs, see if you recognize them.

GERAGOS: Did you say A through D?

JUDGE: Right, A through D.

GERAGOS: Thank you. 166?

JUDGE: Correct.

OSWALT: I recognize them.

HARRIS: Now during the break did I also have you write on the photographs which, what the photograph depicts?

OSWALT: Yes, you did.

HARRIS: And do these photographs accurately depict the ends of the hairs that we're talking about?

OSWALT: I believe they do.

HARRIS: Start by showing you 166 A. Can you describe for us what we see here.

OSWALT: As I wrote on the photograph, that's the proximal end or the end again closest to the scalp of the hair fragment labeled as 144 A, 1 of 2. And that shows what I referred to as the stair stepped broken or torn end of the hair.

HARRIS: Showing you 166 B.

OSWALT: The photograph probably doesn't do it as much justice to what's occurring here, but that's the distal end as I wrote on the photograph of the same fragment, 144 A, 1 of 2. Again, distal, the farthest away from the scalp.

HARRIS: I'd like to get the bailiff to dim the light for just a minute.

OSWALT: And what you see in the picture, what I use as parentheses is the area that I called mashed, splayed, frayed. I used those three terms to describe it. You can see that the round part of the hair shaft back up here is now more two-dimensional or flat, flattened out here from what appears to be mechanical damage. You don't normally see that in hair that has simply been brushed or combed or normal treatment. Something did that of a mechanical or physical nature to squish that hair and splay it out, push out the fibers.

HARRIS: Looking at 166 C.

OSWALT: We're now on one of the ends of the shorter hair fragment, 144 A, 2 of 2, and that's a nice clean cut, about 90 degrees, right, a cross-section of the hair and I would call that, you

know, clean-cut on the distal ends, again, the ends farthest away from the scalp of the shorter fragment called 144 A, 1 of 2. Excuse me, 2 of 2.

HARRIS: 166 D.

OSWALT: Again, a parentheses showing the area I was trying to outline. And this is the proximal end. Again, not to beat a dead horse, but this is the -- this will be the end of this hair fragment closest to the scalp of the shorter hair fragment. And this area right here again shows some mechanical damage that were physical damage of what I call mashed or splayed.

HARRIS: Now, how, let me see if I can put these up here to see if we can get an orientation of 166 D and 166 C.

JUDGE: Okay. Can I ask the witness a question? Mr. Oswalt, based on your examination did you form an opinion as to whether or not this was originally one hair or was it your opinion that it was originally two hairs?

OSWALT: My opinion is that they came from two hairs.

JUDGE: There were two separate hairs?

OSWALT: That is my opinion.

JUDGE: Not one hair that fell apart?

OSWALT: It's possible, but not probable.

JUDGE: Okay.

OSWALT: Okay. Given the other characteristics I saw.

JUDGE: Okay. Go ahead.

OSWALT: So what do you want me to go through?

HARRIS: I was about to go through 166 D and 166 C to try to get the orientation of these two hairs. Would this be, fell off the screen, approximately how they go together?

OSWALT: Okay. I guess up here what I saw we had the cut end that's off the screen close to the calendar.

HARRIS: Tell you what. Let me hand the photographs to you and just have your hold them up.

OSWALT: Sure.

HARRIS: That way that's nothing that's missing.

OSWALT: Obviously there's a bit of the shaft that's not shown in either picture, but if I was to put them together and we use our imagination in terms of putting the shaft in here what would you have would be something like this: You have the proximal end, which is mashed and splayed, and the cleanly cut end, which is the distal end of the shortest hair fragment. What you'll notice also is there's not much of a change in the color. It may be just a little bit lighter, the distal end, but this is a brown color throughout. And this is again a hair fragment that was one and five-eighths inches long. Not real long, but that's how it would go.

HARRIS: All right. Let me have you do the same thing with 166 B and 166 A.

OSWALT: Again, you'd have to use your imagination, but now you have to use your imagination a little bit more because there's a change in the color. There's a color variation along the shaft. And you'll notice the lower left-hand picture, which has the proximal end of the hair shaft, which is that stair-stepped end and the upper right-hand picture, the color is different. It goes from a brown to a light brown up here. The distal end shows the mashed and splayed end. Again, the proximal end is that stair stepped. And the shaft that's not shown that would join the two, there would be -- there was variation along that that would give you this color variation that I

mentioned earlier that, what you do in hair evaluation is try to understand, observe it, document it, you try to characterize that for not only the evidence here which this is, but also for the standards that you're going to be looking at and in trying to compare those two. But that's how it would go like that.

HARRIS: Now the two photographs that you were holding up you were describing there was a color variation from that broken or stair-stepped end to the other end, the mashed end?

OSWALT: Correct.

HARRIS: And this is from the same hair so you'd see, even in the same hair or hair fragment, this change or variation of color?

OSWALT: On this hair fragment I did see this color variation.

HARRIS: Now with regards to -- let me go ahead and take these back from you. I want to put up 166 B again. Now you put in there the parentheses and you were talking about this was being two-dimensional, when the hair is damaged like that you've described it as being mechanical damage, did something happen to the hair fibers itself?

OSWALT: In this case you see the hair fibers that are in the cortex of the hair. In other words, going back to the pencil, the wood fiber is where the cortex of the hair would be. And you have these fibers which are long fibers or fiber bundles that have been developed at the root end, and as the hair progressively grows out, these fibers become harder and give some more rigidity, but also some flexibility to the hair. And those fibers are in bundles. And in this kind of damage here, what is happening is as you squish the hair, those fiber bundles are being separated and mashed, kind of like taking some rope and putting it into a vice and watching the hair start watching the fibers in the rope start to, you know, splay out, start to line 15 spread out. They become individual fibrils, not fiber bundles, and they start to lose their continuity. Now this kind of damage you couldn't attribute to tweezer damage that I may do as I'm manipulating the hairs. This is much more extensive, longer, wider. It would come from some other type of device that would have created this kind of damage. But to answer your question that's what would essentially happen. As you're taking something that is round, squishing it, making it flat. I use the term two-dimensional. It's not actually two-dimensional, but it's getting flatter. As it's getting flatter, the fibers are starting to spread out.

HARRIS: Now the original packaging that you described for us earlier that you had received these two hair fragments in and indicated these hair fragments had come from a pair of pliers, would pliers do this type of damage?

OSWALT: Yes, they would because that was one of the experiments I did in this training following the hair class that I had. We were looking at singeing hairs with fire, we were looking at mechanical damage using vices and pliers, knives, different type of implements that could be used at a crime scene or that could be used where hair evidence or trace evidence is recovered and what that would look like. So if I was to look at it in an actual case I wouldn't be surprised and scratch my head and go, well, what does this mean. But, yes, pliers could do that.

HARRIS: Now, you indicated in the other photographs that you have up there that the other hair fragment, the shorter of the two also had a damaged, mashed, splayed, frayed kind of appearance on the proximal end; is that correct?

OSWALT: That's correct.

HARRIS: And is that damage also consistent with this mechanical process that you've been describing?

OSWALT: I believe it is.

HARRIS: Now the judge asked you if it was your opinion if this was one hair or hair fragment or if it was two and you had indicated possibly one, but not probable. I want to go into this. Can you explain how --

GERAGOS: I think that misstates the evidence.

JUDGE: Yeah, I don't think that's what he said. Do you want to repeat your answer. Remember what you said when I asked you if it was two?

OSWALT: Yeah. When you asked me about whether I thought it was one or two, I said it was possible it was one, but not probable. It was more likely, in my opinion, that those two hair fragments came from two different hairs.

HARRIS: And with regards to this being two different hairs, can you explain or is it possible for two different hairs or two different hair fragments in those conditions as you saw them for them to be stuck together?

OSWALT: Yes.

HARRIS: Can you explain that?

OSWALT: If you have a device like a pair of pliers or some kind of device like that where the hairs will get squeezed together and get mashed. As you can see up here in the photograph, you can see that all those fibers and fibrils are now, have lost their continuity, they're starting to intermix and they're not in an organized fashion. On top of that, on the outside of hairs you could have hair spray, you could have hair oils, you could have any number of contaminants or other materials that could act as a very low, low tensile adhesive or some kind of binding agent that may help to create a condition that when those pliers or those devices actually mash those two hairs simultaneously together, that they could stick there for some period of time. How long, I don't know.

HARRIS: Now, ultimately going back to your, talking about on your form that we were showing up here. Put that one back up. 165. You had said this was the microscopic comparison that you were doing. Did you continue to examine the hair fragments, 1 of 2 and 2 of 2 against the reference samples that you've been describing?

OSWALT: Yes, I did.

HARRIS: And is that documented elsewhere in your notes and report?

OSWALT: That was on a subsequent form that was, I prepared for doing compound comparison microscope or high powered, high magnification hair examination.

HARRIS: Now after you'd gone through all of the different things that you've been telling us about did you reach any opinions about the two hair fragments, 1 of 2 and 2 of 2 with the relationship to the hairbrush of Laci Peterson?

OSWALT: I concluded that the two hair fragments, 144 A 1 of 2 and 2 of 2 could have been donated by the person who contributed the hairs to the blue and black brush. And I said it that way in the report because that's how the evidence was provided to me. I didn't use Laci Peterson's name at that time or use the victim's name, I used that kind of terminology because that is what the situation was at that period of time in terms of the evidence, but that's what I concluded.

HARRIS: And if we were to substitute, if you were to find out that that hairbrush was Laci Peterson's, could you substitute that name into your conclusion then?

OSWALT: I would if, and this is an if, if that was Laci Peterson's hairbrush. If that's the one that she used and that was the one that she used by herself exclusive.

HARRIS: Now besides this particular examination, the hair comparison characteristic examination that you did, were these two particular hair fragments also sent someplace else for examination?

OSWALT: They went to the FBI.

HARRIS: And were they sent there to perform mitochondrial DNA testing?

OSWALT: Yes, that was what they were going to perform.

HARRIS: Now prior to the hairs going to the FBI for this mitochondrial DNA testing, did you document, are these the photographs that we've been looking at that you documented in the hairs before you sent them?

OSWALT: Those were some of the photographs I took when I reopened the evidence. I took out the hairs from that little white cardboard box. And when I did that I put them under the white sheet protector again and I photographed the end of the hairs and I also photographed the packaging that I put them into and the packaging that they came out of to ensure the chain of custody, at least on my part, was maintained. So those were the photographs. Some of them.

HARRIS: I'd like to have two additional photographs marked.

JUDGE: 167 A and B.

(People's Exhibit No. 167 A and B was marked for identification.)

HARRIS: Mr. Oswalt, I'm going to show you what's been marked as 167 A and B. Ask you to look at those and see if you recognize them.

OSWALT: Yes, I recognize them.

HARRIS: And are these photographs that you took of the two hair fragments that have been described as 144 A 1 of 2 and 2 of 2?

OSWALT: And also -- yes. And including the packaging that they came out of and the packaging that they went into on their way to the FBI or prior to the time they went to the FBI.

HARRIS: And do these two photographs accurately depict the packaging and the hairs?

OSWALT: I believe they do.

HARRIS: If I can see those before I put those up.

I'm going to put up 167 A. Can you describe for us what that is.

OSWALT: That's the little white cardboard box that the hair fragments originally came in on the right side of the photograph when I first opened that evidence for 144 A. There are the two hair fragments in a white sheet protector in the middle of the photograph. The top one in this case is the shorter of the two, obviously. That's 144 A, 2 of 2 and the one below it is 144 A 1 of 2. And you'll notice also that the trace evidence earlier talked about that were attached to both of those fragments aren't there. When I first looked at them I removed it and separately packaged them so they'd be preserved. They didn't get lost; we maintained those. And again on the left side of the picture is the scale.

HARRIS: Now you mentioned the trace evidence. I want to show you what's been previously marked as 159 A. Do you recognize this photograph?

OSWALT: That's a close-up -- well, a relatively close-up picture through the stereo microscope of the green vegetative material that came off of the longer hair fragment, 144 A 1 of 2. And that's going left to right in the picture and I think that may have already been talked about by an earlier witness.

HARRIS: And showing you 159 B, do you recognize what's in that photograph?

OSWALT: Yes, that's -- this right here is the, I call it a matrix of material that was attached to the hair fragment right here. This was 144 A-2 of 2. And this was the trace that was removed some of which was later analyzed. And this little part right here which had various fibers was separately removed at a later time. I tried to be -- well, to try to ensure that the later analysis would be of a material that's more homogenous or similar to itself.

HARRIS: Now this particular item in this photograph, the nongreen plant material that was trace evidence that you found on the hair, was this later submitted for testing to another department at the Department of Justice?

OSWALT: Yes, it was.

HARRIS: Last, going back to the FBI packaging photographs, 167 B, can you describe for us what that is.

OSWALT: The -- the bindle, left part of the picture right here, this is a glass screen paper bindle, a square piece of paper that's been folded several times to make like a little letter or envelope out of it. And inside of this bindle right here are the two hair fragments, 144 A 1 of 2 and 2 of 2. This right here is a small manila envelope called a coin envelope and that's what the bindle went into. It was tape-sealed, initials written across the tape seal and dated and that was put back into our storage prior to the time that it went to the FBI for mitochondrial testing.

HARRIS: So you packaged that up in preparation for it to go to the FBI?

OSWALT: Yes, that was my task when it was decided that mitochondrial DNA would be performed.

HARRIS: Now I want to move forward. At some point in time did you receive from John Nelson of the Contra Costa County Criminalists Lab a piece of duct tape and some hairs?

OSWALT: The duct tape with the hairs was submitted to our lab. I looked at the duct tape one time with another criminalist who was actually doing the principle evaluation of the duct tape. I assisted at that time in removing some hair-like fibers from the duct tape. And then subsequently at a later date I looked at those hair-like fibers and did an evaluation of those.

HARRIS: If I can have marked next in order to go through this.

JUDGE: 168.

HARRIS: Four additional photographs.

JUDGE: A through D.

(People's Exhibit 168 A through D was marked for identification.)

HARRIS: Mr. Oswalt, I am going to present to you 168 A through D. Have you look at these and see if you recognize them.

OSWALT: Yes, I recognize them.

HARRIS: Do these photographs depict parts of the examination that you performed on these hairs or fibers that you were just referring to that came in from Mr. Nelson?

OSWALT: Yes, that's correct.

HARRIS: Let's start with some photographs that were already marked. 160 C, do you recognize this as a transport envelope that came from the Forensic Services Division over in Contra Costa?

OSWALT: Yes, it is. I recognize it.

HARRIS: And this was, it's identified and there's four hairs removed from Laci's remains, do you recognize your initials on there as well?

OSWALT: My initials are along the side right here, along with the case number, my initials, the date, and the item number right there, 1-7, which is -- excuse me, which is the item number applied to it by Contra Costa Crime Lab there.

HARRIS: Looking at the next item, 160 D, do you recognize this particular photograph?

OSWALT: Yes, I took that photograph. The center of it is the envelope that contained the four smaller bindles. These are paper bindles along both sides. And each one of those bindles contained an individual hair, hair fragment and then again a scale at the bottom.

HARRIS: Now on the bottom of these bindles there is a number identifying them or marking them in some fashion, 1-7-A. Did you place those on the bindles?

OSWALT: Yes, I did to give them a unique item number.

HARRIS: Showing you 160 E. Do you recognize this?

OSWALT: Yes, this is another envelope from the Contra Costa Crime Lab. And -- I'm sorry.

HARRIS: Does it have your initials on there as well?

OSWALT: Yes, it does right over here along with the Item No. 1-6.

HARRIS: Does this indicate this was a pubic hair sample from Laci Peterson's remains?

OSWALT: Yes, that's correct.

HARRIS: Showing you 160 F, does this appear to the contents of that particular item now?

OSWALT: Yes, it does.

HARRIS: And do you see the bindle up there with some writing?

OSWALT: The bindle is the right-hand corner of the photograph. Those are the case number, my initials, the date, item number that I put on myself.

HARRIS: Last, looking at 160 G, do you recognize it as being the sample that was inside of that bindle?

OSWALT: Yes, I do.

HARRIS: Now you were saying that -- let me put the next one up, 168 A. Describe for us what this is.

OSWALT: This is a post-it note, a yellow post-it note. Prior to the writing that I placed on it, both in blue and in red, prior to that writing being put on there, across the top of that post-it note in a previous photo that I had taken were a number of hair-like fibers that had been taken from the duct tape. That piece of duct tape had been attached or was on the remains at the autopsy. And prior to this photograph, those hair-like fibers or those fibers were put on there just in a random fashion. What this photograph shows is one of the first things I did following initial documentation. I simply segregated the fibers according to were they nonhair fibers or were they animal hair human hair fibers. Or, excuse me, animal or human hairs, hair fragments. If they were nonhair fibers, to the left, hairs to the right. And I gave them each individual item numbers, also. You can see on the left it's 1-5B, and then there's an F-1, F-2, F-3, which meant Fiber 1, Fiber 2, Fiber 3. If it was a hair, similar kind of numbering except H-1, H-2, H-3 standing for Hair 1, Hair 2, Hair 3. Relatively simple, but sometimes convoluted.

HARRIS: Now did you make a comparison of the four hairs that were recovered from the body and whatever was recovered as trace evidence from the duct tape that was also on the body?

OSWALT: Yes.

HARRIS: Now to go through this you have four hairs that are recovered from the body that's packaged separately, and then there's whatever trace evidence comes in from the duct tape. Of

the trace evidence from the duct tape, were there any hairs?

OSWALT: This photo up here demonstrates there were eight hairs, hair fragments that were recovered from the duct tape.

HARRIS: And then you have four additional hairs that were on the body, so there's a total of 12 hairs?

OSWALT: Hairs or fragments, that's correct, 12.

HARRIS: And did you make comparisons or did you look at those 12 hairs?

OSWALT: Yes, I went through the same process I described earlier for the 144 hairs: Characterization of each individual evidence hair and comparison to standards provided.

HARRIS: And what did you find when you made these comparisons?

OSWALT: I found that the, but the majority of the hairs both from the autopsy, the four hairs, and the bulk of the hairs, hair fragments from the duct tape were nonhuman.

HARRIS: When you say "nonhuman," animal hairs?

OSWALT: Animal hairs. There were three animal hairs from the autopsy and seven from the duct tape. Those I did not compare, I did not compare to any standards. The other two hairs, there was one what I classified as a brown human pubic hair fragment that came from the duct tape, and there was one brown human pubic hair, had a root, from the autopsy, and for those two human hair hair fragments I concluded that they could have been donated by the victim, and the suspect, Scott Peterson, was excluded.

HARRIS: Now going through these additional photographs, you said you were looking at standards, let me show you 168 B, what does this depict here?

OSWALT: There's two clear sheet protectors side by side. The one on the left with some glass and glare on it with the pubic hair standards from the victim, Laci Peterson, Item 1-6. The hairs on the right are hair standards, pubic hair standards from the suspect, Scott Peterson, and they were what are termed "pulled standards." They were removed forcibly from that region of the body. Primarily, that's how -- that's how they were labeled and that's how they appeared to me. In other words, they had antigen roots primarily, which meaning they were living, living roots, living hair attached to the groin.

HARRIS: 168 C. Is this a close-up view of the victim's pubic hair standards?

OSWALT: It is.

HARRIS: Last, 168 D, is this a close-up of the defendant's pubic hair standards?

OSWALT: That's correct.

HARRIS: Now, looking at 168 C, you said it was your opinion that the two hairs that were found either from the duct tape or from the body were most likely from the victim?

GERAGOS: Objection, misstates --

OSWALT: I said they could have been donated.

GERAGOS: Misstates the evidence.

JUDGE: I think it does. Sustained.

HARRIS: Can you explain to us again what your opinion was.

OSWALT: They could have been donated by the victim.

HARRIS: The People have no other questions.

Cross Examination by Mark Geragos

GERAGOS: Showing you Defense double E, have you ever seen that?

OSWALT: Yes, I have.

GERAGOS: Okay. I'm going to put it up on the screen. This is the pliers and apparently this is the hair that was originally put in that envelope. That pliers was sent to the Department of Justice, correct?

OSWALT: That is my understanding it was.

GERAGOS: Okay. You reviewed the report that was prepared in connection with the examination through the Department of Justice, correct?

HARRIS: Is this a report he prepared?

GERAGOS: No, it's the one he testified to at the preliminary hearing he reviewed.

JUDGE: All right.

OSWALT: Well, you asked me had I read it, I said I read it once.

GERAGOS: Okay.

OSWALT: I didn't write it. I'm not competent in that area of that valuation.

GERAGOS: Well, you were competent enough when he asked you if the pliers could have caused that?

OSWALT: Sure.

GERAGOS: You gave that opinion, didn't you?

OSWALT: But that's impression evidence. That's a different area of forensics.

JUDGE: Wait, Mr. Geragos, let him answer, finish his answer.

OSWALT: Sarah Yoshida, the senior criminalist who prepared that report, works in our lab, Central Valley Lab. She is proficient and competent to do impression evidence of which that's what was submitted and requested for her to do: To look at the pliers in relation to whether or not they could have cut some type of wire. MR. GERAGOS:

GERAGOS: Right.

OSWALT: And you asked me, excuse me, and you asked me at the preliminary hearing had I read that. I answered I read it once. I don't remember exactly what was stated and I did not read her notes either.

GERAGOS:

GERAGOS: You're aware of the fact that she concluded that the rust was so severe?

HARRIS: Objection, hearsay.

GERAGOS: I haven't asked the question. Hearsay is allowed, anticipated, is allowed when an expert testifies and it can --

JUDGE: If he relied on it in forming his opinion.

GERAGOS: Exactly. He was asked his opinion, had the pliers crushed this he knows full well --

JUDGE: Well, don't give me a talking objection, just ask the question.

GERAGOS:

GERAGOS: The pliers were tested by Sarah Yoshida and she, her conclusion was that the tools were, the rusting so severe as to affect the manipulation of the tools and they had not been used recently. Isn't that, isn't that what her conclusion was?

OSWALT: I did read that, and if that's what she stated, that's what she put in her report, that is correct.

GERAGOS: Okay. And didn't she put in her report that if they had been used recently, scrapes would have been visible on the areas surrounding the cutting edges; isn't that what she put in the report?

OSWALT: I'd have to read it again.

GERAGOS: Okay. Let me ask you to take a look. I've even got it yellow highlighted. It's about two paragraphs.

JUDGE: I think the preliminary question, Mr. Geragos, is whether or not he relied upon that report in forming his opinion, otherwise you're just cross-examining him in a vacuum here. Because if he's never --

GERAGOS: I was going to ask that next question. You were asked a question by Mr. Harris as to whether pliers could have caused that splaying, mashing, correct?

OSWALT: Yes, he did ask that question.

GERAGOS: Well, I'll ask you a more specific question: Could this pliers, the Department of Justice e 10 technician, Sarah Yoshida, said it had not been used recently and were severely rusted, could they have done that?

OSWALT: It's possible.

GERAGOS: Is it probable?

OSWALT: Well, let me clarify the answer. You're asking --

JUDGE: Go ahead.

OSWALT: If the condition of the pliers at the time she saw them, which were several months after the fact --

GERAGOS: All of a sudden you've got some new information. I guess you got familiar with the report?

HARRIS: Objection --

JUDGE: Wait a minute, wait a minute, wait a minute, wait. See, let's go back to square one, Mr. Geragos. If this witness consulted that report in forming his opinion, then he's fair game to cross-examine him about it. But if he didn't use that report in forming his opinion, then it's beyond what's appropriate. Now let me ask him a question, and when you formed your opinion that that hair could have been splayed by a hair of pliers, did you consider that report in forming your opinion?

OSWALT: No.

JUDGE: Okay. Then it's subject to an objection.

GERAGOS: I'll ask Sarah Yoshida who can testify.

JUDGE: Okay. All right.

GERAGOS: That's fine. Now, the -- specifically when you came to the conclusion that there were two hairs, that was what you believed that you had examined; is that correct?

OSWALT: That's my opinion.

GERAGOS: Okay. Did you ever tell the D.A. that it was one hair that broke in half?

OSWALT: Did I ever tell? No.

GERAGOS: Okay. Did you know that they filed a motion claiming --

HARRIS: Objection, relevance.

JUDGE: Sustained.

GERAGOS: Then I need to address -- no, I need to address the Court. There is a specific issue that needs to be ne1 addressed.

JUDGE: All right. Let's send the jury out. Let's send you out, we'll hear what he's got to say. (Jury exits the courtroom)

Mr. Geragos, do you want to excuse the witness, also?

GERAGOS: Yes, please.

Witness exits the courtroom).

JUDGE: All right. For the record now Mr. Oswalt has been excused and he's not in the courtroom. Go ahead, Mr. Geragos.

GERAGOS: Thank you. You weren't the magistrate obviously at the preliminary hearing.

JUDGE: No, I was not.

GERAGOS: There was litigation, there was -- there were motions filed that specifically addressed the issue of the chain of custody of this hair. Specifically at the time the D.A. took the position and filed a document, it's probably in your chambers in that box of motions that you have from Judge Girolami, but you can take a look at it. My guess is that it's on page 15, if memory serves me right, was they took the position that the hair split in half. We now have an expert, their own expert, who's up here saying that he never told them that, number one, and, that number two, that he believed it to be two hairs, which obviously was significant enough for the Court to have inquired on direct --

JUDGE: Yes.

GERAGOS: -- as to whether that was an issue. I have a significant issue with whether or not they that prior to this witness testifying, whether or not they should have disclosed that prior to this witness testifying, and whether or not the chain of custody issue is now back in play on whether or not the hair is even admissible at this point. This was, as I indicated, and I think the Court before denying me the opportunity, needs to review the motions that were filed first in regards to this issue, and I obviously want to supplement that with what just transpired today. Because the -- if he's going to testify that there were two hairs, then that raises the sector, once again, that there has been a break in the chain of custody and clearly there's an issue here and there's a problem here. Clearly, they've taken the position, and arguably they're equitably estopped from changing their position and the jury, I think, should be privy to the fact that it was the D.A.'s position at the prelim that the hair broke in half. And they've stated that quite clearly. Now, they've got an expert up here who's saying that it's two hairs. They should know, this jury should find out that this prosecution theory changes or blows in the wind, if you will, and we should be able to bring that up. I believe that there's case law that says that I can do that in terms of the doctrine of either an equitable estoppel or the doctrine of judicial estoppel where the Court has the ability to have or not allow somebody to take inconsistent positions. If they're now going to, and what they're trying to do now, is instead of saying that it broke in half, Mr. Harris has asked this witness questions that would suggest that what happened here is that the two hairs were mashed together and that's why they appeared to be two hairs. If that's the case, how is it not fair game for me to be able to bring up the fact that before they were filing court documents presumably as officers of the court in which they allege that the hair was broken in half.

JUDGE: Do you want to respond to that, Mr. Harris?

HARRIS: Yes. In terms of, you know, our theory of blowing in the wind, I think, again, this is counsel just talking off the top of his head. If the Court goes back and reviews the preliminary hearing, the Court will see that this particular witness testified it's possible that it could be one hair and it could have broken. That was the question that was asked of him, so it's not inconsistent with that and we didn't take any particular position one way or the other. Also from the preliminary hearing and also from Detective Hendee's testimony, so we're not operating in this vacuum as counsel keeps wanting to believe, Detective Hendee says he sees it as one particular hair or what he believes to be one particular hair. It has the two items of trace evidence that Mr. Oswalt's now testified to. They're on separate fragments. So he sees them, and the Court can see it in the photographs, Detective Hendee's already talked about that, the long piece is on one end of the hair fragment, and the shorter piece is on the other piece of the hair fragment. What we filed in motions is not relevant to the jury. It's not based on -- it was not based on affidavits. It was not based on anything. It was not based on anything. It was based on statements of the witnesses in terms of the law. Here's what we have, a report. Counsel was saying, judge, what this motion was was a chain of custody issue. So we responded saying it goes in as one, it comes out as two. It was possible it could have broken. That was the question that was asked of Mr. Oswalt at the preliminary hearing. So what we put in a motion to deal with the chain of custody issue prior to preliminary hearing, how is that relevant to this point in time now?

GERAGOS: Well, here's the question at page 1373 at the preliminary hearing: "Okay. Do you know if anywhere on that report it was told to you or indicated to you that the fragments 1 and 2 were in fact at one time the same pair, anybody tell you that? "A. On a report? Not to my knowledge, no. "Anybody tell you prior, when you did this examination sometime in January and the date's on there is February 21st? "Uh-huh. "Prior to February 21st did anybody say, hey, originally this was one hair and then we opened it up two months later and it was two hairs, anybody tell you that ? "A. Not prior to my evaluation, that's correct."

JUDGE: Okay. Well, I'll let you ask him those two questions.

GERAGOS: Well the, problem is that I believe that they took the position at the preliminary hearing, specifically in a court document. I believe the Court should read it. They did not indicate that it was possible, I'll make that representation. They indicated that this is what happened.

JUDGE: Who's "they"?

GERAGOS: The D.A. In the filing the report. And he just said -- what did they base that on? On what did they base the fact that the hair broke in two?

JUDGE: Okay. But –

GERAGOS: Don't you have to have a good faith, don't you have to have any kind of a good faith basis and when you file motions and --

JUDGE: Yeah, but, Mr. Geragos, the jury's heard this evidence. They've heard about the one hair splitting up into two hairs. They know all about that already, you know. So we're just going over the same ground with this kind of stuff that they said this or they didn't say that. They've already heard that. They've heard from -- they've heard from Brocchini. They've heard from Hendee. So I'm going to sustain the objection to the extent that you're going to go into these other issues. But as far as those questions that were asked this witness at the preliminary hearing, you can ask him here again, and then you can make whatever argument you think's appropriate when the time comes. Okay. That will be the Court's ruling. Bring in the witness. The -- I mean the jury knows by now they put in one and two came out, so they can put whatever weight they want on this information.

GERAGOS: Well, that -- with all due respect, judge, that wasn't the issue that I was raising. The issue that I was raising was the changing of the theories.

JUDGE: Okay. I understand that, but I understand it's the changing of the theories, but you can -- those two questions, I think, cover it. All right. Bring the jury back in.

(Jury reenters courtroom)

(The witness, Mr. Oswalt, reenters the courtroom and resumed the witness stand.)

JUDGE: All right. Let the record show that the jury's back in the jury box, the defendant's present with counsel, Mr. Oswalt has resumed the stand. Go ahead, Mr. Geragos.

GERAGOS: Thanks, judge. Now, the -- at any point were you told that prior to your evaluation that, of these two fragments that were marked, were you told that there was originally one hair and that when it was packaged and then it was later determined to be two hairs?

OSWALT: Not prior to my evaluation, which was in February of 2003.

GERAGOS: Okay. Prior to your evaluation all you were told is that there was two hair fragments; is that correct?

OSWALT: I wasn't told anything. I was --

GERAGOS: Well, did anybody give you a report, did anybody instruct you, did you get any information as to what it was you were examining?

OSWALT: I was requested to do a hair evaluation on that item, 1A. And along with that came what is called a BFS-1. It's a blue one-page document that our department, our Bureau of Forensic Services prepares for agencies when they submit evidence. And that form lists the who, what, when, where, how of that evidence. It serves as the chain of custody form. It shows who handled it, it talks about what agency is submitting it, and, also, on that form it asks, it shows the type of requests that are being requested by that agency for that evidence. In addition to that the agency --

GERAGOS: Objection, nonresponsive at this point.

JUDGE: Sustained. All right. Next question.

GERAGOS: Now, the BFS-1 is a chain of custody form, right?

OSWALT: Partly.

GERAGOS: Okay. Now, do you have that with you?

OSWALT: No.

GERAGOS: Did you anywhere on that BFS-1, is there an indication that the Fragments 1 and 2 -- did you name them Fragments 1 and 2, by the way?

OSWALT: I called them 1 of -- 1 of 1 and 2 of 2.

GERAGOS: Okay. Is there any indication --

OSWALT: 1 of 1 and 2 of 2. I'm sorry, I incorrectly spoke. I said 1 of 2 and 2 of 2, that's what I meant to say.

GERAGOS: Is there any indication that 1 of 1 and 2 of 2 were in fact at one time one hair?

OSWALT: Did I know that prior to my evaluation?

GERAGOS: Did anybody make any notation on that report prior to your evaluation?

OSWALT: On the BFS-1, no.

GERAGOS: On any report?

OSWALT: I received no report.

GERAGOS: Okay. Was the only thing that you received then the only written document a BFS-1?

OSWALT: The BFS-1 and the evidence packaging itself.

GERAGOS: Okay. Did anybody tell you, prior to doing the examination sometime in January, and then you did the examination itself on February 2nd -- February 21st, correct?

OSWALT: Excuse me. January, I don't know where that comes from.

GERAGOS: Well, did you do the examination on February 21st?

OSWALT: That was one of the dates that I was working on the evaluation. I think it started on the 20th.

GERAGOS: Anybody tell you, hey, it's originally one hair, then we opened it up two months later and it was two hairs, did anybody tell you that?

OSWALT: Didn't you just ask me that question?

GERAGOS: No, I'm asking you now. Did anybody tell you? I asked you if it was in a written report.

OSWALT: If it was in a written report? I received no report, no.

GERAGOS: Did anybody tell you that?

OSWALT: Did anybody tell me that? No. Not at that time.

GERAGOS: Now, the -- you compared those hair fragments to two, two hairs that were taken from two brushes; is that correct?

OSWALT: That is correct.

GERAGOS: And the reason that you came to the conclusion that they were not the same hair is because of differences in the color, correct, among other things?

OSWALT: That's correct. Color variation.

GERAGOS: Color variation.

OSWALT: Color variation.

GERAGOS: We don't have to go through this ad nauseam, but one was darker than the other, correct?

OSWALT: One did not change in color relative to the other.

GERAGOS: One hair fragment went from brown to light brown, the other one was just brown; correct?

OSWALT: That's correct.

GERAGOS: Okay. One had a mild to no curl, the other had a mild curl, right?

OSWALT: That's correct.

GERAGOS: Okay. One had a specific color variation at the proximal end, I assume that's the end closer to the head, right?

OSWALT: That is correct.

GERAGOS: Okay. One was darker, the Fragment 2 was darker than Fragment 1 at the proximal end, correct?

OSWALT: I believe that was a notation I made on one of my forms.

GERAGOS: And if you made that notation that's what you observed, right?

OSWALT: Yes.

GERAGOS: Okay. And based upon that and the cuticles, the way the cuticles were on the outside of the hair, that led you to believe it wasn't one hair, but it was two hairs, correct?

OSWALT: There were two hair fragments that I received. It was my opinion that those came from two different hairs.

GERAGOS: Okay. Now, you compared those hairs to the item that was marked, as what you put, 26 A; is that correct?

OSWALT: That's not the -- it came in as Item A.

GERAGOS: Right.

OSWALT: Yes.

GERAGOS: The document that what was marked as an exhibit that you, your little worksheet you put Item No. 26 A; is that right?

OSWALT: That is correct.

GERAGOS: And Item 26 A was the blue-black hairbrush, correct?

OSWALT: That is correct.

GERAGOS: You also compared that hair from 26 A with another hair, is that correct, at a different time?

OSWALT: Could you repeat the question, please.

GERAGOS: There was a hair that was recovered from a tool box; is that correct?

OSWALT: There was a hair recovered from a tool box.

2GERAGOS: Okay. And you took the hairs from 26 A, which you believed to be the standard, correct?

OSWALT: To Laci Peterson.

GERAGOS: To Laci Peterson. And you compared it with the hair, the seven-and-a-quarter-inch brown hair, human head hair, that was recovered from a green tool box on a Ford pickup; is that correct?

OSWALT: That was one -- 26, the hairs from 26 A were one of three standards that I compared to one hair recovered from a brown tool -- from a tool box, that is correct.

GERAGOS: Did anybody ever show you a picture of the tool box? I had it up here. It was probably a while ago. Were you aware of the fact the tool box with the seven-and-a-quarter-inch brown hair was found?

OSWALT: I've never seen that photo.

GERAGOS: Okay. Now, you then, if I understand correctly, you then took some of these hairs that you believed to be Laci Peterson's hairs, is that correct, 26 A?

OSWALT: And did what with them?

GERAGOS: I'm asking you. Did you take those hairs and compare them to the hair that was found out of this tool box?

OSWALT: Yes, I did.

GERAGOS: Okay. When you did that comparison did you exclude her as the donor of that hair?

OSWALT: Well, if you give me a chance, I'll turn to that report. Do you know what that, what that item number was for that hair from the tool box?

HARRIS: Report No. 32.

OSWALT: Three-two. Thank you.

GERAGOS: I've got it here, if you want to take a look.

OSWALT: That's okay. I've got this here. Thank you. And your question again, counsel.

GERAGOS: Did you compare it to Laci Peterson's or the hairs from the blue and black hairbrush associated with Laci Peterson?

OSWALT: I did.

GERAGOS: And did you conclude that the donor of the head hairs from the black and blue hairbrush associated with Laci Peterson was excluded as a donor of the seven-a-quarter-inch hair in the tool box?

OSWALT: I did.

GERAGOS: You also tested two other peoples' hairs or compared them; isn't that correct?

OSWALT: That is correct.

GERAGOS: And those two people were Community Service Officer Holmes; is that right?

OSWALT: I have CSO Holmes. I don't know what "CSO" actually stands for.

GERAGOS: Okay. And a criminalist. Who's that?

OSWALT: Pin Kyo, she works in our lab.

GERAGOS: Okay. And was there a reason that you decided to take the hair sample, or their hair samples were supplied so you could compare them with the hair that was found in the tool box?

OSWALT: The reason that those two were included as standards is because both of those individuals processed or looked at that truck and the tool box.

GERAGOS: You mean your hair can actually fall into a tool box without you being killed and put into the tool box?

HARRIS: Objection, argumentative.

JUDGE: The jury can disregard that.

GERAGOS: Can hair fall into a tool box?

JUDGE: Objection sustained.

GERAGOS: Can hair fall into a tool box?

JUDGE: The question is can hair fall into a tool box by somebody examining it.

OSWALT: That's possible.

JUDGE: Okay.

GERAGOS: In this case we've got a seven-and-a-quarter-inch brown hair that made its way into this tool box which was excluded from three people that we know of. It wasn't Laci Peterson, correct?

OSWALT: That's what I concluded.

GERAGOS: It wasn't CSO Holmes, correct?

OSWALT: Correct.

GERAGOS: It wasn't the criminalist, Kyo, K-y-o?

OSWALT: That again is correct.

GERAGOS: Okay. So is it beyond your expertise to give me an opinion as to whether a single hair can be transferred to a location by means other than a person processing the tool box?

OSWALT: There's several articles that are written on that subject about hair transfer, and that is possible.

GERAGOS: Hair transfer, especially one single hair or two hairs is possible to be transferred; isn't that correct?

OSWALT: It's possible.

GERAGOS: And there are numerous articles in the literature about how these hairs can be transferred from one spouse to another spouse; isn't that correct?

OSWALT: That again is in the journal, yes, that's correct.

GERAGOS: And one of those things that can be transferred just by hugging somebody you can get their hair on you; isn't that correct?

OSWALT: Well, without going through all the permutations, those are all examples of different types of transfer, either primary transfer, it's called, or secondary transfer.

GERAGOS: A primary transfer, if somebody, two spouse were living in the same house and one of them sheds a hair and it's picked up on the clothing of another, correct?

OSWALT: Not quite correct.

GERAGOS: Is that more secondary?

OSWALT: You're in the ball park.

GERAGOS: Then what's a primary transfer?

OSWALT: Is when the hair goes directly from one thing to another. Secondary transfer is if you have an intermediate object which serves as the link or transfer agent between two other objects. So if I have a hair on my coat, I sit it on the back of this chair, the hair gets transferred to the chair, another witness sits in this chair, they pick up the hair, that would be considered secondary transfer.

GERAGOS: And if you have a secondary transfer of a single or two hairs, that's something that you don't know where that hair originated from or where it originally was, isn't that correct, from the transferred point A to the point B where you find it?

OSWALT: That's not something that I could -- I could conclude from what I see doing the types of evaluations that I do, at least in the context of what we've been talking about.

GERAGOS: The primary transfer can also occur or is it a secondary transfer, if somebody wears, if a wife for instance wears the husband's clothing?

OSWALT: That's a possibility.

GERAGOS: And how would that happen?

OSWALT: How would that happen? Well, first of all, if it's the husband or the wife, whoever has the clothing, wearing the clothing first, the hair would get onto that clothing from that first individual.

GERAGOS: So if, I'll give you an example. So if a wife wears the husband's jacket when she goes walking and one of her hairs falls onto the jacket and the husband later puts on that jacket, is that a primary or secondarily transfer?

OSWALT: I would call that secondary transfer.

GERAGOS: Okay. And then if the person who, the husband has that jacket and sits somewhere and then the hair falls down, is that still a secondary transfer?

OSWALT: It's just fallen off of that person. It hasn't been really picked up by anybody else or any other thing, yet, it's just on that other object at that point in time.

JUDGE: We're going to take the noon recess at this time. I just want to ask one question just out of idle curiosity. Can you, by looking at a hair, by whatever, can you tell the age of that hair? Can you tell, if it's, you know, if it's a young hair or an old hair, the best way I can explain it.

OSWALT: Well, there's a lot of answers to that question because there's a lot of ways to interpret how the -- you know, what the question means to me. In terms of the age of the hair, if it comes from a young person relative to an old person or just once its shed --

JUDGE: If you found one of my hairs someplace can you say that's, that hair is, you know, it's ten years old or a year old? Because you were testifying that, you know, hair falls out eventually.

OSWALT: Right.

JUDGE: Is there some way of going back to see how long that maybe that hair was in fact in existence?

OSWALT: You can only, you can only have a general age of that hair because the growing cycle of head hair is somewhere between two, and in the literature it's somewhere between two and six, two and seven years. That's the active growing age or growing time for a hair. Then you've got a couple of weeks when it's in that transitional phase. And then you have, for head hair, another three months or so for that in the resting phase before it may be naturally shed. And that's about the only thing that I know of to be able to say, you know, that's, you know, a hair of such and such an age. I really wouldn't be able --

JUDGE: You can't do that?

OSWALT: State anything in that regard, no.

JUDGE: I think we'll take the noon recess with that note. We'll come back at 1:30. Remember the admonition I have heretofore given you.

JUDGE: All right. This is People vs. Scott Peterson. Let the record show the defendant is present with counsel. With respect to an issue as to whether these People's Exhibits 155 A, B, 156, 157 A through D and 159 A and B and Defendant's Exhibits Quadruple Y 1 and Quadruple Y 2, counsel -- I just talked to counsel. Neither side has moved those items into evidence yet, and so they're not -- they're not in evidence. Just to clear up any misunderstanding.

DISTASO: Judge, one last thing. Did the court -- I know the clerk --

JUDGE: Yeah, I have the -- I have the witness list for the week of next week.

DISTASO: Okay.

JUDGE: Okay. And I've -- the clerk has –

GERAGOS: So that will cover Monday and Tuesday?

JUDGE: Yeah. These are the witnesses that the prosecution intends to call on Monday and Tuesday next week, and I have a list here in my hand.

GERAGOS: Are you going to have Amber on Monday or Tuesday?

JUDGE: Boy, talk about planting a seed.

(Laughter)

JUDGE: Okay. (Pause in proceedings)

(Jury returns to the courtroom)

JUDGE: Okay. All right. This is People vs. Scott Peterson. Let the record show the defendant is present with counsel, and the jury is in the jury box, along with the alternates. Mr. Geragos, go

ahead.

GERAGOS: Could I have just one second?

JUDGE: Yes, of course.

GERAGOS: The -- Mr. Oswalt, the DA asked you about a -- a hair that was taken off of the duct tape; do you remember that?

OSWALT: There were more than one hair.

GERAGOS: Okay.

OSWALT: But, yes.

GERAGOS: And the -- how many hairs total were taken off of the duct tape itself?

OSWALT: I believe there were eight.

GERAGOS: And how many of those were human?

OSWALT: One.

GERAGOS: And the one that was human, you did a comparison with an exemplar; is that correct?

OSWALT: Exemplar, also known as a standard.

GERAGOS: Okay. And the standard was taken from where?

OSWALT: That was from the blue and black hairbrush.

GERAGOS: Okay. And did you compare -- so the -- what we were referring to this morning as 26 A, that third column; is that correct?

OSWALT: On the form that was shown on the screen?

GERAGOS: Right. Is that -- is that what you were calling either the standard or the exemplar?

OSWALT: Well, that's the item that the hairs were contained in, or came from.

GERAGOS: This column right here?

OSWALT: That's correct.

GERAGOS: Okay. And you compared the hair with -- that was on the duct tape with 26 A, and you said that it could be from the donor, which would be -- could be from Laci?

OSWALT: Yes, I did.

GERAGOS: Okay. And what type of hair was that?

OSWALT: I said that it was a human pubic hair.

GERAGOS: And the --

OSWALT: Excuse me. Human pubic hair fragment.

GERAGOS: Human pubic hair fragment. And you did a report on that?

OSWALT: That's correct.

GERAGOS: And what was the -- do you have a copy of that report in front of you?

OSWALT: I do. I'm looking at it currently.

GERAGOS: Did you compare that to -- I think Mr. Harris had shown you some photos, maybe they were your photos, of some pubic hair that was taken from Laci Peterson; is that correct?

OSWALT: That's correct.

GERAGOS: Did you compare that?

OSWALT: I -- I did.

GERAGOS: Was that in addition to 26 A?

OSWALT: I guess I should back up. For this -- for this report, I compared those hairs that I took -- that hair that I took from the duct tape and the hairs taken at autopsy to pubic hair standards. I did not take --

GERAGOS: You didn't --

OSWALT: I didn't compare them to 26 A.

GERAGOS: So we misspoke --

OSWALT: I misspoke.

GERAGOS: -- when you said you compared them to 26 A?

OSWALT: I did.

GERAGOS: You did not compare them to this third column here. You took what you were -- you were told were pubic hairs, and then compared them to one of the hair fragments that was on the duct tape; is that correct?

OSWALT: That's correct.

GERAGOS: Now, the three nonhuman hairs, did you compare those to anything?

OSWALT: Which one are you referring to?

GERAGOS: It looks like -- I've got a report that indicates -- let me just show it to you.

OSWALT: Okay.

GERAGOS: Does that -- are we talking about the same report?

OSWALT: Yeah, I'm looking at the same one right now.

GERAGOS: Okay. It looks to me like there was one brown human pubic hair, which you identified as item 1 dash 7 dash D, correct?

OSWALT: But that didn't come from the duct tape.

GERAGOS: Where did that come from?

OSWALT: That was one of the four hairs taken from autopsy.

GERAGOS: Okay. The one brown human pubic hair fragment, which is 1 dash 5 B dash H 2, that was taken from the duct tape?

OSWALT: That's correct.

GERAGOS: And then there were seven nonhuman hairs and hair fragments also taken from the duct tape?

OSWALT: That's correct also.

GERAGOS: Okay. Did you compare those seven nonhuman hairs and hair fragments that were taken from the duct tape with anything?

OSWALT: No, I did not.

GERAGOS: Because it looks to me, if I understand what your testimony is, is that you found eight hairs or hair fragments on the duct tape, right?

OSWALT: Yes.

GERAGOS: And then there was -- you were also provided four hairs from the autopsy?

OSWALT: That's a question?

GERAGOS: Is that -- is that correct?

OSWALT: That's correct.

GERAGOS: And out of those four hairs, it was your opinion that one was a brown human pubic hair and three were nonhuman hairs?

OSWALT: Yes.

GERAGOS: Did you compare the three nonhuman hairs from the autopsy that were presumably taken, recovered from Laci's remains, did you compare those with the seven nonhuman hairs and hair fragments on the duct tape?

OSWALT: Did I do -- in other words, did I do an inter-comparison with unknown evidence hairs?

GERAGOS: Right. To see --

OSWALT: No.

GERAGOS: The hairs -- I mean if you had done a comparison, would you have been able to tell if the hairs that were on the duct tape that were -- that you determined were nonhuman hairs, fit the same characteristics or variations, in your opinion, as the hairs that were taken from the victim's remains, the nonhuman hairs?

OSWALT: I characterized -- characterized all the hairs, but I did not inter-compare them against each other. The two human hairs, or the one hair fragment and the one hair, each one coming from the duct tape and the autopsy, I did compare those to standards.

GERAGOS: And that's where you excluded Scott Peterson, correct?

OSWALT: Yes, I did.

GERAGOS: As a donor of either of those hairs, right?

OSWALT: That is correct.

GERAGOS: And you said that the victim, Laci, could have been the donor of both of those hairs, right?

OSWALT: Of the hair fragment and the hair, that's correct.

GERAGOS: You also did one other examination. Let me show you a report. Did you also examine a piece of white string that was provided to you?

OSWALT: I did.

GERAGOS: And when you examined that piece of white string, did you test it for -- did you do a presumptive test for blood?

OSWALT: Yes. There was a small reddish stain located on that white string, and I did do a presumptive test for blood.

GERAGOS: Okay. This item that was given to you, it was labeled as a white ten-inch piece of string with black fiber or hair from inside of aluminum boat; is that correct?

OSWALT: Yeah. I even put that in quotations in the report as what was written on the evidence envelope; that's correct.

GERAGOS: And that item, stain, the reddish stain on this, that was actually on the string itself?

OSWALT: Yeah. I observed a pretty small red stain. I looked at it underneath a stereomicroscope again.

GERAGOS: And you tested it? You tested it for blood?

OSWALT: Yes.

GERAGOS: And --

OSWALT: And it was negative.

GERAGOS: And was there some kind of a dark brown nonhuman hair fragment and non hair fibers attached to it?

OSWALT: There were.

GERAGOS: Thank you. I have no further questions.

Redirect Examination by David Harris

HARRIS: Mr. Oswalt, just kind of going through that in reverse, the -- your examination involving that white piece of string, that was your report number 30?

OSWALT: That was request number 30, that's correct.

HARRIS: And those were nonhuman hairs?

OSWALT: There was one dark brown nonhuman hair fragment -- I'm reading from the report. One dark brown nonhuman hair fragment and five non hair fibers.

HARRIS: Now, you've described for us before earlier, when you were talking about fibers, that's something that you can easily characterize or distinguish from hairs?

OSWALT: I think earlier I answered that saying usually they're -- they're easy to discriminate, to differentiate between hairs and non hairs, or synthetic fibers.

HARRIS: Now, you were being asked about -- just to move back through that -- the duct tape and the remains from the -- the items from the autopsy. Putting back up on the screen 168 A, is this a photograph of all of those hairs and fibers?

OSWALT: Now, this is not the same -- okay, you were just asking me -- just to clarify for the jurors. This is not the same evidence that counsel for the defense was asking about the white string. These are the hairs and the non hair fibers that came from the duct tape and at autopsy.

HARRIS: Okay. I was moving along. If I was unclear about that, let's -- let me make sure.

OSWALT: Okay.

HARRIS: The previous report, 30, your reference number, that dealt with the white string?

OSWALT: That's correct.

HARRIS: What I wanted to move on to is counsel was asking you about the hairs from the autopsy and the hairs from the duct tape.

OSWALT: Okay.

HARRIS: And you were describing how that process worked. What we're looking at now in 168 A, are these the trace items that were recovered from the duct tape?

OSWALT: Yes, they are.

HARRIS: And we've previously seen the bindles that contain the individual hairs or hair fragments that you received from Mr. Nelson from Contra Costa?

OSWALT: Yes. They were white paper bindles, and each one individually contained one hair, hair fragment.

HARRIS: In looking at this one photograph up here of the trace evidence from the duct tape, not talking about those individual bindles, is this what you -- how you have that red line drawn down the middle of this photograph, how you divided the fibers from the hairs?

OSWALT: Yes. I -- when -- when you get a lot of evidence hairs, or even some standards that may have other things mixed in with them, the first thing that I try to do is segregate so that I can get

down to a workable, more focused examination. And this was my initial attempt to do that. I essentially separated the non hair fibers from -- from the hairs.

HARRIS: And once you identified these hair or hair fragments, that's when you go through and you make the determination whether they're human or nonhuman?

OSWALT: It can either be at that point or a little bit later when you start looking more under the stereomicroscope. And even sometimes you might have to go to the high-powered microscope, if you don't see enough clear-cut characteristics that will say way one way or the other. It just depends on the situation.

HARRIS: So your examination with regards to this trace evidence from the duct tape came -- ultimately there was only one human hair?

OSWALT: That's correct.

HARRIS: And the others were animal or fibers, and so that was excluded out of your examination?

OSWALT: That's correct.

HARRIS: With regards to the four individual hairs that came off the autopsy, again, your examination revealed that there was one human hair, or human hair fragment?

OSWALT: That's right.

HARRIS: So out of all of the trace evidence from the autopsy and the duct tape, you found what you could examine in terms of two human hair –

GERAGOS: Objection. Leading and assumes facts not in evidence.

JUDGE: Sustain. Leading.

HARRIS: How many hairs of a human nature did you find from the trace evidence off the duct tape or that was provided to you by Mr. Nelson?

GERAGOS: There's an objection that it assumes facts not in evidence. He wasn't the one that collected it from the duct tape.

JUDGE: No, but he did -- he analyzed it.

GERAGOS: He can analyze what he was given.

JUDGE: Well, that's what he's asking him. I think that's what you're asking him, right?

HARRIS: Yes.

JUDGE: Do you understand the question, Mr. Oswalt?

OSWALT: Two.

JUDGE: You looked at all the trace evidence, all these hairs. How many did you find out? How many did you determine were human hairs?

OSWALT: Two.

JUDGE: Two. All right.

HARRIS: And of those two human hairs, from all of that, they matched that range of characteristics that you described for us before for the victim, Laci Peterson?

GERAGOS: Objection. It assumes facts not in evidence. And also the term "match" is not -- I do not believe something that has been used.

JUDGE: Well, he didn't say "match."

HARRIS: I'll ask it again. The two hairs that we're talking about, were they within the range of characteristics for the victim's pubic hair standards?

OSWALT: The one hair fragment and the one -- the one pubic hair fragment and the one pubic hair were within the range of variation for the victim's pubic hair standards.

HARRIS: Now, you were asked about another hair, one that was recovered from the toolbox, and counsel showed you a photograph of that. Did you actually photograph that particular hair as part of your comparison, or evaluation?

OSWALT: I took several photographs.

HARRIS: I'd like to have marked next in order.

JUDGE: 169. (People's Exhibit 169 marked for identification)

HARRIS: Mr. Oswalt, I'm going to show you what's been marked as People's number 169. From your report number 32. Do you recognize that photograph?

OSWALT: Yes, I recognize it.

HARRIS: And does this photograph depict the hair under magnification?

OSWALT: Yes, it does.

HARRIS: Did you take the photograph?

OSWALT: I did take that photograph.

HARRIS: And does it accurately depict that hair?

OSWALT: I believe it does.

HARRIS: I'll put up 169. Can you describe for us what we're looking at?

OSWALT: Again, I'm -- I had some notations that I put underneath this photograph that I included in my -- in my notes and the report, so –

JUDGE: You can refer to it.

OSWALT: Okay. Thank you, your Honor. What I said in relation to this photo here is a stereomicroscopic view, and in parentheses I said approximately 25 to 30 power magnification of the root end of the evidence hair. I called this P K dash 3. I said note: Service accumulation of miscellaneous particulate matter. And as you can see on this photograph, this is not -- well, the root end is right there, and this is a characteristic -- I call it a lollipop. Maybe the better term would be a Q-Tip phase for the resting phase root or telogen root, where that root end has hardened up, it's sitting inside the follicle in the skin, ready to be shed from the skin. And along down the shaft here, this is what would be considered the proximal end of the shaft, again, nearest the root, you can see a lot of miscellaneous dirt and particulate matter that accumulated or I would say accreted, it's just a term I use, just say it's stuck to the outside of the hair shaft.

HARRIS: Now, from what you're describing with this you said telogen phase of the hair root, what does that basically mean in lay person's terms?

OSWALT: The hair has gone into a resting or sleeping mode and there's -- it's not actively growing anymore. And, also, it's not actively producing anymore pigmentation into the shaft itself. It's starting to also harden up at the root end. And it's getting ready to be shed from the scalp.

HARRIS: Meaning –

OSWALT: That's fall out.

HARRIS: Fall out. This particular photograph of a hair that's about ready to fall out, 169, does the end of this, the root end, the proximal end, look the same as the hair fragments that you saw

for 144 A?

OSWALT: I didn't see any root ends on 144A.

HARRIS: All right.

OSWALT: Is that a trick question?

HARRIS: The ends that you did see of the hair fragments of 144 A, did they have this natural shape that you're describing?

OSWALT: Well, they -- the hair fragments on 140 -- in 144 A, the hair fragments, both of them lacked a root. So you didn't see this Q-Tip shape at the end. Neither did you see this accumulation of particulate matter around the outside of the hair shaft. That wasn't there. Other than that, differences in color and things like that were different between the two, but I think that's maybe what you're asking.

HARRIS: Well, I'm talking about you described for us in the hair fragments that there was a mechanical damage to the hairs. Do you see any of that mechanical damage to this hair?

OSWALT: No. No. Not -- not on this end in this photograph. Now, to go and look down at the other pictures, or the notes that I took, I'll refer again to my -- to the form of the notes, and I can tell you here in a second what I may or may not have seen. Well, for the -- the proximal end here, I call this a catagen slash telogen root, and if you remember catagen is that in-between transitional phase between actively growing and resting. And I'll usually say that just because there's -- it's a transition, and if there's a continuum there you don't see, sometimes, a clear differentiation. But that is characteristic of that type of root. And at the other end, the distal end, that is not in this photograph, obviously, I say it tapered -- tapered to a fine but rounded slash blunted tip end. Which means that you saw -- again, if we go back to the pencil, you saw this taper that would start maybe in the final fifth or third of the hair and would taper to a fine tip. But that tip itself was now rounded or blunted. It didn't go to a very nice, sharp tip. Which means that over the course of the life of that hair or maybe after it fell out, something happened to rub that tip down a little bit, through some physical wear. But that's the tip ends. And along the shaft, from my notes, I didn't notice any mechanical damage, any crushing, mashing or splaying. It seemed to be okay, in that respect.

HARRIS: Okay. The People have no other questions.

Recross Examination by Mark Geragos

JUDGE: Mr. Geragos, do you have any other questions on this issue?

GERAGOS: The hair that was found on the duct tape, did that have -- did that have a root?

OSWALT: The hair that was found on the duct tape. That did not have a root. I called that a hair fragment, I believe. That was 1 dash 5 -- 5 B dash H 2. And that was a human pubic hair fragment. I so noted that in the report, and I better have said that it did not have a root in my notes. So I will check that right now.

GERAGOS: If it doesn't have a root, you can do mitochondrial DNA testing, right?

OSWALT: You can do mitochondrial DNA testing whether it has a root or not.

GERAGOS: If it has a root, you can, in some cases, do nuclear DNA testing, correct?

OSWALT: You can. It's about a 50/50 -- from what understand. From talking to the DNA people in our lab, it's about a 50/50 chance of getting a typeable DNA from a -- from a -- from a hair, if it does have a root.

GERAGOS: Were you aware --

OSWALT: And usually --

GERAGOS: I'm sorry. Were you aware of anybody in either case taking the hair that was on the duct tape and having any kind of DNA testing done on it?

OSWALT: I'm not aware of that.

GERAGOS: You're still looking to see if it had a root?

OSWALT: Yes. For one -- for that hair fragment, I said it was roughly cut, possibly broken or eroded. It had an end to it on the proximal end of that -- of that hair fragment. Didn't have any type of visible or observable root end to it.

GERAGOS: Did you take a picture of it?

OSWALT: Did I take a picture of it. In this case I – I am not sure if I did or not. I don't believe I did.

GERAGOS: So the -- as far as you know, the one hair that was submitted to you that was on the duct tape that was on the -- as you understand it, the duct tape that was on the -- found on the remains of the person, we don't have a photo of nor did we get any DNA testing on it?

OSWALT: There was a photo taken of all of the hairs on that yellow Post-it.

GERAGOS: Right. But nothing in terms of we've got these closeup photos that look like microscopic-type pictures?

OSWALT: True.

GERAGOS: We don't have that?

OSWALT: Not in this case, no, sir.

GERAGOS: Thank you. I have no further questions.

HARRIS: No other questions.

JUDGE: May this witness be excused?

GERAGOS: Yes.

HARRIS: No objection.

JUDGE: Thank you.

OSWALT: Thank you, sir.