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Tuesday, April 20, 1982

State Witnesses:	Direct	Cross	Redirect	Recross
Laura Rousseau	4	8 C		
Ruth A. Wilbarger	9 A	23C 29J	29A	
Marianne Hildreth	3 0 A	4 9 C		
Defense Witnesses:				•
Allen Jerome Crotzer	6 1	69S 74J	7 6	, 778
Ulysses McNealey	8 0	8 4 S	9 0	
Sharice Ferguson	9 1	100S 106J 106S		
Mabel Davis	108	1125 120J	107	
Louise Davis	121	1245	PR 400 pas	
	Thur	sday,	April 22,	1982
Closing Arguments	•			
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MS. ALLEN: I have no other questions.

MR. CHALU: No further recross, Your Honor.

THE COURT: All right. You may step down.

Let's take approximately a fifteen-minute recess.

[There was a short recess.]

THE COURT: All right. Your next witness, please, ma'am.

MR. SINARDI: Marianne Hildreth.

THE COURT: All right. If you would bring in the jury also.

[The jury returns to the courtroom.]

THE COURT: Would the clerk please swear in the witness.

# MARIANNE HILDRETH,

being duly sworn, was examined and testified as follows:

# DIRECT EXAMINATION

### BY MS. ALLEN:

- Q Would you state your name, please?
- A My name is Marianne Hildreth.
- Q What is your occupation?
- A I am employed by the Florida Department of Law Enforcement at the Sanford Crime Laboratory as a micro-analyst.
  - Q Any specific area of microanalysis?
  - A I routinely perform examinations and comparisons

of hairs.

- Q Okay. How long have you been so employed?
- A I have been employed by the department approximately three-and-a-half years.
  - Q And what is your educational background?
- A I earned a Bachelor of Science degree in forensic science from Eastern Kentucky University and as part of the graduation requirements, I completed a student internship at the Kentucky State Police Crime Laboratory in Frankfort, Kentucky.
  - Q Go ahead.
- A I have also undergone an extensive training program since being employed by the department which was conducted under another testifying analyst. I also had the opportunity to attent a two-week school at the FBI academy involving the examination and comparison of hairs.
- Q Is your entire work devoted to the area of hair analysis?
- A Approximately eighty percent of my work time is devoted to hair exams.
  - Q What do you do other than hair analysis?
- A lalso perform examinations on light filaments and fractured materials.
- Q Have you ever testified as an expert witness before in a court of law?

1 A Yes, I have.

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- Q Approximately how many times?
- A Approximately fifteen times.
- Q In what jurisdictions have you testified?
- A l've testified in Tampa, St. Petersburg, Clearwater, Orlando, Titusville and Bartow.
- Q Could you tell us what the nature of your work is in hair analysis?

A Basically, what I do in a hair examination is I have a questioned hair or a hair whose origin is unknown, and I compare that hair to known hair samples of certain individuals to determine whether or not that questioned hair could have come from the sources of the known samples.

Q And could you tell us how you make this comparison and, if you like, you may use the blackboard that has been provided for you.

A Okay. In order to explain the types of characteristics that I examine, it's sometimes easy to associate the structure of a hair with the structure of a wooden pencil. If I may draw a simple diagram.

MS. ALLEN: Your Honor, may the witness step down?

THE COURT: Yes, ma'am.

MS. ALLEN: Thank you.

THE COURT: Mr. Chalu, Mr. Perry, and Mr. James, If you can't see what she is doing, please let me know.

MR. CHALU: Judge, if I could just come over to this table, that would be fine.

THE COURT: Certainly. That will be fine.

THE WITNESS: What I am going to draw here is a longitudinal section of a hair. For instance, the hair will be lying flat on this plane. You can think of it as a hair having three main, anatomical regions. Let me keep referring to the wooden pencil to help on the analogy.

If you consider a wooden pencil, the paint on the outside of the pencil would correspond to what is known as the cuticle in the hair, and this is actually composed of overlapping layers.

In looking at a hair cross-wise, this area in here and this area in here would be the cuticle of the hair. That is one of the areas of the hair that I would examine.

The second area of the hair that I would examine would relate to the wooden portion of the wooden pencil, and that is what is known as the cortex in the hair, and that is this central region in here. Let me draw the last structure so I won't forget to do

that. Okay. So, this area around here would be the cortex of the hair, and in this area would be the pigment granules which give the hair its color.

The third area of the hair that I would examine, again relating to the wooden pencil, would be the lead running down the wooden pencil. In the hair this is known as the medulla, and I have illustrated the medulla here. This is basically an air-filled canal of cells that run down the central portion of the hair.

So, the types of characteristics that I would examine then would be, for instance, the relative size of this cuticle, the color of the cuticle, does it vary at all from the root of the hair to the tip of the hair.

In the cortex, I naturally examine the pigment granules, are they large size or small size and how they are distributed in this hair. Do they congregate towards the outer part of the cuticle, or are they more evenly dispersed across the hair.

Regarding the medulla, I would examine its general size compared to the rest of the hairshaft and whether or not it is continuous from the root to the tip of the hair or is it present for a few portions and then it's absent for a portion and then continues

again.

So, these types of characteristics would be those that I examine in doing a hair comparison. BY MS. ALLEN:

Q Thank you. Do you use any equipment to assist you in your examination?

A Yes. I use what is known as a stereo microscope which is a low-power microscope that allows me to see the hairs in three dimensions much like we would see it with our eyes, only magnified approximately forty times.

I also then use a compound microscope which is actually a comparison microscope which is two compound microscopes that are joined by an optical bridge. In this manner, I can place, for instance, a questioned hair on one side of the comparison scope and a known hair sample on the other side of the comparison scope and through the optics, I can actually look through the eyepieces and compare these two hairs side by side.

Q Could you tell us how many such comparisons of hair that you've made in the past?

A I'd estimate I have probably examined thousands of hairs. I can't really place a certain number on it.

Q When you first began your duties with the Florida Department of Law Enforcement, did you go through a supervised period at that time?

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Following the initial training in Yes, I did. hair examination which would involve background reading and familiarizing myself with different microscopic characteristics associated with animal and human hair, I then completed a portion of supervised casework in which I examined items submitted to the laboratory and my decisions were reviewed by another analyst who then testified to those results.

And during that time period when your work was reviewed, did the reviewer or supervisor ever disagree with your conclusion?

No.

MS. ALLEN: Your Honor, at this time I would offer Mrs. Hildreth as an expert in the area of hair analysis.

THE COURT: Mr. Chalu or Mr. Perry, any questions as to her qualifications?

MR. CHALU: Your Honor, we have no questions and no objection.

THE COURT: All right. Mr. James?

DEFENDANT JAMES: No questions. No objections.

THE COURT: All right. The Court does declare that she is an expert in that field.

MS. ALLEN: Taank you, Your Honor.

BY MS. ALLEN:

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Q Did you have occasion to receive certain evidence that was submitted to your lab from the Tampa FDLE lab reference this case?

A Yes, I did.

Q Okay. Would you tell us what it was you received and when you received it?

A On December 30, 1981, I received known scalp and public hair samples from C. James, known scalp and public hair samples from D. James, known scalp and public hairs from A. Crotzer, and D. James clothing items.

I received known scalp and pubic hair samples from D. Guggenheim. I received pubic hair combings from D. Guggenheim. I also received a debris envelope from D. Guggenheim. In addition, I received debris collected from D. Guggenheim's clothing items.

received debris collected from two ties. I received scalp and public hair samples collected from S. Marini. I received public hair combings from S. Marini. received debris collected from Marini's clothing items.

I received debris collected from a toolbox, debris collected from a trunk floormat, debris collected from a vinyl bag. On April 19, 1982, I received an additional pubic hair sample from S. Marini.

Q Tell us what you mean by a "pubic hair sample." What does that consist of?

A A "pubic hair sample" would be any known sample.

A certain number of hairs would be plucked from an individual's pubic region and that would be my known sample.

Q How many hairs would that sample consist of, approximately?

A Generally, approximately thirty hairs.

Q When you received this evidence from the FDLE laboratory in Tampa, would you tell us what steps you took, what you did with that evidence?

A Initially when I received the case, for instance, this case, I initially open the items to determine whether or not my hair standards are adequate. I then go through the questioned items which, in this case, would be the debris from the clothing items, the debris from the trunk floormat and the pubic hair combings and determine whether or not there are, indeed, any questioned hairs present. Sometimes I have no questioned hairs for comparison purposes.

Q Did that happen in this case? Were there certain items submitted to you where there were no questioned hairs to compare?

A I believe there were in a few of the samples.

Would you like me to --

Q That is okay. We will just go on to the next thing that you do. What do you do after you determine

whether or not there are questioned hairs?

A I would then mount a known sample from the known hair samples that I receive. I would mount known hair samples from all the individuals involved and examine those hairs to make sure that I can adequately distinguish the individual's known hair samples.

Once I determine that I can adequately distinguish those known hair samples, I then mount on microscopic slides the questioned hairs and then proceed to perform my comparative examinations, comparing the questioned hairs to the known hair samples.

Q If you could not adequately distinguish the known samples which had been submitted to you, what would you do?

A If I had reason to believe that an additional sample might allow me to distinguish those two known samples, I may ask for a second sample from certain individuals.

Q Did you do that in this case?

A I did request another sample but not for that reason.

Q What reason did you need an additional sample from Mrs. Marini?

A The original sample contained mostly hair fragments and they were very fine hairs, and I needed complete

hairs from the root to the tip.

Q Okay. For your analysis, then, you need a complete hair?

A Yeah. I prefer to have a complete hair, including the root through the tip.

Q Okay. What then would you do? What was your next step?

A Next step would be then to perform the comparisons between the questioned hairs and the known hair samples.

Q Okay. Showing you what has been marked as State's Exhibit Number 12-A through 12-E, do you recognize these exhibits?

- A Yes, I do.
- Q Okay. What are those exhibits?
- A Would you like me to individually, like 12-A?
- Q Yes.

A Okay. Exhibit 12-A is one microscope slide that contains hairs that were contained in the public hair combings from Marini. Exhibit 12-B is a microscopic slide that contains approximately four hairs labeled as Marini's public hair sample. Exhibit 12-C is a microscopic slide that contains approximately five hairs labeled as Crotzer's public hair sample. Exhibit 12-D is a microscope slide that contains approximately six hairs labeled as C.

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James's pubic hair sample, and Exhibit 12-E is a microscope slide that contains approximately five hairs labeled as D. James's pubic hair sample.

Q Okay. And did you yourself prepare those slides?

A Yes, I did.

Q Okay. Are the hairs contained on those slides in substantially the same condition or in the same condition now as they were when you received them at the laboratory in Sanford?

A Yes. The only difference is, of course, that I did mount these hairs on the slides.

Q Why is that necessary?

A You must mount them on a microscope slide in a mounting medium so you can transmit light through the hair and examine the internal microscopic characteristics of the hair.

MS. ALLEN: Your Honor, at this time I would move the admissibility of State's Exhibit Number 12.

THE COURT: Any objection from either counsel, or Mr. James?

MR. CHALU: None, Your Honor.

THE COURT: So admitted.

MS. ALLEN: Thank you, Your Honor.

[State's Exhibit 12 was received.]

BY MS. ALLEN:

Q If you would -- and you may refer to your report -- tell us what you did in the way of an examination of the items submitted to you.

A in a case such as this, the request is to examine items of evidence, for instance, associated with the victim and determine whether or not there are any hairs there that would possibly associate any of the suspects. So, what I did was I used, of course, the known hair samples from the individuals involved for comparison purposes.

The debris that was collected from D. James's clothing I examined to determine whether or not there was any evidence of association between him and the suspects or between his clothing and the suspects, and I did not find any hairs microscopically like either Guggenheim or Marini in the debris from his clothing.

Q Now, you, of course, did not examine that clothing for his hairs; is that correct?

A Correct. I would normally -- it would not be unusual to find, for instance, my own hair on my clothing items, so that wasn't significant for my purposes.

In the debris envelope collected from D. Gug-genheim, there was one public hair in that item which exhibited the same microscopic characteristics as Guggen-

heim's own public hair sample.

The same also applies to the public combings from D. Guggenheim. There was one public hair in that item that exhibited the same microscopic characteristics as her own hair sample.

Q Is there anything significant in that?

A Not relative to this case. On the debris collected from Guggenheim's clothing, I again was examining the debris collected from those items to see whether or not there was any evidence of association between her clothing items and any of the three suspects, and I did not find any hair like either C. James, D. James or A. Crotzer on those clothing items from D. Guggenheim.

The debris collected from the two ties contained one Caucasian body hair, and I did not perform any comparative examinations on this hair for the reason that body hairs normally do not possess sufficient characteristics to adequately compare them for significant reasons; that is, the body hairs would tend to overlap from individual to individual more so than scalp and public hair would, and I don't feel I can do an adequate comparison on body hairs.

Q You are able to distinguish a body hair, say, from the arm or the leg, something of that nature, from a public hair or scalp hair?

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A Yes.

Q What next did you examine?

A I next examined the pubic hair combings from Marini and in that exhibit I found one hair that was typical of Caucasian origin which was found to exhibit the same microscopic characteristics as Marini's own pubic hair sample.

I also found two hairs typical of Negro origin which I then compared to the known public hair samples of C. James, D. James and A. Crotzer.

Q And what were the results of that comparison?

A One of these hairs was found to exhibit the same microscopic characteristics as C. James's public hair sample. The second hair was found to exhibit the same microscopic characteristics as A. Crotzer's public hair sample.

Q If you would, calling your attention to the hair which you found to be of the same microscopic characteristics as A. Crotzer, would you explain to the jury what it was that you looked at and what you base your opinion on that that has the same microscopic characteristics?

A In specific terms or general? For instance, I would examine, as I stated, the cuticle of the hair, its relative thickness, its color. I would also examine the pigment granules present in the cortex, their size, their

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distribution, and I would also examine the medulla of the hair.

Q Were there any other characteristics in that particular hair combing from the known public hairs of A. Crotzer that you examined in this case?

A Those were the microscopic characteristics that I examined, of course, in addition to the general overall color of the hair.

Q In addition to the microscopic examination, do you do a visual examination?

A Yes, I do.

Q And can you tell anything by simply a visual, an eyeball look at the hair?

A At times you can get a feel for the configuration of the hair or the cross-section of the hair, and that is how it may lie on the microscope, which I again compared.

Q Let me ask you this. Can you determine the race of an individual by their hair?

A I can examine a questioned hair and determine whether or not the characteristics it displays are typical of Caucasian origin, Negroid origin or Mongoloid origin.

Q And assuming you have two questioned hairs that are of Negroid origin as you did in this case in State's Exhibit 12-A, can you distinguish those two Negroid

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- A From one another?
- Q Yes.
- A Yes, I can.
- Q And did you distinguish those two Negrold hairs In State's Exhibit 12-A in this case?
  - A Yes, I did.
- Q And is it your opinion that those two Negroid hairs did not come from the same individual?
- A Those two Negroid hairs displayed different microscopic characteristics.
- Q Also, you are able to distinguish whether they are head hair or pubic hair; is that correct?
  - A That's correct.
  - Q And you did that in this case?
  - A Yes, I did.
  - Q What other items did you examine?
- A laiso examined debris collected from Marini's t-shirt and present in that debris I found several hair fragments typical of Negroid origin; however, these hair fragments were too limited for significant comparison purposes.

Additionally, the debris collected from Marini's shirt, skirt, slip and panties was examined, and I did not find any hair microscopically like those comprising either

C. James, D. James, or A. Crotzer's known hair samples.

From the debris collected from the toolbox, I did not find any hair microscopically like either D. Gug-genheim's known hair samples or like Marini's known public or scalp hair samples.

On the debris collected from the trunk floormat, I found several scalp and public hairs typical of Caucasian origin which I then compared to Guggenheim's and Marini's scalp and public hair samples, and I found that there were four scalp hairs present on the debris from the trunk floormat that exhibit the same microscopic characteristics as Marini's scalp hair sample, and there were five public hairs in the debris from the trunk floormat that exhibit the same microscopic characteristics as Guggenheim's public hair sample.

Q Based on all of your examinations, well, referring specifically to State's Exhibit 12, what is your conclusion concerning the two Negroid hairs that are contained in State's Exhibit 12-A?

A My conclusion is that one of those Negroid hairs could have originated from the sources represented by C. James's known public hair sample, and the second Hegroid hair could have originated from the known source represented by A. Crotzer's known public hair sample.

Q Okay. You say "could have." Would you explain

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to the jury why it is you use the terminology "could have"?

A A hair comparison is based upon examining a questioned hair with a known hair sample, and each individual will show some variation from hair to hair.

For instance, on their head, because I know of no studies done where someone has examined the hairs from every individual, for instance, in the State of Florida or in the world, we cannot be sure whether or not some of those characteristics may overlap from individual to individual. So, that is why I cannot say that, for instance, that hair definitely came from the source represented by A. Crotzer's public hair sample.

But what I can say is that that hair came from an individual with hair that exhibits the same microscopic characteristics as his known hair sample and also from an individual who had an opportunity to deposit that hair in that location.

Q And did your examination reveal any dissimilar characteristics between the Negrold public hair taken from the combings of Marini and the known public hair of the defendant, A. Crotzer?

A No. There were no significant microscopic differences between that hair and the known hair sample of A. Crotzer.

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MS. ALLEN: Thank you.

THE COURT: Mr. Chalu?

MR. CHALU: Thank you, Your Honor.

#### CROSS-EXAMINATION

### BY MR. CHALU:

Okay. Mrs. Hildreth, when we are talking about hair, we are not talking about the same degree of certainty as we are when we are talking about fingerprints; is that correct?

That's correct. I can't say, for instance, that a questioned hair definitely came from a specific person to the exclusion of all others.

Q Of course, with fingerprints that is general knowledge.

Yeah, that is my understanding.

So, when you say that a certain hair could have come from a certain person, we must conclude from that that it also might not have come from that person?

Like I said, in order for it to have come from another individual, that individual would also have to have hair that displays the same microscopic characteristics and who would have an opportunity to come in contact with that item.

To simplify things, the prosecutor was asking you about hair found on various items of clothing and so on. For purposes of a criminal case, it's not significant, is it, that a person's hair is found on his own clothing, is it, as far as that is concerned?

A No. In my opinion, that would not be unusual.

In fact, I would expect to find hair like an own individual's on their own clothing.

Q The significance would be having a suspect's hair on a victim's clothing or vice versa.

A That's true.

Q All right. Now, you did examine Mrs. Marini's and Miss Guggenheim's known hair samples; is that correct, ma'am?

A Yes, I did.

Q Okay. And you examined the debris collected from D. James's clothing; is that correct?

A That's correct.

Q I believe you testified that no evidence of D.

James's hair was found on Miss Guggenheim's clothing or on

Mrs. Marini's clothing; is that correct?

A That's correct. I only stated that there were hair fragments typical of Negroid origin on Marini's t-shirt.

Q Now, you examined the debris also which was collected from Dawn Guggenheim's t-shirt, shorts and panties; is that correct?

A That's correct.

Q And your results were what again, malam?

A I did not find any hair microscopically like either D. James, C. James or A. Crotzer in the debris from her clothing.

Q And the results were also negative?

A That's correct.

Q How about Mrs. Marini's clothing, that being her shirt, skirt, slip and pantles?

A On those items again I did not find any hair microscopically like D. James, C. James or A. Crotzer.

Q Did you examine debris collected from a vinyl bag which was sent to you or the debris from the vinyl bag that was sent to you?

A I did receive that exhibit and preliminary examination indicated that that debris contained approximately fifty hairs typical of Negroid origin and one hair typical of Caucasian origin; however, I did not perform any comparative examinations on those.

Q So, at this point we don't know whose hair was in that bag?

A That's correct.

Q Did you examine the known public hair of Mrs. Marini?

A Yes, I did.

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Q Did you examine combings taken from the public hair of Mrs. Marini?

A Yes, I did.

Q Now, I believe there were two hairs which were found to be, at least in your opinion, to be foreign to Mrs. Marini's hair from the combings; is that correct?

A That's correct.

Q All right. And you identified one of those hairs as possibly coming from Mr. Crotzer; is that right?

A That's correct.

Q Okay. But, of course, we can also conclude that it's possible that it didn't come from Mr. Crotzer?

A Correct, assuming another individual again would have hair exhibiting those same characteristics.

Q All right. Now, the other hair you've identified as coming from whom?

A C. James --

Q All right.

A -- possibly.

Q Did you compare that same hair to the known hair samples of D. James?

A Yes, I did.

Q And what were your findings?

A That particular hair was different from the known hair sample of D. James.

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Q But in your opinion it was or could have been the same as C. James?

A No, sir. I don't believe I understand your question.

- Q The hair that you identified, you compared the known hair samples to D. James, found it negative?
  - A The questioned hair to D. James, yes.
- Q That's correct. Now, we have one questioned hair which is possibly that of Mr. Crotzer. The other questioned hair you compared, I assume, to all three suspects?
  - A That's correct.
- Q And your conclusion, your professional opinion, was it was that of C. James?
- A Correct. That questioned hair exhibited these same microscopic characteristics as C. James's known hair sample.
  - Q And not D. James?
- A That's correct. It was different from that known hair sample.

MR. CHALU: No further questions, Your Honor.

THE COURT: Any questions, Mr. James?

DEFENDANT JAMES: No, sir. No questions.

THE COURT: All right. You may step down.

[The witness leaves the courtroom.]