

P R O C E E D I N G S

THEREUPON,

MR. WHITE: For the record, this is the case of State of Florida versus Wilton Allen Dedge, Case Number 82-135-CF-A. Today's date is June the 7th, 1984, and we are present in Titusville, in the Brevard County Courthouse, before the Honorable Judge Edward Jackson.

Present in the courtroom at this time are myself, Christopher R. White, Assistant State Attorney; Mr. Mark Horwitz, attorney for the defendant; the defendant, Wilton Allen Dedge; a court reporter; the witness, Mr. Dave Jernigan; and Jack Boonstra of the State Attorney's Office.

Would you please swear the witness.

DAVID JERNIGAN,
a witness herein, having been duly sworn, was examined and testified upon his oath as follows:

DIRECT EXAMINATION

BY MR. WHITE:

Q Sir, would you state your name for us, please?

A David Jernigan.

Q And what is your occupation?

A I am a crime laboratory analyst with the Florida Department of Law Enforcement currently assigned to the Sanford Regional Crime Laboratory in Sanford, Florida.

Q How long have you been employed with the Florida

1 Department of Law Enforcement in that capacity?

2 A Three years and nine months.

3 Q During that period of time have you worked in the
4 Sanford Crime Laboratory entirely?

5 A No, sir, I have not.

6 Q Where else have you worked?

7 A I did a training, period of training in the Talla-
8 hassee laboratory, the Tallahassee Regional Crime Laboratory
9 which is a division of the Florida Department Law Enforcement.

10 Q And was that at the beginning of your employment?

11 A Yes, sir, it was.

12 Q When you went to Sanford to the crime laboratory
13 there and you began your actual work there, how much of your
14 work since that time has been devoted to the comparison and
15 examination of hairs?

16 A I would say approximately eighty percent of my work.

17 Q What is your educational background, sir?

18 A I have a Bachelor of Science degree in forensic
19 science, and a minor in chemistry from the University of Central
20 Florida in Orlando.

21 Q And what courses were there involved in obtaining
22 those degrees that prepared you for your current employment?

23 A There were a number of different courses that I took
24 that constituted my degree in forensic science, forty-three
25 hours of chemistry, biology, botany, forensic science, mathe-

1 matics, physics, and statistics.

2 Q After you had completed your degrees, did you obtain
3 any training from any agency other than the Florida Department
4 of Law Enforcement?

5 A Yes, I did. As part of the requirements for my
6 bachelor's degree, I served a five-month internship with the
7 United States Treasury's Bureau of Alcohol, Tobacco, and Fire-
8 arms, National Laboratory in Washington, D.C.

9 Q And what was the nature of the training that you re-
10 ceived there, if any?

11 A That was an internship to acquaint me with the opera-
12 tions of a crime laboratory, and in that particular laboratory,
13 I was rotated through the various sections to get exposure to
14 the crime laboratory.

15 Q During the course of your occupation or profession
16 and your work with the Florida Department of Law Enforcement,
17 how many hair examinations have you made?

18 A Approximately, individual examinations would have to
19 number into the thousands.

20 Q When you say individual examinations, is that the
21 same as comparing one hair with another hair?

22 A Yes, sir.

23 Q All right. What methods have you used?

24 A In the examination of hairs?

25 Q In the examination of hairs.

1 A I use a method that is currently used by a number of
2 the crime laboratories across the country, and that is the
3 examination of hairs with a light microscope.

4 Q What capabilities does that light microscope have?

5 A A light microscope allows for a specimen to be
6 placed on a glass microscope slide and it forces light up
7 through the sample and it -- you are able to examine the sam-
8 ple through various means of optical methods of which that I
9 can magnify the image up to four hundred times its original
10 size.

11 Q And what can you determine using that instrument?

12 A There are a number of different things that I can
13 determine from the examination of a hair. Number one, the
14 color, whether or not that hair falls into a racial origin,
15 Negroid, Mongoloid, or Caucasoid. Whether or not -- I can
16 tell the color of the hair, whether the hair has a number of
17 different microscopic characteristics that are inherent in all
18 types of hairs that originate from mammals.

19 Q Have you been qualified as an expert in this field
20 of microscopic examination of hairs in the courts of law?

21 A Yes, I have.

22 Q And testified as a result of being qualified as an
23 expert?

24 A Yes, sir, I have.

25 Q On how many occasions have you been so qualified and

1 testified?

2 A I think this makes my twenty-third time.

3 MR. WHITE: Your Honor, at this time the State would
4 tender the witness as an expert in the field of hair
5 examination and comparison.

6 THE COURT: All right, does counsel for the defendant
7 wish to voir dire the witness?

8 MR. HORWITZ: Yes, I do, Your Honor.

9 VOIR DIRE EXAMINATION

10 BY MR. HORWITZ:

11 Q Mr. Jernigan, my name is Mark Horwitz and I am a
12 lawyer representing the defendant in this case, Mr. Dedge.
13 I would like to ask you some questions and if at any time you
14 do not understand me, will you let me know?

15 A Yes, sir.

16 Q What was the year, sir, when you obtained your
17 bachelor's degree?

18 A June of 1980.

19 Q Do you have any other degrees in addition to your
20 bachelor's degree, sir?

21 A No, sir, I do not.

22 Q Are you presently enrolled in any masters program?

23 A No, sir, I am not.

24 Q Your degree was in what, sir?

25 A Forensic science with a minor in chemistry.

1 Q And what does the word forensic mean, sir?

2 A Forensic, to me, would mean debatable in a court of
3 law.

4 Q Does that mean that you've got a degree in courtroom
5 debates?

6 A No, sir, it does not.

7 Q What does a degree in forensic science mean, sir?

8 A A degree in forensic science is a number of different
9 courses that lays the foundation for the examination of physi-
10 cal evidence in a crime laboratory, and to be able to take the
11 findings from the examination of that evidence to a court of
12 law, where it is decided.

13 Q So, it is sort of a jack-of-all-trades among various
14 different potential degrees, is that what you are saying?

15 A I don't think I would use the term jack-of-all-trades.

16 Q It is not a chem -- it is not a bachelor's degree in
17 chemistry though.

18 A That is correct, although there are some people in
19 our laboratory, that work in the laboratory in Sanford that
20 have degrees exclusively in chemistry.

21 Q But you do not.

22 A No, sir, I do not.

23 Q And it is not a degree in biology.

24 A No, sir, it is not.

25 Q And it is not a degree in mathematics.

1 A That is correct.

2 Q And it is not a degree in statistics.

3 A That is correct.

4 Q So, you just take a sampling of all of those courses,
5 is that what you are telling me?

6 A Well, it is a structured program that has very strict
7 guidelines on what you can take and what you can't take.

8 Q And as a result of taking those particular courses,
9 you are preparing yourself to testify in a court of law?

10 A No, sir, it lays the foundation for further work in
11 the area of forensic science. Some members that -- or some
12 graduates can go on and do a number of different professions,
13 they can move into preprofessional study, whether to go on to
14 medical school or pharmacy, they can go and work in a crime
15 laboratory. They can do a number of different careers.

16 Q Is it also possible for a person who works in a
17 crime laboratory, such as yourself, to have an advanced degree?

18 A It is possible, yes.

19 Q And have you known others who work in crime labora-
20 tories who have masters degrees?

21 A Yes, yes, sir, I do.

22 Q Would you say that's a benefit to your profession?

23 A Possibly, depending on what particular area of
24 expertise that person has a masters degree in.

25 Q Have you given any thought to obtaining a masters

1 degree?

2 A No, sir.

3 Q Do you think that that would enhance your knowledge
4 in your field of forensic science?

5 A No, sir.

6 Q You do not?

7 A No, sir.

8 Q Do you think a masters degree in biology would
9 assist your capabilities of examining human hair samples?

10 A No, sir.

11 Q So you feel as though you have enough education at
12 this time?

13 A Yes, sir.

14 MR. HORWITZ: Thank you. That is all the questions
15 that I have at this time.

16 THE COURT: All right. The Court will accept the
17 witness as an expert in the field of microscopic examina-
18 tion of human hair. You may proceed.

19 MR. WHITE: Thank you, Your Honor.

20 DIRECT EXAMINATION (cont'd.)

21 BY MR. WHITE:

22 Q Mr. Jernigan, I am going to show you now what is
23 marked State's Exhibit AF, let me correct that, it is marked
24 State's Exhibit G for identification, and ask you whether you
25 can identify that exhibit.

1 A Yes, this particular exhibit I can identify by my
2 case number that is present on the outside of the bag.

3 Q Where did you first see that exhibit, sir?

4 A I first saw this exhibit on the 23rd of March, 1982,
5 in the Sanford Regional Crime Laboratory, the microanalysis
6 section.

7 Q And from whom did you receive that exhibit?

8 A This particular exhibit I received from my super-
9 visor, Keith R. Paul.

10 Q When you received it from him, what condition was
11 it in?

12 A It was in a sealed condition.

13 Q What did you do with it?

14 A This particular exhibit was subjected to a test
15 that we call sweeping, which was done by Mr. Paul. I did not
16 personally examine the contents of the inside of this bag,
17 Mr. Paul performed the sweeping technique on the item, then
18 returned the debris that was recovered from these two items,
19 and handed it to me in a sealed manila envelope.

20 Q All right, sir. When Mr. Paul did that, were you
21 present?

22 A Yes, sir, I was.

23 Q And where was it that he did that?

24 A He did that on a sweeping table that's located
25 approximately twelve feet from my desk.

1 Q How did he collect whatever came out of those
2 exhibits when he swept them?

3 A The sweeping technique involves taking any item
4 that requires the recovery of trace evidence to be placed on a
5 clothesline-type apparatus over a flat table which is approxi-
6 mately eight feet long by four feet wide. The clothesline
7 apparatus is a system of rods that comes from each corner of
8 the table to a point and then a bar is located approximately
9 four feet off the top of the table where garments are hung up
10 by metal clips, and white butcher paper is placed up over the
11 table. Now, we use a sweeping technique with a metal spatula
12 to physically scrape down on the surface of the garment in
13 question, with inside and outside, to remove any of the inher-
14 ent debris that may be on the surface. The debris falls off
15 onto the table, the garment is removed and the paper is folded
16 up, sealed, and placed inside a manila envelope.

17 Q All right, sir. You indicate that when that item was
18 received by you it was sealed. Was the seal on the paper bag
19 that contains the two items of cloth; was it sealed inside of
20 that paper bag upon which the sticker is now?

21 A Yes, it was.

22 Q And how many seals did you note on that bag?

23 A I don't believe I noted any number of seals, I know
24 it was just in a sealed condition, it was not open.

25 Q All right, sir. Now, let me show you what's marked

1 State's Exhibit B, as in boy, for identification, and ask you
2 if you can identify that.

3 A Yes, I can. This is a white debris fold that I can
4 identify by my case number, my initials, and the date of my
5 examination.

6 Q Do you know when that debris fold was created, or
7 the contents placed therein?

8 A Yes, sir, on the 23rd of March, 1982.

9 Q Was this the debris fold that was underneath State's
10 Exhibit A when it was swept?

11 A Yes, sir, it is.

12 Q I may be wrong about that. I am sorry, I meant
13 State's Exhibit G, the item just previously identified by you.

14 A Yes, sir, it is.

15 Q And then did you see what was done with that debris
16 fold after the items in State's Exhibit G had been swept above
17 it?

18 A Yes, sir, the paper fold was quite large and it was
19 cut down to a smaller size, folded up, evidence tape was
20 placed on it, the initials of my supervisor were placed on it,
21 and then this in turn was placed in a sealed manila envelope
22 and handed over to me.

23 Q All of this was done in your presence?

24 A Yes, it was.

25 Q Were the contents of that debris package in any way

1 tampered with or altered after the items had been swept over
2 it, and before it was given to you in a sealed condition?

3 A No, sir, the item had been sealed and it did not
4 appear that it had been tampered with in any way.

5 Q What did you do with it at that time?

6 A After that particular time, I placed it onto my
7 desk and proceeded to examine a number of different exhibits
8 that were found in the case.

9 Q Did you eventually open State's Exhibit B for identi-
10 fication?

11 A Yes, I did.

12 Q When did you do that?

13 A I did that on the 24th of March, 1982.

14 Q Was there any indication that it had been tampered
15 with in any respect since you had seen it sealed by Keith Paul
16 in your laboratory on the 23rd?

17 A No, sir, no indication of being tampered with.

18 Q When you opened it, what did you do with it?

19 A I placed it under a stereo microscope which is a
20 microscope that allows me to examine an item in three-dimen-
21 sional view under very low magnification, and look through
22 the sample, and found -- was interested in looking for any
23 hairs that may have been found or recovered from the particular
24 sheet in question, to see if there might be any hairs present.

25 I found a pubic hair and placed it on a glass micro-

1 scope slide for examination.

2 Q Let me show you what's marked State's Exhibit C for
3 identification, sir, and ask you if you recognize that.

4 A Yes, sir, I do. This is a cardboard container that
5 contains two microscope slides, and I can identify it by my
6 case number, my initials, and the date of my examination.

7 Q The microscope slide -- slides, you said slides?

8 A That's correct.

9 Q Okay, sir. With regard to that exhibit, the slides
10 were prepared from what?

11 A From the sweepings that I had made from this parti-
12 cular item (indicating), the sweepings.

13 Q All right, sir. Now, with regard to that particular
14 exhibit, after you had prepared it, what did you do with it?

15 A After I prepared it, I placed it on a glass micro-
16 scope slide, and set it aside to dry until I could examine it
17 at a future date.

18 Q When you swept the -- I'm sorry, when you examined
19 the debris that's contained in State's Exhibit B, how many
20 hairs did you find?

21 A I found a number of different hairs that were found
22 within the debris, however, I found only one pubic hair.

23 Q All right, sir. Can -- is the exhibit that I have
24 just handed you closed up now?

25 A Yes, sir, it is.

1 Q Can you open it?

2 A Yes, sir.

3 Q Can you identify what's contained in it?

4 A Inside is one glass microscope slide that has been
5 permanently mounted with my initials, the date of my examina-
6 tion, and the exhibit item.

7 Q All right, sir. And let me show you another exhibit,
8 it is unmarked at this time, is that -- is that item recogni-
9 zable to you?

10 A Yes, it is, this is a permanently mounted glass
11 microscope slide that I can identify by my case number, my
12 initials, the date, and the item that I examined.

13 Q All right, sir. Could you just set that over here?
14 Thank you. Now, you indicate you were able to determine that
15 that exhibit that you mounted on the slide was a pubic hair?

16 A Yes, sir, I could.

17 Q Did you do anything further with regard to an exami-
18 nation of that item?

19 A Yes, sir, I did. I placed it under a high-powered
20 microscope, a compound transmitted light microscope and examin-
21 ed it under various, different magnifications to determine the
22 type of internal microscopic characteristics that may be pre-
23 sent in the hair.

24 Q Let me show you what's marked State's Exhibit D, as
25 in dog, and ask you if you recognize that, sir.

1 A Yes, sir, I do. This is a sealed white envelope
2 that I can identify by my case number, my initials, and the
3 date of my examination, and the item number.

4 Q All right, sir. Where and when did you first come
5 into contact with that?

6 A I came in contact with this exhibit on the 23rd of
7 March, 1982, in the Sanford laboratory.

8 Q And what condition was that envelope in when you
9 received it?

10 A It was in a sealed condition.

11 Q What did you do with it?

12 A This particular exhibit, I opened up and looked at
13 the inside contents, and placed them on a white piece of paper.
14 This is a pubic hair sample from Wilton Allen Dedge, that I
15 placed on a piece of paper to examine more closely. I then
16 later permanently mounted some glass microscope slides to be
17 able to examine those under a microscope at a later date.

18 Q Do you know how many hairs were contained in State's
19 Exhibit D?

20 A No, I do not know how many precisely there were,
21 there was an adequate sample, which would be greater than thirty
22 hairs found inside.

23 Q Now, did you -- after you mounted the hairs, did you
24 examine them?

25 A Yes, sir, I did.

1 Q All right, sir. And what was the purpose of that
2 examination?

3 A The examination of the pubic hair was to determine
4 whether or not I could find any association or dissociation
5 with the microscopic characteristics that were present in the
6 known pubic hair sample from Wilton Dedge, in comparison to
7 the one pubic hair found off the sweepings from this particular
8 bed sheet.

9 Q Now, with regard to that examination, were you able
10 to reach any opinion as to the similarities or dissimilarities
11 between the two exhibits?

12 A Yes, sir, I was.

13 Q All right, sir. And would you be able to explain,
14 for the purposes of this courtroom, could you explain what
15 similarities or dissimilarities you were looking for and found?

16 A Yes, sir, I can.

17 Q Let me show you what's marked State's Exhibit F for
18 identification and ask you if you recognize it.

19 A Yes, sir, I do.

20 Q All right, sir. Who prepared this chart?

21 A It was prepared by a photographer in the Sanford
22 laboratory.

23 Q All right, sir. Would this chart aid you in explain-
24 ing your testimony concerning the comparison and the results
25 of your comparison in this case?

1 A Yes, it would.

2 Q All right, sir. Would you step down then, sir.

3 A (Witness complies.)

4 Q And there is a pointer here, if you need it. Now,
5 if you could, using that diagram, could you explain to us what
6 characteristics that you were looking for in your examination?

7 A Yes. A hair can be described as a slender thread-
8 like outgrowth from the follicles of the skin of mammals. It
9 is composed essentially of a protein called carotin, and it
10 has three anatomical regions, the medulla, the cortex, and
11 the cuticle. When examining the various internal microscopic
12 characteristics, forensically in hair examinations, they can
13 be broken down into three racial origins, depending on the
14 characteristics that are noted. That is Caucasian, all people
15 of the white race; Negroid, all people from the black race;
16 and Mongoloid, covering American indians, Eskimos, and the
17 orientals.

18 The cuticle which is noted by this small band here
19 in this diagram represents this area on each one of the dif-
20 ferent racial breakdown groups. And the cuticle is actually
21 a very thin layer of scales that are present on the outside
22 of the hair shaft to protect it from damage. The arrangement
23 of these scales is such that they overlap much like scales on
24 the back of a fish do, one over the top of the other to pro-
25 tect the innermost characteristics, or innermost anatomical

1 structure of the hair.

2 The next characteristic is the medulla noted by this
3 dark area here on the inside, which represents this middle
4 core of cells, they are air cells that run down the length of
5 the hair, from the root to the tip. Now, some hairs have this
6 medullary structure that's visible and some hairs have it
7 where it's -- the medullary cells are fragmented, in other words,
8 it's -- they are not all continuous, they're fragmented or
9 discontinuous, and that is a characteristic that I can examine
10 under the microscope.

11 In between the cuticle and the medulla is the struc-
12 tural part of the hair called the cortex, and that is noticed
13 by where all these pigment granules are located longitudinally
14 in the hair. The pigment granules can be bunched up together
15 in clumps, such as this in the Negroid hair which makes their
16 hair very, very dark. Or it can be well dispersed in a Cauca-
17 sian which is noted by this pattern (indicating), or it can be
18 very clumped and a very shaded pattern as can be seen in this
19 diagram here (indicating). Now, it's the arrangement of the
20 cuticle, cortex, and medulla which is the basis for my exami-
21 nation under the microscope.

22 The cuticle could be light or dark, it could be
23 milky under examination, it could be very cloudy, it could be
24 very thin or thick, or it can vary along the shaft of the hair.

25 The cortex, inside the pigment granules, may be large,

1 small, in a thick distribution or a thin distribution. Also,
2 the pigment granules would give rise to the color of the hair,
3 whether that person's hair is light blond, brown, dark brown,
4 red, or if it lacks pigment, whether or not it is gray.

5 Also, inside the medulla, I mentioned, it could be
6 large or small, fragmented, cellula, and it's the arrangement
7 of all these characteristics that I examine which will place
8 a hair in a particular racial origin.

9 After I have determined the particular racial origin,
10 I can examine a number of different features. For instance,
11 the width of the hair, how the hair buckles and turns, whether
12 it has a moderate shaft diameter, whether or not the hair is
13 very pliable. And I can determine body origin of that parti-
14 cular hair, whether the hair originates from the scalp region
15 or whether it originates from the pubic region. Also by ex-
16 amination of the cross section, as you can see, that Caucasian
17 hair is oval in its characteristics; the Negroid hair is very
18 flat and ribbon-like, and that causes the hair to kink; and
19 Mongoloid is very, very straight and almost at a complete cir-
20 cle.

21 It's these various characteristics that I look at,
22 cross sectional shape, the examination of the cuticle, cortex,
23 and medulla, and the arrangement of the characteristics from
24 the root to the tip, which gives me an idea of what a particular
25 person's hair looks like.

1 Q Sir, based on your examination of the question hair
2 here which is marked State's Exhibit C, were you able to deter-
3 mine whether it was Caucasian, Negroid, or Mongoloid?

4 A I was able to determine that it exhibited characteris-
5 tics typical of a Caucasian origin.

6 Q With regard to the samples that you examined, the
7 known samples, marked State's Exhibit D, were you able to
8 determine whether they were from a Caucasian person, Mongoloid,
9 or Negroid?

10 A They also originated characteristics typical of a
11 Caucasian origin.

12 Q Were you able to determine what area of the body the
13 hair, the question hair, State's Exhibit C for identification
14 came from?

15 A Yes, sir, they exhibited characteristics normally
16 associated from originating from the pubic region.

17 Q And then with regard to the known hair samples sub-
18 mitted, marked State's Exhibit D, were you able to make the
19 same determination as to that?

20 A Yes, sir, I was.

21 Q And what was your opinion?

22 A That it was -- originated from the pubic region.

23 Q Now, while you are there, let me show you what's
24 marked State's Exhibit E for identification and ask you if you
25 can identify this.

1 A Yes, I can.

2 Q All right, sir. Would this aid you in further des-
3 cribing the examination that you made in this case?

4 A Yes, it would.

5 Q All right, sir. I am going to put it over your other
6 chart for the time being. Using that chart then, could you
7 explain further what characteristics you looked for in the
8 examination of the hairs you described in this case?

9 A Yes, sir. This is a longitudinal view of a hair,
10 and above it is an enlarged version of what a hair looks like
11 as it is, for instance, pulled out of the follicle of the skin.

12 As you can see that the hair has a root portion which
13 is known as the proximal end, and the root portion is what's
14 found inside the hair follicle. The shaft of the hair, here,
15 and that the hair will come to a tip which is called the distal
16 end.

17 And when I examine a hair under the microscope, I
18 look at a hair from the root portion through the shaft to the
19 tip. And since a hair is round, what I could do with the
20 microscope is I can focus up on various planes of focus and
21 determine the characteristics and how they differ from the top
22 of the hair to the bottom.

23 Now, this bottom diagram is an enlarged version of a
24 hair that shows the cuticle, cortex, and medulla, and it gives
25 a diagrammatic picture of exactly what the particular anatomical

1 regions look like.

2 First of all, the cuticle as you can see, the indi-
3 vidual scales do overlap and these scales point in the direction
4 of the tip, which would be at this end of the diagram. You
5 can see that the -- that a particular cuticle can be very uni-
6 form and very straight as in this particular photograph (indi-
7 cating), and then down here you can see how the cuticle actually
8 can vary, become very large or very small at any one particular
9 point in the examination. Also this pigment distribution here
10 is very even and well dispersed which is present in the cuticle
11 and as you can see down here in this diagram, the hair can be
12 very clumped, in patches, which is characteristic of hair ori-
13 ginating from Negroid individuals.

14 These white areas here are referred to as cortical
15 fusi and those are found in the cortex, and those are air
16 spaces. And you can see down here the cortical fusi can be
17 clumped very close together. These dark ovoid structures are
18 called ovoid bodies, and they are very dark misplaced medullary
19 material that occurs within the cortex. And as you can see
20 down here, the ovoid bodies can also be very clumped.

21 This is a fragmentary medulla, this portion here,
22 and this is a continuous medulla. The medulla is the central
23 air shaft as I had mentioned before. It's a core of air cells
24 that originates right down the middle of the hair shaft. And
25 then here, also, is a fragmentary medulla, and on cross section

1 if you are able to take this hair and place it on the end,
2 you can see that this region here corresponds to the cuticle.
3 Here you can see the cuticle is -- varies in its thickness.
4 Ovoid bodies, cortical fusi can be seen, and also distribution
5 of pigment.

6 Q Sir, with regard to the hairs that you have examined,
7 did you initially make a determination as to whether they were
8 human hairs or belonged to some other mammal?

9 A Yes, I did. I examined those and found that the
10 hairs were of human origin.

11 Q Are there substantial differences between human hairs
12 and hairs belonging to other mammals?

13 A There is differences that are in the hair of mammals
14 as opposed to the comparison with hairs from humans. First of
15 all, since it is a hair and it originates from a mammal, it's
16 going to have the same three anatomical regions, the medulla,
17 the cortex, and the cuticle, however, their arrangement and
18 color and distribution is quite different than that from humans.

19 Q All right, sir. Will you need your diagram any fur-
20 ther in explaining your testimony?

21 A No, sir, I will not.

22 Q Okay. Would you retake the stand, then?

23 A Yes, sir.

24 Q All right, sir. Now, State's Exhibit C, if I am not
25 mistaken, is the question hairs that you mounted on slides, is

1 that correct?

2 A Yes, sir, that is correct.

3 Q That exhibit right now contains the one hair.

4 A That is correct.

5 Q All right, sir. With regard to that hair contained
6 there, did you attempt to compare it to the hairs contained in
7 State's Exhibit D?

8 A Yes, sir, I did.

9 Q And if so, how did you do that?

10 A I did it by use of a comparison microscope which is
11 actually two compound transmitted light microscopes set side
12 by side, and they are linked by an optical bridge that allows
13 me to put a hair from a crime scene, or a question hair, on
14 one particular stage of the microscope, and it allows me to
15 put a sample of either head or pubic hairs from a subject or
16 a victim on another stage of the microscope. And it allows me
17 to bring both images in to one field of view and allows me to
18 examine the sample from the root to the tip noting the various
19 microscopic characteristics that I had mentioned earlier.

20 Q All right, sir. Now, looking at the slide that is
21 contained in State's Exhibit C, is that the same slide that
22 you prepared?

23 A Yes, sir, it is.

24 Q And is there a way that you can tell by looking at
25 the slide itself, as opposed to the package that it is in?

1 A Yes, sir, I have my initials inscribed onto the
2 slide.

3 Q Is there any doubt that the hair that you see mounted
4 on that slide is the same hair that you removed from the exhibit,
5 I think it's Exhibit B, the debris packet?

6 A There is no doubt, it's -- it's the very same exhibit

7 Q All right, sir. Now, with regard to the sample hairs
8 or known hairs marked State's Exhibit D, did you microscopically
9 examine just one of those or did you examine several of those?

10 A I examined several of those.

11 Q And when you examined those different hairs from
12 that exhibit, State's Exhibit D, did you find that the hairs,
13 as among themselves, contained similarities?

14 A Yes, they did.

15 Q All right, sir. Did you find that those hairs, as
16 among themselves, contained any dissimilarities?

17 MR. HORWITZ: Excuse me. I am going to object to
18 the leading nature of the questions.

19 THE COURT: Overruled.

20 THE WITNESS: Yes, there were some hairs inside that
21 I examined that were -- that did exhibit differences also,
22 among themselves, upon examination.

23 Q (BY MR. WHITE) All right. Regarding hairs from that
24 exhibit that differed from other hairs, can you describe for
25 us what similarities that you found, and what dissimilarities

1 you found between any of those specific hairs?

2 A Within those particular hairs, which is normal for
3 hair since it is a biological material, to have some varia-
4 tion, I found various different colors of light brown that
5 were present, light brown to blond that were present in the
6 sample. Also, the pigment in that particular sample was well
7 dispersed. It is not uncommon for a particular sample to be-
8 come somewhat darker, either at the root or the distal end in
9 its pigment when compared among other hairs within the sample.
10 Those were the two major differences that I had noticed within
11 the sample itself.

12 Q All right, sir. Does that in any way cause you to
13 believe that they came from a different source, or is that
14 consistent with them having come from one person?

15 A It is consistent with having originated from the
16 same sample, there was nothing there such as a marked differ-
17 ence in color that would perhaps clue me in to, perhaps it was
18 from a different race. In my opinion, if something like that
19 were contaminated or found in the sample, I would have been
20 able to find it without any problem.

21 Q If you do find such dissimilarities as you have
22 noted on the record here, between the known hairs, how do you
23 go about comparing those hairs with a question hair such as
24 State's Exhibit C for identification here?

25 A I take the known samples which have been permanently

1 mounted on glass microscope slides, and I examine those from
2 root to the tip among a number of samples within the original
3 sample itself. I look for different types of characteristics
4 such as the very lightest hair in that sample, or the very
5 darkest, because hair can differ in its microscopic character-
6 istics along the sample of hair that is taken from a person's
7 head. Not all hair is going to look exactly the same color,
8 it is going to be very close since it does originate from one
9 sample. Perhaps somebody's -- a region of somebody's hair may
10 have been dyed or bleached, then the hairs are going to be
11 markedly different when examining them under a microscope. So,
12 in essence, what I do is I establish a model of what that par-
13 ticular hair sample looks like, the very lightest hair, the
14 very darkest, the lightest distribution of pigment, medium
15 distribution, and darkest.

16 Q Now, when you say construct a model, do you mean
17 actually, physically build something or do you mean a written
18 description that serves as a model for you?

19 A It's a written description of what the hair looks
20 like, and also I can envision what that hair looks like in my
21 mind from examining it.

22 Q All right, sir. Do you, in addition to just examining
23 several of these hairs from the known, State's Exhibit D, in
24 constructing this model, do you take any of those individual
25 hairs and using the, I believe you said the binary microscope,

1 do you compare them side by side with the question hair?

2 A Yes, I do, with the comparison microscope.

3 Q And did you do this in this case?

4 A Yes, sir, I did.

5 Q All right, sir. Were you able, based upon that, to
6 form an opinion with reasonable scientific certainty as to the
7 hairs that you were comparing, the question hair from State's
8 Exhibit C and the hairs from State's Exhibit D?

9 A Yes, sir, I did.

10 Q All right, sir. What similarities, if any, did you
11 note between the question hair and the hair or hairs contained
12 in State's Exhibit D?

13 A The similarities were that the hairs were Caucasian,
14 both were -- both hairs originated from the pubic region.
15 Both hairs were of human origin, both hairs had a considerable
16 amount of twisting or buckling inside the hair. There was no
17 visible cuticle on -- in comparison with those samples. There
18 was medullary material that was seen within the samples.

19 The pigment distribution was well dispersed. There
20 was cortical fusi noted in the proximal end near the root.
21 The hairs were light blond in color, and the distal or the tips
22 tapered and were very blunt on the end.

23 Q All right, sir. Now, with regard to your comparison,
24 did you note any hairs from State's Exhibit D, the sample hair
25 that differed in any respect from the hair from State's Exhi-

1 bit C?

2 A Yes, sir, I did. I noticed that the distal end,
3 which is the tip, was just slightly darker in color and in
4 pigment, in the question hair, which was the hair removed from
5 the sheet, than the known sample. And also I noticed that the
6 pigment was slightly darker in one or two of the hairs in the
7 known sample as compared to the hair removed from the bed
8 sheet.

9 Q All right. Was this difference -- these two differ-
10 ences, were these differences there as to each of the hairs
11 you examined from the known sample? Did I confuse you with
12 that question?

13 A No. There were some hairs that had those character-
14 istics that I mentioned, those differences, and there were
15 some hairs that did not.

16 Q Those two differences, if I -- is it your testimony
17 those two differences did exist in some of the hairs from the
18 known samples, State's Exhibit D, and in some of the hairs
19 those differences did not exist?

20 A That is correct.

21 Q Do -- do you have an opinion then, based upon this
22 examination, as to whether or not the source for the question
23 hair, State's Exhibit C, is the same, by source I mean deposi-
24 tor, or person from whom the hair came, is the same as the
25 person from whom the samples, marked State's Exhibit D, came?

1 A Yes, I do.

2 Q What is that opinion?

3 A That the similarities that were found based on the
4 comparison were examined under the microscope and I also had
5 noticed some microscopic differences, however, the differences
6 that I found were not entirely sufficient to entirely eliminate
7 Mr. Dedge as a possible source of donating that hair.

8 Q All right, sir. Would there ever be any instance in
9 a hair comparison, assuming hypothetically that all character-
10 istics matched exactly and you had sufficient or more than
11 sufficient characteristics to compare, would there ever be any
12 situation where you could say that the depositor of the ques-
13 tion hair was the same person from whom the samples or known
14 hairs were taken?

15 A To the exclusion of all other people?

16 Q To the exclusion of all other people.

17 A No, sir.

18 Q What is the strongest opinion that you would ever be
19 able to give on -- with perfect evidence in the case, in a
20 perfect microscopic match?

21 A It would be that the question hair would match the
22 known hair in all forensically significant microscopic charac-
23 istics, and that there were no differences. And based on
24 that comparison I would say that that hair could have originated
25 from that known sample. In other words, that hair would have

1 had to originated from that particular donor whose known hair
2 standard that was taken from, or another person of the same
3 race whose head or pubic hair matched the question hair in all
4 respects and that that person would have had an opportunity
5 to donate that hair at a particular crime scene.

6 Q To ask a slightly different question, based on your
7 analysis of the hairs we have, the question hair, State's
8 Exhibit C, and the known samples marked State's Exhibit D,
9 could one and the same person be the source of all of those
10 hairs?

11 A I don't think I understand your question.

12 Q All right, sir. The question hair marked State's
13 Exhibit C, could that hair have come from the same person from
14 whom the known hairs marked State's Exhibit D were taken?

15 A I could not entirely eliminate that hair from coming
16 from that source.

17 Q All right, sir. Are there occasions when you examine
18 hair and your finding is that you eliminate the person from
19 whom your known samples came as being a source of the question
20 hair?

21 A Yes, sir.

22 Q What sort of characteristics or dissimilarity in
23 characteristics would be required for you to reach that con-
24 clusion?

25 A In my opinion it would be marked differences in

1 color or pigmentation. In other words, if the hair was much
2 darker, for instance, a very dark brown which would indicate,
3 based on the color and the pigmentation that it could have
4 originated from somebody of the Negroid race. Basically, that's
5 the two, the color and the distribution. Of course there are
6 the other internal microscopic characteristics that could vary
7 that would clue you to saying that that hair, based on the
8 comparison, the question hair had different microscopic charac-
9 teristics than the known sample and therefore did not originate

10 Q All right, sir. With regard to your opinion, assumin
11 hypothetically that you had a perfect match between question
12 hair and known hair, what significance based on your exper-
13 tise and your training could you give to that for purposes of
14 making a determination as to whether or not a specific per-
15 son were the donor of the question hair, or the depositor of
16 that hair?

17 A I would say that that particular hair originated
18 either from the suspect or another person of the same race
19 whose head or pubic hair exhibited the same microscopic charac-
20 teristics, and could have had an opportunity to drop that hair
21 at a particular crime scene.

22 Q Are there -- is there any way that you can explain
23 to us how frequent -- frequently it would occur that two people
24 would have exactly the same characteristics in hair from a
25 region of their body, say in this case pubic hair?

1 A There are no statistics available for determining
2 the frequency of occurrence of a particular hair having origi-
3 nated from someone's body, no.

4 MR. WHITE: Thank you. I have no further questions.

5 THE COURT: Cross-examination.

6 MR. HORWITZ: Thank you, Your Honor.

7 CROSS-EXAMINATION

8 BY MR. HORWITZ:

9 Q Mr. Jernigan, were you able to ascertain the sex
10 of the question hair, the donor of the question hair sample?

11 A No, sir, I was not.

12 Q Are there tests that could be applied to determine
13 the sex of the person who contributed the hair sample?

14 A I believe there are some tests that are currently
15 in research stages that require the presence of a root and
16 require the presence of the hair to be fixed in a solution
17 soon after it is recovered from a particular crime scene before
18 it can be examined.

19 Q Was any such test done on the question sample that
20 you referred to in your testimony today?

21 A No, sir, because those particular tests for sexing
22 of the hair is currently in research and therefore it would
23 not be of forensic interest to us in the crime laboratory.

24 Q Why is that, sir?

25 A Well, anything has to approach a very reliable inci-

1 dence of occurring before we would adopt it as being used in
2 the crimelab. If it's in research stages then it would be
3 erroneous to report on a particular sex of a hair if it had
4 not been proven before as having been an accurate determina-
5 tion of sex.

6 Q Sir, do you undertake, or have you undertaken in
7 your work in the laboratory, any testing procedures to test
8 your own accuracy?

9 A Proficiency testing?

10 Q In relation to hair examinations.

11 A Yes, sir, I have.

12 Q And was it conducted by yourself or by others?

13 A It was conducted by others.

14 Q And is there a passing and failing score?

15 A Usually it's pass or fail, that particular type
16 examination, that's correct.

17 Q Are you aware of any tests that were conducted by
18 independent agencies outside of your own laboratory?

19 A Yes, sir, I think I am aware.

20 Q What kind of tests were those, sir?

21 A I believe the Forensic Science Foundation or the --
22 excuse me, the Law Enforcement Administration Assistance, some
23 LEA program, I don't know exactly what the letters stand for,
24 back in 1976 had some proficiency tests that they had sent
25 out to crime laboratories.

1 Q All right, did those proficiency tests include hair
2 examinations?

3 A I do not know.

4 Q So you don't know -- you're telling me that you know
5 that there were some tests in the past but you don't know
6 whether those tests involved hair examinations?

7 A Yes, sir, that is correct.

8 Q So you don't know whether--the results of any national
9 sort of examination of crime labs to see whether they're accu-
10 rate in examining hair on any percentage basis.

11 A That is correct, I am not aware of any.

12 Q The tests that you undertook, were you one hundred
13 percent successful, sir?

14 A You will have to define what you mean by one hundred
15 percent successful.

16 Q What was the test that was given to you, what did it
17 attempt to elicit as far as your performance?

18 A Are you speaking of proficiency tests? It was to
19 determine whether or not a particular hair had a common source
20 of origin based on the microscopic characteristics.

21 Q Were you one hundred percent successful in those
22 efforts?

23 A Yes, sir, I was.

24 Q Now, as it relates to your testimony here today, I
25 believe you stated that there is no way that you can say that

1 a particular hair came from the same person to the exclusion
2 of all others, is that correct?

3 A Yes, sir, that is correct.

4 Q It's not like fingerprints, is it?

5 A That is correct.

6 Q So, I think what you said is if there are no dis-
7 similarities between a question sample and a known sample that
8 you would feel confident in stating that the hair probably came
9 from a person of the same race and the same general hair charac-
10 teristics.

11 A Yes, sir, and the same body region.

12 Q And the same body region.

13 A And was able -- and had an opportunity to drop that
14 hair at the particular crime scene in question.

15 Q And that is often one of the principal issues to be
16 determined at trial, whether the person was there or not, right?

17 A I think that is, yes, sir.

18 Q So what you're telling me that, and correct me if
19 I am wrong, that in the event that you have two sample hairs,
20 one known, one unknown, and no differences, that you would be
21 able to say generally that they came from, say a white man, if
22 they were Caucasian, and if they were blond in nature, they
23 came from a white man with generally blond hair?

24 A Well, number one, I wouldn't be able to say that it
25 originated from a male.

1 Q So you would -- it would have to be from a white per-
2 son.

3 A Well, a person whose characteristics exhibit, the
4 characteristics inside were typical of Caucasian origin, yes.

5 Q So we're -- you would be able to limit, again, I am
6 talking about a situation in which there were no significant
7 differences that you ascertained.

8 A That's correct.

9 Q You would be able to limit the donor of the questioned
10 hair --

11 A Uh-huh.

12 Q -- to members of the same race, regardless of sex.

13 A That's correct.

14 Q And you would also be able to further limit it to
15 a general hair characteristics meaning blond versus a person
16 with black hair.

17 A That is correct.

18 Q And you could probably tell us from what part of the
19 body the hair was taken.

20 A Yes, sir, that is correct.

21 Q Now, do you have any studies, sir, which -- from
22 which you could tell us how many potential blond-haired Cau-
23 casian human beings there are that would fall into a similar
24 grouping such as you have described?

25 A No, sir, I do not.

1 Q Now, in this particular case, you did find two
2 significant differences, is that correct?

3 A No, they were -- I do not consider those to be
4 significant. There would be differences that I would consider
5 to be inherent in any sample that was found on a particular
6 person's head.

7 Q To the point where you're confident in telling us
8 that you cannot definitely eliminate Mr. Dedge as the poten-
9 tial donor.

10 A That is correct.

11 Q For example, if you found Negroid hair, then you
12 would be able to eliminate Mr. Dedge if the known samples came
13 from Dedge.

14 A Yes, sir, that is correct.

15 Q And likewise if it was Mongoloid, if the question
16 sample was Mongoloid hair, you could eliminate Mr. Dedge.

17 A Yes, sir, that is correct.

18 Q You're not saying that the hair that you examined,
19 that was taken from Mr. Dedge, and the hair that was taken
20 from the sweep of the sheet are necessarily from the same per-
21 son, are you?

22 A That is correct.

23 Q And would it be fair to say that when all is said
24 and done, the best you can tell us is that the question hair
25 came from a white person, male or female, with generally

1 blond hair characteristics?

2 A. That is correct.

3 Q Do you have any idea, sir, how many white-haired --
4 I mean blond-haired Caucasians were in Brevard County on the
5 day of this crime?

6 A. No, sir, I do not.

7 Q Could it have been thousands, sir?

8 A. I have no idea.

9 Q You have no idea.

10 A. No idea.

11 Q So, you have -- your testimony then today has limited
12 the suspected donor of the hair from the sheet to white people
13 with blond hair.

14 A. That is correct.

15 MR. HORWITZ: Thank you. That is all the questions
16 that I have.

17 THE COURT: Any redirect examination?

18 MR. WHITE: Yes, Your Honor.

19 REDIRECT EXAMINATION

20 BY MR. WHITE:

21 Q Sir, you mentioned that a great many other character-
22 istics that you examine of the presence or existence of cer-
23 tain things like cortical fusi, and whether or not there is
24 a cuticle, and how that cuticle is arranged, and all of these
25 other things. If the only thing that you can, that you can do

1 is to confine us to a Caucasian with this color hair, why do
2 you examine all of these other things?

3 A I can -- as a general rule, if you are considering
4 just the population, it would have to be Caucasians whose
5 pubic hair exhibited blond to brown, because that is the range
6 of the characteristics in this, those are all potential donors,
7 all the people that are Caucasians with blond or brown. How-
8 ever, you would have to examine under the microscope the fur-
9 ther internal microscopic characteristics to eliminate all of
10 the other blond-haired people within that range, and you can
11 narrow that down because there are different shades of blond
12 and brown.

13 Q All right, sir. And you could eliminate some people
14 by how much twisting there was in the hair, how much -- whether
15 the pigment is well dispersed?

16 A That is correct, uh-huh.

17 Q Whether there is a cuticle and how that cuticle may
18 be arranged?

19 A That is correct.

20 Q Whether or not there are cortical fusi in the root
21 or air spaces.

22 A That is correct.

23 Q And how they are arranged.

24 A That is correct.

25 Q And the tip of the hair, the shape of the tip of the

1 hair.

2 A That is correct.

3 Q All of those characteristics can be further used to
4 define the group of people from whom this hair could have come.

5 A That is correct, to further define, that is correct.

6 Q And once we define the group of people from whom
7 this hair came from, does the person from whom State's Exhibit
8 D, the known samples, was taken fit within that further defined
9 group of people?

10 A Yes, it does.

11 MR. WHITE: Thank you, sir.

12 THE COURT: Any recross?

13 MR. HORWITZ: Yes, Your Honor. How much time do I
14 have?

15 MR. BOONSTRA: It is going to run out any second. I
16 can put in another tape and let you go.

17 MR. WHITE: We will break for a moment while he
18 changes the tape then.

19 (Thereupon, a brief recess was had, after which the
20 proceedings resumed as follows:)

21 RECROSS-EXAMINATION

22 BY MR. HORWITZ:

23 Q All right, sir, we have had an opportunity to change
24 the tape. I would like to ask you a few questions about what
25 the State prosecuting attorney had just asked you, and that is

1 limiting this group down, as you have stated, to -- by consi-
2 dering all of these other factors that you have named. Can
3 you tell us, sir, limiting it to the group that you have des-
4 cribed, based upon all of the factors, how big is that group,
5 sir?

6 A I would have no idea.

7 Q Potentially thousands of white people?

8 A I have no idea.

9 Q No idea whatsoever?

10 A No, sir.

11 Q You couldn't tell us whether it is a million white
12 people.

13 A In my opinion it would not be a million white people.

14 Q It wouldn't be that?

15 A No, sir. Because individual characteristics within
16 a person's pubic hair can be discerned where you are able to
17 tell the difference apart from each individual one. Out of
18 all the pubic hairs that I have examined in the laboratory, I
19 have never found two samples, two known samples, to match in
20 their microscopic characteristics.

21 Q So, you are confident as you sit here today in telling
22 us that the group wouldn't be as much as a million people?

23 A In my opinion no, it would not.

24 Q Do you have any sound scientific statistical data on
25 which you base that opinion?

1 A Based on my past experience in examining hairs.

2 Q And it's -- has there been any written or other type
3 of publications that are deemed to be commonly accepted and
4 recognized as authoritative on this issue that you could refer
5 us to?

6 A No, there is not.

7 Q But you feel confident that the group would be less
8 than a million people?

9 A I feel confident that the -- without putting a parti-
10 cular number on it, based on my experience, from what I have
11 seen, I would not expect a million people in the population --
12 of -- of people from the Caucasian race pubic hair to have the
13 same microscopic characteristics straight down the line in the
14 ones that we've talked about today.

15 Q And as far as this particular case is concerned, we
16 do have some differences between the hairs that you observed
17 and the hairs, the question hairs and Mr. Dedge's hairs.

18 A Yes, there are some.

19 Q So that possibly then would make the group more than
20 a million.

21 A In my opinion, no.

22 Q But you -- that's not based upon any commonly shared
23 statistical studies, is that correct?

24 A It's based on my own experience.

25 Q And is this the same kind of forensic science that

1 you're talking about that's supposed to be very careful and
2 sure of itself before it makes any decisions?

3 A That is correct.

4 Q And are there any commonly accepted scientific
5 journals that we could refer to that would tell us how many
6 potential people fall within the suspected donors of this hair?

7 A No, sir, there is not.

8 Q There is none whatsoever.

9 A Not to my knowledge, no.

10 Q Well, you say the group is less than a million, do
11 you know how many it is; do you have any opinion as to how
12 many people would fall within that group?

13 A No, sir, I do not.

14 MR. HORWITZ: Thank you.

15 THE COURT: Any further questions of this witness?

16 MR. WHITE: No, Your Honor.

17 THE COURT: Thank you. The deposition is concluded.

18 (Thereupon, the deposition was concluded at 4:50
19 o'clock p.m. Reading and signing of the deposition
20 were duly waived by the Deponent in the presence of
21 Counsel and the Officer before whom the deposition
22 was taken. Formal notice of filing was also duly
23 waived. The attorneys herein agreed that the original
24 of this deposition would be filed by the Court Reporter
25 with the Clerk of the Court for which it was taken