

1 like that.

2 Q. Throughout your years of education, have you been
3 able to do a lot of fieldwork?

4 A. Yes.

5 Q. Can you describe for the jury some of the fieldwork
6 that you've done over the last couple of years?

7 A. In forensics or in -- I have a lot of experience in
8 archeology that's applicable and then forensics as well.

9 Q. Okay. Could you give us both?

10 A. I can tell you that before I took the job at the
11 Institute of Forensic Sciences, I worked primarily as a
12 contractor in the mass fatality context, meaning that I did
13 a lot of -- I responded to a lot of mass fatality events.
14 So, I worked in New York after the events of 9/11, I worked
15 in New Orleans after Katrina, I also worked in Thailand
16 after the tsunami and I also excavated mass graves in
17 Guatemala.

18 Q. Tell us a little bit about what you did in terms of
19 the mass fatality scenario.

20 A. Okay. It varied. A lot of what I did was
21 fieldwork; so, it's actual excavation of graves. But there
22 was some in the case of New York in particular, it was a lot
23 of skeletal analysis. So, a part of what I did was I was
24 part of a three-person team who completed what was called
25 the anthropology verification project where that group of

1 anthropologists went back through most of the remains and
2 confirmed that the -- what remains were in each of the
3 packages.

4 Q. Okay. So, on the one hand you're actually in the
5 field collecting the bones and then the other portion of it
6 is actually analyzing what it is that you've collected.

7 A. That's correct.

8 Q. Okay. Can you tell us a little bit about the
9 professional organizations that you're a member of?

10 A. Sure. I'm a member of the American Academy of
11 Forensic Sciences and I have been affiliated with that
12 organization for several years. I don't want to name a
13 date. I'm also -- some of the groups that are relevant to
14 this, to forensics, I'm part of -- I'm a board member of the
15 Scientific Working Group on Disaster Victim Identification.
16 This is a group that's generating best practices for mass
17 fatality response. I'm also a member of a committee on the
18 Scientific Working Group for Forensic Anthropology and this
19 has to do with the particular committee that I'm on, has to
20 do with comingling. Comingling is a term that we use for
21 admixture of remains of multiple individuals.

22 Q. Okay. Are you also a professor in your field?

23 A. Yes.

24 Q. Where are you currently a teacher at?

25 A. I am adjunct; so, most -- this is primarily a

1 research position but we have -- all three of the
2 anthropologists at our office have appointments at Texas A&M
3 in the anthropology department and also a couple in the --
4 affiliated with the medical schools at University of
5 Texas-Houston and Baylor College of Medicine.

6 Q. Are you published in any of your research?

7 A. Yes.

8 Q. Can you tell us a little bit about your publishing?

9 A. The most recent publications is I'm a coauthor with
10 our two other anthropologists. We just published a book on
11 fractures in child abuse. It's essentially a photographic
12 atlas of child abuse fractures.

13 I also have articles that have -- pertain to
14 forensic investigation. And let's see. What else? That's
15 primarily what -- the two categories they fit into.

16 Q. Okay. Have you been deemed an expert in your
17 field?

18 A. By -- yeah. I think so, yes.

19 Q. Okay. Have you ever testified before?

20 A. No, I have not.

21 Q. Okay. This is your first time?

22 A. That's right.

23 Q. Okay. I want --

24 *THE COURT:* Will you do me a favor? Will you
25 just speak up just a little bit? I have the mic up as high

1 as I can get it but maybe turn that -- the part you speak
2 into is kind of on the side.

3 *THE WITNESS:* Oh, I see.

4 *THE COURT:* See if that will help.

5 *THE WITNESS:* That better? I think I can hear
6 myself.

7 *THE COURT:* No?

8 *A JUROR:* It sounds like it's not on.

9 *THE COURT:* Will you see if maybe when you
10 played that tape through, because my stuff's working.

11 *MS. FULLER:* It's not coming up.

12 There we go. Audio muted. I think that's
13 better. Try it now.

14 *THE WITNESS:* Is that better?

15 *A JUROR:* Yes.

16 *A JUROR:* Thank you.

17 *A JUROR:* Thank you.

18 *A JUROR:* Yes.

19 *THE COURT:* Okay.

20 *MS. FULLER:* Should we go back or?

21 *THE COURT:* Really the only important part of
22 all that is that his PhD is from A&M. I was really --
23 that's --

24 Q. (BY MS. FULLER) Okay. I want to turn your
25 attention -- first let's talk about what you do at the

1 Institute of Forensic Sciences. That is the new name for --
2 what did you used to be called?

3 A. The Harris County Medical Examiner's Office.

4 Q. Okay. Now the Institute of Forensic Sciences?

5 A. Yes.

6 Q. What is your position there?

7 A. I have a dual role. My primary role is as one of
8 the three forensic anthropologists that are at our office.
9 I am also the disaster preparedness coordinator for the
10 office.

11 Q. Tell me a little bit about your duties in terms of
12 being a forensic anthropologist for the office.

13 A. We split. There are three of us, like I said. We
14 split the case work that comes in every year. We provide
15 anthropology consults at autopsy. What that means is that
16 if we are employed -- if our presence is requested by a
17 pathologist during autopsy, we'll come in and we can do
18 trauma analysis in situ or we can recover bones and look at
19 them later. We also respond -- we also deal with cases like
20 this one where we respond to scenes and then do a full
21 skeletal analysis, which part of what we do is generate a
22 biological profile and a biological profile is generating a
23 description that we can use to sort of limit the number of
24 people that match that description. So, we're talking age,
25 sex, ancestry, things like that.

1 Q. Okay. I want to turn your attention to June 25th,
2 2010. Were you called out to a scene on that day?

3 A. Yes.

4 Q. Do you recall what the address was or the general
5 location?

6 A. 610 and -- I don't know -- it's a -- it's a -- I
7 don't know exactly what the cross street was.

8 Q. Okay. 610 feeder road?

9 A. Yes.

10 Q. Okay. Can you --

11 MS. FULLER: May I approach the witness?

12 THE COURT: You may.

13 Q. (BY MS. FULLER) I'm going to show you what's been
14 marked as State's Exhibits 105, 106 and 107 and also State's
15 Exhibits 112 through 122. Can you take a look at all of
16 those photos and let me know if they appear familiar to you.

17 A. Yes, they do.

18 Q. Okay. Are these fair and accurate pictures of what
19 the pictures purport to depict?

20 A. Yes.

21 Q. Okay.

22 MS. FULLER: At this time, Your Honor, State
23 moves to admit State's Exhibits 105, 106, 107 and also 112
24 through 122 for admission, tenders to defense counsel for
25 inspection.

1 MR. CORNELIUS: No objections to these, Judge.

2 THE COURT: State's Exhibit 105 through 107 --
3 did I hear that right?

4 MS. FULLER: Yes, Your Honor. 105, 106, 107.

5 THE COURT: And 112 through 122 are admitted.

6 MS. FULLER: Permission to publish?

7 THE COURT: You may.

8 Q. (BY MS. FULLER) This is State's Exhibit 105. What
9 are we looking at here?

10 A. That's a photograph of the scene from across the
11 roadway.

12 Q. Okay. And when you got to the scene, what was the
13 first thing that you did?

14 A. Well, what we did in this case was to -- before
15 we -- we always -- our investigator -- we always accompany
16 one of our investigators. That investigator goes to
17 whichever officer is in charge at the scene and just gets a
18 summary of what's going on.

19 Q. Okay. Once you got a summary of what was going on
20 at the scene, what did you do next?

21 A. What we generally do is we will kind of stay back
22 until our photographer, in this case it was also our
23 investigator, takes overview photographs of the scene.

24 Q. Okay. When you arrived on the scene, did you
25 notice -- I'm going to show you State's Exhibit 106 -- did

1 you notice that the scene -- that parts of the scene had
2 already been flagged?

3 A. Yes.

4 Q. Okay. When you saw that those were flagged, what
5 did you -- what did you do?

6 A. Well, the first thing we did when we actually got
7 close to the scene was to try and figure out where the core
8 of the scene was and those flags were an indication of what
9 the police had already found.

10 Q. Okay. Why is it important to find the core of the
11 scene?

12 A. Well, from the standpoint of searching the area,
13 you want to make sure you know where the bulk of the remains
14 are located.

15 Q. Okay. Once you found the core of the scene, what
16 did you do next?

17 A. We put together a scene survey and there's a lot of
18 different ways to do this. In this case we elected to use a
19 straight line where we just put people in a straight line at
20 regular intervals and walked through the scene. We had
21 additional flags with us and we would flag additional
22 elements as we did that.

23 Q. Okay. As you're flagging what you find -- when you
24 say "elements," what are you referring to?

25 A. Bones.

1 Q. Okay.

2 A. Bones or bone fragments.

3 Q. Okay. When you find the bones or bone fragments
4 and you flag them, do you do anything else at that point?

5 A. In this case we labeled them with the name of the
6 element.

7 Q. Okay. So, for example, in State's Exhibit 106, can
8 you read what that says?

9 A. That says "left tibia," which is your shin bone.

10 Q. Okay. So, once you have flagged the bones that you
11 can see, what do you do next?

12 A. Once we've done that, then we'll actually go back
13 and recover those bones, leaving the flags in place.
14 Actually what we did before that was map them. I'm sorry.
15 We mapped each piece in but you can do it either from the
16 flags or the elements but in this case we did it from the
17 bones still in situ. The police had already established a
18 datum that we could measure from and we simply incorporated
19 our measurements into their list of coordinates.

20 MS. FULLER: May I approach?

21 THE COURT: You may.

22 Q. (BY MS. FULLER) What did you do after you started
23 collecting the bones?

24 A. We did what we usually do, which is to try and get
25 some idea of what we have and what we don't have. So, we

1 laid them out in what we call anatomical order, which is
2 sort of in the location that they are in in the body. That
3 gives us some idea of what we have and what we're missing.
4 So, we did that.

5 Q. I'm going to show you what's already been admitted
6 as State's Exhibit 89. Is this what you are referring to by
7 laying the bones out?

8 A. That's correct.

9 Q. Okay. Let me back up a little bit. Is there a
10 science to how you collect the bones or is there a set
11 procedure for how you actually physically collect them?

12 A. We have a standard operating procedure for how we
13 approach scenes.

14 Q. Okay. And tell me a little bit about that when
15 you're recovering bones.

16 A. You want me to go through the whole process?

17 Q. Please.

18 A. Okay. What we essentially do is any time we do
19 this we look for the core of the site. In this case it was
20 pretty obvious there was what we call a primary site of
21 decomposition. That was a darkly stained area that may be
22 visible in one of these photographs.

23 Q. I'm going to show you State's Exhibit 107. Is that
24 what you're referring to?

25 A. No, that's actually after it's been cleared. But

1 you can see it there, the darkened, stained area at the far
2 end of that -- of that cleared area is that primary site of
3 decomposition. That is the area where that body likely
4 decomposed, at least for the most part. After we've
5 established that that's the primary site, we set up some
6 perimeter around that area and we will set up a search
7 method. In this case, like I said, we did a linear search,
8 we had people at regular intervals and we walked through the
9 site flagging everything. In this case we were flagging
10 additional elements and then as -- once that's done, we map
11 all of those pieces in so that if we have to go back to the
12 scene, we can and we can know where each of those pieces was
13 located. Once we do that, the remains are recovered and
14 usually we lay them out in anatomical order like that and
15 once that happens, we go back to the -- to the primary site
16 of decomposition, as you see there. And in this case we
17 expanded beyond that and cleared the ground all the way to
18 the dirt level beneath the bones to make sure that we
19 weren't missing anything.

20 MS. FULLER: May I approach?

21 THE COURT: You may.

22 Q. (BY MS. FULLER) Let me show you what's been marked
23 as State's Exhibit 73. What are y'all doing here in State's
24 Exhibit 73?

25 A. This is that final stage after we've recovered

1 everything. Some of the flags are still there but I think
2 that flag right there is actually marking something that we
3 found during the process of clearing the material. We clear
4 all the leaf clutter, all the vegetation down to the soil
5 level. That's what we're doing there.

6 Q. Do you know from memory what element you recovered
7 that represents that flag?

8 A. I know for a fact that there was a tooth but -- and
9 I -- the body of the hyoid was also recovered during that
10 process.

11 Q. Once all the bones are collected, what happens
12 next?

13 A. At the scene they're bagged, the bag is closed and
14 then they are -- decedent transport service, which is an
15 in-house service, comes and picks them up and takes them to
16 the office, directly to the office.

17 Q. Okay.

18 A. Yeah.

19 Q. Once you're done at the scene, what happens next
20 back at the Institute of Forensic Sciences?

21 A. Once the remains arrive there, they're checked in
22 by the investigator, in this case, Robert Lopez, and they
23 await analysis by the pathologist, which happens the next
24 morning.

25 Q. Okay. And when you say "pathologist," who is the

1 pathologist?

2 A. This case, it's Dr. Haden-Pinneri.

3 Q. Okay. So, Dr. Haden-Pinneri sees them the next
4 day.

5 A. Yes.

6 Q. At some point do you get to analyze the remains for
7 yourself in a controlled environment?

8 A. Yes.

9 Q. How does that happen?

10 A. Well, what first happens is that our presence is
11 requested at the actual autopsy. She will have done her
12 piece as well as she can and then she asks us to consult.
13 In this case what we did was when she said she was finished
14 with her part, we just -- what she does is sign a chain of
15 custody form that signs those remains over to us. We then
16 take them to our laboratory, which is just down the hall,
17 and the rest of our analysis takes place in our laboratory.

18 Q. Okay. Let's talk about what you do when you get
19 the remains into your laboratory.

20 A. Okay.

21 Q. What's the first thing you're going to do?

22 A. What we did in this case -- usually it takes some
23 preparation to get the remains so that you can see the bone
24 surfaces clearly. This case didn't take very much of that.
25 What we did was wash them with water. That was all we did

1 to prepare them.

2 Q. Okay. Can you tell us what the condition of the
3 bones were when you got them?

4 A. The bone quality itself, in other words, the
5 quality of the bone surfaces was very good. It was still
6 greasy, meaning that it had not fully dried out as bones
7 will do over time. There was some carnivore damage to them.
8 But primarily they were in pretty good shape.

9 Q. Okay. So, what is the purpose of you washing them
10 when you get them into your lab?

11 A. Well, a lot of times there are materials adherent
12 to them. Some cases it's soft tissue. Other cases it's
13 soil or vegetation. In order to make sure we can see all
14 the surfaces of the bones clearly, we need to get that
15 material off the bones.

16 Q. Okay. Was there any soft tissue on these remains?

17 A. There was very little.

18 Q. Okay. Would it have been enough to remove from the
19 bones and, say, have tested?

20 A. No.

21 Q. Okay.

22 A. Not as far as -- that would be a better question
23 for Dr. Haden-Pinneri, but.

24 Q. Okay. Also when the remains show up at the
25 Institute of Forensic Sciences, is a unique identifying

1 number assigned to those remains?

2 A. Yes.

3 Q. And do you know what the number was assigned to
4 this case?

5 A. ML10-1866.

6 Q. Okay. So, now, they're in your laboratory. You've
7 washed them. What do you do next?

8 A. Put them back in anatomical order on the table.
9 That table is only used for that skeleton. So, that's the
10 first thing we do.

11 Q. Okay. I'm going to show you what is marked as
12 State's Exhibit 112. Is that what you are referring to?

13 A. Yes. That's the superior half of the skeleton, the
14 upper half.

15 Q. And State's Exhibit 113.

16 A. Yes, that's the abdomen and upper -- and the pelvis
17 and the upper leg bones.

18 Q. Okay. When you -- I'm going to put State's Exhibit
19 112 back up. What is the purpose of laying everything out
20 like this?

21 A. It's standard practice. It's written in our SOP,
22 but it is to make sure that we know what we have. The first
23 part of our report will be a review of the inventory and
24 this is how we establish that.

25 Q. Okay. Can you tell us a little bit about what

1 we're looking at here?

2 A. In terms of what bones are actually represented?

3 Q. Yes.

4 A. This, what you have there is the skull; you can see
5 the vertebral column beneath that. You see two sets of
6 ribs, the scapula, which are your shoulder blades, clavicle,
7 which are your collarbones. The two long bones at the top
8 there are your humeri, your upper arm bones. The paired
9 bones beneath those are your radius and ulna. The
10 collection of bones at the top right of the screen is what
11 are fragments that are either -- not necessarily
12 unidentifiable but they don't articulate directly with
13 anything; so, we obviously collect them and inventory them
14 but we don't --

15 Q. Okay. Is the hyoid bone in this collection of
16 bones? And you can touch your screen to indicate where the
17 hyoid bone is.

18 A. It is. It's just anterior or superior to the left
19 clavicle right there, that little -- right -- not getting
20 close. Can you guys -- it's missing a little bit.

21 Q. Is it right --

22 A. That's it. That's it.

23 Q. Okay.

24 A. That's the body of the hyoid. It's not the
25 complete hyoid.

1 Q. Where is the hyoid bone located in somebody's body?

2 A. It's behind your mandible, high up in your throat.
3 It's located right there.

4 Q. Okay. What's the next step that you're going to do
5 after you inventory all the bones that you have?

6 A. In this case, since it was an unknown at the time,
7 we developed what's called a biological profile. So, that
8 was to look and see what -- whether we could give any
9 indication of whether this person -- about this person's
10 sex, age, ancestry, which is our term for race, and stature.

11 Q. Were you able to make a determination in this case?

12 A. We make our estimations, but, yes.

13 Q. First of all, before we get to that, tell us how
14 you can figure those things out with a skeleton.

15 A. It depends which question you're asking. If you're
16 asking about sex --

17 Q. Let's start with sex.

18 A. Okay. The primary indicators of sex are on the
19 pelvic bone. They have to do with childbirth.

20 Q. State's Exhibit 113, does that help?

21 A. Yes, it does. So, what you're looking at, the two
22 fan-shaped bones in the middle, these, those are called your
23 innominates. That's our term for the pelvis. Those are the
24 two bones that articulate or pair or match with the bone
25 that's in the middle, which is your sacrum, and together

1 they form essentially a bowl-shaped conglomeration that's
2 your pelvis and those bones vary between men and women.

3 Q. How do they vary?

4 A. Well, they're built for childbirth in women. And
5 so, what you have essentially is elongation of certain parts
6 of it. So, in this case we noted things like a widened
7 sciatic notch, which is -- oops. I missed. It's the notch
8 that you see in sort of the center of the bones on the
9 inside surface. That is much wider in females than it is in
10 males. And then the pubic bones, which are the two bones
11 that come together in the front, they tend to be longer and
12 more narrow in females than they do in males.

13 Q. Okay. So, after examining these remains, did you
14 make a determination about sex?

15 A. We did. We also -- the skull also gives some
16 information about sex and so you can do -- take both --

17 Q. I'll put up State's Exhibit 112. Does that help?

18 A. Yes.

19 Q. Okay.

20 A. What we do is we take a series of measurements and
21 we enter them into a multi-discriminant function analysis
22 program and it will generate an estimate whether it's male
23 or female and it gives you statistics along with that to
24 tell you how strong that association is. There are also
25 nonmetric, meaning non-measured traits that we look at. So,

1 we look at things like the brow ridge, muscle attachments on
2 the back of the skull that gives some indication of whether
3 it's a male or female. In this case everything indicated a
4 female.

5 Q. Okay. Let's move on to age. How did you -- how
6 were you able to determine age?

7 A. Age is -- with the skeleton in young people, you
8 determine age or estimate age based on development of bones.
9 Once you get to be an adult, what you're looking at is
10 degenerative changes. Certain parts of the skeleton
11 degenerate in predictable ways. The two best indicators are
12 the fourth rib, the anterior fourth rib where it meets the
13 cartilage and the other is the pubic symphysis. These are
14 parts of the pubic bones that we just looked at where they
15 come together in the middle of your pelvis. In this case
16 the pubic symphysis was not there, was not recovered because
17 of scavenging but the fourth ribs were there. There are
18 also other indicators. We use suture closures. So, you've
19 got all the bones -- your skull is made up of a number of
20 bones. Those bones fuse together at predictable rates so
21 you use -- you look at which ones were fused and how
22 completely they're fused and you can generate an age
23 estimate.

24 Q. Okay.

25 A. So, we use all those things in conjunction. In

1 this case it was the suture closure, it was the fourth rib
2 end and then it was the level of degenerative changes to the
3 rest of the skeleton, arthritis, things like that.

4 Q. And in this case were you able to give a range of
5 age that would fit with these remains?

6 A. Yes, 40 to 60.

7 Q. 40 to 60 years of age?

8 A. Years of age.

9 Q. Let's now talk about ancestry. That's what you
10 refer to as race?

11 A. That's right. We use the term ancestry.

12 Q. Ancestry?

13 A. Yes.

14 Q. How do you determine that?

15 A. It's almost entirely based on the skull. There
16 are, again, metric and nonmetric traits that we look at,
17 nonmetric being things that you don't measure. So, you're
18 looking at the shape of the eye orbits, you're looking at
19 the profile of the face, you're looking at the overall shape
20 of the skull. And then when it comes to metric analysis,
21 there are a series of measurements that you take of the
22 skull and then you enter into -- that same program that does
23 sex will also do -- the multi-discriminant function analysis
24 program will also do ancestry. And again, it attaches
25 statistics to that to give you some indication how likely it

1 is that that person fits into that category.

2 Q. Okay. And what did you determine the race was in
3 this case?

4 A. She fit into the Caucasian/white category.

5 Q. Okay. Anything else that you can test to determine
6 anything about this person?

7 A. You can do stature. Stature generally is more
8 accurate with complete bones and I don't believe we had any
9 complete long bones so -- but there are -- there are
10 formulae for generating a stature estimate based on
11 incomplete remains. We did that.

12 Q. Were you able to come up with a stature for this
13 case?

14 A. Yeah. I think it was pretty wide because of the
15 fragmentary nature of the bones, but I think it was
16 47 inches to 62 inches, I think, was our range.

17 Q. Can you relate that in height and --

18 A. Yeah. It would be -- 60 inches is five feet. So
19 you're talking, you know, four-foot-nine to five-two.

20 Q. Okay. Okay. Now, after you have determined those
21 factors, what do you do next?

22 A. What we do after that is a trauma analysis and that
23 involves a very detailed review of every single bone, both
24 grossly, meaning holding the bone in your hand, and under
25 the microscope.

1 Q. Okay. I'm going to go through a few State's
2 Exhibits. Let's see. State's Exhibit 114. What are we
3 looking at there?

4 A. That is a scapula on the left of the screen, which
5 is your shoulder blade and the clavicle next to it on the
6 right, which is your collarbone.

7 Q. Okay. And what did you notice from these two
8 bones?

9 A. Well, these may be just inventory pictures but I
10 think what I notice right now is that there is carnivore
11 damage to the lower portion of the scapula there, the
12 shoulder blade.

13 Q. Okay. Can you point that out to us on the screen?

14 A. It's that whole bottom margin has been chewed away
15 and -- just to the left of that arrow is an actual tooth
16 puncture wound, pretty typical of canine scavenging.

17 Q. Show you State's Exhibit 115. Is that what you
18 were just referring to?

19 A. Yes, that's a close-up.

20 Q. State's Exhibit 116.

21 A. What you have there is the opposite clavicle, so
22 it's her other collarbone, and the sternum, which is your
23 chest plate.

24 Q. Okay. And do you notice anything --

25 A. There is -- both of those bones exhibit carnivore

1 damage.

2 Q. Okay. State's Exhibit 117?

3 A. Those are left ribs and what you're looking at is
4 sort of mid-shaft segments of them. Again, there is
5 postmortem carnivore damage.

6 Q. State's Exhibit 118.

7 A. Those are the two innominate bones; in other words,
8 your two pelvic bones. They're in roughly anatomical order.
9 You see the sacrum, which is the tailbone, but behind them,
10 there and again, a lot of postmortem carnivore damage.

11 Q. State's Exhibit 119?

12 A. That's the skull and mandible.

13 Q. Did you note any signs of trauma or animal activity
14 on the skull or mandible?

15 A. No.

16 Q. State's Exhibit 120.

17 A. That's the mandible.

18 Q. And that's your upper or lower jaw?

19 A. Lower jaw. Sorry. And that's looking down at it
20 like that.

21 Q. Okay. State's Exhibit 121?

22 A. It's just an inventory photograph of the mandible
23 and maxilla, which is your upper jaw, and showing that there
24 are teeth missing.

25 Q. Okay. Now, did you look at every single bone that

1 was recovered in this case?

2 A. Yes.

3 Q. And tell us a little bit about -- you started to
4 say that you look at it visually.

5 A. Uh-huh.

6 Q. What else do you do?

7 A. We look at every one of them under a microscope,
8 stereo microscope.

9 Q. Okay. I want to draw your attention to the hyoid
10 bone that we talked about in State's Exhibit 112. You
11 stated it is this bone right here?

12 A. That's correct.

13 Q. Is that right? Did you inspect that bone under a
14 microscope?

15 A. Yes.

16 Q. And I'm going to show you what has been marked as
17 State's Exhibit 122. What are we looking at here?

18 A. What you have there, that is a portion of the body
19 of the hyoid. The hyoid is a bone, again, that's in your
20 throat. It's a three-piece bone in younger adults. In most
21 adults it fuses to their -- what you have is the body, which
22 is the central portion and you have two horns, greater
23 horns, that in most people fuse; in some people they don't.
24 Some people, they fuse only on one side. In this particular
25 case what you're looking at is on the left side of the body

1 of that -- of the body of the hyoid, this is the
2 articulation or the point at which the left horn and the
3 body meet. That's what you see here.

4 Q. Okay. Let me stop you there.

5 A. Okay.

6 MS. FULLER: May I approach the witness?

7 THE COURT: You may.

8 Q. (BY MS. FULLER) I'm going to show you what has
9 been marked as State's Exhibit 125. Do you recognize that
10 photo?

11 A. I do.

12 Q. What is that a photo of?

13 A. That is a photograph of a -- example photograph of
14 a hyoid bone. It's not from this case.

15 Q. Okay. Not what you recovered in this case?

16 A. No.

17 Q. Not the complainant's case?

18 A. Correct.

19 Q. Not her hyoid bone?

20 A. Correct.

21 Q. Would this picture aid the jury in understanding
22 what the hyoid bone looks like and the parts that you're
23 about to testify about?

24 A. I think so, yes.

25 Q. Okay. It's a fair and accurate depiction of the

1 hyoid bone?

2 A. Yes.

3 MS. FULLER: State moves to admit for
4 demonstrative purposes only State's Exhibit 125, tenders to
5 defense counsel for inspection.

6 MR. CORNELIUS: No objection, Judge.

7 THE COURT: State's Exhibit 125 will be
8 admitted.

9 MS. FULLER: For demonstrative.

10 THE COURT: For demonstrative only.

11 MS. FULLER: Thank you, Your Honor. May I
12 publish?

13 THE COURT: You may.

14 Q. (BY MS. FULLER) State's Exhibit 125, tell us what
15 we're looking at here. You can use your screen to help
16 point items out.

17 A. What you're looking at -- it might be helpful if
18 you flip it over from the standpoint of explaining it.

19 Q. Okay.

20 A. What you're looking at is the exterior or back
21 surface of the hyoid bone. Like I said, the hyoid bone
22 begins in three pieces. I use this particular bone as an
23 example because it has a unique feature but what you have
24 are -- those are two what are called the superior horns of
25 the hyoid and that is the body of the hyoid. Those three

1 bones in children and young adults are unfused. Generally
2 they'll fuse at some point in a person's life but they don't
3 always and there's no real understanding of why that
4 happens. In this case this person has fused on one side.

5 Q. Okay.

6 A. So, you can see the point of articulation is
7 roughly in that area. It's in the same area as it would be
8 on the opposite side.

9 Q. Okay. I'm going to clear this. If you would, can
10 you sort of illustrate using your screen what was recovered
11 in this case using this example?

12 A. Yeah. It's just that central portion. So, from
13 that point to the left and then from the same point on the
14 other side to the right.

15 Q. Okay. And again, can you sort of point out where
16 that bone is located in your body?

17 A. It's up here.

18 Q. Okay. And that would be right under your lower
19 jaw?

20 A. Yes. It's actually kind of behind it. It's not
21 below it. It's pretty far up there.

22 Q. What does that bone -- what do bones in your body
23 do? What's the function of bones?

24 A. A lot of them have mechanical value; in other
25 words, they're there to help with locomotion, things like

1 that. In this case it's essentially a tether for a lot of
2 the muscles of the neck.

3 Q. Okay.

4 A. So, it doesn't articulate with any other bones. It
5 only has ligaments and muscles attaching to it.

6 Q. Okay. And what other areas are around -- what
7 other things are near the hyoid bone?

8 A. In terms of bone?

9 Q. Anything.

10 A. Well, you have the larynx. So, you have several --
11 immediately beneath it, you have the thyroid cartilage and
12 the cricoid cartilage. These are cartilage you can actually
13 feel on the front of your neck here. That's the cricoid
14 cartilage, which is a ring-shaped cartilage. Those are
15 immediately beneath the hyoid bone. You have the trachea
16 behind that and then there's a lot of musculature that
17 surrounds this.

18 Q. And the trachea is used for what?

19 A. Breathing.

20 Q. Breathing?

21 A. Yes.

22 Q. Okay. When you studied the portion of the hyoid
23 bone, did you -- when you did a visual inspection of it, is
24 it large enough to visually inspect in your hand?

25 A. Yeah.

1 Q. When you did the visual inspection, did you note
2 anything, aside from the fact that it's missing the two --
3 you called it horns?

4 A. Yes.

5 Q. Aside from it missing the two horns, did you notice
6 anything else about that piece of hyoid bone?

7 A. Yes. There was what appeared to be a fracture.

8 Q. Okay. And State's Exhibit 122, what are we looking
9 at?

10 A. You are looking at the point of articulation; so,
11 where the bone's two pieces meet, between the body of the
12 hyoid and the left greater horn, okay? So, this whole --
13 this whole surface is where that horn would have attached
14 to.

15 Q. Okay. And again, I want to go back to State's 125.
16 Point out where you're talking about, where that point would
17 be that they would meet.

18 A. Well, for illustration I'll use this side but it's
19 actually to the left of that. It's on the body of it. But
20 in this particular decedent, it's actually on the left side.

21 Q. Okay. So, we're talking over here?

22 A. That's right.

23 Q. Okay. And you can't tell whether or not it was
24 fused --

25 A. But it's not on the horn. It's on that opposite

1 surface. The arrow's just missed. It's on the body itself.

2 Q. Okay. On the -- here?

3 A. Right. Exactly.

4 Q. So, State's Exhibit 122, you see that there is a
5 fracture?

6 A. Yes.

7 Q. Okay. Does that tell you anything?

8 A. In terms of interpretation?

9 Q. Yes.

10 A. Unfortunately, no, given the level of postmortem
11 damage there was to the rest of the skeleton. There's
12 nothing we can glean from that fracture. It is a fracture
13 but where it came from, we can't tell, can't interpret.

14 Q. Do you recall where you recovered it at?

15 A. It was within that primary site of decomposition
16 once we removed the leaf litter.

17 Q. Okay. And let's say that somebody out on the scene
18 stepped on it when they were recovering the bones. And
19 we're talking about when you guys were actually out there
20 recovering. If somebody had stepped on it and caused that
21 fracture, would you find the other piece in close proximity
22 to the bone? Do you know what I --

23 A. Well, our interpretation of this fracture is that
24 in order for it to happen, that they -- the superior horn
25 was actually partially fused to -- at that point. And the

1 fracture is actually right there. And so it looked like it
2 was actually partially fused which means that the fracture
3 came when those two pieces were broken apart.

4 Q. Okay.

5 A. So, yes, if they were articulated and it was --
6 something happened at the scene, then -- I would suspect
7 that the horn would be in association with the body.

8 Q. Okay. Both pieces would be recovered?

9 A. Right.

10 Q. And in this case were you able to recover the horn?

11 A. No.

12 Q. Was there anything else that you discovered -- let
13 me back up. After you inspected everything visually and
14 under a microscope, what did you do next?

15 A. Well, generally what we do once we're -- we write a
16 report, we submit that to the pathologist. These -- the
17 bones are put back in the body bag. In this case they're
18 put in a box within a body bag and placed within the morgue
19 cooler for release to the family.

20 Q. At this point you turn your findings over to
21 Dr. Pinneri for her to complete her investigation?

22 A. That's right.

23 MS. FULLER: Pass the witness.

24 THE COURT: Ladies and gentlemen, why don't we
25 go ahead and take our morning break at this time so we don't

1 have to interrupt the doctor's cross-examination. We'll be
2 in recess until 11:15, please.

3 (Jury not present.)

4 (Recess.)

5 (Jury present.)

6 THE COURT: Be seated, please. Mr. Cornelius,
7 you may proceed.

8 MR. CORNELIUS: Thank you, Judge.

9 **CROSS-EXAMINATION**

10 Q. (BY MR. CORNELIUS) Dr. Wiersema, am I saying that
11 correctly?

12 A. That's correct.

13 Q. We've never met, have we?

14 A. Nope.

15 Q. At the start, in fairness to the jury, you're
16 talking about bones and bodies and stuff, which is what you
17 do every day, correct?

18 A. That's right.

19 Q. It's probably pretty hard for people to sit there
20 and listen to this. We realize that, don't we?

21 A. Yes.

22 Q. With all due respect to the jury, we'll go back
23 into the bones and bodies right now.

24 Do you do any DNA work? Do you know about
25 DNA? Has that been ever a part of your study?

1 A. No, no it has not.

2 Q. Okay. So, you would have nothing to do with trying
3 to get DNA in this case to determine the identity of the
4 person whose bones were found?

5 A. I don't.

6 Q. All right. You work for the Medical Examiner's
7 Office or what we used to call the Medical Examiner's
8 Office, correct?

9 A. Yes.

10 Q. You don't work for the police department or the
11 sheriff's department, correct?

12 A. No, that's correct.

13 Q. You're not a policeman.

14 A. That's correct.

15 Q. You're not a law enforcement personnel.

16 A. That's correct.

17 Q. You're a professional that works in the Institute
18 of Forensic Science. Is that what we call it now?

19 A. That's right.

20 Q. And you're not taking sides in this case or trying
21 to shape your testimony to fit the State's theories in this
22 case. You're just talking about what you as an expert saw,
23 correct?

24 A. That's correct.

25 Q. And your opinions about things.

1 A. That's right.

2 Q. Among the questions that you were asked concerning
3 the hyoid bone, you can't say how that bone was broken,
4 correct?

5 A. That's right.

6 Q. You're not even positive it was broken, I take it.

7 A. There is a fracture.

8 Q. Okay.

9 A. But I can't interpret it.

10 Q. The question about the horn that apparently was
11 attached to that bone not being found, neither of the horns
12 were found, correct?

13 A. That's correct.

14 Q. So, it probably didn't happen by somebody stepping
15 on it because somebody stepping on it wouldn't cause both
16 horns to disappear, right?

17 A. That's probably correct.

18 Q. I mean, we don't know for sure.

19 A. Right. I don't know.

20 Q. Somebody could have stepped on it.

21 A. That's right.

22 Q. And maybe somebody stepped on it not the day y'all
23 were out there but maybe some other day and after somebody
24 stepped on it and broke the horn or horns, then an animal
25 took them off. I mean, that could have happened, right?

1 A. Sure.

2 Q. Okay. The fracture that you saw on the hyoid bone
3 could have been caused by an animal itself, correct?

4 A. That's correct.

5 Q. I mean, the animal could have bit right there and
6 separated the -- is it called the central part?

7 A. The body of the hyoid.

8 Q. The body of the hyoid bone to the horn, correct?

9 A. That's correct.

10 Q. An animal could have done that, right?

11 A. Yes.

12 Q. There's really just not any way to know.

13 A. That's right.

14 Q. The estimate concerning sex and the study that you
15 did and the information you gave the jury, is that to say
16 that you're completely certain this was -- these were bones
17 from a female?

18 A. Like I said, they are estimates. I mean, there's
19 no certainty, you know, in most of the forensic sciences.

20 Q. So, we can't be positive that these bones were from
21 a female? We can't be positive.

22 A. Well, she was positively identified as the missing
23 person by dental records.

24 Q. I guess somebody's told you that, but no one
25 identified her to you, did they? I mean, no one came to the

1 morgue and said that's whoever the State says it is.

2 A. Our odontologist came in and did a comparison of
3 dental records.

4 Q. Okay. We'll get to that in a minute. Did you have
5 anything to do with that?

6 A. No.

7 Q. Okay. Well, I just want to kind of examine your
8 testimony and your part of this.

9 A. Okay.

10 Q. I'm not being sharp with you in any way.

11 A. Okay.

12 Q. But from your standpoint, being called in as an
13 expert to look at the bones, not being influenced by what
14 somebody else may have told you, okay, can you say for
15 certain that these bones belong to a female?

16 A. No. Our methods don't give us certainty.

17 Q. All right. And when you -- the report that was
18 filed, I guess it's under Dr. Pinto's name?

19 A. Uh-huh.

20 Q. But you signed it also?

21 A. That's right.

22 Q. I was concerned. At one point it estimated the age
23 between 40 and 60, as you told the jury, and another point
24 is estimated between 45 and 65. Is there a difference? Is
25 there a different formula there?

1 A. No, it's not a different formula. We use our
2 discretion to pick an age range within the ranges that are
3 provided by the different methods we use. I think that was
4 just an oversight.

5 Q. Was it two different methods?

6 A. No, no. It was just written one -- if you look at
7 the notes, it's actually got, I think -- I believe 45 to 65
8 and then crossed out and 40 to 60.

9 Q. Oh, okay.

10 A. It's just a correction.

11 Q. All right. So, that -- but your belief is 40 to
12 60?

13 A. Yes.

14 Q. Not 45 to 65?

15 A. Right.

16 Q. Was it somebody else that placed the person
17 possibly as old as 65 or maybe you didn't agree with
18 somebody else and y'all had two different opinions?

19 A. Well, what -- the original age estimate was made by
20 Dr. Pinto under my supervision and then Dr. Love, who also
21 cosigned this report, the three of us worked on this case
22 together. So, we came to the 40 to 60.

23 Q. Who was it originally saying -- I don't know if
24 it's original or not. Who was saying 45 to 65?

25 A. I can't be certain.

1 Q. Is that just a misprint maybe?

2 A. Yes, I think so.

3 Q. Just a typo?

4 A. Yes.

5 Q. Okay. That's fine. So, that's a pretty wide
6 range, 40 to 60. That would include a lot of women, if we
7 accept the fact that it's more than likely a woman, that
8 would still include a lot of women, right?

9 A. That's right.

10 Q. Now, the race. You found consistencies with the
11 bones belonging to a Caucasian or white person. That's the
12 way you put it, right?

13 A. Uh-huh.

14 Q. Are you positive about that? Is that an absolute
15 certainty?

16 A. No.

17 Q. No?

18 A. No, it is not.

19 Q. Okay. And the height, I think you told the jury 47
20 to 62 inches. I think you meant 57 to 62 inches, right?

21 A. That's correct.

22 Q. But you also explained that because of the absence
23 of some of the long bones, you can't be very certain about
24 that either, correct?

25 A. That's correct.

1 Q. So, the person might have been taller or shorter
2 than even the estimate?

3 A. No, generally it just makes the estimate wider, the
4 range wider than it would have been if we had complete
5 bones. So, it's probably within the range.

6 Q. Okay. If you had those longer bones, you maybe get
7 the range down a little?

8 A. Narrower, right.

9 Q. So, we're -- our range is, like, five inches.

10 A. Yeah.

11 Q. Gotcha. Now, the missing teeth. There was a lot
12 of missing teeth. How many missing teeth?

13 A. I believe we recovered 14 teeth, 13 teeth.

14 Q. Let's see.

15 A. Some were missing postmortem. Some were missing
16 antemortem.

17 Q. Can I give you your report to look at that?

18 A. Yes.

19 Q. Let me give you your report. Do you need these
20 charts at the back to comment on that?

21 A. You mean the dental chart? Yeah, I can use that.
22 I can use either one.

23 Q. Just for identification purposes, I'll mark this
24 Defendant's Exhibit No. 1, if I had a pen.

25 *THE COURT REPORTER:* Here.

1 MR. CORNELIUS: I got it.

2 May I approach the witness, Judge?

3 THE COURT: Sure.

4 Q. (BY MR. CORNELIUS) Just to identify what we're
5 looking at, it's marked as Defendant's Exhibit No. 1. What
6 is that that you're going to look at now?

7 A. This is the report, the anthropology report for
8 this case.

9 Q. And the three of you signed that report, correct?

10 A. That's right.

11 Q. Go to the dentition part or the teeth part and tell
12 me how many teeth were present and therefore how many teeth
13 were missing.

14 A. 14 teeth of the 32 are present and then what you
15 have is 11 teeth are missing antemortem which means that
16 they were lost before the person died and that we can tell
17 that because the bone has healed after the loss of those
18 teeth. And then the third molars are absent and we can't
19 tell whether they ever developed, which is the case in some
20 people, or whether they were extracted or lost.

21 Q. Is that four more teeth or three more teeth?

22 A. The third molars? That's four more teeth.

23 Q. Okay. Four were uncertain whether they were ever
24 there in the first place?

25 A. That's right.

1 Q. So, that leaves what? Three other teeth?

2 A. And then it looks like -- and then we have a couple
3 of -- yeah, the others were missing postmortem, meaning
4 that -- the way we can tell that is that the socket that
5 they fell out of is still -- the edges are sharp. There's
6 no indication the bone healed after that tooth fell out.

7 Q. Okay. Now, the 11 teeth that were missing before
8 she died, where were those teeth? I mean, what part of the
9 mouth?

10 A. Let's see. Teeth Nos. 4, 5, 8, 9, 12, 15, 21 and
11 28. And so, I can tell you that that means -- what you've
12 got is essentially the two premolars on either side, which
13 are teeth that are sort of behind your canines. Let's see
14 what else. So, those four are missing from the top. The
15 two front teeth, missing.

16 Q. So, how many teeth at the top are missing?

17 A. Let me see.

18 Q. Her front four teeth, they are missing, right?

19 A. Yes. Yeah.

20 Q. And that was before she died?

21 A. That's correct.

22 Q. And what else on the top?

23 A. Let's see. Well, it extends beyond -- then you
24 also have the premolars are lost. So, essentially
25 everything from one side on your -- on the left side from

1 the canine all the way across to the premolars on this side.
2 So, roughly from here to here.

3 Q. And you know those were before she died because
4 they had already healed.

5 A. That's right. The bone sockets had healed.

6 Q. Let me make sure I'm clear for the jury. These are
7 not gone because somebody knocked them out at the time she
8 met her death, for whatever reason, why she met her death?

9 A. That's correct.

10 Q. These are nothing to do with her dying.

11 A. Right.

12 Q. They were gone before that day?

13 A. That's right.

14 Q. Because they had -- how long would they have had to
15 have been gone for them to be healed the way you saw them?

16 A. It's hard to say but we're talking months to years.

17 Q. Months to years?

18 A. (Nods head affirmatively.)

19 Q. Okay. Now, what about on the bottom?

20 A. There is just two. So, it would be the first
21 premolar on the bottom on the left side and the first
22 premolar on the right side. So, there's two teeth on the
23 bottom that were missing post -- or missing antemortem.

24 Q. So, that's a total of 11 that you know were missing
25 before she died because the places where the teeth were had

1 healed.

2 A. That's right.

3 Q. And they had been gone somewhere between months and
4 years.

5 A. That's right.

6 Q. Now, have you had any studies on the effects of
7 chronic alcohol and drug use and people losing their teeth?

8 A. I can't answer that. It would be a better question
9 for Dr. Pinneri.

10 Q. Okay. Let me look at the report myself. I'll give
11 it back to you if you need it.

12 MR. CORNELIUS: Can I just stand here for a
13 second, Judge?

14 THE COURT: Sure.

15 Q. (BY MR. CORNELIUS) I'm just putting State's 112 up
16 here. Let me make sure I get it all as a reference point.
17 Is there anything -- any of the bones that are depicted in
18 112 that indicate any fractures or trauma that you can say
19 occurred before she died?

20 A. No, there's not.

21 Q. Okay. I'll just put up here State's 113, which
22 also includes the below-the-waist bones, correct?

23 A. That's correct.

24 Q. I know that's not a correct way to say it but
25 whatever. Anything that you observed, shown here in State's

1 113, in any of these bones that indicate any trauma or
2 damage to the bones that occurred before she died?

3 A. No, there's not.

4 Q. Is there anything in either of these photographs,
5 from your personal inspection, that showed any injury
6 causing her death?

7 A. I can't speak to that. No. Not in -- not from an
8 anthropologist standpoint, no.

9 Q. Okay. I mean, sometimes you might find the -- is
10 this the femur?

11 A. Yes, it is.

12 Q. And this is the femur?

13 A. That's correct.

14 Q. Okay. You might have a case where you find the
15 femur shattered, correct?

16 A. Yes.

17 Q. And it might be shattered in such a way that it
18 would have perhaps severed the femoral artery and the person
19 probably would die from that. So, you might, as an
20 anthropologist, say that that happened timely with the
21 person's death because you couldn't live like that. Could
22 you form that conclusion?

23 A. We wouldn't go so far as to say that. What we
24 would say is the fracture happened within this time period.
25 We wouldn't interpret. That would be for the pathologist to

1 take from there.

2 Q. Okay. If there were a bullet hole, this hole right
3 here is what?

4 A. That's called the obturator foramen. That's
5 actually a natural --

6 Q. That's not a bite mark or a bullet hole?

7 A. That's correct.

8 Q. You -- can you tell the difference between a bullet
9 hole and a bite mark?

10 A. Yes.

11 Q. If there was a bullet hole through this bone or
12 this bone or through one of the leg bones or up here, the
13 arm or the clavicle, whatever, you could tell that a person
14 was shot, right?

15 A. Yes.

16 Q. You don't see any evidence of that?

17 A. No.

18 Q. Stab wounds. You might could see that in the
19 bones, correct?

20 A. That's correct.

21 Q. But no evidence of that.

22 A. Right.

23 Q. The fact that the person had been beaten, you might
24 see that. It might be healed fractures or unhealed
25 fractures in the bones.

1 A. Right.

2 Q. Especially around the head, right?

3 A. Right.

4 Q. I mean, you might have had somebody that had had
5 blunt trauma with the head consistent with the time they
6 died or maybe in times past, you might see a healed fracture
7 in the skull, correct?

8 A. Yes.

9 Q. You might see that, right?

10 A. Uh-huh, yes.

11 Q. None of that on this case?

12 A. No.

13 Q. Right? Did you ever tell anyone in the Medical
14 Examiner's Office or the police department or the DA's
15 Office that you felt that the fact that that hyoid bone was
16 fractured meant that she had been strangled?

17 A. No. What we said is what's in the report and that
18 is that there is a fracture but we can't tell whether it's
19 perimortem, meaning at or around the time of death, or
20 postmortem.

21 MR. CORNELIUS: All right. Pass the witness.

22 THE COURT: Ms. Fuller?

23 MS. FULLER: Nothing further, Your Honor.

24 THE COURT: May this witness be excused?

25 MS. FULLER: Yes, Your Honor.