

1 THE BAILIFF: Judge, this witness has not
2 been sworn.

3 THE COURT: Doctor, if you would, raise
4 your right hand to be sworn, please.

5 (Witness sworn.)

6 THE COURT: Ms. Spence, you may proceed.

7 **JENNIFER LOVE,**

8 having been first duly sworn, testified as follows:

9 **DIRECT EXAMINATION**

10 BY MS. SPENCE:

11 Q Good afternoon, ma'am. Would you please
12 introduce yourself.

13 A Hello. My name is Dr. Jennifer Love. I am the
14 forensic anthropology director of the Harris County
15 Institute of Forensic Sciences.

16 Q And what is a forensic anthropology director?

17 A So, I oversee the forensic anthropology
18 division which is a division of three forensic
19 anthropologists.

20 Q And what kind of educational background do you
21 have or other trainings do you hold to qualify you as
22 director of forensic anthropology at the Harris County
23 Institute of Forensic Sciences?

24 A So, I have a PhD in anthropology focused in
25 physical anthropology. I also am board certified by the

1 American Board of Forensic Anthropology.

2 Q And do you also belong to the Scientific
3 Working Group for Forensic Anthropology?

4 A I do, yes.

5 Q Tell us about that.

6 A So, the Scientific Working Group is a group of
7 professional forensic anthropologists who come together
8 to identify the best practices for the field. So, we
9 put out guidelines that we feel practicing forensic
10 anthropologists should follow in order to do the best
11 job possible.

12 Q You are a member of that, correct?

13 A I'm a member of that group, yes, ma'am.

14 Q It's a very elite, would you say, group?

15 A Yes, it's relatively small.

16 Q How long have you been with the -- with Harris
17 County?

18 A Since 2006.

19 Q And what is your role there? Do you actually
20 determine cause of death, manner of death as Dr. Chu
21 does?

22 A No, I do not. The forensic anthropologists work
23 as a consultant to the medical examiner. So, when the
24 pathologist such as Dr. Chu has a question specifically
25 about the bone, they will call in a forensic

1 anthropologist and then we will consult, give our
2 analysis to Dr. Chu or another M.E. and they would use
3 that in their final determination of the case.

4 Q So, you are just sort of a special --
5 specialist in the area of bone and bone disease,
6 correct?

7 A That's correct. My area of study is the human
8 skeleton; so, yes.

9 Q So, let me direct your attention to ML11-1630,
10 a report of anthropology consultation of a child by the
11 name of Betsabeth Sandoval. Did you perform the
12 anthropology consult?

13 A Yes. In this case, when we have a child, what
14 the pathologist typically requests of us is what we term
15 a pediatric skeletal examination. What that means, the
16 pathologist brings us in to actually look at the bones
17 of the child. So, we cut through the flesh all the way
18 down to the bone, expose the bone, and then we can look
19 directly at the bone for injuries. Often these injuries
20 are not seen on x-ray or they're not seen during
21 standard autopsy procedure. So, we're brought in to
22 inspect the bone directly during the autopsy.

23 Q And in this particular case, what were you
24 given to examine, which bones?

25 A So, during my examination, I found that there

1 were injuries or fractures to the left humerus and to
2 the right and left scapulae, and that would be the
3 shorter blades, so the upper arm bone as well as the
4 right and left shoulder blade. So, when we saw the
5 injury -- when I saw the injury during the autopsy, I
6 then removed those bones so that I could do a more
7 detailed analysis of those specific bones.

8 Q So, is there some sort of process to clean the
9 bones off so you can really get down to the bone and see
10 what's going on?

11 A Yes. Yes. So, once the bone is removed from
12 the decedent, I then process it, which is then placing
13 it in a water soap bath at an elevated temperature and
14 that slowly dissolves the soft tissue so in the end, I
15 have the dry bone that I can look at it as well --
16 grossly, as well as look at it under the microscope.
17 And that's, in fact, what I did in this case.

18 Q That processed bone that you took from
19 Betsabeth Sandoval's body, did you take photographs of
20 those bones?

21 A I did. After they were processed and in that
22 dry bone state, I did take photographs under the
23 microscope as well as just with a regular camera.

24 MS. SPENCE: Your Honor, may I approach?

25 THE COURT: You may.

1 Q (BY MS. SPENCE) Let me show you several
2 photographs marked State's Exhibit No. 163 through 176.
3 If you can, take a look at them.

4 Do those photographs fairly and
5 accurately show what you examined in this particular
6 case as to Betsabeth Sandoval?

7 A Yes, they do.

8 MS. SPENCE: I offer into evidence
9 State's Exhibits No. 163 through 176.

10 MR. GONZALEZ: No objections, Your Honor.

11 THE COURT: State's Exhibits 163 through
12 176 are admitted without objection.

13 Q (BY MS. SPENCE) Dr. Love, I'm just going to
14 leave them up here and if you need to explain something
15 by referring to the photographs, please feel free to do
16 so. But those, basically, are photographs of the dry
17 bones, either being photographed, you know, from a
18 distance or microscopically, correct?

19 A That's correct, yes.

20 Q Now, you mentioned that you did see injury in
21 your pediatric skeletal examination, correct?

22 A That's correct.

23 Q And you mentioned that it was in the scapulae,
24 which are your shoulder blades, and the left humerus?

25 A Correct.

1 Q The left -- let's concentrate right now on the
2 left humerus. And so, I think you showed us the upper
3 left arm, correct?

4 A That's correct.

5 Q Tell the jury what you saw in terms of trauma
6 or injury to the left humerus of Betsabeth Sandoval.

7 A Okay. So, what I saw was -- I saw injuries in
8 the region of the shoulder, so the upper portion of the
9 bone. And specifically, the very end of the long bone
10 was fractured so that I could actually see into the
11 bone. Additionally, there was bone callous.

12 Now, when a bone is broken, the body
13 immediately makes new bone in order to build a bridge
14 across that fracture. So, what I saw was a very large
15 area of this new bone where the body was healing. Now,
16 I didn't just see a single callous, I saw a layered
17 callous. So, I saw a layer of new bone and then a space
18 and then another layer of new bone; and what that tells
19 me is that that bone was actually injured twice. So,
20 the bone was injured, the body began to heal, the bone
21 was reinjured, and then the body started that process
22 over. So, I'm seeing on that -- on the top of the
23 humerus at the shoulder at least two separate injuries.

24 Q Now, if you could, step down for just a moment,
25 Dr. Love. Left arm, correct?

1 A Yes.

2 Q Injury to where you were pointing out. Say I'm
3 Betsabeth Sandoval about this height, can you show what
4 the mechanism of injury would be to inflict that type of
5 injury that you saw on the left humerus.

6 A So, this type of injury is really right where
7 the shoulder is in that joint. Okay? And in order to
8 get that, you need a sheer force. So, it's not like
9 this, (indicating) you know. So, it has to be either
10 forcefully up or rotated; but it has to be jerked in
11 this area of the arm, so right in that shoulder.

12 Q So, would that be a mechanism of injury of
13 twisting and pulling?

14 A Twisting and pulling, yes. Yes.

15 Q Could you show that to the jury again?

16 A Certainly. Again, if you were to take a child
17 and whip that arm up or twist it violently.

18 Q Which is a common way to get a kid to go where
19 you want them to go, would that be correct?

20 A It could be, yes.

21 Q And you said what you saw --

22 THE COURT: You can take your seat,
23 Doctor.

24 THE WITNESS: Thank you.

25 Q (BY MS. SPENCE) Oh, I'm sorry. What you said

1 in terms of the healing and the reinjury, at least two
2 traumatic episodes, correct?

3 A To the humerus, yes.

4 Q Is that -- okay. There's a term called
5 perimortem and antemortem. Tell the jury what
6 perimortem means.

7 A Okay. Perimortem, mortem meaning death and
8 perimortem being around. So, that's going to be that
9 period that's very near death. When we talk about
10 perimortem into the bone, we're talking about the period
11 from the injury to death. So, when we say perimortem,
12 we mean we're not seeing any healing. Once we see
13 healing, we know that the injury occurred before death
14 because there was time for the body to respond.

15 Now, when talk about bone, it takes some
16 time for the body to respond. So, someone may injure
17 their bone today, live until tomorrow, and then die and
18 we may not see any healing at the bone. So, we would
19 still consider that perimortem. So, in terms of the
20 bone, perimortem can be, you know, even in an elderly
21 individual, up to several days.

22 Q From zero time?

23 A Right.

24 Q To several days?

25 A Right, right.

1 Q It's just anytime before death without any
2 healing?

3 A Right, right. So, it's still a rela- --
4 especially in children. Children heal very quickly.
5 So, it's a relatively short period but it could be up to
6 a day or two.

7 Q And did you see perimortem injury in the left
8 humerus?

9 A I did not see perimortem healing in the left
10 humerus, no.

11 Q Did you see antemortem injury to the left
12 humerus?

13 A Right, right. As I explained, that healing
14 callous, that was showing me that there was a good
15 period of time between injury and death. So, that was,
16 in fact, was antemortem trauma.

17 Q So, "ante" kind of means?

18 A Before.

19 Q So, now let's go to -- are we done with the
20 left humerus injury that you saw?

21 A Yes.

22 Q Let's go to the left and right scapulae, the
23 shoulder blades, correct?

24 A Correct.

25 Q So, that would be in the back.

1 A Uh-huh.

2 Q Where your -- I guess your shoulders meet your
3 what?

4 A Right. So, your shoulder blade is -- you know,
5 lays against your back and then it comes out and it
6 joins the humerus. So, the shoulder blade is actually
7 part of that humerus girdle complex.

8 Q And what injury did you see to both the left
9 and the right scapulae of Betsabeth?

10 A So, on your humerus there is actually a portion
11 that extends outward. You can -- if you feel your
12 shoulder, you can feel a bump right at the end of your
13 shoulder. What's happening is your humerus is coming
14 from the back and your clavicle is coming from the front
15 and it's creating that structure on the top. And then
16 the humerus sits in that structure. So, that point that
17 was sticking out from the clavicle in the back -- and
18 let me see if I have a good picture of it -- that was
19 fractured.

20 This is a humerus here. It's actually
21 like -- it's actually like this. Let me see. Okay.
22 It's actually best shown like this. So, this flat area,
23 this is where your humerus sits. This area right here
24 is what I'm talking about, this piece that extends
25 outward. So, on both sides I saw a fracture -- you can

1 see it right here. I saw a fracture on both sides right
2 on that point that sticks out.

3 Q And what did you notice about that fracture?
4 It's on both the left and the right sides?

5 A Right. So, you have what we call bilateral
6 fractures. So, we have both sides of the body having
7 the same type of fracture. Not only that, there was --
8 on one side there was no healing; on the other side
9 there was a slight, slight bit of healing. So, they
10 were very close to that perimortem interval. So, they
11 occurred, you know, within days of death.

12 Q What's the mechanism of injury for that?

13 A There's really two that could have happened.
14 If you had an impact directly onto that extension, you
15 could cause it. What has happened is the bone has just
16 buckled up on itself. So, it's been forced on itself to
17 where it's buckled up. So, you could have -- if you
18 struck the bone, you could cause that or you could drive
19 the humerus into that structure, again, with that
20 hyperextension, and that would have caused that bone to
21 fracture.

22 Q So, some sort of trauma?

23 A Yes.

24 Q Something hit it, right?

25 A Right, right. Either something -- either the

1 own bone -- the own humerus, or something external
2 hitting onto the body.

3 Q Both sides?

4 A Both sides.

5 Q Any other injuries that you saw in the bones?

6 A No, just those bones were injured.

7 Q Those scapulae, I think you said that that was
8 very, very close in time to the time of death?

9 A Right, right. On one side we saw -- I saw no
10 evidence of healing; on other side, just a slight hint
11 of a very early, early response.

12 Q Now, going back to the left humerus injury --
13 you can show us what mechanism would have to occur --
14 that's not consistent with, say, a bike falling on her
15 arm?

16 A No. What we -- in order to get the type of
17 fracture I see at the humerus, we need that sheer force.
18 So, if an arm is to break, if something is to fall onto
19 an arm, it's a very different force than if the arm is
20 sheered, is rotated. So, it's inconsistent with, you
21 know, this sort of trauma.

22 Q And, you know, I mentioned children are pulled
23 by their arms like that, forth, the amount of force that
24 would have had to have caused that type of break twice,
25 is it something normal, that a normal child would get

1 with a normal yanking that a parent would do or would
2 the force have to be far greater?

3 A So, if the bone is normal and healthy, then
4 standard routine interactions would not cause this type
5 of fracture. So, a toddler tripping and catching
6 themselves or even, you know, a parent picking a child
7 up, you know, from a fall or even lifting out of a
8 bathtub, that's not the level of force we need. We need
9 something above normal handling of a child.

10 Q Would you characterize these injuries as
11 repetitive injuries?

12 A I would, I would. The definition -- since we
13 can see these two stages of healing, actually the three
14 different events of trauma through the healing, then
15 that is considered repetitive.

16 Q You said three separate events?

17 A Right, right. Right. So, the humerus, we see
18 two stages of healing; so, we know that the humerus is,
19 you know, we have that repetition of that injury. And
20 then we have the third -- yeah, with the scapula.

21 Q All right. Now, you talked about a child with
22 normal bone density or normal bone growth. Your
23 examination of Betsabeth's bones, were they in good
24 condition other than the breaks and fractures?

25 A Yes, yes. Now, when we see a poor bone

1 density, what we typically see is the cortical bone,
2 which is the thick outside. When you think of a bone,
3 that outside smooth surface, it's very thin and it can
4 also have a lot of holes and it's small and it's porous.
5 We didn't -- I did not see that. The bone was uniform;
6 it was, you know, a normal thickness and texture; it was
7 normal.

8 Then the inside of your bone is --
9 actually looks like a sponge; and, so, where it was
10 fractured, I could see that inner sponge. When a child
11 has poor bone density, that's very -- it's just less
12 dense. The pieces of bone that make up that sponge-like
13 structure, there's less of them and they're thinner.
14 But this was of a normal density. So, grossly the bones
15 did have the quality of normal bone density.

16 Q Could Betsabeth have self-inflicted these types
17 of injuries that you saw?

18 A No -- no. The type of injuries we typically
19 see with a fall are injuries to the shaft. You know,
20 when a child does catch themselves or twisted their
21 arms, we see shaft fracture. When we talk about at the
22 very, at the joint, these are not consistent with
23 household accidents.

24 Q And are these injuries -- well, you just
25 answered that. And assuming that Betsabeth had a normal

1 reaction to pain, when these traumatic episodes occurred
2 on her, would she have felt pain?

3 A Broken bones are painful so we can expect a
4 child with a normal response to pain to react to a
5 broken bone. I think that's fair.

6 MS. SPENCE: Pass the witness.

7 THE COURT: Thank you, Ms. Spence.

8 Mr. Gonzalez.

9 MR. GONZALEZ: Thank you, Your Honor.

10 **CROSS-EXAMINATION**

11 BY MR. GONZALEZ:

12 Q Dr. Love, how you doing?

13 A Fine, thank you.

14 Q Now, Dr. Love, you've heard of -- obviously
15 you've heard of hairline fractures?

16 A Uh-huh.

17 Q What type of a fracture is a hairline fracture?

18 A Okay. A hairline fracture would just simply
19 be -- I mean, perhaps to give you the best description
20 would be like a crack in the bone, you know, versus a
21 complete fracture where you have two separate pieces. A
22 hairline fracture would be best described as a partial
23 fracture or crack.

24 Q The fractures that you found on Abby, were they
25 hairline fractures or complete fractures?

1 A They are complete fractures. Let me take that
2 back because some are complete and some are not. So,
3 the fracture we're talking about at the humerus, it's at
4 the very end of the bone where growth is occurring. So,
5 this is -- in children, as they grow and develop, the
6 bone has cartilage and that cartilage actually turns
7 into bone and that's how they grow. So, we're seeing at
8 that interface of bone and cartilage, a complete
9 fracture. Now, the scapula, the two scapula, they were
10 incomplete fractures. We saw -- what I saw was the bone
11 on one surface buckled on itself. The term "hairline
12 fracture" is a layman term. If we just think of
13 hairline fracture as an incomplete fracture, then it
14 would be a way to describe the scapula fractures but not
15 the humeral fracture.

16 Q And the only reason I'm asking is, is it
17 possible for someone to suffer an incomplete fracture
18 and not notice it, not notice the fracture?

19 A You know what, that's difficult to answer. You
20 know, I -- I would think that if you have a normal
21 response to pain, even with a hairline fracture you
22 would have some sort of pain because -- let me just --
23 you know, shin splints, we're all familiar with shin
24 splints and that pain on the front. That could be a
25 hairline fracture or not and yet you feel some pain.

1 So, that's kind of hard for me to answer. Could you
2 have a fracture at some very minuscule level that
3 doesn't cause pain? Perhaps it's possible. I just --

4 Q And I'm almost done. Just a couple of
5 questions. Now -- and you -- I've never had one, but
6 you hear about people suffering a hairline fracture and
7 not really noticing it until much later when the pain
8 gets worse. Is that possible?

9 A I think what we're talking about here is a
10 fatigue fracture. You can -- you know, especially
11 athletes, they may be loading their bone at such a level
12 that they're getting fatigue fractures which are just
13 small fractures within the structure of the bone. So,
14 it's fractures that aren't even going through the whole
15 layer of bone, the internal bones. So, if you do it
16 enough and enough, that fracture will continue to grow
17 and grow and grow to where you actually have a fracture.
18 So, again, there might be some point where you have such
19 a slight fracture you may not feel pain. But -- I mean,
20 these were, you know -- so, possibly, I guess, would be
21 my answer.

22 Q So, if someone suffers an incomplete or
23 hairline fracture, could it be possible that it starts
24 out pretty small and due to normal, everyday activities,
25 it might make it worse?

1 A Okay. So -- so, just to be clear, the
2 fractures that we're talking about in this case are not
3 fatigue fractures. Okay? Fatigue fractures come from
4 normal loading and where the fractures are here are not
5 from normal loading. So, we would see fatigue fractures
6 in your legs and maybe even in your arms if you're, say,
7 a pitcher and you're constantly pitching a ball. The
8 fractures we're looking at here are occurring from a
9 force that is not normal with daily loading of the bone.
10 So, just in general, you know, do -- fractures can start
11 small and grow with continual loading; but that's a
12 specific type of fracture, which is not the type of
13 fracture we're seeing here.

14 Q Now, how would malnutrition in a body affect
15 bones?

16 A Bone is a living tissue. So, when the body is
17 unhealthy, the bone is part of that system. So, if, you
18 know, especially if we think about calcium, calcium is
19 very important for your normal cell activity. Your
20 bones store calcium and other minerals. So, when the
21 body needs those minerals, they will go to the bone and
22 absorb it from the bone and it will over time make the
23 bones weaker. So, long-term health problems lead to
24 unhealthy bones.

25 Q Now, I think you've already testified that the

1 bones in Abby were normal?

2 A Right, they did appear to be normal, normal
3 density.

4 MR. GONZALEZ: I'll pass the witness,
5 Your Honor.

6 THE COURT: Thank you, Mr. Gonzalez.
7 Anything further?

8 MS. SPENCE: I do have a question.

9 **REDIRECT EXAMINATION**

10 BY MS. SPENCE:

11 Q You had said that there's two -- two injuries,
12 one healing or a couple of healing injuries to the left
13 humerus. Let's say Betsabeth was taken to a doctor on
14 March 7th, 2011. You had already testified that that
15 type of injury is not consistent with just falling or
16 something like that. So, the -- an explanation of
17 injured last night at the park, little vague, not real
18 consistent with what you saw, correct?

19 A Okay. So, it's not consistent with the
20 healing. So, an injury the night before could not reach
21 the level of healing that we saw --

22 Q Right.

23 A Okay.

24 Q But if one of those traumatic episodes had
25 taken place on March 7th of 2011, that is consistent

1 with what you saw at the time the child passed away,
2 which is June 3rd of 2011, maybe perhaps for the older
3 one of the two healings?

4 A We would expect more healing. So, if we go
5 March to April, May, June, so we're talking three
6 months.

7 Q Yes, ma'am.

8 A So, the amount of healing that I'm seeing on
9 that humerus is too new. By three months we should see
10 more advanced healing. So, that's unlikely that it
11 would have occurred on an incident on March 7th.

12 Q So, assuming these medical records are correct,
13 that a child came in for an injured left arm on
14 March 7th, that would be a third incident to her left
15 arm, correct?

16 A Right, right. So, if it, in fact, was an
17 injury to where bone was broken, it may have fully
18 healed. I'm not seeing anything that old in the
19 humerus.

20 Q Thank you.

21 MS. SPENCE: No further questions.

22 THE COURT: Anything further?

23 MR. GONZALEZ: No, Your Honor.

24 THE COURT: May Dr. Love be excused?

25 MR. GONZALEZ: Yes, Your Honor.

1 MS. SPENCE: Yes, Your Honor.

2 THE COURT: Thank you, Doctor, you are
3 excused.

4 Call your next witness.

5 MS. SPENCE: At this time, Your Honor,
6 the State rests.

7 THE COURT: All right. What says the
8 defense?

9 MR. GONZALEZ: I have a motion outside
10 the presence of the jury.

11 THE COURT: Ladies and gentlemen, if
12 you'll step back in the jury room, we'll be back with
13 you shortly.

14 *(Jury out.)*

15 THE COURT: Mr. Gonzalez.

16 MR. GONZALEZ: Just for the record, Your
17 Honor, the State has rested and at this point in time
18 I'd like to make a motion for directed verdict of
19 finding of not guilty because the State has failed to
20 prove each and every element of the offense on each in
21 both cases on the felony murder and the injury to a
22 child, serious bodily injury by omission, Your Honor.

23 THE COURT: Your motion is denied.

24 MR. GONZALEZ: And then I just -- I want
25 to put on the record that she doesn't want to testify.