STATE OF WISCONSIN : CIRCUIT COURT : MANITOWOC COUNTY BRANCH 1

STATE OF WISCONSIN,
PLAINTIFF, JURY TRIAL TRIAL - DAY 15
vs. Case No. 05 CF 381

STEVEN A. AVERY,
DEFENDANT.

DATE: MARCH 2, 2007
BEFORE: Hon. Patrick L. Willis
Circuit Court Judge
APPEARANCES: KENNETH R. KRATZ
Special Prosecutor
On behalf of the State of Wisconsin.
THOMAS J. FALLON
Special Prosecutor
On behalf of the State of Wisconsin.
NORMAN A. GAHN
Special Prosecutor
On behalf of the State of Wisconsin.
DEAN A. STRANG
Attorney at Law
On behalf of the Defendant.
JEROME F. BUTING
Attorney at Law
On behalf of the Defendant
STEVEN A. AVERY Defendant
Appeared in person.
TRANSCRIPT OF PROCEEDINGS
Reported by Diane Tesheneck, RPR
Official Court Reporter

## I N D EX

WITNESSES
PAGE

KENNETH OLSON
Direct Examination by ATTORNEY FALLON 4
Cross-Examination by ATTORNEY BUTING 31
Redirect Examination by ATTORNEY FALLON 35
Recross-Examination by ATTORNEY BUTING 35

DR. JEFFREY JENTZEN
Direct Examination by ATTORNEY GAHN 38
Cross-Examination by ATTORNEY STRANG 54
Redirect Examination by ATTORNEY GAHN 79
EXHIBITS MARKED OFFERED ADMITTED
429-431 31
31
432
87
87
(Jury not present.)
At this time the Court calls State of Wisconsin vs. Steven Avery, Case No. 05 CF 381. We're here this morning for a continuation of the trial in this matter, outside the presence of the jury at this time. Will the parties state their appearances for the record, please.

ATTORNEY KRATZ: Good morning, Judge. The State appears by Calumet County District Attorney, Ken Kratz, Assistant Attorney General Tom Fallon, Assistant District Attorney Norm Gahn, all appearing as special prosecutors.

ATTORNEY STRANG: And good morning. At this table is Steven Avery and Jerome Buting and Dean Strang.

THE COURT: All right. Is there a matter the parties wish to take up before we bring in the jurors?

ATTORNEY FALLON: I don't think we have anything other than previously.

THE COURT: Very well. At this time, then, we'll bring in the jury.
(Jury present.)
THE COURT: You may be seated. And, Mr. Fallon, you may call the State's first witness
today.
ATTORNEY FALLON: Thank you. The State would call Mr. Kenneth Olson to the stand.

KENNETH B. OLSON, called as a witness herein, having been first duly sworn, was examined and testified as follows:

THE CLERK: Please be seated. Please state your name and spell your last name for the record. THE WITNESS: Kenneth B. Olson, O-l-s-o-n. DIRECT EXAMINATION

BY ATTORNEY FALLON:
Q. What do you for a living?
A. I'm a forensic scientist at the State Crime Laboratory in Madison. My main duties are as a trace evidence examiner. And trace evidence includes paint, glass, fibers, explosives, metals, anything that needs chemical identification that doesn't fit into either toxicology or drug analysis.

I'm also a involved in our Field Response Program, going to crime scenes. And I'm also a bloodstain pattern examiner.
Q. All right. And how long have you been employed at the Wisconsin State Crime Lab?
A. Almost 27 years.
Q. And during that particular time, how long have you been doing or involved in the field of trace evidence analysis?
A. That's been my main duty since $I$ was hired at the laboratory.
Q. And how long have you been involved in field response operations?
A. I have been involved in field response since I have been employed at the laboratory, also.
Q. All right. Are you currently a member of a Field Response Team?
A. I'm no longer actively on call, but I will assist if they need help at crime scenes.
Q. All right. How are you involved in this case, Mr. Olson?
A. I was asked to examine certain charred items that was recovered from the Avery property; items that were recovered from a burning barrel and then some charred skull fragments.
Q. And why are you here today?
A. I'm here to explain the results of my examination.
Q. All right. First of all, let's find out a little bit about yourself, please. Can you tell us what your educational background is.
A. I have a bachelors of science degree, with a major in chemistry from the University of Wisconsin at Superior.
Q. When did you receive that degree?
A. In June of 1980 .
Q. And have you pursued any post-graduate studies of any nature?
A. I attended a few courses in business management.
Q. All right. As a member of the trace evidence unit, how many individuals are there in that particular unit?
A. At the Madison laboratory there are two scientists, myself and my colleague.
Q. All right. And as a member of that particular unit, have you attended trainings during the past 27 years?
A. Yes. When I was hired, I went through an extensive on-the-job training in the different areas that -- in the materials that I analyze. And since being employed at the laboratory, I have attended numerous training seminars and courses in the area of trace evidence.
Q. And how often do you attend these types of courses?
A. It varies. I suppose it averages once a year.
Q. All right. And with respect to your training and experience, have you received any specialized training which assisted you in terms of performing any of the examinations in this particular case?
A. In the area of elemental analysis, I have had training using the scanning electron microscope with an energy dispersive x-ray analyzer. And that instrument is used for identifying different elements.
Q. And when we're saying elements, can you give us an example or an idea of what kind of elements that you are looking at with this particular instrument?
A. Well, we can examine approximately 70 different elements. They include carbon, oxygen, nitrogen, iron, lead, titanium, magnesium, just a broad spectrum of elements.
Q. And what are some of the objects and items that you are routinely called upon to examine in your trace evidence unit?
A. As far as elemental analysis?
Q. Sure.
A. I routinely analyze paint samples, using a scan electron microscope energy dispersive x-ray,

SEMEDX for short. Use it for glass samples, unknown powders, explosives and questioned metals.
Q. All right. Have you testified in courts of law during the past 27 years you have been with the Crime Lab?
A. Yes, I have.
Q. And approximately, do you have an estimate as to how many times you have been called to testify in cases?
A. Approximately 165 times.
Q. And have you -- During those times, have you been called upon to express or render expert opinions regarding your findings?
A. Yes, I have.
Q. And of those 165 times, do you have an idea as to approximately how many of them were trace metal or trace evidence related testimony?
A. The majority of my testimony has been in the area of trace evidence. And it's well over 100 times I testified in trace evidence.
Q. When did you first become involved in this case, Mr. Olson?
A. I first became involved in December of 2005. I was given some items from a burning barrel to
examine.
Q. And did you examine the contents of a barrel?
A. Yes, I did.
Q. All right. And what did you find in your examination of the barrel?
A. The material that was submitted to me were charred items and in there was a charred portion of a Motorola cellphone, a charred Canon PowerShot A310 camera, and assorted other electronic components.
Q. Now, is your laboratory capable of extracting data from those types of items, or not?
A. No, I was just told to examine them to see if I could give any information as to what those items might be.
Q. What other -- Does your particular trace unit have a supply of products on hand to assist you in attempting to identify severely burned items such as this?
A. No, we don't.
Q. As a result of which, did you make any recommendations with respect to your initial findings?
A. I reported what $I$ found in that charred debris to Investigator Tom Fassbender with DCI.
Q. All right. In addition to those items, what other charred debris were you asked to examine as part of this case?
A. I was asked to examine some charred skull fragments that had a defect in them that was consistent with high energy projectile.
Q. All right. And, first of all, I would like to direct your attention to Exhibit -- Exhibit 391. And I'm going to hand you a laser pointer. Do you recognize Exhibit 391, in particular the item on the right?
A. Yes, I do.
Q. All right. And what is that?
A. Exhibit 391 is a photograph of that charred skull fragment that I examined.
Q. All right.
A. And the defect, or the hole in the skull, is this area right up in here.
Q. All right. And as part of your analysis, do you routinely assign an item number or a Crime Lab identification number to assist you in working with these items?
A. Yes, we do.
Q. And what item designation was Exhibit 391 given?
A. Exhibit 391 was item EJ.
Q. All right. I'm going to have Exhibit 392 displayed. All right. And do you recognize that item?
A. Yes, I do.
Q. And what is Exhibit 392?
A. Exhibit 392 is the other side of that charred skull fragment. This would be the external surface. And the defect or the hole in the skull is up in this area right here.
Q. Now, I see that there is an arrow shaped marker depicted on this outer view of Exhibit 392; do you know what that is?
A. Yes, I do.
Q. And what is that?
A. The triangular shaped marker in Exhibit 392 is a little piece of copper tape that I made into a point of an arrow so it will help me locate the area on the bone that I need to examine with the microscope and to do my elemental analysis.
Q. When did you receive these items?
A. These items were submitted to the laboratory on February 15th, 2006. And I examined them -started examining them on February 16, 2006.
Q. Describe for us, if you will, how item EJ appeared when you first accepted and began
working on it?
A. Item EJ, Exhibit 392, appears very similar when I examined it. It's a charred skull fragment that had been, obviously, in a fire.
Q. All right. And how is it packaged, tell us about the appearance of the item in its packaging?
A. This item, item EJ, was one of two items that were submitted in the laboratory in sealed plastic bags that were received in a sealed box.
Q. All right. And how were they labeled; did that assist you in performing the requested examination?
A. This item, which was the one I examined, there were three bags in item EJ. This one was identified as a charred cranial fragment with a entrance defect. And that's what I concentrated my examination on.
Q. All right. And what about the other bags that were part of the EJ designation; were they subject to examination?
A. No, those were labeled as cranial refits and they didn't have any defects. And I was more interested in looking at the hole in that item.
Q. All right. Now, you mentioned there was one other item in addition to EJ; what item was that?
A. That was item EK.
Q. All right. Did you conduct any examinations of item EK?
A. No, I did not.
Q. And why did you not conduct any examinations?
A. The bag, that item EK, was labeled as cranial bone fragments, dental fragments, nothing that had a defect or hole that I would be interested in.
Q. Now, with respect to item EJ, can you tell us, specifically, using the laser pointer, what part of that item did you examine and why did you examine it?
A. I examined this area right up in here, is where I concentrated most of my analysis. And through my training and experience, that bullets, when they go through bone or hard objects, if they are a lead bullet, which most bullets are, you can sometimes get a --

ATTORNEY BUTING: Objection, your Honor, I don't know that he's -- this is a trace chemist, I don't know that he is qualified to be talking about bullets and what they do and don't do.

ATTORNEY FALLON: I will rephrase the question.

THE COURT: Very well.
Q. (By Attorney Fallon) ~ Were there specific -- Was there specific information that you had with respect to the condition of the defect that you have identified, that caused you to examine it more closely?
A. Yes, this defect is consistent with a high energy projectile.
Q. I understand, but my question is, what, specifically, did you -- were you -- why were you asked to examine -- I realize it has a defect, but what other information did you have to assist you that caused you to examine that specific crescent shape there?

ATTORNEY BUTING: Move to strike the last answer as well, your Honor.

THE COURT: You mean the answer about the --

ATTORNEY BUTING: The answer that was not responsive to Mr. Fallon's question about high energy projectiles.

ATTORNEY FALLON: That's not his objection and we're rephrasing the question.

ATTORNEY BUTING: I move to strike it. THE COURT: I think he's moving to strike
the answer that came after his objection, if I'm not mistaken.

ATTORNEY BUTING: Yes.
THE COURT: The Court will strike that answer as nonresponsive, which I think Mr. Fallon recognized by rephrasing his question.

ATTORNEY BUTING: Yes.
THE COURT: Go ahead, Mr. Fallon.
Q. (By Attorney Fallon) ~ Rephrasing the question, Mr. Olson, what additional information did you -Well, let's strike it this way. Did you have any x-rays that you examined before conducting this examination of item EJ?
A. No, I didn't.
Q. All right. But at that particular point -- Let's get at it this way. What did you find when you looked at the crescent shape that you have identified there, the defect area?
A. When I analyzed that area for elemental analysis, I detected the presence of lead.
Q. Okay. We'll come back to that in a moment. In addition to item EJ, were you asked to examine any other cranial fragments?
A. Yes, I was.
Q. All right. And did you obtain some cranial
fragments?
A. Yes, I did.
Q. And from whom did you obtain those fragments.
A. I obtained some more cranial fragments from Dr. Leslie Eisenberg.
Q. And approximately when did you obtain additional cranial fragments?
A. On November 17th, 2006.
Q. And when did you begin your analysis of these additional fragments?
A. I started examining those cranial fragments on November 21st of 2006 .
Q. All right. I'm going to have Special Agent Fassbender hand you some photographs. Beginning with the top exhibit, $I$ believe it is designated Exhibit 429; is that correct?
A. That's correct.
Q. Do you recognize that exhibit?
A. Yes, I do.
Q. What is Exhibit 429?
A. Exhibit 429 is a photograph of item KQ , the cranial fragment with the entrance defect that I received from Dr. Leslie Eisenberg.
Q. All right. And directing your attention, then, to the screen, is that the very same exhibit that
you are holding in your hand?
A. Yes, it is.
Q. All right. And describe, if you will, in more detail, item $K Q$, upon your receipt of it?
A. I'm sorry, could you repeat that?
Q. Yes, specifically, I just want to ask you to describe that -- Well, let's do it this way. Describe for us, if you will, the size or contours of the defect.
A. The bone fragment itself is an inch and a quarter, approximately, by an inch and three quarters in size.
Q. All right. And so that's from top to bottom and across the exhibit there?
A. That's correct.
Q. All right. And the defect itself was approximately how much?
A. It appears to be about -- the diameter of that crater is about a half inch.
Q. All right. And I would like to show you, also, Exhibit 398 at this particular time. And do you recognize Exhibit 398?
A. Yes, I do.
Q. And is item $K Q$ present in Exhibit 398?
A. Yes, it is.
Q. And if you would use the pointer and describe for us, if you will, where that is.
A. Item KQ is this bone fragment right here in the upper left hand corner.
Q. All right. And if we could zoom in on that. And what were you examining with respect to item KQ ?
A. I was particularly interested in these bright spots here, which indicates it could be a dense metal.
Q. All right. And with respect to item KQ , did you use the scanning electron microscope to conduct your analysis of those particles?
A. Yes, I did.
Q. All right. And finally, there should be the next exhibit in front of you?
A. Exhibit 429 or 4 --
Q. 430 .
A. 430 .
Q. Yes. And what is Exhibit 430?
A. Exhibit 430 is a photograph of item KQ, but the inner surface. The previous exhibit was the outer surface. And Exhibit 430 is the inner surface.
Q. All right.
A. That's what's being displayed right now.
Q. All right. And did you examine the inner surface of the defect area, as well as the outer surface, on this particular item?
A. Yes, I did.
Q. All right. And finally, there's one more exhibit. And I believe Exhibit 431.
A. Yes.
Q. All right. And what is Exhibit 431?
A. Exhibit 431 is a photograph of an x-ray of other charred bone fragments.
Q. All right. And particularly with respect to Exhibit 431, was there a Crime Lab designation assigned to that item?
A. Yes, there was.
Q. All right. And what was that?
A. That was item KR.
Q. All right. All right. Now, with respect to your findings, I would like to redirect your
attention, again, to item EJ, Exhibit 392; did you find traces of elemental lead in the area of that defect?
A. Yes, I did.
Q. And tell us about what you found.
A. I was examining the entrance defect approximately in this kind of lower left hand corner.

ATTORNEY BUTING: I'm sorry, is this item EJ we're talking about?

ATTORNEY FALLON: Yes, this is item EJ, Exhibit 392.
A. I examined this area in here and found traces of elemental lead.
Q. All right. And with respect to Exhibit 92, what -- were there more than one location or area within that defect that you examined?
A. Yes, there was.
Q. And what did you find with respect to other possible locations of elemental lead?
A. In this area, I examined three different areas and found elemental lead -- traces of elemental lead. In this area, I examined and did not find -- I found what were very low amounts of lead, but it was too low for me to call. So, essentially, $I$ did not find any lead in this area over here.
Q. All right. And did you examine other areas of that particular fragment, Exhibit 392?
A. Yes, I did.
Q. And approximately how many areas did you examine on this one particular exhibit?
A. Approximately 12 different areas that I examined.
Q. All right. And I know it might be kind of difficult with that photograph, but could you give us a general idea of what other locations that you examined for the possibility of elemental lead?
A. I examined approximately seven locations here and approximately five locations down in here, as a control area.
Q. All right. Well, let's begin, we talked about areas one, two, and three, and you mentioned something about five, six, and seven. Let's talk a little bit about those areas. What, if anything, did you find with respect to areas five, six, and seven.
A. I did not find any elemental lead in five. Area six and seven, which was right next to it, over here, I saw what began to look like the presence of lead, but it was too low of a level for me the call.
Q. All right. Now, Mr. Olson, you used the laser pointer to point to a particular area. And would I be accurate in describing that that would -the area you pointed to, five, six and seven, was on the edge or the beginning, as it were, of the defect area?
A. Yes, it is.
Q. All right. And one, two, and three were actually in the defect area?
A. Either on or slightly in, yes.
Q. All right. How about the other areas, 8, 9, 10, 11 and 12, with respect to the exhibit, where are they located?
A. These would be down in this area here.

ATTORNEY FALLON: All right. If the record would reflect, the witness is pointing to the bottom edge of Exhibit 392 of the photograph which is depicted.
Q. (By Attorney Fallon) ~ What did you find at those locations?
A. I did not find any traces of elemental lead.
Q. All right. Now, you mentioned something -- Well, first of all, let me ask, what was the purpose of testing those locations, 5, 6, 7, and most notably, 8 through 12 ?
A. I was examining those areas, away from the entrance defect, to have a control area where I would not think or suspect to find any lead.
Q. And could you explain for the jury the concept of a control?
A. The control is just a sample that you expect to
have certain results, usually negative results, in this same type of material that you are analyzing.
Q. All right. So how does performing these control tests assist you in assessing your findings in the other locations, particularly one, two, and three?
A. It adds more weight to my findings, finding elemental lead in those areas around the defect. And then not finding it in the other areas goes more to the point that -- that there is traces of lead in that entrance defect.
Q. All right. Now, let's talk a little bit about item EK; did you examine EK?
A. No, I did not.
Q. And why was EK not examined?
A. There was no entrance defect on those charred skull fragments.
Q. All right. And do you recall what they were labeled or how they were submitted to you?
A. Those would have been labeled cranial, facial, dental, I believe.
Q. All right. All right. Again, now, returning to item KQ, which we have depicted in Exhibit 398 and I believe in Exhibit 429 and 430. You
conducted a similar analysis of this particular item?
A. Yes, I did.
Q. All right. And you were examining more closely the bright white particles which appear on this particular exhibit?
A. Yes, I was particularly interested in those bright spots. That would be indicative of a more dense material, such as lead.

ATTORNEY FALLON: And for the record, Exhibit 398 depicts several cranial fragments. The witness is describing the fragment which appears at the upper left hand corner of the exhibit as a whole.
Q. (By Attorney Fallon) ~ I would like to direct your attention then back to Exhibits 429 and 430. We will start with Exhibit 429. All right. And, again, is this the inner or outer depiction of Exhibit 4 of item $K Q$ ?
A. This would be the outer surface of that skull fragment.
Q. All right. And then we'll start with the outer surface, did you find -- did you examine -- You said you examined the area near the defect?
A. Yes, I did.
Q. All right. Did you find elemental lead at any of the locations you examined at this -- at this -in this particular defect?
A. Yes, I did.
Q. And what did you find?
A. I found elemental lead corresponding to those bright spots in this entrance defect.
Q. Now, in this particular case, was it more than a trace, or less than a trace; reference, you know, item EJ, comparatively speaking, was there more or less lead that you detected here?
A. There was considerably more lead in this sample than there was in item EJ.
Q. All right. And similarly, did you have a control for your examination on this outer surface of item EJ, Exhibit 429?
A. Yes, I did.
Q. And if you would be so kind as to point with your laser pointer to the control areas.
A. The control area was in this -- approximately this area.

ATTORNEY FALLON: The record is reflecting that he's pointing to the right side of his marker arrow, towards the top, almost the same height as the point of the arrow.

THE COURT: Record will so reflect.
ATTORNEY BUTING: That's fine.
ATTORNEY FALLON: Thank you.
Q. (By Attorney Fallon) ~ And just so that we're clear, the areas where you did find the elemental lead, if you would be so kind, with your pointer, to indicate that area on the exhibit.
A. Right in this area, on and in the beveled area.
Q. On and in the beveled area. Very well, thank you. Now, did you similarly examine the inside of item KQ.
A. Yes, I did.
Q. All right. I would like to direct your attention, then, to Exhibit 430. And just so that we're clear, counsel advised me I may have misspoke. KQ item is our Exhibits 429 and 430; is that correct? Just so that -- I may have misspoke.
A. Item KQ is -- 429 is the outer surface and 430 is the inner surface of item $K Q$.
Q. All right. And we have Exhibit 430 on the screen now, which is the inner surface?
A. That's correct.
Q. All right. Now, tell us about your analysis of this particular item, how did you begin?
A. I concentrated my examination, elemental examination, around the entrance defect and inside the bevel of this item.
Q. All right. And in that particular area, did you find elemental lead?
A. Yes, I did.
Q. And approximately where on the exhibit, if you are able to tell us, that you found this?
A. On the edge of the defect and inside of the bevel.
Q. All right. And approximately how many locations did you test in or on the beveled area?
A. I believe it was four.
Q. All right. And in those four locations, did you find the presence of elemental lead at each of those locations?
A. Yes, I did.
Q. And with respect to their locations and comparing it to item EJ, was there more or less lead associated with item KQ or EJ?
A. There was considerably more lead in this particular item $K Q$.
Q. All right. And in terms of locations three and four, if you are able, can you direct us, roughly, where locations three and four would be?
A. Three would be approximately here and four would be approximately here, both of them inside the bevel.
Q. All right. And with respect to comparing locations one and two with three and four, what did you find with respect to the amounts of elemental lead that was present?
A. In areas three and four, inside the bevel, there was even more lead concentrated in those areas than in areas one and two.
Q. All right. Similarly, with respect to your testing of the inside of item KQ, Exhibit 430, were there any control locations that you utilized to assist you in interpreting your results?
A. Yes, there were.
Q. And if you would be so kind as to take your pointer and indicate generally where the control areas were utilized?
A. I believe the control area was in this area.
Q. All right. You are talking to the area immediately to the right and at the bottom of the marker that you placed on this exhibit?
A. That's correct.
Q. All right. In the control area, did you find the
presence of any lead?
A. No, I did not detect the presence of lead in that area.
Q. All right. Now, we would like you to take a look at Exhibit 431, please. Do you recognize Exhibit 431?
A. Yes, I do.
Q. Were you called upon to examine that particular piece?
A. Yes, I was.
Q. And similarly --

ATTORNEY BUTING: Can you just identify what that is, $x$-ray or photo.
A. It's a photograph of an $x$-ray.

ATTORNEY BUTING: Okay.
Q. (By Attorney Fallon)~ And it was your understanding this was, again, another cranial piece that you were given by Dr. Eisenberg?
A. Yes, it was another cranial piece and a particular in interest was the lower piece had a bright spot consistent with a higher density type material.
Q. All right. And upon examination of $K R--W e l l$, first of all, let me ask, did you examine $K R$ using the same methods you did with $K Q$ and EJ?
A. No, because when I examined that item I did not see the material here present on the tiny bone fragment. It wasn't on the bone any longer. It was -- It just wasn't there.
Q. All right. So there were no conclusions that could be drawn as to what that artifact was?
A. That's correct.
Q. All right. Did that particular artifact have any entrance, or suspected entrance defect, like items EJ and $K Q$ ?
A. No, it did not.
Q. All right. Mr. Olson, your opinion that item EJ, Exhibit 392, has traces of elemental lead in the defect area, do you hold that opinion to a reasonable degree of scientific certainty?
A. Yes, I do.
Q. Your opinion that item KQ, Exhibits 429 and 430, at locations one, two, three, and four contained elemental lead, do you hold that opinion to a reasonable degree of scientific certainty?
A. Yes, I do.
Q. And your opinion that item $K R$, which did not have a suspected entrance defect and showed no traces of elemental lead; do you hold that opinion to a reasonable degree of scientific certainty.
A. Yes, I do.

ATTORNEY FALLON: Subject to cross, we would move into evidence Exhibits 429, 430 and 431. THE COURT: Any objection? ATTORNEY BUTING: No objection. THE COURT: Those exhibits are admitted. Mr. Buting.

ATTORNEY BUTING: Thank you, Judge.

## CROSS-EXAMINATION

BY ATTORNEY BUTING:
Q. Good morning, sir.
A. Good morning.

ATTORNEY BUTING: If counsel could be so kind as to put up Exhibit 398 for a moment, please.
Q. (By Attorney Buting) ~ Now, just leaving it at this magnification for a second, this is a photograph of an $x$-ray of -- which is it?
A. That is a projection of a photograph of an x-ray.
Q. Okay. Which item is it, KQ , or is it EJ?
A. It's neither.
Q. Well, this item up here?
A. That item is item KQ .
Q. Okay. So the one in the upper left is $K Q$.

ATTORNEY BUTING: Okay. Could we just look at 429 for a minute, please.
Q. (By Attorney Buting)~ You're quite sure this is the same item as we just saw on the x-ray.
A. Yes, it is.
Q. Well, on this item, maybe it's just my eyes, but if you look at the far right side, there is a rather prominent projection, almost looks like a large nose sticking out or something, right?
A. That's correct.
Q. I didn't see that on 398.

ATTORNEY BUTING: Could we go back and look at that for a minute?

ATTORNEY FALLON: Certainly.
ATTORNEY BUTING: Could we maybe zoom in on this upper?
Q. (By Attorney Buting) ~ Where is that marking? Where is that part -- that little projection that we just saw in the other photograph? Where is it on this x-ray? I don't see it.
A. It is not there. This x-ray was taken before Dr. Eisenberg attempted to do her refits. And the piece that $I$ got was after the refit. And when I got it, it was broken --
Q. Oh.
A. -- and that piece that you are seeing --
Q. Okay.
A. -- is from another portion of the cranial.
Q. Okay. So what you saw -- When you saw it, it had been changed slightly, that piece had been broken off?
A. Yes, it did not look like that.
Q. Okay. Well, that's good. I'm glad you cleared that up.

ATTORNEY BUTING: You can take that down now, counsel, that's fine. Thank you.
Q. (By Attorney Buting) ~ Do you -- Do you know what item FL is in your lab?
A. No, I do not.
Q. Well, there's been evidence, the jury has heard that item FL has been identified and talked about quite a bit here as a alleged bullet fragment, right? Okay. You will accept that?
A. I will accept that, yes.
Q. Okay. You were not given item FL, to do any examination of?
A. No, I was not.
Q. So you didn't test the chemical composition of item FL?
A. No, I did not.
Q. So you cannot say that the trace items of lead that you saw in either one of these two cranial
fragments came from item FL; isn't that right?
A. That's correct.
Q. Okay. Now, you were given some other duties besides this trace analysis of cranial fragments in this case, right?
A. That's correct.
Q. And at one point, I believe in April, you were actually asked to examine a headboard?
A. Yes, I was.
Q. And that, for the record, is an item that's -- I don't know if you gave the designation or it was already designated, this for you, or by someone else in your lab before you got it, as item GI?
A. That's correct.
Q. And you were looking -- Among other things, you were looking for the possible presence of rope fibers on that headboard, right?
A. That's correct.
Q. And was it your understanding that you were looking for the possible presence of rope fibers on the spindles of that headboard to see whether there was any evidence of possible rope being used as a restraint?
A. That's correct.
Q. Did you find any rope fibers?
A. No, I did not.

ATTORNEY BUTING: Thank you, no further questions.

THE COURT: Any redirect?
ATTORNEY FALLON: Sure.

## REDIRECT EXAMINATION

BY ATTORNEY FALLON:
Q. What is the main elemental composition of a bullet?
A. Lead.
Q. . 22 caliber bullets contain lead?

ATTORNEY BUTING: Objection. This has been -- I think this was testified to by the prior witness.

ATTORNEY FALLON: Well, he asked, this is appropriate redirect.

ATTORNEY BUTING: Okay.
THE COURT: I believe it is.
ATTORNEY BUTING: That's fine.
Q. (By Attorney Fallon)~ The . 22 caliber bullets contain lead?
A. Almost 99 percent lead.

ATTORNEY FALLON: That's all. Thank you.
RECROSS-EXAMINATION
BY ATTORNEY BUTING:
Q. Bullets also contain -- or bullets are composed of different elements, right?
A. The major component is lead, but depending if they want to harden the lead, they will add antimony or tin to the bullet to make it harder. Some bullets have copper jackets with a lead core. Some bullets have a silver tipped or aluminum coating with a lead core.
Q. Right. So some bullets are coated, some bullets are not?
A. Correct.
Q. You did not test item $F L$ to see whether it was a coated or non-coated, did you?

ATTORNEY FALLON: Objection, asked and answered. He asked if he tested FL at all and he said no.

THE COURT: It's a fair summary question, I will allow it.
Q. (By Attorney Buting) ~ Is that right?
A. Could you repeat it, please.
Q. You did not test item $F$ L to see if it was a coated or non coated bullet?
A. I did not examine item FL.

ATTORNEY BUTING: That's all. Thank you. THE COURT: All right. The witness is
excused.
THE WITNESS: Thank you, your Honor.
THE COURT: You're welcome.
ATTORNEY FALLON: Could we have a quick sidebar?

THE COURT: Sure. Is it relating to scheduling, I take it?

ATTORNEY FALLON: Yes.
THE COURT: All right. Members of the jury, we're going to take a short break. We'll resume in a few minutes. I will remind you not to discuss the case during your break.
(Jury not present.)
THE COURT: You may be seated.
ATTORNEY FALLON: We're going to go check and see on the progress that Dr. Jentzen is making.

THE COURT: If he is not here yet, is he reachable by cellphone?

ATTORNEY FALLON: He may very well be. I believe Mr. Gahn is checking on that.

THE COURT: Let me know in chambers what you find.

ATTORNEY FALLON: Sure. Thank you. (Recess taken.) (Jury present.)

THE COURT: Mr. Gahn, you may call the State's next witness.

ATTORNEY GAHN: Thank you, your Honor. The State would call Dr. Jeffrey Jentzen to the stand.

DR. JEFFREY JENTZEN, called as a witness herein, having been first duly sworn, was examined and testified as follows:

THE CLERK: Please be seated. Please state your name and spell your last name for the record.

THE WITNESS: Dr. Jeffrey M. Jentzen, M.D. J-e-f-f-r-e-y J-e-n-t-z-e-n.

## DIRECT EXAMINATION

BY ATTORNEY GAHN:
Q. Dr. Jentzen, what is your occupation?
A. I'm a forensic pathologist employed as a medical examiner for Milwaukee County.
Q. And are you a licensed physician in the State of Wisconsin?
A. I am.
Q. And how long have you been licensed to practice medicine in the State of Wisconsin?
A. For 20 years.
Q. And did you practice anywhere before coming to Wisconsin?
A. I was in Minnesota.
Q. Would you please outline, for the jurors, your educational background from residency on?
A. I graduated from White State Medical School in Detroit. I, then, did a four year anatomic and clinical pathology residency at Hennepin County Medical Center in Minneapolis.

Following that I did a year of special training in field of forensic pathologist at the Medical Examiner's Office in Minneapolis. I was the assistant medical examiner in Minneapolis for approximately six months before coming to Milwaukee in 1987 as the medical examiner.
Q. And what are the duties of a medical examiner?
A. I typically oversee the administrative functions of the office. I supervise other forensic pathologists and trainees. I direct a forensic drug laboratory, supervise other death investigators who go out to crime scenes in the Milwaukee County area. And I perform autopsies and testify in courts.
Q. Are you on the staff or are you affiliated with any universities or academic institutions?
A. Yes, I'm a professor of pathology at the Medical College of Wisconsin.
Q. And have you had teaching responsibility?
A. Yes.
Q. Could you explain those to the jury.
A. Typically, we have a forensic fellowship program so we teach and train other pathologists to become forensic pathologists. We're one of about 35 training programs in the country. We also teach medical students, pathology residents, and other under graduate -- and other under graduate programs.
Q. And what professional societies or associations have you been active in?
A. I'm a member of the local State Medical Examiner and Coroner's Association. I'm also the -- on the -- member of the National Association of Medical Examiners where I'm currently the vice president of the organization. And I'm a fellow of the American Academy of Forensic Sciences.
Q. And do you specialize in any particular branch or field of medicine?
A. Yes, forensic pathology.
Q. And what exactly is forensic pathology?
A. Well, pathology in general is the study of disease and injury. And it's broken down into two rather broad categories.

And anatomic pathology has to do with
tissues; for example, skin, bone, heart muscle, etcetera. And clinical pathology deals with components of the body's liquids; for example, what's in the blood, the urine, bile, etcetera. And forensic pathology utilizes aspects of both clinical pathology and anatomic pathology as they pertain to general questions of the law.
Q. And are you board certified?
A. Yes.
Q. And would you explain -- excuse me -- explain to the jurors the significance of being board certified?
A. Board certification indicates that you have taken a prerequisite course of study, you have completed that course of study and taken a standardized examination. And I have -- I am board certified with the American Board of Pathology and Anatomical, Clinical and Forensic Pathology.
Q. And are you the author of any specific papers that deal with the field of pathology?
A. Yes, I have written a number of papers on various topics, in the field of forensic pathology, predominantly. I have also co-authored a book on death scene investigation and training
individuals to do death scene examinations, etcetera.
Q. Have you ever received any honors or special recognition in your field?
A. I -- I have been recognized in some areas, yes.
Q. Could you explain those to the jurors.
A. I have -- I have developed a child death review team in Milwaukee County for the last 15 years and we have been recognized for that.

We have also developed other testing methods and genetics to determine drug metabolism.

And I have been recognized as in the position of the vice president and president elect as I think an individual who would be a leader in the field.
Q. And would you look at, in front of you, I believe there is a document there which has been marked as Exhibit 432?
A. Yes.
Q. Do you see that?
A. Yes, this is a copy of my curriculum vitae. It's roughly around 24 pages and it documents the papers and presentations and other types of academic efforts that $I$ have done over the last

20 years.
Q. Now, Doctor, approximately how many autopsies have you performed in your career?
A. I typically perform, personally, between 250 and 300 autopsies a year. And then I supervise other pathologists and trainees and forensic pathologists in their cases. So I see a number of cases. Our office typically would perform around 1,000 or 1100 autopsies per year.
Q. And how many times have you testified in court as a forensic pathologist?
A. I would estimate that probably -- We get a number of subpoenas, but I would estimate that I probably testified once a week for the past 20 years.
Q. Could you put a number on this, please?
A. Probably -- I would say probably around 500 or 1,000 times.
Q. Thank you. Have you ever been rejected --
A. No.
Q. -- as an expert. Now, how did you become involved in this case, Doctor?
A. I was contacted by yourself in a telephone conversation and asked if $I$ would assist in the examination of some bone materials.
Q. And how would you describe your role in this case?
A. I would describe myself as a -- somebody who was brought in as a consultant.
Q. And have you been a consultant before.
A. Yes.
Q. And what type of cases have you been a consultant on?
A. For example, $I$ was recently in a child death case; I was a consultant. Other cases related to cause and manner of death; interpretation of gunshot wounds; and frequently asked by district attorneys around the State to inquire and make judgment on that. And I also consult with public defenders and other attorneys who might have questions related to injury and disease.
Q. How did this -- a case like this, where you are in the role of a consultant, differ from the typical case that you would receive at the Milwaukee County Medical Examiner's Office?
A. Well, in our routine business we would go to the scene of sudden and unexpected deaths that occur in the county. I might personally -- If there were a particular type of case, I might personally examine the scene myself and observe
materials at the scene, consult with law enforcement personnel at the scene.

And then, basically, process the body myself, examine x-rays and other materials, perform the autopsy, look at the tissues under the microscope with the assistance of a drug analyst. I might interpret drug levels in testing. And then if it were a case in Milwaukee County, I would determine the cause and manner of death and sign the death certificate.

In this case, my role was limited, as a consultant, to look at some material and render an opinion.
Q. And is that because the traditional autopsy would not be performed in a case such as this?
A. And, yes, that's true, plus -- well, an autopsy is basically an examination of a deceased person. In some cases, you have more material than are -and tissue than in other cases.

But in this case, it would be that I would not have performed the examinations myself, as far as the autopsy or dissection. And in this case my role is limited to examining small pieces of bone fragments and rendering an opinion.
Q. Would you explain to the jury what you did in the
course of your investigation in this case?
A. I was requested to go to Madison. And at the Dane County Coroner's Office I met with Dr. Leslie Eisenberg, the forensic anthropologist, and some attorneys and other individuals.

And we examined -- I was shown the material that Dr. Eisenberg had previously examined. I reviewed her report and I -- and she showed me some bone fragments. I also examined some x-rays of those bone fragments. And on the basis of those materials, I rendered an opinion.
Q. Did you also review various Crime Lab reports in this case?
A. Yes, I did. As well as the -- although I wasn't at -- I never went to the scene of this case, I was shown photographs and given laboratory information, looked at the x-rays and the reports.
Q. As part of your job as medical examiner, did you have experience with examining burned body parts?
A. Yes.
Q. About how many cases have you been involved in where there were burned body parts?
A. I would say on a routine basis we would examine
probably around 10 charred bodies per year, in our office.
Q. And as part of your job as medical examiner, do you have experience with interpreting x-rays?
A. Yes, in a general forensic sense, interpreting trauma and injury, yes.
Q. How are they used in your work?
A. We typically take $x$-rays on all pediatric cases, all gunshot wounds, stab wounds, and cases where there's some concern over identification.
Q. And as part of your job as medical examiner, do you have experience with bullets and bullet fragments?
A. Yes.
Q. On an annual basis, approximately how many cases, involving gunshots to the skull, would you see in the Milwaukee County Medical Examiner's Office?
A. I would give a rough estimate at probably around 100 to 120.
Q. Now, I believe you stated that you met with Dr. Eisenberg and you actually examined bone fragments in this case?
A. I did.
Q. Could you basically describe to the jurors, what was the condition of these bones that you
examined?
A. I would describe the bones as fragmented and charred. There was no intact skull fragments. And Dr. Eisenberg had separated out bone fragments from the skull and from other areas and so I was able to look at just small fragments of the bone -- bony material, as well as the x-rays of those areas.
Q. In particular, did you examine certain skull fragments?
A. Yes.
Q. And was there anything unusual about some of those skull fragments that you observed?
A. Yes, on two of the fragments, one fragment Dr. Eisenberg identified to me as the left parietal skull, or a bone from the left parietal skull. And the parietal bone, and I'm pointing to that area just about above my ear, the parietal bone is the -- a rather large flat bone that -- there's one on the right and the left side.

And Dr. Eisenberg identified a fragment of that bone and also there was a fragment that she identified as the left occipital bone. The occipital bone is the bone that's in the back of
the skull, in this area. And I'm pointing to that area behind and below my left ear.
Q. Was there any particular reason Dr. Eisenberg pointed these two skull fragment pieces out to you?
A. Those fragments were noted, by herself and the initial examining pathologist, to have a defect called internal beveling on the fragments and so I paid particular attention to those bones; although, I did make a gross examination of multiple skull bones that she had demonstrated.
Q. I'm going to put up on the screen what has previously been marked as Exhibit 390, and has been testified to by Dr. Eisenberg as a left parietal bone area; did you examine this?
A. Yes.
Q. And there is a laser pointer there on the desk, Doctor.
A. Yes.
Q. Could you point out to the jurors this beveling area and maybe amplify a bit on that for the jurors.
A. In addition to the beveling area, there was a semi-circular defect that has a shape on it that I would interpret as a portion of a whole. And
this area, we're talking about the inside portion of the skull, so this area you can see is fragmented.

And if you would imagine a stone or something striking glass and the way the glass fragments; it's the same thing for a bullet going through the skull. Typically there's an internal beveling that occurs on an entrance wound. And characteristically there's external beveling noted as the bullet exits the skull.

And we use these characteristics to help identify and determine where an entrance or exit wound would be on a skull, if there were two different types of perforation. So it would be my opinion that this is consistent with a perforating entrance gunshot wound -- I'm sorry penetrating entrance gunshot wound.
Q. And did you also review an x-ray that would be associated with this particular piece of skull fragment?
A. Yes.
Q. And I'm going to put up on the large screen what has previously been marked as Exhibit 397. And I'm going to ask you if you could again describe for the jurors what this shows?
A. Yes, this is the left parietal bone fragment. Again, you can see the internal beveling and the semi-circular perforation and there's also some small radio dense fragments that I'm pointing to with the pointer. I can see probably about two or three on the picture from here. And those are characteristic of metallic fragments the bullet imparts to the target as the bullet travels through bony material. It's a common finding in certain gunshot wounds to the skull and other bony fragments.
Q. And, again, did this support your original conclusion about this being an entrance gunshot wound?
A. Yes.
Q. I'm going to show you what has been marked as Exhibit 393, and previously testified to by Dr. Eisenberg as a bone fragment from the occipital area, and ask you if you recognize this?
A. Yes, that's the bone fragment located, according to Dr. Eisenberg, in the left occipital region.
Q. And, again, did you actually see this bone fragment when you were at Dr. Eisenberg's office?
A. Yes.
Q. And, again, would you take the pointer and just explain to the jurors, again, this beveling process that you have described about -- with the parietal?
A. Again, one can see the internal beveling pattern that's prominent here and there is a semi-circular appearance to the edge of the bony fragment.
Q. And, again, what did that indicate to you?
A. It was my opinion that that was consistent with a gunshot wound, entrance gunshot wound.
Q. And did you also review an x-ray that would be associated with this?
A. I did.
Q. And I'm going to show you what has been marked as Exhibit 398? And, again, would you take the laser point and point to any areas of particular interest for the jurors.
A. Yes, I'm pointing to the bony fragment on the photograph and, again, on the semi-circular area with the internal beveling. There is a rather localized area of multiple radio dense fragments. And it would be my opinion that these would be consistent with and suggestive of metallic lead type fragments that the bullet delivers to the
bone as it's it passing through the bone. Could I expound on that?
Q. Please.
A. The bone is actually -- the bone in the skull is actually kind of like a wafered cookie. There's -- there's a bony -- a bony surface on the outer portion, a bony surface on the inner portion and the material in the inside is rather porous. It's actually where there's bone marrow and that's how the bone grows.

And so we call the outer table, the outer portion of the skull. And the inner table is the inner table -- is the inner portion of the skull. And the portion between is -- is -- is rather porous. And, then, as you can see in this area, this is predominantly where these small metallic fragments are pushed into or imparted into the bony tissue.
Q. Based upon your examination of the skull fragments and the $x$-rays and all the associated records and reports that you reviewed in this case, do you have an opinion, to a reasonable degree of medical certainty, as to the manner of Teresa Halbach's death?
A. Yes, I do.
Q. And what is that opinion?
A. It would be my opinion that she died as a result of gunshot wounds to the head and that the manner of her death would be homicide.
Q. And based upon your examination of the skull fragments and x-rays and all the associated reports in this case, do you have an opinion, to a reasonable degree of medical certainty, as to the cause of Teresa Halbach's death?
A. Yeah, I believe that she -- her -- the cause of her death would be the gunshot wound to the head. And the manner would be the homicidal designation.

ATTORNEY GAHN: Thank you, Doctor. That's all I have.

THE COURT: Mr. Strang.
CROSS-EXAMINATION
BY ATTORNEY STRANG:
Q. Dr. Jentzen, about what -- when, I should say, was it that Mr. Gahn first called you to consult on this case?
A. I would say it was the early portion of November, or very late portion of October.
Q. 2006?
A. Yes.
Q. Just about a year after you understood that the bones were examined, or the fragments of bones were?
A. I would say so, yes.
Q. Give or take?
A. Yeah.
Q. Okay. And it was also well after you knew that Steven Avery had been charged in the homicide of Teresa Halbach?
A. I had knowledge of that through the regular media, yes.
Q. Sure. Widely reported case?
A. Right.
Q. You knew of it just from reading the paper, or looking at the internet, or whatever you do?
A. Yes.
Q. All right. And when you got involved, you come over to Madison, you look at some bone fragments that Dr. Eisenberg has set out for you?
A. Yes. Actually we looked at all the bone fragments that she had, yeah.
Q. She identified for you the parietal bone fragments?
A. Correct.
Q. She identified for you the occipital bone
fragments?
A. Correct.
Q. You were not able to identify those bones yourself?
A. I could probably identify them as a skull bone fragment, but it would be difficult for me to place them specifically into a left occipital and parietal bone.
Q. Okay.
A. And that would be in the area of expertise of an anthropologist.
Q. Reasonable in your view to rely on

Dr. Eisenberg's expertise in telling you where in
the skull she thought these bones came from?
A. Correct.
Q. The meeting that you described with

Dr. Eisenberg, you said that there were others there, including some attorneys?
A. Correct.
Q. Just to be clear, there were not defense attorneys there?
A. Correct.
Q. The attorneys were both from the state or prosecution?
A. The three attorneys at the table, yes.
Q. Fair enough. Okay. Now, you, I gather although you were only -- well, you didn't do an autopsy here, as you said?
A. Correct.
Q. Although you were in a consultant role, you asked for the information you thought might be helpful to forming an opinion?
A. Yes. I examined what $I$ would typically examine in a case where $I$ was asked to consult, autopsy protocol laboratory tests, if they were available; scene investigation materials on a -police reports. It would be consistent with the same type of examination $I$ would do if it was any other kind of forensic examination.
Q. You asked for all of the information available that you thought might help you in forming your opinions?
A. Specifically, within my area of expertise, yes.
Q. I mean, you know, your opinions are within your area of expertise?
A. Correct.
Q. So you were interested in information that might bear on the opinion you hoped to form?
A. Correct.
Q. None of the information you requested was
withheld from you, was it?
A. Not to my recollection, no.
Q. You got what you thought you needed?
A. Yes.
Q. Here, as in any other case involving a charge of a homicide, you understand that the personal stakes are high for the family of the victim?
A. Yes.
Q. The family of the defendant?
A. Yes.
Q. The defendant himself?
A. Yes.
Q. It's a serious case when the allegation is homicide, obviously?
A. Yes, as I mentioned, I probably testify on probably 50 to 100 homicide type cases a year.
Q. Right. And you're -- because you're a forensic pathologist, every time you testify, to some extent your own reputation is -- is at stake?
A. I make opinions based on the evidence that I'm given and use my background experience in training and education to make opinion statements, correct.
Q. Sure. And you want those opinions to be expressions that you can stand behind
confidently?
A. To the best of my ability, yes.
Q. Stake your reputation to?
A. Yes.
Q. And, of course, any time you testify, just as today, you are testifying under oath?
A. Yes.
Q. You came here, as I understand it, offering two specific opinions: One, the more general, would be manner of death; am I correct?
A. Correct.
Q. And then, the second, and more specific in a sense, would be cause of death?
A. Correct.
Q. All right. Let's start with the more general, manner of death. We have heard a little bit about this, but not from a pathologist or medical examiner. In your work, we could say that there are four determined manners of death; is that right?
A. Typically five.
Q. All right. One would be accidental?
A. Correct.
Q. No special order here, but one of these is accidental, another is natural?
A. Yes.
Q. A third would be suicide?
A. Yes.
Q. And fourth, homicide?
A. Yes. Fifth is undetermined.
Q. Very good. That's the one we didn't hear about yesterday. Unexplained or undetermined is your term of choice?
A. Undetermined, yes.
Q. All right. We'll use undetermined. So that would be the fifth manner of death, which is different than the other four in the sense that it's -- it's what you say when you don't know?
A. It's what we say when we can't definitively determine between, or distinguish between, for example, an accident and a suicide, or a homicide and an accident, yes.
Q. Sure. Okay. And then, if we descend to the specific cause of death, there is as many as there are the ways that people die in some sense. I mean, this would be a gunshot in one case, it would be a drug overdose in another, you would try to identify the drug, if you could --
A. Correct.
Q. -- in that instance?
A. Correct.
Q. It may be just any -- any of a number of ways that can cause people to die?
A. Yes.
Q. All right. And what you do in establishing cause of death, if you can, is be as specific as possible?
A. Yes. And I would say, based on the materials and evidence that's present, we make an opinion on that, yes.
Q. All right. And by specific as possible, let's, since you are talking today about gunshots, let's use a gunshot case. When you get a full course or, you know, most of the course, you may find multiple gunshot wounds in evidence at autopsy?
A. Yes.
Q. When that happens, you make an effort, to the extent medically possible, to determine which of the gunshot wounds would have led to death?
A. Yes. And in some cases there are multiple wounds and others $I$ would describe as non-lethal and others are potentially lethal.
Q. Sure.
A. Others are definitely lethal.
Q. Sure. So -- And, again, just by way of example,
if someone has five gunshot wounds, you may be able to say, for example, that two of these definitely would have been lethal; two definitely would not have been lethal in the ordinary course of medical care; and maybe the fifth, possibly lethal?
A. Correct.
Q. Something like that. And just as an example.
A. Yes.
Q. All right. Now, here you saw evidence of two gunshot entrance wounds?
A. Yes.
Q. To bones that you could identify, personally, as probably being from a human skull?
A. Correct.
Q. And as to which you had more specific locations from Dr. Eisenberg?
A. Yes.
Q. You saw no bones displaying anything you viewed as an exit wound?
A. Correct.
Q. A bullet leaving the body.
A. Correct.
Q. You, therefore, were not able to draw any conclusions about what we might call wound track?
A. Correct.
Q. The direction or angle at which a bullet penetrates the body?
A. I would say, based on the material that I had, I wasn't able to do that, correct. In some cases, when you have more intact specimens, you can certainly render more definitive --
Q. Sure?
A. -- opinions as to wound track, direction of fire, that type thing.
Q. But those were not opinions you were able to form or render here?
A. Correct.
Q. Now, tell the -- I mean, in your opinion, the cause of death here was one or two gunshot wounds?
A. Yes.
Q. To the head?
A. Correct.
Q. All right. Tell, the ladies and the gentlemen of the jury all of the information you have in this case that allows you to conclude that either of the two bullets here first struck skull bone while the victim was alive?
A. Okay. Could you repeat that question.
Q. Sure. I would like you to simply tell the ladies and gentlemen of the jury what information you have here that allows you to conclude that either of these gunshot wounds occurred while the victim was alive, that is, bullet struck bone, while that person was alive?
A. I don't specifically think that there's any one piece of information that would say that the person was alive, with a beating heart, or an intact brain. There's material and I was given information that there was a spent bullet recovered at the scene that contained the blood specimens of the decedent.

And that would be indicative to me that the bullet had passed through the brain at a time, whether it was liquified blood, or that it wasn't going through specifically bone fragments. And I would think that that would be the predominant -- that would be information that I think would be helpful in making that type of opinion.
Q. All right. We have certainly had testimony that Teresa Halbach's DNA was found on a bullet fragment?
A. Right.
Q. I, at least, recall no testimony that Teresa Halbach's blood was found on a bullet fragment, but the jury will decide in the end, that. And in a sense it doesn't matter.

Is there any way to distinguish the bullet you -- hole you saw, either one, from a gunshot that was fired into the head of an intact corpse, from a gunshot that was fired into the head of a living person?
A. I don't think I could make a definitive determination based on whether the individual was in a peri-mortem time frame or whether the individual was skeletonized. It would be my opinion that the wounds showed an intact, robust bone that is consistent with what I would say non-skeletonized material, meaning that these look like -- typically like an entrance wound through a bone of a person who is not a skeleton.

And the way -- the reason I described that and I would make that -- that clarity is that in a skeletonized bone, where you have got dried bone material, as the bullet passes through it, I would suspect that there would be a different kind of fracturing and that it wouldn't get the same type of gunshot wound, particularly
in the parietal bone fragment that I can see. That would just be my opinion on that.
Q. Okay. So, you know, I'm trying to track you here, but as I understand, you think these bullet holes were made before the body was in a purely skeletal condition?
A. Yes.
Q. All right. Let's go back to the question $I$ asked. The gunshot wounds to the bones you observed, would be indistinguishable if the bullet had hit the bone 30 minutes after the person had expired or 3 seconds before the person expired?
A. I would agree with that, yes.
Q. You would. And if the person was 30 minutes expired when the bullet hits bone for the first time, then the gunshot did not cause the death, true?
A. If the individual was dead before the gunshot -sustained the gunshot wound to the head, then the bullet would not have caused the death.
Q. The bullet wounds you saw are as consistent with a bullet striking a non-skeletal body after death, as they are with a bullet striking the skull before death?
A. I would say so, yes.
Q. If death occurred before the first bullet struck bone here, then there was another cause of death entirely, as a matter of logic, wasn't there?
A. I would agree with that, yes.
Q. And as to -- In that situation, as to cause of death, you cannot give an opinion?
A. Are you talking about specifically in this case or are you talking about if $I$ have got a skull with two bullet holes in it without any other information?
Q. Well, let's start without any other information.
A. I would say that the two gunshot wounds to the head are highly suspicious for a non-intentional, or the individual would not have done it themselves, because of the multiple nature of the injury.
Q. Sure.
A. And with the caveat that, you know, whether it was done before or after the person died.
Q. Okay. So, let's -- let's unpack that. If we have two gunshots to the head, we're highly doubtful that this is suicide?
A. I would say so, yes.
Q. Right. Most suicides --
A. Assuming that these were the ones that caused her death --
Q. Sure.
A. -- yes.
Q. Most suicides don't get off a second shot?
A. Correct.
Q. All right. You would suspect homicide?
A. Correct.
Q. But you also would have to suspect accidental death if you had gunshot holes in a skull, absent other information.
A. I wouldn't suspect that there would be two perforations with a accidental type -- or two entrance wounds with an accidental type death, unless it was a multiple missiles; for example, like a buck shot injury, or something along those lines.
Q. Sure. And in that instance it would be relevant information if the deceased was found dressed in blaze orange in shrubbery, in the middle of the woods in the third week of November. That's information that might be relevant to determining whether two gunshot wounds to the head were accidental or homicidal?
A. I would say that would be helpful information
yes.
Q. Sure. You would need more information, in any event?
A. Yes.
Q. By homicide, if we back up on manner of death, we didn't explain that here, but this, in your argot, homicide would mean the intentional causation of another persons death?
A. That a homicide in my, would be that the death was caused by another person, correct.
Q. Correct. And it does not necessarily connote legal liability, homicide in that sense?
A. I don't make those determinations.
Q. Right. So if something later proves to be, let's say a justified shooting in self defense, it's still a homicide in your world because it's one person causing the death of another?
A. Correct.
Q. All right. Now, back closer, I guess to this case, you can't tell whether these bullet holes in the skull were made before death or after death. You can -- You can tell only that they are made before the remains are skeletal?
A. Correct.
Q. All right. And if the bullet wounds were made
after death, then necessarily something else is the cause of death?
A. I would agree with that.
Q. And as to what that might be, there's almost nothing you could rule out, based on the information you had?
A. Based on the evidence that $I$ have, yes.
Q. So --
A. There could be other -- There could be other, for example, drugs or something along those lines --
Q. Sure.
A. -- that $I$ don't have access to.
Q. And we could sit here all a day on that, but someone could have been strangled and then shot after -- after they --
A. Certainly is possible.
Q. -- expired.
A. Yes.
Q. Beaten, shot after they expired.
A. Correct.
Q. Drugs, as you say, a drug overdose, shot after they had died of the drug overdose?
A. Correct.
Q. And I won't go on but, in other words, there's nothing that you can say about opining on cause of death, if the gunshot wounds occurred after death?
A. On the cause of death, yeah, I would say so.
Q. And then, likewise, once -- once we don't have a cause of death, it's similarly difficult to assign a manner of death?
A. Well, medical examiners and forensic pathologists don't make determinations on manner of death in a vacuum. We utilize, as I mentioned, evidence from the scene. And if we can go to the scene, personally, we use that information. Or if we can't, then we use photographs and other people's reports to use that information.

We use laboratory data. We use evidence that's recovered. And we -- we put that together and we render our opinion as to what the manner of death is. We don't do it in a vacuum with a single piece of information, in isolation from all others.
Q. Of course not. Of course not. And in a cause of death, for example, you cited to these jurors, your understanding that a bullet or bullet fragment was found with what you thought was blood of the victim on it. And that, initially, factored into your opinion on cause of death?
A. That was one of the things, yes.
Q. Sure. You now acknowledge, that as long as the remains weren't skeletal, blood or DNA could have been left on that bullet, passing through the skull of a dead person?
A. Correct.
Q. Likewise, with manner of death you, of course, consider all the information you have, that's almost obvious, isn't it?
A. Correct.
Q. And some of the information you have here is that the bone fragments you saw were burned?
A. Correct.
Q. Badly burned?
A. Correct.
Q. Burned to the point that they had fragmented and fallen apart?
A. Yes.
Q. That suggested to you, in your line of work, some effort to conceal the body or disguise the body?
A. Exactly.
Q. And you said to yourself, now, with that information, why would someone want to conceal the fact of death. Well, one obvious reason would be that the death itself, you know, the
fact that the person died, might be incriminating or awkward in some way.
A. That would be information that would be valuable, yes.
Q. Sure. And an effort to conceal death is something you see frequently, or at least not infrequently, in homicide cases?
A. Correct.
Q. It's also something you will see less frequently, but it's happened in your experience, you will see this in accidental deaths, on occasion?
A. I would say it would be pretty rare, yes.
Q. Well, let's -- let's offer some paradigms and see if you have had these kinds of cases in your experience. None of them -- And I'm not suggesting any of these paradigms bear any similarity to this case, but I want to explore the relation between an unknown cause of death and the manner of death.
A. Sure.
Q. Okay? A young teenager who's become pregnant out of wedlock, feels a great deal of shame about that, conceals the pregnancy, ultimately gives birth by herself, the baby dies for want of medical care and an effort is made to conceal the
newborn.
A. And you are giving that as an example of what --
Q. Concealment.
A. -- manner of death?
Q. Concealment in connection with an accidental manner of death.
A. I don't know if $I$ would attribute that to an accidental manner of death; it would depend upon the totality of the information that's available.
Q. Sure.
A. Resuscitation efforts, evidence of trauma and injury on the child, age, etcetera. So, again, you can't take a specific issue and look at it in isolation. You need all the information.
Q. Understood. And sometimes in the sort of paradigm that I have explained, sometimes, unfortunately, the young mother will smother the infant or do something active to cause the infant's death, other times it simply the lack of medical care, the infant can't thrive or survive?
A. Correct.
Q. Dies of, in a sense, a natural cause or an accidental cause, for want of medical care at the time of birth?
A. Again, $I$ don't know if we're talking about an
accident or ...
Q. Right.
A. -- or another type of injury, that you are talking about.
Q. Yes.
A. But $I$ think it would be very rare to call a death like that an accident.
Q. All right.
A. There -- I mean, there might be other examples.
Q. Another example would be, something you may have run across, two people involved in an adulterous affair or liaison and one drops dead of a heart attack. Some effort may be made under those circumstances to conceal the fact, or at least the timing or place of death.

ATTORNEY GAHN: Objection, your Honor, as to relevancy of this.

THE COURT: Mr. Strang.
ATTORNEY STRANG: I'm simply trying to establish that there are instances in which accidental death, as a manner, will be matched with concealment.

THE COURT: Is that in dispute?
ATTORNEY STRANG: Is that in dispute?
THE COURT: Do you acknowledge that such
circumstances can exist?

THE WITNESS: I would acknowledge that there's concealment in some cases, your Honor, but examples that are given here, I don't think I would agree with. Could I expound on that?

THE COURT: Go ahead.
ATTORNEY STRANG: Sure.
A. I have never seen a individual burned in an attempt to conceal an adulterous affair and somebody who dies suddenly during an act of intercourse. On occasion, we will see individuals who die from drug overdoses that would be dumped at a different location, but it would be very uncommon or rare to see any mutilation or other types of bodily disruption to hide that kind of death.
Q. Okay. Fair enough.
A. And so the type of burning and charring that $I$ would see in this case would be, in my opinion and my experience, most consistent with homicidal type of manners of death and extremely rare in others.
Q. Fair enough. Okay. You simply, you think this is most consistent, you can't rule out other possibilities?
A. I can't rule out other possibilities beyond -beyond the impossible, correct.
Q. Well, and one of the problems we have here is that we're dealing -- we're in a forensic setting, the intersection of the pathology with law, correct?
A. Yes.
Q. And you know that there is both a first degree intentional homicide charge that these folks will have to decide and a mutilating a corpse charge they will have to decide, correct?
A. I'm not aware of what the -- of what the legal standards are being used here as far as --
Q. Or what the charges are?
A. And what the charges are.
Q. You are familiar with the fact that Wisconsin has a crime for mutilating or concealing a corpse?
A. I am, yes.
Q. All right. And you are familiar that Wisconsin has a crime of first degree intentional homicide?
A. I am aware of that, yes.
Q. All right. And you are not -- Your field of expertise does not allow you to render an opinion on who fired a shot, or shots, into this skull?
A. No. I don't have that information, no.
Q. Your area of expertise does not allow you to render an opinion on who caused the burning or charring of the bone fragments you saw?
A. That's correct.
Q. And whether one or more, two, three, four, however many people are involved, in one or the other of those alleged crimes, you are not able to say?
A. In this case $I$ can't, no.
Q. Right. And whether one person is involved in one offense, but not in the other, you are not able to say?
A. Correct.
Q. All right. So these are the reasons for my questions and $I$ guess in the end, what you are telling us is that your opinion on manner of death rests in part on the fact that you see gunshot entrance wounds?
A. Correct.
Q. And then rests on the burning or charring that you saw here, of the skeleton?
A. Correct. Could I expound on that?
Q. Well, I don't want to -- if you have useful information --
A. There may be other issues.
Q. -- you can answer that question.
A. There may be other issues related to the determination of manner of death, in addition to simply the evidence of gunshot wounds and the evidence of concealment.
Q. And are there other specific issues here that you rely upon in offering the opinion that homicide is the manner of death here?
A. I would have other information, yes.
Q. Do you have other information in this case?
A. Yes.
Q. That came from the police?
A. It came from the investigators, yes.
Q. All right. Your opinion, in any event, is that homicide was the manner of death?
A. Correct.
Q. You did not view this as unexplained?
A. Correct.
Q. Not withstanding the fact that you cannot here, as I understand you, assign a cause of death other than by assuming that the bullet holes were made, at least one of them was made, while the person was alive?
A. Correct.
Q. Just to be perfectly clear here, in the end, as
you sit here today, you can't tell this jury whether one or both of these gunshots were made while the person was alive?
A. That would be correct, yes.
Q. If they were made after death, they did not cause the death?
A. That would be true, also.
Q. But your opinion remains that gunshot is the cause of death?
A. Correct.

ATTORNEY STRANG: That's all I have.
THE COURT: Mr. Gahn.
ATTORNEY GAHN: Thank you, your Honor.

## REDIRECT EXAMINATION

BY ATTORNEY GAHN:
Q. Dr. Jentzen, you talked about, as a medical examiner, not viewing one particular piece of information in a vacuum and you talked about having helpful information and looking at the totality of the circumstances; would you explain what all of that means, to the jurors, in the context of this case.
A. Well, on a daily basis, the medical examiner, I mean, for example, I would investigate hundreds of deaths a year. And that investigation entails
seeing information: History, medical history of the individual, habits and social habits of the individual, past medical history, and then, finally, the appearance of the body. Possibly the position of the body in some cases, at the scene, may determine whether the death is an accident or a natural death, based simply on the position and other artifacts that we would see on the body.

Medical examiners and coroners do this on a routine basis and looking at individual cases. And to take one specific area or one single piece of information and to say that this is an accident, or a homicide, or a undetermined case, $I$ think is not real consistent with how medical examiners and coroners function in evaluating and investigating deaths.

On a daily basis, we make determinations as to cause and manner of death, based on evidence, information, scene investigation, medical history.
Q. And how many years have you been in the profession as a medical examiner?
A. This is my 21st year as a medical examiner for Milwaukee.
Q. And did you state that annually you will look at maybe 100 cases involving gunshot wounds to the skull?
A. Typically our office would investigate between, I would say, roughly 100 to 120 or 30 homicides and probably 100 to 130 or 40 suicides. And 60 to 70 percent of those are gunshot wounds. And the vast majority of those are to the head and upper torso areas. Many times there's multiple wounds, there's different types of ammunition.

And in addition, that we attend lectures and other educational programs to expand our understanding of both the -- the bodies, and the projectiles and weapons, and the circumstances, and we render opinions, legally bound -- binding that determine cause and manner of death where there is a lot at stake.

ATTORNEY STRANG: Your Honor, I object to the reference to a legally binding determination of this witness, that's entirely out of place and the jury should be told that there is no legally binding determination by this witness.

ATTORNEY GAHN: I don't believe that's what the doctor was saying.

THE COURT: Well, I agree, I guess it
depends on your definition of legally binding, but to the extent, certainly, it invades the province of the jury, the Court agrees very strongly, that's the jury's determination in this case. And I will instruct the jury to that affect. I'm not sure of the context in which it was used.

ATTORNEY GAHN: I took it to mean that he just gives opinions in cases that other people make decisions on. That's what $I$ took the context in.

THE COURT: Anything else?
ATTORNEY GAHN: Yes.
Q. (By Attorney Gahn)~ Doctor, do you believe that you had sufficient information in this case to render an opinion as to manner of death and cause of death?
A. Yes.
Q. And today you are in Calumet County testifying, right?
A. Correct.
Q. If this case had happened in Milwaukee County and with all the information that you know in this case, would you have rendered an opinion as to manner and cause of death, if this were your case in the Milwaukee County Medical Examiner's Office?
A. I would have rendered the same opinion.
Q. And is that opinion -- And, again, what is your opinion as to the manner of death of Teresa Halbach?
A. It would be my opinion that she died as a result of gunshot wounds to the head and the manner of her death is homicide.

ATTORNEY GAHN: Thank you. That's all I have.

THE COURT: Anything else, Mr. Strang?
ATTORNEY STRANG: No, thank you.
THE COURT: All right. The witness is excused. Members of the jury, that is all the evidence that we're going to hear today. At this time I'm going to excuse you for the rest of the day. I will let you know in a minute, because of the order of things, why. Before I do that, since we are adjourning for the weekend, at this point I want to read to you the warning that you have heard before, but it's still very important.

The Court's decision not to sequester the jury during the trial in this case is dependent on the jurors not listening to, watching, or reading any news accounts of the case, nor discussing it with anyone, including
members of your family or other jurors.
For these reasons it is vital that you do not listen to any conversation about this case. Do not read any newspaper or internet reports or listen to any news reports on radio or television about this case.

To assure that you are not exposed to any improper media coverage, the Court has ordered that, for the duration of the trial, you do not watch the local news on television, do not listen to the local news on radio, and do not read the newspaper unless you first have someone remove any articles about the case. In addition, you are not to visit any internet websites or web logs which may include any information about the case.

Since we are breaking for the weekend, I understand that some of you may be working at places of employment. Do not discuss the case with any employers, employees, or patrons, do not volunteer your status as a juror to anyone.

If anyone attempts to discuss the case with you, politely but firmly notify them that you are prohibited from discussing the case. If you're involuntarily exposed to any information
about the case from any source, take steps to immediately avoid any further exposure.

Should you be exposed to any reports or communications from any source concerning the case during the trial, or should you become aware of anything you believe may affect your ability to serve as a juror, you should not discuss your concerns with any other jurors but should report any concerns to the jury bailiff.

Now, I have also told you, previously, that occasionally during the trial there will be times when the Court has to take up matters with the attorneys, outside the presence of the jury. There is going to be one such occasion on Monday. And because it is a matter which may take the greater part of the day, rather than have you sitting around and waiting until we're finished, I'm not going to have the jury report for duty on Monday. I'm going to have you report for duty on Tuesday at the normal time.

Because of the fact that you are not going to be here on Monday and it's a weekday, I want to make especially sure that you pay attention to the warning $I$ just read, that is, make sure you don't discuss it with anyone, avoid
any exposure to the case.
But it is necessary for the Court to hear information outside your presence on Monday and for that reason you will not be reporting on Monday but reporting on Tuesday morning, at the normal time. With that, I will excuse you for the weekend at this time.

ATTORNEY GAHN: Your Honor, may I move in Exhibit 432, the CV of Dr. Jentzen?

ATTORNEY STRANG: No objection.
THE COURT: All right. That exhibit is admitted.
(Jury not present.)
THE COURT: You may be seated. Appears the jury is not disappointed that we'll be going home early. All right. Then, on Monday, we'll report back to this courtroom at the normal time. Correct, counsel?

ATTORNEY STRANG: Yes, sir.
THE COURT: All right. I will see you then.

ATTORNEY FALLON: Your Honor, could we have an accounting on the exhibits; there's a number of exhibits that may not have been moved in that we would like to move into evidence at this time. And
then if the Clerk would check her score cards.
THE CLERK: Sure.
THE COURT: I have to address another matter at this time. Let me suggest this, why don't the attorneys meet with the clerk first thing Monday morning. If you discover there is action that needs to be taken with respect to any of the exhibits, we'll do it at that time.

ATTORNEY FALLON: All right. Thank you. (Proceedings concluded.)

STATE OF WISCONSIN ) ) ss COUNTY OF MANITOWOC )

I, Diane Tesheneck, Official Court Reporter for Circuit Court Branch 1 and the State of Wisconsin, do hereby certify that I reported the foregoing matter and that the foregoing transcript has been carefully prepared by me with my computerized stenographic notes as taken by me in machine shorthand, and by computer-assisted transcription thereafter transcribed, and that it is a true and correct transcript of the proceedings had in said matter to the best of my knowledge and ability.

$$
\text { Dated this 21st day of November, } 2007 .
$$

Diane Tesheneck, RPR Official Court Reporter

|  | 6 | $70 / 472 / 9$ |
| :---: | :---: | :---: |
| 22 [2] 35/1135/20 | 60 [1] 82/6 | already [1] 34/12 |
| . 22 caliber [2] 35/11 35/20 | 7 | although [4] 46/15 49/10 57/1 |
| 0 | 70 [2] 7/15 82/6 | $\begin{aligned} & 57 / 5 \\ & \text { aluminum [1] } 36 / 8 \end{aligned}$ |
| 05[2] 1/5 3/3 | 79 [1] 2/12 | American [2] 40/17 41/17 |
| 1 | 8 | ammunition [1] 82/10 |
| $\begin{aligned} & 1,000 \text { [2] } 43 / 943 / 18 \\ & 10 \text { [2] } 22 / 547 / 1 \end{aligned}$ | 87[2] 2/14 2/14 | amounts [2] 20/16 28/6 amplify [1] 49/21 |
|  | 9 |  |
| 100 [6] 8/20 47/19 58/16 82/2 $82 / 582 / 6$ | 92 [1] 20/7 | analysis [13] $4 / 19$ 5/3 7/6 7/22 |
| 11[1] 22/6 | 99 [1] 35/22 | $\begin{aligned} & 10 / 1911 / 1913 / 1515 / 1916 / 9 \\ & 18 / 1224 / 126 / 2434 / 4 \end{aligned}$ |
| $1100[1] 43 / 9$ | A | analyst [1] 45/7 <br> analyze[2] 6/19 7/24 |
| 12[3] 20/25 22/6 22/19 | A |  |
| 120 [2] 47/19 82/5 | A310 [1] 9/9 | $\begin{aligned} & \text { analyze [2] } 6 / 197 / 2 \\ & \text { analyzed [1] } 15 / 19 \end{aligned}$ |
| 130 [1] 82/6 | ability [3] 59/2 86/6 89/14 | analyzer [1] 7/8 |
| 15 [2] 1/4 42/8 | above [1] 48/18 | analyzing [1] 23/3 |
| 15th [1] 11/22 | absent [1] 68/10 | anatomic [3] 39/4 40/25 41/6 |
| 16 [1] 11/23 | academic[2] 39/22 42/25 | Anatomical [1] 41/18 |
| 165 [2] 8/118/16 | Academy [1] 40/17 | angle [1] 63/2 |
| 17th [1] 16/8 | accept [2] 33/16 33/17 | annual [1] 47/15 |
| 1980 [1] 6/5 | accepted [1] 11/25 | annually [1] 82/1 |
| 1987 [1] 39/12 | accident [6] 60/16 60/17 75/1 75/7 | 59/25 60/22 67/3 69/8 69/10 <br> 69/17 75/3 75/10 88/3 <br> answer [6] 14/16 14/17 14/19 15/1 |
| 2 |  |  |
| $20 \text { [3] 38/22 43/1 43/14 }$ | accidental [11] 59/22 59/25 68/9 |  |
| $2005 \text { [1] } 8 / 24$ | 68/13 68/14 68/24 73/11 74/5 | $15 / 579 / 1$ |
| 2006 [5] 11/22 11/23 16/8 16/12 | 74/8 74/23 75/21 | answered [1] 36/15 |
| 54/24 | according [1] 51/21 | anthropologist [2] 46/5 56/11 |
| 2007 [2] 1/8 89/15 | accounting [1] 87/23 | antimony [1] 36/5 |
| 21 st [3] 16/12 81/24 89/15 | accounts [1] 84/24 | anyone [4] 84/25 85/21 85/22 |
| 24 [1] 42/23 | accurate [1] 21/22 | $86 / 25$ |
| 250 [1] 43/4 27 [3] 4/25 6/16 8/5 | lele $\begin{aligned} & \text { acknowledge [3] 72/2 75/25 76/2 } \\ & \text { across [2] 17/14 75/11 }\end{aligned}$ | anything [8] 3/20 4/17 21/13 |
| 27[3] 4/25 6/16 8/5 |  | 48/12 62/19 83/10 84/10 86/6 |
| 3 | $\begin{aligned} & \text { I] } 76 / 10 \\ & \text { n [1] } 88 / \end{aligned}$ | anywhere [1] 38/23 apart [1] 72/17 |
| 30 [3] 66/11 66/15 82/5 | active [2] 40/11 74/18 | appear [1] 24/5 |
| 300 [1] 43/5 | actively [1] $5 / 12$ | appearance [3] 12/6 52/7 81/4 |
| 31 [3] 2/5 2/14 2/14 | actually [8] $22 / 2$ 34/8 47/21 51/23 | appearances [2] 1/11 3/7 |
| 35 [3] 2/6 2/7 40/6 | 53/4 53/5 53/9 55/20 | appeared [2] 1/22 11/25 |
| 38 [1] 2/10 | add [1] 36/4 | appearing [1] 3/11 |
| 381 [2] 1/5 3/3 | addition [7] 10/1 12/25 15/22 | appears [5] 3/9 12/2 17/18 24/12 |
| 390 [1] 49/13 | 49/23 79/3 82/11 85/13 | 87/14 |
| 391 [5] 10/8 10/10 10/14 10/24 | additional [3] 15/10 16/6 16/10 |  |
| 10/25 | address [1] 88/3 | approximately [20] 7/15 8/8 8/11 |
| 392 [11] 11/1 11/5 11/6 11/11 | adds [1] 23/8 | 8/17 16/6 17/11 17/17 19/24 |
| 11/15 12/2 19/19 20/4 20/21 | adjourning [1] 84/18 | 20/23 20/25 21/6 21/7 25/20 27/7 |
| 22/1130/13 | administrative [1] 39/14 | 27/11 28/1 28/2 39/11 43/2 47/15 |
| 393 [1] 51/17 | admitted [3] 2/13 31/6 87/12 | April [1] 34/7 |
| 397 [1] 50/23 | adulterous [2] 75/11 76/9 | area[57] 6/22 7/6 8/19 10/18 11/9 |
| 398 [8] 17/21 17/22 17/24 23/24 | advised [1] 26/15 | 11/18 13/14 15/18 15/19 19/2 |
| 24/11 31/14 32/9 52/16 | affair [2] 75/12 76/9 | $19 / 2020 / 520 / 820 / 1320 / 15$ |
| 4 | affect [2] 83/5 86/6 <br> affiliated [1] 39/21 <br> again [18] 19/19 23/23 24/18 | 20/18 21/8 21/15 21/21 21/23 |
| 40 [1] 82/6429 [13] 16/16 16/20 16/21 18/16 |  | 21/25 22/3 22/8 22/21 24/24 <br> 25/20 25/21 26/7 26/8 26/8 26/9 |
|  | 29/1750/24 51/2 51/12 51/23 | ( $27 / 4$ 27/12 28/20 28/20 28/21 |
| 23/25 24/16 24/17 25/16 26/16 | 52/1 52/2 52/5 52/9 52/16 52/20 | 28/25 29/3 30/14 39/19 48/18 |
| 26/19 30/17 31/3 31/25 | 61/25 74/12 74/25 84/2 | $49 / 149 / 249 / 1549 / 2149 / 2350 / 1$ |
| 429-431 [1] 2/14 | age [1] 74/12 | 50/2 51/19 52/20 52/22 53/16 |
| 430 [14] 18/17 18/18 18/19 18/20 | Agent [1] 16/13 | 56/10 57/18 57/20 78/1 81/12 |
| 18/22 23/25 24/16 26/14 26/16 | agree [5] 66/14 67/5 70/3 76/5 | areas [23] 6/19 20/13 20/20 20/23 |
| 26/19 26/21 28/12 30/1731/3 | 82/25 | $20 / 2521 / 1021 / 1221 / 1322 / 5$ |
| 431 [8] 2/14 19/6 19/8 19/9 19/12 | agrees [1] 83/3 | $22 / 2023 / 923 / 1025 / 1926 / 528 / 8$ |
| 29/5 29/6 31/3 | ahead [2] 15/8 76/6 | 28/9 28/10 28/19 42/5 48/5 48/8 |
| 432 [3] 2/14 42/19 87/9 | alive [6] 63/24 64/5 64/6 64/9 | 52/17 82/9 |
| 5 | ```79/23 80/3 allegation [1] 58/13 alleged [2] 33/15 78/7 allow [3] 36/18 77/23 78/1 allows[2] 63/22 64/3 almost [6] 4/25 25/24 32/6 35/22``` | argot [1] 69/7 <br> around [9] 23/9 27/2 42/23 43/9 |
| 50 [1] 58/16 |  |  |
| 500 [1] 43/17 |  | arrow [4] 11/10 11/17 25/24 25/25 |
| 54 [1] 2/11 |  | arrow [4] 11/1011/17 25/24 25/25 articles [1] 85/13 |
|  |  |  |

artifacts [1] 81/8
asked [15] 5/16 10/2 10/4 14/11
15/22 34/8 35/15 36/14 36/15
43/24 44/12 57/5 57/9 57/15 66/9
aspects [1] 41/5
assessing [1] 23/5
assign [3] 10/20 71/6 79/20
assigned [1] 19/13

14/12 23/5 28/14 43/24
assistance [1] 45/6
assistant [3] 3/10 3/11 39/10
assisted [2] 7/3 89/10
associated [5] 27/20 50/19 52/13
53/20 54/6
Association [2] 40/13 40/14
associations [1] 40/10
assorted [1] 9/9
assuming [2] 68/1 79/21
assure [1] 85/7
attack [1] 75/13
attempt [1] 76/9
attempted [1] 32/20
attempting [1] 9/18
attempts [1] 85/22
attend [2] 6/23 82/11
attended [3] 6/8 6/15 6/21
attention [7] 10/8 16/24 19/19
24/16 26/14 49/9 86/24
Attorney [12] 1/17 1/19 2/4 2/5
2/6 2/7 2/10 2/11 2/12 3/9 3/10 3/11
attorneys [9] 44/13 44/15 46/5 56/18 56/21 56/23 56/25 86/13 88/5
attribute [1] 74/7
author [1] 41/20
authored [1] 41/24
autopsies [4] 39/19 43/2 43/5 43/9
autopsy [7] 45/5 45/14 45/16
45/22 57/2 57/9 61/15
available [3] 57/11 57/15 74/9
averages [1] 6/25
AVERY [6] 1/6 1/21 3/3 3/14 5/17
55/8
avoid [2] 86/2 86/25
aware [3] 77/12 77/21 86/5
away [1] 22/20
awkward [1] 73/2
B
baby [1] 73/24
bachelors [1] 6/1
back [8] 15/21 24/16 32/10 48/25
66/8 69/5 69/19 87/17
background [3] 5/25 39/2 58/21
Badly [1] 72/14
bag [1] 13/6
bags [3] 12/9 12/14 12/18
bailiff [1] 86/9
barrel [4] 5/18 8/25 9/2 9/5
based [10] 53/19 54/5 58/20 61/8 63/4 65/11 70/5 70/7 81/7 81/19
basically [3] 45/3 45/17 47/24
basis [6] 46/12 46/25 47/15 80/23 81/11 81/18
bear [2] 57/23 73/16
Beaten [1] 70/19
beating [1] 64/9
became [1] 8/24
because [8] 30/1 45/14 58/17

67/16 69/16 84/16 86/15 86/21
become [5] 8/22 40/5 43/21 73/21 86/5
before [18] 1/9 3/17 15/12 32/19
34/13 38/23 39/11 44/5 66/5
66/12 66/19 66/25 67/2 67/20
69/21 69/23 84/17 84/20
began [2] 11/25 21/17
begin [3] 16/9 21/9 26/25
beginning [2] 16/14 21/24
behalf [5] 1/12 1/14 1/16 1/18 1/20
behind [2] 49/2 58/25
being [7] 6/20 18/25 34/22 41/11 51/1362/14 77/13
believe [15] 16/15 19/6 23/22
23/25 27/13 28/20 34/7 35/18
$37 / 2042 / 1747 / 20$ 54/10 82/23
83/12 86/6
below [1] 49/2
besides [1] 34/4
best [2] 59/2 89/13
between [6] 43/4 53/14 60/15
60/15 73/18 82/4
bevel [4] 27/3 27/10 28/3 28/8
beveled [3] 26/8 26/9 27/12
beveling [9] 49/8 49/20 49/23 50/8
50/9 51/2 52/2 52/5 52/21
beyond [2] 77/1 77/2
bile [1] 41/4
binding [4] 82/15 82/19 82/21
83/1
birth [2] 73/24 74/24
bit [6] 5/24 21/12 23/13 33/15
49/21 59/16
blaze [1] 68/20
blood [6] 41/4 64/12 64/16 65/2 71/24 72/3
bloodstain [1] 4/22
board [5] 41/8 41/11 41/13 41/17 41/17
bodies [2] 47/1 82/13
bodily [1] 76/15
body [12] 45/3 46/21 46/24 62/22
63/3 66/5 66/23 72/20 72/20 81/4 81/5 81/9
body's [1] 41/3
bone [54] 11/18 13/7 13/17 17/10 18/3 19/10 30/2 30/3 41/1 43/25
45/24 46/10 46/11 47/21 48/4
$48 / 748 / 1648 / 1748 / 1948 / 19$
48/23 48/24 48/25 48/25 49/15
$51 / 151 / 1851 / 2151 / 2353 / 153 / 1$ $53 / 453 / 453 / 953 / 1055 / 1855 / 20$
55/22 55/25 56/5 56/8 63/23 64/5 64/17 65/15 65/18 65/21 65/22
66/1 66/11 66/16 67/3 72/12 78/3
bones [11] 47/25 48/2 49/9 49/11
55/2 55/2 56/3 56/14 62/13 62/19 66/9
bony [9] 48/7 51/9 51/11 52/7
52/19 53/6 53/6 53/7 53/18
book [1] 41/24
both [6] 28/2 41/5 56/23 77/8 80/2 82/13
bottom [3] 17/13 22/10 28/22
bound [1] 82/15
box [1] 12/9
brain [2] 64/10 64/15
branch [3] 1/1 40/18 89/5
break [2] 37/10 37/12
breaking [1] 85/17
bright [5] 18/7 24/5 24/8 25/7
$29 / 21$
bring [2] 3/17 3/22
broad [2] 7/17 40/24
broken [3] 32/22 33/3 40/23
brought [1] 44/4
buck [1] 68/16
bullet [35] 13/18 33/15 35/9 36/5
$36 / 2247 / 1250 / 650 / 1051 / 751 / 8$ 52/25 62/22 63/2 64/5 64/1 1
64/1 5 64/23 65/2 65/6 65/22 66/4
66/1 1 66/16 66/21 66/22 66/23
66/24 67/2 67/10 69/20 69/25
71/22 71/22 72/4 79/21
bullets [13] 13/16 13/18 13/23
$35 / 1135 / 2036 / 136 / 136 / 636 / 7$ 36/9 36/9 47/12 63/23
burned [7] 9/18 46/21 46/24 72/12 72/14 72/16 76/8
burning [5] 5/18 8/25 76/18 78/2 78/20
business [2] 6/8 44/21
BUTING[5] 1/19 2/5 2/7 3/14 31/7
C
caliber [2] 35/11 35/20
called [8] 4/4 7/20 8/9 8/13 29/8
38/5 49/8 54/20
calls [1] 3/2
Calumet [2] 3/9 83/17
camera [1] 9/9
cannot [3] 33/24 67/7 79/19
Canon [1] 9/8
capable [1] 9/11
carbon [1] 7/16
cards [1] 88/1
care [4] 62/5 73/25 74/20 74/23
career [1] 43/3
carefully [1] $89 / 8$
case[59] $1 / 53 / 35 / 147 / 58 / 22$
10/3 25/8 34/5 37/12 43/22 44/2
44/10 44/17 44/19 44/24 45/8
$45 / 1145 / 1545 / 2045 / 2346 / 1$ 46/14 46/16 47/22 53/22 54/7 54/21 55/12 57/9 58/5 58/13
60/21 61/13 63/22 67/8 69/20
$73 / 17$ 76/19 78/9 79/10 80/22
81/15 83/4 83/13 83/20 83/22
83/23 84/22 84/25 85/4 85/6
$85 / 1385 / 1685 / 1985 / 2285 / 24$
86/1 86/5 87/1
cases [21] 8/10 43/7 43/8 44/7
$44 / 1045 / 1845 / 1946 / 2347 / 8$ 47/9 47/15 58/16 61/20 63/5 73/7
73/14 76/3 81/5 81/12 82/2 83/8
categories [1] 40/24
causation [1] 69/8
cause [29] 44/1 1 45/9 54/9 54/10
59/13 60/19 61/3 61/5 63/15
66/17 67/3 67/6 70/2 70/25 71/3
71/5 71/20 71/25 73/18 74/18
74/22 74/23 79/20 80/5 80/9
81/19 82/16 83/14 83/23
caused [6] 14/5 14/13 66/21 68/1
69/10 78/2
causing [1] 69/17
caveat [1] 67/19
cellphone [2] 9/8 37/18
Center [1] 39/6
certain [4] 5/16 23/1 48/9 51/10
certainly [5] 32/12 63/7 64/22
70/16 83/2
certainty [5] 30/15 30/20 30/25
53/23 54/8
certificate [1] 45/10
certification [1] 41/13
certified [3] 41/8 41/12 41/17
certify [1] 89/6
CF [2] 1/5 3/3
chambers [1] 37/21
changed [1] 33/3
characteristic [1] 51/7
characteristically [1] 50/9
characteristics [1] 50/11
charge [3] 58/5 77/9 77/10
charged [1] 55/8
charges [2] 77/14 77/15
charred [16] 5/16 5/19 9/7 9/7 9/8
9/24 10/2 10/4 10/14 11/6 12/3
12/15 19/10 23/17 47/1 48/3
charring [3] 76/18 78/3 78/20
check [2] 37/15 88/1
checking [1] 37/20
chemical [2] 4/17 33/21
chemist [1] 13/21
chemistry [1] 6/2
child [3] 42/7 44/9 74/12
choice [1] 60/8
CIRCUIT [3] $1 / 11 / 1089 / 5$
circular [4] 49/24 51/3 52/7 52/20
circumstances [4] 75/14 76/1
80/20 82/14
cited [1] 71/21
clarity [1] 65/20
clear[4] 26/5 26/15 56/20 79/25
cleared [1] 33/6
clerk [2] 88/1 88/5
clinical [4] 39/5 41/2 41/6 41/18
closely [2] 14/6 24/4
closer [1] 69/19
co [1] 41/24
co-authored [1] 41/24
coated [5] 36/9 36/13 36/13 36/22
36/22
coating [1] 36/8
colleague [1] 6/13
College [1] 39/24
coming [2] 38/23 39/11
common [1] 51/9
communications [1] 86/4
comparatively [1] 25/10
comparing [2] 27/18 28/4
completed [1] 41/15
component [1] 36/3
components [2] 9/10 41/3
composed [1] 36/1
composition [2] 33/21 35/8
computer [1] 89/10
computer-assisted [1] 89/10
computerized [1] 89/9
conceal [6] 72/20 72/23 73/5 73/25
75/14 76/9
concealing [1] 77/17
concealment [5] 74/3 74/5 75/22
76/3 79/5
conceals [1] 73/23
concentrated [4] 12/16 13/15 27/1 28/9
concept [1] 22/23
concern [1] 47/10
concerning [1] 86/4
concerns [2] 86/8 86/9
conclude [2] 63/22 64/3
concluded [1] 88/10
conclusion [1] 51/13
conclusions [2] 30/5 62/25
condition [3] 14/4 47/25 66/6
conduct [3] 13/2 13/5 18/11
conducted [1] 24/1
conducting [1] 15/12
confidently [1] 59/1
connection [1] 74/5
connote [1] 69/11
consider [1] 72/8
considerably [2] 25/12 27/21
consistent [12] 10/6 14/7 29/21
50/15 52/10 52/24 57/12 65/15
66/22 76/20 76/24 81/15
consult [4] 44/14 45/1 54/20 57/9
consultant [7] 44/4 44/5 44/7
44/10 44/18 45/12 57/5
contacted [1] 43/23
contain [3] 35/11 35/21 36/1
contained [2] 30/18 64/12
contents [1] 9/2
context [3] 80/22 83/6 83/9
continuation [1] 3/4
contours [1] 17/9
control [12] 21/8 22/21 22/24
22/25 23/4 25/14 25/19 25/20
28/13 28/18 28/20 28/25
conversation [2] 43/24 85/3
cookie [1] 53/5
copper [2] 11/16 36/6
copy [1] 42/22
core [2] $36 / 736 / 8$
corner [3] 18/4 19/25 24/13
Coroner's [2] 40/13 46/3
coroners [2] 81/10 81/16
corpse [3] 65/8 77/10 77/17
correct [66] 16/16 16/17 17/15 26/17 26/23 28/24 30/7 32/8 34/2 34/6 34/14 34/18 34/24 36/11 55/24 56/2 56/1 5 56/19 56/22 57/4 57/21 57/24 58/23 59/10 59/11 59/14 59/23 60/24 61/1 62/7 62/15 62/21 62/23 63/1 63/5 63/13 63/19 68/6 68/8 69/10 69/1 1 69/1 8 69/24 70/20 70/23 72/6 72/10 72/13 72/15 73/8 74/21 77/2 77/6 77/11 78/4 78/13 78/19 78/22 79/16 79/18 79/24 80/4 80/10 83/19 87/17 89/12
corresponding [1] 25/6
could [35] 9/14 17/5 18/5 18/8 21/2 22/23 30/6 31/13 31/24 32/10 32/13 36/20 37/4 40/2 42/6 43/16 47/24 49/20 50/24 53/1 56/5 59/18 60/23 62/13 63/25 $65 / 1070 / 570 / 970 / 970 / 1370 / 14$ 72/3 76/5 78/22 87/22
counsel [4] 26/15 31/13 33/9 87/18
country [1] 40/6
county [15] 1/1 3/9 38/16 39/5
39/19 42/8 44/20 44/23 45/9 46/3 $47 / 17$ 83/17 83/20 83/24 89/2
course [10] 41/14 41/15 46/1 59/5 61/13 61/14 62/4 71/20 71/20 72/7
courses [3] 6/8 6/22 6/24
court [13] $1 / 1$ 1/10 1/25 3/2 15/4 43/10 83/3 85/8 86/12 87/2 89/4 89/5 89/19
Court's [1] 84/21
courtroom [1] 87/17
courts [2] 8/4 39/20
coverage [1] 85/8
cranial [16] $\quad 12 / 15 \quad 12 / 21 \quad 13 / 6$
15/23 15/25 16/4 16/7 16/11 16/22 23/21 24/11 29/17 29/19 33/1 33/25 34/4
crater [1] 17/19
crescent [2] 14/14 15/17
crime [11] 4/13 4/21 4/24 5/13 8/6 10/20 19/12 39/18 46/13 77/17 77/20
crimes [1] 78/7
cross [5] 2/5 2/11 31/2 31/9 54/17
Cross-Examination [4] 2/5 2/11
31/9 54/17
currently [2] 5/10 40/15
curriculum [1] 42/22
CV [1] 87/9

## D

daily [2] 80/23 81/18
Dane [1] 46/3
data [2] 9/12 71/14
DATE [1] 1/8
Dated [1] 89/15
day [5] 1/4 70/13 84/16 86/16 89/15
DCI [1] 9/25
dead [3] 66/19 72/5 75/12
deal [2] 41/21 73/22
dealing [1] 77/4
deals [1] 41/2
DEAN [2] $1 / 173 / 15$
death [80] 39/17 41/25 42/1 42/7
44/9 44/11 45/10 45/10 53/24
54/4 54/9 54/11 59/10 59/13
59/16 59/19 60/11 60/19 61/6
61/19 63/15 66/17 66/21 66/24
66/25 67/2 67/3 67/7 68/2 68/10
68/14 69/5 69/8 69/9 69/17 69/21
69/22 70/1 70/2 71/1 71/2 71/3
71/5 71/6 71/8 71/1771/21 71/25
72/7 72/24 72/25 73/5 73/18
73/19 74/4 74/6 74/8 74/19 75/6
$75 / 1575 / 2176 / 1676 / 2178 / 17$
79/3 79/8 79/15 79/20 80/5 80/6
80/9 81/6 81/7 81/19 82/16 83/14
$83 / 1583 / 2384 / 384 / 7$
deaths [4] 44/22 73/11 80/25
81/17
debris [2] 9/24 10/2
deceased [2] 45/17 68/19
decedent [1] 64/13
December [1] 8/24
decide [3] 65/3 77/10 77/11
decision [1] 84/21
decisions [1] 83/9
defect [32] 10/5 10/17 11/8 12/16
13/8 14/4 14/7 14/11 15/18 16/22
17/9 17/16 19/2 19/21 19/24 20/9
21/25 22/3 22/21 23/9 23/12
23/17 24/24 25/3 25/7 27/2 27/9
30/9 30/14 30/23 49/7 49/24
defects [1] 12/22
defendant [6] 1/7 1/18 1/20 1/21 58/9 58/11
defenders [1] 44/15
defense [2] 56/20 69/15
definitely [3] 61/24 62/3 62/3
definition [1] 83/1
definitive [2] 63/7 65/10
definitively [1] 60/14
degree [9] 6/1 6/4 30/15 30/20
30/25 53/23 54/8 77/8 77/20
delivers [1] 52/25
demonstrated [1] 49/11
dense [4] 18/8 24/9 51/4 52/22
density [1] 29/21
dental [2] 13/7 23/22
depend [1] 74/8
dependent [1] 84/23
depending [1] 36/3
depends [1] 83/1
depicted [3] 11/11 22/12 23/24
depiction [1] 24/18
depicts [1] 24/11
descend [1] 60/18
describe [11] 11/24 17/3 17/7 17/8 $18 / 144 / 144 / 347 / 2448 / 250 / 24$ 61/21
described [3] 52/3 56/16 65/19
describing [2] 21/22 24/12
designated [2] 16/15 34/12
designation [5] 10/24 12/19 19/12
34/11 54/13
desk[1] 49/17
detail [1] 17/4
detect [1] 29/2
detected [2] 15/20 25/11
determination [5] 65/11 79/3
82/19 82/22 83/4
determinations [3] 69/13 71/8
81/18
determine [7] 42/11 45/9 50/12
60/15 61/18 81/6 82/16
determined [1] 59/19
determining [1] 68/22
Detroit [1] 39/4
developed [2] 42/7 42/10
diameter [1] 17/18
Diane [3] $1 / 2489 / 489 / 19$
die [3] 60/20 61/3 76/12
died [5] 54/2 67/20 70/22 73/1 84/5
dies [3] 73/24 74/22 76/10
differ [1] 44/18
different [11] 6/18 7/9 7/15 20/13
20/25 36/2 50/14 60/12 65/24
76/13 82/10
difficult [3] 21/2 56/6 71/5
direct [9] 2/4 2/10 4/10 10/8 24/15
26/13 27/24 38/12 39/16
directing [1] 16/24
direction [2] 63/2 63/9
disappointed [1] 87/15
discover [1] 88/6
discuss [5] 37/12 85/19 85/22 86/7 86/25
discussing [2] 84/25 85/24
disease [2] 40/23 44/16
disguise [1] 72/20
dispersive [2] 7/8 7/25
displayed [2] 11/2 18/25
displaying [1] 62/19
dispute [2] 75/23 75/24
disruption [1] 76/15
dissection [1] 45/22
distinguish [2] 60/15 65/5
district [3] 3/9 3/11 44/12
DNA [2] 64/23 72/3
doctor [5] 43/2 43/22 49/18 82/24 83/12
doctor was [1] 82/24
Doctor. [1] 54/14
Doctor. That's [1] 54/14
document [1] 42/18
documents [1] 42/23
doesn't [2] 4/1865/4
doing [1] 5/2
done [3] 42/25 67/15 67/20
doubtful [1] 67/23
down [4] $21 / 7$ 22/8 33/8 40/23
DR [2] $2 / 938 / 5$
Dr. [26] 16/5 16/23 29/18 32/20
37/16 38/4 38/10 38/14 46/4 46/8 47/21 48/4 48/15 48/22 49/3
49/1451/1851/22 51/24 54/19
55/19 56/13 56/17 62/17 80/16 87/9
Dr. Eisenberg [14] 29/18 32/20
46/8 47/21 48/4 48/15 48/22 49/3 49/14 51/18 51/22 55/19 56/17 62/17
Dr. Eisenberg's [2] 51/24 56/13
Dr. Jeffrey [2] 38/4 38/10
Dr. Jentzen [5] 37/16 38/14 54/19 80/16 87/9
Dr. Leslie [3] 16/5 16/23 46/4
draw [1] 62/24
drawn [1] 30/6
dressed [1] 68/19
dried [1] 65/22
drops [1] 75/12
drug [10] 4/19 39/17 42/11 45/6
45/7 60/22 60/23 70/21 70/22 76/12
drugs [2] 70/10 70/21
duly [2] 4/5 38/6
dumped [1] 76/13
duration [1] 85/9
during [9] 5/1 6/15 8/5 8/12 37/12
$76 / 1084 / 22$ 86/5 86/11
duties [3] $4 / 1434 / 339 / 13$
duty [3] 5/4 86/18 86/19
E
each [1] 27/15
ear [2] 48/18 49/2
early [2] 54/22 87/16
edge [4] 21/24 22/11 27/9 52/7
education [1] 58/22
educational [3] 5/25 39/2 82/12
effort [5] 61/17 72/20 73/5 73/25
75/13
efforts [2] 42/25 74/11
Eisenberg [17] 16/5 16/23 29/18
32/20 46/4 46/8 47/21 48/4 48/15
48/22 49/3 49/1451/1851/22
55/19 56/17 62/17
Eisenberg's [2] 51/24 56/13
either [6] 4/1 8 22/4 33/25 63/22 64/3 65/6
EJ [22] 10/25 $11 / 24$ 12/2 $12 / 7$
12/14 12/19 12/25 13/10 15/13
15/22 19/19 20/2 20/3 25/10
25/13 25/16 27/19 27/20 29/25
30/10 30/12 31/19
EK [6] $13 / 1 \quad 13 / 313 / 6 \quad 23 / 1423 / 14$ 23/16
elect [1] 42/15
electron [3] 7/7 7/25 18/11
electronic [1] 9/10
elemental [24] 7/6 7/22 11/19 15/19 19/20 20/6 20/12 20/14 20/14 21/5 21/15 22/15 23/9 25/1 25/6 26/5 27/1 27/5 27/15 28/7 30/13 30/19 30/24 35/8
elements [6] 7/10 7/11 7/12 7/16 7/18 36/2
else [4] $34 / 13$ 70/1 83/10 84/10
employed [4] 4/23 5/9 6/20 38/15
employees [1] 85/20
employers [1] 85/20
employment [1] 85/19
end [3] 65/3 78/15 79/25
energy [5] 7/8 7/25 10/6 14/7 14/21
enforcement [1] 45/2
enough [3] 57/1 76/17 76/23
entails [1] 80/25
entirely [2] 67/4 82/20
entrance [21] 12/16 16/22 19/24
22/21 23/12 23/17 25/7 27/2 30/9
30/9 30/23 50/8 50/12 50/16
50/1751/13 52/11 62/11 65/17
68/14 78/18
especially [1] 86/23
essentially [1] 20/18
establish [1] 75/20
establishing [1] 61/5
estimate [4] $8 / 843 / 1243 / 1347 / 18$
etcetera [4] 41/2 41/4 42/2 74/12
evaluating [1] 81/17
even [1] 28/9
event [2] 69/3 79/14
ever [2] 42/3 43/19
every [1] $58 / 18$
evidence [25] 4/15 4/15 5/3 6/9
6/22 7/21 8/18 8/20 8/21 31/3
33/13 34/22 58/20 61/9 61/15 62/10 70/7 71/9 71/14 74/11 79/4
79/5 81/20 84/14 87/25
exactly [2] 40/21 72/21
examination [33] $2 / 42 / 5 \quad 2 / 6$ 2/7 2/10 2/11 2/12 4/10 5/22 9/5 12/12 12/17 12/20 15/13 25/15 27/1 27/2 29/23 31/9 33/19 35/6 35/24 38/12 41/16 43/25 45/17 $49 / 1053 / 1954 / 554 / 1757 / 13$ 57/14 80/14
examinations [5] 7/4 13/2 13/5 42/1 45/21
examine [31] 5/16 7/15 7/20 9/1
9/2 9/13 10/2 10/4 11/18 13/12 13/13 14/5 $14 / 1114 / 1315 / 22$ 19/1 20/20 20/23 23/14 24/23
26/10 29/8 29/24 34/8 36/23
44/25 45/4 46/25 48/9 49/15 57/8
examined [26] 4/6 10/15 11/22 12/3 12/13 13/14 15/12 20/5 20/9 20/13 20/15 20/25 21/4 21/6 23/16 24/24 25/2 30/1 38/7 46/7 46/9 46/10 47/21 48/1 55/2 57/8
examiner [15] 4/15 4/22 38/16
39/1 0 39/12 39/13 40/12 46/20 $47 / 3$ 47/11 59/1 8 80/17 80/23 81/23 81/24
Examiner's [4] 39/9 44/20 47/17 83/24
examiners [4] 40/15 71/7 81/10
81/16
examining[9] $11 / 23$ 16/11 18/6
19/24 22/20 24/4 45/23 46/21 49/7
example [14] 7/12 41/1 41/3 44/9
60/16 61/25 62/2 62/8 68/15
70/10 71/21 74/2 75/10 80/24
examples [2] 75/9 76/4
excuse [3] $41 / 1084 / 15$ 87/6
excused [2] 37/1 84/13
$\begin{array}{llll}\text { exhibit [65] } & 10 / 8 & 10 / 8 \quad 10 / 10 & 10 / 14\end{array}$ 10/24 10/25 11/1 11/5 11/6 11/11
exhibit...[55] 11/15 12/2 16/15
16/16 16/18 16/20 16/21 16/25
17/14 17/21 17/22 17/24 18/15
18/16 18/19 18/20 18/21 18/22 19/6 19/6 19/8 19/9 19/12 19/19 20/4 20/7 20/21 20/24 22/6 22/11 23/24 23/25 24/6 24/11 24/13 24/17 24/19 25/16 26/7 26/14 26/2 1 27/7 28/12 28/23 29/5 29/6 30/13 31/14 42/19 49/13 50/23 51/17 52/16 87/9 87/11
Exhibit 391 [2] 10/8 10/25
Exhibit 392 [9] 11/1 11/5 11/11 11/15 19/19 20/4 20/21 22/11 30/13
Exhibit 398 [4] 17/21 17/22 23/24 31/14
Exhibit 4 [1] 24/19
Exhibit 429 [6] 16/20 16/21 $18 / 16$ 23/25 24/17 25/16
Exhibit 430 [6] 18/19 18/20 18/22 26/14 26/21 28/12
Exhibit 431 [3] 19/6 19/8 29/6
Exhibit 432 [1] 87/9
Exhibit 92 [1] 20/7
exhibits [9] 2/13 24/16 26/16
30/17 31/3 31/6 87/23 87/24 88/7
exist [1] $76 / 1$
exit [2] 50/12 62/20
exits [1] 50/10
expand [1] $82 / 12$
expect [1] 22/25
experience [9] $7 / 2 \quad 13 / 1646 / 21$ 47/4 47/12 58/21 73/10 73/15 76/20
expert [2] 8/13 43/21
expertise [6] 56/10 56/13 57/18
57/20 77/23 78/1
expired [5] 66/12 66/13 66/16
70/17 70/19
explain [10] 5/21 22/23 40/2 41/10
41/10 42/6 45/25 52/2 69/6 80/20
explained [1] 74/16
explore [1] 73/17
explosives [2] 4/16 8/2
exposed [3] 85/7 85/25 86/3
exposure [2] 86/2 87/1
expound [3] 53/2 76/5 78/22
express [1] 8/13
expressions [1] 58/25
extensive [1] 6/18
extent [3] 58/19 61/18 83/2
external [2] 11/750/9
extracting [1] 9/11
extremely [1] 76/21
eyes [1] 32/4

## F

facial [1] 23/21
fact [7] 72/24 73/1 75/14 77/16
78/17 79/19 86/21
factored [1] 71/25
fair [4] 36/17 57/1 76/17 76/23
fallen [1] 72/17
FALLON [7] 1/13 2/4 2/6 3/10 3/25 15/5 15/8
Fallon's [1] 14/20
familiar [2] 77/16 77/19
family [3] 58/7 58/9 85/1
far [4] 7/22 32/5 45/22 77/13
Fassbender [2] 9/25 16/14

February [2] 11/22 11/23
February 15th [1] 11/22
February 16 [1] 11/23
feels [1] 73/22
fellow [1] 40/16
fellowship [1] 40/3
few [2] 6/8 37/11
fibers [4] 4/16 34/17 34/20 34/25
field [12] 4/20 5/2 5/6 5/8 5/10
39/8 40/19 41/21 41/23 42/4
42/16 77/22
fifth [3] 60/5 60/11 62/5
finally [3] 18/14 19/5 81/4
find [23] 5/23 9/4 15/16 19/20
20/11 20/16 20/18 21/13 21/15
22/13 22/15 22/22 24/23 25/1
25/5 26/5 27/5 27/15 28/6 28/25
34/25 37/22 61/14
finding [3] 23/8 23/10 51/9
findings [5] 8/14 9/23 19/18 23/5 23/8
fine [3] 26/2 33/9 35/19
finished [1] 86/17
fire [2] 12/4 63/9
fired [3] 65/7 65/8 77/24
firmly [1] 85/23
first [18] 3/25 4/5 5/23 8/22 8/24
10/7 11/25 22/17 29/24 38/6
54/20 63/23 66/16 67/2 77/8
77/20 85/12 88/5
fit [1] $4 / 18$
five [7] 21/7 21/11 21/14 21/15
21/23 59/21 62/1
FL [9] 33/11 33/14 33/18 33/22
34/1 36/12 36/15 36/21 36/23
flat [1] 48/19
folks [1] 77/9
Following [1] 39/7
follows [2] 4/6 38/7
foregoing [2] 89/7 89/7
forensic [21] 4/13 38/15 39/8
39/15 39/16 40/3 40/5 40/17
40/20 40/21 41/5 41/18 41/23
43/6 43/11 46/4 47/5 57/14 58/17 71/777/4
form [2] 57/23 63/11
forming [2] 57/7 57/16
found [11] $9 / 2419 / 2320 / 5$ 20/14 20/16 25/6 27/8 64/23 65/2 68/19 71/23
four [12] 27/13 27/14 27/24 27/25
28/1 28/5 28/8 30/18 39/4 59/19
60/12 78/5
fourth [1] 60/4
fracturing [1] 65/24
fragment [28] 10/15 11/7 12/3
12/15 16/22 17/10 18/3 20/21
24/12 24/21 30/3 33/15 48/14
48/22 48/23 49/4 50/20 51/1
51/18 51/21 51/24 52/8 52/19 56/6 64/24 65/2 66/1 71/23
fragmented [3] 48/2 50/3 72/16
fragments [46] 5/19 10/5 13/7
$13 / 7$ 15/23 16/1 16/3 16/4 16/7
16/10 16/11 19/10 23/18 24/11 34/1 34/4 45/24 46/10 46/11
47/13 47/22 48/3 48/5 48/6 48/10 $48 / 13$ 48/14 49/6 49/8 50/6 51/4 $51 / 751 / 1152 / 2252 / 2553 / 17$
53/20 54/6 55/2 55/18 55/21
55/23 56/1 64/17 72/12 78/3
frame [1] 65/12
frequently [3] 44/12 73/6 73/9
front [2] 18/15 42/17
full [1] 61/13
function [1] 81/16
functions [1] 39/14
further [2] 35/2 86/2

## G

GAHN [8] 1/15 2/10 2/12 3/11
37/20 38/1 54/20 80/12
gather [1] 57/1
gave [1] 34/11
general [7] 3/10 21/3 40/22 41/7
47/5 59/9 59/15
generally [1] 28/18
genetics [1] $42 / 11$
gentlemen [2] 63/20 64/2
GI [1] 34/13
give [6] 7/11 9/14 21/3 47/18 55/5 67/7
given [9] $8 / 25 \quad 10 / 24$ 29/18 33/18
34/3 46/17 58/21 64/10 76/4
gives [2] 73/23 83/8
giving [1] 74/2
glad [1] 33/6
glass [4] 4/16 8/1 50/5 50/5
goes [1] 23/10
 37/10 37/15 49/12 50/6 50/22
50/24 51/16 52/15 64/17 84/14
$84 / 15$ 86/14 86/18 86/19 86/22
87/15
good [6] 3/8 3/13 31/11 31/12
33/6 60/6
graduate [3] 6/6 40/8 40/8
graduated [1] 39/3
great [1] 73/22
greater [1] 86/16
gross [1] 49/10
grows [1] 53/10
guess [3] 69/19 78/15 82/25
gunshot [35] 44/12 47/9 50/16
$50 / 1751 / 1051 / 1352 / 1152 / 11$
54/3 54/11 60/21 61/13 61/15 61/19 62/1 62/11 63/15 64/4 65/7 65/8 65/25 66/9 66/17 66/19 66/20 67/13 68/10 68/23 71/1
78/1 8 79/4 80/8 82/2 82/7 84/6
gunshots [4] 47/16 61/12 67/22
80/2
H
habits [2] 81/2 81/2
Halbach [2] 55/9 84/4
Halbach's [4] 53/24 54/9 64/23
65/2
half [1] 17/19
hand [7] 9/17 10/9 16/14 17/1
18/4 19/25 24/13
happened [2] 73/10 83/20
happens [1] 61/17
hard [1] 13/17
harden [1] 36/4
harder [1] 36/5
having [3] $4 / 5$ 38/6 80/19
head [11] 54/3 54/11 63/18 65/7
65/9 66/20 67/14 67/22 68/23 82/8 84/6
headboard [3] 34/8 34/17 34/21
hear [3] 60/6 84/14 87/3
heard [3] 33/13 59/16 84/19
heart [3] 41/1 64/9 75/12
height [1] 25/24
help [4] 5/13 11/17 50/11 57/16
individual [9] $42 / 15$ 65/11 65/13
66/19 67/15 76/8 81/2 81/3 81/11
individuals [4] 6/10 42/1 46/6
76/12
infant [2] 74/18 74/20
infant's [1] 74/19
information [45] 9/14 14/3 14/12
15/10 46/18 57/6 57/15 57/22
57/25 63/21 64/2 64/8 64/11
64/19 67/11 67/12 68/11 68/19
68/22 68/25 69/2 70/6 71/11
71/13 71/18 72/8 72/11 72/23
73/3 74/9 74/14 77/25 78/24 79/9
$79 / 1080 / 1880 / 1981 / 181 / 13$
$81 / 2083 / 1383 / 2185 / 1585 / 25$
87/3
information did [1] 15/10
infrequently [1] 73/7
initial [2] 9/22 49/7
initially [1] 71/24
injury [7] 40/23 44/16 47/6 67/17
68/16 74/12 75/3

26/20 26/22 53/7 53/12 53/13 53/13
inquire [1] 44/13
inside [8] 26/10 27/3 27/9 28/2
28/8 28/12 50/1 53/8
instance [2] 60/25 68/18
instances [1] 75/20
institutions [1] 39/22
instruct [1] 83/5
instrument [2] 7/9 7/14
intact [5] 48/3 63/6 64/10 65/7
65/14
intentional [4] 67/14 69/7 77/9
77/20
intercourse [1] 76/11
interest [2] 29/20 52/18
interested [5] 12/23 $13 / 8$ 18/7 24/757/22
internal [5] 49/8 50/7 51/2 52/5
52/21
internet [3] 55/15 85/4 85/14
interpret [2] 45/7 49/25
interpretation [1] 44/11
interpreting [3] 28/14 47/4 47/5
intersection [1] 77/5
invades [1] 83/2
investigate [2] 80/24 82/4
investigating [1] 81/17
investigation [5] 41/25 46/1 57/11
80/25 81/20
Investigator [1] 9/25
investigators [2] 39/18 79/13
involuntarily [1] 85/25
involved [13] 4/20 5/2 5/6 5/8
5/14 8/22 8/24 43/22 46/23 55/17 75/11 78/6 78/10
involving [3] 47/16 58/5 82/2
iron [1] 7/17
isolation [2] 71/18 74/14
issue [1] 74/13
issues [3] 78/25 79/2 79/6
item [72] 10/10 10/20 10/24 10/25
11/3 11/24 12/2 12/6 12/7 12/7 12/13 12/14 12/23 12/25 12/25
$13 / 1$ 13/3 13/6 13/10 13/12 15/13 15/22 16/21 17/4 17/24 18/3 18/6 18/10 $18 / 20$ 19/3 19/13 19/16 19/19 20/1 20/3 23/14 23/24 24/2 24/19 25/10 25/13 25/16 26/11
26/16 26/19 26/20 26/25 27/3

27/19 27/20 27/22 28/12 30/1
$30 / 1230 / 1730 / 2231 / 1931 / 21$
$31 / 2231 / 2232 / 232 / 433 / 11$
$33 / 1433 / 1833 / 2234 / 134 / 10$ 34/13 36/12 36/21 36/23
items [15] 5/16 5/17 7/19 8/25 9/7
9/12 9/14 9/18 10/1 10/22 11/20
11/21 12/7 30/10 33/24
itself [3] 17/10 17/16 72/25
J
J-e-f-f-r-e-y [1] 38/11
J-e-n-t-z-e-n [1] 38/11
jackets [1] 36/6
JEFFREY [4] 2/9 38/4 38/5 38/10
JENTZEN [9] 2/9 37/16 38/4 38/5
38/10 38/14 54/19 80/16 87/9
JEROME [2] 1/19 3/14
job [4] 6/1 8 46/20 47/3 47/11
Judge [3] 1/10 3/8 31/8
judgment [1] 44/14
June [1] 6/5
juror [2] 85/21 86/7
jurors [15] 3/18 39/1 41/11 42/6
47/24 49/20 49/22 50/25 52/2
52/18 71/21 80/21 84/23 85/1
86/8
jury [26] $1 / 43 / 13 / 63 / 223 / 23$
22/23 33/13 37/10 37/13 37/25
40/2 45/25 63/21 64/2 65/3 80/1
$82 / 2183 / 383 / 584 / 1384 / 2286 / 9$
86/13 86/18 87/13 87/15
jury's [1] 83/4
iustified [1] 69/15
K
Ken [1] 3/10
KENNETH [5] 1/11 2/3 4/3 4/4 4/9
kind [11] 7/12 19/25 21/1 25/18
26/6 28/17 31/14 53/5 57/14
65/24 76/16
kinds [1] 73/14
knowledge [2] 55/10 89/14
KQ [22] 16/21 $17 / 4$ 17/24 $18 / 3$
18/6 18/10 18/20 23/24 24/19
26/11 26/16 26/19 26/20 27/20
27/22 28/12 29/25 30/10 30/17 31/19 31/22 31/23
KR [4] 19/16 29/23 29/24 30/22
KRATZ [2] 1/11 3/10
L
Iab [7] 4/24 8/6 10/20 19/12 33/11 34/13 46/13
labeled [5] 12/10 12/21 13/6 23/20 23/21
laboratory [12] 4/14 5/5 5/9 6/12
$6 / 209 / 1111 / 2112 / 839 / 1746 / 17$
57/1071/14
lack [1] 74/19
ladies [2] 63/20 64/1
large [3] $32 / 748 / 19$ 50/22
laser [6] 10/9 13/11 21/20 25/19
49/1752/17
last [5] $4 / 8$ 14/15 38/9 42/8 42/25
late [1] 54/23
later [1] 69/14
law [6] 1/17 1/19 8/4 41/7 45/1 77/6
lead [44] 7/17 13/18 $15 / 20$ 19/20
20/6 20/12 20/14 20/15 20/17
20/18 21/5 21/15 21/18 22/15
22/22 23/9 23/12 24/9 25/1 25/6

| L | majority [2] 8/19 82/8 | M |
| :---: | :---: | :---: |
| lead... [24] 25/11 25/12 26/6 27/5 | 58/20 58/22 61/9 61/1765/10 | minutes [3] 37/11 66/11 66/15 |
| 27/15 27/19 27/21 28/7 28/9 29/1 | 65/20 69/13 71/8 81/18 83/8 | siles [1] 68/15 |
| 29/2 30/13 30/19 30/24 33/24 | 86/23 86/25 | misspoke [2] 26/16 26/18 |
| 35/10 35/11 35/21 35/22 36/3 | making [2] 37/16 64/20 | mistaken [1] 15/2 |
| 36/4 36/6 36/8 52/24 | management [1] 6/8 | moment [2] 15/21 31/14 |
| leader [1] 42/16 | MANITOWOC [2] 1/1 89/2 | Monday [7] 86/14 86/19 86/22 |
| least [4] 65/1 73/6 75/14 79/22 | manner [28] 44/11 45/9 53/23 | 87/3 87/5 87/16 88/5 |
| leaving [2] 31/15 62/22 | 54/3 54/12 59/10 59/16 60/11 | months [1] 39/11 |
| lectures [1] 82/11 | 69/5 71/6 71/8 71/16 72/7 73/19 | morning [7] 3/4 3/8 3/13 31/11 |
| led [1] 61/19 | 74/4 74/6 74/8 75/21 78/16 79/3 | 31/12 87/5 88/6 |
| left [14] 18/4 19/25 24/13 31/23 | 79/8 79/15 81/19 82/16 83/14 | mortem [1] 65/12 |
| 48/1 5 48/16 48/20 48/24 49/2 | 83/23 84/3 84/6 | most [8] 13/15 13/18 22/18 61/14 |
| 49/14 51/1 51/22 56/7 72/4 | manners [2] 59/19 76/21 | 67/25 68/5 76/20 76/24 |
| legal [2] 69/12 77/12 | many [13] 6/10 8/9 8/17 20/23 | mother [1] 74/17 |
| legally [4] 82/15 82/19 82/21 83/1 | 27/11 43/2 43/10 46/23 47/15 | Motorola [1] 9/8 |
| Leslie [3] 16/5 16/23 46/4 | 60/19 78/6 81/22 82/9 | move [5] 14/15 14/24 31/3 87/8 |
| less [4] 25/9 25/11 27/19 73/9 | MARCH [1] 1/8 | 87/25 |
| let's [17] 5/23 15/11 15/15 17/7 | marked [6] 2/13 42/18 49/13 50/23 | moved [1] 87/24 |
| 21/9 21/11 23/13 59/15 61/11 | 51/16 52/15 | moving [1] 14/25 |
| 61/12 66/8 67/12 67/21 67/21 | marker [4] 11/10 11/15 25/23 | Mr [1] 80/12 |
| 69/14 73/13 73/13 | 28/23 | Mr. [17] 3/25 4/3 5/15 8/23 14/20 |
| lethal [6] 61/21 61/22 61/24 62/3 | marking [1] 32/15 | 15/5 15/8 15/10 21/20 30/12 31/7 |
| 62/4 62/6 | marrow [1] 53/9 | 37/20 38/1 54/16 54/20 75/18 |
| level [1] 21/18 | matched [1] 75/21 | 84/10 |
| levels [1] 45/7 | material [15] 9/6 23/2 24/9 29/22 | Mr. Buting [1] 31/7 |
| liability [1] 69/12 | 30/2 45/12 45/18 46/8 48/7 51/9 | Mr. Fallon [3] 3/25 15/5 15/8 |
| liaison [1] 75/12 | 53/8 63/4 64/10 65/16 65/22 | Mr. Fallon's [1] 14/20 |
| licensed [2] 38/17 38/20 | materials [7] 6/19 43/25 45/1 45/4 | Mr. Gahn [3] 37/20 38/1 54/20 |
| likewise [2] 71/4 72/7 | 46/12 57/11 61/8 | Mr. Kenneth [1] 4/3 |
| limited [2] 45/11 45/23 | matter [8] 3/5 3/16 65/4 67/4 | Mr. Olson [5] 5/15 8/23 15/10 |
| line [1] 72/19 | 86/15 88/4 89/7 89/13 | 21/20 30/12 |
| lines [2] 68/17 70/10 | matters [1] 86/12 | Mr. Strang [3] 54/16 75/18 84/10 |
| liquids [1] 41/3 | maybe [5] 32/4 32/13 49/21 62/5 | multiple [7] 49/11 52/22 61/15 |
| liquified [1] 64/16 | 82/2 | 61/20 67/16 68/15 82/9 |
| listen [3] 85/3 85/5 85/11 | mean [8] 14/17 57/19 60/21 63/14 | muscle [1] 41/1 |
| listening [1] 84/23 | 69/7 75/9 80/24 83/7 | mutilating [2] 77/10 77/17 |
| little [6] 5/23 11/16 21/12 23/13 | meaning [1] 65/16 | mutilation [1] 76/15 |
| 32/16 59/16 | means [1] 80/21 | myself [5] 6/13 44/3 44/25 45/4 |
| living [2] 4/12 65 | media [2] 55/11 85/8 | 45/21 |
| local [3] 40/12 85/10 85/11 | medical [34] 38/15 39/3 39/6 39/9 | N |
| locate [1] 11/17 | 40/12 40/15 44/20 46/20 47/3 | name [4] 4/8 4/8 3 |
| located [2] 22/7 51/21 | 47/11 47/17 53/23 54/8 59/17 | National [1] 40/14 |
| location [2] 20/8 76/13 | 62/5 71/7 73/25 74/20 74/23 | natural [3] 59/25 74/22 81/7 |
| locations [18] 20/12 21/3 21/6 | 80/16 80/23 81/1 81/3 81/10 | nature [2] 6/7 67/16 |
| 21/7 22/14 22/18 23/6 25/2 27/1 | 81/16 81/21 81/23 81/24 83/24 | near [1] 24/24 |
| 27/14 27/16 27/18 27/23 27/25 | medically [1] 61/18 | necessarily [2] 69/11 70/1 |
| 28/5 28/13 30/1862/16 | medicine [2] 38/21 40/19 | necessary [1] 87/2 |
| logic [1] 67/4 | meet [1] 88/5 | need [4] 5/13 11/18 69/2 74/14 |
| logs [1] 85/15 | meeting [1] 56/16 | needed [1] 58/3 |
| long [5] 4/23 5/1 5/6 38/20 72/2 | member[5] 5/10 6/9 6/14 40/12 | needs [2] 4/17 88/6 |
| longer [2] 5/12 30/3 | 40/14 | negative [1] 23/1 |
| looked [3] 15/17 46/18 55/20 | members [3] 37/9 84/13 85/1 | neither [1] 31/20 |
| looking [8] 7/13 12/23 34/15 34/16 | mentioned [5] 12/24 21/10 22/16 | never [2] 46/16 76/8 |
| 34/20 55/15 80/19 81/11 | 58/15 71/9 | newborn [1] 74/1 |
| looks [1] 32/6 | met [2] 46/3 47/20 | news [4] 84/24 85/5 85/10 85/1 |
| lot [1] 82/17 | metabolism [1] 42/12 | newspaper [2] 85/4 85/12 |
| low [3] 20/16 20/1721/18 | metal [2] 8/17 18/9 | next [3] 18/14 21/16 38/2 |
| lower[2] 19/25 29/20 | metallic [3] 51/7 52/24 53/17 | nitrogen [1] 7/16 |
| M | metals [2] 4/17 8/3 | non [6] 36/13 36/22 61/21 65/1 |
| M.D [1] 38/10 | microscope [5] 7/7 7/25 11/19 | non-coated [1] 36/13 |
| machine [1] 89/10 | 18/1145/6 | non-intentional [1] 67/14 |
| made [11] 11/16 66/5 69/21 69/23 | middle [1] 68/20 | non-lethal [1] 61/21 |
| 69/25 73/25 75/13 79/22 79/22 | might [14] 9/15 21/1 44/15 44/23 | non-skeletal [1] 66/23 |
| 80/2 80/5 | 44/24 45/7 57/6 57/16 57/22 | non-skeletonized [1] 65/16 |
| Madison [4] 4/14 6/12 46/2 55/18 | 62/25 68/22 70/4 73/1 75/9 | None [2] 57/25 73/15 |
| magnesium [1] 7/17 | Milwaukee [10] 38/16 39/12 39/19 | nonresponsive [1] 15/5 |
| magnification [1] 31/16 | 42/8 44/20 45/8 47/17 81/25 | nor [1] 84/25 |
| $\text { main [3] } 4 / 145 / 435 / 8$ | $83 / 20 \quad 83 / 24$ | Norm [1] 3/11 |
| major [2] 6/2 36/3 | Minneapolis [3] 39/6 39/9 39/10 | normal [3] 86/20 87/6 87/17 |

$\mathbf{N}$
NORMAN [1] 1/15
nose [1] 32/7
notably [1] 22/19
noted [2] 49/6 50/10
notes [1] 89/9
nothing [3] 13/7 70/5 70/25
notify [1] 85/23
November [5] 16/8 16/12 54/22 68/21 89/15
November 17th [1] 16/8
November 21st [1] 16/12 number [8] 10/20 10/21 41/22
43/7 43/12 43/16 61/2 87/23
numerous [1] 6/21

## 0

O-I-s-o-n [1] 4/9
oath [1] 59/6
object [1] 82/18
objection [9] 13/20 14/22 15/1
$31 / 431 / 535 / 1236 / 1475 / 16$

## 87/10

objects[2] 7/19 13/17
observe [1] 44/25
observed [2] 48/13 66/10
obtain [3] 15/25 16/3 16/6
obtained [1] 16/4
obvious [2] 72/9 72/24
obviously [2] 12/4 58/14
occasion [3] 73/11 76/11 86/14
occasionally [1] 86/11
occipital [6] 48/24 48/25 51/19
51/22 55/25 56/7
occupation [1] 38/14
occur [1] 44/22
occurred [3] 64/4 67/2 71/1
occurs [1] 50/8
October [1] 54/23
off [2] 33/4 68/5
offense [1] 78/11
offer [1] 73/13
OFFERED [1] 2/13
offering [2] 59/8 79/7
office [10] 39/9 39/1 5 43/8 44/20
46/3 47/2 47/1751/24 82/4 83/25
Official [3] 1/25 89/4 89/19
often [1] 6/23
Oh [1] 32/23
OLSON [9] 2/3 4/3 4/4 4/9 5/15
8/23 15/10 21/20 30/12
on-the-job [1] 6/18
once [4] 6/25 43/14 71/4 71/4
ones [1] 68/1
only [2] 57/2 69/22
operations [1] 5/7
opining [1] 70/25
opinion [40] $30 / 1230 / 1430 / 17$
30/19 30/22 30/24 45/13 45/24
$46 / 1250 / 15$ 52/10 52/23 53/22
54/1 54/2 54/7 57/7 57/23 58/22
61/9 63/14 64/21 65/14 66/2 67/7
71/16 71/25 76/19 77/23 78/2
$78 / 16$ 79/7 79/14 80/8 83/14
83/22 84/1 84/2 84/3 84/5
opinions [10] $8 / 1357 / 1757 / 19$
58/20 58/24 59/9 63/9 63/11
82/15 83/8
orange [1] 68/20
order [2] 59/24 84/17
ordered [1] 85/9
ordinary [1] 62/4
organization [1] 40/16
original [1] 51/12
other [62] 3/20 9/9 9/16 10/2 11/6 12/18 $12 / 25$ 14/12 $15 / 23$ 19/9
20/11 20/20 21/3 22/5 23/6 23/10
$32 / 1734 / 334 / 1539 / 1539 / 17$
$40 / 440 / 840 / 842 / 1042 / 2443 / 5$
$44 / 1044 / 1545 / 445 / 1946 / 548 / 5$
51/10 57/14 58/5 60/12 67/10
67/12 68/11 70/9 70/9 70/24
71/12 74/19 75/9 76/15 76/24
$77 / 178 / 778 / 1178 / 2579 / 279 / 6$
79/9 79/10 79/21 81/8 82/12 83/8
85/1 86/8
others [6] 56/17 61/21 61/22
61/24 71/19 76/22
our [8] 4/20 26/16 43/8 44/21 47/2
71/16 82/4 82/12
outer[11] $11 / 1118 / 22$ 19/2 24/18
24/20 24/22 25/15 26/19 53/7
53/11 53/12
outline [1] 39/1
outside [3] $3 / 586 / 1387 / 3$
over [6] 8/20 20/19 21/16 42/25
47/1055/18
overdose [3] 60/22 70/21 70/22
overdoses [1] 76/12
oversee [1] 39/14
own [1] 58/19
oxygen [1] 7/16

## P

packaged [1] 12/5
packaging[1] 12/6
PAGE [1] 2/2
pages [1] 42/23
paid [1] 49/9
paint [2] 4/16 7/24
paper [1] 55/14
papers [3] 41/20 41/22 42/24
paradigm [1] 74/16
paradigms [2] 73/13 73/16
parietal [10] 48/16 48/16 48/17
$48 / 1949 / 1551 / 152 / 455 / 2256 / 8$ 66/1
part [10] 10/3 10/19 12/19 13/11
32/16 46/20 47/3 47/11 78/17 86/16
particles [2] 18/12 24/5
particular [31] 5/1 6/11 6/14 7/5
7/13 9/16 10/10 15/15 17/21 19/3 20/21 20/24 21/21 24/1 24/6 25/3 25/8 26/25 27/4 27/22 29/8 29/20 30/8 40/1 8 44/24 48/9 49/3 49/9 50/19 52/17 80/17
particularly [5] 18/7 19/11 23/6 24/7 65/25
parties [2] 3/6 3/17
parts [2] 46/21 46/24
passed [1] 64/15
passes [1] 65/22
passing [2] 53/1 72/4
past [4] 6/15 8/5 43/14 81/3
pathologist [6] 38/15 39/8 43/11
49/7 58/18 59/17
pathologists [6] 39/16 40/4 40/5
43/6 43/7 71/7
pathology [16] 39/5 39/23 40/7
40/20 40/21 40/22 40/25 41/2
$41 / 541 / 641 / 641 / 1841 / 1941 / 21$
41/23 77/5
Patrick [1] 1/9
patrons [1] 85/20
|pattern [2] 4/22 52/5
pay [1] 86/23
pediatric [1] 47/8
penetrates [1] 63/3
penetrating [1] 50/17
people [5] 60/20 61/3 75/11 78/6 83/8
people's [1] 71/12
per [2] 43/9 47/1
percent [2] 35/22 82/7
perfectly [1] 79/25
perforating [1] 50/16
perforation [2] 50/14 51/3
perforations [1] 68/13
perform [4] 39/19 43/4 43/8 45/5
performed [3] 43/3 45/15 45/21
performing[3] 7/4 12/11 23/4
peri [1] 65/12
peri-mortem [1] 65/12
person [17] 1/22 45/17 64/6 64/9
65/9 65/18 66/12 66/12 66/15
67/20 69/10 69/17 72/5 73/1
78/10 79/23 80/3
personal [1] 58/6
personally [5] 43/4 44/23 44/25
62/13 71/11
personnel [1] 45/2
persons [1] 69/8
pertain [1] 41/7
photo [1] 29/13
photograph [11] 10/14 16/21
18/20 19/9 21/2 22/11 29/14
$31 / 1731 / 1832 / 1752 / 20$
photographs [3] 16/14 46/17
71/12
physician [1] 38/17
picture [1] 51/6
piece [13] 11/16 29/9 29/18 29/19
29/20 32/21 32/24 33/3 50/19
64/8 71/18 80/17 81/13
pieces [2] 45/23 49/4
place [3] 56/7 75/15 82/20
placed [1] 28/23
places [1] 85/19
PLAINTIFF [1] 1/4
plastic [1] 12/9
please [13] 3/7 4/7 4/7 5/24 29/5
$31 / 1431 / 2536 / 2038 / 838 / 839 / 1$
43/16 53/3
plus [1] 45/16
point [12] 11/17 15/15 21/21
23/11 25/18 25/25 34/7 49/20
52/17 52/17 72/16 84/18
pointed [2] 21/23 49/4
pointer [10] 10/9 13/11 18/1 21/21
25/19 26/6 28/18 49/1751/5 52/1
pointing [6] 22/10 25/23 48/17
49/1 51/4 52/19
police [2] 57/12 79/12
politely [1] 85/23
porous [2] 53/9 53/15
portion [11] 9/7 33/1 49/25 50/1
53/7 53/8 53/12 53/13 53/14 54/22 54/23
position [3] 42/14 81/5 81/8
possibilities [2] 76/25 77/1
possibility [1] 21/4
possible [8] 20/12 34/16 34/20
34/22 61/7 61/11 61/18 70/16
possibly [2] 62/5 81/4
post [1] 6/6
post-graduate [1] 6/6
potentially [1] 61/22

| P | $53 / 8$ 53/15 86/16 | respect [17] |
| :---: | :---: | :---: |
| powders [1] 8/2 | 31/18 32/2 32/18 32/19 | /11 21/13 22/6 27/18 28/4 28/6 |
| PowerShot [1] 9/9 | 50/18 52/12 | 28/11 88/7 |
| practice [2] 38/20 38/23 | rays [9] 15/12 45/4 46/11 46/18 | response [4] 4/21 5/7 5/8 5/11 |
| predominant [1] 64/19 | 47/4 47/8 48/7 53/20 54/6 | responsibility [1] 39/25 |
| predominantly [2] 41/24 53/16 | reachable [1] 37/18 | responsive [1] 14/20 |
| pregnancy [1] 73/23 | read [4] 84/19 85/4 85/12 86/24 | rest [1] 84/15 |
| pregnant [1] 73/21 | reading [2] 55/14 84/24 | straint [1] 34/23 |
| prepared [1] 89/8 | real [1] 81/15 | rests [2] 78/17 78/20 |
| prerequisite [1] 41/14 | realize [1] 14/11 | result [3] 9/21 54/2 84/5 |
| presence [10] 3/5 15/20 21/17 | reason [4] 49/3 65/19 72/24 87/4 | results [4] 5/21 23/1 23/1 28/15 |
| 27/15 29/1 29/2 34/16 34/20 | reasonable [6] 30/15 30/20 30/25 | resume [1] 37/11 |
| $86 / 1387 / 3$ | 53/22 54/8 56/12 | Resuscitation [1] 74/11 |
| present [9] $3 / 13 / 23 \quad 17 / 24$ 28/7 | reasons [2] 78/14 85/2 | returning [1] 23/23 |
| 30/2 37/13 37/25 61/9 87/13 | recall [2] 23/19 65/1 | review [4] 42/7 46/13 50/18 52/12 |
| presentations [1] 42/24 | receipt [1] 17/4 | viewed [2] 46/9 53/21 |
| president [3] 40/16 42/14 42/14 | receive [3] 6/4 11/20 44/19 | right [130] |
| tty [1] 73/12 | received [4] 7/2 12/9 16/23 42/3 | robust [1] 65/14 |
| previous [1] 18/21 | recently [1] 44/9 | role [5] 44/1 44/1845/11 45/23 |
| previously [6] 3/20 46/8 49/13 | Recess [1] 37/24 | $57 / 5$ |
| 50/23 51/17 86/10 | recognition [1] 42/4 | rope [4] 34/16 34/20 34/22 34/25 |
| prior [1] 35/13 | recognize [6] 10/10 11/2 16/18 | rough [1] 47/18 |
| probably [12] 43/12 43/14 43/17 | 17/22 29/5 51/19 | roughly [3] 27/25 42/23 82/5 |
| 43/17 47/1 47/18 51/5 56/5 58/15 | recognized [4] 15/6 42/5 42/9 | routine [3] 44/21 46/25 81/11 |
| 58/16 62/14 82/6 | 42/13 | routinely [3] 7/20 7/24 10/20 |
| problems [1] 77/3 | recollection [1] 58/2 | RPR [2] 1/24 89/19 |
| proceedings [3] 1/23 88/10 89/13 | recommendations [1] 9/22 | rule [3] 70/5 76/24 77/1 |
| process [2] 45/3 52/3 | record [8] 3/7 4/8 22/9 24/10 | run [1] 75/11 |
| ducts [1] 9/17 | 25/22 26/1 34/10 38/9 | S |
| fessional [1] 40/10 | recovered [4] 5/17 |  |
| professor [1] 39/23 | $71 / 15$ | $\begin{array}{r}  \\ 72 / 2289 / 13 \end{array}$ |
| program [2] 4/21 40 | Recross [2] 2/7 35/ | same [9] 16/25 23/2 25/24 29/25 |
| programs [3] 40/6 40/9 82/12 | Recross-Examination [2] 2/7 35/24 | 32/2 50/6 57/13 65/25 84/1 |
| progress [1] 37/16 | redirect [7] 2/6 2/12 19/18 35/4 | sample [2] 22/25 25/12 |
| prohibited [1] 85/24 | 35/6 35/16 80/14 | samples [2] 7/24 8/1 |
| ctile [2] 10/6 14/8 | reference [2] 25/9 82/1 | saw [13] 21/17 32/2 32/1733/2 |
| ctiles [2] 14/21 82/14 | refit [1] 32/21 | 33/2 33/25 62/10 62/19 65/6 |
| projection [3] 31/18 32/6 32/16 | refits [2] 12/21 32/20 | 66/22 72/12 78/3 78/21 |
| prominent [2] 32/6 52/6 | reflect [2] 22/10 26/1 | saying [2] 7/11 82/24 |
| property [1] 5/17 | reflecting [1] 25/22 | scan [1] 7/24 |
| prosecution [1] 56/24 | regarding [1] 8/14 | scanning [2] 7/7 18/11 |
| Prosecutor [3] 1/11 1/13 1/15 | region [1] 51/22 | scene [13] 41/25 42/1 44/22 44/25 |
| secutors [1] 3/12 | regular [1] 55/10 | 45/1 45/2 46/16 57/11 64/12 |
| protocol [1] 57/10 | rejected [1] 43/19 | 71/10 71/10 81/6 81/20 |
| proves [1] 69/14 | related [4] 8/18 44/10 44/16 79/2 | scenes [3] 4/21 5/13 39/18 |
| province [1] 83/2 | relating [1] 37/6 | scheduling [1] 37/7 |
| public [1] 44/14 | relation [1] 73/18 |  |
| purely [1] 66/5 | relevancy [1] 75/17 | science [1] 6/1 |
| purpose [1] 22/1 | relevant [2] 68/1868 | Sciences [1] 40/17 |
| pursued [1] 6/6 | rely [2] 56/12 79/7 | scientific [3] 30/15 30/20 30/25 |
| pushed [1] 53/17 | remains [3] 69/23 72/3 80/8 | scientist [1] $4 / 13$ |
| put [5] $31 / 1443 / 1649 / 1250 / 22$ | remind [1] 37/11 | scientists [1] 6/13 |
| O | render [9] 8/13 | screen [4] 16/25 26/21 49/12 |
|  | 71/16 77/23 78/2 82/15 83/14 | 50/22 |
| qualified [1] 13/22 | rendered [3] 46/12 83/22 84/1 | sealed [2] $12 / 8$ 12/9 |
| quarter [1] 17/11 | rendering [1] 45/24 | seated [5] 3/24 4/7 37/14 38/8 |
| quarters [1] 17/12 | repeat [3] 17/5 36/20 63/25 | 87/14 |
| question [10] 13/25 14/9 14/20 | rephrase [1] 13/24 | second [3] 31/16 59/12 68/5 |
| 14/23 15/6 15/9 36/17 63/25 66/8 | rephrasing [3] 14/23 15/6 15/9 | seconds [1] 66/12 |
| 79/1 | report [5] 46/9 86/8 86/18 86/19 | seeing [2] 32/24 81/1 |
| questioned [1] 8/2 | 87/16 | seen [1] 76/8 |
| questions [4] 35/3 41/7 44/16 | reported [4] 1/24 9/24 55/12 89/6 | self [1] 69/15 |
| 78/15 | Reporter [3] 1/25 89/5 89/19 | SEMEDX [1] 8/1 |
| quick [1] 37/4 | reporting [2] 87/4 87/5 | semi [4] 49/24 51/3 52/7 52/2 |
| quite [2] 32/1 33/15 | reports [9] 46/13 46/19 53/21 54/7 | semi-circular [4] 49/24 51/3 52/7 |
| R | 71/13 85/5 85/5 86/3 | 52/20 |
| dio [4] 51/4 52/22 85/5 85/11 | reputation [2] 58/19 59/3 requested [3] 12/11 46/2 57/2 | sense [7] 47/5 59/13 60/12 60/ |
| rade [4] $73 / 12$ 75/6 76/14 76/21 | residency [2] 39/2 39/5 | $65 / 469 / 1274 / 22$ |
| rather [7] 32/6 40/24 48/19 52/21 | residents [1] 40/7 | separated [1] 48/4 |

## S

sequester [1] 84/21
serious [1] 58/13
serve [1] 86/7
set [1] 55/19
setting [1] 77/5
seven [5] 21/6 21/11 21/14 21/16 21/23
several [1] 24/11
severely [1] 9/18
shame [1] 73/22
shape [3] 14/14 15/17 49/24
shaped [2] 11/10 11/15
shooting [1] 69/15
short [2] 8/1 37/10
shorthand [1] 89/10
shot [6] 68/5 68/16 70/14 70/19
70/21 77/24
shots [1] 77/24
should [7] 18/14 54/19 82/21 86/3
86/5 86/7 86/8
show [3] 17/20 51/16 52/15
showed [3] 30/23 46/10 65/14
shown [2] 46/7 46/17
shows [1] 50/25
shrubbery [1] 68/20
side [4] 11/6 25/23 32/5 48/21
sidebar [1] 37/5
sign [1] 45/10
significance [1] 41/11
silver [1] 36/7
similar [2] 12/2 24/1
similarity [1] 73/17
similarly [5] 25/14 26/10 28/11
29/1171/5
simply [6] 64/1 74/19 75/19 76/23 79/4 81/7
since [6] 5/4 5/8 6/20 61/12 84/17 85/17
single [2] $71 / 1881 / 13$
sir [2] 31/11 87/19
sit [2] $70 / 1380 / 1$
sitting [1] 86/17
situation [1] 67/6
six[5] 21/11 21/14 21/16 21/23
39/11
size [2] 17/8 17/12
skeletal [4] 66/6 66/23 69/23 72/3
skeleton [2] 65/18 78/21
skeletonized [3] 65/13 65/16 65/21
skin [1] 41/1
skull [41] 5/19 10/4 10/14 10/17
11/7 11/8 12/3 23/18 24/20 47/16
$48 / 348 / 548 / 948 / 1348 / 1648 / 17$
49/1 49/4 49/11 50/2 50/7 50/10
50/13 50/19 51/10 53/4 53/12
$53 / 1453 / 1954 / 556 / 556 / 14$
62/14 63/23 66/25 67/9 68/10
69/21 72/5 77/24 82/3
slightly [2] 22/4 33/3
small [4] 45/23 48/6 51/4 53/16
smother [1] 74/17
social [1] 81/2
societies [1] 40/10
somebody [2] 44/3 76/10
someone [5] 34/12 62/1 70/14 72/23 85/12
something [13] 21/11 22/16 32/7
50/5 62/8 68/16 69/14 70/1 70/10 73/6 73/9 74/18 75/10
sometimes [3] 13/19 74/15 74/16 sorry [3] 17/5 20/1 50/16
sort [1] 74/15
source [2] 86/1 86/4
speaking [1] 25/10
special [8] 1/11 1/13 1/15 3/12
16/13 39/7 42/3 59/24
specialize [1] 40/18
specialized [1] 7/2
specific [13] $14 / 2 \quad 14 / 314 / 13$
41/20 59/9 59/12 60/19 61/6
61/11 62/16 74/13 79/6 81/12
specifically [8] 13/11 14/10 17/6
56/7 57/18 64/7 64/17 67/8
specimens [2] 63/6 64/13
spectrum [1] 7/18
spell [2] 4/8 38/9
spent [1] 64/11
spindles [1] 34/21
spot [1] 29/21
spots [3] 18/8 24/8 25/7
ss [1] 89/1
stab [1] 47/9
staff [1] 39/21
stake [3] 58/19 59/3 82/17
stakes [1] 58/7
stand [3] 4/3 38/4 58/25
standardized [1] 41/16
standards [1] 77/13
start [4] 24/17 24/22 59/15 67/12
started [2] 11/23 16/11
state [23] $1 / 11 / 31 / 121 / 141 / 16$
$3 / 23 / 63 / 94 / 24 / 74 / 134 / 2438 / 4$
38/8 38/17 38/21 39/3 40/12
$44 / 13$ 56/23 82/1 89/1 89/5
State's [2] 3/25 38/2
stated [1] $47 / 20$
statements [1] 58/23
status [1] 85/21
stenographic [1] 89/9
steps [1] 86/1
STEVEN [5] 1/6 1/21 $3 / 3$ 3/14 55/8
sticking [1] 32/7
still [2] 69/16 84/20
stone [1] 50/4
STRANG [6] $1 / 17$ 2/11 3/15 54/16 75/18 84/10
strangled [1] 70/14
strike [5] 14/15 14/24 14/25 $15 / 4$
15/11
striking [3] 50/5 66/23 66/24
strongly [1] 83/3
struck [3] 63/23 64/5 67/2
students [1] 40/7
studies [1] 6/6
study [3] 40/22 41/14 41/15
subject [2] 12/20 31/2
$\begin{array}{llll}\text { submitted [4] } 9 / 6 & 11 / 21 & 12 / 8\end{array}$

## 23/20

subpoenas [1] 43/13
such [5] 9/19 24/9 45/15 75/25 86/14
sudden [1] 44/22
suddenly [1] 76/10
sufficient [1] 83/13
suggest [1] 88/4
suggested [1] 72/19
suggesting [1] 73/16
suggestive [1] 52/24
suicide [3] 60/2 60/16 67/23
suicides [3] 67/25 68/5 82/6
summary [1] 36/17
Superior [1] 6/3
supervise [3] 39/15 39/17 43/5
supply [1] 9/17
support [1] 51/12
suppose [1] 6/25
$\begin{array}{lllll}\text { surface }[14] & 11 / 8 & 18 / 21 & 18 / 22\end{array}$
18/23 19/1 19/2 24/20 24/23
25/15 26/19 26/20 26/22 53/6 53/7
survive [1] 74/20
suspect [5] 22/22 65/23 68/7 68/9
68/12
suspected [2] 30/9 30/23
suspicious [1] 67/14
sustained [1] 66/20
sworn [2] $4 / 5$ 38/6
T
table [5] 3/14 53/11 53/12 53/13
56/25
take [15] 3/17 28/17 29/4 33/8
$37 / 7$ 37/10 47/8 52/1 52/16 55/5
$74 / 1381 / 1286 / 186 / 1286 / 15$
taken [6] 32/19 37/24 41/13 41/15
88/7 89/9
talk [2] $21 / 1123 / 13$
talked [4] 21/9 33/14 80/16 80/18
talking [9] 13/22 20/2 28/21 50/1
61/12 67/8 67/9 74/25 75/4
tape [1] 11/16
target [1] 51/8
teach [2] 40/4 40/7
teaching [1] 39/25
team [2] 5/11 42/8
teenager [1] 73/21
telephone [1] 43/23
television [2] 85/6 85/10
telling [2] 56/13 78/16
Teresa [6] 53/24 54/9 55/9 64/23
65/1 84/3
term [1] 60/8
terms [2] 7/3 27/23
Tesheneck[3] 1/24 89/4 89/19
test [4] 27/12 33/21 36/12 36/21
tested [1] 36/15
testified [9] 4/6 8/4 8/21 35/13
38/7 43/10 43/14 49/14 51/17
testify [5] 8/9 39/20 58/15 58/18
59/5
testifying [2] 59/6 83/17
testimony [4] 8/18 8/19 64/22 65/1
testing [4] 22/18 28/12 42/10 45/8
tests [2] 23/5 57/10
thank [17] 4/2 26/3 26/9 31/8 33/9
$35 / 235 / 2336 / 2437 / 237 / 2338 / 3$
43/19 54/14 80/13 84/8 84/11
88/9
their [3] 3/6 27/18 43/7
themselves [1] 67/16
there's [18] 19/5 33/13 47/10
48/20 50/7 50/9 51/3 53/6 53/6
53/9 64/7 64/10 70/4 70/24 76/3
82/9 82/10 87/23
thereafter [1] 89/11
therefore [1] 62/24
these [29] 6/23 10/22 11/20 11/21
16/9 18/7 22/8 23/4 33/25 47/25
49/4 50/11 52/23 53/16 56/14
59/24 62/2 64/4 65/16 66/4 68/1
69/20 71/21 73/14 73/16 77/9 78/14 80/2 85/2
thing [3] 50/6 63/10 88/5
things [3] $34 / 1572 / 184 / 17$
think[15] 3/19 14/25 15/5 22/22
35/13 42/15 64/7 64/18 64/20
65/10 66/4 75/6 76/4 76/23 81/15

|  |  |  |
| :---: | :---: | :---: |
| third [2] 60/2 68/21THOMAS [1] $1 / 13$ | 5/1178/5 | wafered [1] 53/5 |
|  | type [15] 23/2 29/21 44/7 | ing [1] |
| those [41] 8/12 8/16 9/12 9/14 10/1 12/21 16/3 16/11 18/12 | 52/25 57/13 58/16 63/10 64/20 | t[10] 17/6 36/4 58/24 72/23 |
|  | 65/25 68/13 68/14 75/3 76/18 | /17 73/24 74/23 78/23 84/1 |
| 21/12 22/13 22/18 22/20 23/9 | 76/21 | 86/23 |
| $\begin{array}{ll} 23 / 17 & 23 / 21 \\ 27 / 16 & 28 / 9 \\ 21 / 6 & 25 / 6 \\ 40 / 2 & 42 / 646 / 14 \\ \end{array}$ | types [6] 6/2 | ning [2] |
|  | 76/15 82/10 | wasn't [6] 30/3 30/4 46/15 63/5 |
| $\begin{array}{llll}27 / 16 & 28 / 9 & 31 / 640 / 2 & 42 / 6 \\ 46 / 11 \\ 46 / 12 & 48 / 8 & 48 / 13 & 49 / 649 / 9 \\ 51 / 6\end{array}$ | typical [1] 44/19 | 64/1767/4 |
| 56/3 58/24 63/11 68/16 69/13 | typically [10] 39/14 40/3 43/4 43/8 | watch [1] 85/ |
| $70 / 1075 / 1378 / 782 / 782 / 8$thought [5] $56 / 1457 / 657 / 1658 / 3$$71 / 23$ | 47/8 50/7 57/8 59/21 65/1782/4 | watching [1] 84/ |
|  | U | 8] 15/11 15/16 17/7 50/5 |
|  |  |  |
| three [15] 12/14 17/11 20/13 <br> 21/10 22/2 23/7 27/23 27/25 28/1 <br> 28/5 28/8 30/18 51/6 56/25 78/5 | ultimately [1] | 1-1 |
|  | uncommon [1] 76/14 | [66] 3/17 3/19 7/15 9/20 |
|  | under [5] 40/8 40/8 45/5 59/6 | 18/5 21/9 23/24 24/16 26/21 29/4 |
| thrive [1] 74/20 | 75/13 | 31/2 31/24 32/2 32/10 32/13 |
| through [13] 6/17 13/15 13/17 <br> 22/19 50/7 51/9 53/1 55/10 64/15 | understand [6] 14/9 58/6 59/8 | 32/17 37/4 40/3 40/4 40/6 42/9 |
|  | 66/4 79/20 85/18 | 42/10 43/12 44/21 46/7 46/25 |
| 64/17 65/1865/22 72/4 | understanding [4] 29/17 34/19 | 47/850/11 53/11 55/20 59/16 |
| time $[19] 3 / 23 / 63 / 215 / 17 / 21$$58 / 1859 / 564 / 1665 / 1266 / 17$ | 71/22 82/13 | 59/18 60/6 60/14 60/14 60/18 |
|  | understood [2] | 61/9 62/25 64/22 67/21 69/5 69/5 |
| $\begin{array}{ll} 74 / 24 & 84 / 15 \\ 87 / 17 & 86 / 20 \\ 87 / 25 & 88 / 4 \\ 88 / 8 \end{array}$ | undetermined [5] 60/5 60/7 60/9 | 70/13 71/4 71/9 71/10 71/11 |
|  | 60/10 81/14 | 71/11 71/12 71/14 71/14 71/15 |
| $\begin{array}{\|} \text { times }[10] 8 / 98 / 118 / 128 / 168 / 20 \\ 43 / 1043 / 1874 / 1982 / 986 / 12 \end{array}$ | unexpected [1] | 71/15 71/16 71/17 76/11 77/3 |
|  | unexplained [2] 60/7 79/1 | 81/8 81/18 82/11 82/15 84/18 |
| timing [1] $75 / 15$ | unfortunately [1] 74/17 | 85/17 87/22 87/ |
|  | unit [5] 6/10 6/11 6/15 7/2 | we'll [8] 3/22 15/21 |
|  | universities [1] 39/22 | 60/10 87/15 87/16 88/8 |
| tipped [1] 36/7 | University [1] 6/2 | we're [16] $3 / 47 / 1114 / 2320 / 2$ |
|  | unknown [2] $8 / 2$ | 26/4 26/15 37/10 37/15 40/5 50/1 |
| atissues [2] 41/1 $45 / 5$titanium [1] 7/17 | unless [2] 68/15 85/12 | 67/22 74/25 77/4 77/4 84/14 |
|  | unpack [1] 67/21 | 86/17 |
| ```titanium [1] 7/17 today [7] 4/1 5/20 59/6 61/12 80/1 83/17 84/14``` | until [1] 86/17 | weapon |
|  |  |  |
| $\begin{aligned} & \text { together [1] } 71 / 15 \\ & \text { told [3] } 9 / 1382 / 2186 / 10 \end{aligned}$ | upon [9] $7 / 208 / 1317 / 4$ 29/8 | websites [1] 85/14 |
|  | 29/23 53/19 54/5 74/8 79/7 | wedlock [1] 73/22 |
| $\begin{aligned} & \text { told [3] } 9 / 1382 / 2186 / 10 \\ & \text { Tom [2] } 3 / 109 / 25 \\ & \text { took [2] } 83 / 783 / 9 \end{aligned}$ | upper [5] 18/4 $82 / 8$ | week [2] [2] weekday [1] $86 / 22$ |
| took [2] $83 / 783 / 9$top [3] $16 / 1517 / 131325 / 24$topics [1] $41 / 23$ | urine [1] 41/4 | weekend [3] 84/18 85/17 |
|  | use [12] 8/1 18/1 18/11 50/11 | weight [1] $23 / 8$ |
| torso [1] $82 / 9$totality [2] $74 / 980 / 20$ | 58/21 60/10 61/13 71/11 71/12 | welcome [1] 37/3 |
|  | 71/13 71/14 71/14 | went [2] 6/17 46/1 |
| totality [2] 74/9 80/20towards [1] 25/24toxicology [1] $4 / 19$ | used [6] 7/9 21/20 34/23 47/7 | weren't [1] 72/3 |
|  | 77/13 83/6 | what's [2] 18/25 $41 / 4$ |
|  | useful [1] 78/23 | whatever [1] 55 |
| trace [16] $4 / 154 / 155 / 26 / 96 / 2$$7 / 218 / 178 / 188 / 208 / 219 / 16$ 13/21 25/9 25/9 33/24 34/4 traces [7] 19/20 20/5 20/14 22/15 | using [4] 7/7 7/24 13/11 29/25 | whether [12] 34/21 36/12 64/16 |
|  | usually [1] 23/1 | 65/11 65/12 67/19 68/23 69/20 |
|  | utilize [1] 71/9 | 78/5 $75 / 10$ |
| traces [7] $19 / 2020 / 520 / 1422 / 15$ $23 / 1130 / 1330 / 23$ track [3] $62 / 2563 / 966 / 3$ | utilized [2] 28/14 28/ | while [5] 63/24 64/4 64/5 79/22 |
| track [3] 62/25 63/9 66/3 traditional [1] 45/14 |  | 80/3 |
| $\text { train [1] } 40 / 4$ | V | $[1]$ |
| $\left\lvert\, \begin{aligned} & \text { trainees [2] } 39 / 1643 / 6 \\ & \text { training [10] } 6 / 186 / 217 / 17 / 37 / 7 \end{aligned}\right.$ | vacuum [3] 71/9 71/17 80/18 | whole [2] 24/14 49/25 |
|  | valuable [1] 73/3 | whom [1] 16/3 |
| $\left\|\begin{array}{l} \text { training }[10] \quad 6 / 186 / 21 \quad 7 / 17 / 37 / 7 \\ 13 / 1639 / 840 / 641 / 2558 / 22 \\ \text { trainings }[1] 6 / 15 \end{array}\right\|$ | varies [1] 6/25 | Widely [1] 55/12 |
|  | ious [2] 41/22 | Willis [1] $1 / 9$ |
| transcribed [1] 89/11 | vast [1] 82/8 | WISCONSIN [16] $1 / 11 / 31 / 121 / 1$ |
| (transcript [3] [1/23 89/8 89/12 | very [13] 3/21 12/2 14/1 16/25 | 4/24 6/3 38/18 38/21 |
|  | 20/16 26/9 37/19 54/23 60/6 75/6 | 38/24 39/24 77/16 77/19 89/1 |
| (tanma [2] 47/6 74/11 | 76/14 83/3 84/20 | 89/6 |
|  | vice [2] 40/15 42/14 | wish [1] 3/17 |
| trial [7] $1 / 4 \quad 1 / 4 \quad 3 / 5 \quad 84 / 22 \quad 85 / 9$ | victim [4] 58/7 63/24 64/47 view [3] 11/1156/12 79/17 | withheld [1] 58/1 <br> within [3] 20/9 57/18 57/ |
| (1) | viewed [1] 62/19 | without [2] 67/10 67/12 |
|  | viewing [1] 80/1 | withstanding [1] 79/19 |
| try [1] 60/23 <br> trying [2] 66/3 75/19 <br> Tuesday [2] 86/20 87/5 | visit [1] $85 / 14$ | witness [11] $3 / 254 / 422 / 102$ |
|  | vitae [1] $42 / 22$ | 35/14 36/25 38/2 38/5 82/20 |
|  | vital [1] $85 / 2$ | 82/22 84/12 |
| $\begin{aligned} & \text { two [28] } 6 / 1212 / 721 / 1022 / 223 / 6 \\ & 28 / 528 / 1030 / 1833 / 2540 / 24 \\ & 48 / 1449 / 450 / 1351 / 559 / 862 / 2 \end{aligned}$ | volunteer [1] 85 |  |
|  |  | woods [1] 68/21 |
|  |  | words [1] 70/24 |



