

In the Matter of:

Canfield Scientific, Inc.

vs.

Melanoscan, LLC

Dr. Rhett Drugge
September 20, 2018

CONTAINS CONFIDENTIAL PORTIONS



Court Reporting Solutions

Chicago, IL • 312.386.2000 • 800.868.0061

Canfield Scientific, Inc. - Exhibit 1039 REDACTED Canfield Scientific, Inc. v. Melanoscan, LLC IPR2017-02125

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

1

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL
AND APPEAL BOARD

CANFIELD SCIENTIFIC, INC.,
Petitioner,
v.
MELANOSCAN, LLC,
Patent Owner.

THE CONFIDENTIAL PORTIONS, PAGES 54-178 AND THE
CONFIDENTIAL ATTORNEYS' EYES ONLY PORTIONS, PAGES 179-180 ARE
PENDING FURTHER REVIEW

Case IPR: 2017-02125
Patent No. 7,359,748

DEPOSITION OF DR. RHETT DRUGGE
Stamford, Connecticut
Thursday, September 20, 2018

REPORTER: Angela M. Shaw-Crockett, CCR, CRR, RMR, CSR
License No. SHR.0000519

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

2

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

September 20, 2018

11:14 a.m.

DEPOSITION of Dr. Rhett Drugge, taken by the
Petitioner, held at the offices of McCarter &
English, LLP, One Canterbury Green, 201 Broad
Street, Stamford, Connecticut, before
Angela M. Shaw-Crockett, a Certified Court
Reporter, Certified Realtime Reporter, Certified
Shorthand Reporter, Registered Merit Reporter and
Notary Public of the States of New York, New
Jersey and Connecticut.

A P P E A R A N C E S:

MARSHALL GERSTEIN & BORUN LLP

Attorneys for The Petitioner
233 South Wacker Drive
6300 Willis Tower
Chicago, Illinois 60606-6357

BY: THOMAS L. DUSTON, ESQ.
tduston@marshallip.com

McCARTER & ENGLISH

Attorneys for The Patent Owner
CityPlace I
185 Asylum Street
Hartford, Connecticut 06103

BY: MARK D. GIARRATANA, ESQ.
mgiarratana@mccarter.com

**

**

**

CONTAINS CONFIDENTIAL PORTIONS

Dr. Rhett Drugge - 9/20/2018

1	INDEX	4
2	EXAMINATION BY	PAGE
3	MR. DUSTON	5
4	EXHIBITS	
5	FOR ID	DESCRIPTION
6	Exhibit 1040	System that's depicted in the photographs of Exhibit 1040
7		
8		
9	PREVIOUSLY MARKED EXHIBITS REFERENCED	
10	DESCRIPTION	
11	1001	Copy of the '748
12	1003	Topodermatographic Image Analysis For Melanoma Screening and the Quantitative Assessment of
13		Tumor Dimension Parameters of the Skin
14	1004	Body Measurement System using White Light Projected Patterns for Made-to-Measure Apparel
15		
16	1005	Whole body scanners
17		Hein A.M. Daanen Ph.D., G. Jeroen van de Water
18		M.Sc
19	1006	IPR2017-02125
20	2010	Declaration of Rhett Drugge, M.D.
21	2019	Declaration of Dr. Daniel van der Weide
22		(Exhibits were retained by the court reporter.)
23		
24		
25		

CONTAINS CONFIDENTIAL PORTIONS

Dr. Rhett Drugge - 9/20/2018

5

1 D R R H E T T D R U G G E,
2 called as a witness, having first been
3 duly sworn, was examined and testified as
4 follows:

5 EXAMINATION

6 BY MR. DUSTON:

7 Q. Doctor, would you state your full name and
8 address for the record, please?

9 A. Rhett James Drugge. My business address
10 is 50 Glenbrook Road, Unit 1C, Stamford, Connecticut
11 06902. My home address is 11 Ox Ridge Lane, Darien,
12 Connecticut 06820.

13 Q. Have you been deposed before, Doctor?

14 A. No.

15 Q. Let me give you a little bit of background
16 to how this process works.

17 I'll be asking you a series of questions.
18 You'll need to give verbal answers. Gestures and
19 the like are not anything that Angie can take down
20 on her machine. If there's any question you have in
21 your mind about a question I've posed to you, I'd be
22 happy to answer it. If you want to ask for
23 clarification, I'll be glad to give it. But it's
24 important that you do that, because if you answer a
25 question, I'll assume you understood it and I'll

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

6

1 move on.

2 Fair enough?

3 A. Yes.

4 Q. Is there anything about today, your health
5 or anything, that could somehow affect your ability
6 to give testimony or recall events?

7 A. Well, this is my first deposition, and in
8 that setting, I don't know what to expect.

9 Q. But there's nothing that you need to alert
10 us to in terms of your ability to understand my
11 questions or recall anything?

12 A. I don't have any recent illnesses. I'm
13 free of medications, so...

14 Q. Fair enough.

15 One other thing I'll alert you to is
16 because of the way this process works, we can't talk
17 over each other at the same time. So I'll let you
18 finish your answer, if you let me finish my
19 question, and we'll make a pause between the two so
20 Angie has an opportunity to take all of that down.

21 Fair enough?

22 A. I'll give Angie all the time she needs.

23 Q. Doctor, can you --

24 THE WITNESS: Just roll your eyes if
25 you're having trouble keeping up with me.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

7

1 (A discussion was held off the record.)

2 BY MR. DUSTON:

3 Q. So before we get into some of the
4 questions, I'd like to ask, if I could, what you've
5 done to prepare for today's deposition. Could you
6 tell me that?

7 MR. GIARRATANA: And I'm just going to
8 instruct the witness not to reveal the
9 substance of any communications you had with
10 counsel, because those are
11 attorney-client-privileged. But you can
12 indicate that you had discussions, just don't
13 reveal the discussion, the substance of them.

14 THE WITNESS: Right.

15 A. What time frame? Are you talking about my
16 education?

17 BY MR. DUSTON:

18 Q. No. First of all, we'll work backwards.
19 But I'm talking specifically about things that you
20 undertook to do to prepare for giving testimony
21 today.

22 A. Very specifically, I enjoyed the counsel
23 of Mark. That was a privileged conversation. And
24 that was about it.

25 Q. How long did you and --

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

8

1 MR. DUSTON: Mark, I always get your name
2 wrong. How is it pronounced?

3 MR. GIARRATANA: Giarratana.

4 MR. DUSTON: Giarratana. Apologies.

5 BY MR. DUSTON:

6 Q. Dr. Drugge, how long did you and
7 Mr. Giarratana meet before this deposition in
8 preparation for your testimony here today?

9 A. For three hours.

10 Q. And when was that?

11 A. That was two days ago.

12 Q. And were any documents reviewed during
13 that session with Mr. Giarratana?

14 A. Yes. We reviewed the declaration -- my
15 declaration statement for this meeting.

16 Q. Anything else?

17 A. We reviewed the -- well, there were
18 privileged communications which were private between
19 us about impacting --

20 MR. GIARRATANA: I don't want you to
21 reveal the substance of any communications you
22 had with counsel.

23 THE WITNESS: Okay.

24 MR. GIARRATANA: If there's a document you
25 recall, you can identify the document.

1 THE WITNESS: Okay.

2 MR. GIARRATANA: As long as that document
3 is not privileged.

4 A. Yeah, we reviewed elements of the patent
5 and we reviewed my CV.

6 BY MR. DUSTON:

7 Q. When you say "patent," you're talking
8 about the '748 patent?

9 A. Correct.

10 Q. Now, you mentioned you reviewed some
11 communications between yourself and your counsel; is
12 that right?

13 MR. GIARRATANA: You can answer that yes
14 or no.

15 A. No. I said -- more specifically, to
16 clarify my statement, I said we had other
17 communications which had to do with privileged
18 issues that are of upcoming intellectual property
19 issues which have nothing to do with this meeting.

20 BY MR. DUSTON:

21 Q. I see.

22 A. And that was part of that three-hour time
23 frame.

24 Q. When you say "upcoming intellectual
25 property issues," are we referring to current

1 applications now in the Patent Office?

2 A. I'm not going to go into that.

3 MR. GIARRATANA: I don't want you to
4 reveal the substance of the communication.

5 It's not relevant. It's -- I don't want
6 him to reveal the substance of his
7 communications with me.

8 MR. DUSTON: Can he at least identify that
9 they concerned ongoing patent prosecution
10 matters?

11 MR. GIARRATANA: I'll represent to you
12 that they don't concern ongoing patent
13 prosecution matters.

14 MR. DUSTON: Did the conversation concern
15 the IPR proceeding?

16 MR. GIARRATANA: I'm going to represent to
17 you that it did not. I think that was inherent
18 in his answer anyway, but...

19 BY MR. DUSTON:

20 Q. Did the conversations concern Canfield
21 Scientific?

22 A. No.

23 Q. So other than the declaration that you've
24 submitted in the IPR, Doctor, and the elements of
25 the '748 patent and your curriculum vitae, were

1 there any other documents that you reviewed during
2 this meeting with Mr. Giarratana?

3 A. No.

4 Q. Was anyone else present in the meeting?

5 A. Kevin Reiner.

6 Q. Anyone else?

7 A. No one else had a substantive role aside
8 from the lunch lady, someone who was delivering some
9 food.

10 Q. Was the lunch lady the only other person
11 in attendance at the meeting for any period of time?

12 A. She did not listen to the conversation. I
13 do not remember anyone else, but I'm going to ask my
14 counsel to refresh my memory.

15 THE WITNESS: Was there anyone else who
16 was pertinent?

17 MR. GIARRATANA: I'm not at liberty to
18 answer the question for you. You can let
19 Mr. Duston know what you remember and that's
20 it.

21 A. I have no recall of anyone. I mean, I was
22 called by my office about patients and when we'd be
23 back, blah, blah, blah. There was nothing that
24 related to this matter of the IPR discussed with
25 anyone aside from the two gentlemen I already

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

12

1 discussed, Reiner and Giarratana.

2 BY MR. DUSTON:

3 Q. Doctor, I'm going to show you what's been
4 marked previously as Exhibit 2010 in connection with
5 IPR2017-02125.

6 A. (Witness reviews document.)

7 Q. This is the document entitled "Declaration
8 of Rhett Drugge, M.D."

9 Is this the declaration that you reviewed
10 with counsel in this meeting that you spoke of?

11 A. It will take me a while to read it, to
12 make sure of its veracity.

13 Would you give me that time?

14 Q. Certainly.

15 A. (Witness reviews document.)

16 MR. DUSTON: Could you read my question
17 back?

18 (The record was read back by the
19 reporter.)

20 A. Yes.

21 BY MR. DUSTON:

22 Q. And on the last page, sir, can you look at
23 the signature there? Can you confirm that that is
24 your signature, sir?

25 A. Correct.

1 Q. Let me show you what's been previously
2 marked as Exhibit 1001. This is a copy of the '748
3 patent of which you spoke a moment ago. You
4 indicated in your testimony that you had reviewed
5 elements of this patent recently in preparation for
6 today's deposition. I wonder if you can identify
7 those elements for us, please.

8 A. Sorry. Would you please repeat your
9 question?

10 Q. Sure. I'm wondering if you would identify
11 for us the elements of the '748 patent that you
12 reviewed in your recent meeting in preparation for
13 today's deposition.

14 A. Excuse me. But I don't recall all of the
15 elements with great veracity because I gave the
16 document a read-through.

17 Q. Okay. The entire document?

18 A. Yes.

19 So, in that context, any small bits that
20 we pulled out were of -- kind of a small bit of the
21 entirety so you can take it as a whole.

22 Q. Okay. What bits do you recall reviewing
23 specifically?

24 MR. GIARRATANA: Wait a minute. I don't
25 want to get into the substance of

1 attorney-client-privileged communications. And
2 I believe that if you're going to ask him what
3 did you discuss with your counsel specifically
4 in this patent, you're going to reveal the
5 substance of the communication. Quite frankly,
6 I don't know why it's relevant anyway, nor do I
7 believe it's within the scope of the direct
8 examination.

9 MR. DUSTON: I haven't asked him to tell
10 me what he's discussed with counsel. He
11 indicated he reviewed elements of the '748
12 patent to prepare the himself for today's
13 deposition. I'm simply asking him which of
14 those elements he can testify to here today.

15 MR. GIARRATANA: You're excluding the
16 elements. Because he also said that he
17 discussed this with counsel, I believe. So
18 you're excluding from that question what he
19 discussed with counsel?

20 MR. DUSTON: I'm not asking what he
21 discussed with counsel at this point, that's
22 correct.

23 MR. GIARRATANA: Thank you.

24 A. Therefore, I stay with my answer. It was
25 a simple read-through without any specific

1 annotation.

2 BY MR. DUSTON:

3 Q. Did you focus, in your read-through, on
4 any particular portions of the document?

5 A. Yes, I found an error --

6 Q. Which was what?

7 A. -- about the state -- where I'm declared
8 to be inventor, there's a discrepancy between the
9 ZIP code, which is correct, 06902, which is the
10 Connecticut ZIP code, and my state, which is
11 Connecticut. It says New Hampshire and it is -- so
12 that's wrongly listed. And I noted that.

13 Q. Any other aspects of it that you noted in
14 your read-through?

15 MR. GIARRATANA: Objection, form.

16 A. I had no comment to make on that regard,
17 because I really feel that this patent, I just
18 wanted to familiarize myself with the language of
19 it.

20 BY MR. DUSTON:

21 Q. And you feel you did that?

22 A. Well, given the limited amount of time
23 that I had -- I list approximately a thousand or
24 more diseases that can be accessed -- I really,
25 really skipped over some of the long, long

1 discussions about dermatitidis and
2 dermatofibrosarcomas. I really didn't go over all
3 of it. I went more over the areas from Part 1 --
4 the abstract, to -- I looked at some of the wording
5 of the abstract. I looked -- and I -- because we
6 commonly do that. We look more intensely at the
7 first parts. And, at the end, I kind of stopped
8 when I got to halfway through the eighth column
9 because I didn't really want to go through that
10 whole list of diseases.

11 Q. Did your review include the claims that
12 appear at the end of the document?

13 MR. GIARRATANA: Objection, relevance,
14 outside the scope.

15 BY MR. DUSTON:

16 Q. The question was: Did your review include
17 the claims of the '748 patent that appear at the end
18 of the document?

19 MR. GIARRATANA: Same objection.

20 A. I told -- stated what I reviewed.

21 BY MR. DUSTON:

22 Q. So your review ended at column 8?

23 A. Uh-huh.

24 Q. Yes?

25 A. Yes.

1 Q. Doctor, showing you what has been
2 previously marked as Exhibit 10003 [sic].

3 A. (Witness reviews document.)

4 Q. Are you familiar with that document?

5 A. I had not seen this before I submitted my
6 patent.

7 Q. Are you familiar --

8 A. But I have become familiar with it in
9 light of your -- this IPR proceeding. I know it was
10 referenced.

11 Q. Have you read it?

12 A. Yes.

13 Q. Did you read it prior to signing the
14 declaration which was marked as 2010?

15 MR. GIARRATANA: Objection, outside the
16 scope, relevance.

17 A. I am not aware of the exact time of
18 reading, so I can't give you a definitive answer.

19 BY MR. DUSTON:

20 Q. Before your declaration, sir, did you read
21 the IPR petition that was submitted by Canfield
22 Scientific?

23 A. Again, you know, the timing -- the exact
24 timing of review of documents versus the creation of
25 the declaration is of -- we're talking about events

1 that are nine months -- I don't know the exact time
2 of the declaration compared to those.

3 Q. All right. You have read the document,
4 though. That's correct?

5 A. Yes. Sometime between -- and receiving
6 it, I did read it.

7 Q. I'm sorry. Sometime between when?

8 A. Yes, between -- I mean, I received the
9 documents. I don't know exactly what the date of
10 reading was.

11 Q. Sometime after the IPR was filed, do you
12 believe it to be that you read this document?

13 A. Well, sometime after -- you referenced it.
14 I read it after you referenced it. I don't know
15 when I read it, but the only read-through I gave it
16 was because of your reference.

17 Q. But you can't tell me whether or not you
18 read it before or after your declaration?

19 A. I cannot, no. I don't have a record of
20 exactly when I read scientific articles.

21 Q. Having read this article, is there
22 anything in this declaration that you believe needs
23 to be corrected?

24 A. No.

25 THE COURT REPORTER: Doctor, you are a bit

1 soft-spoken.

2 (A discussion was held off the record.)

3 BY MR. DUSTON:

4 Q. Doctor, showing you what's been marked as
5 10004 [sic], are you familiar with this document?

6 A. Yes.

7 Q. And how are you familiar with it, sir?

8 A. That is through the same reference,
9 through the IPR document that you produced.

10 Q. And have you read the document, sir?

11 A. Yes.

12 Q. And can you tell me whether or not you
13 read it before the submission of your declaration?

14 A. I have the same answer I gave you for the
15 first one. I'm not sure what the sequence of events
16 was.

17 Q. Based on your reading of the document, is
18 there anything that you would like to alter or
19 correct in the declaration that you submitted?

20 MR. GIARRATANA: Objection, form.

21 BY MR. DUSTON:

22 Q. I'll ask the question again.

23 A. My lawyer has objected. I don't know what
24 to do in this --

25 MR. GIARRATANA: Let me -- if I object to

1 the form, if you understand the question, you
2 can go ahead and answer it.

3 A. Could you reiterate your question?

4 BY MR. DUSTON:

5 Q. Sure. Having read Exhibit 10004 [sic],
6 the Hurley article, is there anything that you wish
7 to alter or correct with respect to the statements
8 made in your declaration?

9 MR. GIARRATANA: Same objection.

10 A. No.

11 BY MR. DUSTON:

12 Q. I'm going to show you what's been marked
13 as Exhibit 10005 [sic]. This is the Daanen,
14 D-A-A-N-E-N, article entitled "Whole Body Scanners."

15 Are you familiar with this document, sir?

16 A. Yes.

17 Q. Have you read it?

18 A. Yes.

19 Q. Did you read it before your declaration
20 was submitted?

21 A. Same answer as the prior two answers.

22 Q. Having read the document, is there
23 anything that you would alter or change about the
24 statements made in your declaration?

25 MR. GIARRATANA: Objection, form.

1 A. No.

2 BY MR. DUSTON:

3 Q. I show you Exhibit 10006 [sic].

4 A. (Witness reviews document.)

5 Q. This is an international patent
6 application in the name of Crampton, Exhibit 10006
7 [sic].

8 Are you familiar with this document, sir?

9 A. Yes.

10 Q. Have you read it?

11 A. Yes.

12 Q. And did you review it before the
13 submission of your declaration?

14 A. Same answer.

15 Q. Having reviewed this document, sir, does
16 it prompt you to alter or change any of the
17 statements that you've made in your declaration?

18 MR. GIARRATANA: Objection, form.

19 A. No.

20 BY MR. DUSTON:

21 Q. I show you what's been marked as
22 Exhibit 2019.

23 A. (Witness reviews document.)

24 Q. Are you familiar with this document, sir,
25 titled "Declaration of Daniel van der Weide"?

1 A. No.

2 Q. Do you know Mr. van der Weide?

3 A. No.

4 Q. Have you ever had any conversations with
5 Mr. van der Weide before today's date?

6 A. [REDACTED]. But I don't
7 have a conversational relationship. And we know --
8 we had to exchange information cursorily in order
9 for me to assign him to the case and also for me to
10 accept him as an expert witness and also for me to
11 pay him. Beyond that, we have no relationship.

12 Q. Were you familiar with him before he was
13 retained as an expert?

14 A. No.

15 Q. Is it your testimony, sir, that at no time
16 have you reviewed his declaration either in this
17 form or in any draft form?

18 MR. GIARRATANA: Objection, form.

19 A. No.

20 BY MR. DUSTON:

21 Q. I'll rephrase the question.

22 Have you, before today's date, read any
23 portion of Dr. van der Weide's declaration, two
24 thousand -- Exhibit 2019?

25 MR. GIARRATANA: Objection, form.

1 A. If you'll allow me, I can read it and
2 familiarize myself with the contents of the document
3 you've given me. At that time, I will draw a
4 conclusion as to whether I have any familiarity with
5 the document.

6 BY MR. DUSTON:

7 Q. Tell you what. Let's talk about its form
8 as it appears as 2019.

9 Does this document --

10 A. 2019? This is 2018, sir.

11 Q. No, no. I'm sorry. The exhibit is 2019.

12 A. Oh. I thought you were referring to the
13 common date.

14 Q. Apologies for the confusion.

15 A. Okay.

16 Q. So just looking at the document and its
17 form, does it appear to you familiar?

18 A. Again, I give the same answer I just gave
19 you.

20 Q. All right. Did you have any conversations
21 with Dr. van der Weide during the course of his
22 engagement?

23 A. No.

24 MR. GIARRATANA: Objection, form.

25 If you could just hesitate before you

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

24

1 answer --

2 THE WITNESS: Yeah.

3 MR. GIARRATANA: -- so we don't talk over
4 each other. Thank you.

5 BY MR. DUSTON:

6 Q. Did you review a copy of the opposition
7 submitted by Melanoscan in the IPR?

8 MR. GIARRATANA: Objection, form.

9 A. I've reviewed multiple documents. Would
10 you like to produce that? Would you like me to
11 review this to ascertain my familiarity with this
12 or --

13 BY MR. DUSTON:

14 Q. Well --

15 A. I'd be happy to.

16 Q. I think we may get to that point. Maybe I
17 can direct you to specific portions of it to move us
18 along, rather than have you read it page by page.

19 A. I thought your question was what is my
20 familiarity with the document.

21 Q. That's correct.

22 A. So it's --

23 Q. And I think you've answered that question.

24 A. I did not finish my answer to that
25 question.

1 I said that in light of the -- my
2 unfamiliarity with the form -- I will typically read
3 things by email which come in, and they look very
4 different than some things printed, such as this
5 document is. So if you would allow me to read
6 deeply into it, then I can determine whether or not
7 I have familiarity with it.

8 Q. Do you believe that you reviewed portions
9 of Dr. van der Weide's decla- --

10 A. I'm not going to change my answer to that.
11 I've already answered that question.

12 Q. My question, sir, is: You referenced
13 emails.

14 A. Don't question me again on the same
15 question. You're repeating it.

16 MR. GIARRATANA: It's okay, Rhett. I'll
17 object to his question if I believe it's
18 duplicative.

19 A. I've stated my position. My position is
20 that if you would allow me to review this paper, I
21 will tell you whether I have familiarity with it.
22 If you want to have any other answer, I won't give
23 it to you, because I've already made a statement.

24 BY MR. DUSTON:

25 Q. A moment ago you referenced email

1 communications and documents that would have come to
2 you in the form of --

3 A. In the course of hiring an expert witness,
4 one has to review their CV, one needs to communicate
5 with the reference lawyer who made that referral and
6 then pay the assigned fee to that person. So that
7 was the nature of our interaction.

8 Q. Understood.

9 Did you have email interaction with
10 Dr. van der Weide after he was retained?

11 A. In order to provide this information.

12 Q. "This information" being the information
13 that's reflected in Exhibit 2019?

14 A. I don't know exactly what this has in it.
15 We've talked about that already, so I'm not going to
16 review that point again. I would have to review
17 this to see whether or not I have familiarity with
18 it, because the cover does not look familiar to me.

19 Q. Okay. What I'm just trying to see if we
20 can nail down is the interaction that you had with
21 Dr. van der Weide with respect to the declaration
22 that he's authored in this case.

23 So a moment ago you indicated that you --

24 A. Made communi --

25 MR. GIARRATANA: Hold on.

1 BY MR. DUSTON:

2 Q. -- you made reference to -- you made
3 reference to emails.

4 Let me ask this question, just a very
5 simple question: Did you -- were you addressed or
6 copied on any emails that originated from
7 Dr. van der Weide?

8 MR. GIARRATANA: Objection to the form.
9 It's outside the scope. And objection to
10 relevance.

11 BY MR. DUSTON:

12 Q. Doctor.

13 A. I've discussed with you the nature of my
14 emails with Dr. van der Weide. They were on a
15 business execution basis and that's -- that's the
16 communication we had.

17 Q. And there's been no other subject
18 communication between you and Mr. van der Weide?

19 MR. GIARRATANA: Objection, form,
20 relevance, outside the scope.

21 BY MR. DUSTON:

22 Q. I'm not trying to make this difficult,
23 Doctor. I'm just trying to ascertain whether you
24 had or were privy to communications by
25 Dr. van der Weide leading up to the declaration that

1 we've marked as Exhibit 2019.

2 A. I had to pay him --

3 MR. GIARRATANA: Hold on, please.

4 Objection to form, relevance, scope.

5 If you can answer, go ahead.

6 A. I don't understand how this doesn't
7 represent a repetition of what you just asked me,
8 which I just answered, which was the nature of a
9 business transaction. I recruited an expert
10 witness, Mr. van der Weide, through a selection
11 process, under advice of counsel, and paid him. And
12 that was the nature of my interaction with
13 van der Weide.

14 BY MR. DUSTON:

15 Q. And so you had no sub- -- no discussions
16 with him on any -- on the substance of anything --

17 A. No.

18 Q. -- related to this?

19 MR. GIARRATANA: Hold on.

20 Objection, form, scope, relevance.

21 Now you can answer, if you can.

22 A. No.

23 BY MR. DUSTON:

24 Q. Did you see any preliminary drafts of the
25 work that Dr. van der Weide was preparing?

1 MR. GIARRATANA: Same objection.

2 A. We were referring to this particular
3 document and I will, if you allow me the time to
4 review it, be happy to respond to you. But in lieu
5 of that same response, which I've made several times
6 now, I'm not going to answer --

7 BY MR. DUSTON:

8 Q. I'm not asking about this document
9 specifically, Doctor.

10 I'm just asking: Were you -- did you see
11 any of the work that Dr. van der Weide prepared in
12 connection with his engagement in this case? Do you
13 recall seeing any of the work Dr. van der Weide
14 prepared?

15 MR. GIARRATANA: Objection, form, outside
16 the scope, relevance.

17 A. Again, if you allow me to review his work,
18 I'd be happy to tell you that.

19 BY MR. DUSTON:

20 Q. But you don't recall, without looking at
21 this document, whether there was any work by
22 Dr. van der Weide that was shared with you before
23 today's date?

24 MR. GIARRATANA: Same objection.

25 A. I'm not altering my answer. I'm happy to

1 review it to evince my familiarity or not with the
2 document at hand. And I think it's a simple
3 request.

4 BY MR. DUSTON:

5 Q. What do you know -- without reviewing this
6 document, what do you know of Dr. van der Weide's
7 opinions in this matter?

8 MR. GIARRATANA: Objection, form, outside
9 the scope, relevance.

10 A. I have a limited understanding of his
11 interpretation of the case.

12 BY MR. DUSTON:

13 Q. And how did you gain that interpretation?

14 MR. GIARRATANA: Same objection.

15 BY MR. DUSTON:

16 Q. Or that understanding, rather?

17 MR. GIARRATANA: Same objection.

18 A. That was a communication with counsel.

19 BY MR. DUSTON:

20 Q. Was it one communication, more than one
21 communication?

22 MR. GIARRATANA: Objection, form, scope,
23 relevance.

24 A. It was very brief and I think there was --

25 MR. GIARRATANA: I want to instruct you

1 not to reveal the substance of any
2 communication with counsel.

3 THE WITNESS: Okay.

4 BY MR. DUSTON:

5 Q. When you say "very brief," can you give me
6 an idea what "very brief" means?

7 MR. GIARRATANA: Objection, form, outside
8 the scope, relevance.

9 You can tell him -- if you remember the
10 amount of time, you can tell him that. But you
11 cannot reveal the substance of any
12 communication with counsel.

13 A. It might have been a two-minute,
14 five-minute element of a conversation.

15 BY MR. DUSTON:

16 Q. So other than this two-to-five-minute
17 conversation with counsel, was there anything else
18 that gave rise to your understanding of
19 Dr. van der Weide's opinions in this matter?

20 MR. GIARRATANA: Objection, form, outside
21 the scope, relevance.

22 A. You know, we keep coming back to the same
23 roadblock in this conversation, which is that if you
24 would give me leave to review the document, I'd be
25 happy to respond to your question accurately.

1 BY MR. DUSTON:

2 Q. My only hesitation there, Doctor -- and
3 I'm more than willing to allow you to do that, but
4 having watched you review your own declaration, I
5 think we might be here the rest of the afternoon if
6 I allow you to do what it is that you're proposing
7 to do. And I'm not really certain that it's
8 necessary for you to do that to answer the questions
9 I'm posing to you. I think you and I both
10 understand that what I'm trying to get at is the
11 degree to which you interacted with
12 Dr. van der Weide or were made aware of the opinions
13 Dr. van der Weide was developing before he submitted
14 the declaration.

15 MR. GIARRATANA: I'm going to object to
16 the form.

17 MR. DUSTON: That's not a question.

18 MR. GIARRATANA: I know. I'm going to
19 object to the form of the statement you're
20 making. I'm also going to object -- you spent
21 a lot of time now well outside the scope of the
22 direct examination and well outside any realm
23 of what's relevant to this proceeding. And I
24 will remind you that in an IPR, relevance is
25 different than in a federal litigation. And

1 I'm really struggling with this whole line of
2 questioning and how it's possibly permissible.
3 I'm trying to give some leeway so that we don't
4 get hung up on things that really are
5 irrelevant and outside the scope. But I'm --
6 at some point, we're going to -- we're going to
7 have to elevate the issue.

8 MR. DUSTON: Understood.

9 BY MR. DUSTON:

10 Q. So before the van der Weide declaration
11 was submitted by Melanoscan in support of its
12 opposition, did you have an understanding of what
13 Dr. van der Weide's opinions were?

14 MR. GIARRATANA: Objection, form, outside
15 the scope, relevance.

16 A. I again had a conversation -- I was mainly
17 reliant upon counsel vis-a-vis the documentation.

18 BY MR. DUSTON:

19 Q. So this was the two-to-five-minute
20 conversation that you mentioned earlier?

21 MR. GIARRATANA: Same objection.

22 A. The potential for review -- I may have
23 reviewed this document, as I said, from the cover
24 letter. And the way I receive email, I'm not -- I
25 can't verify without reading the argument that I

1 know this document. So that's -- that's one of our
2 modern-age things. The documents never came to me
3 in this form; therefore, I can't precisely respond
4 to your request. I would like to be as accurate as
5 possible, but I can't be truthful without better
6 information.

7 BY MR. DUSTON:

8 Q. But what I'm asking, Doctor -- maybe this
9 is a simpler question -- you don't recall receiving
10 an email indicating to you that what was being
11 communicated to you was an opinion of
12 Dr. van der Weide?

13 MR. GIARRATANA: Objection, form, outside
14 the scope, relevance.

15 I'm going to instruct you not to reveal
16 the substance of any communications with
17 counsel.

18 Mr. Duston, he's also indicated to you
19 that he received an email from counsel and now
20 you're asking him for the substance of the
21 communication that he received from counsel.
22 I'm going to request that you rephrase your
23 question so that you don't inherently elicit
24 attorney-client-privileged communications.

25 MR. DUSTON: I'm simply trying to

1 establish whether, beyond the
2 two-to-five-minute conversation he had with
3 counsel, does he recall any other
4 communications that communicated to him
5 opinions developed by Dr. van der Weide.

6 MR. GIARRATANA: I think he's answered
7 your questions.

8 MR. DUSTON: I don't think he has.

9 MR. GIARRATANA: Well, if you've got
10 another question, go ahead and present it and
11 we'll deal with it.

12 BY MR. DUSTON:

13 Q. So as you sit here today, you can't recall
14 receiving communications that identified themselves
15 as providing you with information concerning
16 Dr. van der Weide's opinions?

17 MR. GIARRATANA: Objection, form, outside
18 the scope, and relevance.

19 A. I think your redundancy is high and I've
20 already responded to you several times. I'd be
21 happy to review this to know if I am familiar with
22 it, but I think your question is a reiterative one.

23 BY MR. DUSTON:

24 Q. Possibly. Maybe we can get an answer to
25 it, though, and then perhaps we can move on.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

36

1 MR. DUSTON: If we can just have the
2 question repeated.

3 THE COURT REPORTER: Sure.

4 THE WITNESS: Excuse me. I'm going to go
5 to the bathroom.

6 MR. GIARRATANA: Off the record -- well,
7 wait.

8 THE WITNESS: May I?

9 MR. DUSTON: Sure.

10 MR. GIARRATANA: While we're on the
11 record, I'm going to go to the men's room. I
12 will not speak to him about the question on the
13 table. Okay?

14 Off the record.

15 (A discussion was held off the record.)

16 (At 12:00 p.m. a recess was taken.)

17 (At 12:03 p.m. the deposition resumes.)

18 (The record was read back by the
19 reporter.)

20 MR. GIARRATANA: Same objections.

21 A. I responded to the question and my
22 response stands.

23 BY MR. DUSTON:

24 Q. What is your response, sir?

25 MR. GIARRATANA: Same objection.

1 A. You can read it back from the record, if
2 you would.

3 BY MR. DUSTON:

4 Q. Tell you what. It would be a lot quicker
5 if you just told me what it was. Then we can move
6 on.

7 MR. GIARRATANA: Same objection.

8 A. Why?

9 BY MR. DUSTON:

10 Q. Why not?

11 A. Well, you were allowed to have her read
12 back the question. Why can't I have her read back
13 the response? I don't understand how you suddenly
14 usurped the capacity for me to ask a simple
15 question.

16 THE WITNESS: Correct?

17 THE COURT REPORTER: I do as I'm told.

18 BY MR. DUSTON:

19 Q. You're declining to answer that question,
20 sir?

21 A. No. No, I'm not.

22 Q. You're saying --

23 A. I already answered the question.

24 Q. -- that you already answered, correct?

25 A. Several times. You're repeating it. I

1 would be happy to review the document. You have
2 some time -- you have some time constraints. You
3 don't want to hear or you don't want me to
4 quickly -- because I'm not familiar -- this is a
5 page that I'm not familiar with.

6 Q. 2019, you're referring to? The document
7 is 2019.

8 A. Yes, this form of this. I've seen the
9 form of all the other documents. I recognize them
10 readily. I'm happy to respond to anything, but I'm
11 not going to respond with a half truth, oh, yes, I
12 probably did, unless I'm allowed to quickly review
13 the document. So you've objected to me quickly
14 reviewing the document. So, therefore, my question
15 to you is: Why would you object to that?

16 Q. How much time do you need to look at that
17 to determine whether or not --

18 A. I'm not sure. I haven't been on top of it
19 yet.

20 Q. All right. Is it your belief that you saw
21 opinions of Dr. van der Weide in some form before
22 they were submitted to the Patent Office?

23 MR. GIARRATANA: Object to form, outside
24 the scope, relevance.

25 A. I would like to skim the document in order

1 to determine my familiarity with it.

2 BY MR. DUSTON:

3 Q. Why don't you go ahead and skim the
4 document.

5 A. Thank you. (Witness reviews document.)

6 This is not a dated document. Do we have
7 a date on this?

8 Q. I believe you'll find the date on the last
9 page, Doctor.

10 A. Okay. (Witness reviews document.)

11 Thank you for letting me review it. I had
12 not reviewed that as closely as I was able to read
13 it now. And so many of the arguments are simply
14 reiterations of the prior art that has been
15 displayed in these numerous other documents that --
16 you know, in light of this, I have made myself
17 familiar with this material, to the degree to which
18 a five-minute read, cursory reading can make.

19 Q. So having reviewed the opinions expressed
20 in Exhibit 2019, is it your recollection that you
21 were made privy to those opinions before
22 Dr. van der Weide's declaration was submitted?

23 MR. GIARRATANA: Objection to the form,
24 outside the scope, relevance.

25 A. No.

1 BY MR. DUSTON:

2 Q. In your review of the document, 2019, sir,
3 did you see anything in that document to which you
4 disagreed?

5 MR. GIARRATANA: Objection, form, outside
6 the scope, relevance, lacks foundation.

7 A. In my opinion with a five-minute reading,
8 I would have to give it a closer read, which would
9 take me approximately 45 minutes to be more precise.
10 But I -- in general, I found his arguments to be
11 very cogent and comprehensive in his review of the
12 technology.

13 BY MR. DUSTON:

14 Q. So let's shift gears for a moment, Doctor,
15 and let's talk a little bit about your background.

16 If you could sort of give me a thumbnail
17 sketch of your background after high school in terms
18 of your educational accomplishments.

19 A. Uh-huh. Okay. Yes. After high school, I
20 matriculated at Harvard University in 1977. And I
21 was -- I had just turned 18 when entering into the
22 freshman class.

23 Would you like to be more precise in your
24 question, because --

25 Q. Sure.

1 A. -- this could be a fairy tail of enormous
2 potential depth and -- should it include every class
3 taken? Would you like to direct us to specifics so
4 we can jump ahead to --

5 Q. I think we can take the CliffNotes
6 version. Why don't you give me basically the degree
7 programs that you completed after high school?

8 A. Beyond what I've already given you with
9 the CV?

10 Q. If you could just recite it for us
11 basically in thumbnail.

12 A. Okay. Let me refer to the CV.

13 Q. I don't know if you have a copy of it in
14 front of you.

15 A. No, I don't. If you provide that for me.

16 Q. So you entered Harvard University, and did
17 you graduate?

18 A. Yes.

19 Q. With what degree?

20 A. An AB.

21 Q. In what subject?

22 A. In history.

23 Q. And after receiving your AB in history
24 from Harvard University, did you continue in your
25 schooling thereafter?

1 A. Yes.

2 Q. And what school did you attend after that?

3 A. After that, I went to do research at Yale
4 University medical school.

5 Q. For what period of time?

6 A. From 1982 to 1984.

7 Q. All right. And what type of research were
8 you engaged in there?

9 A. Pharmacology research.

10 Q. Specifically what?

11 A. Protein chemistry, immunology, drug
12 receptor identification.

13 Q. And after 1984, did you continue your
14 schooling?

15 A. Yes. I went to medical school at New York
16 Medical College in August of 1984.

17 Q. And did you graduate from there?

18 A. Yes, in 1988.

19 Q. And what was your degree?

20 A. I graduated with an MB.

21 Q. Did you have any further postgraduate
22 work?

23 A. I continued my research during medical
24 school working in a laboratory of Echard Podack on
25 lymphokine-activated natural killer cells. I

1 published in Science in 1984, during that year, on
2 the receptor for cyclosporin A.

3 I attended scientific meetings in '86, at
4 which time I met my future employer, John Voorhees,
5 who is the current chairman of the department of
6 dermatology at University of Michigan. We shared a
7 common interest in pharmacology, especially with
8 related to -- as related to cyclosporin, which was
9 an emerging therapy in psoriasis.

10 I finished medical school in 1988 and
11 endured one year of the highest-risk HIV/AIDS
12 hospital in the country, which was at the Manhattan
13 VA. More than half the patients had this terrible
14 disease at the time.

15 And when I finished that one-year
16 internship, I went to University of Michigan and I
17 spent three years there in their dermatology
18 residency training program. While I was there, I
19 wrote a grant on the use of stem cells for gene
20 therapy, which was not funded. And I -- of course
21 the funding rate for grants is fairly low, like
22 8 percent for IAH.

23 The -- then I went into private practice
24 in 1992 in Stamford, Connecticut, where I've been
25 since.

1 Q. Have you had any formal training in
2 photography?

3 A. In -- I've never taken any formal
4 coursework in photography, but I did purchase the
5 first digital camera in the field, a DCS2000 200
6 camera from Kodak, in 1993.

7 And I had been studying, at University of
8 Michigan, the value of telemedicine, especially
9 teledermatology, which was at that time performed
10 via video context. And so I hired a programmer to
11 perform a new form of telemedicine to -- called
12 store-and-forward teledermatology.

13 Store-and-forward teledermatology has become an
14 extremely useful asset in medicine.

15 And I was invited to participate with the
16 Veterans Administration in helping them to design
17 their store-and-forward teledermatology system.
18 This had to do with selection of the cameras,
19 lighting, positioning of patients. And we showed in
20 remarkable studies published that dermatologists
21 were just as accurate in their review of imagery as
22 we were in person, for the diagnosis of skin
23 disease. Several publications emerged from that
24 research.

25 And at the same time, I was hosting the

1 Society For Investigative Dermatology website and we
2 provided them with the first scientific abstract
3 reviews for their annual meetings. And I hosted the
4 Women's Dermatology [sic] Society at that time and
5 started an organization called the Internet
6 Dermatology Society, which allowed us to perform
7 group think telemedicine, store-and-forward, within
8 dermatology where we would chair cases among a large
9 community, which is extant today, called RxDerm.

10 And that's kind of mid '90s activity.

11 Q. When was it that you hired this programmer
12 that you mentioned, for telemedicine?

13 MR. GIARRATANA: Objection, form.

14 A. That was in 1992.

15 BY MR. DUSTON:

16 Q. A year before you started -- or the year
17 that you started private practice?

18 A. Could have been '93. My recollection is
19 imprecise as to the exact date of engagement.

20 I had a strong willingness to cure disease
21 remotely as it seemed like it was a strong
22 possibility that we could reduce the cost of care
23 delivery through the use of simple store-and-forward
24 mechanism rather than the complexity of video
25 conferencing. Video conferencing suffered from the

1 drawbacks of being very time consuming. The
2 practitioner, the diagnostician, and the patient had
3 to connect on a very specific time line. And
4 compared to the aggregation of information we could
5 perform with -- with a digital image capture, it was
6 a very slow and cumbersome technique.

7 Q. Are you familiar with the field of
8 photogrammetry?

9 A. Yes.

10 Q. What training have you had in that field?

11 A. I --

12 MR. GIARRATANA: Objection -- hold on.

13 Objection to form, outside the scope,
14 relevance.

15 BY MR. DUSTON:

16 Q. Let me withdraw the question. I'll ask it
17 another way.

18 Have you worked in the field of
19 photogrammetry, sir?

20 MR. GIARRATANA: Same objection.

21 A. It would seem to me that what I do is
22 measure pictures for deadly skin disease. And I
23 have been reviewing imagery of the skin for
24 photometric purposes since my residency training in
25 1988. University of Michigan is a clinical research

1 center of great quality and note, and I was drawn to
2 the center by their scientific interest in skin
3 disease, which is mostly documented through imagery.
4 As I said previously, we've shown that
5 dermatologists are just as accurate with the imagery
6 as they are in person. Therefore, I have fairly
7 intense level of knowledge regarding imaging the
8 skin.

9 BY MR. DUSTON:

10 Q. And when you say --

11 A. It may not be a formalism, but the whole
12 field is driven, potentially, by imaging the skin.
13 It would be like asking a radiologist are they
14 familiar with photometrics. And I would say there's
15 a good familiarity.

16 Q. So you would consider yourself skilled in
17 photometrics from --

18 A. I'm not holding myself out as a
19 photometric expert, no.

20 Q. But you have experience in the field?

21 A. I have experience in the field of
22 measuring skin disease.

23 Q. Would that be a classification of
24 photometrics?

25 A. I do not believe it is. I think it's my

1 field of dermatology. I feel that the field of
2 dermatology and the field of radiology are intensely
3 intertwined with imaging.

4 Q. How so?

5 A. I just gave you that evidence. I showed
6 you a paper that I had published specifically saying
7 that the doctors can interpret the skin disease as
8 accurately as they can interpret the image. That
9 would be a very powerful statement, sir.

10 Q. Let's take a look at what's been marked as
11 Exhibit 2010. That's your declaration that's before
12 you.

13 A. Uh-huh.

14 Q. I have some questions on some of the
15 specific statements that you made in this.

16 Let's first turn, if we could, to
17 paragraph 40 of your declaration.

18 A. (Witness complies.)

19 Q. Are you with me there?

20 A. Yes.

21 Q. I'll ask you to read that to yourself and
22 then I'll have a few questions for you on it.

23 A. (Witness reviews document.)

24 Q. Have you had an opportunity to read that
25 paragraph, sir?

1 A. Correct.

2 Q. You make reference to a TIP system that
3 was used in certain research to detect a particular
4 melanoma, correct?

5 A. Uh-huh.

6 Q. Is that right?

7 A. Yes.

8 Q. Let me show you what we're marking as
9 10040 [sic] -- I'm sorry -- 1040.

10 What I'd ask you to do is --

11 THE COURT REPORTER: I'm sorry. I don't
12 mean to interrupt. But are you marking that
13 for today's or is that previously --

14 MR. DUSTON: That's for today, yes.

15 THE COURT REPORTER: Okay. We need to
16 start with 1036. I'm sorry.

17 MR. DUSTON: No, no. We can leap around.

18 THE COURT REPORTER: Yeah? Okay.

19 MR. DUSTON: That's fine. And this is
20 already marked, so don't worry about it.

21 MR. GIARRATANA: Tom, you say you're
22 marking for today. These have already been
23 marked as exhibits -- these have already been
24 marked as exhibits in the IPR, haven't they?

25 MR. DUSTON: I don't believe this one has.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

50

1 MR. GIARRATANA: Where is the -- where is
2 Exhibit 1040 -- who marked this as
3 Exhibit 1040?

4 MR. DUSTON: I think we simply picked a
5 number that was above the last range of numbers
6 that were used.

7 MR. GIARRATANA: Okay. So let's -- just
8 so the record is clear, Exhibit 2010, which is
9 the declaration, has been previously marked.

10 MR. DUSTON: By you all, yes.

11 MR. GIARRATANA: Okay, by the patent
12 owner.

13 All of the other exhibits that you've
14 introduced today, those were not previously
15 marked?

16 MR. DUSTON: No, they all are marked.

17 MR. GIARRATANA: Have they been previously
18 introduced in this proceeding under those
19 exhibit numbers?

20 MR. DUSTON: They have.

21 MR. GIARRATANA: Okay. So the first
22 exhibit you've introduced that has not been
23 previously introduced in this proceeding is
24 Exhibit 1040?

25 MR. DUSTON: That's correct.

1 MR. GIARRATANA: Okay. So I think we need
2 the reporter to mark 1040 with an exhibit
3 number.

4 MR. DUSTON: It has one on it.

5 MR. GIARRATANA: Yeah, but we should
6 differentiate, because that's been introduced
7 here for the first time.

8 MR. DUSTON: That's fine.

9 If you have 1040, let's just put that
10 sticker on the document.

11 (Exhibit 1040 was received and marked for
12 identification, as of this date.)

13 MR. GIARRATANA: For the record, I just
14 want to be clear what's been previously marked
15 in this proceeding as opposed to what's being
16 marked for the first time today.

17 MR. DUSTON: Fair enough.

18 MR. GIARRATANA: And the only exhibit
19 that's been marked for the first time today,
20 you're saying, is 1040?

21 MR. DUSTON: That's correct.

22 MR. GIARRATANA: Thank you.

23 BY MR. DUSTON:

24 Q. So these pages are marked in the lower
25 right-hand corner, Doctor, as 1 of 6, 2 of 6, 3 of

1 6. So I'm going to ask you to turn to probably --
2 one illustrative photo is on page 4 of 6.

3 So what I'm trying to do, Doctor, is I'm
4 trying to figure out: There's a TIP system that's
5 referred to by you in Exhibit 2010 at paragraph 40.
6 There's a system that's depicted in the photographs
7 of Exhibit 1040.

8 And my question to you is: Is the system
9 that we see, particularly on page 4 of Exhibit 1040,
10 is that the system that was used in connection with
11 the detection that you describe in paragraph 40?

12 MR. GIARRATANA: Objection. With respect
13 to Exhibit 1040, lack of foundation.

14 MR. DUSTON: I've got to go to the
15 bathroom. It's a -- could you hold that
16 question? Sure.

17 (At 12:39 p.m. a recess was taken.)

18 (At 12:42 p.m. the deposition resumes.)

19 A. Yes. The answer is, yes, this is the
20 device in which we found an early cancer.

21 TIP represents an acronym for "total
22 emersion photography."

23 BY MR. DUSTON:

24 Q. And when you say "this," you're referring
25 to the device that's depicted in Exhibit 1040; is

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

53

1 that right?

2 MR. GIARRATANA: Objection, foundation.

3 BY MR. DUSTON:

4 Q. I'm trying to make sure that the pronouns
5 have adequate antecedents, so --

6 A. Excuse me. I have a really big question
7 about these proceedings.

8 THE WITNESS: When my lawyer makes an
9 objection --

10 MR. DUSTON: Ask him. Angie is not going
11 to answer that question for you.

12 MR. GIARRATANA: She's just going to take
13 it down.

14 When I make an objection, Rhett, unless I
15 instruct you not to answer, if you understand
16 the question, you should answer.

17 THE WITNESS: Oh, okay.

18 MR. GIARRATANA: Okay?

19 THE WITNESS: Yep.

20 MR. GIARRATANA: Thank you.

21 BY MR. DUSTON:

22 Q. So my question, sir, is: You made
23 reference to this is the TIP system referenced in
24 Exhibit 2010 at paragraph 40, and I'm just -- I want
25 to make sure I understand what the "this" is,

1 because the record may not be clear.

2 The "this" that you're referring to is the
3 device that's depicted in Exhibit 1040; is that
4 right?

5 MR. GIARRATANA: Objection, form,
6 foundation.

7 BY MR. DUSTON:

8 Q. I'll tell you what. Let me withdraw the
9 question. Let me ask it another way, because there
10 may be a defect in it. Let me just make sure.

11 The TIP system, T-I-P system that's
12 referred to in paragraph 40 of your declaration is
13 similar in design to what we see in 10040; is that
14 fair?

15 MR. GIARRATANA: Objection, form,
16 foundation.

17 A. Yes.

18 BY MR. DUSTON:

19 Q. Okay. So can you describe for me, sir,
20 how this system in 10040, this TIP system works?

21 MR. GIARRATANA: Objection, form,
22 foundation.

23 BY MR. DUSTON:

24 Q. Can you walk me through how you acquire
25 images using the system that's depicted in

1 Exhibit 1040?

2 MR. GIARRATANA: Objection, form,
3 foundation.

4 A. I'm uncertain as to whether or not that
5 would reveal confidential information to your
6 client.

7 BY MR. DUSTON:

8 Q. All right. For the time being, I think we
9 have a stipulation on a protective order, is my
10 understanding.

11 THE WITNESS: Do we?

12 MR. GIARRATANA: We've been trying to read
13 the stipulation with your partner. And I saw
14 an email this morning saying that she needs to
15 check with her client. We've proposed that we
16 simply adopt the standard protective order in
17 this case so that we don't need to instruct the
18 witness not to answer. We've been asking her
19 for a few days now and the response we got -- I
20 just checked in my email -- was that she is
21 looking -- she needs to check with her client.

22 So unless you're willing to stipulate on
23 the record now that you're willing to agree to
24 the standard protective order in this case and
25 then will govern this transcript in accordance

1 with the protective order in this case, we're
2 not going to be able to let him reveal
3 confidential information.

4 MR. DUSTON: I'm willing to stipulate to
5 that.

6 MR. GIARRATANA: Thank you.

7 So I'm just going to put a marker on the
8 record for now that this is going to be
9 confidential under the protective order. I'm
10 not asking you, for the record, to generate a
11 different transcript.

12 Mr. Duston, I will ask, though, that --
13 and I haven't looked at the protective order to
14 evaluate how we handle the transcripts under
15 the protective order.

16 MR. DUSTON: Sure we'll figure it out.

17 MR. GIARRATANA: We need to do that. I
18 just ask that you not give it to your client
19 until we separate out the highly confidential
20 information.

21 MR. DUSTON: Fair enough. At this point
22 so far, the only answer that's elicited the
23 confidential information that we're talking
24 about is the question I've just asked.

25 MR. GIARRATANA: Dr. Drugge believes that

1 it may elicit confidential information, so I'm
2 just marking it for myself. This is not a
3 formal identification of what's confidential
4 and what isn't. I just want to facilitate the
5 ability to do that afterwards.

6 MR. DUSTON: We will work that out. But I
7 don't want to hang up the proceedings any more
8 than necessary.

9 BY MR. DUSTON:

10 Q. Question to you, Doctor, was: The system
11 that's depicted in 10040, if you could walk us
12 through how that system operates to acquire images.

13 MR. GIARRATANA: I'm going to also further
14 object on grounds of relevance and outside the
15 scope of the direct examination.

16 A. Well, let's refer back to my statement, my
17 declaration. In here, suggested on page -- that we
18 capture imagery with a pseudo-synchronous -- in
19 other words, nothing is perfect. The images are
20 captured [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED] as we're able to provide
24 that rapid service.

25

1 BY MR. DUSTON:

2 Q. Why is that?

3 MR. GIARRATANA: Objection to form.

4 A. [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED] [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 BY MR. DUSTON:

12 Q. Does the system use flash or some other
13 form of illumination?

14 MR. GIARRATANA: Objection, form.

15 A. There is -- there's a potential for flash.
16 There's also -- there are numerous other
17 illuminating devices that are illustrated in the --
18 in Exhibit 1040.

19 BY MR. DUSTON:

20 Q. Is the need for rapidity the same if the
21 illumination is a flash versus some other form of
22 illumination?

23 MR. GIARRATANA: Objection, form.

24 A. I think those are very vague questions.

25 In other words, many people have created -- it's not

1 my job, I think, to teach you about photography
2 lighting. That's a lecture unto itself.

3 BY MR. DUSTON:

4 Q. I'm not asking for a lecture, Doctor. I'm
5 only asking for an answer to that particular
6 question.

7 A. There's no quick and easy answer to that
8 question, so I won't indulge in a large exposition
9 of flash versus static light.

10 Q. Let me ask you this: Does flash freeze
11 action for purposes of photography, in your
12 experience?

13 MR. GIARRATANA: Objection to form.

14 A. There's a potential for strobe lights to
15 limit the amount of time of exposure, absolutely.

16 BY MR. DUSTON:

17 Q. In the device that was used in
18 Exhibit 40 -- I'm sorry. Let me start that again.

19 In the device that was used in the work
20 that was described in paragraph 40 of your
21 declaration, can you tell me how the camera -- how
22 the cameras were sequenced, if they were, in terms
23 of their taking images?

24 A. I am not going to go into that level of
25 detail on my -- on this, because I feel like I

1 started to disclose information that may be
2 confidential and somewhat off the topic of this
3 conversation.

4 Q. Do the cameras all go off at once?

5 A. I already described that in my
6 declaration. Pseudo-synchronous capture does occur
7 in the system.

8 Q. Does any camera go off at the same time as
9 another camera?

10 A. You're restating that? Does any camera go
11 off at the same time as another camera?

12 Q. Correct.

13 A. I just stated -- I stick to the statement
14 here. It's a pseudo-synchronous capture. There's
15 no precision -- you can't have anything being
16 precisely the same time. If you blink both eyes at
17 once, that's very tight timing, but they're blinking
18 at different times. So there's no precision in --
19 there's no uniform time at which anything happens.

20 [REDACTED]

21 [REDACTED]

22 Q. Was it your intent that all the cameras
23 would --

24 A. As I said, a pseudo-synchronous capture is
25 what I talked about. That's --

1 Q. I'm trying to --

2 A. [REDACTED]
3 Camera technologies get better and synchronicity
4 improves and you can achieve synchronicity or close
5 to -- it's a pseudo -- things are -- you know,
6 nothing is perfect in this world. There's no
7 perfect circle. There's no perfect timing.

8 Q. Your intent, with respect to the design of
9 the system depicted in Exhibit 1040, was [REDACTED]
10 [REDACTED]
11 is that right?

12 MR. GIARRATANA: Objection, form,
13 foundation, outside the scope.

14 A. [REDACTED]
15 [REDACTED]

16 BY MR. DUSTON:

17 Q. What I'm trying to get to, Doctor, is --

18 A. [REDACTED]

19 Q. If the cameras don't take pictures all at
20 the same time, is that -- is that due to something
21 that you weren't able to control? In other words,
22 your intent was [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 MR. GIARRATANA: Objection, form.

1 A. You know, that would be the question of
2 intent versus -- so there can be an intent to take
3 pictures at -- in sequence or it can be an intent to
4 take pictures synchronously. There can be intent to
5 flash bulbs or turn lights on in an asynchronous
6 fashion. [REDACTED]

7 [REDACTED] [REDACTED]
8 [REDACTED]
9 BY MR. DUSTON:

10 Q. So all of those possibilities were
11 encompassed in your view by your invention?

12 MR. GIARRATANA: Objection, form.

13 A. The -- the -- I think that the true
14 purpose of the value of the scanner is to -- the
15 prior art of scanning or imaging the body was
16 fraught with irreproducible results, when it comes
17 to examining the body in a quick and reproducible
18 manner. By providing the field with arrays of
19 cameras, we're able to jump ahead and create a more
20 efficient, faster detection process. In the
21 processing of large numbers of patients that doctors
22 are wont to do, in order to be clinically efficient,
23 the use of an array is a substantial leap forward.

1 [REDACTED] [REDACTED]
2 [REDACTED]
3 [REDACTED] [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED] [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]

13 BY MR. DUSTON:

14 Q. This particular device shown in ten
15 thousand -- sorry. I keep referring to it as ten
16 thousand.

17 This particular device, the TIP device
18 that's depicted in Exhibit 1040, this device
19 requires repositioning in order to image the -- both
20 the front and the back of the subject; is that
21 right?

22 MR. GIARRATANA: Objection, form,
23 foundation, outside the scope.

24 A. The patient is repositioned in this -- in
25 this device.

1 BY MR. DUSTON:

2 Q. In order to get both the front and back of
3 the patient, they have to be, right?

4 MR. GIARRATANA: Objection to form,
5 foundation, outside the scope.

6 A. What we found is that there is -- there's
7 no perfect position for anybody in any -- almost in
8 any time of life. Eyelids cause closure. Folds of
9 the ear cause closure. Hair styles like the
10 comb-over causes closure. There are numerous
11 obstructions provided by any one position of the
12 body.

13 BY MR. DUSTON:

14 Q. So occlusion is not -- complete absence
15 from occlusion is near impossibility; is that fair?

16 MR. GIARRATANA: Object to form.

17 A. [REDACTED]
18 [REDACTED] [REDACTED]
19 [REDACTED] [REDACTED]
20 [REDACTED] [REDACTED]
21 [REDACTED] [REDACTED]
22 [REDACTED]
23 [REDACTED]

24 BY MR. DUSTON:

25 Q. And that was something that you accepted

1 despite the fact that you -- strike that question.

2 So these occlusions that you're talking
3 about, they're going to occur despite your best
4 efforts --

5 MR. GIARRATANA: Objection, form.

6 BY MR. DUSTON:

7 Q. -- fair enough?

8 A. The occlusions in the elderly are
9 exceptionally large. Let's take, for instance,
10 Meuler (phonetic). Look at his face, if you can
11 recall it to your mind. Numerous folds. Large
12 droopy skin. These are all impediments to
13 photographic imaging.

14 Q. So the fact that your device can't take
15 images of every square centimeter of a person's
16 skin, you don't view that as a failure of your
17 invention; is that fair?

18 MR. GIARRATANA: Objection, form, assumes
19 facts not in evidence.

20 A. You know, my -- I think that's the nature
21 of human beings. I think this is not in the nature
22 of the machine, it's in the nature of the person.
23 If you're an exceptionally folded person, that will
24 limit the examination quality, I would imagine. If
25 you have a body that's highly redundant and folded,

1 there could be a limitation of any imaging device
2 that tries to take a picture of a surface. This is
3 kind of a question of folding of fabric. Your skin
4 is a fabric. It folds.

5 BY MR. DUSTON:

6 Q. Well, occlusions aren't really a problem
7 if they don't occur in the particular area of the
8 body that you're most interested in imaging.

9 Would you agree with that?

10 A. They occur everywhere in very elderly
11 skin, don't they?

12 Q. Let's say -- my skin has occlusions in
13 certain areas.

14 Would that be fair?

15 A. Well, I thought your -- your question is
16 leading to some other -- which I don't really want
17 to comment on you, honestly, because I feel it's a
18 far range from where we should be focusing. I --
19 you know, I don't hate -- I'm not going to answer
20 opaque questions. Can you be more precise about
21 your questioning?

22 Q. Sure. Are there areas of the body that
23 are less susceptible to the occlusions you're
24 talking about?

25 MR. GIARRATANA: Objection, form.

1 A. The upper back is rarely occluded.

2 BY MR. DUSTON:

3 Q. So if your --

4 A. The legs -- the legs are fairly
5 unoccluded.

6 Q. If your interest is primarily in gaining
7 images of the upper back surface, occlusions are not
8 an issue for you?

9 MR. GIARRATANA: Objection, form.

10 A. We've seen occlusions on the neck which
11 have been very challenging and hidden cancers.
12 We've seen occlusions on the back. Some people
13 have, depending on their body shape and adiposity,
14 they may have -- adiposity, A-D-I-P-O-S-I-T-Y.

15 (A discussion was held off the record.)

16 A. It's -- it's -- you know, people who are
17 very heavy have a heavy burden of folding. The
18 breasts oftentimes cause folding, male and female.
19 The hair oftentimes causes occlusion. But, I mean,
20 this is part of the trade of imaging. Imaging the
21 human body has special challenges.

22 BY MR. DUSTON:

23 Q. And just something that you accept as a
24 consequence of how people are made.

25 MR. GIARRATANA: Objection, form.

1 A. That's not a question. That's a
2 statement.

3 BY MR. DUSTON:

4 Q. No, it's a statement.

5 The footprints that I see here depicted on
6 page 4, is this indicative of the repositioning, a
7 need to reposition the patient in the device?

8 MR. GIARRATANA: Objection, form,
9 foundation.

10 A. You know, the removal of occlusions
11 requires several different positions to optimize the
12 patient. So in the context of that, you know, these
13 positions are representative of positions which are
14 useful in reducing major occlusions.

15 BY MR. DUSTON:

16 Q. So someone, when they reposition
17 themselves, they would place their feet in either
18 the forward- or backward-facing footprints that are
19 on Exhibit 1040?

20 A. Correct. [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 Q. Can you describe what those are?

1 A. This is -- again, it's -- I mean, this is
2 very visible. [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 Q. All right.

12 A. [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 Q. I see.

16 A. [REDACTED]

17 [REDACTED]

18 Q. So even though their feet are taking the
19 same positions that we see on Exhibit 1040, [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 MR. GIARRATANA: Objection, form.

24 A. [REDACTED]

25 [REDACTED]

1

2 BY MR. DUSTON:

3 Q. All right.

4 A. [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 Q. So, Doctor, I'm wondering if you can for
8 us, in the photograph that we see on page 4 of
9 Exhibit 1040, if you can tell me what you consider
10 to be the centerline of this device?

11 MR. GIARRATANA: Objection, form,
12 foundation.

13 A. That would be the mid sagittal line.

14 BY MR. DUSTON:

15 Q. I'm going to ask you to do me a favor,
16 since I'm not as up on the nomenclature as you
17 are --

18 A. It's the line that encompasses the nose
19 tip, the Cupid's bow, the philtrum, the nasion, the
20 chin center.

21 Q. Doctor, if I could have Exhibit 1040 for a
22 moment. I won't ask you to draw this, but perhaps
23 you can direct me so that I can annotate that
24 photograph on page 4 for us.

25 A. Uh-huh. The centerline is at the --

1 Q. So the centerline would be --

2 A. Between your legs.

3 Q. -- this way?

4 A. Correct.

5 Q. So --

6 A. Yeah, between the cameras.

7 Q. Okay. I've now drawn that in pink, in a
8 pink highlighter.

9 Would that be what you're talking about
10 when you make reference to the centerline?

11 MR. GIARRATANA: Objection, form,
12 foundation.

13 BY MR. DUSTON:

14 Q. Have I drawn that accurately, the
15 centerline that you're talking about?

16 MR. GIARRATANA: Same objection.

17 A. Well, if you drew with a straight line to
18 help you, it would have been straight. But it's
19 roughly in the position of the centerline.

20 BY MR. DUSTON:

21 Q. Very good. Thank you.

22 Now, did you calibrate the device that you
23 used in the work that you describe in Exhibit 40 --
24 I'm sorry -- in paragraph 40 of Exhibit 210 -- 2010?

25 A. [REDACTED]

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

[REDACTED]

Q. Is there any point in time where you position somebody on these footprints to ensure that the cameras are properly adjusted, that their focus --

A. We continue --

MR. GIARRATANA: Hold on.

BY MR. DUSTON:

Q. -- is appropriate for that position?

MR. GIARRATANA: Objection, form, foundation.

A. Yeah, because the two of you were talking, could you repeat yourself, please?

BY MR. DUSTON:

Q. Yeah. So is there any point in time, outside of an actual imaging session with a subject whose images you're trying to secure, where you use either that subject or someone else, have them stand on these footprints to ensure that the cameras are focused properly and pointed in the right directions and, you know, that they will capture the images that you're hoping to capture? That's what I mean by "calibration." Does that kind of calibration occur in the TIP system you developed?

MR. GIARRATANA: Objection, form.

1 A. Do you mean is it self-calibrating? Does
2 it move itself or --

3 BY MR. DUSTON:

4 Q. No, I'm asking if at any point in time,
5 from the moment you put this device together before
6 you put somebody in it, do you do something of a
7 calibration along the lines that I just described?

8 MR. GIARRATANA: Objection, form.

9 A. [REDACTED]
10 [REDACTED]
11 [REDACTED] [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED] [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED] [REDACTED] [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED] [REDACTED]
25 [REDACTED] [REDACTED]

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

[REDACTED]

MR. GIARRATANA: Objection, form, outside
the scope.

BY MR. DUSTON:

[REDACTED]

MR. GIARRATANA: Same objection.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED], when it occurs to you that you need to make
some adjustment to the machine because it's out of
alignment or something, what do you do to bring it
back into alignment?

MR. GIARRATANA: Objection, form.

A. Those are very specific technical details
which I -- you know, I -- it would -- it would --
there's just too much complexity. I don't think --
it's outside the scope of what we're talking about.

1 BY MR. DUSTON:

2 Q. Would one of the ways in which to bring it
3 back into alignment, would one of those ways include
4 putting somebody in the device, having them stand on
5 these footprints, and then seeing if the cameras
6 were appropriately pointed or focused and, if they
7 weren't, making those adjustments until they were?

8 MR. GIARRATANA: Objection, form, outside
9 the scope.

10 A. [REDACTED]

11 [REDACTED]
12 I imagine that that might be a default mechanism.

13 If the system is knocked out of kilter and we're
14 using it frequently, then we might see an error in
15 the way the images are captured and thus have to
16 recalibrate and capture again after calibration.

17 So it is possible to notice something ex
18 post facto. Just like you notice someone wears a
19 gown. They have a gown on their body. Or they're
20 backwards, or they're misinterpreting the
21 positioning, or their feet are mispositioned or
22 something. So it is kind of nature of human error
23 to have dysfunction or things go awry. [REDACTED]

24 [REDACTED]

25 [REDACTED]

1

2

3 BY MR. DUSTON:

4 Q. Now, are the cameras -- is the intent that
5 the cameras would focus on different portions of the
6 subject, or do they focus on the same portions of
7 the subject, or is there an overlap of the portions
8 of the subject on which the cameras focus?

9 MR. GIARRATANA: Objection, form.

10 A. Different cameras serve different
11 purposes.

12 BY MR. DUSTON:

13 Q. What are some of the purposes served by
14 the cameras?

15 A. To image the human form.

16 Q. In answering my question about what the
17 focus of each camera was in relation to the focus of
18 other cameras, you said cameras have different
19 purposes.

20 A. Right.

21 Q. So what are the various purposes of the
22 cameras that are included in the TIP device?

23 MR. GIARRATANA: Objection, form.

24 A. They're all to image the surface of the
25 body.

1 BY MR. DUSTON:

2 Q. And do you have any intent about what
3 portion of the body they're to image relative to
4 other cameras?

5 MR. GIARRATANA: Objection, form.

6 A. In a matrix that's fixed, they have a
7 fixed position.

8 BY MR. DUSTON:

9 Q. Sure.

10 A. So it's -- it leads to repetitive imaging
11 of said, you know, similar parts of the body over
12 and over again.

13 Q. But I'm talking not in terms of imaging
14 from one session to a session separated in time.
15 I'm talking about in a single imaging session.

16 Are the cameras designed to take
17 photographs of the same area of the subject's body?

18 MR. GIARRATANA: Objection, form.

19 A. I think that the -- it's a fixed array
20 and, therefore, there's no, you know, movement of
21 the cameras per se to readjust for specific heights,
22 weights, and forms of diverse shapes.

23 BY MR. DUSTON:

24 Q. The cameras have a field of view.

25 You're familiar with that term, "field of

1 view"?

2 A. Correct.

3 Q. That basically means the portion of
4 whatever they're pointed at they actually capture on
5 their image-receiving device, whether it be film, in
6 the case of a film camera, or some kind of a
7 charge-coupled device in a digital camera; is that
8 correct?

9 MR. GIARRATANA: Objection, form.

10 A. That's a statement.

11 BY MR. DUSTON:

12 Q. Is that -- have I correctly stated what
13 field of view is, in your understanding?

14 MR. GIARRATANA: Objection, form.

15 A. It was if you're talking about something
16 that acts like the human eye and has a field of
17 view, yes.

18 BY MR. DUSTON:

19 Q. Okay. So the cameras in your TIP device,
20 let's take one -- any one camera in that device,
21 that camera is not set up to take a photo of the
22 entire subject that's visible; is that right?

23 A. Well, there's no single perspective which
24 encompasses the entire body on all sides from any
25 camera system that's ever been developed from a

1 single perspective, correct?

2 Q. Can you give me an idea of --

3 A. Do you know what I'm -- are you in league
4 with me on that statement?

5 Q. I'm not following you --

6 A. We have --

7 Q. -- but I'm going to move on to another
8 question.

9 A. We have two sides. You have your front
10 and back, right? Can you ever image the entire body
11 with one camera, without -- with a mirror system,
12 you could. But I'm -- this is not -- the nature of
13 this conversation is confusing to me. What are we
14 talking about?

15 Q. Well, you have an array of cameras in this
16 device that go vertically from the floor to the --
17 towards the ceiling of the device, correct?

18 MR. GIARRATANA: Objection, form.

19 A. That is part of the array.

20 BY MR. DUSTON:

21 Q. That's part of the array.

22 How do you figure out how many cameras do
23 you need in that vertical alignment?

24 MR. GIARRATANA: Objection, form, outside
25 the scope.

1 A. How do we figure it out?

2 BY MR. DUSTON:

3 Q. Why more than one?

4 A. I think we've declared the nature of
5 the -- this system in terms of its ability to cover
6 the body comprehensively, immersively, and this is a
7 very rhetorical question in this setting.

8 Q. You have more than one camera facing --

9 A. Correct.

10 Q. -- the subject, correct?

11 A. Why more than one?

12 Q. Why more than one?

13 A. I've described that at length in my
14 declaration.

15 Q. Okay. Why more than two?

16 MR. GIARRATANA: Objection, form.

17 BY MR. DUSTON:

18 Q. What determines the number of cameras that
19 you position facing the subject?

20 MR. GIARRATANA: Objection, form.

21 A. The designer.

22 BY MR. DUSTON:

23 Q. You're the designer of this equipment,
24 correct?

25 A. Yes.

1 Q. So what determined your decision about how
2 many cameras to point at the subject?

3 MR. GIARRATANA: Objection, form.

4 BY MR. DUSTON:

5 Q. From their feet to their head.

6 MR. GIARRATANA: Same objection.

7 A. My experience in diagnostic imaging of the
8 skin.

9 BY MR. DUSTON:

10 Q. What were you trying to achieve by using
11 more than two cameras or three cameras?

12 A. Let me refer you to the purpose of the
13 machine. So we can move quickly through
14 high-resolution reproducible imagery.

15 Q. But you could conceivably have two cameras
16 facing the person and have those two cameras obtain
17 photos of the entire front surface of the
18 individual, right?

19 A. [REDACTED]
20 [REDACTED]
21 [REDACTED] [REDACTED]
22 [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED] [REDACTED]
25 [REDACTED]

1

[REDACTED]

2

Q. Meaning that if I have surfaces, curved surfaces, my belly, for example --

4

A. If we have a camera that shoots under your belly, which I would assume has some overhang, we might have a more normal view of your abdominal structure.

8

Q. It has more overhang than I would care to admit.

10

What about cameras --

11

A. Would you please strike that from the record?

13

Q. So what you're saying is if you have an overhanging belly and you have a camera that's below the belly and it -- it can take an image that --

16

A. With a field of view which encompasses the low-hanging fruit of your abdomen.

18

Q. Which might be invisible to a camera above the belly, right?

20

A. Correct.

21

Q. All right.

22

A. So the more -- in general, the more viewpoints you have of a surface, the more completely immersed that surface is.

25

Q. Now, were these cameras set up with the

1 idea of having them focus on exclusive portions of
2 the subject?

3 MR. GIARRATANA: Objection, form.

4 A. You know, in certain circumstances, that's
5 unavoidable. When one has a camera low on the
6 floor, you always see the feet.

7 BY MR. DUSTON:

8 Q. So that wasn't your intent. It just -- if
9 it couldn't be done to have that camera see the
10 entire body from top to bottom, you would otherwise
11 have preferred that in that lower camera that you
12 just described?

13 MR. GIARRATANA: Objection, form.

14 A. The system itself is a camera.

15 BY MR. DUSTON:

16 Q. I'm just trying to figure out, sir,
17 whether or not the cameras are set up with the idea
18 of having each camera take a piece of the human
19 body.

20 MR. GIARRATANA: Objection, form.

21 A. With the diversity of size, that's going
22 to require a mechanical change in the form of camera
23 distribution. And that imposes mechanical work on
24 the system. [REDACTED]

25 [REDACTED]

1 BY MR. DUSTON:

2 Q. The field of view of each camera, was it
3 your intent to have the field of view of each camera
4 overlap?

5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]

10 Q. Okay.

11 [REDACTED]
12 [REDACTED]
13 [REDACTED]

14 Q. Paragraph 40 of your declaration, sir,
15 refers to detecting a melanoma of a particular size,
16 does it not?

17 A. Correct.

18 Q. And that was done using the device that
19 we've seen in Exhibit 1040 or at least a device
20 having a similar design, correct?

21 MR. GIARRATANA: Objection, form,
22 foundation.

23 A. There's -- this is not the exact same -- I
24 don't believe it was the exact same machine, but
25 it's very comparable.

1 BY MR. DUSTON:

2 Q. Okay. The -- do you recall what the size
3 of the melanoma detected was?

4 A. We detected the melanoma in question at
5 .9 millimeters and then at 1.6 millimeters at four
6 and, I believe, seven months between scanning
7 intervals.

8 Q. How many scans did you take?

9 A. That was a total of three different scans:
10 Baseline, four months, seven months.

11 Q. And at four months, you're saying you
12 detected a change in the size of the --

13 A. The appearance of the new spot.

14 Q. And you measured it?

15 A. Yes.

16 Q. And you measured it at what?

17 A. I just told you, .9 millimeters.

18 Q. And then you measured the -- in the third
19 scanning --

20 A. 1.6 millimeters.

21 Q. And how did you arrive at the -- how did
22 you arrive at the .9- and 1.6-millimeter
23 measurements?

24 MR. GIARRATANA: Objection, form.

25 A. We looked at the imagery.

1 BY MR. DUSTON:

2 Q. And how did you actually come up with the
3 actual millimeter size from the images?

4 MR. GIARRATANA: Objection, form.

5 A. We used the -- we used a number of
6 different measures. We measured it directly from
7 the imagery. We measured it directly from the
8 dermoscopy. We measured it in the laboratory after
9 it was removed. It was measured by multiple
10 modalities, because we had published it.

11 BY MR. DUSTON:

12 Q. The .9-millimeter, that represents the --

13 A. Size on the skin.

14 Q. Okay. So the what would be called -- is
15 this sort of a round or roundish --

16 A. Yeah --

17 Q. -- skin defect?

18 Yes?

19 MR. GIARRATANA: Objection, form.

20 Just if you can hesitate.

21 THE WITNESS: Yeah.

22 MR. GIARRATANA: Don't talk over each
23 other.

24 BY MR. DUSTON:

25 Q. So the .9 millimeters, is that a radius or

1 an area? What is it actually measuring?

2 MR. GIARRATANA: Objection, form.

3 A. The standard way of expressing the size of
4 a melanoma is the widest diameter and that's what
5 that was.

6 BY MR. DUSTON:

7 Q. So that's a straight line across the
8 center of the defect at its widest point?

9 A. Correct.

10 Q. And what device did you actually use to
11 produce the .9-millimeter measurement?

12 A. Three different devices. It was measured
13 three times.

14 Q. But what device actually gave you that
15 measurement, .9 millimeters?

16 A. Three different devices.

17 Q. Which was the first device to actually
18 give you the absolute dimension of that particular
19 defect?

20 A. The scanner.

21 Q. And how did the scanner do that?

22 A. The scanner, at the predetermined
23 distance, given the focal length and the number of
24 pixels that were covered at that largest width,
25 provides us with a measure.

1 Q. Is output by computer software?

2 MR. GIARRATANA: Objection to form.

3 A. It's -- essentially, yes.

4 BY MR. DUSTON:

5 Q. You didn't take an image and put a ruler
6 against the image and arrive at the .9-millimeter?

7 A. No.

8 Q. Okay. So some computer software offered
9 to you a .9-millimeter measurement for the defect?

10 MR. GIARRATANA: Objection, form.

11 A. You know, I think that the number of
12 measurements that were made of this were by, as I
13 said, three different forms. And I don't know
14 whether we -- I don't think we averaged or -- we
15 didn't -- in other words, we didn't, like -- in
16 other words, the -- we didn't say to ourselves when
17 we were, you know, reviewing that new spot or that
18 changing spot, that it was -- you know, we kind
19 of -- I think at -- most of the focus -- when you're
20 in a clinical setting and you have five minutes to
21 decide whether people have cancer or not, most of
22 the decision is based on morphology, shape,
23 characteristics, the way the cancer looks under a
24 microscope. That's where most of the decision is
25 made. Our device primarily acts as a predictor and

1 a -- what I would call a pointer.

2 If you take, for instance, the average
3 person with melanoma that may have thousands of
4 spots that could go awry, the body has 1.5 million
5 square millimeters, on average. So this is talking
6 about one part of that 1.5-square-millimeter matrix
7 of surface. So likelihood of physicians reviewing
8 all of those 1.5 million potential spots is very
9 low. So by whittling it down to a small number of
10 candidate spots, those which are dynamic, we can
11 reduce the risk of spending the entire year looking
12 at one person.

13 BY MR. DUSTON:

14 Q. Let me see if I understand your answer
15 correctly, Doctor. And you can correct me if I'm
16 wrong.

17 But what I'm understanding you to say is
18 that your device can take images at one time and
19 then at a later date. And from those images, you
20 can detect that there have been changes in a
21 particular feature on the skin. And then you can
22 use other methods to zero in on those features and
23 to arrive at precise measurements using dermoscopy
24 or some other form of measurement once the defect
25 has been excised.

1 Is that fair?

2 MR. GIARRATANA: Objection to form.

3 A. It's measured several times.

4 BY MR. DUSTON:

5 Q. Okay.

6 A. It's just multiple measurements are made.
7 It's measured when it's found. The finding is a
8 measure. The review under a microscope is a
9 measure. And potentially other imaging techniques
10 are also measures. And then the pathologist
11 measures. And each measure has its strengths and
12 weaknesses in terms of the way those measurements
13 are done. For instance, when you cut something out,
14 it shrinks dramatically, so -- you know, the skin is
15 a highly elastic surface which changes shape
16 readily.

17 Q. This .9-millimeter measurement that you
18 talked about, are you saying that all three forms of
19 measurement that you've described produced that same
20 specific figure, .9 millimeters?

21 A. I think that is a number that was arrived
22 at under dermoscopy.

23 Q. So that's an actual -- a doctor going --
24 zeroing in on that defect with a small magnifying
25 scope and using that to measure the defect's

1 absolute size on the human body, right?

2 MR. GIARRATANA: Objection to form.

3 A. That is the most commonly accepted kind of
4 truth, say. But it is highly prone to error. I
5 just gave a presentation showing that the error rate
6 for margin detection with any optical technique is
7 extremely high. So it's -- then the pathologist
8 looks at it and they may correct for invisible
9 margin. They can remeasure that. I would say that
10 every measurement is a -- has error in it. Error
11 rates are an enormous subject for the detection of
12 melanoma.

13 BY MR. DUSTON:

14 Q. How does a dermoscope actually give you a
15 millimeter measurement of a defect? Does it have --
16 I mean, are you putting a ruler against the defect
17 and looking at the dermoscope?

18 A. Most --

19 Q. Does it have its own -- does it have its
20 own sort of yardstick in the optical field? How
21 does it actually work?

22 MR. GIARRATANA: Objection, form.

23 A. Most images produced with dermatoscopy --
24 dermatoscopy, not dermoscopy, is the correct
25 pronunciation -- are -- have a reticule.

1 BY MR. DUSTON:

2 Q. And for those who are not familiar with
3 what a reticule is, what is that?

4 A. A reticule is a measuring device embedded
5 into the glass plate which interfaces with the skin.
6 The pathologist may also use a reticule. So that's
7 the application of a calibration device directly to
8 the surface.

9 Q. So, for a layman, would it be kind of akin
10 to sort of those crosshatches that you see in a bomb
11 scope or something like that?

12 MR. GIARRATANA: Objection to form.

13 BY MR. DUSTON:

14 Q. You know, we've seen in movies?

15 A. You've made a statement.

16 MR. GIARRATANA: Objection to form.

17 A. I believe it.

18 BY MR. DUSTON:

19 Q. You believe that?

20 A. I believe that that's one of the
21 definitions of "reticule."

22 Q. Is that the kind of reticule that you were
23 using to arrive at this .9-millimeter measurement
24 that you made?

25 MR. GIARRATANA: Objection to form.

1 A. That was one of the measured forms. It
2 was measured in three states.

3 BY MR. DUSTON:

4 Q. Would you ever rely on the measurement
5 that your device gave for that particular defect and
6 rely on it alone?

7 A. I would never rely on any optical system
8 alone. Remember, we biopsy things, we cut them out,
9 and then we find that we can't see the edge.
10 Melanomas edges are not always optically detectable,
11 which brings to the point that it is very important
12 to observe the skin very carefully.

13 Q. So your device precisely measures defects
14 that appear in the human skin, correct?

15 A. It is a -- you put together such a string
16 of assumptions. I think we have so much ongoing
17 research in the area of precisely measured defects
18 that what is the defect, what is the measure, and
19 what is the precision. So --

20 Q. Let me --

21 MR. GIARRATANA: Let him finish his
22 answer.

23 BY MR. DUSTON:

24 Q. Go ahead.

25 MR. DUSTON: I was going to try to offer

1 some more context if he's asking for it.

2 A. No, I think that as time passes, you know,
3 systems improve. Computing, optical are -- so
4 it's -- we're moving towards better medicine.

5 BY MR. DUSTON:

6 Q. Let's take an issue -- let's take a case
7 of a melanoma. Let's say it's -- apologize if I --

8 A. Dermoscopy.

9 Q. Dermoscopy.

10 On a dermoscopic [sic] exam --

11 A. Dermatoscopic.

12 Q. Dermatoscopic exam.

13 So let's take a melanoma that on a
14 dermatoscopic exam is 6 millimeters.

15 A. Yes.

16 Q. Let's put that individual who has that
17 melanoma in your system and let's take their image.
18 All right?

19 Does your system produce information from
20 those images that such a melanoma is 6 millimeters
21 in width?

22 MR. GIARRATANA: Objection, form.

23 A. Yes. But, you know, we have -- you know,
24 our interest is in predominantly seeing the relative
25 changes in the skin. Absolute measures are not as

1 important to us as relative measure, which is a
2 powerful form of measurement. The changes in the
3 skin are of absolute relevance to us. And the local
4 stretching of the skin may be just because someone
5 leaned back further or did some kind of change.

6 So context is extremely important and
7 there's certain levels of measurement which,
8 unfortunately, only the human eye can appreciate.
9 But given the strong imagery, one can come to those
10 discernments. We certainly -- I don't want to get
11 into what our research looks like, but I think that
12 that's an error- -- an error-prone question.

13 BY MR. DUSTON:

14 Q. So somebody is standing in your device
15 with the defect that I just described, this melanoma
16 of 6 millimeters. Let's say you took a series of
17 photographs of that individual. You ran whatever
18 cycle it is that you run for your imaging on the
19 front side of that person. You ran it once, twice,
20 and again a third time in quick succession.

21 Now, is it possible that the measurement
22 that your device gave for that 6-millimeter melanoma
23 could differ in each of those imaging sessions?

24 MR. GIARRATANA: Objection, form.

25 A. You know, we talked about the nature of

1 synchronicity before. We were talking about
2 measures. Measures have error bars. I think anyone
3 who would tell you that measures are perfect.

4 BY MR. DUSTON:

5 Q. So it's possible that each result of those
6 three imaging sessions, the result of each of those
7 three imaging sessions could be that your equipment
8 suggests the defect is 6 millimeters in one,
9 4 millimeters in another, 8 millimeters in the
10 third?

11 MR. GIARRATANA: Objection, form.

12 BY MR. DUSTON:

13 Q. Is that -- is that -- does your system
14 preclude that possibility?

15 MR. GIARRATANA: Objection, form.

16 A. Well, because we use the equipment to help
17 the human eye measure, such a gross change is highly
18 unlikely to occur. Because you're talking about --
19 when you move from 4 millimeters to 8 millimeters,
20 remember the area of a circle is, you know, πR^2
21 squared. So you move from something that's 4 times
22 π to something that's 16 times π . You're talking
23 about a magnitude change, something that's 4 to 16,
24 4 times the area. I mean, everything has error. We
25 recently -- but I don't want get into what our exact

1 error rates are.

2 BY MR. DUSTON:

3 Q. But it wouldn't surprise you if the
4 measurement made in each of those three sessions was
5 not identical?

6 MR. GIARRATANA: Objection, form.

7 A. The perception of the observer in
8 determining where the edge is or the perception of a
9 segmentation algorithm which shows you where the
10 edge is are variable. So the very observational
11 platform of determining the size is variable. So
12 this is -- this is somewhat extrinsic to the point
13 of the advancement that's available from this
14 device. It's a -- an invariable problem of every
15 component of every system that there will be
16 inaccuracies, imprecision, error rates.

17 We come from a statistical background.
18 We're not looking at 100 percent ever in medicine.
19 We're looking at statistical probabilities of things
20 being what they are. So I think, in the context of
21 precision and measurement, you're throwing out
22 enormous, enormous gradations when you move from a 4
23 times to 16 -- a fourfold increase in area. So
24 it's -- I mean, I guess in any system it's possible
25 that the eye of the beholder could change.

1 Melanomas are not -- remember, are not
2 always visible. And I've encountered many
3 situations, as have many of my colleagues, where in
4 spite of being up close and visualizing the skin
5 with as much precision as we possibly can, we do not
6 perceive the edge of that cancer without a deeper --
7 even a skin surface microscope, we might have to go
8 to cutting the tissue out. And even if we cut the
9 tissue out and look at it with 5-micron sections, we
10 might then have to add a special stain. And even
11 then we can run into the concept of field fire where
12 the cancer just keeps going. And it's on that basis
13 that some of the most horrible things in the field
14 happen.

15 The very difficult -- the margins are not
16 necessarily as kind of sharp and definitive as
17 you're alluding to. So there is a possibility for
18 misperception on the part of the person. And I just
19 reviewed this in a recent presentation I gave about
20 the variability of margin detection. And it is
21 not -- it's not -- optical systems do not have
22 infallibility when it comes to margins.

23 BY MR. DUSTON:

24 Q. Well, it's not just variability in margin
25 detection, though. Isn't it true -- I think you've

1 made reference a moment ago. If, in these various
2 sessions, the subject were to lean a bit forward or
3 lean a bit back at time that those same images were
4 being taken, the defect might have a different
5 appearance in the image that's acquired; is that
6 right?

7 MR. GIARRATANA: Objection, form.

8 A. Of course. But with human operators
9 involved in the reviewing of the imagery, that does
10 not escape. We would never let people be reviewed
11 in an unsupervised fashion. This will never happen.
12 You always need -- this is a -- these are -- these
13 people are at risk of dying. We always reinforce
14 any machine process with a human review and operator
15 intervention. To assure that the accuracy of the
16 measures, of change is absolutely critical.

17 We would not -- this is not a way for us
18 to eliminate the human. [REDACTED]

19 [REDACTED]

20 [REDACTED] [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED] [REDACTED]

24 [REDACTED]

25 1.6-millimeter melanomas can be invasive and kill

1 you.

2 So the misperception that you can wait and
3 you can not put more energy into that examination
4 component, which we've been able to focus on --
5 using this device, we've been able to escape from
6 the cost of a low-quality examination, which visual
7 skin examination represents.

8 Visual skin examination is not recommended
9 by the United States Preventive Health Service
10 [sic]. The average melanoma detection needs to be
11 performed as early as possible. [REDACTED]

12 [REDACTED]
13 [REDACTED]

14 So not only do we cost less in terms of
15 time and efficiency, [REDACTED]
16 [REDACTED]
17 [REDACTED], because we're adding
18 more information. Compounding that to the delivery
19 of a much higher quality of care, we reduce the cost
20 of screening itself by [REDACTED]
21 [REDACTED] in the presence of this
22 high-risk population who have -- some up to 5,000
23 candida lesions.

24 So we need to perform high-speed screening
25 of 1.5 million potential locations on the skin,

1 because the melanomas as small as 1.6 millimeters
2 can be deadly.

3 BY MR. DUSTON:

4 Q. In the device that's shown, your
5 invention -- in your invention, someone is standing
6 on these footprints that are shown in Exhibit 1040,
7 various people standing on those footprints,
8 standing precisely in the same spot in the device.
9 Each of those individuals is going to have a
10 different relationship to the fixed cameras in your
11 device in terms of -- their skin surface will have a
12 different distance from those cameras than some
13 other subject; is that correct?

14 MR. GIARRATANA: Objection, form,
15 foundation.

16 A. You know it as well as I do.

17 BY MR. DUSTON:

18 Q. That's a correct statement, right?

19 MR. GIARRATANA: Same objection.

20 A. Yes.

21 BY MR. DUSTON:

22 Q. So when you go to calculate the size of
23 something that's been imaged by your device, how do
24 you -- do you -- what measurement do you use to
25 determine the distance the camera is from the

1 surface being imaged?

2 MR. GIARRATANA: Objection, form.

3 A. We scale the -- we determine the scale of
4 the images.

5 BY MR. DUSTON:

6 Q. How?

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 Q. Give me an example.

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 A. In the -- I mean, we have our -- what I
20 call our kind of, say -- there are some people that
21 are so short that when the cameras fire, there's
22 nothing but air.

23 Q. They're below the field of view of certain
24 of the cameras at the top of the device; is that
25 right?

1 A. Yes. It's a good -- glad you caught on to
2 that.

3 Q. So we talked a bit about cameras that are
4 down near the feet. They wouldn't see the nose, for
5 example; is that right?

6 A. In general, they would not see the nose.
7 If --

8 Q. So how do they determine how far they are
9 from the leg, for example?

10 MR. GIARRATANA: Objection, form,
11 foundation.

12 A. Because the person is in a specific
13 position and we have calibrated for that position.
14 BY MR. DUSTON:

15 Q. How have you calibrated for that position?

16 A. The cameras are -- again, you know, are
17 calibrated to the position they are supposed to be
18 in.

19 Q. Yeah, but I'm asking: How do you do that?

20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

25 Q. So you have sort of a default distance in

1 mind when you put these cameras in the device,
2 distance between the camera and the subject?

3 MR. GIARRATANA: Objection, form.

4 A. The patients are imaged at a set position.
5 BY MR. DUSTON:

6 Q. The patients aren't always at that
7 distance from the camera when they're imaged; is
8 that right?

9 A. You know, the -- some people stumble and
10 fall. Some people are in the wrong spot.

11 Q. Well, Doctor, if you have a person -- two
12 people standing exactly where you want them to stand
13 and one is 180 pounds and the other is 360 pounds,
14 their skin surfaces are going to have different
15 distances to these cameras, correct?

16 A. Sure.

17 Q. So do you -- how do you go about figuring
18 out what the actual distance from the camera to the
19 skin surface is for each of these subjects?

20 A. Yes.

21 Q. How?

22 [REDACTED]

23 Q. Okay. So each camera is pointed at a
24 different portion of the individual's body, correct?

25 [REDACTED]

1 [REDACTED]
2 [REDACTED] -- you know, in the
3 field, this is an emersion environment where if
4 you're in the center of the device and you're not
5 Godzilla, you will be within the envelope of the
6 scan.

7 Q. Right. Portions of your body will not be
8 beyond the field of view of the cameras, correct?

9 A. Yes.

10 Q. So most -- the cameras are set up -- for
11 the most part, everyone is going to be in the field
12 of view of the cameras, correct?

13 MR. GIARRATANA: Objection, form.

14 A. Yes.

15 BY MR. DUSTON:

16 Q. Okay. But in my example of a person who's
17 180 pounds versus a person who's 350 pounds, they're
18 going to have a different relationship to the
19 cameras in terms of how far the camera is from the
20 surface of their skin. [REDACTED]

21 [REDACTED]
22 [REDACTED] [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED] [REDACTED]
25 [REDACTED] [REDACTED]

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

106

1 MR. GIARRATANA: Objection --

2 BY MR. DUSTON:

3 Q. -- correct?

4 MR. GIARRATANA: Objection, form.

5 BY MR. DUSTON:

6 [REDACTED]

7 [REDACTED]

8 MR. GIARRATANA: Same objection.

9 [REDACTED]

10 BY MR. DUSTON:

11 Q. So each image -- within each image, there
12 will be --

13 A. Which image --

14 Q. Within each image taken by each camera,

15 [REDACTED]

16 [REDACTED]

17 MR. GIARRATANA: Objection, form.

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 BY MR. DUSTON:

22 Q. So if somebody steps in and they're
23 perfectly aligned with what you presume is the
24 default for an individual, then --

25 [REDACTED]

1

2

Q. Okay. But if they aren't that person, [REDACTED]

3

4

5

MR. GIARRATANA: Objection to form.

6

7

8

9

BY MR. DUSTON:

10

Q. So you gave, a moment ago, as an example,

11

one of the upper cameras that was focused on the

12

face, [REDACTED]

13

14

15

16

17

Q. Now, what about a camera that's down at

18

the bottom of the device, [REDACTED]

19

20

21

22

23

24

A. I'm not going to answer that question,

25

because I think that, you know, we're really

1 exploring kind of ongoing research and development.
2 And I just really don't want to get into the
3 automation components of what we're talking about.
4 I don't want to talk about exactly what the -- you
5 know, what can be or get into hypotheticals. But I
6 think we're talking -- we're grinding this question
7 down a lot, and we're readdressing it in numerous
8 perspectives, and I don't feel comfortable just
9 continuing down the line.

10 Q. So you're not going to answer my question?

11 A. I've already answered your question
12 several times.

13 MR. GIARRATANA: Tom, if you're asking him
14 about what he's doing in 2018 --

15 MR. DUSTON: No, no. I'm sorry.

16 MR. GIARRATANA: No, no, no.

17 MR. DUSTON: My question -- you understand
18 my question. Don't rephrase it --

19 MR. GIARRATANA: No, I don't understand
20 your question.

21 MR. DUSTON: -- and don't coach the
22 witness.

23 MR. GIARRATANA: I'm not coaching the
24 witness. What I'm telling you about is you're
25 trying to get him to say he won't answer your

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

109

1 question. What he's telling you is that if
2 your question is going at his research and
3 development in 2018, first of all, that has
4 nothing to do with this proceeding.

5 MR. DUSTON: Well, we've been talking this
6 whole time --

7 MR. GIARRATANA: And secondly --

8 MR. DUSTON: Mark, hold on. We've been
9 talking this whole time about paragraph 40 of
10 his declaration --

11 MR. GIARRATANA: No, we have not.

12 MR. DUSTON: -- with respect to the
13 measurement of defects that he claims his
14 device is capable of making. All right? And
15 what I'm asking is: How does that device
16 produce the measurements that he says it did?

17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]

25

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

110

1 BY MR. DUSTON:

2 Q. Is that right?

3 MR. GIARRATANA: Well, wait a minute.

4 MR. DUSTON: Let me ask that question.

5 MR. GIARRATANA: No, no, no.

6 BY MR. DUSTON:

7 Q. The specified imaging position --

8 MR. GIARRATANA: No, no, no. Let's stop
9 right now, because you and I are having a
10 dialogue and we are not going to mix him into
11 it. You were talking to me.

12 THE WITNESS: I'm going to go to the
13 bathroom.

14 MR. DUSTON: No, I'm not having a dialogue
15 with you.

16 MR. GIARRATANA: You have to wait. We
17 can't just get up.

18 You and I were having an exchange. We
19 were.

20 MR. DUSTON: No, he can -- let's do
21 this -- because I don't want him to be party to
22 this exchange. If you want to be talking about
23 things that are going to inform his answers, I
24 don't want to have that conversation in front
25 of him.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

111

1 MR. GIARRATANA: What I'm getting at is --

2 THE WITNESS: Right. Why don't you guys
3 please --

4 MR. GIARRATANA: No, no.

5 MR. DUSTON: I'm fine with that, Doctor.
6 If you want to take a break, go to the
7 restroom, Mark and I --

8 MR. GIARRATANA: Let's go off the record.

9 THE WITNESS: Mark is my counsel.

10 MR. GIARRATANA: Look.

11 THE WITNESS: So, Mark --

12 MR. DUSTON: I don't want to go off the
13 record, though.

14 MR. GIARRATANA: Okay. Let's stay on the
15 record. I want to clarify this.

16 He was sensitive to revealing confidential
17 information about what his research is today.
18 I don't believe you're listening to me. He was
19 sensitive to his R&D today. And his R&D --

20 MR. DUSTON: So we can solve this by not
21 asking about today.

22 MR. GIARRATANA: Will you let me finish,
23 please? Relax.

24 If you want to avoid the problem that he
25 raised, then you have to be more precise in

1 your questioning. He thought you were going
2 towards his R&D today, which has nothing to do
3 with paragraph 40 and has nothing to do with
4 this proceeding. So you need to be more
5 precise in your questioning.

6 BY MR. DUSTON:

7 Q. Is that right, Doctor, you thought I was
8 asking about --

9 A. Yes.

10 Q. Okay. So I'm not asking you about your
11 system today. I'm asking you about the system that
12 was used to develop the measurements that are
13 outlined in paragraph 40, which apparently related
14 to work that was published in 2016.

15 A. Yes.

16 Q. So you understand the context of my
17 questions now?

18 A. Sure.

19 Q. Okay. [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

24 [REDACTED]

25 MR. GIARRATANA: Objection to form.

1

2

BY MR. DUSTON:

3

Q. Okay.

4

5

6

7

8

9

10

Q. Well, the spot is going to be in the image, right?

11

12

13

14

15

16

17

18

A. You know, the confusion that people have, if they have 5,000 locations of potential melanomas because they have 5,000 lesions, is large. So one who maybe is not of the field would not understand the need for precision of this kind of memory. So I would say that the potential for confusion is extremely high. Surgical error made due to even taking the wrong leg off --

19

Q. I've heard those stories, Doctor.

20

21

22

A. -- versus taking a spot off which is less than a millimeter. So I don't understand where you're coming from.

23

24

25

Q. I think I understand what you're saying. And that is when you take images of the person one time and then three months later you take images of

1 the same a person, there's a need to figure out
2 whether the spot in the first session of images that
3 you see in one of those images is, in fact, the same
4 spot that you're seeing in the second set of images.
5 And that can create issues. You have to have some
6 certainty that those spots are the same ones, you're
7 looking at the same spots, correct?

8 MR. GIARRATANA: Objection, form.

9 BY MR. DUSTON:

10 Q. Looking at the same spots is important.

11 A. It's --

12 Q. Let me withdraw the question.

13 A. It's -- yeah.

14 Q. So I'm not talking about being able to
15 relocate the same spot three months later in another
16 image. I'm talking about I've taken an image of you
17 today. There is a series of spots in the image
18 taken by one of these cameras. All right? I want
19 to figure out the size of those spots.

20 MR. GIARRATANA: Is that the --

21 BY MR. DUSTON:

22 Q. You have explained that the camera has
23 a -- sort of a default distance that it expects to
24 exist between it and the subject, but that that can
25 vary depending on the subject, the size of the

1 subject and the height of the subject. [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 MR. GIARRATANA: Objection, form.
11 [REDACTED] [REDACTED]
12 BY MR. DUSTON:
13 Q. Okay. So what I'm talking about is now
14 down below -- we gave an example, [REDACTED]
15 [REDACTED] I'm trying to figure out: In a camera that's
16 low in the device taking a picture of, let's say,
17 someone's thigh -- and the thigh can be, you know,
18 the front -- the defensive tackle of the New England
19 Patriots is going to have a thigh that's different
20 than a runway model from New York, right? [REDACTED]
21 [REDACTED]
22 [REDACTED] [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED] [REDACTED]

1 MR. GIARRATANA: Hold on.

2 Objection, form.

3 BY MR. DUSTON:

4 [REDACTED]

5 MR. GIARRATANA: Objection to form.

6 [REDACTED]

7 [REDACTED]

8 BY MR. DUSTON:

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 MR. GIARRATANA: Objection, form.

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 BY MR. DUSTON:

19 [REDACTED]

20 [REDACTED]

21 MR. GIARRATANA: Objection to form.

22 [REDACTED]

23 BY MR. DUSTON:

24 [REDACTED]

25 [REDACTED]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

MR. GIARRATANA: Objection, form, outside
the scope.

[REDACTED]
[REDACTED]
[REDACTED]

MR. DUSTON: Why don't we take that break
that you spoke of.

MR. GIARRATANA: Off the record.

(At 2:08 p.m. a luncheon recess was
taken.)

(At 2:47 p.m. the deposition resumes.)

A F T E R N O O N S E S S I O N

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

118

1 CONTINUED EXAMINATION

2 BY MR. DUSTON:

3 Q. Dr. Drugge, during the break, did you have
4 any conversations with your counsel about today's
5 deposition or your testimony?

6 MR. GIARRATANA: Objection, form. What
7 you can do is you can answer yes or no. And
8 you're asking him, when you say -- well, you
9 can answer that yes or no.

10 A. No.

11 BY MR. DUSTON:

12 Q. I'd like you to turn to Exhibit 210 --
13 2010 -- let me start again.

14 If you turn to Exhibit 2010, which is your
15 declaration, Doctor. I'd like you to turn to
16 paragraph 16 of your declaration.

17 A. (Witness complies.)

18 Q. Have you read that, sir?

19 A. Yes.

20 Q. All right. You mentioned, at the final
21 sentence of paragraph 16, that skin cancers are
22 routinely ignored until they reach the large size
23 greater than 6 millimeters in diameter.

24 Do you see that statement?

25 A. Yes.

1 Q. What do you mean that they're "routinely
2 ignored"?

3 A. I mean our data showing visual skin
4 examination produces melanomas that are greater than
5 6 millimeters is just that, that 75 percent or
6 some-odd number of melanomas, the great majority are
7 large. That's what I mean by that.

8 Q. So at this particular time that you're
9 discussing here in this paragraph, practitioners
10 generally viewed melanomas of less than
11 6 millimeters in diameter as skin defects to be
12 ignored?

13 MR. GIARRATANA: Objection to the form.

14 A. I think that no melanoma is to be ignored.
15 BY MR. DUSTON:

16 Q. So what do you mean that they were
17 generally ignored if they were smaller than
18 6 millimeters?

19 MR. GIARRATANA: Objection to form.

20 BY MR. DUSTON:

21 Q. Who was ignoring them?

22 MR. GIARRATANA: Objection to form.

23 A. The imprecision of visual skin
24 examination, we've gone over the concept that if you
25 have 1.5 million square millimeters and any one of

1 those little spots could be a melanoma, you might
2 need something more than visual skin examination to
3 direct your attention to the possible cancers.

4 BY MR. DUSTON:

5 Q. Was there a point in time when this
6 6-millimeter threshold changed?

7 A. The cancers never change the way they
8 grow. I don't know what your point is.

9 Q. Well, did melanomas of less than
10 6 millimeters in diameter come to not be ignored at
11 some particular point in time?

12 MR. GIARRATANA: Objection, form.

13 A. I think that the most common cause of
14 cancer death in Australia is now thin melanomas. In
15 other words, they're early. So there is no point at
16 which it's too early to get rid of a melanoma. With
17 that recognition, we can potentially make inroads
18 into a pertinent disease, which includes 10,000 --
19 nearly 10,000 or so, from melanoma alone. And then
20 there's an uncertain number of uncertain cancer
21 deaths that occur from other types of skin cancers,
22 such as squamous cell carcinomas. Squamous cell
23 carcinomas may kill yet another additional, say,
24 1,500 to 5,000 people a year, although the data is
25 not well-appreciated.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

121

1 BY MR. DUSTON:

2 Q. Paragraph 16 says -- begins "At the
3 time" --

4 A. Yeah.

5 Q. -- and goes on to say "most patient
6 examination was done visually" --

7 A. Yes.

8 Q. -- and then concludes with saying that
9 skin cancers of less than 6 millimeters in diameter
10 were routinely ignored.

11 A. Yes.

12 Q. They were routinely ignored at this time
13 that you're talking about?

14 A. In the setting of the visual skin
15 examination, skin cancers are -- of a very fine
16 grade, are hard to detect. Therefore, the
17 insensitivity to the techniques yields a very
18 untoward outcome of delay in diagnosis.

19 Q. What period -- what time -- when you say
20 "at the time," what time are we talking about here?

21 A. At the time of the invention.

22 Q. Which was when?

23 A. 2000.

24 Q. So prior to 2000 -- strike that.

25 So paragraph 16, you're referring to the

1 understandings of those in the art prior to 2000,
2 the time frame of your invention --

3 MR. GIARRATANA: Objection to form.

4 BY MR. DUSTON:

5 Q. -- is that right?

6 A. I'm saying that most patient examinations
7 were done visually and in person and still are done
8 visually and in person. Visual skin examination has
9 been shown to be insensitive to melanomas.

10 There's a recent study that showed that
11 there's a 79 percent likelihood that someone had a
12 melanoma -- had a full-body scan examination within
13 three years prior to a melanoma of three-quarters of
14 a millimeter or thicker discovered. I'm talking
15 about thickness. I'm not talking about the
16 diameter. And given a melanoma of .75 millimeters
17 or thicker, from our regression analysis, that
18 demonstrates that that melanoma has been there for
19 12 years or more on average. And that's a
20 statistical statement.

21 So there's great likelihood that those
22 melanomas were being missed through insensitivity,
23 insensitivity borne of a weak examination technique,
24 a visual skin examination, which, as I said before,
25 United States Preventative Health Service [sic] does

1 not recommend, as a screening basis, as a screening
2 service. So the Preventative Health Service does
3 not see much value in a visual skin examination.

4 Q. So I appreciate all the information, but
5 my question, I think, was a lot narrower than that.
6 And I'm going to ask Angie just to read it back.

7 (The record was read back by the
8 reporter.)

9 MR. GIARRATANA: Objection to the form.

10 A. "At that time," we're now referring back
11 to 15, which says "decades prior to my invention of
12 the subject matter of '748," the patient -- "patent
13 saw a tremendous explosion in skin cancer. However,
14 I came to realize that the then-current techniques
15 for patient examination detection limited the
16 ability to detect cancers and pre-cancers,
17 especially at an early stage, when treatment was
18 most likely to succeed."

19 "At that time," in the decades up to and
20 including that time, I think it's clarified by
21 the -- by the paragraph before.

22 BY MR. DUSTON:

23 Q. Okay. So we're talking about the --
24 basically the time of your invention and earlier is
25 the time frame that you're discussing in

1 paragraph 16 for these understandings of those in
2 your field?

3 MR. GIARRATANA: Objection, form.

4 A. The subjunctive clause "at that time"
5 refers to the clarification that preceded it in
6 paragraph 15.

7 BY MR. DUSTON:

8 Q. Thank you for the clarification.

9 Looking at paragraph 17, you say,
10 "Photography was also in use." Again you say "at
11 that time."

12 You're speaking again of the same time
13 frame before your invention, correct?

14 A. As referenced in paragraph 15.

15 Q. Okay. And photography was in use --

16 A. Correct.

17 Q. -- correct?

18 Did photography have any greater accuracy,
19 in this time frame, to cause the practitioners not
20 to ignore melanomas of 6 millimeters or less?

21 MR. GIARRATANA: Objection, form.

22 A. Please rephrase your question, because it
23 is --

24 BY MR. DUSTON:

25 Q. Sure.

1 A. -- it is very --

2 Q. Let me try it again.

3 Paragraph 16, you're talking about visual
4 examination; is that right?

5 A. Right.

6 Q. Paragraph 17 refers to the use of
7 photography, correct?

8 A. Yes.

9 Q. And in the context of paragraph 17, you're
10 referring to the use of photography by practitioners
11 to identify cancers, correct?

12 A. Yes.

13 Q. So did the introduction of photography
14 into this equation prompt practitioners, before the
15 date of your invention, to pay attention to
16 melanomas that were less than 6 millimeters in
17 diameter?

18 MR. GIARRATANA: Objection to the form.

19 A. The -- the purpose of any diagnostic
20 intervention would have been to improve the function
21 and the productivity of the user.

22 So we did a study, published through the
23 VA, regarding -- which is on my CV, regarding the
24 value of detection with cameras in a teledermatology
25 setting. And we showed, at the very same time, that

1 remote detection capacity could be provided through
2 a store-and-forward telemedicine mode,
3 teledermatology.

4 So, in my mind, the focus on the absolute
5 number of 6 millimeters is an important detail, but
6 the more important thing is how we are going to
7 expand this limited resource of dermatologists to
8 large organizations like the military. So why don't
9 you -- is there some other point you'd like to get
10 to?

11 BY MR. DUSTON:

12 Q. I think my question was fairly
13 straightforward, but let try to it again.

14 Paragraph 17 of your declaration refers to
15 the introduction of photography as part of this
16 diagnostic process.

17 A. Right.

18 Q. Did it alter the practice of practitioners
19 in your field at this time who routinely ignored
20 melanomas until they reached a size greater than
21 6 millimeters?

22 A. The photography which was introduced into
23 the field was in use prior to the decades to 2000.
24 People were taking pictures and using printed albums
25 and the like to try to refer that information to the

1 patients at the time of service. I'm not aware of
2 any studies showing that it decreased the diameter
3 per se of the melanomas thusly discovered. I'm
4 not -- but there may be literature that declares
5 such.

6 Q. Let's skip ahead to paragraph 21.

7 A. (Witness complies.)

8 Q. So here in paragraph 21, sir, you're
9 talking about practitioners in your field using
10 photographs taken at different times to make
11 comparisons, correct?

12 A. Yes.

13 Q. And, again, this is before your invention,
14 this practice that you're referring to here. It's
15 paragraph 21. Is that right?

16 A. Correct.

17 Q. And you're saying here that there can be
18 problems relying upon a simple comparison between
19 photos taken at a different time because they may
20 not be taken under the same circumstances; is that
21 right?

22 A. Correct.

23 Q. Photos taken under the same circumstances
24 are a more reliable gauge of the changes in a
25 particular skin feature over time, fair?

1 MR. GIARRATANA: Object to form.

2 A. The -- what I'm referring to, to be exact,
3 is that when you have a photographer taking pictures
4 of a subject, there are numerous variables that come
5 into play. And I've looked at the work product of a
6 number of photographers, and there's
7 irreproducibility of the studies related to the time
8 dimension of taking the imagery, the patient having
9 to adopt different positions, the lighting being
10 possibly varied, and the interaction between patient
11 and the -- I don't know what produces this, but
12 it -- I believe that the source is the length of
13 time of engagement between the person who gets tired
14 of adopting the different positions, the
15 photographer who may not exactly set it up the same
16 way every time, just the vagaries of the systems and
17 the various interactions between photographer and
18 subject. There have even been situations where
19 photographers have taken lurid images of people in
20 positions which were revealing and inappropriate
21 from the perspective of -- and these had to do with
22 angles and shots.

23 And so this kind of impropriety and
24 irreproducibility plagued the field and having a
25 more standardized setting moves it away from that

1 long interaction with the photographer, the cost of
2 that interaction, because it's a long interaction.
3 There's very limited automation and so it becomes a
4 source of error.

5 BY MR. DUSTON:

6 Q. So you said "plagued the field."

7 People in your profession, before your
8 invention, they were aware of these limitations to
9 the use of photography or these potential pitfalls
10 to the use of photography to make these diagnoses?

11 MR. GIARRATANA: Object to form.

12 BY MR. DUSTON:

13 Q. Is that a fair statement?

14 MR. GIARRATANA: Same objection.

15 A. For me to make a broad statement like they
16 were aware -- I think --

17 BY MR. DUSTON:

18 Q. Well, you spoke to other doctors in the
19 field, right?

20 A. I think --

21 MR. GIARRATANA: Objection to form.

22 A. I think I've maybe reviewed many more
23 pictures than the average dermatologist with respect
24 to trying to obtain highly reproducible imagery.
25 Because after all, that is a very specialized

1 interest of mine. And so I take that issue very
2 seriously. So maybe it's not appropriate for me to
3 generalize my understanding to the understanding of
4 my colleagues.

5 BY MR. DUSTON:

6 Q. Well, let me ask you this way: Do you
7 believe you were the first to realize that comparing
8 photographs taken of a particular skin defect at
9 differing times might be unreliable?

10 MR. GIARRATANA: Object to the form.

11 A. No.

12 BY MR. DUSTON:

13 Q. Okay. And do you believe yourself to be
14 the first to have realized that this potential
15 unreliability had something to do with the
16 photographs being taken under different conditions
17 one time from the other?

18 MR. GIARRATANA: Objection to the form.

19 A. I think that, you know, we're talking
20 about something that would be obvious to an artist.
21 We have, you know, the changes in daylight in
22 Monet's series of the cathedral. We know that
23 lighting and -- this is just a received
24 understanding that these -- that there are inherent
25 problems in reproducing the skin tones.

1 BY MR. DUSTON:

2 Q. When you say "obvious to an artist," you
3 would also include photographers in that?

4 A. Yeah, I think that's a -- there have been
5 a number of different ways of getting around that.
6 But I'm not here to teach that.

7 Q. Sure. But when we're talking about
8 obvious to photographers, it was obvious to
9 photographers, at this time, that if you took two
10 photos of the same thing at different distances, the
11 thing in the photo would appear different, right?

12 MR. GIARRATANA: Objection to the form.

13 A. And so?

14 BY MR. DUSTON:

15 Q. Is that a fair statement?

16 A. That's a statement.

17 Q. Is it a fair statement?

18 MR. GIARRATANA: Objection to the form.

19 A. I'm not going to -- it seems like a very,
20 you know, straightforward statement you're making.

21 BY MR. DUSTON:

22 Q. Well, if I --

23 A. I think we can both agree that an image
24 taken 20 yards away versus one taken 2 feet away
25 have very different appearances. But one can

1 overcome that if you have enough quality in the --
2 with a telephoto lens, let's say. There are
3 techniques to use software to overcome these
4 challenges.

5 Q. Another way to do it is to make sure that
6 you take the photo at one time and the photo at a
7 later date at precisely the same distance. That
8 would have the effect of scaling those photographs
9 to the same scale, would it not?

10 MR. GIARRATANA: Objection, form.

11 A. As you say.

12 BY MR. DUSTON:

13 Q. And that was not something that you came
14 up with --

15 A. Correct.

16 Q. -- the first to come up with that; is that
17 right?

18 A. No. I'm not claiming that.

19 Q. That was well known at the time of your
20 invention?

21 MR. GIARRATANA: Objection to form.

22 A. It's about the reproducibility of the
23 camera and the setting. It is possible to do things
24 correctly. The question we have is can we work
25 efficiently. You pointed out, as we came in the

1 room, that, gee, you've got to work really quickly
2 as a doctor, I don't envy you. How do we get that
3 done in five minutes? How do we do those in an
4 efficient time frame? How do we set up all these
5 different -- you know, how do we make that an
6 efficient process? How do we eliminate the time
7 cost of that process?

8 So I appreciate where you're going, but
9 the reality is that all you say is true, but on what
10 relevance.

11 BY MR. DUSTON:

12 Q. So looking at paragraph 22 of your
13 declaration, you begin by saying, "Under the
14 techniques available at the time, one could not
15 obtain the necessary repeatable imaging conditions."

16 A. Yeah.

17 Q. But that's not true, is it?

18 A. In the time constraints of our workflow,
19 it was impossible to obtain the necessary repeatable
20 working condi- -- imaging conditions. You know, we
21 cannot screen -- we're working in a screening
22 environment. In a screening environment, you have
23 to work quickly. You know, if you have all the time
24 in the day, like if a photographer one-on-one with a
25 patient might have, you could find the repeatable

1 imaging conditions quite well. But in that context
2 of the high-speed care-delivery environment, which
3 you pointed out, it's a real challenge that we have
4 in the profession. You recognize that, don't you?

5 Q. But you say here -- in the bottom of
6 paragraph 22, you said, "It was essentially
7 impossible for the photographer to duplicate the
8 lighting, viewing angles, and scale of each
9 photograph at a later time."

10 Now, that's not correct, is it?

11 MR. GIARRATANA: Objection, form.

12 A. Where are you finding that statement?

13 BY MR. DUSTON:

14 Q. Bottom of page 6 in paragraph 22.

15 MR. GIARRATANA: Same objection.

16 A. In a perfect world where you have a very
17 high-quality photographer who's very expensive and
18 not very easily obtained, you could get Richard
19 Avedon to come in and really work on the setting, or
20 some real high-quality photographer, to perform a
21 very difficult thing.

22 But in the real world, in dermatology
23 clinics, in the output we were seeing with the
24 Veterans Administration, in the -- in the imagery
25 that typically was taken of patients -- and I say in

1 the typical situation. And this is -- this is
2 important to think about, typical situation. I have
3 seen the output of the typical situation. And so
4 you're talking about apples and oranges. And the
5 typical situation is my reference point.

6 BY MR. DUSTON:

7 Q. But it is possible for a photographer to
8 duplicate the lighting, viewing angles, and scale of
9 photographs taken at separate points in time --

10 MR. GIARRATANA: Objection to the form.

11 BY MR. DUSTON:

12 Q. -- correct?

13 A. I have got no question that it is possible
14 for somebody to lock down the body in certain ways
15 that would -- which would make it reproducible. But
16 in the typical situation where we're having to
17 encompass the whole body in order to screen people
18 for cancer that might be on a very hard-to-see
19 surface of their body and -- we are talking about
20 high-speed settings and we're talking about the
21 typical pattern and we're talking about what you can
22 do in a five-minute examination setting. And this
23 is what we're pointing at.

24 We're not pointing to what's possible in
25 an artistic studio or in a highly conjured

1 environment. We're talking about what happened and
2 was happening and continues to be a cause of death
3 in the United States, which is delay in diagnosis by
4 persistence of the use of techniques which have
5 imprecision, whether it be the visual skin
6 examination or the type of imagery which usually
7 occurs with the dermatologic photography systems.

8 Q. We're talking here about reproducibility.
9 You've used that term a number of times. It's used
10 in your declaration.

11 When you talk about reproducibility,
12 you're talking about taking a photo of a feature on
13 the skin at one point in time and then taking a
14 photo of that same feature of the skin some months
15 or weeks later, correct?

16 MR. GIARRATANA: Objection to the form.

17 A. I think that -- that -- I'm not talking
18 about the just generalism that you made. You've
19 created a generalistic approach. Just taking a
20 photo of one thing one time and then you've reduced
21 it in a varied fashion. You're not talking about
22 reproducing the pose. You're not discussing about
23 reproducing the lighting. You're not talking about
24 the imaging conditions. You just stated -- it's
25 actually very difficult to take any photograph and

1 just put the person -- because we deal with this
2 challenge every day with freehand images, images
3 that are taken out of pocket. They're just taken
4 and used. It's very difficult to compare imagery
5 that's taken in a haphazard fashion. So I would
6 perish that thought that it could just be that
7 simple. Wish that it were and we'd like to make it
8 so. But it isn't.

9 BY MR. DUSTON:

10 Q. So is it -- is your invention directed to
11 reproducibility?

12 MR. GIARRATANA: Objection, form.

13 A. My invention has a number of different
14 vectors of value. One is the vector of
15 productivity. [REDACTED]

16 [REDACTED]
17 [REDACTED] And we can do that in a fairly
18 reproducible way. This puts it into the reach of
19 the average physician.

20 BY MR. DUSTON:

21 Q. So would your invention have any
22 usefulness if you used it once to take the images of
23 a single subject and not used it a second time at
24 some later date to reimage that individual?

25 MR. GIARRATANA: Object to form.

1 A. Of course.

2 BY MR. DUSTON:

3 Q. What would be the use of -- what would --
4 what use does your system have if it was used to
5 make a one-time image of a person?

6 MR. GIARRATANA: Objection to form.

7 A. According to our studies with the Veterans
8 Administration, dermatologists are just as accurate
9 with the diagnosis of skin disease with the imagery
10 as they are in person.

11 BY MR. DUSTON:

12 Q. And what information --

13 A. Does that answer your question?

14 Q. Well, what information would your system
15 give if it was used in this one-time fashion that
16 I've described?

17 MR. GIARRATANA: Objection, form.

18 A. Well, I think you're reaching into a
19 capacity we don't -- you know, we're not
20 autodiagnosing in this system. So there's not an
21 autodiagnostic feature that we're imposing and we're
22 not talking about that in this device. We're
23 talking about an image-acquisition device that
24 dramatically facilitates a detection of early cancer
25 but does not think for itself.

1 BY MR. DUSTON:

2 Q. Earlier we talked about comparing photos
3 taken at different times and using that comparison
4 to identify changes in skin features.

5 Do you recall talking about that earlier
6 today?

7 A. Yes.

8 Q. And the change -- the fact that you can
9 identify changes in skin features from photos taken
10 at one time to photos taken at a later time is
11 diagnostically significant to a practitioner in your
12 art, correct?

13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]

18 There are two different ways of getting to
19 high sensitivity. One is biopsying a tremendous
20 number. 30 to 40 biopsies per melanoma are the
21 standard. [REDACTED]

22 [REDACTED]

23 So ratcheting down the number by actually
24 having an evidence basis for which moles you can
25 observe carefully and pay special attention to is of

1 tremendous value to our public health services.

2 Q. Now, if you used the device only once,
3 though, you wouldn't have that comparative
4 insight --

5 MR. GIARRATANA: Objection --

6 BY MR. DUSTON:

7 Q. -- into changes that have occurred between
8 one point in time and another with respect to these
9 features --

10 MR. GIARRATANA: Objection to the form.

11 BY MR. DUSTON:

12 Q. -- is that correct?

13 MR. GIARRATANA: Objection to the form.

14 A. The -- I think you have set up a
15 self-answering question. Because you've said to me,
16 you've asked there is nothing valuable about a
17 system that detects change for the change detection.
18 That's the way I hear your sentence, the question.
19 That's the way I heard your question. So could you
20 repeat it? Because I don't hear a question.

21 BY MR. DUSTON:

22 Q. Sure. I mean, if you used your system --

23 A. It's a rhetorical statement, I thought.

24 Q. If you use your system only once, you
25 would not gain this information about the change in

1 a skin --

2 A. Again, rhetorical question.

3 Q. -- defect --

4 MR. GIARRATANA: Let him finish.

5 BY MR. DUSTON:

6 Q. Right.

7 A. That's what I'm saying.

8 Q. So you --

9 A. If you don't see --

10 Q. Okay.

11 A. If you don't have temporal differences
12 between imaging, you can't see a change.

13 Q. Okay. Fair enough. That's what I was
14 looking for.

15 So what does your system offer if it's
16 used a single time?

17 MR. GIARRATANA: Objection, form.

18 A. It can act as a pathway to remote
19 diagnosis, just as any images of patients can offer
20 a pathway to remote diagnosis.

21 BY MR. DUSTON:

22 Q. And before your invention, remote
23 diagnosis in that fashion would have required, in
24 your view, a photographer to serially take
25 photographs of the entire body?

1 A. I didn't say that, no. What I said
2 that -- you know, my experience working in the
3 Veterans Administration and trying to design their
4 systems showed that the handheld cameras which were
5 typically used in the field by the people who are
6 running the dermatology clinics in the VA were of
7 very poor, irreproducible quality. And if you had a
8 machine do it, you would eliminate that
9 irreproducibility.

10 And that's what I said, the -- that's the
11 typical situation. I'm not talking about Richard
12 Avedon taking pictures here. I'm talking about
13 everyday healthcare personnel. And in the context
14 of that everyday healthcare personnel taking
15 imagery, the person who is not an experienced
16 photographer taking these pictures under vague
17 conditions would end up having a weak conduit to the
18 opinion of a dermatologist. They'd have a -- kind
19 of a -- the difference between kind of talking
20 through a telephone versus a full-on video
21 conference.

22 So it's -- we're talking about increasing
23 the fidelity and decreasing the workload
24 potentially, depending on the cost-benefit analysis
25 of the organization that undertakes remote-care

1 delivery systems.

2 Q. So you say this was impossible before your
3 invention?

4 MR. GIARRATANA: Objection, form.

5 A. Possible in the time context.

6 BY MR. DUSTON:

7 Q. Okay.

8 A. Because we were talking about things that
9 happened in a very quick -- you referred back to how
10 you wouldn't want to be a dermatologist because we
11 have to do things so quickly. Where are we going to
12 get that extra money to pay for that person to spend
13 that extra time to do that extra work of taking, you
14 know, 30 photographs in multiple positions of that
15 person? There is no time available for that. The
16 government doesn't have the budget for it. We are
17 dropping the cost of image capture per image
18 capture. And we're also compressing the time to do
19 that. It's a utilitarian productivity argument.

20 Q. Because it's easier to take 30 photographs
21 with 30 cameras at once then to take 30 photographs
22 with one camera 30 times?

23 A. Yeah. Of course.

24 Q. And that's an obvious equation, right?

25 MR. GIARRATANA: Objection, form.

1 A. It's -- in the -- I guess in the early
2 days of digital imagery, in the -- given the
3 difficulties of doing this with -- and the time
4 lags. Again, the temporal structure of the capture,
5 retrieval of information, and application of
6 information makes it almost impossible for one to
7 conceive of wanting to do that with traditional
8 paper photography.

9 And then enters digital photography. In
10 looking at the same problems we were seeing with
11 digital [sic] photography and the tremendous need to
12 make our nation safe from disease -- because we need
13 to take get better care of the veterans. Melanoma
14 is the number one cancer death in the U.S. military.
15 We dramatically underserve through delay in
16 diagnosis and our cost overruns in the military
17 health budget in the United States are enormous.

18 So in that context, you're trying to
19 create greater productivity. At that time, that's
20 where my device fits.

21 BY MR. DUSTON:

22 Q. But taking 30 photographs one at a time,
23 if you want to shorten the period of time that it
24 takes to photograph that subject 30 times, it just
25 makes sense to use more cameras. If you use more

1 cameras, you can take the same amount of
2 photographic area in less time; is that fair?

3 MR. GIARRATANA: Objection to the form.

4 A. You are -- you're looking at a small
5 field. Dermatology produces 300 practitioners per
6 year. We have a very different need to see the skin
7 than any other type of physician. It's commonplace
8 for people to make an enormous error and think that
9 they can simply look at someone and see that there's
10 a melanoma there. The two-minute examination of --
11 for a melanoma, which is promoted, is not an
12 efficient or accurate way of looking for melanoma.

13 Having a camera array is not an intuitive
14 thing, and most dermatologists to this day do not
15 use photography to detect melanomas. So I would say
16 that this device needs to get out there to increase
17 the productivity, especially in an era when we have
18 mounting death from melanoma, number one cancer
19 death in women between 25 to 30, the number one
20 cancer death in the U.S. military. And what are we
21 going to do about it? Are we going promote a
22 solution like this device or are we going to slow
23 progress?

24 BY MR. DUSTON:

25 Q. Well, no one is asking to do either of

1 those things, Doctor.

2 What I'm asking simply is: At the time
3 that you came up with your idea, would you agree
4 with me that it was widely known that if you wanted
5 to take more photographs in a shorter period of
6 time, you could do so by using more than one camera?

7 MR. GIARRATANA: Objection to the form.

8 A. The -- I disagree that that was an
9 intuitive solution.

10 BY MR. DUSTON:

11 Q. You recognized these problems with
12 photography in your field at the time of your
13 invention.

14 Did you investigate solutions for solving
15 these issues?

16 A. Yes.

17 Q. What did you look at?

18 MR. GIARRATANA: Objection, form.

19 A. I looked at a robotic arm. I looked at a
20 camera on an automated rail. I looked at prior
21 imaging solutions.

22 BY MR. DUSTON:

23 Q. Such as?

24 A. Such as turntables and other devices to
25 achieve the same end.

1 Q. What other devices achieving the same end?

2 A. I'm not going to be exhaustive here.

3 Q. Just give me as many examples as you can
4 recall.

5 A. I looked at -- I scoured -- I built
6 these -- those are ones that I actually physically
7 constructed --

8 Q. All right.

9 A. -- among the other possible solutions.

10 Q. What other possible solutions did you give
11 consideration to?

12 A. Well, I gave the ones that I constructed
13 physically and have built.

14 Q. What others?

15 A. I'm not going to become a teacher to you.

16 Q. I'm not asking you to become a teacher.
17 I'm asking you to relate facts from a --

18 A. Well --

19 Q. -- particular era.

20 MR. GIARRATANA: Hold on. Let's not talk
21 over each other. Are you finished with your
22 question?

23 MR. DUSTON: Yes.

24 MR. GIARRATANA: I'm objecting. It's
25 outside the scope of the direct examination.

1 It's not relevant --

2 BY MR. DUSTON:

3 Q. Doctor?

4 MR. GIARRATANA: -- to this proceeding.

5 I'm going to allow a limited examination on
6 this, but if you keep going --

7 A. Prior to discussing this with you, I've
8 decided not to teach you.

9 BY MR. DUSTON:

10 Q. So you're just not going to answer my
11 questions?

12 A. I've answered questions -- I had
13 physically built these other two devices. I felt
14 that they were the best approximation of what I was
15 going after. You have shown me a literature. We
16 are familiar with that. We're familiar with what
17 you think might be other solutions. But I'm telling
18 you that I'm not going enter into being an educator
19 at this point. So if you want to be more pointed
20 about your questions and direct, I'll entertain your
21 questions.

22 Q. Did you consider multicamera solutions --

23 MR. GIARRATANA: Objection --

24 BY MR. DUSTON:

25 Q. -- before your invention?

1 MR. GIARRATANA: Same objection, outside
2 the scope --

3 A. Yes.

4 MR. GIARRATANA: -- and not relevant.

5 If you could just give me a chance, so we
6 don't talk over each other, Dr. Drugge.

7 THE WITNESS: Yeah.

8 BY MR. DUSTON:

9 Q. Did you look for other multicamera
10 solutions, in your field or other fields, in the
11 course of developing your invention?

12 MR. GIARRATANA: Form, outside the scope,
13 relevance.

14 A. I did a broad-ranging investigation of
15 technologies of the time and I felt that none of
16 them were satisfactory for the demands of precision
17 of the tight, close-range imaging that we require.

18 BY MR. DUSTON:

19 Q. Did any of the solutions or other --
20 strike that.

21 Did any of the broad-ranging research that
22 you did into the various technologies at the time
23 include review of systems having more than one
24 camera?

25 MR. GIARRATANA: Objection, form.

1 A. The -- it's clear that our eyes are a pair
2 of cameras, so this is -- but none of them had any
3 applications that were in tune to the field. There
4 were camera arrays that we were looking externally
5 certainly for the purpose of engendering scenes,
6 almost like a cyclorama. And those are still quite
7 popular.

8 BY MR. DUSTON:

9 Q. So besides the cyclorama technologies,
10 were there other multicamera systems that you
11 reviewed?

12 MR. GIARRATANA: Objection to the form.

13 A. We are looking at these techniques that
14 you've shown us in the context of these hearings and
15 some of them do include multiple cameras. But in
16 the field of dermatology, to meet the specifications
17 of our close-range imaging and our high-resolution
18 requirements and the requirements for 3D
19 reconstruction potential of the --

20 THE COURT REPORTER: Potential?

21 A. -- for 3D reconstruction activities, for
22 subsequent analytics, and to engender a robust
23 long-term archival story of human survival, we have
24 gotten nearly two decades of whole body imagery. So
25 this is a fundamentally important thing to medical

1 science, to own this, and to own it, I would say, in
2 an unobstructive way, in a way that promotes the
3 betterment of mankind. And I have not made any
4 money, substantial money. And these proceedings are
5 costing me a fortune. And so --

6 BY MR. DUSTON:

7 Q. We were --

8 A. -- my question --

9 Q. Go ahead, Doctor.

10 A. My general question is: What more do you
11 need to know?

12 Q. We were talking about the review of
13 technologies that you made as you were seeking to
14 solve the problems that you saw in your field --

15 A. Yes.

16 Q. -- problems that you ultimately, in your
17 view, solved through the invention that's reflected
18 in the '748 patent, correct?

19 A. Correct.

20 Q. And in that review of technologies, that
21 review of technologies that you undertook to try and
22 find solutions to those problems, that review of
23 technologies included a review of technologies
24 similar to those that are reflected in
25 Exhibits 1006, 1005, 1004; is that right?

1 MR. GIARRATANA: Objection, form,
2 foundation, outside the scope.

3 BY MR. DUSTON:

4 Q. And those being the Hurley reference, the
5 Daanen article on whole body scanners, and the
6 Crampton patent?

7 MR. GIARRATANA: Same objection, outside
8 the scope, form, foundation, lack of
9 foundation.

10 A. The Internet was the basis of a tremendous
11 amount of research. And the research capacity that
12 I could perform in reviewing possible solutions to
13 my predicament of being able to find
14 super-high-resolution imagery in a lightening-fast
15 approach which was highly reproducible was not
16 available from any of the solutions that I could
17 search and research on the Internet.

18 [REDACTED]
19 [REDACTED] [REDACTED]
20 [REDACTED] [REDACTED]
21 [REDACTED] [REDACTED]
22 [REDACTED]
23 [REDACTED] [REDACTED]
24 [REDACTED]
25 [REDACTED] [REDACTED]

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

		153
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

1 MR. GIARRATANA: I'd like to --

2 MR. DUSTON: Hang on.

3 MR. GIARRATANA: No, no. Off the record.
4 I need to take a short break.

5 (At 3:37 p.m. a recess was taken.)

6 (At 3:45 p.m. the deposition resumes.)

7 BY MR. DUSTON:

8 Q. So I want you to put, Doctor, in front of
9 you the Daanen article. It's Exhibit 1005.

10 MR. GIARRATANA: Tom, I'm going to object
11 to this line of questioning. And let me put it
12 this way: If you intend to examine the witness
13 with respect to Daanen, Hurley, Crampton, and I
14 believe you put Voigt in front of him, I'm
15 going -- we're not going to allow that
16 examination. That's going to be something
17 we're going to need to address with the board.
18 But my perspective, it's completely outside the
19 scope of his declaration.

20 On top of that, you have failed to
21 authenticate these documents with respect to
22 him. And on top of that, it's not relevant,
23 his views on this. He didn't provide any
24 testimony on any of these and so we're just not
25 going to go there.

1 So I'm not going to allow it. If you have
2 some limited examination because you think you
3 can demonstrate some reasonable relevance to
4 his declaration, then we'll consider letting it
5 go forward. We avoid bringing it in front of
6 the board. But if that's what you intend to
7 do, if you intend to spend today expending a
8 lot of time with him on these references, we're
9 going to have to address that with the board.

10 BY MR. DUSTON:

11 Q. Doctor, my question -- we were talking a
12 moment ago about the investigation that you
13 undertook to solve the problems that you ultimately
14 feel you solved with the invention reflected in the
15 '748 patent. Your declaration speaks of the
16 impossibility or the unavailability of systems to do
17 what the '748 patent ultimately did.

18 You set out, when you identified these
19 problems, to find a solution to those problems, to
20 see if there were existing systems that would solve
21 those problems, correct?

22 A. Uh-huh.

23 Q. Is that right?

24 A. Yes.

25 Q. And you've said in your declaration that

1 there were no such existing systems that solved the
2 problems, correct?

3 MR. GIARRATANA: Objection to the form.

4 A. At a -- in the context of -- of being able
5 to solve the problem that I was seeing with the
6 insensitivity of traditional physical examination,
7 there was no device on the market that properly
8 addressed my challenges.

9 BY MR. DUSTON:

10 Q. Or even suggested in the literature?

11 MR. GIARRATANA: Objection to form.

12 A. This would be very similar to what I just
13 said, if I respond to you. "Suggested in the
14 literature." "Solve my problems." I mean, what did
15 I just say? I searched the Internet, which includes
16 literature. I usually read on the Internet. That's
17 literature.

18 BY MR. DUSTON:

19 Q. Okay.

20 A. So it's redundant.

21 Q. So when you say, in your declaration, that
22 there were no systems to solve this particular
23 problem, you're referring to the systems -- the
24 research that you did in an effort to try and
25 identify a system that would solve these problems?

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

157

1 MR. GIARRATANA: Objection to the form and
2 assumes facts not in evidence.

3 BY MR. DUSTON:

4 Q. Let me say this: You're not making that
5 statement just off the top of your head, there are
6 no such systems, but I haven't looked; is that
7 right?

8 MR. GIARRATANA: Can you direct us to the
9 statement you're referring to? Otherwise, I
10 continue to object.

11 BY MR. DUSTON:

12 Q. Doctor?

13 MR. GIARRATANA: Objection to form,
14 assumes facts not in evidence.

15 A. I think that your question is very leading
16 to something very specific and I really I don't
17 encompass the exact meaning that you're trying to
18 imply.

19 BY MR. DUSTON:

20 Q. Well, what I'm trying to get at, sir, is
21 you said that there were -- I'm looking at
22 paragraph 28, "Techniques did not exist to address
23 the scale issue."

24 I'm looking at 27, "Photography techniques
25 at the time, it was essentially impossible to

1 provide the same scale in photographs taken at
2 different times."

3 You're saying elsewhere, at 22, "Under the
4 techniques available at the time, one could not
5 obtain necessary repeatable imaging conditions."

6 Now, you make these statements about what
7 existed at the time and I assume you make those
8 statements as to what exists at the time based upon,
9 at least in part, this research that you've
10 undertook to find out what did exist at this time.

11 Is that right?

12 A. As someone working in the field, I was
13 heavily invested in looking for techniques which
14 would help solve the problem of public health
15 screening.

16 Q. This research that you did that you
17 described --

18 A. Whether it was helping the VA as a portal
19 of entry to their teledermatology needs or whether
20 it be my loved ones who were dying of melanoma, we
21 needed a portal of low-cost, high-speed image
22 acquisition in a highly reproducible manner for
23 their -- for the satisfaction of a large health
24 problem.

25 Q. And did this research that you did on the

1 Internet in an effort to try and find a solution,
2 did it inform the statements you made in this
3 declaration about whether or not there were existing
4 solutions that --

5 A. Of course.

6 Q. -- would do this?

7 A. Of course.

8 Q. So when you went on the Internet and
9 looked at possible available solutions, did that
10 research include systems like we see in
11 Exhibit 1005, these scanner systems described in the
12 Daanen article which is before you?

13 MR. GIARRATANA: Objection, form,
14 foundation, outside the scope.

15 BY MR. DUSTON:

16 Q. In your research, sir, did you see systems
17 similar to the types of systems that are described
18 in the Daanen article?

19 MR. GIARRATANA: Objection, form,
20 foundation, lack thereof, outside the scope.

21 A. Yes, I was aware of the Cyberware WB4
22 scanner.

23 BY MR. DUSTON:

24 Q. How were you aware of that scanner, sir?

25 A. It was commercially available.

1 Q. And how would you have seen it?

2 A. I probably saw it on the cyberware.com
3 website. That's just a guess.

4 Q. Okay. And is there a picture of the
5 Cyberware device that you were familiar with?

6 A. Yes.

7 Q. Where does that appear? Is that on page 3
8 of the document?

9 A. Uh-huh.

10 Q. Yes?

11 A. Page 2 of 10.

12 Q. Okay.

13 A. And there's a -- page 3 of 10.

14 Q. In Figure 3, correct?

15 A. Uh-huh.

16 Q. Yes?

17 MR. GIARRATANA: I'm sorry. You have to
18 answer -- you can't --

19 A. Yes.

20 MR. GIARRATANA: You have to use verbal
21 answers.

22 A. Yes.

23 BY MR. DUSTON:

24 Q. So you looked -- in your search for a
25 solution to this problem, you considered scanning

1 devices like the Cyberware WB4 system that's
2 depicted in Exhibit 10005 [sic]?

3 A. Yes.

4 MR. GIARRATANA: Objection to the form.

5 BY MR. DUSTON:

6 Q. Ultimately you rejected that particular
7 system as a solution to your problem; is that right?

8 A. Correct.

9 Q. But you looked to that technology as a
10 potential solution; is that right?

11 MR. GIARRATANA: Objection to the form.

12 A. Yes.

13 BY MR. DUSTON:

14 Q. What did you understand the WB4 Cyberware
15 system to be used for?

16 A. To make whole body images.

17 Q. Surface images of the outline of the body;
18 is that correct?

19 A. To make CAD models, a 3D service image of
20 the body. The purpose of the device was for
21 clothing measurements.

22 Q. The Cyberware WB4 device?

23 A. And also to make potentially a CAD model
24 of the body. And I'm -- so...

25 Q. So, Doctor, you talked, in your

1 declaration, at -- let's turn to paragraph 35, if we
2 could --

3 A. Right.

4 Q. In your declaration before you there, I'd
5 like to draw your attention to paragraph 35.

6 At the bottom of paragraph 35, you talk
7 about, "The image information may optionally be
8 interpreted as a 3D object due to the TIP's ability
9 to provide pseudo-synchronous image capture if
10 desired."

11 Did I read that correctly?

12 A. Yes.

13 Q. What did you mean by that statement?

14 A. Pseudo-synchronous capture with an animate
15 body, like the human, allows us to reconstruct
16 overlapping imagery in 3D.

17 Q. How does the TIP system do that with the
18 image data that it collects?

19 A. Well, the TIP system captures the imagery
20 in a pseudo-synchronous fashion with enough angles,
21 given the direction the camera is pointing towards
22 circumferencely around the body part imaged, so that
23 it provides easy access to photometrics.

24 Q. How so? I'm just trying to -- these --
25 these images -- let me back up, because I'm trying

1 to explain my difficulty in understanding.

2 The cameras in your TIP device are taking
3 two-dimensional photographs?

4 A. Yes.

5 Q. And you're describing this camera array of
6 cameras at different locations and having different
7 angles taking these two-dimensional photographs and
8 somehow using those 2D photographs to interpret a 3D
9 object.

10 So what I'm trying to understand is: How
11 do those 2D images translate into a 3D
12 interpretation?

13 MR. GIARRATANA: Objection, form.

14 A. We can interpret the distance of any
15 object from the common perspective of two cameras.
16 From very simple distance --

17 THE COURT REPORTER: I can't hear you.

18 A. -- distance -- with a fairly simple
19 distance, the focal length can be multiplied by the
20 base between any two camera pairs. And you see this
21 matrix has multiple camera pairs. And then that can
22 be divided by the size of the pixel. And also, in
23 the denominator, we can have the discrepancy in two
24 images. So it easily creates a displacement map,
25 because of the redundancy of the imagery.

1 But it provides more than that. Because
2 if we take a look at the surface of the body, we can
3 see the skin more effectively. Given all these
4 different angles, we could perform other analyses.
5 And as time goes on, with image-processing quality
6 rising as it is so dramatically in the field of
7 dermatology, this creates an invaluable setting
8 point for long-term understanding of the human aging
9 process, having a 20-year database of these 3D
10 reconstructible images.

11 BY MR. DUSTON:

12 Q. So did you see this 3D element, the
13 ability to image an object in three dimensions,
14 as -- as helpful to solving the problems that you
15 had identified in the use of body imaging for
16 melanoma diagnoses?

17 MR. GIARRATANA: Objection to form.

18 A. I saw the 3D reconstruction as something
19 which was quite feasible. But given the numerous
20 viewpoints we had and the reproducibility of the
21 viewpoints, it is an analysis which can be performed
22 on data back to 2001 today, if we wanted to bring
23 bodies back from the prior art. But we found that
24 it was not a -- it's an analytical post-processing
25 technique for measuring. And just as many

1 analytical post-processing techniques will proceed
2 into the future, like, automatic classifiers of
3 disease, we've even recently seen sexing of retinal
4 imaging. Nobody thought that possible.

5 So when you have data set collection like
6 this enabled by a high-resolution close-range
7 photometric system like this, which is -- it opens
8 up the possibilities for understanding of disease in
9 ways which are not only three-dimensional, but maybe
10 what we call "n-dimensional."

11 It may be that the Association of the
12 Electronic Health Record [sic] information of 26
13 years, which is also garnered for this whole 18-year
14 period and 35,000 scans to date, may open up new
15 vistas in human diagnosis and disease management, if
16 we do not only examine people for skin cancer.

17 BY MR. DUSTON:

18 Q. There are a host of other maladies that
19 affect skin in one way or another?

20 A. Affect mortality, the aging process
21 itself. Imagine if we could find, through the
22 retinal image, what your sex is. And no
23 ophthalmologist thought that they could do that.

24 Q. Your patent lists a whole host of --

25 A. Maladies.

1 Q. -- maladies. Gout is one of them that's
2 listed.

3 A. Yeah.

4 Q. How does gout affect the skin?

5 A. Very dramatically, especially if you
6 suffer. If you've ever had gout --

7 Q. I've not.

8 A. Should I show you my gouty toe? Because
9 it's swollen and red at other times, it's larger
10 than the other toe. Symmetry analysis to the other
11 toe, it would shine bright compared to the other
12 toe. It might be more rigid in the way someone
13 stands. So gout shows brightly.

14 And then gouty tophi can accumulate on the
15 elbows, giving exaggerated long red nodules, tumors
16 off the joints. And the gouty tophus is really
17 uncomfortable, very uncomfortable.

18 And so people who have high levels of uric
19 acid in their blood oftentimes suffer from gout.

20 Q. The effects of gout on the skin, are they
21 limited to discoloration?

22 A. No.

23 Q. What other effects do they have?

24 MR. GIARRATANA: Objection, form, outside
25 the scope, relevance.

1 THE WITNESS: True. I don't want to be
2 their professor.

3 MR. GIARRATANA: I'm going to allow for a
4 limited examination on this. You can answer
5 the question, if you can.

6 A. I'll refrain from describing gout any
7 further.

8 BY MR. DUSTON:

9 Q. Well, let me ask this --

10 A. I don't think it's relevant to this
11 examination.

12 Q. Let me ask this: Does gout --

13 A. I have patients who like to hear my
14 opinion about medical problems right now and we're
15 delaying their care. They're stacked up waiting for
16 the doctor to find their early melanoma. So please
17 move forward faster and more precisely.

18 Q. One of the other issues that you identify
19 in your patent, abscesses, do abscesses affect the
20 skin by affecting the contour of it and are
21 abscesses detectable by changes in the contour of
22 skin?

23 MR. GIARRATANA: Objection, form, outside
24 the scope, relevance.

25 A. I'm not going to teach medical supply.

1 I've got patients who have abscesses --

2 BY MR. DUSTON:

3 Q. I appreciate that, Doctor. Could you --

4 A. My -- I think the visible nature -- we
5 know that dermatologists can diagnosis these
6 diseases as well by an image as they can in person.
7 So if you'd like to kind of talk about the numerous
8 ways you can make the diagnosis of an abscess,
9 please go to medical school and don't bring it here.

10 Q. Is one of the ways to diagnosis an abscess
11 by noting the change in the contour of skin?

12 MR. GIARRATANA: Same objections.

13 A. The -- there are so many ways to diagnose
14 an abscess.

15 BY MR. DUSTON:

16 Q. Is that one of the ways?

17 A. One of the ways might be to palpate.

18 Q. But is a change in the contour --

19 A. Rubor, dolor, and tumor. "Tumor" means
20 swelling. We detect tumors. And there is a change
21 in the contour with a tumor. There's a change in
22 the color with rubor, redness. And dolor, there's
23 certainly a change in sensation.

24 Q. Skeletal defects, can change -- have an
25 effect on skin, can they not?

1 MR. GIARRATANA: Same objections.

2 A. Very clearly. We're all shrinking. Your
3 skull is getting wider around the eyes and that's
4 why you have dark circles.

5 BY MR. DUSTON:

6 Q. What about scoliosis?

7 A. Changes the shape of the --

8 MR. GIARRATANA: Same objections.

9 A. I have a clinic to run, so if we're going
10 to go through what it means to diagnose by
11 visualization, this could be a very long
12 conversation.

13 BY MR. DUSTON:

14 Q. Well, I'll try and cut it short and focus
15 on just a couple.

16 But, for example, scoliosis, is a skeletal
17 malady; is that right?

18 MR. GIARRATANA: Objection -- same
19 objections.

20 A. Yes, but --

21 BY MR. DUSTON:

22 Q. Can it -- it affects --

23 MR. GIARRATANA: Let him finish answering
24 the question, please.

25 A. Can you bring relevance to this meeting?

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

170

1 BY MR. DUSTON:

2 Q. Sure.

3 Does scoliosis have an effect, a visible
4 effect on human tissue? Can it have a visible
5 effect on human tissue?

6 MR. GIARRATANA: Objection, form, outside
7 the scope.

8 A. I believe that all of these conditions
9 I've listed are diagnosis susceptible by
10 visualization. This is why that list is there. And
11 there are other modalities. Certainly x-ray for
12 scoliosis or maybe palpation or just listening to a
13 history of a patient can lead to a diagnosis. But I
14 have a list of people who want to be led to a
15 diagnosis and they're not in this room.

16 BY MR. DUSTON:

17 Q. When you were developing your device to
18 solve the problems that you had recognized, you
19 mentioned that you were led to use digital cameras
20 to do that.

21 MR. GIARRATANA: Objection to the form.

22 BY MR. DUSTON:

23 Q. Let me back up for a second.

24 The digital cameras that you employed in
25 your early investigation leading to your device, did

1 any of those digital cameras include USB ports?

2 MR. GIARRATANA: Objection to the form.

3 A. Prior to using -- no, not for ones I used
4 for investigation.

5 BY MR. DUSTON:

6 Q. When was the first time that you employed
7 a camera having a USB port in connection with a
8 system that was designed to solve these problems?

9 MR. GIARRATANA: Objection to the form,
10 outside the scope of the direct, relevance.

11 BY MR. DUSTON:

12 Q. When was the first time you recall using a
13 digital camera having a USB port in connection with
14 your work in this field?

15 MR. GIARRATANA: Same objection.

16 A. After submitting the patent, I searched
17 for the appropriate cameras to serve the need.
18 After reviewing the potential for the USB, which
19 could entertain up to 128 cameras' specification,
20 given the speed of those systems, they met my
21 criteria.

22 BY MR. DUSTON:

23 Q. Were those systems available at the time
24 that you filed for your application?

25 A. Yes.

1 Q. In the first prototype of your invention,
2 do you recall how long it took for the device to
3 take the series of photographs that it took using
4 the array that you had designed?

5 MR. GIARRATANA: Objection to the form and
6 outside the scope and relevance.

7 A. At the outset, when we do designs, we
8 usually -- I come from a family of engineers who
9 usually design things -- we specify materials for
10 the design. We hire people to do key work and then
11 we produce a device. So we could go easily back to
12 our records of those captures and see what timing
13 the device was produced.

14 BY MR. DUSTON:

15 Q. Do you recall, over the course of time,
16 that the time involved in creating this complete
17 capture, whether it declined or increased?

18 MR. GIARRATANA: Same objections.

19 A. The synchronicity?

20 BY MR. DUSTON:

21 Q. Yes.

22 A. Yeah, systems get better. Technology is
23 improving.

24 [REDACTED]
25 [REDACTED]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

[REDACTED]

[REDACTED]

[REDACTED]

MR. GIARRATANA: Objection to the form.

A. But I --

MR. GIARRATANA: I'd appreciate it if you would not speak over him and give me a moment so we don't talk over each other.

THE WITNESS: Sorry.

BY MR. DUSTON:

Q. Can you put Exhibit 2019 in front of you? I think it's that one there, yeah.

MR. GIARRATANA: Which one is that?

MR. DUSTON: That's the van der Weide.

BY MR. DUSTON:

Q. We talked a bit about this earlier and I know it's a lengthy document. I promise to maybe draw your attention to a particular portion of it so that it would be a little bit --

A. Sure.

Q. -- more fair to ask you about having seen these before.

A. Sure.

Q. So what I wanted to ask you to do is to take a look at paragraph 86 of this and read that to

1 yourself. It starts on page 53.

2 A. (Witness complies.)

3 Q. It's actually rather a lengthy paragraph.
4 It goes on for about a page. But if you'd take a
5 look at that.

6 A. Paragraph?

7 Q. 86.

8 A. Okay. Thank you.

9 MR. GIARRATANA: I'm going to object to
10 any line of questioning on this exhibit on
11 grounds of it being outside the scope of his
12 direct testimony, it's not relevant, and you
13 failed to establish any foundation with respect
14 to this witness and this exhibit. I'll allow
15 limited questioning, but we're going cut it off
16 if it gets too deep.

17 A. (Witness reviews document.)

18 BY MR. DUSTON:

19 Q. So with this description of Hurley in
20 mind, I wanted to ask about the statement that you
21 made in your declaration, which we talked about a
22 moment ago, which appears at -- bear with me --
23 paragraph 35.

24 A. Uh-huh.

25 Q. We were talking about the use of the TIP

1 system to interpret image data as a 3D object.

2 Now, there's -- Dr. van der Weide has
3 given us a description of the system in Hurley, and
4 what I wanted to ask was whether or not the 3D use
5 of the TIP system is similar to the way in which
6 Dr. Weide describes the early system operating?

7 MR. GIARRATANA: Objection. And I'm going
8 to instruct the witness not to answer that
9 question. You failed to establish -- it's
10 completely outside the scope of his direct
11 testimony. His -- you failed to establish any
12 foundation with respect to his knowledge of
13 Hurley, his personal knowledge of Hurley. And
14 this completely lacks foundation. And his view
15 is simply not relevant. We're not going to go
16 there.

17 Like I said before, if you want to examine
18 him, if your intention is to examine this
19 witness, who's not here as an expert witness --
20 he's here as a fact witness for matters that he
21 has personal knowledge of. If you want to
22 examine him about what he has personal
23 knowledge of, fine. But if you want to treat
24 him as an expert and try to examine him on
25 things that he has no personal knowledge of and

1 that our expert, in fact, testified about, then
2 we're going to have to raise that with the
3 board.

4 BY MR. DUSTON:

5 Q. So, Doctor, what I'm trying to get at is
6 to understand this 3D use of the TIP system that you
7 make reference to in your declaration, we have an
8 illustration of a 3D system in Hurley. And
9 Dr. Weide has explained how that operates.

10 And so, to gain an understanding of how
11 TIP's system uses 3D or can be employed in 3D, what
12 I'm trying to get at, Doctor, is: Can I -- can we
13 use the description of Hurley's system as a way to
14 illustrate whether the TIP system is operating in a
15 similar fashion or a dissimilar fashion and perhaps
16 zero in on the ways in which the TIP system operates
17 differently than Hurley or the same as Hurley in
18 developing this 3D interpretation?

19 MR. GIARRATANA: Same objection and
20 instruction.

21 I'm instructing you not to answer.

22 BY MR. DUSTON:

23 Q. Are you going to take your counsel's
24 instruction, sir?

25 A. Yes.

1 MR. DUSTON: I think we're going to have
2 to take this up at another time. It's 4:30 in
3 the afternoon. I doubt seriously we'll get the
4 board on the line.

5 MR. GIARRATANA: If you want to address
6 it, we can call the board.

7 MR. DUSTON: So I will move on to see what
8 we can cover while we have daylight.

9 BY MR. DUSTON:

10 Q. Did you disagree with anything that
11 Mr. Weide said in 86, paragraph 86?

12 MR. GIARRATANA: Same objection and
13 instruction.

14 BY MR. DUSTON:

15 Q. I assume that if you're instructed not to
16 answer --

17 A. I pay my lawyer. I take his advice.

18 Q. I just want to make sure so I don't have
19 to ask you each time whether or not you're going to
20 answer my question.

21 A. You're the one that's asking me twice, not
22 him.

23 Q. Well, my point is, you're free to answer
24 the question or not answer the question.

25 A. I'm not going to override what he's

1 saying, ever.

2 Q. Fair enough. I won't ask you each time.

3 A. I won't pay for somebody to give me advice
4 and then not take it.

5 Q. Earlier in the day, we talked a little bit
6 about what you may or may not have reviewed of
7 Mr. Weide's opinions before they were submitted.

8 Can you tell me whether or not this
9 opinion that's reflected in paragraph 86 was
10 something that you saw before his declaration was
11 submitted to the PTAB?

12 A. I believe that I reviewed it quickly and
13 took my lawyer's opinion of it.

14 Q. So you saw this before it was submitted,
15 is what you're saying, this particular opinion in
16 86?

17 A. Yes, [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 Q. Got it.

21 MR. DUSTON: Why don't we take a
22 five-minute break, and I'll see what I've got
23 left, and maybe we can try and wrap -- I don't
24 think by 5:00, but hopefully not too much later
25 in the evening.

1 THE WITNESS: Keep going.

2 MR. GIARRATANA: Off the record.

3 (At 4:24 p.m. a recess was taken.)

4 (At 4:33 p.m. the deposition resumes.)

5 BY MR. DUSTON:

6 Q. Doctor, let me turn you to paragraph 34 of
7 your declaration. You say, "I and colleagues of
8 mine have used the TIP in our practices and research
9 work for almost 20 years."

10 What colleagues are you talking about
11 there?

12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]

21 A. And one in Stamford.

22 Q. But we were talking about colleagues. I
23 assume the Stamford one is operated by you.

24 Is that right?

25 A. Yeah.

1 Q. These others are operated by who you're
2 referring to as colleagues?

3 A. Yeah.

4 Q. Who operates the Long Island one?

5 A. That's outside of the scope of this
6 conversation. I really don't want to get into the
7 business details. I don't want to get into -- we're
8 talking about a patent issue, not a business issue.
9 This is --

10 Q. So your declaration makes the point that
11 colleagues are using this.

12 A. Yeah. I would have enumerated them had
13 I --

14 MR. GIARRATANA: We can mark this highly
15 confidential so it's attorney's eyes only.
16 Okay?

17 THE WITNESS: Okay.

18 BY MR. DUSTON:

19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 Q. You mentioned a generation here of 30,000
17 whole-body-surface image sets during that -- what
18 period are we talking about?
19 A. For almost 20 years. It's right in the
20 sentence before it.
21 Q. Got it. Okay.
22 And are these stored somewhere?
23 A. Yeah. We store them on secure servers on
24 site, off site.
25 [REDACTED]

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

[REDACTED]

Is that -- are they contributing to this
body of data sets?

A. No.

Q. Are you collecting data sets from beyond
Stamford?

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1

2

3

4

5

6

7

Q. That's all right.

8

9

10

Are there skin defects that are detectable using your equipment that are best detected under monochromatic light?

11

12

MR. GIARRATANA: Objection, outside the scope.

13

14

15

16

17

18

BY MR. DUSTON:

19

Q. Well, let me try it this way.

20

21

22

23

24

Q. Are there defects suitable for diagnosis by your equipment that are generally diagnosed using monochromatic light?

25

MR. GIARRATANA: Objection, form, outside

1 the scope.

2 A. The -- you're dealing with the general
3 question of, you know, photography and the kind of
4 general field of photography and skin disease, which
5 is kind of this kind of Venn-diagram-intersection
6 question. So it's something that's in the
7 literature and I'm sure that there are some forms of
8 diagnosis that can be arrived at with
9 single-wavelength lights. I think anything is
10 feasible. I mean, light is kind of a big variable
11 spectrum and you could have invisible light, near
12 infrared. You can have -- but we're here on
13 pontification. I don't want to do that.

14 BY MR. DUSTON:

15 Q. Well, your patent contains, as you
16 mentioned, this long list of --

17 A. Sources.

18 Q. -- maladies, skin-related ailments.

19 Would be fair in assuming that there are
20 diseases or ailments that are among this list that
21 your field oftentimes uses single-wavelength light
22 to detect, diagnose?

23 MR. GIARRATANA: Objection, form, outside
24 the scope.

25

1 BY MR. DUSTON:

2 Q. Doctor, do you need me to restate the
3 question or have it read back?

4 A. I'm listening to my counsel.

5 MR. GIARRATANA: I stated my objection.
6 But you can -- if you understand the question,
7 you can answer it.

8 THE WITNESS: Oh, okay.

9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]

18 BY MR. DUSTON:

19 Q. Does your invention preclude the use of
20 structured or patterned light to illuminate the
21 subject?

22 MR. GIARRATANA: Objection, form, outside
23 the scope, legal determination.

24 A. Does it preclude the use? I think one
25 could add wind into the structure or some kind of

1 fan in the structure. We could add a variety of
2 things into the structure, but that -- I don't
3 really understand the relevance of your question.
4 Could you explain it?

5 BY MR. DUSTON:

6 Q. Yeah. I just want --

7 A. Why are you asking that question?

8 Q. Well, I'm asking because there have been
9 some statements made by you, by Dr. Weide about
10 whether or not certain forms of illumination are or
11 are not within the scope of your invention. And
12 what I'm trying to figure out is whether or not your
13 invention, as you understand it, excludes the use of
14 patterned or structured illumination?

15 MR. GIARRATANA: Objection, form, outside
16 the scope.

17 A. We've not, you know, declared the system
18 to require that as a component of the system.

19 BY MR. DUSTON:

20 Q. Does it preclude it?

21 MR. GIARRATANA: Same objection.

22 A. The language of -- is elusive to me. What
23 do you mean by "preclude it"? In this context with
24 the legal environment, I don't feel comfortable with
25 my understanding of the "preclude" and what the

1 ramifications of "preclude" are for the general
2 questions that we're dealing with. Because you want
3 an outcome, and I don't understand your question,
4 and I cannot be truthful until I understand the
5 meaning of the use of the word "preclude" in the
6 context of this particular proceeding. So please
7 elucidate, if you can.

8 BY MR. DUSTON:

9 Q. Would you -- did you seek to eliminate the
10 use, in your device, of structured or --

11 MR. GIARRATANA: Objection, form.

12 THE COURT REPORTER: I didn't hear the
13 last --

14 BY MR. DUSTON:

15 Q. Let me withdraw the question. It's not a
16 good one. Let me ask a different question.

17 We were talking earlier about some of the
18 difficulties that you recognized that were related
19 to the use of a human photographer to take
20 photographs. And among some of those issues, you
21 mentioned were some of the compromising positions
22 that a human photographer would sometimes put
23 patients in. You mentioned privacy concerns that
24 patients had about having a human photographer in
25 the room taking these photographs when they were

1 unclothed. You also talked about human
2 photographers being inconsistent and the speed with
3 which they could effect the photos that they needed
4 to take were not as fast as you were intent upon
5 taking those photos for these purposes.

6 So in terms of the speed of a human
7 photographer and solutions to that speed problem,
8 would it be fair to say that the speed and
9 inconsistency of a human photographer could be
10 addressed by taking the human element out of the
11 equation and automating the process?

12 MR. GIARRATANA: Objection to the form.

13 A. So the question was: Is --

14 BY MR. DUSTON:

15 Q. Let me -- I'll tell you what, Doctor. I'm
16 going to withdraw the question.

17 Earlier you mentioned robotic arms as one
18 of the solutions that you considered.

19 A. Correct.

20 Q. What is the advantage of a robotic arm
21 over a human photographer?

22 MR. GIARRATANA: Objection to form.

23 A. The precision of positioning. One can
24 code in the exact XYZ position and PTZ data and
25 tilt-zoom data.

1 THE COURT REPORTER: PTZ data and?

2 A. And, you know, XY position. So you can
3 put the camera where you want and have it capture as
4 you want.

5 (A discussion was held off the record.)

6 A. You were saying the robotic arm, XYZ, PTZ.
7 BY MR. DUSTON:

8 Q. So would you agree with me that the use of
9 robotic mechanisms like that are generally
10 understood as a solution to the human error that's
11 introduced by having a human perform whatever task
12 the robot is tasked to do?

13 MR. GIARRATANA: Objection to the form.

14 A. Can you be more --

15 BY MR. DUSTON:

16 Q. Yeah.

17 A. -- accurate in the way you communicate?
18 This is very hypothetical.

19 Q. Yeah.

20 A. And kind of --

21 Q. So what I'm trying to understand is
22 there's a human component that's causing issues with
23 respect to photography in this area --

24 A. Sure.

25 Q. -- a variety of them we've identified with

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

190

1 you. One of your initial thoughts was to automate
2 that process using a robotic mechanism.

3 MR. GIARRATANA: Objection to the form.

4 A. Uh-huh.

5 BY MR. DUSTON:

6 Q. Would you agree with me that that is a
7 well-understood, well-known solution to the kinds of
8 problems that are created by human operators --

9 MR. GIARRATANA: Objection --

10 BY MR. DUSTON:

11 Q. -- like in this particular instance?

12 MR. GIARRATANA: Objection, form.

13 BY MR. DUSTON:

14 Q. It's not a situation where you decided to
15 adapt roboticism in a way that was completely --
16 completely misunderstood, completely new and novel?

17 MR. GIARRATANA: Objection, form.

18 A. I think the analogy is interesting, but I
19 think that it's -- you know, kind of the question
20 is -- it's very tangential to what we're talking
21 about and I really -- I don't want to launch into a
22 whole communication about the shortcomings of
23 robotic arms. I don't think I'm here to do that.

24 BY MR. DUSTON:

25 Q. So replacing the human operator with

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

191

1 something that is mechanical or automated is one way
2 that people well understood was a way to address
3 problems of human error.

4 Is that a fair statement?

5 MR. GIARRATANA: Objection, form, outside
6 the scope.

7 A. The -- I think, you know, this solution
8 I've come up with is a solution which promotes
9 productivity.

10 BY MR. DUSTON:

11 Q. And robots have been used historically to
12 increase productivity, fair?

13 A. Again, I don't see the relevance.

14 Q. Do you disagree with my statement?

15 MR. GIARRATANA: Objection, form, outside
16 the scope.

17 A. I don't disagree with it, but I -- it's
18 misleading.

19 BY MR. DUSTON:

20 Q. We also talked about the privacy concerns
21 that a human photographer creates for patients who
22 are uncomfortable being put in various positions and
23 photographed with another individual stranger in the
24 room, correct?

25 A. We did talk about that. And that is a

1 major concern. Would you want your young -- your
2 daughter to have an examination by a photographer
3 who's maybe examining her in way that might be
4 objectionable to you and to her?

5 Q. So privacy was one of your goals in coming
6 up with a solution for this issue?

7 A. Protecting people on many levels is the
8 goal of this project.

9 Q. Okay. So, I mean, there are -- I'm sure
10 you've been involved in situations where someone is
11 going to need to disrobe or expose themselves in
12 some uncomfortable way.

13 A. All the time. I'm a physician.

14 Q. And is one of the solutions that you
15 generally use in that circumstance to give them a
16 private area to do that, if they're changing into
17 something?

18 MR. GIARRATANA: Objection, form, outside
19 the scope.

20 A. The -- we often offer people privacy, a
21 bathroom.

22 BY MR. DUSTON:

23 Q. A booth?

24 A. An area where they won't be exposed to --
25 interest.

1 Q. Some form of enclosure in which they
2 themselves can be alone; is that right?

3 MR. GIARRATANA: Objection, form.

4 A. So the ideal place to do something which
5 you find uncomfortable to do in public is in
6 private, in general, yes.

7 BY MR. DUSTON:

8 Q. And privacy can be offered by a room or a
9 booth or enclosure or some other area that a person
10 could be alone in?

11 MR. GIARRATANA: Objection, form.

12 BY MR. DUSTON:

13 Q. Is that correct?

14 A. Also you can eliminate stray radiation,
15 stray lighting, ambient effects of noise and other
16 chemical disturbances that could invade a location.
17 And so, you know, structures have other values aside
18 from pure privacy issues.

19 Q. Got it.

20 You didn't invent any of those particular
21 benefits of structures. Those benefits as
22 structures were understood at the time of your
23 invention; is that fair?

24 MR. GIARRATANA: Objection to the form.

25 A. As the son of a civil engineer who's built

1 many buildings and houses and the descendant of cave
2 dwellers, I fail to see the relevance of the
3 question.

4 BY MR. DUSTON:

5 Q. You don't disagree with my statement,
6 though?

7 MR. GIARRATANA: Same objection.

8 A. Did I not invent caves? No, I didn't
9 invent caves.

10 BY MR. DUSTON:

11 Q. Or other enclosures for these types of
12 purposes?

13 MR. GIARRATANA: Same objection, form.

14 A. I didn't say for these types of purposes.
15 I only said I didn't invent caves. So don't shove
16 another statement in my statement. You're
17 compounding my statements.

18 BY MR. DUSTON:

19 Q. All right.

20 A. And that's an unfair use of the language.

21 Q. I don't mean to be unfair, sir. But
22 the --

23 A. Well --

24 Q. But a cave is an enclosure.

25 We can agree on that?

1 A. It's one enclosure, one type.

2 Q. And a cave has the benefits that we just
3 described for enclosures that allow someone to be --

4 A. Bare.

5 Q. -- alone, bare.

6 It also has the benefits of restricting
7 stray light, radiation, other things that might
8 intrude into whatever is happening in the cave; is
9 that right?

10 MR. GIARRATANA: Objection to the form,
11 outside the scope, relevance.

12 A. There's a -- there's a -- there's a
13 similarity of concavity to a cave, yeah. Whether it
14 be a concave structure or a concave enclosure, this
15 is very similar concept.

16 BY MR. DUSTON:

17 Q. Okay. And are there any of the benefits
18 that we've just mentioned that aren't present in
19 enclosures like caves?

20 MR. GIARRATANA: Objection, form, outside
21 the scope.

22 A. We're very abstract at this point. Can
23 you be more concrete?

24 BY MR. DUSTON:

25 Q. Well, I was hoping we wouldn't have a lot

1 of disagreement on this.

2 A. I thought we were very bad with talking
3 about my medical practice and abscesses and things,
4 but this is getting a little kind of cloudy. I feel
5 like you're asking me to tell you what the weather
6 is going to be like tomorrow --

7 Q. I'd be interested in that.

8 A. -- which is pretty abstruse.

9 THE WITNESS: You didn't write that down?

10 THE COURT REPORTER: I sure did.

11 (A discussion was held off the record.)

12 BY MR. DUSTON:

13 Q. Is movement a concern for your device?

14 MR. GIARRATANA: Objection, form.

15 A. Pseudo-synchronous capture provides [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 BY MR. DUSTON:

19 [REDACTED]

20 [REDACTED]

21 MR. GIARRATANA: Objection to form.

22 A. If people are completely incompetent with
23 respect to standing or even if they're in a
24 wheelchair, incompetent to, you know, stay still or
25 they have some kind of falling disorder preventing

1 balance, safety issues become of concern when people
2 are -- when you're asking someone to stand, you may
3 be asking too much. Some people are too disabled to
4 provide for proper posture.

5 BY MR. DUSTON:

6 Q. What about an able-bodied person who
7 doesn't have those problems, [REDACTED]

8 [REDACTED]
9 A. Young, committed people who have the
10 purpose of wanting to be scanned for the purpose of
11 detecting cancer early are the best subjects for
12 reproducibility. So, in that context, it's a good
13 thing.

14 Q. So would those individuals that you just
15 described be -- would the pseudo-simultaneous
16 capture of the images be less important or less
17 relevant for the young, committed people that you
18 just described?

19 MR. GIARRATANA: Objection to form.

20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]
24 [REDACTED]
25 [REDACTED] without

1 blowing the bank on the equipment costs, which can
2 be excessive, like, hundreds and hundreds of
3 thousands of dollars, to amp up the system that
4 could be done much more elegantly with lower costs
5 such as this system can.

6 BY MR. DUSTON:

7 [REDACTED]
8 [REDACTED]
9 [REDACTED]

10 A. No, I'm saying that you can push the limit
11 technically and make unaffordable systems, and yet
12 that doesn't necessarily yield tremendous health
13 benefit, because it becomes inaccessible to the
14 masses.

15 [REDACTED]
16 [REDACTED]

17 MR. GIARRATANA: Objection to form.

18 [REDACTED]
19 [REDACTED] [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]

24 BY MR. DUSTON:

25 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]

5 MR. GIARRATANA: Objection, form.

6 [REDACTED]
7 [REDACTED]
8 [REDACTED] [REDACTED]
9 [REDACTED] [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]

13 BY MR. DUSTON:

14 Q. Do you have a sense of at what point in
15 terms of slowness between image acquisition you
16 would begin to see an effect?

17 MR. GIARRATANA: Objection, form.

18 A. People -- there are published studies on
19 that. And people have -- [REDACTED]

20 [REDACTED]

21 BY MR. DUSTON:

22 Q. I guess I'm just trying to get a sense of
23 kind of where you would start to become concerned if
24 the images were being acquired during this period of
25 time versus another period of time.

1 At what point would you start to worry
2 that the effects of the time it takes to acquire the
3 images would impact negatively the results of your
4 system?

5 MR. GIARRATANA: Objection, form, outside
6 the scope.

7 BY MR. DUSTON:

8 Q. Have you formed any belief on that?

9 MR. GIARRATANA: Same objections.

10 [REDACTED]
11 [REDACTED] There
12 are published thresholds for pseudo-synchronous
13 imaging. All imaging is pseudo-synchronous. There
14 is no such thing as instantaneous anything. As I've
15 said, there's no perfect -- in the world, everything
16 is within a tolerance of error. Margin -- error
17 margins are what are the difference between
18 intention and action. And there's always a gap,
19 even in hearings like this.

20 BY MR. DUSTON:

21 Q. But the concern would be with a change of
22 posture, so the ideal is to have the image
23 acquisition occur at a speed that would minimize the
24 potential for a change in posture?

25 MR. GIARRATANA: Objection, form, outside

1 the scope.

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 BY MR. DUSTON:

8 Q. Assuming a change in posture during the
9 image acquisition in your device, what's the
10 consequence of such a change in posture?

11 A. We have seen people who are malpositioned,
12 they have clothing on when they shouldn't, and they
13 have misstepped. They're non compos mentis. They
14 may be confused and, therefore, they're walking
15 around. So we would be forced to reimage them
16 potentially. They got confusion in direction. They
17 didn't stand or -- in the right place. They didn't
18 adopt appropriate postures. They were -- so there's
19 a fraction of the population for whom the studies we
20 talked about is not appropriate, people who can't --
21 who are weak on balance and are not in a wheelchair.
22 There's people who -- we do our best to accommodate
23 the widest range of population possible. We've
24 scanned people with wheelchairs, people in walkers,
25 people who -- you know, there are a lot of young,

1 viable people who are stuck in wheelchairs and are
2 depending on crutches and they don't want us to feel
3 we've abandoned them.

4 Q. Okay.

5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]

10 MR. DUSTON: I'm going pass the witness.

11 MR. GIARRATANA: We don't have any
12 redirect.

13 I would like to, under the protective
14 order, preliminarily designate the entirety of
15 the testimony and all transcriptions thereof as
16 confidential pending further review within ten
17 days of receipt under the protective order.

18 MR. DUSTON: Could I ask for a favor,
19 since we're so pressed for time in terms of the
20 reply? And I didn't really hear too much that
21 seemed to ultimately reveal confidential
22 information. It sounded to me like it might
23 have been a question or two. Could you
24 possibly get back to me very quickly with what
25 of the transcript I'm able to share with

1 Canfield?

2 THE WITNESS: Including your notes.

3 MR. DUSTON: I understand. The protective
4 order would apply to anything --

5 THE WITNESS: Thank you.

6 MR. DUSTON: -- I wrote down as well as
7 anything you've said.

8 THE WITNESS: Okay.

9 MR. DUSTON: But my sense is that there
10 was such a limited amount that even conceivably
11 falls into this category, to, you know, tag the
12 entire deposition for ten days, given that I
13 think our reply is due probably in that --
14 right about that time --

15 MR. GIARRATANA: Yeah, I think it will --
16 I mean, we're not going to be -- I'm not going
17 to be paying for an expedited transcript.

18 MR. DUSTON: No, no. We're asking for it.
19 So you can definitely tag along with
20 whatever -- I mean, I think I pay the expedited
21 fee, for the most part. And then you get a
22 copy when I get a copy.

23 MR. GIARRATANA: If that's how it works,
24 but my client is not going to pay for an
25 expedited transcript.

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

204

1 So let me put it this way, Tom: We will
2 do what we can, within reason, to accommodate
3 your request and we can talk after the
4 deposition.

5 MR. DUSTON: Fair enough. That's all I
6 can ask. Thanks, Mark.

7 Doctor, I appreciate your time. I'm sorry
8 that -- I'm glad we got it done today, though,
9 so that you can --

10 THE WITNESS: Yeah. Glad we did. Thank
11 you very much.

12 MR. GIARRATANA: We're going to want to
13 sign and do the errata. And so send that to
14 me. And the witness will review and sign. And
15 if Tom ordered expedited, I don't want to pay
16 for expedited. But you can send me the
17 expedited, if you're willing to do that,
18 because he's paying for it. I would like it by
19 email, full page, Etran.

20 (Deposition continues - Next page)

21
22
23
24
25

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

205

1 MR. DUSTON: Thank you.

2 THE COURT REPORTER: How quickly will you
3 need transcript?

4 MR. DUSTON: Monday delivery.

5
6 (Time noted: 5:13 p.m.)

7

8

9 DR. RHETT DRUGGE

10 Subscribed and sworn to
11 before me this day
12 of 2018.

13

14

15

16

17

18

19

20

21

22

23

24

25

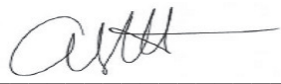
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

CERTIFICATE

STATE OF CONNECTICUT

I, ANGELA M. SHAW-CROCKETT, Notary Public, duly
commissioned and qualified in and for the States of
New York, New Jersey and Connecticut, before whom the
foregoing deposition was taken, do hereby certify that the
witness whose testimony appears in the foregoing deposition
was duly sworn by me; that the testimony of said witness
was taken by me to the best of my ability and
thereafter reduced to typewriting under my direction;
that I am neither counsel for, related to, nor
employed by any of the parties for the action in
which this deposition was taken, and further that I
am not a relative or employee of any attorney or
counsel employed by the parties thereto, nor
financially or otherwise interested in the outcome of
the action. The witness will read and sign.

IN WITNESS THEREOF, I have hereunto set my
hand this 24th day of September, 2018.



Angela M. Shaw-Crockett, Notary Public

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

1

A			
A-D-I-P-O-S-I-T-Y	22:10 67:23	activity	advantages
67:14	accepted	45:10	83:25
a.m	64:25 91:3	acts	advice
2:13 4:16	access	78:16 88:25	28:11 177:17 178:3
AB	162:23	actual	affect
41:20,23	accessed	72:16 86:3 90:23	6:5 165:19,20 166:4
abandoned	15:24	104:18	167:19
202:3	accommodate	adapt	afternoon
abdomen	201:22 204:2	190:15	32:5 177:3
82:17	accomplishments	add	aggregation
abdominal	40:18	98:10 185:25 186:1	46:4
82:6	accountant	adding	aging
ability	178:18	100:17	164:8 165:20
6:5,10 57:5 80:5	accumulate	additional	ago
123:16 162:8 164:13	166:14	120:23	8:11 13:3 25:25 26:23
206:10	accuracy	address	99:1 105:20 107:10
able	99:15 124:18	5:8,9,11 154:17 155:9	112:20 155:12
39:12 56:2 57:23	accurate	157:22 177:5 191:2	174:22
61:21 62:19 81:20,24	34:4 44:21 47:5 138:8	addressed	agree
100:4,5,11 105:21	145:12 189:17	27:5 156:8 188:10	55:23 66:9 131:23
113:7 114:14 152:13	accurately	adequate	146:3 189:8 190:6
152:21 156:4 202:25	31:25 48:8 71:14	53:5	194:25
able-bodied	achieve	adiposity	ahead
197:6	61:4 81:10 139:16	67:13,14	20:2 28:5 35:10 39:3
abscess	146:25 185:13	adjust	41:4 62:19 69:9
168:8,10,14	achieving	105:21	93:24 127:6 151:9
abscesses	147:1	adjusted	aided
167:19,19,21 168:1	acid	72:4	81:21
196:3	166:19	adjustment	ailments
absence	acquire	74:15,18 116:11	184:18,20
64:14	54:24 57:12 200:2	adjustments	air
absolute	acquired	75:7 109:19 115:6	102:22 105:1
87:18 91:1 94:25 95:3	99:5 199:24	Administration	akin
126:4	acquisition	44:16 134:24 138:8	92:9
absolutely	158:22 199:15 200:23	142:3	albums
59:15 99:16	201:9	admit	126:24
absolved	acronym	82:9	alert
153:23	52:21	adopt	6:9,15
abstract	act	55:16 128:9 201:18	algorithm
16:4,5 45:2 195:22	141:18	adopting	97:9
abstruse	action	128:14	aligned
196:8	59:11 200:18 206:13	advancement	106:23
accept	206:18	97:13	alignment
	activities	advantage	74:19,20 75:3 79:23
	150:21	188:20	allow

23:1 25:5,20 29:3,17 32:3,6 148:5 154:15 155:1 167:3 174:14 195:3 allowed 37:11 38:12 45:6 allows 115:5 162:15 alluding 98:17 alter 19:18 20:7,23 21:16 126:18 altering 29:25 ambient 193:15 amount 15:22 31:10 59:15 84:11 102:15 137:16 145:1 152:11 203:10 amp 198:3 analogy 190:18 analyses 164:4 analysis 4:12 122:17 142:24 164:21 166:10 analytical 164:24 165:1 analytics 150:22 Angela 1:24 2:19 206:4,23 Angie 5:19 6:20,22 53:10 123:6 angles 81:19,23 128:22 134:8 135:8 162:20 163:7 164:4 animate 162:14	annotate 70:23 annotation 15:1 annual 45:3 answer 5:22,24 6:18 9:13 10:18 11:18 14:24 17:18 19:14 20:2,21 21:14 23:18 24:1,24 25:10,22 28:5,21 29:6,25 32:8 35:24 37:19 52:19 53:11,15 53:16 55:18 56:22 59:5,7 66:19 89:14 93:22 107:24 108:10 108:25 118:7,9 138:13 148:10 160:18 167:4 175:8 176:21 177:16,20,23 177:24 185:7 201:5 answered 24:23 25:11 28:8 35:6 37:23,24 108:11 148:12 answering 76:16 169:23 answers 5:18 20:21 110:23 160:21 antecedents 53:5 anus 64:19 anybody 64:7 anyway 10:18 14:6 Apologies 8:4 23:14 apologize 94:7 Apparel 4:14	apparently 112:13 APPEAL 1:3 appear 16:12,17 23:17 93:14 131:11 160:7 appearance 85:13 99:5 appearances 131:25 appears 23:8 74:1 174:22 206:8 apples 135:4 application 21:6 61:15 92:7 100:12 144:5 171:24 applications 10:1 150:3 apply 203:4 appreciate 95:8 123:4 133:8 168:3 173:6 204:7 approach 136:19 152:15 199:10 appropriate 72:9 130:2 171:17 201:18,20 appropriately 75:6 approximately 15:23 40:9 approximation 148:14 archival 150:23 area 66:7 77:17 87:1 93:17 96:20,24 97:23 145:2 183:4,17 189:23 192:16,24 193:9 areas	16:3 66:13,22 183:15 argument 33:25 143:19 arguments 39:13 40:10 arm 146:19 188:20 189:6 arms 188:17 190:23 array 58:8 62:23 63:3 76:2,2 77:19 79:15,19,21 84:8 145:13 163:5 172:4 arrays 62:18 150:4 arrive 85:21,22 88:6 89:23 92:23 115:7 arrived 90:21 184:8 art 39:14 62:15 122:1 139:12 164:23 article 18:21 20:6,14 152:5 154:9 159:12,18 articles 18:20 articulated 109:17 artist 130:20 131:2 artistic 135:25 ascertain 24:11 27:23 aside 11:7,25 193:17 asked 14:9 28:7 56:24 140:16 asking 5:17 14:13,20 29:8,10 34:8,20 47:13 55:18
---	---	--	---

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

3

56:10 59:4,5 73:4 74:16 94:1 103:19 108:13 109:15 111:21 112:8,10,11 118:8 145:25 146:2 147:16,17 177:21 186:7,8 196:5 197:2 197:3 203:18	206:15 attorney's 180:15 attorney-client-privi... 7:11 14:1 34:24 Attorneys 3:3,9 ATTORNEYS' 1:11 August 42:16 Australia 120:14 179:16 authenticate 154:21 authentication 182:18 authored 26:22 autodiagnosing 138:20 autodiagnostic 138:21 automate 190:1 automated 146:20 191:1 automatic 165:2 automating 188:11 automation 108:3 129:3 available 97:13 133:14 143:15 152:16 158:4 159:9 159:25 171:23 Avedon 134:19 142:12 average 89:2,5 99:20 100:10 122:19 129:23 137:19 averaged 88:14	avoid 111:24 155:5 aware 17:17 32:12 127:1 129:8,16 159:21,24 awry 75:23 89:4 <hr/> B <hr/> back 11:23 12:17,18 31:22 36:18 37:1,12,12 57:16 63:20 64:2 67:1,7,12 69:3 74:20 75:3 79:10 95:5 99:3 123:6,7,10 143:9 162:25 164:22,23 170:23 172:11 185:3 202:24 background 5:15 40:15,17 97:17 backward-facing 68:18 backwards 7:18 75:20 bad 196:2 balance 197:1 201:21 bank 198:1 bare 195:4,5 bars 96:2 base 163:20 based 19:17 88:22 100:21 109:20 117:9 158:8 Baseline 85:10 basically 41:6,11 78:3 123:24 basis	27:15 98:12 123:1 139:24 152:10 202:8 bathroom 36:5 52:15 110:13 192:21 bear 174:22 begins 121:2 beholder 97:25 beings 65:21 belief 38:20 200:8 believe 14:2,7,17 18:12,22 25:8,17 39:8 47:25 49:25 84:24 85:6 92:17,19,20 111:18 128:12 130:7,13 154:14 170:8 178:12 178:17 believes 56:25 belly 69:5 82:3,5,14,15,19 benefit 179:15 198:13 benefits 193:21,21 195:2,6,17 Berkowitz 183:2,2 Berners-Lee 152:20 best 65:3 148:14 153:18 172:24 183:9 197:11 201:22 206:10 better 34:5 61:3 94:4 144:13 172:22 185:11 197:21 betterment 151:3
--	--	--	--

beyond 22:11 35:1 41:8 105:8 182:5	161:17,20,24 162:15 162:22 164:2,15 182:3	147:5,13 148:13 193:25	79:11 80:8 82:4,14 82:18 83:5,9,11,14 83:18,22 84:2,3,7,8,9 84:12 101:25 102:18 104:2,7,18,23,25 105:19 106:14 107:17,18 109:22 114:22 115:15 132:23 143:22 145:13 146:6,20 149:24 150:4 162:21 163:5,20,21 171:7,13 189:3 199:2,3
big 53:6 184:10	body's 64:22	bulbs 62:5	camera's 106:16 107:4
biopsies 100:20 139:20,21	bomb 92:10	bulbus 102:13	cameras 44:18 58:9 59:22 60:4 60:22 61:10,19 62:19 71:6 72:4,19 74:3 75:5,25 76:4,5,8,10 76:14,18,18,22 77:4 77:16,21,24 78:19 79:15,22 80:18 81:2 81:11,11,15,16,20,21 81:22 82:1,10,25 83:17 84:13 101:10 101:12 102:21,24 103:3,16 104:1,15 105:8,10,12,19 107:11 109:19 114:18 115:3 125:24 142:4 143:21 144:25 145:1 150:2,15 163:2 163:6,15 170:19,24 171:1,17
biopsy 93:8 100:13,15 139:15 182:16,18	booth 192:23 193:9	bumped 73:10	cancer 52:20 88:21,23 98:6 98:12 120:14,20 123:13 135:18 138:24 139:15 144:14 145:18,20 165:16 197:11
biopsying 139:19	borne 122:23	burden 67:17	cancers
bit 5:15 13:20 18:25 40:15 99:2,3 103:3 173:16,19 178:5	BORUN 3:2	business 5:9 27:15 28:9 180:7,8	
bits 13:19,22	bottom 83:10 84:9 107:18 134:5,14 162:6	businesses 63:11	
blah 11:23,23,23	bow 70:19	<hr/> C <hr/>	
blink 60:16	break 111:6 117:16 118:3 154:4 178:22	C 3:1	
blinking 60:17 198:21	breasts 67:18 69:5	CAD 161:19,23	
blood 166:19	brief 30:24 31:5,6	calculate 101:22	
blowing 198:1	bright 166:11	calculation 115:7	
board 1:3 154:17 155:6,9 176:3 177:4,6	brightly 166:13	calibrate 71:22	
bodies 164:23	bring 74:19 75:2 164:22 168:9 169:25	calibrated 73:12 103:13,15,17	
body 4:14,16 20:14 62:15 62:17 63:4 64:12 65:25 66:8,22 67:13 67:21 69:20,24 75:19 76:25 77:3,11,17 78:24 79:10 80:6 83:10,19 84:12 89:4 91:1 103:22,24 104:24 105:2,7 135:14,17,19 141:25 150:24 152:5 161:16	bringing 155:5	calibration 58:8 72:1,23,23 73:7 73:11,14,16 75:16 92:7	
	brings 93:11	California 179:17	
	broad 2:17 129:15 185:12	call 89:1 102:20 165:10 177:6	
	broad-ranging 149:14,21	called 5:2 11:22 44:11 45:5,9 86:14	
	budget 143:16 144:17	camera 44:5,6 59:21 60:8,9,10 60:11 61:3 62:7 69:10 73:16,21 76:17 78:6,7,20,21,25	
	buildings 194:1		
	built		

67:11 99:18 118:21 120:3,7,21 121:9,15 123:16 125:11 139:14 candida 100:23 candidate 89:10 Canfield 1:5 10:20 17:21 203:1 Canterbury 2:17 capable 109:14 capacity 37:14 126:1 138:19 152:11 capture 46:5 57:18 58:7 60:6 60:14,24 63:4 72:21 72:22 75:16 78:4 137:16 143:17,18 144:4 162:9,14 172:17 173:1 189:3 196:15 197:16 captured 57:20 75:15 115:3 197:21 captures 162:19 172:12 carcinomas 120:22,23 care 45:22 82:8 100:19 144:13 153:16,18,19 167:15 care-delivery 134:2 carefully 93:12 139:25 case 1:14 22:9 26:22 29:12 30:11 55:17,24 56:1 78:6 94:6 105:1 182:17	cases 45:8 153:1,15 179:14 category 203:11 cathedral 130:22 caught 103:1 cause 64:8,9 67:18 99:21 120:13 124:19 136:2 causes 64:10 67:19 causing 189:22 cave 194:1,24 195:2,8,13 caves 194:8,9,15 195:19 CCR 1:24 ceiling 79:17 cell 120:22,22 cells 42:25 43:19 center 47:1,2 70:20 87:8 105:4 centerline 70:10,25 71:1,10,15,19 centimeter 65:15 certain 32:7 49:3 66:13 73:21 83:4 95:7 102:23 109:19,20 115:5 135:14 185:10 186:10 certainly 12:14 95:10 150:5 168:23 170:11 certainty 114:6	CERTIFICATE 206:1 Certified 2:19,20,20 certify 206:7 chair 45:8 chairman 43:5 challenge 134:3 137:2 challenges 67:21 132:4 156:8 challenging 67:11 chance 149:5 change 20:23 21:16 25:10 69:21 83:22 85:12 95:5 96:17,23 97:25 99:16 100:12,21 120:7 139:8 140:17 140:17,25 141:12 168:11,18,20,21,23 168:24 199:1 200:21 200:24 201:8,10 changed 120:6 changes 89:20 90:15 94:25 95:2 127:24 130:21 139:4,9 140:7 167:21 169:7 197:23 202:6 changing 88:18 192:16 characteristics 88:23 charge-coupled 78:7 cheaper 198:8 check 55:15,21 178:19	checked 55:20 cheeks 64:18 chemical 193:16 chemistry 42:11 chest 197:23 Chicago 3:4 chin 70:20 circle 61:7 96:20 circles 169:4 circumferencely 162:22 circumstance 192:15 circumstances 83:4 127:20,23 CityPlace 3:9 civil 193:25 claiming 132:18 claims 16:11,17 109:13 clarification 5:23 124:5,8 clarified 123:20 clarify 9:16 111:15 class 40:22 41:2 classification 47:23 classifiers 165:2 clause
---	---	---	--

124:4	98:3 130:4 179:7,10	26:24	97:15 100:4 103:22
clear	179:14,22 180:2,11	communicate	186:18 189:22
50:8 51:14 54:1 150:1	collecting	26:4 189:17	components
clearly	182:5	communicated	108:3
57:21 169:2	collection	34:11 35:4	compos
client	165:5	communication	201:13
55:6,15,21 56:18	collects	10:4 14:5 27:16,18	compounding
203:24	162:18	30:18,20,21 31:2,12	100:18 194:17
CliffNotes	College	34:21 190:22	comprehensive
41:5	42:16 182:23	communications	40:11 182:13
clinic	color	7:9 8:18,21 9:11,17	comprehensively
169:9	168:22	10:7 14:1 26:1 27:24	80:6
clinical	Columbus	34:16,24 35:4,14	compressing
46:25 88:20	183:3	community	143:18
clinically	column	45:9	compromising
62:22	16:8,22	comparable	187:21
clinics	comb-over	84:25	computer
134:23 142:6	64:10	comparative	88:1,8
close	come	140:3	Computing
61:4 98:4	25:3 26:1 86:2 95:9	compare	94:3
close-range	97:17 120:10 128:4	137:4	concave
149:17 150:17 165:6	132:16 134:19 172:8	compared	195:14,14
closed	179:16 191:8	18:2 46:4 166:11	concavity
64:17,18,21	comes	comparing	195:13
closely	62:16 98:22	130:7 139:2	conceivably
39:12	comfortable	comparison	81:15 203:10
closer	108:8 186:24	127:18 139:3	conceive
40:8	coming	comparisons	144:7
closure	31:22 113:22 192:5	127:11	concept
64:8,9,10	comment	complemented	98:11 119:24 195:15
clothing	15:16 66:17	81:25	concern
161:21 201:12	commercially	complete	10:12,14,20 192:1
cloudy	159:25	64:14 172:16 199:1	196:13 197:1,7
196:4	commissioned	completed	200:21
coach	206:5	41:7	concerned
108:21	committed	completely	10:9 199:23
coaching	197:9,17	82:24 154:18 175:10	concerning
108:23	common	175:14 190:15,16,16	35:15
code	23:13 43:7 120:13	196:22	concerns
15:9,10 188:24	163:15	complexity	187:23 191:20
cogent	commonly	45:24 74:24	concludes
40:11	16:6 91:3	complies	121:8
colleague	commonplace	48:18 118:17 127:7	conclusion
180:19	145:7	174:2	23:4
colleagues	communi	component	conclusions

conclusions 116:17	consequence 67:24 199:3 201:10	182:2	125:11 127:11,16,22
concrete 195:23	consequences 199:7	control 61:21 102:8,9,17	132:15 134:10
condi- 133:20	consider 47:16 70:9 148:22	104:22 105:23 106:6	135:12 136:15
conditions 130:16 133:15,20	155:4	106:15 107:3,12,19	139:12 140:12
134:1 136:24 142:17	consideration 147:11	107:21,23 109:21	151:18,19 155:21
158:5 170:8 185:9	considered 160:25 188:18	112:19,24 113:5	156:2 160:14 161:8
conducting 117:6	constant 72:1	115:2,4,21,23 116:11	161:18 188:19
conduit 142:17	constraints 38:2 133:18	116:15,19,24 117:2	191:24 193:13
conference 142:21	constructed 147:7,12	117:10	corrected 18:23
conferencing 45:25,25	consuming 46:1	convenient 153:8	correctly 78:12 89:15 115:9
confidential 1:10,11 55:5 56:3,9,19	contact 181:8	conversation 7:23 10:14 11:12	132:24 162:11
56:23 57:1,3 60:2	contains 184:15	31:14,17,23 33:16,20	cost 45:22 63:5 100:6,14
111:16 180:15	contents 23:2	35:2 60:3 79:13	100:19 129:1 133:7
202:16,21	context 13:19 44:10 68:12	110:24 169:12 180:6	143:17 144:16
configuration 153:6	94:1 95:6 97:20	conversational 22:7	cost-benefit 142:24
confirm 12:23	112:16 125:9 134:1	conversations 10:20 22:4 23:20	costing 151:5
confused 201:14	142:13 143:5 144:18	118:4	costs 198:1,4
confusing 79:13	150:14 156:4 186:23	coordinates 102:10	counsel 7:10,22 8:22 9:11
confusion 23:14 113:11,16	187:6 197:12	copied 27:6	11:14 12:10 14:3,10
201:16	continue 41:24 42:13 72:6	copy 4:11 13:2 24:6 41:13	14:17,19,21 28:11
conjured 135:25	157:10	203:22,22	30:18 31:2,12,17
connect 46:3	continued 42:23 118:1	corner 51:25	33:17 34:17,19,21
Connecticut 1:19 2:18,23 3:10 5:10	continues 136:2 204:20	correct 9:9 12:25 14:22 15:9	35:3 111:9 118:4
5:12 15:10,11 43:24	continuing 108:9	18:4 19:19 20:7	185:4 206:12,16
206:2,6	contour 167:20,21 168:11,18	24:21 37:16,24 49:1	counsel's 176:23
connection 12:4 29:12 52:10	168:21	49:4 50:25 51:21	country 43:12
116:9 171:7,13	contributing	60:12 68:20 71:4	couple 169:15
		74:4 78:2,8 79:1,17	course 23:21 26:3 43:20 99:8
		80:9,10,24 82:20	117:1 138:1 143:23
		84:17,20 87:9 89:15	149:11 159:5,7
		91:8,24 93:14 101:13	172:15
		101:18 104:15,24	coursework 44:4
		105:8,12 106:3,6	court
		107:4,13 114:7	
		124:13,16,17 125:7	

2:19 4:21 18:25 36:3 37:17 49:11,15,18 150:20 163:17 187:12 189:1 196:10 205:2 cover 26:18 33:23 80:5 177:8 covered 87:24 Crampton 21:6 152:6 154:13 create 62:19 114:5 144:19 created 58:25 136:19 190:8 creates 163:24 164:7 191:21 creating 172:16 creation 17:24 criteria 171:21 critical 99:16 crosshatches 92:10 CRR 1:24 crutches 202:2 CSR 1:24 cumbersome 46:6 Cupid's 70:19 cure 45:20 current 9:25 43:5 curriculum 10:25 cursorily	22:8 cursor 39:18 curved 82:2 cut 90:13 93:8 98:8 169:14 174:15 cutting 98:8 CV 9:5 26:4 41:9,12 125:23 Cyberware 159:21 160:5 161:1,14 161:22 cyberware.com 160:2 cycle 95:18 cycles 173:1 cyclorama 150:6,9 cyclosporin 43:2,8 <hr/> D <hr/> D 3:11 5:1,1 D-A-A-N-E-N 20:14 Daanen 4:16 20:13 152:5 154:9,13 159:12,18 Dakota 183:4 Daniel 4:20 21:25 Darien 5:11 dark 169:4 data 99:19 119:3 120:24	139:13 162:18 164:22 165:5 175:1 182:3,5,12 188:24,25 189:1 database 164:9 date 18:9 22:5,22 23:13 29:23 39:7,8 45:19 51:12 89:19 125:15 132:7 137:24 165:14 dated 39:6 daughter 192:2 day 133:24 137:2 145:14 178:5 205:11 206:20 day-to-day 202:8 daylight 130:21 177:8 days 8:11 55:19 144:2 202:17 203:12 DCS2000 44:5 de 4:16 deadly 46:22 101:2 deal 35:11 137:1 dealing 184:2 187:2 death 120:14 136:2 144:14 145:18,19,20 153:25 deaths 120:21 153:20 decade 99:20 decades 123:11,19 126:23 150:24	decide 88:21 decided 148:8 190:14 decision 81:1 88:22,24 decla- 25:9 declaration 4:19,20 8:14,15 10:23 12:7,9 17:14,20,25 18:2,18,22 19:13,19 20:8,19,24 21:13,17 21:25 22:16,23 26:21 27:25 32:4,14 33:10 39:22 48:11,17 50:9 54:12 57:17 59:21 60:6 80:14 84:14 109:10 118:15,16 126:14 133:13 136:10 154:19 155:4 155:15,25 156:21 159:3 162:1,4 174:21 176:7 178:10 179:7 180:10 declared 15:7 80:4 186:17 declares 127:4 declined 172:17 declining 37:19 decreased 127:2 decreasing 142:23 deep 174:16 deeper 98:6 deeply 25:6 default 75:12 103:25 106:24
---	--	---	--

114:23 defect 54:10 86:17 87:8,19 88:9 89:24 90:24 91:15,16 93:5,18 95:15 96:8 99:4 130:8 141:3 defect's 90:25 defects 93:13,17 109:13 119:11 168:24 183:8 183:22 defensive 115:18 define 153:6 definitely 203:19 definitions 92:21 definitive 17:18 98:16 degree 32:11 39:17 41:6,19 42:19 delay 99:21 121:18 136:3 144:15 153:23,25 delaying 167:15 delivering 11:8 delivery 45:23 100:18 143:1 205:4 demand 63:2 demands 63:8 149:16 demonstrate 155:3 demonstrates 122:18 denominator	163:23 department 43:5 depending 67:13 114:25 142:24 202:2 depends 84:7,11 153:14 depicted 4:6 52:6,25 54:3,25 57:11 61:9 63:18 68:5 161:2 deposed 5:13 deposition 1:18 2:15 6:7 7:5 8:7 13:6,13 14:13 36:17 52:18 117:21 118:5 154:6 179:4 203:12 204:4,20 206:7,8,14 depth 41:2 der 4:20 21:25 22:2,5,23 23:21 25:9 26:10,21 27:7,14,18,25 28:10 28:13,25 29:11,13,22 30:6 31:19 32:12,13 33:10,13 34:12 35:5 35:16 38:21 39:22 173:14 175:2 dermatitis 16:1 dermatofibrosarco... 16:2 dermatologic 136:7 dermatologist 129:23 142:18 143:10 dermatologists 44:20 47:5 126:7 138:8 145:14 168:5 dermatology 43:6,17 45:1,4,6,8 48:1,2 134:22 142:6	145:5 150:16 152:19 164:7 dermatoscopic 94:11,12,14 dermatoscopy 91:23,24 dermoscopol 94:10 dermoscope 91:14,17 dermoscopy 86:8 89:23 90:22 91:24 94:8,9 derogatory 200:11 descendant 194:1 describe 52:11 54:19 68:25 71:23 73:19 described 59:20 60:5 73:7 80:13 83:12 90:19 95:15 138:16 158:17 159:11,17 195:3 197:15,18 describes 175:6 describing 163:5 167:6 description 4:5,10 174:19 175:3 176:13 design 44:16 54:13 61:8 84:20 103:20 142:3 172:9,10 designate 202:14 designed 77:16 171:8 172:4 designer 80:21,23 designs 172:7	desired 103:21,22,22 162:10 despite 65:1,3 detail 59:25 126:5 details 74:22 180:7 detect 49:3 73:17 89:20 113:4 121:16 123:16 145:15 168:20 184:22 detectable 93:10 167:21 183:8 detected 73:13 85:3,4,12 183:9 detecting 84:15 197:11 detection 52:11 62:20 91:6,11 98:20,25 100:10 123:15 125:24 126:1 138:24 140:17 detects 140:17 determination 185:23 determine 25:6 38:17 39:1 101:25 102:3 103:8 106:15 determined 81:1 determines 80:18 determining 97:8,11 develop 112:12 developed 35:5 72:24 78:25 152:20 developing 32:13 149:11 170:17
---	--	---	---

176:18 development 108:1 109:3 deviation 198:21 device 52:20,25 54:3 59:17 59:19 63:14,17,17,18 63:25 65:14 66:1 68:7 70:10 71:22 73:5,9,11,12,20 75:4 76:22 78:5,7,19,20 79:16,17 84:18,19 87:10,14,17 88:25 89:18 92:4,7 93:5,13 95:14,22 97:14 100:5 101:4,8,11,23 102:24 104:1 105:4 107:18 109:14,15,18 112:22 112:24 115:16 116:10 117:7 138:22 138:23 140:2 144:20 145:16,22 156:7 160:5 161:20,22 163:2 170:17,25 172:2,11,13 182:1 185:14 187:10 196:13,20 197:8 201:9 devices 58:17 87:12,16 146:24 147:1 148:13 161:1 diagnose 168:13 169:10 184:22 diagnosed 183:23 diagnoses 129:10 164:16 diagnosis 44:22 99:21 121:18 136:3 138:9 141:19 141:20,23 144:16 153:24 165:15 168:5 168:8,10 170:9,13,15 183:22 184:8	diagnostic 81:7 125:19 126:16 diagnostically 139:11 diagnostician 46:2 dialogue 110:10,14 diameter 87:4 118:23 119:11 120:10 121:9 122:16 125:17 127:2 died 153:21 differ 95:23 difference 142:19 200:17 differences 141:11 different 25:4 32:25 56:11 60:18 68:11,22 76:5 76:10,10,18 85:9 86:6 87:12,16 88:13 99:4 101:10,12 104:14,24 105:18 115:19 127:10,19 128:9,14 130:16 131:5,10,11,25 133:5 137:13 139:3,18 145:6 158:2 163:6,6 164:4 187:16 differentiate 51:6 differently 176:17 differing 130:9 difficult 27:22 98:15 134:21 136:25 137:4 difficulties 144:3 187:18 difficulty	163:1 202:9 digital 44:5 46:5 78:7 144:2,9 144:11 170:19,24 171:1,13 dimension 4:13 87:18 128:8 dimensions 164:13 direct 14:7 24:17 32:22 41:3 57:15 70:23 120:3 147:25 148:20 157:8 171:10 174:12 175:10 directed 137:10 185:15 direction 162:21 201:16 206:11 directions 72:20 202:9 directly 69:9,14 86:6,7 92:7 disabled 197:3 disagree 146:8 177:10 191:14 191:17 194:5 disagreed 40:4 disagreement 196:1 discerned 117:15 discernments 95:10 disclose 60:1 116:6 discoloration 166:21 discovered 122:14 127:3 discrepancy 15:8 163:23 discriminator	100:13 discuss 14:3 discussed 11:24 12:1 14:10,17 14:19,21 27:13 discussing 119:9 123:25 136:22 148:7 discussion 7:1,13 19:2 36:15 67:15 189:5 196:11 discussions 7:12 16:1 28:15 disease 43:14 44:23 45:20 46:22 47:3,22 48:7 120:18 138:9 144:12 165:3,8,15 184:4 diseases 15:24 16:10 168:6 184:20 disorder 196:25 displacement 163:24 display 69:25,25 displayed 39:15 disrobe 192:11 dissimilar 176:15 distance 87:23 101:12,25 103:25 104:2,7,18 106:16,19 109:20,21 114:23 132:7 163:14 163:16,18,19 distances 104:15 131:10 distorted 73:23,24 distribution
--	---	--	--

83:23	documents	47:12	51:21,23 52:14,23
disturbances	8:12 11:1 17:24 18:9	droopy	53:3,10,21 54:7,18
193:16	24:9 26:1 34:2 38:9	65:12	54:23 55:7 56:4,12
diverse	39:15 154:21	drop	56:16,21 57:6,9 58:1
60:20 77:22	doing	100:15	58:11,19 59:3,16
diversity	108:14 144:3 183:16	dropping	61:16 62:9 63:13
81:19,23 83:21	dollars	143:17	64:1,13,24 65:6 66:5
divided	198:3	drug	67:2,22 68:3,15 70:2
163:22	dolor	42:11	70:14 71:13,20 72:8
doctor	168:19,22	Drugge	72:14 73:3,18 74:7
5:7,13 6:23 10:24 12:3	doubt	1:18 2:15 4:19 5:9 8:6	74:12 75:1 76:3,12
17:1 18:25 19:4	177:3	12:8 56:25 118:3	77:1,8,23 78:11,18
27:12,23 29:9 32:2	Dr	149:6 205:9	79:20 80:2,17,22
34:8 39:9 40:14	1:18 2:15 4:20 8:6	due	81:4,9 83:7,15 84:1
51:25 52:3 57:10	22:23 23:21 25:9	61:20 113:17 162:8	85:1 86:1,11,24 87:6
59:4 61:17 70:7,21	26:10,21 27:7,14,25	203:13	88:4 89:13 90:4
89:15 90:23 104:11	28:25 29:11,13,22	Duffy	91:13 92:1,13,18
111:5 112:7 113:19	30:6 31:19 32:12,13	180:21	93:3,23,25 94:5
118:15 133:2 146:1	33:13 34:12 35:5,16	duly	95:13 96:4,12 97:2
148:3 151:9 154:8	38:21 39:22 56:25	5:3 206:4,9	98:23 101:3,17,21
155:11 157:12	118:3 149:6 175:2,6	duplicate	102:5 103:14 104:5
161:25 167:16 168:3	176:9 180:21 186:9	134:7 135:8	105:15 106:2,5,10,21
172:24 176:5,12	205:9	duplicative	107:9 108:15,17,21
179:6 182:25 183:1,1	draft	25:18	109:5,8,12 110:1,4,6
185:2 188:15 204:7	22:17	durable	110:14,20 111:5,12
doctors	drafts	153:8	111:20 112:6 113:2
48:7 62:21 99:23	28:24	Duston	114:9,21 115:12
129:18 153:2,16	dramatically	3:5 4:2 5:6 7:2,17 8:1	116:3,8,18,23 117:16
document	63:5 90:14 100:16	8:4,5 9:6,20 10:8,14	118:2,11 119:15,20
8:24,25 9:2 12:6,7,15	138:24 139:13	10:19 11:19 12:2,16	120:4 121:1 122:4
13:16,17 15:4 16:12	144:15 164:6 166:5	12:21 14:9,20 15:2	123:22 124:7,24
16:18 17:3,4 18:3,12	draw	15:20 16:15,21 17:19	126:11 129:5,12,17
19:5,9,10,17 20:15	23:3 70:22 116:17	19:3,21 20:4,11 21:2	130:5,12 131:1,14,21
20:22 21:4,8,15,23	162:5 173:18	21:20 22:20 23:6	132:12 133:11
21:24 23:2,5,9,16	drawbacks	24:5,13 25:24 27:1	134:13 135:6,11
24:20 25:5 29:3,8,21	46:1	27:11,21 28:14,23	137:9,20 138:2,11
30:2,6 31:24 33:23	drawn	29:7,19 30:4,12,15	139:1 140:6,11,21
34:1 38:1,6,13,14,25	47:1 71:7,14	30:19 31:4,15 32:1	141:5,21 143:6
39:4,5,6,10 40:2,3	draws	32:17 33:8,9,18 34:7	144:21 145:24
48:23 51:10 160:8	74:13	34:18,25 35:8,12,23	146:10,22 147:23
173:17 174:17	drew	36:1,9,23 37:3,9,18	148:2,9,24 149:8,18
documentation	71:17	39:2 40:1,13 45:15	150:8 151:6 152:3
33:17	Drive	46:15 47:9 49:14,17	153:10 154:2,7
documented	3:3	49:19,25 50:4,10,16	155:10 156:9,18
47:3	driven	50:20,25 51:4,8,17	157:3,11,19 159:15

159:23 160:23 161:5 161:13 164:11 165:17 167:8 168:2 168:15 169:5,13,21 170:1,16,22 171:5,11 171:22 172:14,20 173:10,14,15 174:18 176:4,22 177:1,7,9 177:14 178:21 179:5 180:18 183:18 184:14 185:1,18 186:5,19 187:8,14 188:14 189:7,15 190:5,10,13,24 191:10,19 192:22 193:7,12 194:4,10,18 195:16,24 196:12,18 197:5 198:6,24 199:13,21 200:7,20 201:7 202:10,18 203:3,6,9,18 204:5 205:1,4 dwellers 194:2 dying 99:13 152:24 158:20 dynamic 89:10 dysfunction 75:23	138:24 144:1 167:16 170:25 172:25 175:6 197:11 ears 64:19 easier 143:20 easily 134:18 153:5 163:24 172:11 easy 59:7 162:23 eccentric 106:19 Echard 42:24 edge 93:9 97:8,10 98:6 edges 93:10 education 7:16 educational 40:18 educator 148:18 effect 132:8 168:25 170:3,4 170:5 188:3 199:16 effective 153:8 effectively 164:3 effects 166:20,23 193:15 200:2,10 efficiency 100:15 efficient 62:20,22 133:4,6 145:12 efficiently 132:25 effort 156:24 159:1	efforts 65:4 eighth 16:8 either 22:16 68:17 72:18 104:25 145:25 elastic 90:15 elbows 166:15 elderly 63:8 65:8 66:10 electronic 165:12 182:13 electronics 199:11 elegantly 198:4 element 31:14 164:12 188:10 elements 9:4 10:24 13:5,7,11,15 14:11,14,16 elevate 33:7 elicit 34:23 57:1 elicited 56:22 eliminate 99:18 133:6 142:8 187:9 193:14 Elliot 181:9 elucidate 187:7 elusive 186:22 email 25:3,25 26:9 33:24 34:10,19 55:14,20 204:19 emails 25:13 27:3,6,14	embedded 92:4 emerged 44:23 emerging 43:9 emersion 52:22 105:3 employ 112:24 employed 170:24 171:6 176:11 206:13,16 employee 206:15 employer 43:4 enabled 165:6 enclosure 193:1,9 194:24 195:1 195:14 enclosures 194:11 195:3,19 encompass 103:21 135:17 157:17 encompassed 62:11 encompasses 70:18 78:24 82:16 encountered 98:2 ended 16:22 endured 43:11 enemy 58:6 energy 100:3 engage 63:9,10 engaged 42:8 engagement
E			
E 3:1,1 5:1,1 117:23,23 E-R-I-C 183:3 ear 64:9 earlier 33:20 99:19 123:24 139:2,5 173:16 178:5 187:17 188:17 early 52:20 100:11 120:15 120:16 123:17			

23:22 29:12 45:19 128:13 engender 150:22 engendering 150:5 engineer 193:25 engineers 172:8 England 115:18 English 2:17 3:8 enjoy 179:15 enjoyed 7:22 enormous 41:1 91:11 97:22,22 137:16 144:17 145:8 ensure 72:3,19 enter 148:18 entered 41:16 entering 40:21 enters 144:9 entertain 148:20 171:19 entire 13:17 78:22,24 79:10 81:17 83:10 89:11 141:25 203:12 entirety 13:21 202:14 entitled 12:7 20:14 entry 158:19 enumerated 180:12	envelope 105:5 196:16 199:20 environment 105:3 133:22,22 134:2 136:1 186:24 199:8 envy 133:2 epidemiology 182:22 equation 125:14 143:24 188:11 equipment 80:23 96:7,16 183:9 183:23 198:1 era 145:17 147:19 Eric 181:5 183:2 errata 204:13 error 15:5 75:14,22 91:4,5 91:10,10 96:2,24 97:1,16 113:17 129:4 145:8 189:10 191:3 200:16,16 error- 95:12 error-prone 95:12 escape 99:10 100:5 especially 43:7 44:8 63:2 123:17 145:17 166:5 ESQ 3:5,11 essentially 88:3 134:6 157:25 establish 35:1 174:13 175:9,11 Etran 204:19 evaluate 56:14	evening 178:25 event 74:16 events 6:6 17:25 19:15 60:20 everyday 142:13,14 evidence 48:5 65:19 139:24 157:2,14 evince 30:1 ex 75:17 exact 17:17,23 18:1 45:19 60:20 84:23,24 96:25 128:2 157:17 188:24 exactly 18:9,20 26:14 104:12 108:4 116:14 128:15 183:21 exaggerated 166:15 exam 94:10,12,14 examination 4:1 5:5 14:8 32:22 57:15 65:24 100:3,6 100:7,8 118:1 119:4 119:24 120:2 121:6 121:15 122:8,12,23 122:24 123:3,15 125:4 135:22 136:6 145:10 147:25 148:5 154:16 155:2 156:6 167:4,11 192:2 examinations 122:6 examine 154:12 165:16 175:17 175:18,22,24 examined 5:3	examining 62:17 192:3 example 82:3 102:11 103:5,9 105:16 107:10 115:4 115:14,22 116:14,16 169:16 examples 147:3 exceptionally 65:9,23 excessive 63:10 198:2 exchange 22:8 110:18,22 excised 89:25 excludes 186:13 excluding 14:15,18 100:20 exclusive 83:1 Excuse 13:14 36:4 53:6 execution 27:15 exhaustive 147:2 exhibit 4:6,6 12:4 13:2 17:2 20:5,13 21:3,6,22 22:24 23:11 26:13 28:1 39:20 48:11 50:2,3,8,19,22,24 51:2,11,18 52:5,9,13 52:25 53:24 54:3 55:1 58:18 59:18 61:9 63:18 68:19 69:19 70:9,21 71:23 71:24 84:19 101:6 118:12,14 154:9 159:11 161:2 173:11 174:10,14 Exhibit1040
--	---	---	---

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

14

52:7 exhibits 4:4,9,21 49:23,24 50:13 151:25 exist 114:24 157:22 158:10 existed 158:7 existing 155:20 156:1 159:3 exists 158:8 expand 126:7 expect 6:8 expects 114:23 expedited 203:17,20,25 204:15 204:16,17 expending 155:7 expensive 134:17 experience 47:20,21 59:12 81:7 142:2 experienced 142:15 expert 22:10,13 26:3 28:9 47:19 175:19,24 176:1 explain 163:1 186:4 explained 114:22 176:9 explored 183:13 exploring 108:1 explosion 123:13 expose	69:3 192:11 exposed 192:24 exposition 59:8 exposure 59:15 81:24 expressed 39:19 112:23 expressing 87:3 extant 45:9 externally 150:4 extra 143:12,13,13 extremely 44:14 91:7 95:6 113:17 extrinsic 97:12 eye 78:16 95:8 96:17 97:25 198:21 Eyelids 64:8 eyes 1:11 6:24 60:16 64:20 150:1 169:3 180:15 <hr/> F <hr/> F 117:23 fabric 66:3,4 face 65:10 107:12 facilitate 57:4 facilitates 138:24 facing 80:8,19 81:16 fact	65:1,14 74:14 114:3 139:8 175:20 176:1 facto 75:18 facts 65:19 147:17 157:2,14 faculty 182:21 fail 194:2 failed 154:20 174:13 175:9 175:11 failure 65:16 76:1 fair 6:2,14,21 51:17 54:14 56:21 64:15 65:7,17 66:14 90:1 127:25 129:13 131:15,17 141:13 145:2 173:21 178:2 184:19 188:8 191:4,12 193:23 204:5 fairly 43:21 47:6 67:4 126:12 137:17 163:18 fairy 41:1 fall 104:10 falling 196:25 falls 203:11 familiar 17:4,7,8 19:5,7 20:15 21:8,24 22:12 23:17 26:18 35:21 38:4,5 39:17 46:7 47:14 77:25 92:2 148:16,16 160:5 familiarity 23:4 24:11,20 25:7,21	26:17 30:1 39:1 47:15 familiarize 15:18 23:2 family 152:20,23 153:13,19 172:8 family's 153:14 fan 186:1 far 56:22 66:18 103:8 105:19 179:16 fashion 62:6 99:11 136:21 137:5,15 138:15 141:23 162:20 176:15,15 fast 57:22 188:4 198:22 faster 62:20 167:17 favor 70:15 202:18 feasible 164:19 184:10 feature 89:21 127:25 136:12 136:14 138:21 features 58:7 89:22 115:8 139:4,9 140:9 federal 32:25 fee 26:6 203:21 feel 15:17,21 48:1 59:25 66:17 108:8 155:14 186:24 196:4 202:2 feet 68:17 69:18 75:21 81:5 83:6 103:4 131:24
---	--	---	--

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

15

fell 57:23	152:13 155:19 158:10 159:1 165:21 167:16 193:5	79:16 83:6 109:24 Florida 179:17	15:15 19:20 20:1,25 21:18 22:17,17,18,25 23:7,17,24 24:8 25:2
felt 148:13 149:15	finding 90:7 134:12	focal 87:23 163:19	26:2 27:8,19 28:4,20 29:15 30:8,22 31:7
female 67:18	fine 49:19 51:8 111:5 121:15 175:23	focus 15:3 72:5 74:4 76:5,6 76:8,17,17 83:1 88:19 100:4 126:4 169:14	31:20 32:16,19 33:14 34:3,13 35:17 38:8,9 38:21,23 39:23 40:5 44:11 45:13 46:13 54:5,15,21 55:2 58:3 58:13,14,21,23 59:13 61:12,25 62:12 63:22 64:4,16 65:5,18 66:25 67:9,25 68:8 69:23 70:11 71:11 72:10,25 73:8 74:5 74:21 75:8 76:9,15 76:23 77:5,18 78:9 78:14 79:18,24 80:16 80:20 81:3 83:3,13 83:20,22 84:21 85:24 86:4,19 87:2 88:2,10 89:24 90:2 91:2,22 92:12,16,25 94:22 95:2,24 96:11,15 97:6 99:7 101:14 102:2 103:10 104:3 105:13 106:4,17 107:5 112:25 114:8 115:10 116:2,5,12,21 117:11 118:6 119:13 119:19,22 120:12 122:3 123:9 124:3,21 125:18 128:1 129:11 129:21 130:10,18 131:12,18 132:10,21 134:11 135:10 136:16 137:12,25 138:6,17 140:10,13 141:17 143:4,25 145:3 146:7,18 149:12,25 150:12 152:1,8 156:3,11 157:1,13 159:13,19 161:4,11 163:13
fidelity 142:23	finish 6:18,18 24:24 93:21 111:22 141:4 169:23	focused 72:20 75:6 107:11 182:12	
field 44:5 46:7,10,18 47:12 47:20,21 48:1,1,2 62:18 77:24,25 78:13 78:16 82:16 84:2,3 91:20 98:11,13 102:23 103:23 105:3 105:8,11 113:14 124:2 126:19,23 127:9 128:24 129:6 129:19 142:5 145:5 146:12 149:10 150:3 150:16 151:14 152:19 158:12 164:6 171:14 184:4,21	finished 43:10,15 147:21	focusing 66:18	
fields 103:21 149:10	finite 102:7,9	fold 69:13	
figure 52:4 56:16 79:22 80:1 83:16 90:20 114:1,19 115:15 160:14 186:12	fire 98:11 102:21	folded 64:19 65:23,25	
figuring 104:17	firing 199:2,3	foldedness 64:23	
filed 18:11 171:24	first 5:2 6:7 7:18 16:7 19:15 44:5 45:2 48:16 50:21 51:7,16 51:19 87:17 109:3 114:2 130:7,14 132:16 152:18 171:6 171:12 172:1	folding 64:22 66:3 67:17,18	
film 78:5,6	fits 144:20	folds 64:8 65:11 66:4	
filters 185:12	five 63:1 88:20 133:3 139:21 183:5	follow 153:18	
final 118:20	five- 100:16	following 79:5 202:9	
financially 206:17	five-minute 31:14 39:18 40:7 135:22 178:22	follows 5:4	
find 39:8 93:9 99:18 133:25 151:22	fixed 77:6,7,19 101:10	food 11:9	
	flash 58:12,15,21 59:9,10 62:5	foot 68:23	
	flat 69:13,16	footprints 68:5,18 72:3,19 75:5 101:6,7 109:23	
	floor	forced 201:15	
		foregoing 206:7,8	
		forget 180:23 181:6	
		form	

164:17 166:24 167:23 170:6,21 171:2,9 172:5 173:4 183:25 184:23 185:22 186:15 187:11 188:12,22 189:13 190:3,12,17 191:5,15 192:18 193:1,3,11,24 194:13 195:10,20 196:14,21 197:19 198:17 199:5 199:17 200:5,25	fraction 201:19 frail 63:8 frame 7:15 9:23 71:25 122:2 123:25 124:13,19 133:4 frankly 14:5 fraught 62:16 free 6:13 83:24 177:23 freehand 137:2 freeze 59:10 frequently 75:14 freshman 40:22 front 41:14 63:20 64:2 69:8 79:9 81:17 95:19 110:24 115:18 154:8 154:14 155:5 173:11 fruit 82:17 full 5:7 204:19 full-body 122:12 full-on 142:20 function 125:20 functionally 202:8 fundamentally 150:25 funded 43:20 funding 43:21	further 1:12 42:21 57:13 95:5 167:7 202:16 206:14 future 43:4 165:2 <hr/> G <hr/> G 4:16 5:1,1 gain 30:13 140:25 176:10 gaining 67:6 gap 200:18 garnered 165:13 gauge 127:24 gears 40:14 gee 133:1 gene 43:19 general 40:10 82:22 103:6 151:10 184:2,4 187:1 193:6 199:20 generalism 136:18 generalistic 136:19 generalize 130:3 generally 119:10,17 183:23 189:9 192:15 197:24 generate 56:10 112:22 generation 181:16 gentlemen 11:25 GERSTEIN	3:2 Gestures 5:18 getting 111:1 131:5 139:18 169:3 196:4 Giarratana 3:11 7:7 8:3,3,4,7,13 8:20,24 9:2,13 10:3 10:11,16 11:2,17 12:1 13:24 14:15,23 15:15 16:13,19 17:15 19:20,25 20:9,25 21:18 22:18,25 23:24 24:3,8 25:16 26:25 27:8,19 28:3,19 29:1 29:15,24 30:8,14,17 30:22,25 31:7,20 32:15,18 33:14,21 34:13 35:6,9,17 36:6 36:10,20,25 37:7 38:23 39:23 40:5 45:13 46:12,20 49:21 50:1,7,11,17,21 51:1 51:5,13,18,22 52:12 53:2,12,18,20 54:5 54:15,21 55:2,12 56:6,17,25 57:13 58:3,14,23 59:13 61:12,25 62:12 63:22 64:4,16 65:5,18 66:25 67:9,25 68:8 69:23 70:11 71:11,16 72:7,10,25 73:8 74:5 74:9,21 75:8 76:9,23 77:5,18 78:9,14 79:18,24 80:16,20 81:3,6 83:3,13,20 84:21 85:24 86:4,19 86:22 87:2 88:2,10 90:2 91:2,22 92:12 92:16,25 93:21 94:22 95:24 96:11,15 97:6 99:7 101:14,19 102:2 103:10 104:3 105:13
---	---	---	---

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

17

106:1,4,8,17 107:5 108:13,16,19,23 109:7,11 110:3,5,8 110:16 111:1,4,8,10 111:14,22 112:25 114:8,20 115:10 116:1,5,12,21 117:11 117:18 118:6 119:13 119:19,22 120:12 122:3 123:9 124:3,21 125:18 128:1 129:11 129:14,21 130:10,18 131:12,18 132:10,21 134:11,15 135:10 136:16 137:12,25 138:6,17 140:5,10,13 141:4,17 143:4,25 145:3 146:7,18 147:20,24 148:4,23 149:1,4,12,25 150:12 152:1,7 154:1,3,10 156:3,11 157:1,8,13 159:13,19 160:17,20 161:4,11 163:13 164:17 166:24 167:3 167:23 168:12 169:1 169:8,18,23 170:6,21 171:2,9,15 172:5,18 173:4,6,13 174:9 175:7 176:19 177:5 177:12 179:2 180:14 183:11,25 184:23 185:5,22 186:15,21 187:11 188:12,22 189:13 190:3,9,12,17 191:5,15 192:18 193:3,11,24 194:7,13 195:10,20 196:14,21 197:19 198:17 199:5 199:17 200:5,9,25 202:11 203:15,23 204:12 give 5:15,18,23 6:6,22 12:13 17:18 23:18	25:22 31:5,24 33:3 40:8,16 41:6 56:18 79:2 87:18 91:14 102:11 138:15 147:3 147:10 149:5 173:7 178:3 192:15 given 15:22 23:3 41:8 87:23 95:9 102:15 116:13 116:16 122:16 144:2 162:21 164:3,19 171:20 175:3 203:12 giving 7:20 166:15 glad 5:23 103:1 204:8,10 glass 92:5 Glenbrook 5:10 go 10:2 16:2,9 20:2 28:5 35:10 36:4,11 39:3 52:14 59:24 60:4,8 60:10 74:1 75:23 79:16 89:4 93:24 98:7 101:22 104:17 110:12 111:6,8,12 151:9 154:25 155:5 168:9 169:10 172:11 175:15 182:15 183:16 198:8 goal 192:8 goals 192:5 godparents' 152:24 Godzilla 105:5 goes 121:5 164:5 174:4 going 7:7 10:2,16 11:13 12:3 14:2,4 20:12 25:10	26:15 29:6 32:15,18 32:20 33:6,6 34:15 34:22 36:4,11 38:11 52:1 53:10,12 56:2,7 56:8 57:13 59:24 65:3 66:19 70:15 79:7 83:21 90:23 93:25 98:12 101:9 104:14 105:11,18 107:21,24 108:10 109:2 110:10,12,23 112:1 113:9 115:19 116:15 123:6 126:6 131:19 133:8 143:11 145:21,21,22 147:2 147:15 148:5,6,10,15 148:18 154:10,15,15 154:16,17,25 155:1,9 167:3,25 169:9 174:9 174:15 175:7,15 176:2,23 177:1,19,25 179:1 183:15 188:16 192:11 196:6 202:10 203:16,16,24 204:12 good 47:15 71:21 103:1 187:16 197:12,24,25 gotten 150:24 gout 166:1,4,6,13,19,20 167:6,12 gouty 166:8,14,16 govern 55:25 government 143:16 gown 75:19,19 gradations 97:22 grade 121:16 graduate	41:17 42:17 graduated 42:20 grant 43:19 grants 43:21 great 13:15 47:1 119:6 122:21 152:21 153:21 greater 118:23 119:4 124:18 126:20 144:19 Green 2:17 grinding 108:6 gross 96:17 grounds 57:14 174:11 group 45:7 grow 120:8 guess 97:24 144:1 160:3 199:22 guy's 180:23 guys 111:2 <hr/> H <hr/> H 5:1 hair 64:9 67:19 half 38:11 43:13 halfway 16:8 Hampshire 15:11 179:13,20 181:2
--	---	--	--

181:10	hear	100:22	host
hand	38:3 140:18,20 163:17	high-speed	165:18,24
30:2 206:20	167:13 187:12	100:24 134:2 135:20	hosted
handheld	202:20	158:21	45:3
142:4	heard	higher	hosting
handle	113:19 140:19	100:19	44:25
56:14	hearings	highest-risk	hours
hands	150:14 200:19	43:11	8:9
69:8,13,14	heavily	highlighter	houses
hang	158:13	71:8	194:1
57:7 154:2	heavy	highly	human
haphazard	67:17,17	56:19 65:25 90:15	58:5,5,6 65:21 67:21
137:5	height	91:4 96:17 129:24	75:22 76:15 78:16
happen	115:1	135:25 152:15	83:18 91:1 93:14
60:20 98:14 99:11	heights	158:22 180:14	95:8 96:17 99:8,14
happened	77:21	hire	99:18 102:7 103:24
136:1 143:9	Hein	172:10	115:5,6,22,23 116:9
happening	4:16	hired	117:8,13 150:23
136:2 195:8	held	44:10 45:11	162:15 164:8 165:15
happens	2:16 7:1 19:2 36:15	hiring	170:4,5 187:19,22,24
60:19	67:15 189:5 196:11	26:3	188:1,6,9,10,21
happy	help	historically	189:10,11,22 190:8
5:22 24:15 29:4,18,25	71:18 96:16 152:23,23	191:11	190:25 191:3,21
31:25 35:21 38:1,10	158:14	history	hundreds
hard	helpful	41:22,23 170:13	198:2,2
121:16	164:14	HIV/AIDS	hung
hard-to-see	helping	43:11	33:4
135:18	44:16 158:18	hold	Hurley
harder	hereunto	26:25 28:3,19 46:12	20:6 152:4 154:13
182:24	206:19	52:15 72:7 109:8	174:19 175:3,13,13
Hartford	hesitate	116:1 147:20	176:8,17,17
3:10	23:25 86:20	holding	Hurley's
Harvard	hesitation	47:18	176:13
40:20 41:16,24	32:2	home	hypothetical
hate	hidden	5:11	189:18
66:19	67:11	honestly	hypotheticals
head	high	66:17	108:5
69:3 81:5 157:5	35:19 40:17,19 41:7	hopefully	
health	91:7 113:17 139:17	178:24	I
6:4 100:9 122:25	139:19 166:18	hoping	I-T-E-N-B-E-R-G
123:2 140:1 144:17	high-quality	72:22 195:25	181:15
158:14,23 165:12	134:17,20	horrible	IAH
182:22 198:12	high-resolution	98:13	43:22
healthcare	81:14 150:17 165:6	hospital	ID
142:13,14	high-risk	43:12 181:9,13	4:5

idea 31:6 79:2 83:1,17 146:3	79:10 82:15 88:5,6 94:17 99:5 102:17 105:25 106:7,11,11 106:13,14 107:4 113:6,8,10 114:16,16 114:17 115:21,24 116:25 117:3 131:23 138:5 143:17,17 158:21 161:19 162:7 162:9,18 164:13 165:22 168:6 173:1 175:1 181:17 199:15 200:22 201:9	65:24 75:12 165:21	imprecision 97:16 102:15 119:23 136:5
ideal 193:4 200:22		imaging 47:7,12 48:3 58:6 62:15 65:13 66:1,8 67:20,20 72:16 73:15 77:10,13,15 81:7 90:9 95:18,23 96:6,7 109:22 110:7 133:15 133:20 134:1 136:24 141:12 146:21 149:17 150:17 158:5 164:15 165:4 196:17 200:11,13,13	impropriety 128:23
identical 97:5			improve 94:3 125:20
identification 42:12 51:12 57:3			improves 61:4
identified 35:14 155:18 164:15 189:25			improving 172:23
identify 8:25 10:8 13:6,10 116:22 125:11 139:4 139:9 156:25 167:18	image-acquisition 138:23	immersed 82:24	inaccessible 198:13
ignore 124:20	image-processing 164:5	immersively 80:6	inaccuracies 97:16
ignored 118:22 119:2,12,14,17 120:10 121:10,12 126:19	image-receiving 78:5	immunology 42:11	inappropriate 128:20
ignoring 119:21	imaged 69:14 101:23 102:1 104:4,7 115:7 162:22	impact 200:3	include 16:11,16 41:2 75:3 131:3 149:23 150:15 159:10 171:1
Illinois 3:4	imagery 44:21 46:23 47:3,5 57:18 62:8 81:14 85:25 86:7 95:9 99:9 128:8 129:24 134:24 136:6 137:4 138:9 142:15 144:2 150:24 152:14 162:16,19 163:25	impacting 8:19	included 76:22 151:23
illnesses 6:12		impediments 65:12	includes 120:18 156:15
illuminate 185:20		imply 157:18	including 123:20 203:2
illuminating 58:17	images 54:25 57:12,19 59:23 61:10 65:15 67:7 72:17,21 74:2 75:15 86:3 89:18,19 91:23 94:20 99:3 102:4,10 109:19 113:24,25 114:2,3,4 117:9 128:19 137:2,2,22 141:19 161:16,17 162:25 163:11,24 164:10 197:16,20 199:24 200:3	important 5:24 93:11 95:1,6 114:10 126:5,6 135:2 150:25 182:14,19 196:19 197:16 202:6	incompetent 196:22,24
illumination 58:13,21,22 186:10,14		impose 113:5	inconsistency 188:9
illustrate 176:14		imposes 83:23	inconsistent 188:2
illustrated 58:17		imposing 138:21	inconvenience 63:6
illustration 176:8		impossibility 64:15 155:16	increase 97:23 145:16 191:12
illustrative 52:2		impossible 133:19 134:7 143:2 144:6 157:25	increased 139:14 172:17
image 4:12 46:5 48:8 58:5,5 63:19 76:15,24 77:3	imagine	imprecise 45:19	increasing 142:22
			incumbent 153:13,22
			independently 181:7

INDEX 4:1 indicate 7:12 indicated 13:4 14:11 26:23 34:18 indicating 34:10 indicative 68:6 individual 81:18 94:16 95:17 106:24 137:24 191:23 individual's 104:24 107:13 individuals 101:9 197:14 indulge 59:8 infallibility 98:22 inform 110:23 159:2 information 22:8 26:11,12,12 34:6 35:15 46:4 55:5 56:3 56:20,23 57:1 60:1 94:19 100:18 107:1,8 111:17 123:4 126:25 137:17 138:12,14 140:25 144:5,6 162:7 165:12 182:14,16 202:22 infrared 184:12 inherent 10:17 130:24 inherently 34:23 initial 190:1 inroads 120:17	insensitive 122:9 insensitivity 121:17 122:22,23 156:6 inside 116:25 insight 140:4 instance 62:24 65:9 89:2 90:13 190:11 instantaneous 200:14 institutions 63:11 instruct 7:8 30:25 34:15 53:15 55:17 175:8 instructed 117:8 177:15 instructing 176:21 instruction 176:20,24 177:13 intellectual 9:18,24 intend 154:12 155:6,7 intense 47:7 intensely 16:6 48:2 intent 60:22 61:8,22 62:2,2,3 62:4 76:4 77:2 83:8 84:3 188:4 intention 175:18 200:18 intents 62:8 interacted 32:11 interaction 26:7,9,20 28:12	128:10 129:1,2,2 interactions 128:17 interest 43:7 47:2 67:6 94:24 130:1 153:15 192:25 interested 66:8 196:7 206:17 interesting 190:18 interface 84:8 interfaces 92:5 interfere 73:10 international 21:5 Internet 45:5 152:10,17 156:15 156:16 159:1,8 internship 43:16 interpret 48:7,8 163:8,14 175:1 interpretation 30:11,13 163:12 176:18 interpreted 162:8 interrupt 49:12 intertwined 48:3 intervals 85:7 intervention 99:15 125:20 introduced 50:14,18,22,23 51:6 126:22 189:11 introduction 125:13 126:15 intrude 195:8	intuitive 145:13 146:9 invade 193:16 invaluable 164:7 invariable 97:14 invasive 99:24,25 invent 193:20 194:8,9,15 invention 62:11 65:17 101:5,5 121:21 122:2 123:11 123:24 124:13 125:15 127:13 129:8 132:20 137:10,13,21 141:22 143:3 146:13 148:25 149:11 151:17 155:14 172:1 185:19 186:11,13 193:23 inventor 15:8 invested 158:13 investigate 146:14 investigated 172:25 investigation 149:14 155:12 170:25 171:4 Investigative 45:1 invisible 82:18 91:8 184:11 invited 44:15 involve 68:22 involved 99:9 172:16 192:10 IPR
--	--	---	--

1:14 10:15,24 11:24 17:9,21 18:11 19:9 24:7 32:24 49:24 IPR2017-02125 4:18 12:5 irrelevant 33:5 irreproducibility 128:7,24 142:9 irreproducible 62:16 142:7 Island 179:13,19 180:4,19 182:7,10 issue 33:7 67:8 94:6 130:1 157:23 180:8,8 192:6 201:3 202:7 issues 9:18,19,25 114:5 146:15 167:18 187:20 189:22 193:18 197:1 Itenberg 181:12,14	179:1 keeping 6:25 keeps 98:12 Kevin 11:5 key 172:10 kill 99:25 120:23 killer 42:25 kilter 75:13 kind 13:20 16:7 45:10 66:3 72:23 73:15 75:22 78:6 88:18 91:3 92:9 92:22 95:5 98:16 102:20 108:1 113:15 128:23 142:18,19 168:7 183:4,15,20 184:3,5,5,10 185:25 189:20 190:19 196:4 196:25 199:23 kinds 190:7 knocked 73:20 75:13 know 6:8 11:19 14:6 17:9,23 18:1,9,14 19:23 22:2 22:6,7 26:14 30:5,6 31:22 32:18 34:1 35:21 39:16 41:13 61:5 62:1 65:20 66:19 67:16 68:10,12 72:21 74:23 77:11,20 79:3 83:4 88:11,13 88:17,18 90:14 92:14 94:2,23,23 95:25 96:20 101:16 103:16 103:20 104:9 105:2 107:25 108:5 113:6	113:11 115:17 116:13 120:8 128:11 130:19,21,22 131:20 133:5,20,23 138:19 142:2 143:14 151:11 152:19 168:5 173:17 182:17 183:13,14 184:3 185:10 186:17 189:2 190:19 191:7 193:17 196:24 199:6 201:25 202:7 203:11 knowing 58:10 knowledge 47:7 175:12,13,21,23 175:25 known 132:19 146:4 Kodak 44:6 <hr/> L <hr/> L 3:5 laboratory 42:24 86:8 lack 52:13 73:14 100:21 152:8 159:20 lacks 40:6 175:14 lady 11:8,10 lags 144:4 Lane 5:11 language 15:18 186:22 194:20 large 45:8 59:8 62:21 65:9 65:11 81:20 102:13 113:13 118:22 119:7 126:8 158:23 larger	166:9 largest 87:24 launch 190:21 lawyer 19:23 26:5 53:8 177:17 lawyer's 178:13 laying 69:16 layman 92:9 lead 102:14 170:13 leading 27:25 66:16 157:15 170:25 leads 77:10 league 79:3 lean 99:2,3 leaned 95:5 leaning 69:3 leap 49:17 62:23 leave 31:24 lecture 59:2,4 led 170:14,19 leeway 33:3 left 178:23 leg 103:9 113:18 legal 185:23 186:24
<hr/> J <hr/> James 5:9 Jeroen 4:16 Jersey 2:23 206:6 job 59:1 John 43:4 joints 166:16 jump 41:4 62:19			
<hr/> K <hr/> keep 31:22 63:15 148:6			

legs 67:4,4 71:2 length 80:13 87:23 128:12 163:19 lengthy 173:17 174:3 lens 132:2 lesions 100:23 113:13 let's 23:7 40:14,15 48:10 48:16 50:7 51:9 57:16 65:9 66:12 78:20 94:6,6,7,13,16 94:17 95:16 110:8,20 111:8,14 115:16 127:6 132:2 139:15 147:20 162:1 letter 33:24 letting 39:11 155:4 level 47:7 59:24 levels 95:7 166:18 192:7 liberty 11:17 License 1:24 lids 64:21 lieu 29:4 life 64:8 lifting 69:4 light 4:14 17:9 25:1 39:16 59:9 70:4 73:21 183:10,14,24 184:10 184:11,21 185:10,20	195:7 lightening-fast 152:14 lighting 44:19 59:2 62:7 128:9 130:23 134:8 135:8 136:23 193:15 lights 59:14 62:5 184:9 likelihood 89:7 122:11,21 limit 59:15 65:24 198:10 limitation 66:1 limitations 129:8 limited 15:22 30:10 61:18 123:15 126:7 129:3 148:5 155:2 166:21 167:4 174:15 203:10 line 33:1 46:3 70:13,18 71:17 87:7 108:9 154:11 174:10 177:4 lines 73:7 list 15:23 16:10 170:10,14 184:16,20 listed 15:12 166:2 170:9 185:9 listen 11:12 listening 111:18 170:12 185:4 lists 165:24 literature 127:4 148:15 156:10 156:14,16,17 184:7 litigation 32:25	little 5:15 40:15 120:1 173:19 178:5 196:4 LLC 1:8 LLP 2:17 3:2 local 95:3 location 181:7,25 193:16 locations 100:25 113:12 163:6 182:15 lock 135:14 London 179:16 long 7:25 8:6 9:2 15:25,25 129:1,2 166:15 169:11 172:2 179:12 179:19 180:4,19 182:7,9 184:16 long-term 150:23 164:8 look 12:22 16:6 25:3 26:18 38:16 48:10 65:10 69:6,9 98:9 111:10 117:14 145:9 146:17 149:9 152:22 164:2 173:25 174:5 looked 16:4,5 56:13 85:25 128:5 146:19,19,20 147:5 153:1 157:6 159:9 160:24 161:9 looking 23:16 29:20 55:21 89:11 91:17 97:18,19 114:7,10 124:9 133:12 141:14 144:10 145:4,12 150:4,13 157:21,24	158:13 looks 88:23 91:8 95:11 lot 32:21 37:4 108:7 123:5 155:8 195:25 201:25 loved 158:20 low 43:21 83:5 89:9 115:16 low-cost 63:2 158:21 low-hanging 82:17 low-quality 100:6 low-tolerance 199:10 lower 51:24 83:11 100:16 198:4 lunch 11:8,10 luncheon 117:19 lurid 128:19 lymphokine-activated 42:25 <hr/> <p style="text-align: center;">M</p> <hr/> M 1:24 2:19 206:4,23 M.D 4:19 12:8 M.Sc 4:17 machine 5:20 65:22 74:15,18 81:13 84:24 99:14 142:8 153:6 machines 74:11
--	---	--	---

Made-to-Measure 4:14	mark 3:11 7:23 8:1 51:2	119:7,16 140:22	medications 6:13
magnifying 90:24	109:8 111:7,9,11	156:14 162:13	medicine 44:14 94:4 97:18
magnitude 96:23	180:14 204:6	184:10 186:23 192:9	meet 8:7 150:16
maintain 57:22	marked 4:9 12:4 13:2 17:2,14	194:21 203:16,20	meeting 8:15 9:19 11:2,4,11
maintenance 73:15 74:10	19:4 20:12 21:21	meaning 82:2 157:17 187:5	12:10 13:12 169:25
major 68:14 99:21 192:1	28:1 48:10 49:20,23	means 31:6 78:3 168:19	meetings 43:3 45:3
majority 119:6	49:24 50:2,9,15,16	169:10	melanoma 4:12 49:4 84:15 85:3,4
making 32:20 75:7 109:14	51:11,14,16,19,24	measure 46:22 87:25 90:8,9,11	87:4 89:3 91:12 94:7
131:20 157:4	marker 56:7	90:25 93:18 95:1	94:13,17,20 95:15,22
maladies 165:18,25 166:1	market 156:7	96:17	99:22 100:10 119:14
184:18	marking 49:8,12,22 57:2	measured 85:14,16,18 86:6,7,8,9	120:1,16,19 122:12
malady 169:17	MARSHALL 3:2	87:12 90:3,7 93:1,2	122:13,16,18 139:20
male 67:18	masses 62:25 198:14	93:17	139:22 144:13
malpositioned 201:11	material 39:17	measurement 4:14 87:11,15 88:9	145:10,11,12,18
management 165:15	materials 172:9	89:24 90:17,19 91:10	152:24 153:4,22
Manchester 181:3,11	matriculated 40:20	91:15 92:23 93:4	158:20 164:16
Manhattan 43:12 179:13,19	matrix 77:6 81:21 84:13 89:6	95:2,7,21 97:4,21	167:16 182:18
180:22 181:4,25	163:21	101:24 109:13	melanomas 93:10 98:1 99:24,25
183:2	matter 11:24 30:7 31:19	measurements 85:23 88:12 89:23	101:1 113:12 119:4,6
mankind 151:3	116:7 123:12	90:6,12 109:16	119:10 120:9,14
manner 62:18 158:22	matters 10:10,13 175:20	112:12 161:21	122:9,22 124:20
map 163:24	MB 42:20	measures 86:6 90:10,11 93:13	125:16 126:20 127:3
margin 91:6,9 98:20,24	McCarter 2:16 3:8	94:25 96:2,2,3 99:16	145:15 153:4,12,20
200:16	mean 11:21 18:8 49:12	measuring 47:22 87:1 92:4	153:21
margins 98:15,22 200:17	67:19 69:1 72:22	164:25	Melanoscan 1:8 24:7 33:11
	73:1 75:10 81:23	mechanical 83:22,23,24 191:1	member 182:21
	91:16 96:24 97:24	198:20	memory 11:14 113:15
	102:19 106:19	mechanism 45:24 75:12 190:2	men's 36:11
	109:23 116:4 119:1,3	mechanisms 189:9	mentioned 9:10 33:20 45:12
		medical 42:4,15,16,23 43:10	115:2 118:20 170:19
		150:25 167:14,25	181:16,25 182:9
		168:9 182:13,23	184:16 187:21,23
		196:3	188:17 195:18

mentis 201:13	201:2	13:3 25:25 26:23	movements 197:23
Merit 2:21	minimize 200:23	40:14 70:22 73:5	moves 128:25
met 43:4 171:20	minute 13:24 110:3	99:1 105:20 107:10	movies 92:14
methodology 63:12	minutes 40:9 63:1,1 88:20	112:20 155:12 173:7	moving 94:4
methods 89:22	133:3	174:22	multicamera 148:22 149:9 150:10
Meuler 65:10	mirror 79:11	Monday 205:4	multiple 24:9 86:9 90:6 143:14
mgarratana@mcca... 3:12	misinterpreting 75:20	Monet's 130:22	150:15 163:21
Michigan 43:6,16 44:8 46:25	misleading 191:18	money 143:12 151:4,4	multiplied 163:19
microscope 88:24 90:8 98:7	misperception 98:18 100:2	monochromatic 183:10,24 185:14	<hr/>
microsecond 198:23	mispositioned 75:21	months 18:1 85:6,10,10,11	N
mid 45:10 70:13	missed 122:22 182:20	113:25 114:15	N 3:1 117:23,23,23
military 63:11 126:8 144:14,16	misstepped 201:13	136:14	n-dimensional 165:10
145:20 152:23	misunderstood 190:16	morbidity 99:22	nail 26:20
millimeter 86:3 91:15 113:21	mix 110:10	morning 55:14	name 5:7 8:1 21:6 180:23,24
122:14	modalities 86:10 170:11	morphology 88:22	181:1,5 183:2
millimeters 85:5,5,17,20 86:25	modality 61:15	mortal 153:24	narrower 123:5
87:15 89:5 90:20	mode 126:2	mortality 99:22 165:20	nasion 70:19
94:14,20 95:16 96:8	model 115:20 161:23	mortally 153:24	nation 144:12
96:9,9,19,19 101:1	models 161:19	mounting 145:18	natural 42:25
118:23 119:5,11,18	modern-age 34:2	mouth 64:17	nature 26:7 27:13 28:8,12
119:25 120:10 121:9	modifications 183:14	move 6:1 24:17 35:25 37:5	58:4 62:7 65:20,21
122:16 124:20	Modify 105:22	70:5 73:2 79:7 81:13	65:22 75:22 79:12
125:16 126:5,21	moles 139:24	96:19,21 97:22	80:4 84:5 95:25
million 89:4,8 100:25 119:25	moment	167:17 177:7	168:4
mind 5:21 65:11 104:1		moved 73:10,20	near 57:20,20 58:9 62:8
126:4 174:20		movement 58:5,6 77:20 196:13	64:15 103:4 183:3
mine 130:1 179:8		197:7 199:20	184:11
minimal		movement-free 196:16,19	nearly

120:19 150:24 necessarily 98:16 182:16 198:12 necessary 32:8 57:8 133:15,19 158:5 198:15 neck 67:10 69:3,6 need 5:18 6:9 38:16 49:15 51:1 55:17 56:17 58:20 68:7 69:24 73:13 74:17 79:23 99:12 100:24 106:25 107:3 112:4 113:5,6 113:7,15 114:1 120:2 144:11,12 145:6 151:11 154:4,17 171:17 185:2 192:11 205:3 needed 153:3 158:21 188:3 needs 6:22 18:22 26:4 55:14 55:21 74:14 100:10 145:16 158:19 negatively 200:3 neither 206:12 never 34:2 44:3 75:10 93:7 99:10,11 120:7 new 2:22,22 15:11 42:15 44:11 85:13 88:17 115:18,20 165:14 179:13,20 181:2,10 182:23 190:16 206:6 206:6 nine 18:1 153:12,19 nodules 166:15 noise	193:15 nomenclature 70:16 non 201:13 normal 82:6 106:20 nose 70:18 102:12,16 103:4 103:6 107:13 115:5 115:15 Notary 2:22 206:4,23 note 47:1 noted 15:12,13 205:6 notes 203:2 notice 75:17,18 noting 168:11 novel 190:16 number 50:5 51:3 80:18 86:5 87:23 88:11 89:9 90:21 119:6 120:20 126:5 128:6 131:5 136:9 137:13 139:20 139:23 144:14 145:18,19 153:2 numbers 50:5,19 62:21 100:17 numerous 39:15 58:16 64:10 65:11 100:20 108:7 128:4 164:19 168:7 O O 117:23,23,23 object 19:25 25:17 32:15,19	32:20 38:15,23 57:14 64:16 116:6 128:1 129:11 130:10 137:25 154:10 157:10 162:8 163:9 163:15 164:13 174:9 175:1 objected 19:23 38:13 objecting 147:24 objection 15:15 16:13,19 17:15 19:20 20:9,25 21:18 22:18,25 23:24 24:8 27:8,9,19 28:4,20 29:1,15,24 30:8,14 30:17,22 31:7,20 33:14,21 34:13 35:17 36:25 37:7 39:23 40:5 45:13 46:12,13 46:20 52:12 53:2,9 53:14 54:5,15,21 55:2 58:3,14,23 59:13 61:12,25 62:12 63:22 64:4 65:5,18 66:25 67:9,25 68:8 69:23 70:11 71:11,16 72:10,25 73:8 74:5,9 74:21 75:8 76:9,23 77:5,18 78:9,14 79:18,24 80:16,20 81:3,6 83:3,13,20 84:21 85:24 86:4,19 87:2 88:2,10 90:2 91:2,22 92:12,16,25 94:22 95:24 96:11,15 97:6 99:7 101:14,19 102:2 103:10 104:3 105:13 106:1,4,8,17 107:5 112:25 114:8 115:10 116:2,5,12,21 117:11 118:6 119:13 119:19,22 120:12 122:3 123:9 124:3,21	125:18 129:14,21 130:18 131:12,18 132:10,21 134:11,15 135:10 136:16 137:12 138:6,17 140:5,10,13 141:17 143:4,25 145:3 146:7 146:18 148:23 149:1 149:25 150:12 152:1 152:7 156:3,11 157:1 157:13 159:13,19 161:4,11 163:13 164:17 166:24 167:23 169:18 170:6 170:21 171:2,9,15 172:5 173:4 175:7 176:19 177:12 183:11,25 184:23 185:5,22 186:15,21 187:11 188:12,22 189:13 190:3,9,12,17 191:5,15 192:18 193:3,11,24 194:7,13 195:10,20 196:14,21 197:19 198:17 199:5 199:17 200:5,25 objectionable 192:4 objections 36:20 168:12 169:1,8 169:19 172:18 200:9 observational 97:10 observe 93:12 102:7 139:25 observer 97:7 obstructions 64:11 obtain 81:16,20 129:24 133:15,19 158:5 obtained 134:18 obvious
--	--	---	--

130:20 131:2,8,8 143:24 occluded 67:1 occlusion 64:14,15 67:19 occlusions 65:2,8 66:6,12,23 67:7 67:10,12 68:10,14 occur 60:6 65:3 66:7,10 72:24 96:18 120:21 199:2 200:23 occurred 140:7 occurs 74:17,17 136:7 off-kilter 73:12 off-site 182:25 offer 93:25 141:15,19 192:20 offered 88:8 193:8 office 1:1 10:1 11:22 38:22 offices 2:16 oftentimes 67:18,19 166:19 184:21 oh 23:12 38:11 53:17 185:8 okay 8:23 9:1 13:17,22 23:15 25:16 26:19 31:3 36:13 39:10 40:19 41:12 49:15,18 50:7,11,21 51:1 53:17,18 54:19 71:7 73:19 78:19 80:15 84:10 85:2 86:14	88:8 90:5 104:23 105:16 107:2 111:14 112:10,19 113:3 115:13 116:24 123:23 124:15 130:13 141:10,13 143:7 153:11 156:19 160:4,12 174:8 180:16,17 181:21 185:8 192:9 195:17 202:4 203:8 once 60:4,17 89:24 95:19 137:22 140:2,24 143:21 one-on-one 133:24 one-time 138:5,15 one-year 43:15 ones 114:6 147:6,12 158:20 171:3 ongoing 10:9,12 93:16 108:1 183:14 opaque 66:20 open 165:14 opening 69:4 opens 165:7 operated 179:23 180:1 operates 57:12 109:18 176:9,16 180:4 181:7 operating 175:6 176:14 operation 196:20 operator	99:14 115:5,6,22,23 116:9 117:8 190:25 operators 99:8 102:7 117:13 190:8 ophthalmologist 165:23 opinion 34:11 40:7 142:18 167:14 178:9,13,15 opinions 30:7 31:19 32:12 33:13 35:5,16 38:21 39:19,21 178:7 opportunity 6:20 48:24 opposed 51:15 opposition 24:6 33:12 optical 91:6,20 93:7 94:3 98:21 optically 93:10 optimize 68:11 69:25 optimizes 58:8 optionally 162:7 oranges 135:4 order 22:8 26:11 38:25 55:9 55:16,24 56:1,9,13 56:15 57:22 58:4 62:22 63:19 64:2 69:25 113:4 135:17 202:14,17 203:4 ordered 204:15 organization 45:5 142:25 organizations	126:8 originated 27:6 outcome 121:18 153:25 187:3 206:17 outcomes 185:13 outline 161:17 outlined 112:13 output 76:2 88:1 134:23 135:3 outset 172:7 outside 16:14 17:15 27:9,20 29:15 30:8 31:7,20 32:21,22 33:5,14 34:13 35:17 38:23 39:24 40:5 46:13 57:14 61:13 63:23 64:5 72:16 74:5,25 75:8 79:24 117:11 147:25 149:1,12 152:2,7 154:18 159:14,20 166:24 167:23 170:6 171:10 172:6 174:11 175:10 180:5 183:11,25 184:23 185:22 186:15 191:5,15 192:18 195:11,20 200:5,25 outsource 182:15 overcome 132:1,3 overhang 82:5,8 overhanging 82:14 overlap
---	--	--	---

76:7 84:4,5,11	paragraph	1:1,2,8,15 3:9 9:4,7,8	203:17 204:18
overlapping	48:17,25 52:5,11	10:1,9,12,25 13:3,5	pending
162:16	53:24 54:12 59:20	13:11 14:4,12 15:17	1:12 202:16
override	71:24 84:14 109:9	16:17 17:6 21:5	people
177:25	112:3,13,23 118:16	38:22 50:11 123:12	58:25 62:25,25 67:12
overruns	118:21 119:9 121:2	151:18 152:6 153:9	67:16,24 73:10 88:21
144:16	121:25 123:21 124:1	155:15,17 165:24	99:10,13 101:7
owner	124:6,9,14 125:3,6,9	167:19 171:16 180:8	102:20 104:9,10,12
1:8 3:9 50:12	126:14 127:6,8,15	184:15	113:11 120:24
owns	133:12 134:6,14	pathologist	126:24 128:19 129:7
181:13	157:22 162:1,5,6	90:10 91:7 92:6	135:17 142:5 145:8
Ox	173:25 174:3,6,23	pathway	152:25 153:15
5:11	177:11 178:9 179:6	141:18,20	165:16 166:18
	Parameters	patience	170:14 172:10
	4:13	63:6	182:14 191:2 192:7
P	part	patient	192:20 196:22 197:1
3:1,1	9:22 16:3 67:20 79:19	46:2 57:22 63:6,7,24	197:3,9,17,21,25
p.m	79:21 89:6 98:18	64:3 68:7,12 69:2	199:18,19 201:11,20
36:16,17 52:17,18	105:11 126:15 158:9	70:5 121:5 122:6	201:22,24,24,25
117:19,21 154:5,6	162:22 203:21	123:12,15 128:8,10	202:1,8
179:3,4 205:6	participate	133:25 170:13	perceive
page	44:15	patients	98:6 99:23
4:1,5 12:22 24:18,18	particular	11:22 43:13 44:19	percent
38:5 39:9 52:2,9	15:4 29:2 49:3 59:5	62:21 104:4,6 127:1	43:22 97:18 119:5
57:17 68:6 70:8,24	63:14,17 66:7 84:15	134:25 141:19	122:11
134:14 160:7,11,13	87:18 89:21 93:5	153:16 167:13 168:1	perception
174:1,4 204:19,20	119:8 120:11 127:25	185:15 187:23,24	97:7,8
pages	130:8 147:19 156:22	191:21	perfect
1:10,11 51:24	161:6 173:18 178:15	Patriots	57:19 58:10 61:6,7,7
paid	187:6 190:11 193:20	115:19	64:7 96:3 134:16
22:6 28:11 178:17	particularly	pattern	200:15
pair	52:9	135:21	perfectly
150:1	parties	patterned	106:23
pairs	206:13,16	185:20 186:14	perform
163:20,21	partner	Patterns	44:11 45:6 46:5
palms	55:13	4:14	100:24 134:20
69:13	parts	pause	152:12 164:4 189:11
palpate	16:7 77:11	6:19	performed
168:17	party	pay	44:9 100:11 164:21
palpation	110:21	22:11 26:6 28:2	period
170:12	pass	125:15 139:25	11:11 42:5 121:19
pannus	202:10	143:12 177:17 178:3	144:23 146:5 165:14
69:4	passes	178:18 203:20,24	181:18 199:24,25
paper	94:2	204:15	perish
25:20 48:6 144:8	patent	paying	137:6

permissible 33:2	46:8,19	physician 137:19 145:7 192:13	182:10
persistence 136:4	photograph 70:8,24 134:9 136:25 144:24	physicians 89:7 182:7	pocket 137:3
person 11:10 26:6 44:22 47:6 65:22,23 81:16 89:3 89:12 95:19 98:18 103:12 104:11 105:1 105:16,17 106:19 107:2 113:24 114:1 122:7,8 128:13 137:1 138:5,10 142:15 143:12,15 168:6 193:9 197:6	photographed 191:23	pi 96:20,22,22	Podack 42:24
person's 65:15	photographer 128:3,15,17 129:1 133:24 134:7,17,20 135:7 141:24 142:16 187:19,22,24 188:7,9 188:21 191:21 192:2	pick 107:20	point 14:21 24:16 26:16 33:6 56:21 72:2,15 73:4 74:13 81:2 87:8 93:11 97:12 105:2 107:12,19,23 113:5 115:21,23 116:11,15 116:19,24 117:2 120:5,8,11,15 126:9 135:5 136:13 140:8 148:19 164:8 177:23 180:10 195:22 199:14 200:1
personal 153:15 175:13,21,22 175:25	photographers 128:6,19 131:3,8,9 188:2	picked 50:4	pointed 72:20 74:3 75:6 78:4 104:23,25 132:25 134:3 148:19
personnel 142:13,14	photographic 65:13 145:2	picture 66:2 115:16 160:4	pointer 89:1
perspective 78:23 79:1 128:21 154:18 163:15	photographs 4:6 52:6 77:17 95:17 127:10 130:8,16 132:8 135:9 141:25 143:14,20,21 144:22 146:5 158:1 163:3,7 163:8 172:3 187:20 187:25	piece 83:18	pointing 135:23,24 162:21
perspectives 108:8	photography 44:2,4 52:22 59:1,11 124:10,15,18 125:7 125:10,13 126:15,22 129:9,10 136:7 144:8 144:9,11 145:15 146:12 157:24 184:3 184:4 189:23	pink 71:7,8	points 102:8,9,17 104:22 105:23 106:6,15 107:3,21 109:21 112:20,24 115:2,4 117:10 135:9
pertinent 11:16 120:18		pitfalls 129:9	
petition 17:21		pixel 163:22	
Petitioner 1:6 2:16 3:3		pixels 87:24	
Ph.D 4:16		place 68:17 74:4 193:4 201:17	
pharmacology 42:9 43:7		plagued 128:24 129:6	
philtrum 70:19		plane 106:20	
phonetic 65:10		plate 92:5	
photo 52:2 78:21 131:11 132:6,6 136:12,14,20	photometric 46:24 47:19 165:7	platform 97:11	
photogrammetry	photometrics 47:14,17,24 162:23	play 128:5	
	photos 61:22,24 81:17 127:19 127:23 131:10 139:2 139:9,10 188:3,5	please 5:8 13:7,8 28:3 72:13 82:11 111:3,23 124:22 167:16 168:9 169:24 187:6	
	physical 73:9 74:11 156:6	plus	
	physically 147:6,13 148:13		
			pontification 184:13
			poor 142:7
			popular 150:7
			population 63:8 100:22 201:19,23
			port 171:7,13
			portal 158:18,21
			portion

22:23 77:3 78:3 104:24 173:18 portions 1:10,11 15:4 24:17 25:8 76:5,6,7 83:1 105:7 ports 171:1 pose 136:22 posed 5:21 posing 32:9 position 25:19,19 57:23 64:7 64:11 68:23 69:2,20 69:21 70:6 71:19 72:3,9 73:17 77:7 80:19 103:13,13,15 103:17 104:4 109:22 110:7 188:24 189:2 positioning 44:19 75:21 107:7 188:23 positions 68:11,13,13,20,21,22 69:19 73:21 128:9,14 128:20 143:14 187:21 191:22 possibilities 62:10 165:8 possibility 45:22 96:14 98:17 possible 34:5 60:21 61:2 75:17 95:21 96:5 97:24 100:11 120:3 132:23 135:7,13,24 143:5 147:9,10 152:12 159:9 165:4 201:23 possibly 33:2 35:24 98:5 128:10 152:23 202:24	post 75:18 post-processing 164:24 165:1 postgraduate 42:21 posture 197:4,23 199:1 200:22 200:24 201:8,10 202:5 postures 201:18 posturing 202:9 potential 33:22 41:2 58:15 59:14 62:6 89:8 100:25 113:12,16 129:9 130:14 150:19 150:20 161:10 171:18 200:24 potentially 47:12 90:9 120:17 142:24 161:23 201:16 pounds 104:13,13 105:17,17 powerful 48:9 95:2 practice 43:23 45:17 126:18 127:14 180:24 196:3 practices 75:11 179:8 practitioner 46:2 139:11 practitioners 119:9 124:19 125:10 125:14 126:18 127:9 145:5 pre-cancers 123:16 preceded 124:5 precise	40:9,23 57:20 66:20 89:23 111:25 112:5 precisely 34:3 60:16 93:13,17 101:8 132:7 167:17 precision 58:7 60:15,18 93:19 97:21 98:5 113:15 149:16 188:23 preclude 96:14 185:19,24 186:20,23,25 187:1,5 predetermined 87:22 106:18 predicament 152:13 predictor 88:25 predominantly 94:24 182:11 preferred 83:11 preliminarily 202:14 preliminary 28:24 preparation 8:8 13:5,12 prepare 7:5,20 14:12 prepared 29:11,14 preparing 28:25 presence 100:21 present 11:4 35:10 195:18 199:9 presentation 91:5 98:19 pressed 202:19 presume 106:23	presumed 117:3 pretty 76:2 182:24 196:8 Preventative 122:25 123:2 preventing 196:25 Preventive 100:9 previously 4:9 12:4 13:1 17:2 47:4 49:13 50:9,14 50:17,23 51:14 primarily 67:6 88:25 printed 25:4 126:24 prior 17:13 20:21 39:14 62:15 121:24 122:1 122:13 123:11 126:23 146:20 148:7 164:23 171:3 privacy 187:23 191:20 192:5 192:20 193:8,18 private 8:18 43:23 45:17 192:16 193:6 privileged 7:23 8:18 9:3,17 privy 27:24 39:21 probabilities 97:19 probably 38:12 52:1 160:2 203:13 problem 66:6 97:14 111:24 156:5,23 158:14,24 160:25 161:7 188:7 problems 127:18 130:25 144:10
---	---	---	---

146:11 151:14,16,22 155:13,19,19,21 156:2,14,25 164:14 167:14 170:18 171:8 190:8 191:3 197:7 202:5 procedural 117:6 proceed 165:1 proceeding 10:15 17:9 32:23 50:18,23 51:15 109:4 112:4 148:4 187:6 proceedings 53:7 57:7 151:4 process 5:16 6:16 28:11 62:20 99:14 126:16 133:6,7 164:9 165:20 188:11 190:2 processing 62:21 produce 24:10 87:11 94:19 109:16 172:11 produced 19:9 90:19 91:23 172:13 produces 119:4 128:11 145:5 product 128:5 productive 153:8 productivity 125:21 137:15 143:19 144:19 145:17 191:9 191:12 profession 129:7 134:4 professor 167:2 program 43:18	programmer 44:10 45:11 programs 41:7 progress 145:23 project 192:8 Projected 4:14 promise 173:17 promote 145:21 promoted 145:11 promotes 151:2 191:8 prompt 21:16 125:14 prone 91:4 pronounced 8:2 pronouns 53:4 pronunciation 91:25 proper 197:4 properly 72:4,20 156:7 property 9:18,25 proposed 55:15 proposing 32:6 proprietary 107:22 prosecution 10:9,13 Protecting 192:7 protective	55:9,16,24 56:1,9,13 56:15 202:13,17 203:3 Protein 42:11 prototype 172:1 prototypes 172:25 provide 26:11 41:15 57:23 63:3 73:15,16 153:17 154:23 158:1 162:9 197:4,24 provided 45:2 64:11 126:1 provides 72:1 87:25 162:23 164:1 196:15 providing 35:15 62:18 pseudo 61:5 pseudo-simultaneous 197:15 pseudo-synchronous 57:18 60:6,14,24 162:9,14,20 196:15 200:12,13 psoriasis 43:9 PTAB 178:11 PTZ 188:24 189:1,6 public 2:22 140:1 158:14 182:22 193:5 206:4 206:23 publications 44:23 published 43:1 44:20 48:6 86:10 100:17 112:14 116:10 125:22	199:18 200:12 pulled 13:20 purchase 44:4 purchased 181:10 182:1 pure 193:18 purely 198:16,18 purpose 62:14 81:12 125:19 150:5 161:20 197:10 197:10 purposes 46:24 59:11 76:11,13 76:19,21 188:5 194:12,14 196:16 push 153:5 198:10 pushed 153:9 put 51:9 56:7 73:5,6 88:5 93:15 94:16 100:3 104:1 137:1 154:8,11 154:14 173:11 187:22 189:3 191:22 204:1 puts 137:18 putting 75:4 91:16 <hr/> Q <hr/> qualified 206:5 quality 47:1 65:24 100:19 132:1 139:17 142:7 164:5 Quantitative 4:12 question
---	---	---	--

5:20,21,25 6:19 11:18 12:16 13:9 14:18 16:16 19:22 20:1,3 22:21 24:19 24:23,25 25:11,12,14 25:15,17 27:4,5 31:25 32:17 34:9,23 35:10,22 36:2,12,21 37:12,15,19,23 38:14 40:24 46:16 52:8,16 53:6,11,16,22 54:9 56:24 57:10 59:6,8 62:1 65:1 66:3,15 68:1 76:16 79:8 80:7 85:4 95:12 107:24 108:6,10,11,17,18,20 109:1,2 110:4 114:12 123:5 124:22 126:12 132:24 135:13 138:13 140:15,18,19 140:20 141:2 147:22 151:8,10 155:11 157:15 167:5 169:24 175:9 177:20,24,24 184:3,6 185:3,6 186:3,7 187:3,15,16 188:13,16 190:19 194:3 202:23 questioning 33:2 66:21 112:1,5 154:11 174:10,15 questions 5:17 6:11 7:4 32:8 35:7 48:14,22 58:24 66:20 112:17 148:11 148:12,20,21 187:2 quick 59:7 62:17 95:20 137:15 143:9 quicker 37:4 quickly 38:4,12,13 76:2 81:13 133:1,23 143:11 178:12 199:12	202:24 205:2 quite 14:5 134:1 150:6 164:19 <hr/> R <hr/> R 3:1 5:1,1,1 96:20 117:23 R&D 111:19,19 112:2 radiation 193:14 195:7 radiologist 47:13 radiology 48:2 radius 86:25 rail 146:20 raise 176:2 raised 111:25 ramifications 187:1 ran 95:17,19 range 50:5 66:18 201:23 rapid 57:24 63:12 rapidity 58:20 rarely 67:1 181:8 ratcheting 139:23 rate 43:21 91:5 100:13,15 rates 91:11 97:1,16 139:15 reach 118:22 137:18 153:22	reached 126:20 reaching 138:18 read 12:11,16,18 17:11,13 17:20 18:3,6,12,14 18:15,18,20,21 19:10 19:13 20:5,17,19,22 21:10 22:22 23:1 24:18 25:2,5 36:18 37:1,11,12 39:12,18 40:8 48:21,24 55:12 118:18 123:6,7 156:16 162:11 173:25 185:3 206:18 read-through 13:16 14:25 15:3,14 18:15 readdressing 108:7 readily 38:10 90:16 reading 17:18 18:10 19:17 33:25 39:18 40:7 readjust 77:21 real 134:3,20,22 reality 133:9 realize 74:3 123:14 130:7 realized 130:14 153:3 really 15:17,24,25 16:2,9 32:7 33:1,4 53:6 66:6 66:16 107:25 108:2 133:1 134:19 157:16 166:16 180:6 182:11 183:16 186:3 190:21 202:20 realm	32:22 realities 64:22 Realtime 2:20 rearward-facing 69:21 reason 181:6 204:2 reasonable 155:3 recalculations 109:20 recalibrate 75:16 recall 6:6,11 8:25 11:21 13:14,22 29:13,20 34:9 35:3,13 65:11 85:2 139:5 147:4 171:12 172:2,15 180:25 receipt 202:17 receive 33:24 received 18:8 34:19,21 51:11 130:23 receiving 18:5 34:9 35:14 41:23 receptor 42:12 43:2 recess 36:16 52:17 117:19 154:5 179:3 recite 41:10 recognition 120:17 recognize 38:9 58:4 134:4 recognized 146:11 170:18 187:18 recollection
---	---	--	--

39:20 45:18 172:24 recommend 123:1 recommended 100:8 102:14 178:18 reconstruct 162:15 reconstructible 164:10 reconstruction 150:19,21 164:18 197:20 record 5:8 7:1 12:18 18:19 19:2 36:6,11,14,15 36:18 37:1 50:8 51:13 54:1 55:23 56:8,10 67:15 82:12 111:8,13,15 113:7 117:18 123:7 154:3 165:12 179:2 182:13 189:5 196:11 records 172:12 recruited 28:9 red 166:9,15 redirect 202:12 redness 168:22 reduce 45:22 89:11 100:13,19 197:22 reduced 136:20 139:14 206:11 reduces 63:5,7 reducing 68:14 redundancy 35:19 75:25 163:25 redundant 65:25 156:20	refer 41:12 57:16 81:12 126:25 reference 18:16 19:8 26:5 27:2,3 49:2 53:23 71:10,25 99:1 135:5 152:4 176:7 referenced 4:9 17:10 18:13,14 25:12,25 53:23 124:14 references 155:8 referral 26:5 referred 52:5 54:12 143:9 referring 9:25 23:12 29:2 38:6 52:24 54:2 63:15 121:25 123:10 125:10 127:14 128:2 156:23 157:9 180:2 refers 84:15 124:5 125:6 126:14 reflected 26:13 151:17,24 155:14 178:9 refrain 167:6 refresh 11:14 regard 15:16 regarding 47:7 125:23,23 Registered 2:21 regression 122:17 regular 74:10 reimage	73:13 137:24 201:15 Reiner 11:5 12:1 reinforce 99:13 reiterate 20:3 reiterations 39:14 reiterative 35:22 rejected 161:6 relate 147:17 related 11:24 28:18 43:8,8 112:13 128:7 187:18 206:12 relation 76:17 relationship 22:7,11 84:12 101:10 103:23 105:18 relative 77:3 94:24 95:1 206:15 Relax 111:23 relevance 16:13 17:16 27:10,20 28:4,20 29:16 30:9 30:23 31:8,21 32:24 33:15 34:14 35:18 38:24 39:24 40:6 46:14 57:14 95:3 117:15 133:10 149:13 155:3 166:25 167:24 169:25 171:10 172:6 186:3 191:13 194:2 195:11 relevant 10:5 14:6 32:23 148:1 149:4 154:22 167:10 174:12 175:15	197:17 reliable 127:24 reliant 33:17 relocate 114:15 rely 93:4,6,7 115:22,23 relying 127:18 remarkable 44:20 remeasure 91:9 remember 11:13,19 31:9 93:8 96:20 98:1 remind 32:24 remote 126:1 141:18,20,22 remote-care 142:25 remotely 45:21 removal 68:10 removed 86:9 repeat 13:8 72:13 140:20 repeatable 133:15,19,25 158:5 repeated 36:2 repeating 25:15 37:25 repetition 28:7 repetitive 77:10 rephrase 22:21 34:22 108:18 124:22
---	--	---	--

replacing 190:25	63:19 68:11	62:16 112:23 116:10 200:3	174:17
reply 202:20 203:13	rescale 115:24 117:3,9	resumes 36:17 52:18 117:21 154:6 179:4	rhetorical 80:7 140:23 141:2
reporter 1:24 2:20,20,21,21 4:21 12:19 18:25 36:3,19 37:17 49:11 49:15,18 51:2 123:8 150:20 163:17 187:12 189:1 196:10 205:2	research 42:3,7,9,23 44:24 46:25 49:3 93:17 95:11 108:1 109:2 111:17 115:25 116:4 116:7 149:21 152:11 152:11,17 156:24 158:9,16,25 159:10 159:16 179:8	retained 4:21 22:13 26:10	Rhett 1:18 2:15 4:19 5:9 12:8 25:16 53:14 205:9
reposition 68:7,16 107:7	residency 43:18 46:24	reticule 91:25 92:3,4,6,21,22	Richard 134:18 142:11
repositioned 63:24	resource 126:7 152:22	retinal 165:3,22	rid 120:16
repositioning 63:9,19 68:6	resources 152:25	retrieval 144:5	Ridge 5:11
represent 10:11,16 28:7	respect 20:7 26:21 52:12 61:8 109:12 129:23 140:8 154:13,21 174:13 175:12 189:23 196:23	reveal 7:8,13 8:21 10:4,6 14:4 31:1,11 34:15 55:5 56:2 202:21	right 7:14 9:12 18:3 23:20 38:20 42:7 49:6 53:1 54:4 55:8 61:11 63:21 64:3 68:24 69:11,22 70:3 72:20 74:3,8 76:20 78:22 79:10 81:18 82:19,21 91:1 94:18 99:6 101:18 102:25 103:5 104:8 105:7 106:16 107:15 109:14 110:2 110:9 111:2 112:7 113:10 114:18 115:20 118:20 122:5 125:4,5 126:17 127:15,21 129:19 131:11 132:17 141:6 143:24 147:8 151:25 155:23 157:7 158:11 161:7,10 162:3 167:14 169:17 179:24 181:19 183:7 185:15 193:2 194:19 195:9 201:17 203:14
representative 68:13	respond 29:4 31:25 34:3 38:10 38:11 156:13	review 1:12 16:11,16,22 17:24 21:12 24:6,11 25:20 26:4,16,16 29:4,17 30:1 31:24 32:4 33:22 35:21 38:1,12 39:11 40:2 40:11 44:21 73:15 90:8 99:14 149:23 151:12,20,21,22,23 202:16 204:14	
represents 52:21 86:12 100:7	responded 35:20 36:21	reviewed 8:12,14,17 9:4,5,10 11:1 12:9 13:4,12 14:11 16:20 21:15 22:16 24:9 25:8 33:23 39:12,19 98:19 99:10 129:22 150:11 178:6,12 201:4	
reproducibility 132:22 136:8,11 137:11 164:20 197:12	response 29:5 36:22,24 37:13 55:19	reviewing 13:22 30:5 38:14 46:23 88:17 89:7 99:9 152:12 171:18	
reproducible 62:17 81:14 129:24 135:15 137:18 152:15 158:22	rest 32:5 69:19	reviews 12:6,15 17:3 21:4,23 39:5,10 45:3 48:23	
reproducing 130:25 136:22,23	restate 185:2		
request 30:3 34:4,22 204:3	restating 60:10		
require 83:22 149:17 186:18	restricting 195:6		
required 141:23 198:16	restroom 111:7		
requirement 70:4	result 96:5,6		
requirements 150:18,18	results		
requires			

164:6	142:6	scanned	186:11,16 191:6,16
risk	runway	197:10 201:24	192:19 195:11,21
89:11 99:13 197:22	115:20	scanner	200:6 201:1
risks	RxDerm	62:14 87:20,21,22	scoured
201:2	45:9	159:11,22,24	147:5
RMR		scanners	screen
1:24	S	4:16 20:14 152:5	62:25 133:21 135:17
Road	S	179:12,14,18	screening
5:10	3:1 117:23,23,23	scanning	4:12 100:20,24 123:1
roadblock	safe	62:15 85:6,19 160:25	123:1 133:21,22
31:23	144:12	185:17	158:15
robot	safety	scans	se
189:12	197:1	85:8,9 165:14	77:21 127:3
robotic	sagittal	scenes	search
146:19 188:17,20	70:13	150:5	152:17 160:24
189:6,9 190:2,23	Sarit	school	searched
roboticism	181:12,14	40:17,19 41:7 42:2,4	156:15 171:16
190:15	satisfaction	42:15,24 43:10 168:9	second
robots	158:23	schooling	70:5 114:4 137:23
191:11	satisfactory	41:25 42:14	170:23 173:3
robust	149:16	science	secondly
150:22	saw	43:1 151:1	109:7
role	38:20 55:13 123:13	scientific	sections
11:7	151:14 153:22 160:2	1:5 10:21 17:22 18:20	98:9
roll	164:18 178:10,14	43:3 45:2 47:2	secure
6:24	185:13	183:15	72:17 181:23
room	saying	scoliosis	see
36:11 133:1 170:15	37:22 48:6 51:20	169:6,16 170:3,12	9:21 26:17,19 28:24
187:25 191:24 193:8	55:14 82:13 85:11	scope	29:10 40:3 52:9
roughly	90:18 113:23 121:8	14:7 16:14 17:16 27:9	54:13 62:25 64:18,19
71:19	122:6 127:17 133:13	27:20 28:4,20 29:16	64:20,21 68:5 69:15
round	141:7 158:3 178:1,15	30:9,22 31:8,21	69:19 70:8 75:14
86:15	189:6 198:10	32:21 33:5,15 34:14	76:1 83:6,9 89:14
roundish	says	35:18 38:24 39:24	92:10 93:9 103:4,6
86:15	15:11 109:16 121:2	40:6 46:13 57:15	114:3 118:24 123:3
routinely	123:11	61:13 63:23 64:5	141:9,12 145:6,9
118:22 119:1 121:10	scale	74:6,25 75:9 79:25	155:20 159:10,16
121:12 126:19	102:3,3 105:22 106:25	90:25 92:11 117:12	163:20 164:3,12
rubor	107:3 117:3 132:9	147:25 149:2,12	172:12 177:7 178:22
168:19,22	134:8 135:8 157:23	152:2,8 154:19	191:13 194:2 199:16
ruler	158:1	159:14,20 166:25	seeing
88:5 91:16	scaling	167:24 170:7 171:10	29:13 75:5 94:24
run	132:8	172:6 174:11 175:10	114:4 134:23 144:10
95:18 98:11 169:9	scan	180:5 183:12 184:1	156:5
running	105:6 122:12	184:24 185:23	seek

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

35

187:9 seeking 151:13 seen 17:5 38:8 67:10,12 84:19 92:14 135:3 153:2 160:1 165:3 173:21 199:6 200:10 201:11 segmentation 97:9 selection 28:10 44:18 self-answering 140:15 self-calibrating 73:1 send 178:18 179:14,15 204:13,16 sensation 168:23 sense 144:25 199:14,22 203:9 sensitive 111:16,19 sensitivity 139:17,19 182:20 sentence 118:21 140:18 181:20 separate 56:19 135:9 separated 77:14 September 1:20 2:12 206:20 sequence 19:15 62:3 sequenced 59:22 serially 141:24 series 5:17 95:16 114:17	130:22 172:3 seriously 130:2 177:3 182:24 serve 76:10 171:17 served 76:13 server 152:19 servers 181:23 service 57:24 100:9 122:25 123:2,2 127:1 161:19 services 63:2,3 140:1 session 8:13 72:16 77:14,14 77:15 114:2 sessions 95:23 96:6,7 97:4 99:2 set 78:21 82:25 83:17 104:4 105:10 114:4 128:15 133:4 140:14 155:18 165:5 182:12 206:19 sets 181:17 182:3,5 setting 6:8 80:7 88:20 121:14 125:25 128:25 132:23 134:19 135:22 164:7 settings 73:21 135:20 settle 116:20 seven 85:6,10 sex 165:22 sexing 165:3 shape	67:13 88:22 90:15 169:7 shapes 77:22 share 202:25 shared 29:22 43:6 sharp 98:16 Shaw-Crockett 1:24 2:19 206:4,23 shift 40:14 shine 166:11 shoots 82:4 short 102:21 105:1 154:4 169:14 shortcomings 190:22 shorten 144:23 shorter 146:5 Shorthand 2:21 shots 128:22 shove 194:15 show 12:3 13:1 20:12 21:3 21:21 49:8 166:8 showed 44:19 48:5 122:10 125:25 142:4 showing 17:1 19:4 91:5 119:3 127:2 shown 47:4 63:14 101:4,6 122:9 148:15 150:14	shows 97:9 166:13 SHR.0000519 1:24 shrinking 169:2 shrinks 90:14 sic 17:2 19:5 20:5,13 21:3 21:7 45:4 49:9 94:10 100:10 122:25 144:11 161:2 165:12 side 95:19 181:5 183:4 sides 78:24 79:9 sign 204:13,14 206:18 signal 199:12 signature 12:23,24 significant 139:11 197:22 signing 17:13 similar 54:13 77:11 84:20 151:24 156:12 159:17 175:5 176:15 195:15 201:5 similarity 195:13 simple 14:25 27:5 30:2 37:14 45:23 127:18 137:7 163:16,18 simpler 34:9 simply 14:13 34:25 39:13 50:4 55:16 99:23 145:9 146:2 175:15 simultaneously
--	---	---	---

61:10 sinful 153:23 single 77:15 78:23 79:1 137:23 141:16 182:17 single-wavelength 184:9,21 sir 12:22,24 17:20 19:7 19:10 20:15 21:8,15 21:24 22:15 23:10 25:12 36:24 37:20 40:2 46:19 48:9,25 53:22 54:19 83:16 84:14 118:18 127:8 157:20 159:16,24 176:24 194:21 sister 182:21 sit 35:13 site 181:24,24 situation 73:19 135:1,2,3,5,16 142:11 190:14 situations 98:3 128:18 192:10 197:8 size 83:21 84:15 85:2,12 86:3,13 87:3 91:1 97:11 101:22 102:15 114:19,25 115:7 118:22 126:20 139:14 163:22 skeletal 168:24 169:16 sketch 40:17 skilled 47:16 skim	38:25 39:3 skin 4:13 44:22 46:22,23 47:2,8,12,22 48:7 65:12,16 66:3,11,12 81:8,25 86:13,17 89:21 90:14 92:5 93:12,14 94:25 95:3 95:4 98:4,7 100:7,8 100:25 101:11 104:14,19 105:20 106:16 118:21 119:3 119:11,23 120:2,21 121:9,14,15 122:8,24 123:3,13 127:25 130:8,25 136:5,13,14 138:9 139:4,9 141:1 145:6 164:3 165:16 165:19 166:4,20 167:20,22 168:11,25 183:8 184:4 skin-related 184:18 skip 127:6 skipped 15:25 skull 169:3 slip 153:5 slow 46:6 145:22 199:9 slowness 199:15 small 13:19,20 89:9 90:24 99:23 101:1 145:4 smaller 119:17 Society 45:1,4,6 soft-spoken 19:1 software	88:1,8 132:3 sold 181:6 solution 145:22 146:9 153:9,23 155:19 159:1 160:25 161:7,10 189:10 190:7 191:7,8 192:6 solutions 146:14,21 147:9,10 148:17,22 149:10,19 151:22 152:12,16 153:7 159:4,9 188:7 188:18 192:14 solve 111:20 151:14 155:13 155:20 156:5,14,22 156:25 158:14 170:18 171:8 solved 151:17 155:14 156:1 solving 146:14 164:14 some-odd 119:6 somebody 72:3 73:6 75:4 95:14 106:22 135:14 178:3 someone's 115:17 somewhat 60:2 97:12 son 193:25 sorry 13:8 18:7 23:11 49:9 49:11,16 59:18 63:15 71:24 108:15 160:17 173:9 183:1,4 204:7 sort 40:16 86:15 91:20 92:10 103:25 114:23 sounded 202:22 source	128:12 129:4 185:16 185:17 Sources 184:17 South 3:3 speak 36:12 173:7 speaking 124:12 speaks 155:15 special 67:21 98:10 139:25 specialized 129:25 specific 14:25 24:17 46:3 48:15 74:22 77:21 90:20 103:12 157:16 specifically 7:19,22 9:15 13:23 14:3 29:9 42:10 48:6 specification 171:19 specifications 150:16 specificity 139:15 182:21 specifics 41:3 specified 109:22 110:7 specify 172:9 spectrum 184:11 185:12 speed 171:20 188:2,6,7,8 197:22 200:23 spell 181:14 spend 143:12 155:7 198:15 spending
--	--	---	---

89:11 spent 32:20 43:17 spite 98:4 spoke 12:10 13:3 117:17 129:18 spot 85:13 88:17,18 101:8 102:12 104:10 113:4 113:5,6,7,9,20 114:2 114:4,15 116:22 spots 89:4,8,10 114:6,7,10 114:17,19 117:15 120:1 spouses 152:24 squamous 120:22,22 square 65:15 89:5 119:25 squared 96:21 stability 63:7 stabilize 69:7 stacked 167:15 stage 123:17 stain 98:10 Stamford 1:19 2:18 5:10 43:24 179:21,23 182:6,10 stand 72:18 75:4 104:12 197:2 201:17 standard 55:16,24 75:11 87:3 139:21 153:18,19 standardized	128:25 standing 95:14 101:5,7,8 104:12 196:23 stands 36:22 166:13 start 49:16 59:18 118:13 199:23 200:1 started 45:5,16,17 60:1 starts 174:1 state 5:7 15:7,10 206:2 stated 16:20 25:19 60:13 78:12 115:9 136:24 185:5 statement 8:15 9:16 25:23 32:19 48:9 57:16 60:13 68:2,4 78:10 79:4 92:15 101:18 118:24 122:20 129:13,15 131:15,16,17,20 134:12 140:23 157:5 157:9 162:13 174:20 191:4,14 194:5,16,16 statements 20:7,24 21:17 48:15 158:6,8 159:2 186:9 194:17 states 1:1 2:22 93:2 99:23 100:9 122:25 136:3 144:17 206:5 static 59:9 statistical 97:17,19 122:20 statistics 182:22,24 stay 14:24 111:14 196:24	stem 43:19 steps 106:22 117:6 stick 60:13 sticker 51:10 stipulate 55:22 56:4 stipulation 55:9,13 stop 110:8 stopped 16:7 store 181:23 store-and-forward 44:12,13,17 45:7,23 126:2 stored 181:22 stories 113:19 story 150:23 straight 69:9 71:17,18 87:7 straightforward 126:13 131:20 stranger 191:23 stray 193:14,15 195:7 Street 2:18 3:10 strengths 90:11 stretching 95:4 strike 65:1 82:11 121:24 149:20 string	93:15 strobe 59:14 strong 45:20,21 95:9 structural 64:22 structure 82:7 144:4 185:25 186:1,2 195:14 structured 185:20 186:14 187:10 structures 193:17,21,22 struggling 33:1 stuck 202:1 studies 44:20 127:2 128:7 138:7 182:21 199:18 201:19 studio 135:25 study 122:10 125:22 studying 44:7 stumble 104:9 153:17 stumbled 153:7 styles 64:9 sub- 28:15 sub-one-second 57:21 subject 27:17 41:21 58:5 63:20 72:16,18 74:2 76:6,7,8 78:22 80:10 80:19 81:2 83:2 91:11 99:2 101:13 103:23 104:2 114:24
--	--	---	--

114:25 115:1,1 123:12 128:4,18 137:23 144:24 185:21 subject's 77:17 subjects 104:19 197:11 subjunctive 124:4 submission 19:13 21:13 submitted 10:24 17:5,21 19:19 20:20 24:7 32:13 33:11 38:22 39:22 178:7,11,14 submitting 171:16 Subscribed 205:10 subsecond 173:1 subsequent 150:22 substance 7:9,13 8:21 10:4,6 13:25 14:5 28:16 31:1,11 34:16,20 substantial 62:23 151:4 199:7 substantive 11:7 succeed 123:18 success 200:11 succession 95:20 suddenly 37:13 74:2 suffer 166:6,19 suffered 45:25	suggested 57:17 156:10,13 suggests 96:8 suitable 183:22 super-high-resolution 152:14 supply 167:25 support 33:11 supposed 103:17 sure 12:12 13:10 19:15 20:5 36:3,9 38:18 40:25 52:16 53:4,25 54:10 56:16 66:22 73:25 77:9 104:16 112:18 124:25 131:7 132:5 140:22 170:2 173:20,23 177:18 180:25 182:19 184:7 189:24 192:9 196:10 surface 63:4 66:2 67:7 76:24 81:17 82:23,24 89:7 90:15 92:8 98:7 101:11 102:1 104:19 105:20 135:19 161:17 164:2 surfaces 70:1 81:25 82:2,3 104:14 surgery 139:16 Surgical 113:17 surprise 97:3 survival 150:23 153:14 susceptible 66:23 170:9	swelling 168:20 swollen 166:9 swoop 57:23 sworn 5:3 205:10 206:9 Symmetry 166:10 synchronicity 61:3,4 96:1 172:19 198:25 202:7 synchronizing 58:9,9 synchronous 60:21 61:2 62:8 63:4 198:9,16,19,22 synchronously 62:4 137:16 synchrony 197:25 system 4:6,14 44:17 49:2 52:4 52:6,8,10 53:23 54:11,11,20,20,25 57:10,12 58:7,8,12 60:7 61:9 62:7 69:10 72:24 73:16 75:13,24 76:1 78:25 79:11 80:5 83:14,24,24 93:7 94:17,19 96:13 97:15,24 112:11,11 138:4,14,20 140:17 140:22,24 141:15 156:25 161:1,7,15 162:17,19 165:7 171:8 175:1,3,5,6 176:6,8,11,13,14,16 180:20 186:17,18 198:3,5,9,16,19,19 198:25 199:4 200:4 systems 94:3 98:21 103:20 128:16 136:7 142:4	143:1 149:23 150:10 155:16,20 156:1,22 156:23 157:6 159:10 159:11,16,17 171:20 171:23 172:22 198:11 <hr/> T <hr/> T 5:1,1 117:23 T-I-P 54:11 table 36:13 tackle 115:18 tag 203:11,19 tail 41:1 take 5:19 6:20 12:11 13:21 40:9 41:5 48:10 53:12 61:10,19,22,23 62:2,4,8,24 65:9,14 66:2 74:2 77:16 78:20,21 82:15 83:18 85:8 88:5 89:2,18 94:6,6,13,17 111:6 113:24,25 117:16 130:1 132:6 136:25 137:22 139:21 141:24 143:20,21 144:13 145:1 146:5 154:4 164:2 172:3 173:25 174:4 176:23 177:2,17 178:4,21 182:23 187:19 188:4 taken 2:15 36:16 41:3 44:3 52:17 99:4 102:18 106:14 114:16,18 117:20 127:10,19,20 127:23 128:19 130:8 130:16 131:24,24
--	--	--	--

134:25 135:9 137:3,3 137:5 139:3,9,10 154:5 158:1 179:3 199:10 206:7,10,14	tasked 189:12 tduston@marshalli... 3:6	temporal 141:11 144:4	159:20 202:15 206:19
takes 144:24 200:2	teach 59:1 131:6 148:8 167:25	ten 63:14,15 202:16 203:12	thereto 206:16
talk 6:16 23:7 24:3 40:15 86:22 108:4 136:11 147:20 149:6 162:6 168:7 173:8 191:25 204:3	teacher 147:15,16	tend 202:6	They'd 142:18
talked 26:15 60:25 90:18 95:25 103:3 139:2 161:25 173:16 174:21 178:5 183:5 188:1 191:20 201:20	technical 74:22	tenfold 100:16	thicker 122:14,17
talking 7:15,19 9:7 17:25 56:23 65:2 66:24 71:9,15 72:12 74:8 74:10,25 75:11 77:13 77:15 78:15 79:14 89:5 96:1,18,22 108:3,6 109:5,9 110:11,22 112:19 114:14,16 115:13 121:13,20 122:14,15 123:23 125:3 127:9 130:19 131:7 135:4 135:19,20,21 136:1,8 136:12,17,21,23 138:22,23 139:5 142:11,12,19,22 143:8 151:12 155:11 174:25 179:10,22 180:8 181:18 183:21 187:17 190:20 196:2	technically 198:11	term 77:25 136:9	thickness 122:15
	technique 46:6 91:6 122:23 164:25	terms 6:10 40:17 59:22 77:13 80:5 90:12 100:14 101:11 105:19 183:16 188:6 199:15 202:7,19	thigh 69:17 115:17,17,19,21
	techniques 90:9 121:17 123:14 132:3 133:14 136:4 150:13 157:22,24 158:4,13 165:1	terrible 43:13	thighs 69:9
	technologies 61:3 149:15,22 150:9 151:13,20,21,23,23 152:22	test 153:4	thin 105:1 120:14
	technology 40:12 161:9 172:22	testified 5:3 176:1	thing 6:15 117:8 126:6 131:10,11 134:21 136:20 145:14 150:25 197:13,24 198:18 200:14
	teledermatology 44:9,12,13,17 125:24 126:3 158:19	testify 14:14	things 7:19 25:3,4 33:4 34:2 61:5 75:23 93:8 97:19 98:13 110:23 132:23 143:8,11 146:1 172:9 175:25 186:2 195:7 196:3
	telemedicine 44:8,11 45:7,12 126:2	testimony 6:6 7:20 8:8 13:4 22:15 115:9 118:5 154:24 174:12 175:11 202:15 206:8 206:9	think 10:17 24:16,23 30:2 30:24 32:5,9 35:6,8 35:19,22 41:5 45:7 47:25 50:4 51:1 55:8 58:24 59:1 62:13 65:20,21 74:24 77:19 80:4 88:11,14,19 90:21 93:16 94:2 95:11 96:2 97:20 98:25 107:25 108:6 113:23 116:13,16 119:14 120:13 123:5 123:20 126:12 129:16,20,22 130:19 131:4,23 135:2 136:17 138:18,25
tangential 190:20	telephone 142:20	Thank 14:23 24:4 39:5,11 51:22 53:20 56:6 71:21 124:8 174:8 203:5 204:10 205:1	
target 102:13	telephoto 132:2	Thanks 204:6	
task 117:13 189:11	tell 7:6 14:9 18:17 19:12 23:7 25:21 29:18 31:9,10 37:4 54:8 59:21 70:9 96:3 116:14 178:8 188:15 196:5	then-current 123:14	
	telling 108:24 109:1 148:17	theory 199:9	
		therapy 43:9,20	
		thereof	

140:14 145:8 148:17 155:2 157:15 167:10 168:4 173:12 177:1 178:24 181:10,13 183:20 184:9 185:24 190:18,19,23 191:7 197:20 198:7 203:13 203:15,20 third 85:18 95:20 96:10 THOMAS 3:5 thought 23:12 24:19 66:15 112:1,7 137:6 140:23 165:4,23 196:2 thoughts 190:1 thousand 15:23 22:24 63:15,16 thousands 89:3 198:3 three 8:9 43:17 81:11 85:9 87:12,13,16 88:13 90:18 93:2 96:6,7 97:4 113:25 114:15 122:13 139:21 164:13 179:18 three-dimensional 165:9 three-hour 9:22 three-quarters 122:13 threshold 120:6 thresholds 200:12 throwing 97:21 thumbnail 40:16 41:11 Thursday 1:20	thusly 127:3 tight 60:17 149:17 tilt-zoom 188:25 Tim 152:19 time 6:17,22 7:15 9:22 11:11 12:13 15:22 17:17 18:1 22:15 23:3 29:3 31:10 32:21 38:2,2,16 42:5 43:4,14 44:9,25 45:4 46:1,3 51:7,16,19 55:8 59:15 60:8,11 60:16,19,21 61:20,23 61:24 63:5,9,10,10 64:8 72:2,15 73:4 77:14 89:18 94:2 95:20 99:3 100:15 109:6,9 113:25 119:8 120:5,11 121:3,12,19 121:20,20,21 122:2 123:10,19,20,24,25 124:4,11,12,19 125:25 126:19 127:1 127:19,25 128:7,13 128:16 130:17 131:9 132:6,19 133:4,6,14 133:18,23 134:9 135:9 136:13,20 137:23 139:10,10 140:8 141:16 143:5 143:13,15,18 144:3 144:19,22,23 145:2 146:2,6,12 149:15,22 152:25 155:8 157:25 158:4,7,8,10 164:5 171:6,12,23 172:15 172:16 177:2,19 178:2 192:13 193:22 196:16,19 199:25,25 200:2 202:19 203:14	204:7 205:6 times 29:5 35:20 37:25 60:18 87:13 90:3 96:21,22,24 97:23 108:12 127:10 130:9 136:9 139:3 143:22 144:24 158:2 166:9 201:4 timing 17:23,24 57:20 60:17 61:7 172:12 tip 49:2 52:4,21 53:23 54:11,20 63:17 70:19 72:24 76:22 78:19 102:12 107:12 115:4 115:14 162:17,19 163:2 174:25 175:5 176:6,14,16 179:8 TIP's 162:8 176:11 tired 128:13 tissue 98:8,9 170:4,5 titled 21:25 today 6:4 7:21 8:8 14:14 35:13 45:9 49:14,22 50:14 51:16,19 111:17,19,21 112:2 112:11 114:17 139:6 155:7 164:22 204:8 today's 7:5 13:6,13 14:12 22:5 22:22 29:23 49:13 118:4 toe 166:8,10,11,12 told 16:20 37:5,17 85:17 tolerance 200:16	Tom 49:21 108:13 154:10 204:1,15 tomorrow 196:6 tones 130:25 tongue 64:18 top 38:18 83:10 84:7 102:24 105:1 154:20 154:22 157:5 tophi 166:14 tophus 166:16 topic 60:2 Topodermatographic 4:12 torso 69:4 total 52:21 85:9 Tower 3:4 trade 67:20 TRADEMARK 1:1 traditional 100:17 144:7 156:6 training 43:18 44:1 46:10,24 transaction 28:9 transcript 55:25 56:11 202:25 203:17,25 205:3 transcriptions 202:15 transcripts 56:14 translate
---	---	--	---

163:11	150:3	16:23 40:19 48:13	164:8 165:8 176:10
treat	turn	49:5 70:25 104:25	186:25 198:8
175:23	48:16 52:1 62:5 69:12	107:14 112:21	understandings
treatment	118:12,14,15 162:1	155:22 160:9,15	122:1 124:1
123:17	179:6	174:24 190:4	understood
tremendous	turned	ultimately	5:25 26:8 33:8 189:10
75:25 102:15 123:13	40:21	151:16 155:13,17	191:2 193:22
139:19 140:1 144:11	turntables	161:6 202:21	undertake
152:10 198:12	146:24	ultraviolet	117:14
TRIAL	twice	185:16	undertakes
1:2	95:19 177:21	unaffordable	142:25
tries	two	198:11	undertook
66:2	6:19 8:11 11:25 20:21	unavailability	7:20 151:21 155:13
trouble	22:23 60:20 63:1	155:16	158:10
6:25	72:12 79:9 80:15	unavoidable	unfair
true	81:11,15,16 104:11	83:5	194:20,21
62:13 98:25 133:9,17	131:9 139:18 148:13	uncertain	unfamiliarity
167:1	150:24 153:20	55:4 120:20,20	25:2
truth	163:15,20,23 202:23	uncle	unfold
38:11 91:4	two-dimensional	153:21	69:24
truthful	163:3,7	unclothed	unfortunately
34:5 187:4	two-minute	188:1	95:8
try	31:13 145:10	uncomfortable	uniform
60:21 61:2,22 93:25	two-to-five-minute	166:17,17 191:22	60:19
125:2 126:13,25	31:16 33:19 35:2	192:12 193:5	unison
151:21 156:24 159:1	type	underarms	198:20
169:14 175:24	42:7 136:6 145:7	69:5	Unit
178:23 183:19	195:1	undergo	5:10
trying	types	73:14	United
26:19 27:22,23 32:10	120:21 159:17 194:11	underserve	1:1 99:22 100:9
33:3 34:25 52:3,4	194:14	144:15	122:25 136:3 144:17
53:4 55:12 61:1,17	typewriting	underside	universe
62:24 72:17 81:10	206:11	69:6	81:20
83:16 108:25 115:15	typical	understand	University
117:14 129:24 142:3	135:1,2,3,5,16,21	6:10 20:1 28:6 32:10	40:20 41:16,24 42:4
144:18 157:17,20	142:11	37:13 53:15,25 89:14	43:6,16 44:7 46:25
162:24,25 163:10	typically	108:17,19 112:16	unmet
176:5,12 186:12	25:2 134:25 142:5	113:14,21,23 161:14	63:2
189:21 198:20		163:10 176:6 185:6	unobstructive
199:22		186:3,13 187:3,4	151:2
tumor		189:21 203:3	unoccluded
4:13 168:19,19,21	U	understanding	67:5
tumors	5:1	30:10,16 31:18 33:12	unreliability
166:15 168:20	U.S	55:10 78:13 89:17	130:15
tune	144:14 145:20	130:3,3,24 163:1	unreliable
	Uh-huh		

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

42

130:9	143:19	183:13 191:22	views
unsupervised		vary	154:23
99:11	<hr/> V <hr/>	114:25	Virginia
untoward	v	vector	179:17
121:18	1:7	137:14	vis-a-vis
upcoming	VA	vectors	33:17
9:18,24	43:13 125:23 142:6	137:14	visible
upper	158:18	Venn-diagram-inter...	69:2 78:22 98:2 168:4
64:21 67:1,7 107:11	vagaries	184:5	170:3,4
183:4	128:16	veracity	vistas
uric	vague	12:12 13:15	165:15
166:18	58:24 142:16 183:5	verbal	visual
USB	valuable	5:18 160:20	100:6,8 119:3,23
171:1,7,13,18	70:5 140:16	verify	120:2 121:14 122:8
use	value	33:25	122:24 123:3 125:3
43:19 45:23 58:12	44:8 62:14 75:24	version	136:5
62:23 72:17 87:10	116:25 123:3 125:24	41:6	visualization
89:22 92:6 96:16	137:14 140:1	versus	169:11 170:10
101:24 102:7 116:11	values	17:24 58:21 59:9 62:2	visualizing
117:7 124:10,15	193:17	105:17 113:20	98:4
125:6,10 126:23	van	131:24 142:20	visually
129:9,10 132:3 136:4	4:16,20 21:25 22:2,5	199:25	121:6 122:7,8
138:3,4 140:24	22:23 23:21 25:9	vertical	vitae
144:25,25 145:15	26:10,21 27:7,14,18	79:23	10:25
152:21 160:20	27:25 28:10,13,25	vertically	Voigt
164:15 170:19	29:11,13,22 30:6	79:16	154:14
174:25 175:4 176:6	31:19 32:12,13 33:10	veterans	Voorhees
176:13 185:12,12,19	33:13 34:12 35:5,16	44:16 134:24 138:7	43:4
185:24 186:13 187:5	38:21 39:22 173:14	142:3 144:13	
187:10,19 189:8	175:2	viable	<hr/> W <hr/>
192:15 194:20	variability	202:1	Wacker
useful	98:20,24	video	3:3
44:14 61:14 68:14	variable	44:10 45:24,25 142:20	wait
usefulness	97:10,11 184:10	view	13:24 36:7 100:2
137:22	variables	62:11 65:16 77:24	110:3,16
user	128:4	78:1,13,17 82:6,16	waiting
125:21	variance	84:2,3 102:23 103:21	167:15
uses	107:6	105:8,12 141:24	walk
62:6 176:11 184:21	varied	151:17 175:14	54:24 57:11
usually	128:10 136:21	viewed	walkers
76:1 136:6 156:16	variety	119:10	201:24
172:8,9 199:11	186:1 189:25	viewing	walking
usurped	various	134:8 135:8	201:14
37:14	76:21 99:1 101:7	viewpoints	wall
utilitarian	128:17 149:22	82:23 164:20,21	197:23

want 5:22 8:20 10:3,5 13:25 16:9 25:22 30:25 38:3,3 51:14 53:24 57:4,7 66:16 95:10 96:25 104:12 108:2,4 110:21,22,24 111:6 111:12,15,24 114:18 116:6 143:10 144:23 148:19 154:8 167:1 170:14 175:17,21,23 177:5,18 180:6,7 184:13 186:6 187:2 189:3,4 190:21 192:1 201:6 202:2 204:12 204:15	135:14 139:18 165:9 168:8,10,13,16,17 176:16 201:5 WB4 159:21 161:1,14,22 we'll 6:19 7:18 35:11 56:16 155:4 177:3 we're 17:25 33:6,6 36:10 49:8 56:1,23 57:23 62:19,24 74:25 75:13 81:19 94:4 97:18,19 100:17 107:21,25 108:3,6,6,7 123:10 123:23 130:19 131:7 133:21 135:16,20,21 135:23,24 136:1,8 138:19,21,21,22 142:22 143:18 148:16 154:15,17,24 155:8 167:14 169:2,9 174:15 175:15 176:2 177:1 180:7 182:7,17 183:16,21 184:12 187:2 190:20 195:22 202:19 203:16,18 204:12	web 152:18,21 website 45:1 160:3 weeks 136:15 Weide 4:20 21:25 22:2,5 23:21 26:10,21 27:7 27:14,18,25 28:10,13 28:25 29:11,13,22 32:12,13 33:10 34:12 35:5 38:21 173:14 175:2,6 176:9 177:11 186:9 Weide's 22:23 25:9 30:6 31:19 33:13 35:16 39:22 178:7 weights 77:22 well-appreciated 120:25 well-known 190:7 well-understood 190:7 went 16:3 42:3,15 43:16,23 159:8 weren't 61:21 75:7 west 181:5 183:4 wheelchair 196:24 201:21 wheelchairs 201:24 202:1 White 4:14 whittling 89:9 whole-body-surface 181:17 wide	107:6 152:21 widely 146:4 wider 169:3 widest 87:4,8 201:23 width 87:24 94:21 wife's 153:21 181:1 willing 32:3 55:22,23 56:4 204:17 willingness 45:20 Willis 3:4 wind 185:25 wish 20:6 137:7 withdraw 46:16 54:8 114:12 187:15 188:16 witness 5:2 6:24 7:8,14 8:23 9:1 11:15 12:6,15 17:3 21:4,23 22:10 24:2 26:3 28:10 31:3 36:4,8 37:16 39:5,10 48:18,23 53:8,17,19 55:11,18 86:21 108:22,24 110:12 111:2,9,11 118:17 127:7 149:7 154:12 167:1 173:9 174:2,14 174:17 175:8,19,19 175:20 179:1 180:17 185:8 196:9 202:10 203:2,5,8 204:10,14 206:8,9,18,19 witnessed 153:20 women
wanted 15:18 146:4 164:22 173:24 174:20 175:4 wanting 144:7 197:10 wasn't 83:8 watched 32:4 Water 4:16 wavelength 185:14 wavelengths 185:10,11 way 6:16 33:24 46:17 54:9 71:3 75:15,24 87:3 88:23 90:12 99:17,18 109:18 120:7 128:16 130:6 132:5 137:18 140:18,19 145:12 151:2,2 154:12 165:19 166:12 175:5 176:13 183:19 189:17 190:15 191:1 191:2 192:3,12 204:1 ways 75:2,3 109:17 131:5	we've 26:15 28:1 47:4 55:12 55:15,18 67:10,12 80:4 84:19 92:14 100:4,5,11 109:5,8 119:24 165:3 183:13 185:16 186:17 189:25 195:18 199:8 201:4,23 202:3 weak 122:23 142:17 201:21 weaknesses 90:12 wears 75:18 weather 196:5	web 152:18,21 website 45:1 160:3 weeks 136:15 Weide 4:20 21:25 22:2,5 23:21 26:10,21 27:7 27:14,18,25 28:10,13 28:25 29:11,13,22 32:12,13 33:10 34:12 35:5 38:21 173:14 175:2,6 176:9 177:11 186:9 Weide's 22:23 25:9 30:6 31:19 33:13 35:16 39:22 178:7 weights 77:22 well-appreciated 120:25 well-known 190:7 well-understood 190:7 went 16:3 42:3,15 43:16,23 159:8 weren't 61:21 75:7 west 181:5 183:4 wheelchair 196:24 201:21 wheelchairs 201:24 202:1 White 4:14 whittling 89:9 whole-body-surface 181:17 wide	107:6 152:21 widely 146:4 wider 169:3 widest 87:4,8 201:23 width 87:24 94:21 wife's 153:21 181:1 willing 32:3 55:22,23 56:4 204:17 willingness 45:20 Willis 3:4 wind 185:25 wish 20:6 137:7 withdraw 46:16 54:8 114:12 187:15 188:16 witness 5:2 6:24 7:8,14 8:23 9:1 11:15 12:6,15 17:3 21:4,23 22:10 24:2 26:3 28:10 31:3 36:4,8 37:16 39:5,10 48:18,23 53:8,17,19 55:11,18 86:21 108:22,24 110:12 111:2,9,11 118:17 127:7 149:7 154:12 167:1 173:9 174:2,14 174:17 175:8,19,19 175:20 179:1 180:17 185:8 196:9 202:10 203:2,5,8 204:10,14 206:8,9,18,19 witnessed 153:20 women

CONTAINS CONFIDENTIAL PORTIONS
Dr. Rhett Drugge - 9/20/2018

44

145:19 Women's 45:4 wonder 13:6 wondering 13:10 70:7 201:5 wont 62:22 word 187:5 wording 16:4 words 57:19 58:25 61:21 88:15,16 113:4 120:15 work 7:18 28:25 29:11,13 29:17,21 42:22 57:6 59:19 71:23 83:23,24 91:21 112:14 128:5 132:24 133:1,23 134:19 143:13 171:14 172:10 179:9 185:11 198:20 199:19 worked 46:18 workflow 133:18 working 42:24 133:20,21 142:2 158:12 182:7,25 199:8 workload 142:23 works 5:16 6:16 54:20 197:21 203:23 world 61:6 134:16,22 152:20 200:15 worry 49:20 200:1	wouldn't 97:3 103:4 140:3 143:10 195:25 wrap 178:23 write 196:9 wrong 8:2 89:16 104:10 113:18 wrongly 15:12 wrote 43:19 203:6 <hr/> X <hr/> x-ray 170:11 XY 102:10 116:25 189:2 XYZ 188:24 189:6 <hr/> Y <hr/> Yale 42:3 yards 131:24 yardstick 91:20 yeah 9:4 24:2 49:18 51:5 71:6 72:12,15 86:16 86:21 103:19 105:24 114:13 121:4 131:4 133:16 143:23 149:7 166:3 172:22 173:12 179:25 180:3,12 181:23 186:6 189:16 189:19 195:13 203:15 204:10 year 43:1,11 45:16,16 89:11 120:24 145:6 years	43:17 99:19 122:13,19 165:13 179:9 181:19 183:6 199:7 Yep 53:19 yesterday 153:13 yield 198:12 yields 121:17 York 2:22 42:15 115:20 182:23 206:6 young 192:1 197:9,17 201:25 <hr/> Z <hr/> zero 89:22 176:16 zeroing 90:24 ZIP 15:9,10 zone 57:21 <hr/> 0 <hr/> 06103 3:10 06820 5:12 06902 5:11 15:9 <hr/> 1 <hr/> 1 16:3 51:25 1,500 120:24 1.5 89:4,8 100:25 119:25 1.5-square-millimeter 89:6 1.6	85:5,20 101:1 1.6-millimeter 85:22 99:25 10 160:11,13 10,000 120:18,19 100 97:18 10003 17:2 10004 19:5 20:5 10005 20:13 161:2 10006 21:3,6 1001 4:11 13:2 1003 4:12 1004 4:14 151:25 10040 49:9 54:13,20 57:11 1005 4:16 151:25 154:9 159:11 1006 4:18 151:25 1036 49:16 1040 4:6,6 49:9 50:2,3,24 51:2,9,11,20 52:9,13 52:25 54:3 55:1 58:18 61:9 63:18 68:19 69:19 70:9,21 84:19 101:6 11 5:11 11.2 99:19 11:14 2:13
--	---	---	---

CONTAINS CONFIDENTIAL PORTIONS

Dr. Rhett Drugge - 9/20/2018

45

12	2	233	4
122:19	2	3:3	4
12:00	51:25 131:24 160:11	24th	52:2,9 68:6 70:8,24
36:16	2:08	206:20	96:9,19,21,23,24
12:03	117:19	25	97:22
36:17	2:47	145:19	4:24
12:39	117:21	26	179:3
52:17	20	165:12	4:30
12:42	1:20 2:12 131:24	27	177:2
52:18	179:9 181:19	157:24	4:33
128	20-year	28	179:4
171:19	164:9	157:22	40
15	200	2D	48:17 52:5,11 53:24
123:11 124:6,14	44:5	163:8,11	54:12 59:18,20 71:23
16	2000	3	71:24 84:14 109:9
96:22,23 97:23 118:16	121:23,24 122:1	3	112:3,13,23 139:20
118:21 121:2,25	126:23	3	45
124:1 125:3	2001	51:25 160:7,13,14	40:9
17	164:22	3:37	5
124:9 125:6,9 126:14	201	154:5	5
179-180	2:17	3:45	4:2
1:11	2010	154:6	5-micron
18	4:19 12:4 17:14 48:11	30	98:9
40:21 199:7	50:8 52:5 53:24	139:20 143:14,20,21	5,000
18-year	71:24 118:13,14	143:21,22 144:22,24	100:22 113:12,13
165:13	2016	145:19	120:24
180	112:14 116:11	30,000	5:00
104:13 105:17	2017-02125	181:16 182:9	178:24
185	1:14	300	5:13
3:10	2018	145:5	205:6
1977	1:20 2:12 23:10	34	50
40:20	108:14 109:3 205:12	179:6	5:10
1982	206:20	35	51
42:6	2019	162:1,5,6 174:23	4:6
1984	4:20 21:22 22:24 23:8	35,000	53
42:6,13,16 43:1	23:10,11 26:13 28:1	22:6 165:14	174:1
1988	38:6,7 39:20 40:2	350	54-178
42:18 43:10 46:25	173:11	105:17	1:10
1992	21	360	6
43:24 45:14	127:6,8,15	104:13	6
1993	210	3D	51:25,25 52:1,2 94:14
44:6	71:24 118:12	150:18,21 161:19	94:20 95:16 96:8
1C	22	162:8,16 163:8,11	118:23 119:5,11,18
5:10	133:12 134:6,14 158:3	164:9,12,18 175:1,4	
		176:6,8,11,11,18	

120:10 121:9 124:20 125:16 126:5,21 134:14 6-millimeter 95:22 120:6 60606-6357 3:4 6300 3:4 <hr/> 7 <hr/> 7,359,748 1:15 748 4:11 9:8 10:25 13:2,11 14:11 16:17 123:12 151:18 155:15,17 75 119:5 122:16 78th 181:4 79 122:11 <hr/> 8 <hr/> 8 16:22 43:22 96:9,19 86 43:3 173:25 174:7 177:11,11 178:9,16 <hr/> 9 <hr/> 9 85:5,17 86:25 87:15 90:20 9- 85:22 9-millimeter 86:12 87:11 88:6,9 90:17 92:23 90s 45:10 93 45:18			
---	--	--	--