THE STATE OF SOUTH CAROLINA
In The Court of Appeals

APPEAL FROM SPARTANBURG COUNTY
Appellate Panel of the South Carolina Workers' Compensation Commission

R. Michael Campbell, II; Avery B. Wilkerson, Jr.; Aisha Taylor
South Carolina Workers' Compensation Commissioners

Case No. 1614297
Appellate Case No. 2021-000669

Kenneth D. Christian, Employee,

Appellant,

v.

Sew Eurodrive, Inc., Employer and
Great American Alliance Insurance Company, Carrier,

Respondents.

RECORD ON APPEAL

VOLUME II

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A. No, I haven't.
Q. Okay. So, this particular document is a one week snapshot of the repair numbers. Again, he's doing other things while he is in that lab, but this is just the repair numbers, correct?
A. That is correct.
Q. All right. And in this analysis, it looks like there were 21 repairs done, and you've actually got the RGA number beside each repair; is that correct?
A. That is correct.
Q. What does RGA stand for?
A. Returns Good Authorization. That's are internal tracking number for the customer's unit.
Q. And then you have the day it was repaired alongside of it, correct?
A. Correct.
Q. And if we flip the page to page two, just because Mr. Christian was doing a repair didn't always mean he was soldering, correct?
A. Correct.
Q. Okay. So, a bunch of different things he did in that lab. One of which was repairs, but even within the repairs, they weren't all soldering?
A. That is correct, yeah. The two most frequent determinations in evaluating a unit: number one is

that there is no problems with the unit. It can be sent back to the customer or if it's new, it can be put back on the shelf. That happened very frequently, very common. The second most frequent was it is too costly to repair. It got struck by lightening. Someone spilled water on it, something happened to it. You just can't fix it. It's not worth it. We're just going quote the customer a new unit, and those two happened most often.

Q. Okay. So, in this one week snapshot, which is what we have to look at today, the 21 repairs were done over six -- a six work day -- a six day work week, correct?

A. Correct.

Q. And of the 21 repairs that were done, only four of them required soldering; is that correct?

A. That is correct.

Q. All right. And is there any way to -- you heard Mr. Christian say at most three hours a day. Is that -- in your opinion, is that something that you would do regularly work up to three hours in one day on soldering?

A. Absolutely not.

Q. Okay.

A. Absolutely not. As I said before, you would really

be wasting the company's money if you spend hours soldering.

Q. Right. And the way I understand soldering, and actually I'm going to let you explain it, but it's a material that comes wrapped almost like a wire.

A. Uh-huh.

Q. Is that correct?

A. That is correct.

Q. And you connect it to two pieces of metal, and you light a fuse and warm it up, and it makes those two pieces of metal come together?

A. More or less.

Q. Explain it to us.

A. So, you've got a soldering iron. Picture -- picture a pen, if you would, with the tip of that pen being very hot. It's an iron, and what you would do is you would pull off, you know, a couple inches of solder, and, you know, you would wet your soldering iron, put a little solder on there to make it so the solder wants to stick and adhere to the surface that you are working with, and then you would take, you know, a circuit board. You would have to remove the old components. You would heat the solder joint, and we use what's called solder wick to suck up the old solder. Once you've done that, you pull the

component out. If the board needed to be cleaned, you would clean it. Then you put your new component in. Put your solder and solder tip on the component on the board, and you solder the two surfaces together.

Q. I've got a brother who has a welding company, and welders have all of this big machinery and they have got these big torches and wear all of these big masks. That requires you to use your whole body to do a job. Soldering requires you to use basically four fingers, two on each side?

A. Yeah.

Q. Three fingers, four fingers?

A. Three or four.

Q. Right. So, this is something small?

A. It is very small.

Q. Okay. Now, that brings me to my next question. This stack of records, which is a part of that same tab. It's pages 644 to 686. This is entitled "Purchase System Inquiry, Purchase Order Inquiry." Can you tell us what that is?

A. Sure.

Q. By looking at it

A. So, we've actually got a couple here. So, specifically addressing this one here. So, the

first one here is to DUCTZ of Spartanburg. This is for duct cleaning in the lab. We had a duct company, DUCTZ, we've used them many times through the years to come in, vacuum, clean and seal the duct work in the lab.

Q. Okay. And the relevance of this is this something you would do if you worked in the lab?

A. No.

Q. What specifically is this?

A. This is -- this is a contract, an outside contractor who would come in the lab outside of working hours and just as a courtesy to our employees, cleaning their working environment, we went ahead and had the duct work cleaned.

Q. Excellent.

A. And did that in many other parts of the plant as well.

Q. And my point in showing you these documents, and we've got a bunch of these documents in my brief that we may or may not have to get into, but SEW not only in addition to being maybe the cleanest company I've ever walked through does a phenomenal job of keeping records of every transaction that goes on in the plant, and one of the things that you kept records of, Wade, that you were able to get for us

that is in our brief today is the detailed history of the soldering that was ordered by SEW at the plant where you and Mr. Christian worked for all those years for about a ten year period, correct?

A. Actually, longer than that, I do believe. I'm going off of memory here. I'd have to look to be exact, but I think went back to 2000. I was the one who actually pulled those records. So... I went back to 2000, and if I remember correctly, it was 15 rolls, just 15 rolls of solder back to the year 2000.

Q. So, in 16 years, 17 years, 15 rolls?

A. That is correct.

Q. And so again, you are not just motoring through solder material week to week? It's not something that you order every week or every month?

A. I'll be honest with you. Probably more of that solder walked off or it wound up in the trash can than what we used, because there's a fair amount of waste.

Q. So, 15 rolls in 16, 17, 18 years?

A. That is correct.

Q. All right. So, another thing that has impressed me about SEW-Eurodrive is that as soon as Mr. Christian claimed he had these problems, your first question was it can't be related to work we do here. You

said I've got a company to protect, and y'all went out and hired a industrial hygiene company to come in and make sure there was nothing that you were doing that could have caused the type of problems he alleges; is that correct?

A. Absolutely. If something is wrong, we want to fix it. I mean, we've got folks in the lab doing the same exact thing, and, you know, we've not changed a thing, because we believe we are doing, you know, the best that anybody in the industry can do, and we think we are doing it better, to be honest with you.

Q. And even since this claim, you've done several more industrial hygiene studies around the plant, correct?

A. That is correct.

Q. And in the lab where Mr. Christian worked?

A. That's right. Correct.

Q. An you personally have a stake in that, because you worked in that lab for three or four years doing a very similar job, correct?

A. Absolutely.

Q. All right. Now, is it your understanding from reviewing that industrial hygiene report that there was nothing found to be of any concern in the plant?

BY MR. PHILLIPS:

I'm going to object, Your Honor.

DIRECT EXAMINATION RESUMED BY MR. RENFROW:

Q. --- that would rise ---

BY COMMISSIONER MCCASKILL:

Hold on. What is your objection?

BY MR. PHILLIPS:

We did a 30(b)(6) deposition of Mr. Jones. He was the designated the person most knowledgeable as to the safety policies and procedures at SEW. So, I don't think he can testify as to any safety procedures or testing.

BY MR. RENFROW:

I think Mr. Blackwell is Mr. Jones' supervisor.

BY THE WITNESS:

That is correct.

BY MR. RENFROW:

Or one of his supervisors.

BY THE WITNESS:

Rickey reports to me.

BY MR. RENFROW:

Yeah, he's his boss.

BY MR. PHILLIPS:

Commissioner, they could have easily sent Mr. Blackwell for the 30(b)(6) deposition.

BY COMMISSIONER MCCASKILL:

Your objection is noted for the record, but I'm going to allow it.

BY MR. RENFROW:

Thank you.

DIRECT EXAMINATION RESUMED BY MR. RENFROW:

Q. Was there anything that was recovered in the industrial study that you believed to be something that was putting you or your employees both when Ken Christian worked there and since at risk?

A. Absolutely not.

Q. Okay. And have any of the studies that you've done since shown any problems with the soldering materials, the rosin, the chemicals that are used in the lab that have caused you any concern?

A. No, no problems at all.

Q. The lab that we're talking about, Mr. Christian tried to describe it earlier, and I've actually been in the lab, but I would say you're in there a little more than I am, and so for this Commissioner, can you explain the size of this lab, as good as you can, as best you can?

A. Sure. It's -- it's about the size of this room. It's a perfect example actually, roughly.

Q. Do you know by chance the square footage, do you?

BY COMMISSIONER MCCASKILL:

Give me some dimension of some type, because if this were being read by the court, they've never been in this room.

BY MR. BLACKWELL:

All right, so this room is a little less than 100 square feet. I just counted ceiling tiles. So, about 100 square feet. I'm sorry, wait. Bear with me just one moment here. No, it's a little over 200 square feet.

BY COMMISSIONER MCCASKILL:

Two hundred square feet, all right.

DIRECT EXAMINATION RESUMED BY MR. RENFROW:

Q. All right. And I think Dr. Early, the medical provider that we had to go evaluate the facility and the lab described it maybe 25 by 25 feet, something like that.

A. I'd have to get a calculator out.

Q. The point I'm trying to make is we're not working in a little box the size of that ---

A. No, it was a very generous size room, you know, for four people. You can fit a lot more people in there.

Q. And the ceilings are high?

A. They are high ceilings, correct.

Q. You heard some talk today from Mr. Christian about

the fans that were placed at each work station, correct?

A. Correct.

Q. Is that something that exists in the room?

A. Fans, absolutely. Speaking of fans specifically, what we as electronic techs do is we would sometimes fight over who had the best fan actually, because the invertors themselves have fans installed into them, and when a big invertor came back that was too costly to repair, and we would scrap it, then we would -- we would want the fan out of it, and we would run a fan up to our work bench so that it could blow on us and keep us, you know, cooler if it was a hot day and blow those solder fumes away as well.

Q. In the room, in the lab where Mr. Christian worked, is there ventilation, is there proper ventilation?

A. Yes.

Q. Is there anything that you've done in your studies before this or after this that leads you to believe that the ventilation in that room is not proper?

A. No.

Q. In addition to having these fans that you talked about, there's also, I believe you called them extractors?

A. Yeah, there are fume extractors that were always made available to us. I personally chose not to use one just because the exposure was so small.

Q. I asked you earlier about if people at SEW have ever come to you and complained about problems with their lungs or any condition related to working with soldering or any of the chemicals that Mr. Christian believes caused his problem, and he brought up the name Kevin; is that right? Are you aware of Kevin ever making a claim to you or to anybody at SEW or his family about any problems relating to his lungs from working at SEW-Eurodrive?

A. No.

BY MR. RENFROW:

I have no further questions.

BY COMMISSIONER MCCASKILL:

All right. Mr. Phillips.

CROSS EXAMINATION BY MR. PHILLIPS:

Q. Mr. Blackwell, when you were working at SEW in the electronics lab, which lab were you in? Were you in the old lab or the new lab?

A. The old lab.

Q. The old lab?

A. That is correct.

Q. Were there windows in that lab?

A. No, sir.
Q. Did you wear any protective gear, respiratory mask, anything of that sort?
A. No, sir, I did not.
Q. And why is that?
A. It was not needed.
Q. Okay. You said you worked, you know, a couple of years in the lab; is that right?
A. That is correct.
Q. Do you agree Mr. Christian would be -- his exposure to fumes would be far more significant than yours?
A. I believe anybody working in the lab would have a very minor exposure.
Q. Why is that?
A. Just -- it just didn't happen often enough.
Q. Is it your opinion that solder cannot cause a lung condition?
A. I am not qualified to make that determination.
Q. Are the reports that you generate the only source of knowledge that you have to Mr. Christian's soldering?
A. I'm sorry? Can you ask that again?
Q. The reports that y'all generate when a part is repaired that Mr. Renfrow -- that y'all were discussing earlier.

A. The RGA reports?
Q. Yes, are those the only source of your knowledge as to Mr. Christian's exposure?
A. Well, we've got -- I've got reports and first hand knowledge of the space not just from working in it, but also in my role in safety and production as well.
Q. But I'm talking -- you were only in the lab for a few years?
A. I was in the lab for several years, but you have to understand that as production manager and safety manager, I have to be very hands on in the plant, and furthermore I'm -- I'm also responding for building and grounds and new construction. So, I am responsible for the space in that sense as well. So, anything that's going on in that plant, I should know about it.
Q. Okay. And the testing though was performed, did that -- did that testing specifically test for rosin or colophony?
A. Rosin and colophony, there's nothing to test. There's no established threshold to test for those particular items.
Q. And how do you know that?
A. By reading the safety data sheets.

Q. Okay. So, if you asked someone to come in and test for fumes or residue from the solder, ---

A. If you can tell me what to test for, I'll be glad to do it.

Q. So, you did not do any type of testing for rosin or colophony?

A. You have to have a baseline. There's no established threshold or baseline to test for. You have to have -- when you measure something, you have to have something to measure it against.

Q. Do you still -- do you still work at SEW?

A. Yes, sir.

Q. What is your salary?

BY MR. RENFROW:

Object to the form, Commissioner. I don't know why that would be relevant to this case.

BY MR. PHILLIPS:

It shows bias.

BY COMMISSIONER MCCASKILL:

I will let him answer the question.

THE WITNESS ANSWERS:

A. I just had a review recently so it could have changed. The number is approximately $109,000.

CROSS EXAMINATION RESUMED BY MR. PHILLIPS:

Q. One hundred and nine or ninety?

A. One hundred and nine.
Q. Have you ever been arrested or charged with a crime?
A. No, sir.
Q. Have you ever been a party to a lawsuit?
A. Named as an individual?
Q. Yes.
A. Let me clarify. In my personal life, no. Are you speaking anything, I have been named in other cases related to the company, yes.
Q. And what were you sued for personally?
A. I was personally not involved. It was involving a case where someone stole some things from the plant, and I had filed a police report, a report stating so, and the individual in turn sued the company for, I think it was wrongful imprisonment was the claim as a whole.
Q. And I'm looking at a copy of the claim. You were sued for defamation; is that right?
A. It's been several years. You know, I don't remember. It's been several years. If you will refresh my memory.
A. Okay. Your honor, if you will bear with me.
Q. If you go look through the causes of action, what was the first cause of action?

BY COMMISSIONER MCCASKILL:

What page are you on?

BY MR. PHILLIPS:

Page four.

THE WITNESS ANSWERS:

A. First cause of action, defamation.

CROSS EXAMINATION RESUMED BY MR. PHILLIPS:

Q. Okay. Next page, second cause of action?

A. False imprisonment.

Q. Then for the third, and it looks like -- what was the third cause of action?

A. Intentional infliction of emotional distress slash outrage regarding plaintiffs Kevin Wakefield and (inaudible) Wakefield.

Q. And how about the fifth cause of action?

A. I'm sorry. Bear with me just one second. Fourth cause of action. You skipped the fourth cause of action. Do you want that?

Q. What's that?

A. I think you skipped the fourth cause of action or I'm out of sequence one.

Q. Okay, so you've got first cause of action, defamation, second -- did we skip the second?

A. Yeah, second was false imprisonment. Third, intentional infliction of emotional distress. Fourth, negligent supervision. Fifth, malicious

prosecution.

Q. And what was the last, the sixth?

A. Sixty, abusive process.

Q. Okay.

A. Do you want the seventh? We don't have anything to hide here.

Q. What's that?

A. Do you want the seventh? I don't have anything to hide.

Q. You can -- you can go on to seven if you want to.

A. Loss of consortium. The pronunciation on that, I don't know.

Q. What other types of lawsuits have been brought against you?

A. Me personally?

Q. As part of your job at SEW?

A. There's been some -- some other things, but I think for the most part they've really not gone to court. I think we tried to settle or determine things on arbitration.

Q. Similar types of causes of action?

A. To this one that you handed me?

Q. Yes. What other types of causes of action were you being sued for?

A. There's been some disputes about liens placed on our

property.

Q. Okay. And would you be surprised if the person most knowledgeable that SEW designated as to the person most knowledgeable as to the safety policies and procedures said that you did not -- that SEW did not test the ventilation system in the labs?

A. Would I be surprised?

Q. Yes.

A. That is the question? No, I wouldn't be surprised. You're fine. There was no reason to test. If it is not broke, why fix it. The industrial hygiene study again showed that there was nothing to be concerned with. Everything that was tested was below the detectible limits. So, why would we need to look any further?

Q. But you testified earlier you have -- besides Mr. Christian, no other person has claimed a lung disease as a result of soldering; is that right?

A. I'm not aware of any.

Q. Okay. So, is it safe to ---

A. In the company. In the company. I'm not -- your question was open ended there. I'm speaking for SEW.

Q. So, would you have a reason to test for the rosin or colophony if no one else -- if you did not know that

this was a problem?

A. I'm not exactly sure what you're asking there.

Q. So, prior to Mr. Christian's claim, you are not -- you are not aware of anyone else that has a lung related condition from the rosin and colophony?

A. No, I'm not aware of anybody.

Q. So, there would be no reason to test for rosin and colophony prior to Mr. Christian filing his claim?

A. If we had what we felt was a reasonable suspicion that there would be an issue, not just in the lab but anywhere, we would get somebody in there to take a look at it. That's just how we work as a company. There was no suspicion that any activities happening in the lab would justify a test.

Q. So, if you didn't have any suspicion, you wouldn't test for it?

A. Why would you? Why would you test for anything if there was nothing to test for?

Q. Would you test for something if you did not have suspicion to test -- to do a test?

A. If there's no suspicion?

Q. It's yes or no.

A. If there's no suspicion, you wouldn't test for unless you are obligated to. I mean...

BY COMMISSIONER MCCASKILL:

Please answer Mr. Phillips' question. It's a yes or no question.

THE WITNESS ANSWERS:

A. No.

BY MR. PHILLIPS:

Okay. I have no further questions.

RE-DIRECT EXAMINATION BY MR. RENFROW:

Q. But the good news is we did test for it after there was a suspicion, and according to a pretty reputable industrial hygiene company, everything within that lab was within the normal limits and did not exceed any of the limits that OSHA would determine to be dangerous or could cause harm to your employees, correct?

A. Correct.

Q. And just to make sure we are clear, Mr. Phillips has a job to do, and I understand his job, but you're -- this is -- we're not just a company that flies by the seat or our pants and fixes problems just as they arise? Obviously, from a safety standpoint, you're looking to fix problems before they exist, correct?

A. Exactly.

Q. But you didn't have reason to think that soldering and we still don't have any reason to believe

soldering at the levels that you do were quite honestly at any levels close to what you do could cause the kind of problems Mr. Christian has, correct?

A. Correct.

Q. And if you had, do you believe the company you have worked for for 20-plus years would have addressed it before?

A. We would.

Q. And if something had shown up in that industrial hygiene report after this came up, would you have fixed it?

A. Certainly.

Q. Okay, all right. One of the great parts about you getting asked questions about the fact that a disgruntled employee sued your company, you and seven or eight other people that worked there is that essentially I think Mr. Phillips believes that perhaps somehow causes your credibility to be in question, but were you here today when Mr. Christian testified about you?

A. Yes.

Q. All right. And would you say that Mr. Christian is your friend?

A. Absolutely.

Q. And you are not here to hurt Mr. Christian in any way?

A. I don't want to say bad things about Ken. He was a mentor and a good friend.

Q. And we are all very sorry for the condition he has, correct?

A. Absolutely.

Q. All right. But Mr. Christian testified that he worked for you for a number of years, and he has never known you to be dishonest. Is that what you heard today?

A. Well, he didn't work for me. He worked with me. Yes, that is what he said.

Q. All right.

BY MR. RENFROW:

I don't think I have any other questions.

BY COMMISSIONER MCCASKILL:

Mr. Phillips.

RE-CROSS EXAMINATION BY MR. PHILLIPS:

Q. Did the industrial hygiene sampling report test for rosin or colophony, yes or no?

A. No.

Q. Okay.

BY MR. PHILLIPS:

No further questions.

BY MR. RENFROW:

We're done with this witness.

BY COMMISSIONER MCCASKILL:

All right. Thank you, sir. You may step down.

Any other witnesses, Mr. Renfrow?

BY MR. RENFROW:

I have one final witness, Commissioner, I believe. Just give me a moment.

(Off the record)

BY COMMISSIONER MCCASKILL:

All right. Sir, you were present for speak up and answer yes or no?

BY MR. JONES:

Yes, sir.

BY COMMISSIONER MCCASKILL:

Unless you have questions about that, raise your right hand.

BY COMMISSIONER MCCASKILL:

Swear the witness.

BY THE COURT REPORTER:

* * * * * * * * * * * * * * * * *

THE WITNESS WAS DULY SWORN TO TELL THE TRUTH, THE WHOLE TRUTH, AND NOTHING BUT THE TRUTH CONCERNING THE MATTER HEREIN:

RICKEY SANCHEZ JONES

BEING FIRST DULY SWORN, TESTIFIED ON HIS OATH AS FOLLOWS:

BY THE COURT REPORTER:

Thank you.

BY MR. RENFROW:

All right.

BY COMMISSIONER MCCASKILL:

Hold on. State your full name for the record.

BY MR. JONES:

Rickey Sanchez Jones.

BY COMMISSIONER MCCASKILL:

All right, thank you.

BY MR. JONES:

Yes, sir.

BY COMMISSIONER MCCASKILL:

Mr. Renfrow, your witness.

DIRECT EXAMINATION BY MR. RENFROW:

Q. Mr. Jones, how old are you?

A. Twenty-nine.

Q. And how long have you worked at SEW-Eurodrive?

A. It will be 13 years in March.

Q. All right. And you grew up in Wellford, South Carolina?

A. Yes.

Q. Lived there your whole life?

A. Yes.

Q. All right. And what job did you hold when you started at SEW-Eurodrive?
A. So, I started at SEW as a high school student. So, I worked various jobs as a fill in throughout the manufacturing facility. So, that was the bulk of my responsibilities up until becoming a full time employee after I graduated college.
Q. And you've worked your way up in the company over the 13 -- did you say 13 years?
A. Thirteen years in March, correct.
Q. So, the 12 to 13 years that you've been there, you've worked your way into your current role; is that correct?
A. Uh-huh.
Q. Is that a yes?
A. Correct, correct.
Q. And what is your current title?
A. Environmental Health and Safety Coordinator.
Q. Okay. And you have given a deposition in this case, correct?
A. Correct.
Q. And we are submitting your deposition as part of the evidence in this case, but the company designated you for that particular deposition ---
A. Correct.

Q. --- as the person most knowledgeable about SEW's safety policies and procedures, correct?
A. Correct.
Q. And you believe you would be that person?
A. Correct.
Q. Are there other people who you believe are just as close to as knowledgeable as you?
A. Absolutely. I think safety, it would be an injustice to the employees to allow just one person to be a designated decision maker. So, we as a team want to rely on the expertise, the experience of most of the employees. So, our supervisors, our management staff would all have a stake in safety. So, we would collaborate together to make sure that we are providing the safest working environment that we can to our employees?
Q. Are you aware of some complaints that have been filed or alleged against your company against Kenneth Christian; is that correct?
A. Correct.
Q. But you never actually worked with Mr. Christian?
A. That is correct.
Q. But like Wade Blackwell, you work in the same overall building that he worked in, correct? He worked in a lab; you worked in another space but the

same building?

A. So, we have two adjacent buildings. They have the main manufacturing facility, and we have an assembly building as well. So, I am based in the manufacturing facility, but again, our responsibilities call us to different areas of all the plant. So, we would -- we would be involved in the ongoings of that facility as well.

Q. That's my point. You don't work in one state, and Mr. Christian's lab was ---

A. Correct.

Q. --- in another state?

A. Correct, correct.

Q. You were able to go see what goes on in the lab daily if you want to?

A. Absolutely.

Q. And you don't have to be in there every day, but if you wanted to, you could walk right next door and go any time?

A. Yeah, if I wanted to walk there, there would be no reason why I couldn't.

Q. One of the questions that was asked of Mr. Blackwell was if we didn't know about a problem at SEW, would we still address it or would we address it, but part of your job is to seek out potential problems and

fix them before they become a problem, correct?

A. Correct, to the best of my ability.

Q. So, you don't just sit back and wait for somebody to tell us we've got a problem. We are constantly -- your job and your team along with Wade Blackwell was to identify problems initially and fix those problems?

A. Correct.

Q. Okay. Now, if someone does complain of a problem, it's also your job to make sure if there is a problem, you fix it, and to make sure that what they're complaining of doesn't affect other employees, correct?

A. Correct.

Q. All right. And one of the things that was done in this case was an industrial hygienist came in and did a study, an air sample study of the lab where Mr. Christian worked after he made this allegation, correct?

A. Correct.

Q. And we've talked about that. I've got the report in my prehearing brief on pages 479 to -- about a hundred page report. When they came in to do this study, they tested -- at the time, Mr. Christian was complaining of soldering. Since then, we've had

four or five other things added, but they tested soldering and a number of different things that he would have been exposed to potentially in the lab; is that correct?

A. Correct.

Q. And as the safety -- as head of the safety department or one of the heads of your safety environmental department, was there anything in that report that led you to believe that you had any dangerous levels of soldering or were exposing your employees to dangerous levels of solder?

A. There was not.

Q. Now, Mr. Phillips keeps bringing up rosin.

A. Correct.

Q. Okay. We have some MSDS sheets with information on rosin as well, correct?

A. That is correct.

Q. Tell me a little bit about rosin and why that wasn't studied in the industrial hygiene report, as he referenced.

A. So, I think it's important to back up a little bit before you dive right into rosin itself. So, the important thing when you are working with chemicals, you are going to have, as we've referred to several times, MSDS sheets. So, this is going to be your go

to as far as information surrounding that chemical, what it consists of, any potential hazards, any exposure controls that need to be met for this chemical are going to be found on a MSDS sheet. So, this is going to be your first line of defense when you are looking at chemical safety. So, upon evaluated the SDS both internally and externally with our consultants, we looked at the chemicals present and thankfully, those SDS will point to specific hazards in there. Rosin is listed as a component. It makes up roughly 2.2 to 3 percent of the soldering as a whole, but if you look at the SDS of the solder used, it specifically -- it calls out rosin below the list of chemicals as not considered hazardous. And even to confirm that, if you look at the exposure controls, it doesn't have any established exposure, established occupational exposures limits. So, we -- again, we are doing the best that we can do. We sample for everything that OSHA or the ACGIH, which is the American Counsel of Government Industrial Hygienists. They also offer their own suggestions for exposure for employees. They are typically a little bit more stringent than OSHA in some cases, not always, but we compare those -- our findings to those numbers to ensure. So,

upon receiving the results from that, our numbers were fractions of fractions of the exposure limits for the -- for an eight hour working period. So, that would -- that would allow us to conclude that based on our exposures, there is nothing that we need to be concerned about regarding the chemicals used as it pertains to the electronics lab.

Q. And several of our doctors have addressed rosin very clearly, but one of the things that you have to do in your job is look at an MSDS sheet and see what it says about the substance, correct?

A. Correct.

Q. And rosin, was there anything that you revealed during your research on that MSDS sheet or since this claim has been made that suggests rosin would cause any problems with Mr. Christian's lungs at the levels that they are used in your plant?

A. Not to the level that they are used. I would say that after receiving some of the expert opinions on both sides, I looked at some of the studies made. They look at an entire group of several different chemicals, and rosin was apart of that. Now, to what extent the rosin was even used in that, how much of the component was comprised of rosin, all of this information is unknown, but to the extent to

which we are discussing and based on the MSDS sheets, I had not reason to believe that rosin was a factor that would cause anything remotely close to what we are dealing with in this particular case.

Q. In fact, the MSDS sheet in this case says the only known risk was if somebody touched the rosin, it could cause it to be a skin irritant?

A. I'll correct you on that. So, the MSDS that has been referred to and sent from Mr. Phillips to their experts, after reviewing that one again, that one actually calls that rosin to not be considered hazardous at all.

Q. Okay.

BY MR. RENFROW:

No further questions.

BY COMMISSIONER MCCASKILL:

Mr. Phillips.

CROSS EXAMINATION BY MR. PHILLIPS:

Q. Mr. Jones, how often is testing performed in the lab?

A. There's no established requirement for a testing frequency, but to my recollection based on the testing that we done right after Mr. Ken's claim, we've done testing on two separate occasions.

Q. Okay. How about prior to this claim, how often was

the testing done?

A. None to my knowledge.

Q. So, y'all never tested the air in the lab?

A. There was no reason to test the air in the lab.

Q. Okay. The ventilation in the lab, did SEW test the vents to ensure proper ventilation?

A. I think when you look at ventilation as a whole as far as a -- an engineered control for exposures, the biggest thing that is going to assist you in that is finding out what your exposures are. I think that goes into the same effect as what does the ventilation be, and I think that's going to be a dependent variable on the actual exposures that the employee is receiving. So, to answer your question, the industrial hygiene sampling would indicate that ventilation is acceptable for the established exposure controls that are already in place that OSHA and the ACGIH incorporated.

Q. Okay, but again, my question is does SEW specifically test the ventilation systems?

A. No.

Q. Okay. The window in the lab, is that tested to make sure it proper -- safe -- safely opened, it could be -- can be safely opened and for ventilation?

A. I think ---

Q. Go ahead.
A. No, no worries. I think the window itself is more so for a creature comfort. Should someone want to open a window because it's a beautiful day, they have every right to do so, but how that affects their working environment, there is none.
Q. No testing?
A. It either works or it doesn't. I'm not sure what kind of tests.
Q. Do you know if the window works?
A. I haven't opened it myself, no.
Q. Okay.

BY MR. PHILLIPS:

I don't have any further questions.

BY COMMISSIONER MCCASKILL:

Mr. Renfrow.

BY MR. RENFROW:

Real quickly, Commissioner.

RE-DIRECT EXAMINATION BY MR. RENFROW:

Q. Mr. Jones, are you aware of anybody that has ever complained of problems with their lungs ---
A. No.
Q. --- that's worked at SEW?
A. No.
Q. You've been there 13 years?

A. Correct.
Q. In your role, would somebody complain to you or would you probably hear about it if that was a concern?
A. I would. In fact, we have a practice that, you know, if -- since I've been involved, if somebody makes, you know, if there is a reason or an accident or something of that nature, they have to make sure that they inform safety. You know, myself or Wade. That way we can do our best, you know, to investigate that. You know, they -- if they get a splinter in their hand, and it's something that they are concerned about, we want to have that documented.
Q. Right. Has Mr. Phillips or Mr. Christian ever come -- he asked you questions about testing the air and things like that, and have they ever come out to you or to anybody that you know of at SEW and asked if they could test the air quality or the ventilation system that they asked you about?
A. To my knowledge, no, they haven't.
Q. Okay. I have no further questions for you. Thank you, sir.

BY COMMISSIONER MCCASKILL:

Mr. Phillips?

RE-CROSS EXAMINATION BY MR. PHILLIPS:

Q. Mr. Jones, no testing was done prior to Mr. Christian's claim?

A. I would say no, there has not been. I think the results are representative of Mr. Ken's exposure during his time at SEW as well.

Q. So, the report generated after Mr. Christian's claim is representative of 20-plus years in the lab?

A. I say we are using the exact same solder. We are using the same soldering irons. You are essentially talking about the same work space as far as their proximity to the solder. So, that -- that test would not give me any reason to believe that that wouldn't be indicative of that.

Q. Where do you get that knowledge from?

A. Pardon?

Q. Where do you get that knowledge from?

A. Could you repeat the full question?

Q. Where do you get your knowledge that the same amount of soldering was done over the last 20 years or the same types of solder were used? Where do you get that information from?

A. Well, I receive my information from the department itself. I mean, we have employees who have worked in there for several a number of years. We have

employees who have worked alongside of Ken. We have employees who have supervised Ken. So, again, this information as I stated before, we -- I'm not basing this solely off of my own information. This is a collaborative effort.

Q. Okay. You heard, I believe, Mr. Christian and Mr. Blackwell both testified the lab used to be in a different room; is that right?

A. Correct. And if I'm not mistaken, it was said that that room was even bigger than the one they are in now.

Q. That is correct.

A. So, as far as exposure, I would think that a smaller room would create less of a space and create an exacerbated hazard; wouldn't you agree?

Q. Okay. So, you think that the smaller room is worse on the fumes?

A. No, I'm saying by your logic and what you're going at. If I ---

Q. Well, I don't think you knew what I was going to ask you at all.

BY MR. RENFROW:

Let him answer. Please let him speak if you're going to ask him a question.

BY MR. PHILLIPS:

What?

BY MR. RENFROW:

Would you let him finish his answer.

BY MR. PHILLIPS:

He's asking me questions. I'm asking the questions.

BY MR. RENFROW:

Just let him answer.

BY THE WITNESS:

Continue. Continue.

RE-CROSS EXAMINATION RESUMED BY MR. PHILLIPS:

Q. So, how do you know -- since no testing was done after Mr. Christian's claim, how do you know what the exposure would be in the old lab?

A. I'm basing it off of the fact that we are using the exact same soldering, the exact same chemicals in fact. We are using the exact same soldering irons. The product itself has not changed. We are using -- we have the same work stations. Although they may be located in the adjacent room, what you are essentially having is a replication of the exact same work space that they previously had.

Q. Okay. Did SEW not in the past use lead-based solder?

A. I believe that -- I have no experience with lead

based soldering, but yes, they had lead base in their as well.

Q. Okay. So, they now do not use lead based solder?

A. I think it is very very infrequent, to my understanding.

Q. So, you said that they've used the same solder for the last 20 years.

A. We tested for both solders.

Q. But they are no longer using the lead base solder, are they?

BY MR. CHRISTIAN:

They outlawed it.

BY MR. PHILLIPS:

No, you can't talk.

THE WITNESS ANSWERS:

A. To my knowledge, they are not using it as much as they did in the past, no.

BY MR. PHILLIPS:

Okay. I have no further questions.

BY COMMISSIONER MCCASKILL:

Mr. Renfrow.

RE-DIRECT EXAMINATION BY MR. RENFROW:

Q. I'm glad he brought that up, Mr. Jones. Since Mr. Christian made his allegations, the industrial hygiene report we have tests for the pictures that

Mr. Christian and his lawyers sent to their doctors was for no or lead-free solder?

A. Correct.

Q. Y'all have gone a step further as a company and had an industrial hygiene report done based on the lead-based soldering materials, correct?

A. Correct.

Q. And those -- that data came back or those studies and those tests came back compliant below the OSHA standards, correct?

A. Correct, less than detectable.

Q. All right.

BY MR. RENFROW:

No further questions.

BY COMMISSIONER MCCASKILL:

Mr. Phillips.

RE-CROSS EXAMINATION BY MR. PHILLIPS:

Q. Have you reviewed any evidence as to the air quality prior to Mr. Christian's claim?

A. No, I haven't personally, no.

Q. Do you know if any exists?

A. To my knowledge, no.

BY MR. PHILLIPS:

Okay. No further questions.

BY COMMISSIONER MCCASKILL:

Mr. Renfrow?

BY MR. RENFROW:

We're done.

BY COMMISSIONER MCCASKILL:

All right. Thank you, sir. You may step down.

BY MR. RENFROW:

Commissioner, can I step outside with my client just -- I don't know if we need Dr. Feldman.

BY COMMISSIONER MCCASKILL:

Absolutely.

BY MR. RENFROW:

If you can give us two or three minutes.

BY COMMISSIONER MCCASKILL:

Certainly.

(Off the record)

BY COMMISSIONER MCCASKILL:

All right. All of the depos have been marked for the record. We have the Claimant's depo on two different occasions February 15th, 2019, is Claimant's 1-A and -- I mean, Defendants' 1-A and Defendants' 1-B is Claimant's deposition of December 13th, 2016. We have as Claimant's Exhibit 1 deposition of Rickey Jones, July 26th of '19. Dr. Gordon Early is Claimant's 2 taken August 27th of '19, and Claimant's 3 is the deposition of Dr.

Gregory Feldman taken August 23rd of '19. All right. Anything else for the record, gentlemen?

BY MR. RENFROW:

No, Commissioner.

BY MR. PHILLIPS:

I believe that's all, Commissioner.

BY COMMISSIONER MCCASKILL:

All right, very good. I would like both of you to brief this case for me, and please have that to me within 30 days. All right, anything else, gentlemen?

BY MR. RENFROW:

Just one question for you, Commissioner, we don't have to do it on the record, but do you want us to reference the record when we do that so have a copy of the transcript? Would that help you?

BY COMMISSIONER MCCASKILL:

Of course, it helps.

BY MR. RENFROW:

So, if we do that, can we have 45 days so she can get the transcript done and get it to us?

BY COMMISSIONER MCCASKILL:

I am good with that. You don't have a problem with that, do you?

BY MR. RENFROW:

Are you good with that?

BY MR. PHILLIPS:

I'm fine with that.

BY COMMISSIONER MCCASKILL:

All right. Let's do it 45 days, so the court reporter will have time to generate the transcript and you all will have time to prepare the briefs.

All right. Thank y'all very much.

(THERE BEING NO FURTHER QUESTIONS, THIS HEARING WAS CONCLUDED AT THE HOUR OF 11:56 A.M.)

CERTIFICATE OF NOTARY PUBLIC
SOUTH CAROLINA WORKERS' COMPENSATION COMMISSION
COLUMBIA, SOUTH CAROLINA
WCC FILE NO. 1614297

EMPLOYEE/CLAIMANT: KENNETH CHRISTIAN

EMPLOYER: SEW-EURODRIVE, INC.

INSURER: GREAT AMERICAN ALLIANCE INSURANCE COMPANY

I, JAN L. WHITWORTH, A NOTARY PUBLIC FOR THE STATE OF SOUTH CAROLINA, DULY COMMISSIONED AND QUALIFIED AS SUCH, DO HEREBY CERTIFY THAT THE FOREGOING **147** PAGES REPRESENTS A TRUE AND ACCURATE TRANSCRIPT OF THE FOREGOING HEARING OF **KENNETH CHRISTIAN** TAKEN ON THE 24TH DAY OF JANUARY, 2020.

THAT THE WITNESS WAS DULY PLACED UNDER OATH AND ADMONISHED TO SPEAK THE WHOLE TRUTH. THAT THE ORAL HEARING WAS DULY TAKEN AND TRANSCRIBED AS TO THE QUESTIONS PROPOUNDED AND THE ANSWERS GIVEN.

THAT ALL THE OFFERED EXHIBITS, STIPULATIONS AND OBJECTIONS, IF ANY, INVOLVED IN THIS CASE ARE DULY ATTACHED OR INCLUDED HEREIN.

IN WITNESS WHEREOF, I HAVE SET MY HAND THIS 16TH DAY OF FEBRUARY, 2020.

_____
JAN L. WHITWORTH
NOTARY PUBLIC FOR SOUTH CAROLINA
MY COMMISSION EXPIRES: 2-04-2024

* THIS TRANSCRIPT MAY CONTAIN QUOTED MATERIAL. SUCH MATERIAL IS REPRODUCED AS READ OR QUOTED BY THE SPEAKER.

SOUTH CAROLINA WORKERS' COMPENSATION COMMISSION
COLUMBIA, SOUTH CAROLINA
WCC FILE NO. 1614297

EMPLOYEE/CLAIMANT: **KENNETH D. CHRISTIAN**

EMPLOYER: **SEW EURODRIVE, INC.**

INSURER: **GREAT AMERICAN ALLIANCE INSURANCE COMPANY**

DEPOSITION OF KENNETH D. CHRISTIAN

PURSUANT TO NOTICE, THE WITHIN DEPOSITION OF **KENNETH D. CHRISTIAN**, WAS TAKEN BY THE EMPLOYER/INSURER ON THE 13TH DAY OF DECEMBER, 2016, AT 10:08 A.M., AT THE OFFICES OF SMITH, JORDAN, AND LAVERY, P.A., 1810 EAST MAIN STREET, EASLEY, SOUTH CAROLINA, ATTENDED BY COUNSEL AS FOLLOWS:

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VERBATIM REPORTER

JAN L. WHITWORTH
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ALSO PRESENT:
WADE BLACKWELL (EMPLOYER REPRESENTATIVE)
PATRICIA KLINE (CLAIMS ADJUSTOR)

I N D E X

EXHIBITS:

NO EXHIBITS.

OBJECTIONS:

NO OBJECTIONS.

* DIGITAL RECORDING RETAINED FOR SIX (6) MONTHS FROM DATE OF CERTIFICATION.

PURSUANT TO NOTICE AND/OR AGREEMENT TO TAKE DEPOSITIONS, THE WITHIN DEPOSITION WAS TAKEN BY THE ABOVE-NAMED COURT REPORTER, A NOTARY PUBLIC FOR THE STATE OF SOUTH CAROLINA, BY CONSENT OF ALL PARTIES AT THE LAW OFFICES OF SMITH, JORDAN, AND LAVERY, 1810 EAST MAIN STREET, EASLEY, SOUTH CAROLINA.

* * * * * * * * * * * * * * * *

STIPULATIONS:

IT IS AGREED BY AND BETWEEN COUNSEL FOR THE PARTIES AS FOLLOWS:

1. THE DEPOSITION IS BEING TAKEN PURSUANT TO THE RULES OF THE SOUTH CAROLINA RULES OF CIVIL PROCEDURE.
2. THE READING AND SIGNING OF THE DEPOSITION TRANSCRIPT ARE **WAIVED** BY THE WITNESS AND THE PARTIES.

* * * * * * * * * * * * * * * *

THE WITNESS WAS DULY SWORN TO TELL THE TRUTH, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH CONCERNING THE MATTER HEREIN:

KENNETH D. CHRISTIAN,

BEING FIRST DULY SWORN, TESTIFIED ON HIS OATH AS FOLLOWS:

EXAMINATION BY MR. RENFROW:

Q. ALL RIGHT, MR. CHRISTIAN, AGAIN MY NAME IS BEN RENFROW, AND I'M HERE ON BEHALF OF SEW EURODRIVE AND

THEIR WORKERS' COMP INSURANCE CARRIER. HAVE YOU EVER HAD YOUR DEPOSITION TAKEN BEFORE?

A. NO, I HAVEN'T.

Q. OKAY. WELL, I'M SURE GRADY'S TOLD YOU HOW THIS IS GOING TO WORK, BUT I'M GOING TO ASK YOU A LOT OF QUESTIONS TODAY. AND IF YOU WILL, I NEED YOU TO GIVE ME VERBAL ANSWERS TO ALL OF MY QUESTIONS, OKAY?

A. UH-HUH.

Q. IT GETS TEMPTING SOMETIMES TO NOD YOUR HEAD OR TO SAY THINGS LIKE UH-HUH AND UH-UH. WE WANT THIS COURT REPORTER TO BE ABLE TO CLEARLY REPORT WHAT YOU'RE SAYING AND WHAT I'M SAYING. SO LET'S TRY NOT TO DO THAT, OKAY?

A. I'LL DO THE BEST I CAN.

Q. THE MOST IMPORTANT RULE IS I'M NOT HERE TO TRICK YOU. IF I ASK YOU A QUESTION, AND YOU DON'T UNDERSTAND ANY PART OF THAT QUESTION, YOU JUST ASK ME TO REPHRASE IT, AND I'LL BE GLAD TO DO SO, OKAY?

A. OKAY.

Q. WITH THAT SAID, IF I ASK YOU A QUESTION AND YOU ANSWER IT THE WAY I ASK IT, I'M GOING TO ASSUME AND I'M GOING TO ASK THE COMMISSIONER IN A FEW MONTHS TO RELY ON YOUR ANSWER TO MY QUESTION; IS THAT FAIR TO YOU?

A. UH-HUH. YES.

Q. OKAY. STATE YOUR FULL NAME FOR ME ONE MORE TIME.
A. KENNETH DORSEY CHRISTIAN.
Q. OKAY. WHAT'S YOUR CURRENT ADDRESS?
A. [redacted] CIRCLE, EASLEY 29640.
Q. HOW LONG HAVE YOU LIVED AT THAT ADDRESS?
A. EIGHT YEARS, ABOUT.
Q. OKAY.
A. THAT'S ---
Q. DO YOU OWN THAT HOME OR RENT?
A. WE OWN IT.
Q. OKAY. AND YOU SAY "WE," WHO'S WE?
A. MY WIFE AND I.
Q. WHAT'S HER NAME?
A. CAROL ANN CHRISTIAN.
Q. OKAY. AND WHAT DOES SHE DO FOR A LIVING?
A. IS A HOMEMAKER.
Q. OKAY. AND DOES YOUR WIFE HAVE ANY TYPE OF DISABILITY?
A. HIP REPLACEMENT.
Q. OKAY. AND DOES ANYONE ELSE LIVE WITH YOU AT THAT HOME?
A. NO.
Q. I HAVE AS YOUR DATE OF BIRTH AUGUST 13, 1950; IS THAT RIGHT?
A. YES.

Q. AND THAT MAKES YOU 66 YEARS OLD?
A. SIXTY-SIX.
Q. ALL RIGHT. AND I HAVE A FORM HERE THAT YOUR ATTORNEY HAS FILED, AND I'M GOING TO LET YOU LOOK AT IT. UP AT THE TOP OF THIS IS YOUR SOCIAL SECURITY NUMBER THAT YOUR ATTORNEY'S OFFICE PLACED. I DON'T WANT YOU TO READ THIS OUT LOUD. I JUST WANT YOU TO LOOK AT THAT AND VERIFY THAT THAT IS IN FACT YOUR SOCIAL SECURITY NUMBER UP AT THE VERY TOP.
A. YES.
Q. THAT'S CORRECT?
A. (NO RESPONSE)
Q. THAT IS CORRECT?
A. YES, THAT IS CORRECT.
Q. ALL RIGHT. AND I'M LOOKING AT THE FORM 50 DATED SEPTEMBER 28, 2016. ARE YOU CURRENTLY TAKING ANY MEDICATION, MR. CHRISTIAN, FOR ANY REASON, WHETHER IT'S RELATED TO THIS CASE OR NOT?
A. CLARITIN.
Q. OKAY. WHO PRESCRIBED CLARITIN?
A. DR. GREGG.
Q. SPELL THAT LAST NAME.
A. G-R-E-G-G.
Q. OKAY. AND WHERE IS DR. GREGG LOCATED?
A. HE'S AT GREENVILLE. IT'S A PULMONARY DOCTOR THERE.

THEY'RE IN GREENVILLE.

Q. DO YOU KNOW THE NAME OF HIS PRACTICE? PULMONARY AND CRITICAL CARE MEDICINE SOUND RIGHT?

A. I THINK SO.

Q. OKAY. HOW LONG HAVE YOU TREATED WITH DR. GREGG?

A. DR. GREGG HAS BEEN TREATING ME FOR, GOSH, OH, I'M -- I'M TRYING TO THINK. 'CAUSE WE KIND OF -- HE KIND OF SWITCHED DOCTORS. LET'S SEE. I'D PROBABLY SAY -- I'D PROBABLY SAY MAYBE SIX MONTHS.

Q. OKAY.

A. FIVE MONTHS.

Q. HAVE YOU EVER -- AND IS HE A PULMONOLOGIST?

A. HE IS A PULMONOLOGIST.

Q. HAVE YOU EVER TREATED -- HAVE YOU EVER TREATED WITH A PULMONOLOGIST IN YOUR LIFE OTHER THAN DR. GREGG?

A. I SAW DR. KNIGHT. HE WAS RETIRING. SO DR. GREGG CAME IN AND TOOK OVER HIS SLOT.

Q. OKAY. AND WAS IT PRIOR TO AUGUST 25TH, 2016, ---

A. YES.

Q. --- THE DATE OF YOUR ALLEGED INJURY, HAD YOU EVER SEEN A PULMONOLOGIST?

A. NO. NEVER.

Q. OKAY. NOW, WHAT IS THE CLARITIN FOR AS YOU UNDERSTAND IT?

A. IT WAS BECAUSE OF THE COUGHING AND THE PHLEGM FROM

THE LUNGS.

Q. OKAY. ALL RIGHT. ARE YOU TAKING ANY OTHER MEDICINES OF ANY KIND AT THIS POINT?

A. JUST VITAMINS.

Q. OKAY. AND LET ME -- HOW LONG HAVE YOU TAKEN VITAMINS?

A. YEARS.

Q. OKAY. AND YOU'RE NOT CLAIMING ANY OF THOSE VITAMINS HAVE ANYTHING TO DO WITH THIS CASE?

A. NO.

Q. OKAY. IS THERE A DOCTOR THAT PRESCRIBED THE VITAMINS, OR IS IT JUST SOMETHING YOU GO BUY?

A. IT'S JUST SOMETHING I -- SOMETHING THAT YOU GO TO THE C.V.S. AND I GET. OF COURSE, YOU ASKED YOUR FAMILY DOCTOR AND -- AND ABOUT THE VITAMINS. HE SAYS, "YEAH, THAT'S A GOOD VITAMIN TO TAKE."

Q. WHO'S YOUR FAMILY DOCTOR?

A. KENDALL & KEMMERLIN.

Q. AND HOW LONG HAVE THEY BEEN YOUR FAMILY DOCTOR?

A. A LONG TIME.

Q. MORE THAN TEN YEARS?

A. YES. YEAH, THAT'S IT.

Q. DO YOU KNOW, DID YOU HAVE A FAMILY DOCTOR PRIOR TO DR. KENDALL & KEMMERLIN?

A. I'VE BEEN -- THEY'VE BEEN MY -- THEY'VE BEEN A

FAMILY DOCTOR FOR I'D PROBABLY SAY MAYBE OVER 20 YEARS. 'CAUSE THEY HAVE BEEN MY FAMILY DOCTOR SINCE WE HAD LIVED IN GREENVILLE.

Q. OKAY. ALL RIGHT. ANY OTHER MEDICINES OTHER THAN VITAMINS AND CLARITIN?

A. THE MEDICATIONS THAT I TAKE IS THE VITAMIN B COMPLEX, AND THEN YOUR -- YOUR B12, YOU KNOW, AND THEN YOUR ANTIVERT AND ---

Q. IS ANTIVERT A VITAMIN?

A. NO. ANTIVERT IS -- IS FOR LIKE CHOLESTEROL.

Q. OKAY. ARE YOU CLAIMING YOUR CHOLESTEROL HAS ANYTHING TO -- TO -- TO DO WITH THE CASE WE'RE HERE ABOUT TODAY?

A. NO.

Q. OKAY. ANY OTHER MEDICINES OF ANY KIND?

A. AN ASPIRIN, 81 MILLIGRAM OF ASPIRIN.

Q. IS THAT SOMETHING ---

A. AND OTHER THAN THAT, THAT'S IT.

Q. IS THAT SOMETHING A DOCTOR HAS PRESCRIBED, OR IS THAT JUST SOMETHING ---

A. UH-HUH.

Q. --- YOU TAKE?

A. NO, IT'S SOMETHING THAT -- THAT THEY PRESCRIBE TO TAKE.

Q. OKAY. WHO PRESCRIBED YOUR ANTIVERT?

A. KENDALL & KEMMERLIN.
Q. OKAY. HAVE YOU TAKEN ANY OF YOUR MEDICINE TODAY?
A. YES.
Q. BY HAVING TAKEN ANY OF THAT MEDICINE, IS IT GOING TO PREVENT YOU FROM ANSWERING MY QUESTIONS OR UNDERSTANDING MY QUESTIONS?
A. NO.
Q. DID YOU DRIVE HERE TODAY?
A. YES.
Q. ALL RIGHT. HOW FAR DID YOU DRIVE?
A. ABOUT TWO MILES.
Q. OKAY. ANYBODY RIDE WITH YOU?
A. NO.
Q. AND DID YOU TAKE ALL OF THAT MEDICINE BEFORE YOU DROVE HERE TODAY?
A. YES.
Q. OKAY. ALL RIGHT. HOW LONG HAVE YOU BEEN MARRIED, MR. CHRISTIAN?
A. MARRIED IN 1976.
Q. OKAY. AND THAT WAS TO CAROL ANN?
A. UH-HUH.
Q. IS THAT A YES?
A. YES.
Q. AND SO SHE'S YOUR -- SHE'S -- YOU'VE NEVER BEEN MARRIED ---

A. NO.
Q. --- OTHER THAN TO CAROL ANN?
A. ONLY HER.
Q. OKAY. DO YOU HAVE ANY CHILDREN?
A. ONE GIRL.
Q. AND WHAT'S HER AGE?
A. SHE'S 42.
Q. OKAY. DOES YOUR DAUGHTER HAVE ANY TYPE OF DISABILITIES OF ANY KIND?
A. SHE HAS A -- A -- A BIPOLAR DISORDER.
Q. OKAY. ALL RIGHT. DO ANY OF YOUR CHILDREN, SPOUSE, OR SIBLINGS HAVE ANY TYPE OF LUNG PROBLEMS THAT YOU KNOW ABOUT?
A. NO.
Q. OKAY. ARE YOUR PARENTS STILL LIVING?
A. NO.
Q. OKAY. DID EITHER ONE OF THEM HAVE ANY TYPE OF LUNG PROBLEMS?
A. NO.
Q. IS THERE ANYBODY WHO DEPENDS ON YOU FOR FINANCIAL SUPPORT RIGHT NOW OTHER THAN YOUR WIFE?
A. NO.
Q. OKAY. AND DOES YOUR 42-YEAR-OLD DAUGHTER, DOES SHE LIVE AT HOME WITH YOU?
A. NO.

Q. OKAY. HAVE YOU LIVED IN ANY STATE, MR. CHRISTIAN, OTHER THAN SOUTH CAROLINA IN YOUR LIFE?
A. I WAS BORN IN GEORGIA.
Q. OKAY. AND HOW LONG DID YOU LIVE IN GEORGIA?
A. HONESTLY, I -- I DON'T KNOW. AND NOW, IT'S -- IT'S BEEN SO LONG AGO.
Q. OKAY. WELL, HAVE YOU LIVED IN ANY STATE OTHER THAN GEORGIA AND SOUTH CAROLINA?
A. NO.
Q. ALL RIGHT. HOW FAR DID YOU GO IN SCHOOL?
A. GRADUATED IN -- IN ELECTRONIC ENGINEERING.
Q. OKAY. WHERE DID YOU GO TO HIGH SCHOOL?
A. MCDUFFIE HIGH, AT NIGHT SCHOOL.
Q. WHERE IS MCDUFFIE HIGH SCHOOL?
A. ANDERSON.
Q. OKAY. AND WHY DID YOU GO TO NIGHT SCHOOL?
A. BECAUSE I DROPPED OUT OF HIGH SCHOOL.
Q. WHY DID YOU DROP OUT?
A. TO HELP MAKE A LIVING FOR THE FAMILY.
Q. OKAY. SO YOU DROPPED OUT TO WORK?
A. UH-HUH.
Q. IS THAT A YES?
A. YES.
Q. OKAY. AND YOU GOT YOUR DEGREE AT MCDUFFIE HIGH SCHOOL. DID YOU GET IT ON TIME, OR WAS IT YEARS

LATER?

A. NO. IT WAS LATER.

Q. OKAY. AND THEN YOU WENT TO COLLEGE?

A. YES.

Q. AND WHERE DID YOU GO TO COLLEGE?

A. TRI-COUNTY TECHNICAL COLLEGE.

Q. OKAY. YOU GOT YOUR DEGREE IN ELECTRONIC ---

A. CIVIL ENGINEERING.

Q. OKAY. IS THAT AN ASSOCIATE'S OR BACHELOR'S?

A. ASSOCIATE'S.

Q. OKAY. DO YOU HAVE ANY OTHER COLLEGE DEGREES OF ANY KIND?

A. GREENVILLE TECHNICAL COLLEGE, ELECTRONIC ENGINEERING.

Q. ASSOCIATE'S OR BACHELOR'S?

A. ASSOCIATE'S.

Q. OKAY. WHEN IS THE LAST TIME YOU COMPLETED A DEGREE?

A. HONESTLY, I FORGOT WHAT -- WHAT YEAR I GRADUATED.

Q. MORE THAN TEN YEARS AGO?

A. YEAH.

Q. OKAY. HAVE YOU TAKEN ANY COLLEGE COURSES OF ANY KIND IN THE LAST FIVE YEARS?

A. NO.

Q. OKAY. OTHER THAN YOUR TWO ASSOCIATE'S DEGREES, DO YOU HAVE ANY OTHER CERTIFICATES OR LICENSES OR

DEGREES OF ANY KIND?

A. INDUSTRIAL ELECTRONIC ENGINEERING DEGREE FROM GREENVILLE TECHNICAL COLLEGE.

Q. OKAY. AND THAT'S AN ASSOCIATE'S DEGREE YOU SAID?

A. UH-HUH.

Q. IS THAT A YES?

A. YES.

Q. OKAY. ALL RIGHT. ANY OTHER DEGREES?

A. NO.

Q. ALL RIGHT. AND DO YOU HAVE ANY OTHER LICENSES OR CERTIFICATES OF ANY KIND?

A. I HAVE A CERTIFICATE, HEATING AND AIR CONDITIONING FROM GREENVILLE TECHNICAL COLLEGE; IT'S A ONE YEAR.

Q. OKAY. IS THAT SOMETHING THAT YOU ---

A. TOOK ALONG.

Q. --- GOT AS PART OF YOUR JOB WITH SEW EURODRIVE?

A. NO.

Q. JUST SOMETHING YOU DID ON YOUR OWN?

A. YES.

Q. ALL RIGHT. AND WHEN DID YOU GET THAT CERTIFICATE, LESS THAN TEN YEARS AGO OR MORE THAN TEN YEARS?

A. MORE THAN TEN.

Q. OKAY. HAVE YOU OBTAINED ANY CERTIFICATES OR LICENSES OF ANY KIND IN THE LAST FIVE YEARS?

A. NO.

Q. OKAY. AND DO YOU HAVE LIKE A -- A FORKLIFT LICENSE OR A C.D.L., ANYTHING LIKE THAT?
A. NO.
Q. ALL RIGHT. DID YOU EVER SPEND ANY TIME IN THE MILITARY?
A. YES.
Q. ALL RIGHT. WHAT BRANCH AND FOR HOW LONG?
A. U.S. AIR FORCE, TWO YEARS.
Q. ALL RIGHT. NOW, AND WHEN DID -- WHAT YEAR DID YOU GET OUT?
A. LET'S SEE. I WENT IN IN '70. SO '76 AND '7, I THINK '78.
Q. ALL RIGHT. SO YOU GOT IN AT ---
A. ESTIMATE, AROUND '78.
Q. SO YOU GOT IN AFTER VIETNAM?
A. YES.
Q. OKAY. YOU -- YOU WEREN'T DRAFTED?
A. NO.
Q. YOU APPLIED FOR THE MILITARY?
A. VOLUNTEER.
Q. OKAY. WHAT WAS YOUR -- WHAT WAS YOUR RANK WHEN YOU GOT OUT OF THE MILITARY?
A. AIRMAN FIRST CLASS.
Q. OKAY. AND WHAT WAS YOUR SPECIALTY?
A. IT WAS ADMINISTRATIVE.

Q. OKAY. DID YOU WORK ON A BASE FOR TWO YEARS?
A. CHARLESTON AIR FORCE BASE.
Q. OKAY. AND DID YOU SPEND ANY TIME OVERSEAS AS PART OF YOUR MILITARY TRAINING?
A. NO.
Q. OKAY. AND WHY DID YOU GET OUT AFTER TWO YEARS?
A. DECIDED I DIDN'T LIKE IT.
Q. OKAY. AND SO DID YOU RECEIVE AN HONORABLE DISCHARGE?
A. HONORABLE DISCHARGE.
Q. AND WERE YOU EVER INJURED, OR DID YOU EVER GET SICK DURING YOUR TIME IN THE MILITARY?
A. NO.
Q. ALL RIGHT. OTHER THAN CHARLESTON AIR FORCE BASE, DID YOU SPEND ANY TIME ON ANY OTHER AIR BASES OR ---
A. UH-UH.
Q. --- AIR FORCE BASES?
A. NO.
Q. OKAY. AND WHEN YOU SAY YOU WERE ADMINISTRATIVE, WHAT DOES THAT MEAN?
A. WE -- ADMINISTRATIVE IS WE TOOK CARE OF ALL THE BASE MAIL. SO WE HAD TO DELIVER ALL THE MAIL ON THE BASE.
Q. OKAY.
A. AND THEN WE TYPED TRANSFER ORDERS FOR PEOPLE.

Q. OKAY. ALL RIGHT. AND YOU SAID YOU GOT OUT IN 1978. SO WHAT'S THE FIRST JOB YOU HAD AFTER U.S. AIR FORCE?

A. I'M THINKING IT WAS -- I THINK I WENT TO WORK WITH TELAMERICA - NO. PLATT SACO LOWELL. I'M SORRY. PLATT SACO LOWELL.

Q. SPELL ALL OF THAT FOR ME.

A. SO THAT -- THAT'S -- THAT'S A GOOD WORD THERE. SO -- --

Q. PLATT SACO?

A. P-L-A -- P-L-A-T-T. S -- SACO LOWELL IS S -- S-A, SACO LOWELL, L-O-W-E-L-L.

Q. OKAY.

A. AND THAT'S ---

Q. AND WHAT DID YOU DO FOR THAT COMPANY?

A. I WAS A -- AN ELECTRICIAN.

Q. OKAY. WHERE -- DID YOU DO RESIDENTIAL ELECTRICITY OR COMMERCIAL OR?

A. IT WAS JUST INSIDE THE COMPANY, UP WHERE WE WERE WIRING MACHINES.

Q. OKAY. SO YOU WORKED IN A PLANT?

A. UH-HUH.

Q. IS THAT A YES?

A. YES. YES.

Q. AND SO IN THAT PLANT, YOUR JOB WAS TO KEEP THE

ELECTRICAL STUFF WORKING?

A. WELL, NO. WE WERE WIRING MACHINES.

Q. OKAY. AND HOW LONG DID YOU WORK THAT JOB?

A. FOR FOUR YEARS.

Q. OKAY.

A. SOMETHING LIKE THAT.

Q. AND WHAT ---

A. AND I'M ESTIMATING.

Q. WHAT WAS PLATT, WHATEVER THAT COMPANY YOU CALLED, PLATT ---

BY MR. JORDAN:

SACO LOWELL. S-A-C-O HYPHEN L-O-W-E-L-L.

EXAMINATION RESUMED BY MR. RENFROW:

Q. OKAY. WHAT -- WHAT DID THAT COMPANY DO?

A. I'M ASSUMING THAT THEY -- THEIR JOB BASICALLY OVERALL WAS BUILDING INDUSTRIAL EQUIPMENT FOR -- IT'S BEEN A LONG TIME AGO, SO...

Q. WAS THERE WELDING GOING ON?

A. NO.

Q. OKAY. WERE YOU EXPOSED TO SOLDERING FUMES OR CHEMICALS WHEN YOU WORKED THERE?

A. NO.

Q. NONE AT ALL?

A. NO.

Q. OKAY. WHAT ABOUT ASBESTOS?

A. NO.
Q. OKAY. WHY DID YOU LEAVE THAT JOB?
A. DIDN'T LIKE IT.
Q. OKAY. SO YOU QUIT?
A. UH-HUH.
Q. IS THAT A YES?
A. YES.
Q. OKAY. AND WHERE WAS THAT COMPANY LOCATED?
A. IN EASLEY.
Q. DOES IT STILL EXIST?
A. NO. THE SHOPPING CENTER TOOK THE PLACE OF IT.
Q. OKAY. AND DO YOU KNOW WHY IT CLOSED?
A. HONESTLY, I DO NOT.
Q. OKAY. ALL RIGHT. WHEN YOU LEFT THERE, WHERE DID YOU GO?
A. I THINK I WENT TO -- TO TELE -- NO. I WENT TELAMERICA COMMUNICATION SYSTEMS.
Q. OKAY. AND WHAT DID YOU DO FOR TELAMERICA?
A. I WAS INSTALLING LONG DISTANCE SERVICE.
Q. SO WHAT WAS YOUR SPECIFIC JOB?
A. INSTALLING LONG DISTANCE SERVICE.
Q. ALL RIGHT. AND HOW DID THAT WORK. TELL ME. I MEAN, DID YOU ---
A. YOU -- YOU GO TO A COMPANY, AND YOU INSTALL ELECTRONIC DEVICE, AND YOU HOOK UP THEIR LINES AND

EVERYTHING TO IT FOR LONG DISTANCE SERVICE.

Q. OKAY. AND YOU JUST WOULD GO AROUND TO VARIOUS ---

A. WELL ---

Q. --- LAW FIRMS OR?

A. WHEREVER THE -- WHEREVER THE -- WHEREVER THE ORDERS WAS THAT ---

Q. RIGHT.

A. --- PEOPLE WANTED -- WANTED THAT SERVICE.

Q. OKAY. AND THEN HOW LONG DID YOU WORK FOR THAT COMPANY?

A. I WENT TO WORK WITH THEM FOR I'D PROBABLY SAY MAYBE ESTIMATING A COUPLE OF YEARS.

Q. OKAY. AND WHEN YOU WORKED FOR THAT COMPANY, WERE YOU EXPOSED TO CHEMICALS IN THE VARIOUS PLANTS THAT YOU WENT IN?

A. DIDN'T GO IN PLANTS. THIS WAS OFFICE -- OFFICE AREAS THAT WE WENT IN. AND, NO, I WASN'T EXPOSED TO ANY.

Q. WHAT ABOUT OTHER FUMES AND THINGS LIKE THAT?

A. NO.

Q. OKAY. NEVER?

A. NEVER.

Q. OKAY. AND THEN WHY DID YOU QUIT THAT JOB?

A. THAT JOB JUST WASN'T, I MEAN, ANYTHING THAT I REALLY WANTED TO PURSUE AS A CAREER IN.

Q. OKAY. AND IS THAT SOMETHING THAT -- HAD YOU EVER DONE THAT TYPE OF WORK BEFORE, INSTALLING LONG DISTANCE SERVICES?
A. NO.
Q. IS IT SOMETHING THEY HAD TO TRAIN YOU TO DO?
A. YES.
Q. DID YOU PICK IT UP PRETTY QUICKLY?
A. YES.
Q. OKAY. SO YOU LEFT THAT JOB ON YOUR OWN ACCORD?
A. UH-HUH.
Q. YOU WEREN'T -- YOU WEREN'T ---
A. YES.
Q. --- TERMINATED?
A. NO, I WASN'T TERMINATED.
Q. OKAY. AND THEN WHERE DID YOU GO NEXT?
A. IF I'M CORRECT, I MOVED TO NATIONAL WATER LIFT, BEAUFORT, SOUTH CAROLINA.
Q. DID YOU ACTUALLY MOVE TO BEAUFORT?
A. YES.
Q. AND THEN WHAT DID YOU DO FOR THAT COMPANY?
A. I WORKED IN THEIR MAINTENANCE DEPARTMENT.
Q. OKAY. AND WHAT DOES -- IS IT NATIONAL WATER LIFT?
A. UH-HUH.
Q. WHAT TYPE OF COMPANY IS THAT?
A. THEY, LET'S SEE WHAT. ONE OF THEIR BIGGEST FOCUSES

WAS -- WAS MISSILE GUIDANCE SYSTEMS. THEY DID -- DID MILITARY CONTRACTS.

Q. OKAY. WAS THAT ON THE -- A MILITARY BASE?

A. NO.

Q. OKAY. AND DID YOU DO SOME WORK AT PARRIS ISLAND?

A. NO.

Q. OKAY. WERE YOU -- WERE YOU EXPOSED TO CHEMICALS OR WELDING FUMES WHEN YOU WORKED THERE?

A. BASICALLY, NO. I WORKED IN MAINTENANCE, BUT AS FAR AS GETTING EXPOSED TO WELDING, YOU KNOW, I NEVER WELD OR ANYTHING.

Q. ALL RIGHT. WELL, WERE PEOPLE WELDING AROUND YOU?

A. NO.

Q. ALL RIGHT. WERE THERE OTHER CHEMICALS IN THAT AREA ---

A. AND ---

Q. --- THAT YOU WERE WORKING AROUND?

A. THEY HAVE CLEANING FLUIDS, I GUESS, THAT YOU WOULD, YOU KNOW, THAT THEY USED TO CLEAN MACHINES.

Q. ALL RIGHT. DO YOU REMEMBER WHAT CLEANING FLUIDS THOSE WERE?

A. NO.

Q. OKAY.

A. NO IDEA.

Q. WHAT ABOUT ASBESTOS, WERE YOU RELATED TO ASBE -- OR

AROUND ASBESTOS CONTAINING MATERIALS?

A. NO.

Q. OKAY. AND HOW LONG DID YOU WORK FOR NATIONAL WATER LIFT?

A. I MOVED. IT'D PROBABLY BE -- STAYED WITH NATIONAL WATER LIFT NINE -- NINE OR TEN MONTHS.

Q. OKAY.

A. ESTIMATING.

Q. ALL RIGHT. WHERE DID YOU GO NEXT?

A. I LEFT THERE AND CAME TO EURODRIVE CORPORATION.

Q. OKAY. MY RECORDS SHOW YOU STARTED AT EURODRIVE AROUND SEPTEMBER OF TWO -- OF 1984.

A. SOMEWHERE AROUND THAT WAY, SEPTEMBER '84.

Q. AND HAVE YOU WORKED THERE EVER SINCE?

A. YES.

Q. OKAY. ARE YOU CURRENTLY WORKING THERE?

A. YES.

Q. OKAY. WELL, WHEN DID YOU LAST WORK AT EURODRIVE, LAST DAY?

A. FRIDAY.

Q. AND WHEN ARE YOU SCHEDULED TO GO BACK?

A. MONDAY. TOMORROW. I GOT -- MY DAYS ARE MESSED UP.

Q. OKAY. SO TOMORROW IS WEDNESDAY?

A. I'M SORRY. I GOT MY -- I GOT MY DAYS MESSED UP. TODAY IS TUESDAY. MY LAST DAY WAS -- MY LAST DAY

WAS YESTERDAY, MONDAY.

Q. OKAY.

A. SO I GO BACK TO WORK TOMORROW.

Q. OKAY. SO YOU JUST TOOK TODAY OFF?

A. YES.

Q. AND WHAT -- WHAT DID YOU TAKE TODAY OFF FOR?

A. THIS DEPOSITION.

Q. FOR THE DEPO. OKAY.

A. RIGHT.

Q. ALL RIGHT. AND DO YOU WORK MONDAY THROUGH FRIDAY?

A. YES.

Q. AND WHAT SHIFT DO YOU WORK?

A. DAY SHIFT.

Q. OKAY. AND WHAT IS THAT, 7:00 TO 4:00?

A. 7:30 TO 4:00.

Q. OKAY. ALL RIGHT. AND WHAT'S YOUR CURRENT POSITION?

A. ENGINEERING TECH. ELECTRONIC -- ELECTRONIC TECH, AND WHICHEVER WAY YOU WANT TO TITLE IT.

Q. ALL RIGHT. AND DO YOU KNOW THIS GENTLEMAN SITTING BESIDE ME HERE?

A. WADE BLACKWELL. YES, I DO.

Q. HAVE YOU WORKED WITH HIM FOR A WHILE?

A. YES, I HAVE.

Q. AND IS HE AROUND YOU DURING THE DAY WHEN YOU'RE WORKING AS -- AS AN ENGINEERING TECH?

A. PRESENTLY?
Q. YES.
A. NO.
Q. OKAY. HAVE Y'ALL WORKED TOGETHER IN THE PAST?
A. YES.
Q. OKAY. YOU EVER HAD ANY PROBLEMS WITH WADE?
A. NO.
Q. HAVE YOU EVER KNOWN HIM TO BE DISHONEST?
A. NO.
Q. OKAY. HOW LONG HAVE YOU WORKED AS AN ENGINEERING TECH?
A. I STARTED WITH EURODRIVE IN THE MAINTENANCE DEPARTMENT.
Q. OKAY.
A. SO TECHNICALLY, AN ENGINEERING TECH, I'VE BEEN OVER THERE LET'S SAY 33 YEARS. TAKE TEN OFF. SO WE'RE LOOKING AT ABOUT 23 YEARS AS -- AS OVER IN ASSEMBLY ENGINEERING TECH.
Q. OKAY. SO YOU WERE MAINTENANCE FOR TEN YEARS?
A. NINE OR TEN YEARS, ESTIMATING.
Q. OKAY. AND THOSE ARE REALLY THE ONLY TWO POSITIONS YOU'VE HAD?
A. THOSE ARE THE ONLY TWO.
Q. OKAY. DURING THE 32, 33 YEARS YOU'VE WORKED FOR EURODRIVE, HAVE YOU EVER HAD A SECOND JOB? DO YOU

KNOW WHAT I MEAN? YOU'D LEAVE ---

A. NO.

Q. YOU'D LEAVE EURODRIVE ---

A. I'D ALWAYS, YEAH ---

Q. --- AND GO DO SOMETHING SOMEWHERE ELSE?

A. NO.

Q. OKAY. SO YOU, OH, THAT'S BEEN YOUR ONLY JOB FOR THE LAST 33 YEARS?

A. ONLY JOB.

Q. ALL RIGHT. AND DO YOU DO ANY SIDE BUSINESS OR ANYTHING TO MAKE EXTRA MONEY?

A. NO. NOBODY HAS TIME.

Q. I GOTCHA. ALL RIGHT. HOW MUCH MONEY WERE YOU MAKING IN AUGUST OF THIS YEAR?

A. AN HOUR?

Q. IS THAT -- DO YOU GET PAID BY THE HOUR?

A. UH-HUH. ESTIMATING, 35.

Q. THIRTY-FIVE DOLLARS AN HOUR?

A. THIRTY-FIVE AN HOUR AND SOME ODD CENTS.

Q. OKAY. AND HOW MANY HOURS A WEEK ON AVERAGE?

A. FORTY.

Q. OKAY. AND HOW MUCH ARE YOU CURRENTLY MAKING IN DECEMBER OF 2016?

A. THE SAME.

Q. IT HASN'T CHANGED?

A. NO. IT HASN'T CHANGED.
Q. YEAH. ALL RIGHT. WHO IS YOUR SUPERVISOR, YOUR DIRECT SUPERVISOR?
A. DIRECT SUPERVISOR IS GARRETT CHEEK.
Q. AND HOW LONG HAS GARRETT BEEN YOUR SUPERVISOR?
A. OH. I'M ESTIMATING THREE YEARS.
Q. OKAY. HAVE YOU EVER HAD ANY PROBLEMS WITH GARRETT?
A. NO. NO.
Q. HAVE YOU EVER KNOWN GARRETT TO BE DISHONEST?
A. NO. HE'S AN HONEST GUY.
Q. OKAY. WHAT IS YOUR PLAN, MR. CHRISTIAN, IN TERMS OF HOW LONG YOU WANT TO WORK? I MEAN, DO YOU PLAN TO WORK 'TIL YOU'RE 70, PLAN TO RETIRE?
A. NO. I -- I PLAN TO RETIRE AT THE END OF THIS MONTH.
Q. END OF DECEMBER 2016?
A. YES, SIR.
Q. ALL RIGHT. AND HOW LONG HAS THAT BEEN YOUR PLAN?
A. THAT'S BEEN MY PLAN FOR -- FOR QUITE A WHILE.
Q. YEARS?
A. NO. NOT YEARS. I ACTUALLY WANTED TO RETIRE MAYBE AT THE END OF MAY.
Q. NEXT MAY OR THIS PAST MAY?
A. YEAH, MAY 2017.
Q. OKAY.
A. BUT UNFORTUNATELY, WITH THE LUNG ISSUE, MY LUNG

DOCTOR SAID, "KEN, I CANNOT TELL YOU TO RETURN TO WORK," BUT HE SAID, "I CAN TELL YOU, IF YOU GO BACK IN ELECTRONIC LAB UNDER THESE CONDITIONS, THAT YOUR LUNGS ARE GOING TO COME BACK UNDER HEAVY ATTACK." SO I HAVE DECIDED TO RETIRE AT THE END OF THIS YEAR.

Q. OKAY. AND SO EVEN BEFORE YOU STARTED HAVING LUNG ISSUES, YOU HAD THOUGHT I'D WORK THROUGH MAY OF 2017, AND ---

A. THAT WAS MY GOAL.

Q. YEAH.

A. KIND OF SHOOTING FOR SOMETHING LIKE THAT.

Q. I GOTCHA. NOW, WHAT WAS IT ABOUT 2017, BACK BEFORE THE LUNG ISSUES?

A. NOTHING. NOTHING SPECTACULAR. JUST, YOU KNOW, I DON'T HAVE ANY HOBBIES, YOU KNOW, THAT I'M DOING AND STUFF LIKE THAT.

Q. OKAY. SO ---

A. NOTHING SPECTACULAR. I'D GO -- YOU KNOW, I -- I COULD SAY THE END OF FEBRUARY, END OF MARCH.

Q. RIGHT.

A. YOU KNOW, I JUST TOOK AN ARBITRARILY AND SAID, WELL, MAYBE I THINK I'LL TRY TO SHOOT FOR MAY, SOMETHING LIKE THAT.

Q. BUT EVEN BEFORE THESE LUNG ISSUES THAT YOU SAY YOU'RE HAVING, YOU HAD PLANNED TO RETIRE SOME TIME

IN THE NEXT YEAR OR SO?

A. YES.

Q. OKAY. AND SO AT ---

A. NO MAN WANTS TO SPEND ALL OF HIS TIME WORKING.

Q. ALL RIGHT. ARE YOU CURRENTLY -- HAVE YOU STARTED DRAWING SOCIAL SECURITY?

A. YES, I HAVE.

Q. BASED ON YOUR AGE?

A. SIXTY-SIX, YEAH.

Q. OKAY. AND HOW MUCH DO YOU DRAW IN SOCIAL SECURITY EACH MONTH?

A. IT'S TWENTY-TWO-SIXTY-EIGHT.

Q. OKAY. AND IS YOUR WIFE DRAWING HER SOCIAL SECURITY?

A. SHE FILED AT 62, YES.

Q. OKAY. AND BASED ON HER AGE OR BASED ON DISABILITY?

A. ON HER AGE.

Q. ALL RIGHT. AND ARE YOU RECEIVING ANY KIND OF SOCIAL SECURITY DISABILITY CHECK?

A. NO.

Q. YOU PERSONALLY?

A. NO.

Q. OKAY. ALL RIGHT.

A. EXCUSE ME.

Q. NOW, YOU MENTIONED THE DOCTORS TOLD YOU THAT IF YOU WENT BACK INTO THE PLANT AND WERE AROUND THE

DEPARTMENT THAT YOU HAD BEEN IN, THAT YOU WOULD, THAT YOU'D -- YOU MAY GET ATTACKED AGAIN, YOUR LUNGS MAY GET ATTACKED AGAIN?

A. CORRECT.

Q. OKAY. NOW, WHO ARE THE DOCTORS THAT SAID THAT?

A. DR. GREGG.

Q. OKAY. AND DOES DR. GREGG, HAS HE EVER BEEN OUT TO THE PLANT TO SEE WHAT YOU DO?

A. NO.

Q. OKAY. AND SO ANYTHING HE KNOWS ABOUT WHAT YOU DO AND WHAT YOU'RE EXPOSED TO, IS THAT SOMETHING YOU OR YOUR ATTORNEY HAVE TOLD HIM?

A. I EXPLAINED TO HIM.

Q. OKAY. HAVE YOU EVER TAKEN HIM A VIDEO OR ANY DOCUMENTATION, ANY M.S.D.S. SHEETS OR ANYTHING LIKE THAT, ABOUT WHAT YOU DO OR WHAT YOU WORK AROUND?

A. YES, I HAVE.

Q. YOU HAVE? OKAY. AND WHAT HAVE YOU TAKEN HIM?

A. THE SOLDER THAT WE USE.

Q. OKAY.

A. THE FLUX REMOVE THAT WE USE, THE CLEANER THAT WE USE. LET'S SEE. THE SOLDER, FLUX, CLEANER, AND I THINK THAT WAS ABOUT IT.

Q. SO DID YOU ACTUALLY TAKE HIM THE ACTUAL CLEANER, OR DID YOU JUST TAKE HIM AN M.S.D. ---

A. I TAKE -- I TAKE -- I TOOK PICTURES OF THE -- OF THE PRODUCT ITSELF AND THE S.D. SHEETS THAT I LOOKED UP.
Q. OKAY. AND DO YOU HAVE A COPY OF THOSE PICTURES?
A. NO. NOT -- NOT WITH ME. I HAD GIVEN IT TO THE DR. GREGG.
Q. OKAY. AND DO YOU HAVE THOSE PICTURES ON YOUR PHONE, OR DID YOU USE A CAMERA?
A. I HAD A -- I HAD THEM ON MY PHONE, BUT I'VE -- I DON'T ANYMORE.
Q. OKAY. AND -- AND DO YOU HAVE THE SAME PHONE NOW THAT YOU HAD WHEN YOU TOOK THOSE PICTURES?
A. I DON'T THINK I DO, BUT I MEAN, THEY'RE SIMPLE TO GET. BECAUSE I, YOU KNOW, THE -- OUR PRODUCTS ARE THERE ON THE ---
Q. RIGHT.
A. --- ON THE -- ON THE ---
Q. I GUESS IF I NEEDED IT, IF GRADY AND I NEEDED TO SEE EXACTLY WHAT THE DOCTOR HAS SEEN THOUGH, ---
A. OH, I SEE.
Q. --- WOULD HE HAVE A COPY OF THOSE, OR DO YOU KNOW?
A. I THINK I JUST SHOWED HIM ON MY PHONE. I DON'T, YOU KNOW, I DON'T THINK THEY REALLY HAD A -- A COPY OF THEM.
Q. OKAY. ALL RIGHT. AND YOU DIDN'T PRINT OUT ANY COPIES OR ANYTHING?

A. I PRINTED OUT THE S.D. SHEETS ON THE ---

Q. CAN YOU GET ME A COPY OF THOSE IF I NEED THEM?

A. SURE.

Q. OKAY. ALL RIGHT. SO ARE THOSE THE THREE THINGS YOU THINK ARE CAUSING YOUR LUNG PROBLEMS?

A. ALL I KNOW IS THAT THOSE ARE THE THINGS THAT I WORK AROUND, AND DR. GREGG SAID, "WHEN YOU WORK WITH STUFF LIKE THAT," HE SAYS, "IT DOESN'T SHOW UP OVER NIGHT." HE SAID, "IT'S JUST GRADUALLY, GRADUALLY, GRADUALLY, AND THEN FINALLY WHEN IT COMES UP TO THAT POINT, THEN AND, BOOM, IT, YOU KNOW, HITS YOUR LUNGS AND BEFORE YOU KNOW IT."

Q. OKAY. BUT IS IT THOSE THREE THINGS?

A. THOSE ARE THE THINGS THAT WE DEAL WITH IN THE LAB IS THE SOLDER, AND WE -- WE WE'RE USING LEAD SOLDER FOR A -- FOR A LONG TIME, AND THEN I THINK WE STILL HAVE SOME LEAD SOLDER IN THE LAB. BUT THEN WE HAVE THE FLUX SOLDER ROSIN CLEANER, AND THEN WE HAVE THE OTHER CLEANER THAT WE CLEAN -- WE CLEAN THE ELECTRONIC CONTROL SYSTEMS WHEN IT COMES IN. AND THEN ALSO THE DRIVES THAT WE GET IN FROM ALL OVER THE U.S. COMES IN WITH ALL KIND OF CHEMICALS AND STUFF ALL OVER THOSE.

Q. OKAY. SO ARE THOSE THE FOUR THINGS THEN THAT YOU BELIEVE IN YOUR MIND MAY HAVE CAUSED THIS?

A. YES, I DO.
Q. OKAY. NOW, I WANT TO MAKE SURE WE'RE CLEAR. THE SOLDER, THE FLEX ROSIN?
A. FLUX.
Q. FLUX ROSIN. I'M SORRY. AND THEN THIS CLEANER THAT YOU CLEAN THE ELECTRONICS WITH.
A. YES.
Q. AND THEN SOME CHEMICALS THAT YOU SAY ARE ON THE DRIVES THAT COME IN FROM ACROSS THE COUNTRY?
A. AND THAT'S JUST WHAT WE DEAL WITH.
Q. OKAY. THOSE ARE THE FOUR THINGS YOU BELIEVE ARE CAUSING YOUR LUNG PROBLEM?
A. THAT'S WHAT I BELIEVE.
Q. OKAY. HOW LONG, IN TERMS OF YEARS, HAVE YOU WORKED AROUND THE SOLDERING?
A. SINCE I'VE BEEN IN THE LAB, ELECTRONIC LAB.
Q. WAS THAT 16 YEARS OR 13, 23 YEARS IS WHAT YOU SAID?
A. TWENTY-THREE, YEAH.
Q. OKAY. ALL RIGHT. SAME THING FOR THE FLUX?
A. YEAH. AND YOU HAVE TO HAVE THE FLUX ALSO.
Q. OKAY. WHAT ABOUT THE CLEANER FOR THE ELECTRONICS?
A. YEAH.
Q. AND THEN ALSO THE CHEMICALS ON THE DRIVES YOU WERE TALKING ABOUT?
A. WHEN I SAY "CHEMICALS ON THE DRIVES," YOU -- YOU

DON'T KNOW WHAT IS ALL ON THIS STUFF THAT COMES IN. YOU DON'T KNOW WHAT PART OF THE COUNTRY THESE THINGS COME OUT OF. YOU DON'T KNOW WHAT STUFF IS ON THESE DRIVES. MR. BLACKWELL CAN EXPLAIN TO YOU. HE WORKED IN THE LAB, AND WE USED TO SEE DRIVES COME IN WITH STUFF UNGODLY.

Q. YEAH. WHEN IS THE LAST TIME YOU SAW SOMETHING LIKE THAT?

A. THIS IS ---

Q. THAT YOU REFER TO AS UNGODLY?

A. WELL, THERE'S A -- A DRIVE SITTING ON OUR SHELF RIGHT NOW THAT IS TOTALLY FILTHY, AND WE GOT A DRIVE IN A FEW YEARS AGO, IT HAD RAT GUTS BLOWN ALL THE WAY FROM ONE END TO THE OTHER, HAIR, MAT, GUTS. CHEMICALS WAS ALL OVER IT. AND IF YOU WANT TO SAY YOU THINK THAT COULD DAMAGE YOUR LUNGS, YOU BETTER BET YOUR BUTT YOU COULD.

Q. NOW, HOW DID YOU KNOW -- I MEAN, AND I'M ASKING, I'M NOT ARGUING WITH YOU RIGHT NOW, BUT HOW -- HOW DID YOU KNOW IT WAS RAT GUTS?

A. YOU COULD SEE HIM. HALF OF HIM WAS UP HERE (INDICATING), THE REST OF HIM WAS BLOWN ALL THE WAY DOWN.

Q. OH. I GOTCHA. OKAY. BUT THAT WAS SEVERAL YEARS AGO?

A. YEAH, THAT'S BEEN SOME TIME.
Q. AND SO DO YOU THINK THE RAT GUTS AFFECTED YOUR LUNGS?
A. NO. I DIDN'T SAY THAT.
Q. YEAH.
A. I'M JUST TELLING YOU, EXPLAINING TO YOU WHAT WE RUN INTO EVERY DAY OR EVERY WEEK OR EVERY MONTH.
Q. SURE.
A. AND YOU ASKED ME, DO YOU THINK ALL THIS STUFF POSSIBLY COULD DAMAGE A PERSON'S LUNGS? YES, I DO.
Q. YOU -- YOU THINK IT'S POSSIBLE?
A. YES, I DO.
Q. OKAY.
A. ALONG WITH THE OTHER CHEMICALS AND STUFF THAT WE USE, ALL OF IT ADDED INTO THE FORMULA.
Q. YEAH.
A. DO I BELIEVE IT COULD DAMAGE YOUR LUNGS? YES, I DO.
Q. OKAY. HOW LONG HAVE YOU WORKED WITH MR. BLACKWELL HERE?
A. SINCE HE'S BEEN WITH THE CORPORATION.
Q. MORE THAN TEN YEARS?
A. HOW LONG YOU BEEN HERE, WADE?
Q. NOT -- I'LL ASK HIM. I'M JUST ASKING YOU. HOW LONG DO YOU THINK YOU'VE WORKED WITH HIM?
A. IN THE ELECTRONIC LAB, ONLY A COUPLE OF YEARS.

Q. YEAH. ARE THERE PEOPLE AT THE PLANT WHO HAVE BEEN THERE AS LONG AS YOU HAVE, AS FAR AS YOU KNOW? I'M NOT -- I CAN -- I CAN ASK MR. ---

A. I HONESTLY -- I'M SURE THERE'S SOMEBODY THAT'S BEEN IN THERE CLOSE -- CLOSE TO MY -- TO MY TIME, BUT I'M NOT SURE.

Q. DO YOU KNOW OF ANYBODY THAT'S WORKED IN THE LAB FOR MORE THAN TEN YEARS?

A. KEVIN BRUSTER HAS BEEN THERE ABOUT TEN YEARS.

Q. OKAY. DO YOU KNOW OF ANYBODY THAT'S WORKED IN THE LAB OR EVEN HAS WORKED AT EURODRIVE THAT HAS COMPLAINED OF PROBLEMS WITH THEIR LUNGS?

A. NO.

Q. OKAY. HAVE YOU HEARD OF ANYBODY OR ANYONE THAT HAS HAD ANY TYPE OF LUNG DISEASE OR LUNG RELATED PROBLEMS THAT HAVE EVER WORKED AT EURODRIVE?

A. NO.

Q. OKAY. ALL RIGHT. KEVIN BRUSTER EVER MENTIONED TO YOU ANY PROBLEMS ---

A. NO.

Q. --- HE HAD WITH HIS LUNGS? YES OR NO?

A. NO.

Q. WHAT ABOUT MR. BLACKWELL?

A. NO.

Q. OKAY. NOW, DO YOU WORK WITH MASKS, OR DO YOU WEAR A

MASK WHEN YOU'RE WORKING IN THE LAB?

A. I DO NOW.

Q. OKAY. AND DID YOU FOR THE FIRST 22 YEARS IN THE LAB?

A. NO.

Q. OKAY. HAVE YOU EVER SMOKED BEFORE, MR. CHRISTIAN?

A. NO.

Q. DOES YOUR WIFE SMOKE?

A. NO.

Q. HAS SHE EVER SMOKED?

A. NO.

Q. DO YOU HAVE ANY FRIENDS WHO SMOKE?

A. NO.

Q. DOES YOUR LAWYER SMOKE? NO. I'M JUST KIDDING. DON'T ANSWER. I'M JUST KIDDING.

A. YOU'LL HAVE TO ASK HIM.

Q. I'M JUST -- HAVE YOU EVER BEEN INVOLVED IN A WORKERS' COMP CLAIM BEFORE?

A. NO.

Q. EVER BEEN INJURED ON THE JOB AND NOT FILED A CLAIM?

A. NO.

Q. OKAY. HAVE YOU EVER BEEN INVOLVED IN A MOTOR VEHICLE ACCIDENT?

A. A COUPLE.

Q. OKAY. WHEN WAS THE LAST ONE?

A. YOU ASKED THE WRONG PERSON. A LONG TIME AGO.
Q. MORE THAN TEN YEARS?
A. OH, YEAH.
Q. HAVE YOU EVER INJURED YOUR LUNGS ---
A. NO.
Q. --- OR YOUR CHEST IN ANY MOTOR VEHICLE ACCIDENT?
A. NO.
Q. OKAY. HAVE YOU EVER BEEN DIAGNOSED WITH ANY TYPE OF CANCER?
A. NO.
Q. OKAY. ANYBODY IN YOUR FAMILY EVER BEEN DIAGNOSED WITH CANCER?
A. MY FATHER PASSED AWAY WITH CANCER.
Q. WHAT TYPE OF CANCER WAS IT?
A. IT WAS A -- A -- I DON'T KNOW. HE PASSED AWAY WHEN I WAS THREE MONTHS OLD.
Q. OH, REALLY?
A. I DON'T KNOW.
Q. ANY OF YOUR -- EITHER ONE OF YOUR PARENTS DIE OF LUNG CANCER?
A. NOT THAT I KNOW OF.
Q. AND DID EITHER ONE OF YOUR PARENTS SMOKE?
A. NO. NOT THAT I KNOW OF.
Q. OKAY. DO YOU HAVE ANY SIBLINGS LIVING?
A. I HAVE A BROTHER AND A SISTER IN GEORGIA.

Q. BOTH IN GEORGIA?
A. UH-HUH.
Q. YES OR NO?
A. YES.
Q. ALL RIGHT. EITHER ONE OF THEM SMOKE?
A. NO.
Q. OKAY.

BY MR. RENFROW:

WHAT'S SO FUNNY?

BY MR. JORDAN:

GO OFF THE RECORD.

(OFF THE RECORD)

EXAMINATION RESUMED BY MR. RENFROW:

Q. DO ANY OF YOUR NEIGHBORS SMOKE?
A. I HAVE NO IDEA.
Q. AND, OKAY. DO YOU HAVE A FIREPLACE AT YOUR HOUSE?
A. YES.
Q. IS IT A GAS FIREPLACE OR A WOOD BURNING?
A. GAS LOGS.
Q. OKAY. AND DO YOU USE IT REGULARLY IN THE WINTER?
A. RARELY.
Q. DID YOU USE IT LAST NIGHT?
A. NO.
Q. OKAY. HAVE YOU USED IT THIS WINTER?
A. NO.

Q. OKAY.
A. WE DIDN'T USE IT LAST WINTER EITHER.
Q. OKAY. WHY NOT?
A. JUST UNLESS IT REALLY GETS REALLY REALLY COLD. WELL, I JUST USE IT LIKE TO HEAT.
Q. ALL RIGHT. FROM ANY OF THE MOTOR VEHICLE ACCIDENTS YOU MENTIONED, DO YOU RECALL EVER GETTING A SETTLEMENT FROM ANY OF THEM?
A. NO.
Q. HAVE YOU EVER RECEIVED ANY TYPE OF SETTLEMENT IN YOUR LIFE?
A. ONE.
Q. AND WHAT WAS THAT FOR?
A. AND DON'T ASK ME TODAY. BECAUSE I'LL TELL YOU, I HAVE NO IDEA OF WHEN IT -- WHAT DAY IT WAS. I HAD GONE TO SCHOOL FOR A CLASS, AND I GOT FOOD POISONING. SO THEY JUST -- THEY REIMBURSED ME ON THE -- ON THE -- THE DOCTOR BILL AND TO COMPENSATE ME FOR THE INCONVENIENCE.
Q. DO YOU REMEMBER HOW MUCH YOU GOT OUT OF THAT?
A. FIFTEEN-HUNDRED, MAYBE SOMETHING LIKE THAT.
Q. OKAY. DID YOU HAVE A LAWYER?
A. NO.
Q. OKAY. WHEN YOU WORKED IN THE MILITARY, WERE YOU EXPOSED TO CHEMICALS?

A. NO.
Q. WERE -- WERE YOU ON BASES THAT HAD ASBESTOS CONTAINING MATERIALS OR OTHER CHEMICALS AND FUMES?
A. I DON'T KNOW. I WASN'T AROUND THEM.
Q. YOU WEREN'T AROUND THEM, OR YOU DON'T KNOW IF YOU WERE AROUND THEM?
A. I DON'T KNOW IF -- YOU KNOW, I JUST DELIVERED THE MAIL.
Q. OKAY.
A. AND YOU JUST RAN IN AND OUT, AND YOU'RE GONE.
Q. IN AND OUT OF RESIDENCES, OR IN AND OUT OF ---
A. IN AND OUT OF BUSINESSES.
Q. ON THE BASE?
A. ON THE BASE. YEAH.
Q. OKAY. BUT WHEN IS THE LAST TIME YOU SPENT THE NIGHT IN A HOSPITAL, MR. CHRISTIAN?
A. AUGUST THE 26TH OF THIS YEAR.
Q. AND WHAT WAS THAT FOR?
A. LUNG BIOPSY.
Q. OKAY. AND WHAT WAS THE DIAGNOSIS FOLLOWING THE BIOPSY?
A. INTERSTITIAL LUNG DISEASE.
Q. AND WHAT DOES THAT MEAN?
A. THAT'S SOME LONG WORDS. YOU WOULD -- YOU WOULD HAVE TO ASK THE -- CONTACT THE DOCTOR ON THAT ONE.

Q. AND WOULD THAT BE DR. GREGG?
A. DR. BOLTON AND DR. GREGG.
Q. IS DR. BOLTON IN HIS PRACTICE?
A. DR. BOLTON IS A SURGEON.
Q. OKAY. AND HAVE YOU HAD SURGERY?
A. YES, SIR.
Q. AND WHAT TYPE OF SURGERY DID YOU HAVE?
A. IT REFERS -- AND ASK THE QUESTION AGAIN?
Q. WHAT TYPE OF SURGERY DID YOU HAVE?
A. IT WAS A LUNG BIOPSY.
Q. OKAY. SO THEY GO IN AND STICK A NEEDLE IN AND DRAIN SOME OF THE CELLS; IS THAT HOW IT WORKS?
A. A LUNG BIOPSY, YOU DO THREE CUTS.
Q. OKAY.
A. (INDICATING) ONE HERE, ONE HERE, AND ONE HERE.
Q. OKAY.
A. ONE HOLE IS FOR THE CAMERA. ONE HOLE IS FOR THE LIGHT.
Q. GOTCHA.
A. ONE HOLE WAS FOR THE, I GUESS, THE WHEN THE ELECTRONIC ARM GOES IN AND TAKES THREE SPECIMENS FROM THE LUNG.
Q. GOTCHA. SO AND AGAIN, I -- I DON'T KNOW ALL THE LUNG TERMINOLOGY, BUT WERE YOU DIAGNOSED WITH ANY TYPE OF CANCER?

A. NO.
Q. OKAY. AND SO WHAT -- WHAT ARE THE -- WHAT ARE YOU GOING TO HAVE TO DEAL WITH AS A RESULT OF HAVING INTERSTITIAL LUNG DISEASE?
A. HE PUT ME ON THE PREDNISONE, AND HE HAD ME ON THE ALBUTEROL WITH THE LUNG INHALER TYPE THING. AND AFTER BEING ON THOSE FOR A FEW MONTHS, AND NOW I'M NOT ON -- NOT ON THE MEDICATION AT THIS POINT.
Q. OKAY. WHAT DOES THE -- WELL, WHAT -- WHAT -- WHAT IS THE PROGNOSIS? CAN YOU BE HEALED?
A. THE PROGNOSIS IS HE JUST DID A X-RAY A --A -- A COUPLE OF WEEKS BACK, AND HE SAID THIS LUNG DISEASE WAS NON-REVERSIBLE.
Q. OKAY. SO WHEN YOU LEAVE ---
A. WE WOULD HAVE TO DO A MAINTENANCE DRUG AND HAVE TO PROBABLY DO A MAINTENANCE DRUG TO MAINTAIN LUNGS.
Q. OKAY. AND DID HE SAY WHAT THE NAME OF THAT DRUG WAS?
A. IT HAD TO BE A PREDNISONE. IT'S BASICALLY THE NUMBER ONE DRUG THAT -- THAT DEALS WITH LUNGS.
Q. OKAY. IN MY BRIEF EXPERIENCE WITH LUNG DISEASES, WHEN YOU REMOVE YOURSELF FROM WHATEVER IT IS YOU THINK'S CAUSING THE PROBLEM OR IF IN CERTAIN SITUATIONS WHAT IS EXACTLY CAUSING THE PROBLEM, THEY GET BETTER. IS THAT SOMETHING THAT -- THAT YOU AND

THE DOCTORS HAVE DISCUSSED? AND WHEN YOU -- WHEN YOU LEAVE EURODRIVE, DOES HE BELIEVE YOUR PROBLEMS WILL GET BETTER?

A. HE HADN'T DISCUSSED THAT WITH ME.

Q. OKAY. NOW, HAS DR. GREGG OR DR. BOLTON BEEN TO YOUR HOUSE TO DO TESTING IN THE AIR TO SEE IF THERE'S ANY MOLD OR ANY CHEMICALS OR -- OR ---

A. NO.

Q. --- THINGS YOU'RE EXPOSED TO THERE?

A. NO.

Q. OKAY. ALL RIGHT. HAVE YOU HAD A MOLD STUDY DONE AT YOUR HOME?

A. NO.

Q. HAVE YOU EVER HAD THAT DONE?

A. NO.

Q. HOW OLD IS YOUR HOME?

A. WELL, THE HOUSE WAS -- THE HOUSE WAS BUILT IN THE '40s.

Q. IN THE '40s?

A. UH-HUH.

Q. AND DO YOU KNOW IF THERE ARE ANY ASBESTOS CONTAINING MATERIALS OR ANY OTHER MATERIALS THAT COULD BE DAMAGING TO YOUR LUNGS IN YOUR HOME?

A. THERE ISN'T.

Q. HOW DO YOU KNOW THAT?

A. BECAUSE WE HAD THE -- WE HAD THE HOUSE TOTALLY UPGRADED.
Q. WAS THERE BEFORE YOU HAD IT UPGRADED?
A. NO. MY IN-LAWS OWNED THE HOME.
Q. OKAY.
A. SO THEY JUST HAD -- YOU KNOW, THEY -- THEY HAD DID UPGRADES THEMSELVES, BUT WE WANTED TO UPGRADE IT FURTHER.
Q. ARE THEY STILL LIVING?
A. NO.
Q. SO DID YOU EVER ASK THEM WHEN THEY HAD IT UPGRADED IF THERE WERE ANY ASBESTOS CONTAINING MATERIALS OR OTHER DANGEROUS MATERIALS THAT WERE REMOVED AS PART OF THE UPGRADE?
A. NO.
Q. OKAY. AND HAVE YOU DONE ANY PROJECTS AT YOUR HOME LATELY, ANY RENOVATION PROJECTS IN THE LAST FIVE YEARS?
A. LAST FIVE? THE HOUSE WAS -- WAS RENOVATED. I MEAN, WE -- WE DID RENOVATIONS. WE HAD A -- WE HAD A COMPANY COME IN AND DO RENOVATIONS.
Q. WHEN WAS THAT?
A. WE'D BEEN LIVING IN THERE ABOUT EIGHT YEARS. SO PROBABLY ABOUT MAYBE NINE YEARS AGO.
Q. OKAY. WHERE DID YOU LIVE PRIOR TO EIGHT YEARS AGO?

A. GREENVILLE.
Q. WHAT WAS YOUR ADDRESS?
A. WELL, GREER. I'M SORRY. GREER, NOT GREENVILLE.
Q. WHAT WAS YOUR ADDRESS IN GREER?
A. 109 BRIAR PARK DRIVE.
Q. AND DID YOU EVER HAVE ANY MOLD TESTING DONE THERE OR TESTING DONE TO DETERMINE IF THERE WERE DANGEROUS CHEMICALS OR SUBSTANCES IN THAT HOME?
A. NO.
Q. OKAY. ALL RIGHT. OTHER THAN THIS BIOPSY YOU TOLD ME ABOUT, HAVE YOU HAD ANY OTHER PROCEDURES OR SURGERIES DONE AS A RESULT OF YOUR LUNG PROBLEMS?
A. NO.
Q. HAVE YOU SPENT THE NIGHT IN THE HOSPITAL FOR ANY REASON OTHER THAN THAT ONE TIME WHEN YOU HAD THE BIOPSY?
A. IN 2002, I HAD A -- A -- A STENT PUT IN.
Q. OKAY. DID YOU HAVE A HEART ATTACK?
A. HE SAID IT WAS -- THE DOCTOR SAID HE DIDN'T WANT TO REALLY CLASSIFY IT AS A HEART ATTACK, 'CAUSE HE SAID I DIDN'T DAMAGE MY HEART, BUT HE SAID IT DID CALL FOR THE STENT TO BE PUT IN.
Q. DID HE GIVE YOU ANY REASON WHY YOU WERE HAVING HEART PROBLEMS IN 2002?
A. JUST THE CHOLESTEROL.

Q. CHOLESTEROL.
A. UH-HUH.
Q. AND SO YOU'VE BEEN TAKING CHOLESTEROL MEDICINE EVER SINCE?
A. YES, TO -- TO MAINTAIN, YOU KNOW.
Q. OKAY. WHEN YOU SAID WHEN YOU STAYED IN THE HOSPITAL FOR THE BIOPSY IN AUGUST OF THIS YEAR, WHY DID YOU HAVE TO SPEND THE NIGHT AT THE HOSPITAL?
A. WELL, I WENT IN ON A FRIDAY, AND I WENT IN ON THE -- AND THEN CAME OUT MONDAY. SO I GUESS THE -- THEY FIGURED THAT I NEEDED THE -- THE TIME TO TOTALLY RECOVER TO, YOU KNOW. OR, YOU KNOW, I DON'T KNOW.
Q. IN -- IN MY SIMPLE MIND, PEOPLE GO TO THE HOSPITAL BECAUSE THEY'RE ILL AND THE DOCTOR SAYS YOU'RE TOO ILL TO GO HOME. IN YOUR SITUATION, WAS THE REASON YOU HAD TO STAY AT THE HOSPITAL WAS BECAUSE THEY WERE CUTTING INTO YOUR BODY?
A. WELL, YEAH. I MEAN, YOU KNOW, HE TOLD ME THAT DUE TO, I GUESS, I JUST WASN'T WELL ENOUGH TO GO HOME. AND THAT'S ALL I ---
Q. BECAUSE OF THE PROCEDURE?
A. YEAH.
Q. OKAY.
A. YEAH. YOU'D HAVE TO CHECK WITH DR. BOLTON THOUGH. UH-HUH.

Q. OKAY. AND WHERE DID YOU GO FOR THE SURGERY; WAS IT G.H.S.?
A. G.H.S.
Q. NOW, HOW DID YOU PAY FOR THAT?
A. THROUGH THE COMPANY INSURANCE.
Q. OKAY. SO YOUR GROUP HEALTH INSURANCE OR YOUR ---
A. GROUP HEALTH INSURANCE, YES.
Q. OKAY. ALL RIGHT. WHEN DID YOU FIRST START HAVING THINGS THAT MADE YOU BELIEVE YOU HAD A LUNG PROBLEM, SYMPTOMS I GUESS?
A. I WENT TO MY FAMILY DOCTOR, KEMMERLIN & KENDALL, AND THEN I WAS COMPLAINING ABOUT HAVING COUGHING AND STUFF AND THE CONGESTION. AND HE SAID, "KEN, YOU'VE BEEN COMPLAINING ABOUT THIS FOR A WHILE." SO HE SAID, "HAVE YOU EVER HAD AN X-RAY DONE OF YOUR CHEST?" I SAID, "NO." SO HE DID THE X-RAY, AND THEN THE X-RAY SHOWED THE IMAGE ON THE LUNGS. HE SAID, "I'M GOING TO RECOMMEND YOU GOING TO SEE A LUNG DOCTOR OR SPECIALIST."
Q. DO YOU REMEMBER WHAT MONTH THAT WAS THAT THE FAMILY DOCTOR RECOMMENDED THE X-RAY? NOT WHEN YOU HAD IT, BUT WHEN HE RECOMMENDED IT?
A. 2015, SOMEWHERE AROUND I THINK NOVEMBER.
Q. OKAY.
A. 2015.

Q. AND HOW LONG PRIOR TO THAT HAD YOU BEEN HAVING PROBLEMS WITH COUGHING AND THE SYMPTOMS THAT YOU'VE -- HE SAID, "WELL, YOU'VE HAD THESE FOR QUITE SOME TIME"?

A. PROBABLY ALL A COUPLE OF YEARS I HAD COMPLAINED TO THE FAMILY DOCTOR.

Q. WHEN DID IT FIRST DAWN ON YOU OR FIRST -- WHEN DID YOU FIRST FORMULATE THE IDEA THAT THIS COULD BE RELATED TO SOMETHING AT WORK?

A. AFTER I WENT TO THE LUNG DOCTOR, AND HE STARTED LOOKING AT THE LUNGS AND ASKING QUESTIONS AND WHAT I DID AND STUFF LIKE THIS, AND YOU KNOW, HOW LONG I'D BEEN WORKING AND ET CETERA.

Q. THAT WAS BACK IN 2015?

A. THE -- I THINK I HAD WENT TO THE LUNG DOCTOR, IT WAS PROBABLY '11. AND THEN THE FAMILY, IT WAS -- I WENT AND SEEN THE FAMILY DOCTOR AROUND NOVEMBER 2015. SO THEN HE MADE AN APPOINTMENT WITH ME TO GO SEE A LUNG DOCTOR. SO I'M ESTIMATING. IT PROBABLY WAS MAYBE EARLY 2016 WHEN I MAYBE GOT AN APPOINTMENT OR SOMETHING.

Q. OKAY. AND HAD YOU EVER HAD ANY THOUGHTS IN YOUR MIND THAT -- THAT MAYBE SOME OF THE COLD AND COUGHING AND ALL THIS STUFF THAT YOU WERE COMPLAINING OF WAS RELATED TO WORK BEFORE THAT?

A. ASK THAT QUESTION AGAIN.
Q. YEAH. PRIOR TO SEEING THAT LUNG DOCTOR, HAD YOU EVER IN YOUR MIND SAID, "MAN, I'M COUGHING A LOT; MAYBE THIS IS RELATED TO WORK?" OR WAS THAT REALLY THE FIRST TIME THAT IT EVEN DAWNED ON YOU THAT IT COULD BE ---
A. THAT'S THE FIRST TIME BASICALLY IT DAWNED ON ME.
Q. OKAY. ALL RIGHT. AND HAVE YOU HAD A LOT OF PROBLEMS WITH COUGHING AND COLDS AND SINUSES IN YOUR LIFETIME?
A. I WOULDN'T SAY -- I WOULDN'T SAY A LOT, YOU KNOW. YOU KNOW, I GET COLDS AND STUFF LIKE ANYBODY ELSE.
Q. I'M AROUND PEOPLE FROM TIME TO TIME THAT SAY "I JUST HAVE THE WORST SINUSES. EVERY SPRING WHEN THE FLOWERS START BLOOMING, MY SINUSES START ACTING UP." IS THAT KEN? IS THAT KEN CHRISTIAN?
A. NO.
Q. YEAH. YEAH, OKAY. AND HAVE YOU EVER HAD PNEUMONIA?
A. NO.
Q. OKAY. HAVE YOU EVER BEEN DIAGNOSED WITH ANY TYPE OF C.O.P.D. OR ANYTHING LIKE THAT?
A. I GUESS NOT, 'CAUSE I DON'T KNOW WHAT IT MEANS.
Q. OKAY. ALL RIGHT. NOW, WHEN THIS ---
A. EXCUSE ME.
Q. AND AGAIN, IF YOU DON'T KNOW THE ANSWER TO THIS, YOU

DON'T KNOW THE ANSWER TO THIS. I'LL TALK TO YOUR LAWYER AS MUCH AS I WANT, BUT.

A. OKAY.

Q. BUT HAVE YOU EVER LISTED A DATE OF INJURY AS AUGUST 25TH, 2016?

A. OKAY.

Q. WHAT IS IT ABOUT AUGUST 25TH, 2016, THAT YOU BELIEVE WAS THE DATE OF YOUR INJURY?

A. AND GO BACK ON THAT AGAIN, PLEASE.

Q. YES. THIS IS A FORM 50 THAT YOUR ATTORNEY FILED; IT'S LIKE A COMPLAINT.

A. OKAY.

Q. AND ON HERE, IT HAS DATE OF INJURY OR ILLNESS, AUGUST 25, 2016.

A. OKAY. THAT WAS WHEN I HAD -- I HAD MENTIONED TO THE HEAD ENGINEER, RAINER NUFELDT, ABOUT THE -- THAT WAS AFTER I HAD TALKED TO THE LUNG DOCTOR AND EVERYTHING, AND I TOLD RAINER ABOUT THAT I -- I FELT THAT THIS IS -- IS COMING FROM THE LAB, AND THAT'S WHEN HE CALLED PERSONNEL.

Q. OKAY.

A. AND LET HER KNOW THAT IT POSSIBLY COULD BE A WORKMAN'S COMP SITUATION RIGHT HERE IN THE LAB. THAT'S CLOSE TO MY ESTIMATE THERE.

Q. NOW, JUST AND AGAIN, I'M -- I'M TRYING TO GET THE

TIMELINE RIGHT. BUT YOU SAID EARLY 2016 WAS WHEN YOU SAW THAT SPECIALIST WHO STARTED TALKING ABOUT WHERE YOU WORKED AND THE THINGS YOU -- YOU DID AT WORK THAT COULD BE CAUSING THESE PROBLEMS. WHY WAS IT NOT UNTIL AUGUST THAT YOU TOLD RAINER NUFELDT?

A. I COULD -- I COULD GET -- I COULD GET THE DATES CORRECT FOR YOU IF YOU DON'T, YOU KNOW, SINCE -- SINCE THIS PROBLEM, IT HAS AFFECTED MY MEMORY TO A DEGREE, SINCE THIS PROBLEM. WHEN I WENT TO THE FAMILY DOCTOR AROUND NOVEMBER 2015 FOR MY PHYSICAL, I WAS COMPLAINING WITH A DRY COUGH AND EVERYTHING, AND HE SAID, "KEN," AND WE GOT AN X-RAY, AND IT SHOWED THE IMAGE ON MY LUNG. HE SAID, "I THINK YOU NEED TO GO SEE A LUNG SPECIALIST." SO HE MADE AN APPOINTMENT WITH A LUNG SPECIALIST, AND THEN WHEN I WENT TO SEE A LUNG SPECIALIST, WHICH WAS JULIA PAYNE, I THINK I SAW HER FOR ABOUT A YEAR, AND SHE DIDN'T DO ANYTHING AS FAR AS GIVING ME MEDICATION. SHE KEPT GIVING, YOU KNOW, DOING A -- SHE DID A -- DID A -- A LUNGOSCOPY WHEN THEY WENT DOWN AND THEN SHOOT THE CHEMICAL IN YOUR LUNGS AND THEY SEND IT OFF, AND SHE SAID, "WELL, IT WASN'T CANCER." AND BUT SHE SAID, "YOU DO HAVE A PROBLEM WITH THE LUNGS," BUT SHE NEVER DID GIVE ME ANY MEDICATION FOR IT. SO I REALLY WASN'T PLEASED WITH HER.

Q. AND WHAT WAS HER NAME?
A. JULIA PAYNE.
Q. AND WHERE IS SHE LOCATED?
A. I THINK IT'S G.H.S.
Q. OKAY.
A. SO WHEN -- THEN I -- THEN WHEN I -- I STARTED RUNNING REALLY OUT OF BREATH AND STUFF, I THOUGHT, OKAY, I'M GOING TO GO TO THE CARDIOLOGIST, DR. SIACHOS, AND LET HIM EXAMINE ME, AND HE WENT THROUGH TESTS. AND THEN HE SAID "YOUR HEART AND EVERYTHING WE RAN, IT LOOKS GOOD." AND I SAID, "WELL, CAN YOU ACTUALLY RECOMMEND ME ANOTHER, A -- A LUNG DOCTOR." AND THIS IS WHEN IT WAS DR. KNIGHT. SO THAT'S WHEN I WENT TO SEE DR. KNIGHT. DR. KNIGHT WAS GETTING READY TO GET OUT OF THAT DEPARTMENT, BECAUSE HE WAS GOING INTO ANOTHER DEPARTMENT TO HELP HOSPICE PEOPLE, AND THAT'S WHEN DR. GREGG CAME IN. AND DR. GREGG SAW ME FOR THIS PROBLEM, AND THAT'S WHEN -- WELL, ACTUALLY DR. KNIGHT SAID "YOU BETTER GET SOMETHING DONE TO THIS." 'CAUSE HE TOOK -- HE DID A C.T. SCAN, I THINK. AND HE SAID, "YOU REALLY NEED TO GET SOMETHING DONE TO THIS LUNG ISSUE," AND THEN DR. GREGG, WHEN I SAW HIM, HE PUT ME ON THIS. NOW, HE DIDN'T PUT ME ON PREDNISONE 'TIL AFTER -- 'TIL -- IT'S HARD TO THINK IF HE PUT ME ON THE PREDNISONE

BEFORE OR AFTER THE OPERATION, BUT ANYWAY, HE RECOMMEND GETTING THE BIOPSY, AND THAT WAS WHEN HE CONTACTED DR. BOLTON.

Q. OKAY. SO NOW THAT YOU'VE HAD SOME TIME TO THINK ABOUT IT, I GUESS, AND I'VE SHOWN YOU A DATE THAT YOU -- WHEN DID YOU FIRST HAVE THE -- IN TERMS OF YOUR DATE OF ACCIDENT ACCORDING TO THIS FORM IS AUGUST 25TH, 2016. HOW MANY MONTHS PRIOR TO THAT DID THE DOCTORS START TELLING YOU, "HEY, THIS COULD BE RELATED TO YOUR JOB"?

A. WHEN -- WHENEVER I WENT IN TO SEE THE DOCTOR AND HE WAS ASKING ME WHAT I DID, YOU KNOW, FOR ---

Q. WHICH DOCTOR?

A. DR. GREGG.

Q. OKAY. SO THE FIRST TIME YOU WENT TO SEE DR. GREGG?

A. WHEN I WENT IN TO SEE HIM, I WAS EXPLAINING TO HIM. HE WANTED TO KNOW WHAT, YOU KNOW, WHAT I WORK AROUND AND STUFF LIKE THIS.

Q. OKAY.

A. AND ---

Q. HOW LONG AFTER THAT DISCUSSION DID YOU GO TELL RAINER NUFELDT?

A. SEE, I -- I -- I DON'T KNOW WHAT THE TIME LAPSE ON THAT WAS, ACTUALLY.

Q. COULD IT HAVE BEEN MONTHS?

A. I DON'T THINK IT WAS MONTHS.
Q. OKAY. ALL RIGHT. NOW, THAT YOU'RE -- YOU SAID YOU'RE WEARING A MASK WHEN YOU GO TO WORK NOW?
A. YES, 'CAUSE OF, YOU KNOW, OBVIOUSLY I TALKED TO DR. GREGG, AND HE SAID ONE OF THE BEST MASKS THAT YOU COULD GET WOULD BE ONE OF THESE LITTLE FILTER SYSTEMS ON THE FRONT WITH A MASK AND USING THE SOLDER EXTRACTOR, A FUME EXTRACTOR, AND SO THAT SEEMS TO PRETTY WELL...
Q. SO ARE YOUR SYMPTOMS BETTER NOW THAN THEY WERE BEFORE YOU STARTED WEARING A MASK?
A. YES. YES.
Q. IN YOUR LIFE, MR. CHRISTIAN, HAVE YOU EVER APPLIED FOR ANY TYPE OF SOCIAL SECURITY DISABILITY?
A. NO.
Q. AND JUST SO WE'RE CLEAR ON THIS. BEFORE NOVEMBER OF 2015, WHEN YOUR FAMILY DOCTOR SAID, "HEY, YOU'VE BEEN DEALING WITH THESE LUNG PROBLEMS FOR A WHILE," HAD YOU EVER HAD ANY LUNG SICK -- ANY LUNG PROBLEMS OR PROBLEMS WITH A CHRONIC COUGH OTHER THAN THAT GENERAL TIME FRAME, THE END OF 2015?
A. I HAD. I HAD COUGHED, YOU KNOW, BEFORE -- BEFORE THAT, AND THAT'S WHY DR. KEMMERLIN SAID, "KEN, YOU'VE BEEN COMPLAINING OF THIS COUGH FOR -- FOR THE LAST TWO PHYSICALS. AND HE SAYS, SO I THINK WE NEED

TO GET A CHEST X-RAY."

Q. SO THAT WAS A TWO OR THREE MONTH PERIOD?

A. WHEN I SAW DR. GREGG AT 2015 FOR MY PHYSICAL -- I MEAN DR. KEMMERLIN - KENDALL -- KEMMERLIN, HE SAID THAT I NEEDED TO GET A LUNG X -- A LUNG X-RAY, "'CAUSE YOU'VE BEEN COMPLAINING ABOUT THIS DRY COUGH GOING ON QUITE A WHILE."

Q. OKAY. SO IN 2014, WERE YOU HAVING THESE SYMPTOMS?

A. I WAS COUGHING, YES.

Q. WHAT ABOUT '13?

A. NOT -- NOT MAJOR COUGHING, BUT I WAS COUGHING.

Q. WHAT ABOUT 2013?

A. PROBABLY JUST, YOU KNOW, SOME COUGHING, BUT NOTHING TO A -- TO A -- TO A HIGH DEGREE.

Q. CAN YOU PINPOINT A TIME WHEN IT KIND OF STARTED, LIKE A YEAR?

A. NOT -- NOT REALLY WITH THE -- BUT I KNOW, YOU KNOW, LIKE I SAY, WHEN -- WHEN I WENT TO SEE HIM IN 2015 FOR THE PHYSICAL, THE COUGH WAS -- WAS -- WAS -- WAS GETTING WORSE, AND THEN HE SAID -- AND THEN BEFORE THAT I WAS LIKE COUGHING, AND THEN BEFORE THAT YEAR, IT WAS JUST LIKE KIND OF LIKE GOT WORSE. IT GOT WORSE. IT GOT WORSE.

Q. AND I'M -- AGAIN, I'M JUST THINKING THROUGH THIS. BUT IN THE 23 YEARS YOU'VE WORKED IN THAT LAB, WHAT

IS IT ABOUT THE LAST YEAR OR TWO THAT YOU FEEL LIKE HAS GOTTEN YOU TO THIS POINT, WHAT'S DIFFERENT? ARE YOU AROUND DIFFERENT CHEMICALS OR DIFFERENT MATERIALS, OR WHAT IS IT?

A. I CAN ONLY -- I CAN ONLY SAY THAT WHAT, YOU KNOW, ROUGHLY WHAT THE DOCTOR SAID. IT'S LIKE WHEN YOU WORK AROUND SOMETHING LIKE THAT, LIKE THE SOLDERING FUMES AND STUFF LIKE THIS, IT GRADUALLY CAN ATTACK YOUR LUNGS LITTLE BY LITTLE, AND THEN AFTER A LONG DURATION OF TIME, THEN, BOOM.

Q. OKAY. AT THIS POINT, HAS ANY DOCTOR TOLD YOU OR HAVE YOU SEEN IN WRITING ANY OPINION THAT YOUR PROBLEMS ARE MORE LIKELY THAN NOT, NOT POSSIBLE, BUT MORE PROBABLY OR MORE LIKELY THAN NOT RELATED TO YOUR JOB AT SEW EURODRIVE?

A. REPHRASE THAT.

Q. YEAH, OKAY. YOU SAID EARLIER THAT THE DOCTORS HAVE TOLD YOU IT WAS POSSIBLY RELATED TO WORK?

A. YES.

Q. BUT HAVE YOU SEEN AN OPINION OR HAS A DOCTOR TOLD YOU OF AN OPINION THAT THEY BELIEVE IT'S MORE LIKELY THAN NOT OR MORE PROBABLE THAN NOT THAT YOUR CONDITION TODAY IS RELATED TO WORK?

A. ACCORDING TO WHAT BASICALLY DR. GREGG, HE SAID THE THAT IT'S MOST LIKELY. HE SAID, "I CAN'T COME IN

THERE AND PINPOINT THAT THAT ONE PARTICULAR THING IS DOING THAT." BUT HE SAID, "YOU'RE NOT INVOLVED IN ANY -- ANYTHING OUTSIDE OF YOUR HOUSE OR THIS, THAT, AND THE OTHER," BUT HE BELIEVES THAT -- THAT THIS PROBLEM HERE IS CAUSED FROM BEING IN THE LAB OVER A PERIOD OF TIME.

Q. OKAY. ALL RIGHT. AND THAT WAS DR. GREGG'S OPINION?

A. UH-HUH.

Q. YES OR NO?

A. YES.

Q. OKAY.

A. SORRY.

Q. NOW, YOU SAID HE TALKED ABOUT THAT YOU'RE NOT EXPOSED TO THINGS AT HOME. WELL, YOU SAY YOU DON'T DO ANYTHING OUTSIDE OF YOUR HOME. DO YOU ---

A. I ---

Q. --- CUT GRASS?

A. WELL, YEAH. I'LL CUT. I ---

Q. AND DO YOU HAVE A GARAGE?

A. UH-HUH.

Q. YES OR NO?

A. YES.

Q. DO YOU WORK ON CARS IN YOUR GARAGE?

A. NO.

Q. DO YOU DO ANYTHING IN THE GARAGE WORK-WISE,

CARPENTRY, OR?

A. NO. I DON'T DO ANY -- I DON'T DO ANY CARPENTRY. I JUST KIND OF JUST USE THE GARAGE FOR STORING EXCESS STUFF AND PARKING YOUR CARS.

Q. YEAH. YOU DON'T HAVE ANY -- DO YOU CHANGE THE OIL IN YOUR CAR?

A. NO.

Q. OKAY. ALL RIGHT. ALL RIGHT. WHEN YOU CUT THE GRASS, DO YOU PUSH MOW IT, OR DO YOU -- DO YOU HAVE A RIDING LAWNMOWER?

A. I HAVE A RIDING LAWNMOWER WITH A BAGGER.

Q. HOW MANY ACRES IS IT DO YOU HAVE TO CUT, OR HOW BIG IS YOUR YARD?

A. IT'S I'D PROBABLY SAY A HALF-ACRE.

Q. ALL RIGHT. AND DO YOU HAVE A GARDEN?

A. NO.

Q. OKAY. AND DO YOU PLANT ANY FLOWERS OR ANYTHING IN YOUR YARD?

A. MY WIFE DOES.

Q. OKAY. AND DO YOU HELP HER AT ALL?

A. EVERY NOW AND THEN.

Q. ALL RIGHT. DO YOU HAVE A PEST SERVICE THAT COMES TO YOUR HOUSE TO ---

A. YES.

Q. ALL RIGHT. HAVE YOU EVER HAD PROBLEMS WITH BUGS OR

RATS OR ANYTHING AT YOUR HOME?

A. I'M SURE EVERYBODY HAS PROBLEMS WITH -- WITH SOME TYPE OF INSECT, BUT NO RATS, NO.

Q. OKAY. HOW MANY CARS DO YOU HAVE?

A. TWO.

Q. WHEN IS THE LAST TIME YOU'VE BEEN OUT OF THE STATE OF SOUTH CAROLINA FOR ANY REASON?

A. I WENT TO A FUNERAL IN GEORGIA A FEW YEARS AGO.

Q. SO IT'S BEEN A COUPLE OF YEARS SINCE YOU'VE BEEN OUT OF STATE?

A. YES.

Q. ALL RIGHT. WHAT DO YOU AND YOUR WIFE DO FOR FUN, FOR VACATION? DO YOU -- DO YOU EVER GO TO THE BEACH OR MOUNTAINS?

A. GO TO THE BEACH.

Q. AND WHEN WAS THE LAST TIME YOU WENT TO THE BEACH?

A. TWO YEARS AGO.

Q. ALL RIGHT. DO YOU HAVE ANY -- ANY HOBBIES OR ANYTHING THAT YOU LIKE TO DO?

A. I LIKE TO FOOL AROUND WITH COMPUTERS, BUT THAT'S ABOUT ALL.

Q. OKAY. DO YOU GO -- ARE YOU A SPORTS FAN?

A. NO.

Q. GO TO SPORTING EVENTS?

A. NO.

Q. ALL RIGHT. DO YOU TAKE YOUR WIFE ON DATES EVERY ONCE IN A WHILE TO RESTAURANTS?
A. GO OUT TO EAT OCCASIONALLY.
Q. ARE YOU A MEMBER OF ANY CLUBS, LIKE THE MASONS OR THE -- CIVIC ORGANIZATIONS, KIWANIS, ANYTHING LIKE THAT?
A. NO.
Q. DO YOU GO TO CHURCH?
A. NOT AT THE MOMENT.
Q. YEAH. DO YOU OWN ANY PROPERTIES OTHER THAN YOUR HOME?
A. NO.
Q. OKAY. AND DO YOU OWN ANY S.U.V.s OR A.T.V.s OR MOBILE HOMES OR ANYTHING LIKE THAT?
A. NO.
Q. DO YOU EVER BUILD A FIRE IN YOUR BACK YARD?
A. NO.
Q. NEVER?
A. NEVER.
Q. YOU DON'T HAVE A FIRE PIT OR ANYTHING?
A. UH-UH.
Q. YES OR NO?
A. NO.
Q. OKAY. ALL RIGHT.
A. AND DO I BELIEVE GOD IS STILL ON THE THRONE? YES, I

DO.

Q. OKAY. ALL RIGHT. GOOD. ARE THERE ANY OTHER DOCTORS YOU'VE SEEN REGULARLY OR WERE SEEING REGULARLY IN THE LAST FIVE YEARS OTHER THAN DR. GREGG, DR. SIACHOS, AND THEN KENDALL & KEMMERLIN?

A. DR. BOLTON.

Q. BOLTON?

A. BOLTON, THE SURGEON.

Q. OKAY. ANYBODY ELSE?

A. JULIA PAYNE.

Q. PAYNE, YEAH.

A. EXCUSE ME.

Q. DO YOU HAVE A FAN IN YOUR HOUSE?

A. WHAT TYPE LIKE?

Q. CEILING FANS OR FANS BY YOUR BED OR ANYTHING LIKE THAT?

A. YES.

Q. YOU HAVE BOTH?

A. EXCUSE ME?

Q. DO YOU SLEEP WITH A FAN BY YOUR BED?

A. NO. JUST CEILING FANS.

Q. OKAY. DOES IT STAY ON AT NIGHT WHEN YOU'RE SLEEPING?

A. NOT IN THE WINTER.

Q. WHEN WAS THE LAST TIME YOU HAD THE ROOF REPAIRED AT

YOUR HOUSE?

A. WHEN WE HAD THE REMODELING DONE, THEY -- THEY INSTALLED THE ARCHITECT ROOF.

Q. OKAY. ALL THE MEDICAL TREATMENT THAT YOU'VE RECEIVED AS A RESULT OF THIS LUNG ISSUE THAT YOU SAY YOU HAVE RELATED TO WORK, HAVE YOU HAD THAT PAID FOR THROUGH YOUR GROUP HEALTH INSURANCE?

A. THE -- YES, IT WAS FILED THROUGH A COMPANY.

Q. DO YOU HAVE ANY IDEA HOW MUCH THE TOTAL IS AS OF TODAY?

A. NO. I -- I'M NOT.

Q. OKAY. AND I THINK YOU MENTIONED GOING FORWARD, AT LEAST AT THIS POINT, THE DOCTORS HAVE SAID YOU MAY HAVE TO HAVE A MAINTENANCE MEDICATION TO HELP ---

A. OH.

Q. --- KEEP YOU AT STATUS QUO?

A. THE -- THAT WILL BE DETERMINED IN FEBRUARY. I MEAN, IN OTHER WORDS, WHEN I SAY "DETERMINED," FEBRUARY, DR. GREGG IS GOING TO ORDER AN HOUR OF BREATHING TESTS AND STUFF TO SEE HOW THE LUNGS IS DOING. HE SAID IF THE LUNGS HAS DECREASED, THEN WE WOULD HAVE TO PROMOTE A MAINTENANCE DRUG FOR THIS LUNG TO EXPAND ITSELF BACK TO WHERE IT SHOULD BE.

Q. OKAY.

A. EXCUSE ME.

Q. AND IS YOUR GROUP HEALTH THROUGH EURODRIVE, OR IS IT THROUGH YOUR WIFE?
A. NO. IT'S THROUGH EURODRIVE.
Q. OKAY. AND ARE YOU CURRENTLY A MEDICARE BENEFICIARY? ARE YOU ON MEDICARE YET?
A. MEDICARE IS -- IT'S NOT GOING TO START UNTIL JANUARY.
Q. OKAY.
A. MEDICARE B.
Q. OKAY.
A. YEP.
Q. ALL RIGHT. PRIOR TO THIS TREATMENT BEGINNING BACK, I THINK YOU SAID, AROUND NOVEMBER OF '15, OR BEFORE, JUST A FEW MONTHS BEFORE THAT, HAD YOU EVER -- HAVE YOU EVER HAD AN M.R.I. OR A C.T. SCAN OR ANY DIAGNOSTIC IMAGE OF YOUR LUNGS?
A. NO.
Q. I MEAN BACK WHEN THEY DID THE STENT, DID THEY TAKE A PICTURE OF YOUR LUNGS JUST BY CHANCE, 'CAUSE THEY WERE LOOKING AT YOUR HEART?
A. I -- I DON'T KNOW.
Q. WHO DID THE STENT?
A. WOW. IT WAS DONE AT GREENVILLE.
Q. G.H.S.?
A. G. -- G.H.S. I -- I DON'T KNOW THE DOCTOR'S NAME.

Q. WOULD DR. SIACHOS HAVE THOSE RECORDS?
A. YES, I THINK HE WOULD.
Q. OKAY.
A. BECAUSE HE CAME IN AND TOOK THE PLACE OF THE OTHER DOCTOR, 'CAUSE THE OTHER DOCTOR HAD MOVED TO -- TO ANOTHER STATE.
Q. OKAY. ARE THERE THINGS THAT YOU'RE EXPOSED TO OUTSIDE OF WORK THAT YOU FEEL LIKE AGGRAVATE THIS CONDITION?
A. THE ONLY -- THE ONLY THING I COULD SEE IS LIKE IF YOU, WHAT I'VE NOTICED, NOT AGGRAVATING THE CONDITION -- WHEN YOU SAY "AGGRAVATE THE CONDITION," EXPLAIN.
Q. YEAH. I MEAN MAKE YOUR SYMPTOMS WORSE.
A. IT MAKES MY BREATHING WORSE IF I -- IF I JUST TAKE A JUST A PUSH MOWER, AND I START JUST KIND OF JUST CUTTING OUT THE EDGE OF THE YARD, AND THEN I START REALLY BREATHING HEAVY.
Q. HAVE YOU TALKED TO DR. GREGG ABOUT THAT?
A. YES.
Q. OKAY. A FEW WEEKS AGO WHEN THESE FIRES WERE BURNING, AND THERE WAS SMOKE ALL OVER THE PLACE HERE IN EASLEY AND IN GREENVILLE WHERE I LIVE, WAS THAT SOMETHING THAT AGGRAVATED YOUR SYMPTOMS?
A. NO. ACTUALLY IT DIDN'T. THAT DID NOT AGGRAVATE MY

-- MY SYMPTOMS. I WAS BASICALLY BLESSED ON THAT.

Q. DID YOU HAVE A LOT OF SMOKE IN YOUR AREA?

A. NOT -- NOT IN EASLEY. IT'S SOME MORNINGS YOU MIGHT COULD GO OUT AND SEE JUST A KIND OF A -- A HAZE, BUT NOTHING, NOTHING MAJOR.

Q. OKAY. IS THERE ANYTHING ABOUT YOUR JOB TODAY AT EURODRIVE THAT'S DIFFERENT THAN IT WAS ON AUGUST 24TH WHEN YOU SAY YOU TOLD RAINER NUFEDLT ABOUT ALL THESE PROBLEMS, OTHER THAN YOU'RE WEARING A MASK NOW?

A. OTHER THAN WEARING A MASK AND USING THAT SOLDER EXTRA -- FUME EXTRACTOR, THAT'S THE ONLY THING THAT'S CHANGED.

Q. OKAY. AND DO YOU FEEL LIKE THE FUME EXTRACTOR HAS HELPED?

A. YES.

Q. YOU CAN SEE A NOTICEABLE DIFFERENCE?

A. I -- I HAVE SINCE I'VE GONE BACK, I'M REALLY REALLY TRYING TO LIMIT MYSELF ON -- ON THE SOLDERING. WHEN I SAY LIMIT MYSELF, WE HAVE TO TAKE ELECTRONIC CONTROL UNITS FROM THE SHELF. WE HAVE TO GO IN ORDER, WHATEVER DATE THEY'RE ON. SO THE ONES I'VE BEEN WORKING ON HAS BEEN JUST VERY LITTLE SOLDERING, VERY LITTLE. I'VE ONLY SOLDERED TWICE IN TWO WEEKS.

Q. UH-HUH.

A. BUT EACH TIME I'VE WORE THE MASK AND THE EXTRACTOR.
Q. ALL RIGHT. AND LET'S TALK ABOUT THAT. LET'S TALK ABOUT THE FOUR CHEMICALS OR SUBSTANCES THAT YOU'VE KIND OF PINPOINTED AS THINGS THAT BOTHER YOU, PROBLEMS IN YOUR MIND. LET'S TALK ABOUT THE SOLDERING, HOW -- HOW OFTEN ON AN AVERAGE DAY WOULD YOU SAY YOU USE THAT SUBSTANCE OR ARE AROUND THAT SUBSTANCE?
A. SO YOU HAVE THREE PEOPLE IN THE LAB, AND WHEN EACH ONE OF US WORK ON EQUIPMENT, YOU -- YOU CAN'T REALLY SAY WHETHER YOU'RE GOING TO SOLDER TWO OR THREE TIMES A WEEK, 'CAUSE YOU DON'T KNOW WHAT YOU'RE GOING TO BE RUNNING INTO ON THE ELECTRONIC DRIVE. BUT AS EACH PERSON SOLDERS, THEY'LL -- THEY'LL TURN ON A SMALL FAN, AND IT BLOWS IT AWAY FROM THEM, BUT WHAT YOU'RE DOING IS DISTRIBUTING THIS INTO THE AIR. OKAY. AND SO WITHOUT -- YOU KNOW, WHAT WE SHOULD HAVE BEEN DOING IS USING EXTRACTORS AND WEARING A MASK TO PROTECT OURSELVES, BUT, YOU KNOW, WE REALLY DIDN'T THINK THAT MUCH ABOUT IT.
Q. ARE THE OTHER PEOPLE IN THE -- IN THE LAB USING MASKS NOW?
A. MY BOSS, GARRETT CHEEK, HAS AN EXTRACTOR ON HIS DESK, AND KEVIN WEARS A -- WEARS A MASK.
Q. OKAY.

A. WHEN HE'S SOLDER ---
Q. OKAY. AND ALL OF THAT'S COME ABOUT SINCE YOU'VE COMPLAINED OF THESE PROBLEMS?
A. YEAH.
Q. OKAY. AND SO DO YOU BELIEVE IN ADDITION TO THIS, WHEN YOU'RE SOLDERING -- SOLDERING, THAT YOU'RE ALSO EXPOSED TO WHEN THE OTHER FOLKS ARE DOING IT?
A. YOU -- YOU ARE EXPOSED, 'CAUSE YOU -- IF THEY'RE NOT USING AN EXTRACTOR AND THEY TURN THAT FAN ON, THEY'RE BLOWING THAT FUMES, THEY'LL BE BLOWING THE FUMES ALL OVER THE LAB, BASICALLY.
Q. BUT BACK BEFORE THE EXTRACTORS AND THAT STUFF CAME ABOUT, ---
A. RIGHT.
Q. --- ON AVERAGE, HOW MANY TIMES A DAY WERE YOU -- OR HOW MANY HOURS A DAY DO YOU THINK YOU WERE EXPOSED?
A. TO THE SOLDERING?
Q. YEAH.
A. WHEN YOU -- WHEN YOU'RE SOLDERING LIKE THAT, SOMETIME I'VE SOLDERED FIVE OR SIX TIMES A DAY.
Q. OKAY.
A. AND SOMETIME OTHER PEOPLE WOULD BE, YOU KNOW, SOLDERING.
Q. ALL RIGHT. SO ---
A. IT'S KIND OF HARD TO SAY HOW MANY TIMES YOU JUST,

YOU KNOW, YOU -- YOU -- YOU'RE SOLDERING. YOU DON'T REALLY THINK ABOUT IT, BECAUSE IT'S A JOB THAT YOU HAVE TO DO. BUT I HAVE SEEN SOMETIMES WHERE I'VE SOLDERED FIVE AND SIX TIMES A DAY. I'VE SEEN OTHER GUYS SOLDER FOUR OR FIVE TIMES A DAY.

Q. OH, OKAY.

A. AND I'VE SEEN AS TO WHERE WE DON'T SOLDER AT ALL.

Q. UH-HUH. ALL RIGHT. AND THEN HOW OFTEN ARE YOU WOULD YOU SAY ON AVERAGE YOU'RE EXPOSED TO THE FLUX?

A. THE FLUX CLEANER, YOU HAVE TO USE EVERY TIME YOU SOLDER, BECAUSE THAT'S WHAT YOU HAVE TO CLEAN THE CARDS WITH.

Q. OKAY.

A. THE SOLDER OFF -- SOLDER -- THE SOLDER FLUX. SOLDER ROSIN IS ON THE -- ONCE YOU SOLDER, YOU HAVE THE FLUX, IT'S WHAT YOU HAVE TO CLEAN THE CARDS WITH.

Q. SO WERE YOU EXPOSED TO THAT EVERY DAY?

A. WHENEVER YOU SOLDER. YES, YOU ARE.

Q. BUT YOU SAID THERE ARE SOME DAYS YOU DON'T SOLDER.

A. AND SOME DAYS YOU SOLDER.

Q. SO THEN ON THOSE DAYS, YOU WOULDN'T BE EXPOSED?

A. NO. NO.

Q. WHAT ABOUT ---

A. YOU ONLY USE IT WHEN YOU SOLDER.

Q. WHAT ABOUT THE ELECTRONIC CLEANER?

A. THE CLEANER. THE CLEANERS IS -- IS A -- IT'S SIMPLE GREEN, AND THAT'S WHAT WE USE TO CLEAN THE ELECTRONIC SYSTEMS WITH.

Q. OKAY. AND THEN WHAT ABOUT THIS, THESE CHEMICALS THAT YOU SAY ARE ON SOME OF THE DRUMS? HOW OFTEN ARE YOU EXPOSED TO THOSE?

A. ON THE CONTROL SYSTEMS?

Q. NO. THE ONES YOU SAY THAT COME FROM ALL OVER THE U.S.

A. THAT'S WHAT I'M SAYING TOO.

Q. THE DRIVE?

A. THOSE ARE THE ELECTRONIC DRIVES. SOME DRIVES COMES IN, THERE'S NOTHING AT ALL, THEY'RE PRETTY CLEAN. SOME COME IN, AND -- AND -- AND THOSE THINGS ARE -- ARE -- ARE TERRIBLE.

Q. WELL, YOU REFERENCED ONE THAT'S SITTING ON SOME SHELF IN YOUR LAB RIGHT NOW, AND THEN YOU SAID THE OTHER ONE YOU COULD THINK OF WAS FROM TWO OR THREE YEARS AGO WHEN THERE WAS RAT GUTS ALL OVER IT, SO IS THAT THE ONLY TWO?

A. NO. I JUST USE THAT AS A WORSE CASE SCENARIO, BUT WE GET THEM IN ALL THE TIME TO WHERE THEY ARE REALLY REALLY DIRTY, AND WE HAVE TO TAKE THEM WAY BACK IN THE COMPANY TO USE THIS BIG BLOWER TO BLOW ALL THAT STUFF OUT OF THEM.

Q. OKAY.
A. BUT, YES, WE GET DRIVES IN FILTHY ALL THE TIME.
Q. OH, OKAY. DO YOU HAVE ANY CLEANING SUPPLIES AT HOME LIKE UNDER YOUR SINK TO CLEAN TOILETS OR LYSOL SPRAYS TO CLEAN STUFF?
A. WE HAVE -- WE HAVE YOUR STANDARD TOILET STUFF THAT, YOU KNOW, IT'S A -- A -- A PINE-SOL AND STUFF LIKE THAT, THAT YOU, YOU KNOW, YOU CLEAN YOUR TOILETS WITH, YES.
Q. AND HAVE YOU TAKEN PICTURES OF ALL THOSE THINGS AND GIVEN THEM TO DR. GREGG?
A. NO.
Q. HAVE YOU EVER SEEN AN ALLERGIST IN YOUR LIFE, MR. CHRISTIAN?
A. NO.
Q. NEVER?
A. NO -- OH, WELL, ONE. BECAUSE JULIA PAYNE SENT ME OVER TO SEE THE ALLERGIST, AND SHE DID THE -- THE TEST.
Q. OKAY. HAVE YOU EVER HAD ANY ALLERGIES IN YOUR LIFE?
A. WELL, HONESTLY, I DON'T -- I DON'T THINK SO.
Q. OKAY. OTHER THAN THOSE FEW DAYS THAT YOU WERE OUT HAVING THE BIOPSY, DID YOU MISS -- HAVE YOU MISSED ANY TIME FROM WORK AS A RESULT OF THIS?
A. NO.

Q. OKAY. AND HAS DR. GREGG OR ANY DOCTOR TOLD YOU YOU CAN'T WORK 'TIL MAY OF 2017 IF YOU WANTED TO?

A. NOW, HE JUST SAID "IF YOU DO DECIDE TO GO BACK TO WORK," HE SAID "YOU REALLY NEED TO GUARD YOURSELF, WEARING A MASK AND, YOU KNOW, TO TRY TO PROTECT YOURSELF." BUT HIS RECOMMENDATION WAS, YOU KNOW, IS TO -- HE SAID "I CAN'T TELL YOU WHAT TO DO. MY RECOMMENDATION TO YOU WOULD BE TO -- TO NOT RETURN TO WORK."

Q. YEAH, BUT YOU CHOSE TO RETURN?

A. YES, IN ORDER TO FINISH OUT THE YEAR.

Q. OKAY. AND WHAT'S THE PURPOSE THERE? IS THERE SOME BONUS YOU GET AT THE END OF THE YEAR OR?

A. WELL, IT'S YOUR -- THAT'S YOUR END OF -- END OF YEAR, LIKE WHEN YOUR PROFIT SHARING ROLLS OVER.

Q. SO THERE'S A ---

A. A 401K. 401K.

Q. SO THERE'S A FINANCIAL BENEFIT ---

A. YEAH.

Q. --- FOR YOU TO CONTINUE STAYING THERE?

A. YEAH. AND HE SAID -- HE SAID, "IF YOU'RE GOING TO RETIRE AT THE END OF THE YEAR," THEN HE SAID, "YOU SHOULD BE ABLE TO PROTECT YOURSELF, AT LEAST, YOU KNOW, FOR FOUR WEEKS."

Q. AND YOU'VE BEEN -- YOU'VE DONE THAT?

A. EVERY TIME.
Q. EVERY TIME.
A. EVERY TIME I -- EVERY TIME I SOLDER, THAT FUME EXTRACTOR IS ON, AND MY MASK IS ON.
Q. OKAY. WHEN YOU RETIRE, WHAT'S YOUR PLAN? WHAT DO YOU WANT TO DO?
A. PROBABLY HELP MY WIFE WITH QUILTING.
Q. QUILTING. YOU LIKE TO QUILT?
A. IT'S -- IT'S -- IT'S KIND OF FUN.
Q. YEAH. DO Y'ALL -- DO YOU HAVE A SEWING MACHINE AT HOME, OR IS IT ALL ---
A. SHE HAS A ---
Q. --- BY HAND?
A. SHE HAS A -- A SEWING MACHINE.
Q. I GOTCHA. AND DO Y'ALL SELL THEM?
A. NOT REALLY. SHE'S -- SHE JUST KIND OF HAS THIS QUILTING GROUP TO WHERE SHE -- THEY EXCHANGE OUT STUFF, AND SHE HAS MADE SOME QUILTS FOR SOME -- SOME LADIES BEFORE.
Q. SO WHEN YOU SAY YOU'RE GOING TO HELP HER, I MEAN IS THE GOAL MAYBE TO START A LITTLE QUILTING BUSINESS?
A. NO. NO. NO. THAT'S -- THAT'S JUST SOMETHING, SOMETHING I TOLD HER I MIGHT HELP HER WITH IF -- IF SHE NEEDS SOME HELP ---
Q. OKAY.

A. --- AND CUTTING STUFF OUT AND ---

Q. YEAH.

A. --- STUFF LIKE THAT.

Q. DO YOU HELP HER SOME NOW?

A. NOT MUCH. JUST KIND OF MIGHT CUT OUT A FEW SQUARES FOR HER HERE AND THERE.

Q. DO YOU ---

A. SHE'S -- THAT'S JUST HER HOBBY. SHE'S -- IT'S NOT A -- NOT A BUSINESS.

Q. DOES SHE HAVE ANY OTHER HOBBIES?

A. NO. JUST SEWING.

Q. OKAY. DO YOU FISH?

A. NO.

Q. DO YOU HUNT?

A. NO. I SOUND LIKE A DULL PERSON.

Q. DO YOU LIKE TO WATCH MOVIES OR WHAT -- WHAT ---

A. YEAH, I WATCH A FEW MOVIES. AND LIKE -- LIKE I SAY, I LIKE COMPUTERING.

Q. OKAY. AND DO YOU -- LIKE WHEN YOU SAY YOU LIKE COMPUTERING, DO YOU SELL THINGS ON THE COMPUTER, OR?

A. NO.

Q. WHAT DO YOU DO ON THE COMPUTER?

A. JUST PLAY A FEW GAMES HERE AND THERE, AND I JUST -- YOU KNOW, I JUST LIKE TINKERING AROUND WITH COMPUTERS.

Q. I MEAN, DO YOU REBUILD THEM?
A. NO. NO.
Q. IT'S MORE OF JUST INTERNET SEARCHING?
A. STUFF LIKE THAT.
Q. OKAY.
A. AND I DON'T, YEAH, I HONESTLY DON'T HAVE TIME FOR A HOBBY.
Q. YEAH. YEAH, BUT YOU'RE GOING TO -- YOU SAY YOU'RE GOING TO RETIRE IN DECEMBER. SO I'M JUST THINKING DO YOU HAVE A PLAN FOR OTHER THAN QUILTING?
A. NO. I -- HONESTLY, AT THIS TIME, I -- I -- I DO NOT. AND I -- WELL, I REALLY DON'T. I'D LOVE TO SAY I DID, 'CAUSE ONE GUY TOLD ME, "KEN, WHEN YOU RETIRE, YOU'VE GOT TO HAVE SOMETHING TO RETIRE TO." I SAID, "WELL I -- AT THIS TIME, I DON'T."
Q. I GOTCHA. ALL RIGHT. I THINK I'M DONE, BUT GIVE ME A MINUTE. WE'RE GOING TO STEP OUTSIDE.

(OFF THE RECORD)

EXAMINATION RESUMED BY MR. RENFROW:

Q. WE TOOK A LITTLE BREAK. WE'RE BACK TOGETHER. YOU UNDERSTAND YOU'RE STILL UNDER OATH, MR. CHRISTIAN?
A. YEAH.
Q. ALL RIGHT. I ASKED YOU EARLIER ABOUT SURGERY, AND YOU TOLD ME ABOUT THE BIOPSY. HAVE YOU HAD ANY OTHER SURGERIES IN YOUR LIFE?

A. ONLY THE STENT PUT IN, IN 2002.
Q. NO OTHER SURGERIES OF ANY KIND?
A. I -- I DON'T -- I DON'T KNOW THE -- THE DATE ON IT. IT WAS A -- A -- A SINUS -- A SINUS SURGERY ABOUT -- THAT'S WHEN I WAS LIVING IN GREER.
Q. MORE THAN EIGHT YEARS AGO?
A. OH, YEAH.
Q. OKAY.
A. OH, OVER TEN.
Q. OKAY. AND DO YOU REMEMBER WHO DID THAT SURGERY?
A. I -- I DO NOT RECOLLECT THAT DOCTOR'S NAME.
Q. SO WERE YOU HAVING PROBLEMS WITH YOUR SINUSES BACK WHEN THEY DID THE SURGERY?
A. THE -- EXCUSE ME. I WAS HAVING SOME PROBLEM WITH THE -- WITH THE -- WITH MY SINUSES SOME, AND -- AND HE -- LIKE I SAY, HE TOOK AN X-RAY. AND HE SAID THAT IT JUST -- HE NEEDED TO GO IN THERE AND OPEN THEM UP, BECAUSE THE PASSAGES LOOKED LIKE THEY WERE KIND OF CLOSE, CLOSED IN, BUT.
Q. AND DO YOU REMEMBER WHO DID IT OR WHERE IT WAS DONE?
A. WOW. I DO NOT. I KNOW IT WAS OVER TEN YEARS. SO IT MIGHT HAVE BEEN OVER 15.
Q. IS IT GREER HOSPITAL, GREENVILLE MEMORIAL, ST. FRANCIS?
A. I DON'T REMEMBER, EVEN IF IT WAS A -- WAS AN

OUTPATIENT, I DON'T KNOW.

Q. AND YOU HAD, YOU WERE WORKING AT EURODRIVE WHEN THIS TOOK PLACE?

A. YES.

Q. SO WOULD YOU HAVE USED YOUR GROUP HEALTH AT EURODRIVE TO PAY FOR IT?

A. I'M SURE IT WAS FILED UNDER THE COMPANY.

Q. AND YOU'VE HAD INSURANCE WITH THEM SINCE YOU'VE BEEN THERE?

A. UH-HUH.

Q. IS THAT A YES?

A. YES.

Q. OKAY. YOU HAD MENTIONED EARLIER ABOUT MILITARY BASES THAT YOU WORKED ON. WHAT -- AND YOU SAID ONE IN CHARLESTON?

A. I WAS STATIONED AT CHARLESTON AIR FORCE BASE.

Q. OKAY. IS THAT NOW -- DOES THAT AIR FORCE BASE STILL EXIST, OR IS THAT THE NAVAL SHIPYARD?

A. NO. IT'S -- IT STILL EXISTS.

Q. IT'S DIFFERENT FROM THE NAVAL SHIPYARD?

A. YES.

Q. OKAY. AND THEN WHEN YOU WERE DOING THE JOB FOR NATIONAL WATER LIFT, DID YOU DO ANY WORK ON MILITARY BASES THEN?

A. NO.

Q. OR IN FACILITIES ON MILITARY BASES?

A. NO.

Q. ALL RIGHT. JUST WANTED TO BE CLEAR ON THAT.

BY MR. RENFROW:

I THINK I'M -- I DON'T THINK I HAVE ANY OTHER QUESTIONS.

BY THE WITNESS:

OKAY.

BY MR. JORDAN:

AND I DON'T HAVE ANY QUESTIONS.

(THERE BEING NO FURTHER QUESTIONS, THIS DEPOSITION WAS CONCLUDED AT THE HOUR OF 11:37 A.M.)

CERTIFICATE OF NOTARY PUBLIC
SOUTH CAROLINA WORKERS' COMPENSATION COMMISSION
COLUMBIA, SOUTH CAROLINA
WCC FILE NO. 1614297

EMPLOYEE/CLAIMANT: **KENNETH D. CHRISTIAN**

EMPLOYER: **SEW EURODRIVE, INC.**

INSURER: **GREAT AMERICAN ALLIANCE INSURANCE COMPANY**

I, SALLYE DEANNE NELSON, A NOTARY PUBLIC FOR THE STATE OF SOUTH CAROLINA, DULY COMMISSIONED AND QUALIFIED AS SUCH, DO HEREBY CERTIFY THAT THE FOREGOING **79** PAGES REPRESENTS A TRUE AND ACCURATE TRANSCRIPT OF THE FOREGOING DEPOSITION OF **KENNETH D. CHRISTIAN**, TAKEN ON THE 13TH DAY OF DECEMBER, 2016.

THAT THE WITNESS WAS DULY PLACED UNDER OATH AND ADMONISHED TO SPEAK THE WHOLE TRUTH. THAT THE ORAL DEPOSITION WAS DULY TAKEN AND TRANSCRIBED AS TO THE QUESTIONS PROPOUNDED AND THE ANSWERS GIVEN.

THAT ALL THE OFFERED EXHIBITS, STIPULATIONS AND OBJECTIONS, IF ANY, INVOLVED IN THIS CASE ARE DULY ATTACHED OR INCLUDED HEREIN.

IN WITNESS WHEREOF, I HAVE SET MY HAND AND OFFICIAL SEAL THIS 30TH DAY OF DECEMBER, 2016.

Sallye Deanne Nelson

SALLYE DEANNE NELSON
NOTARY PUBLIC FOR SOUTH CAROLINA
MY COMMISSION EXPIRES: 5/8/2022

* THIS TRANSCRIPT MAY CONTAIN QUOTED MATERIAL. SUCH MATERIAL IS REPRODUCED AS READ OR QUOTED BY THE SPEAKER.

BEFORE THE SOUTH CAROLINA

WORKERS' COMPENSATION COMMISSION

W.C.C. #1614297

KENNETH CHRISTIAN,	)
EMPLOYEE/CLAIMANT,	)
VERSUS	)
SEW EURODRIVE, INC., AND	)
GREAT AMERICAN ALLIANCE	)
INSURANCE COMPANY,	)
EMPLOYER/INSURER/DEFENDANT.	)

****

DEPOSITION OF

KENNETH CHRISTIAN

****

Pursuant to notice of deposition and/or agreement In the above-entitled case, the deposition of Kenneth Christian was taken on the 15th day of February, 2019, commencing at the hour of 9:56 a.m., in the offices of Smith Jordan, Attorneys at Law, Easley, South Carolina.

Magna Legal Services

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REPORTED BY: MARLA J. O'BRIEN, CVR-M, ACR

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EXHIBITS:

(None marked)

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STIPULATIONS:

It is agreed by and between the counsel for the parties as follows:

1. That this deposition is being taken pursuant to all applicable Rules of the South Carolina Workers' Compensation Commission;

2. That the deponent waives his right to read and sign the deposition transcript.

***** ***** ***** *****

KENNETH CHRISTIAN, being duly sworn to tell the truth, the whole truth, and nothing but the truth of his own knowledge concerning the matter herein, testified as follows:

***** ***** ***** *****

EXAMINATION BY MR. RENFROW:

Q. Mr. Christian, again, my name is Ben Renfrow. And I represent SEW and their Workers' Comp insurance carrier. I'm going to take your deposition and talk about things that have happened since we were last together. I believe the last time we were together was December 13th, 2016.

MR. RENFROW:

Do you agree with that?

MR. PHILLIPS:

The 30th.

MR. RENFROW:

Of what?

MR. PHILLIPS:

December.

MR. RENFROW:

Yeah, I've got the 13th.

MR. PHILLIPS:

Oh. Either one, yeah.

MR. RENFROW:

So sometime in December of 2016.

EXAMINATION RESUMED BY MR. RENFROW:

Q. But if by chance we start going longer than we anticipate and you need a break, you just say, let's take a little break; okay?

A. Okay.

Q. All right. As I told you the last time we were together -- and I'm sure that your attorney's explained it -- the most important rule today is I'm not going to trick you. If I ask you something and you don't understand it, you just ask me to rephrase it, and I'll be glad to do so. Okay?

A. Okay.

Q. All right. Are you still living at the same address you were living at back in December of 2016?

A. Yes.

Q. Okay. And what is that address?

A. [redacted] Circle, Easley, South Carolina, 29640.
Q. Do you still live with your wife?
A. Yes.
Q. Okay. When we were last together, she had had a hip replacement, or had had some hip issues and was on disability. Is she still on disability?
A. Yes.
Q. Okay. Does she work anywhere?
A. No.
Q. Okay. Are you working anywhere?
A. No.
Q. When did you last work?
A. I retired December -- end of December 2016.
Q. Okay. And was the reason for retiring just your age?
A. No, it was the lung issue.
Q. Are you currently taking medicine related to this case that we're here about today?
A. Yes.
Q. What medicine do you take?
A. Right now, I'm on prednisone and Breo.
Q. Breo?
A. Yes. B-R-E-O, Breo.
Q. Okay.
A. Those are the only two that I'm on.
Q. And which doctor's prescribed those medicines?

A. Dr. Cochrane.
Q. And is he your pulmonologist?
A. He is the lung doctor.
Q. Lung doctor, okay. And where is he located?
A. Greenville.
Q. Okay. And is he the same doctor you were treating with when we were together back in December of 2016?
A. Yes.
Q. And in fact, at that time, I think you had had Dr. Knight, and then he transferred you to Dr. Gregg.
A. Dr. Knight, Dr. Gregg, and Dr. Cochrane.
Q. They're all together?
A. Yes. Dr. Cochrane now is the doctor. The other two have shifted to other departments.
Q. Okay. What is your diagnosis, as you understand it, at this point?
A. The diagnosis that I hear is that the lung issues condition has worsened.
Q. And what was the lung issue? Did they tell you you had lung cancer?
A. Interstitial lung disease.
Q. Okay. Have you been diagnosed with any type of cancer or anything in the lung?
A. No.
Q. Okay. Are there any other doctors that you're treating

with on a regular basis other than Dr. Cochrane and Dr. Gregg?

A. My cardiologist every six months.

Q. What's his name, his or her name?

A. Dr. Siachos.

Q. Okay. And is Dr. Siachos, has he related any of your cardiology issues to your lung issue?

A. No.

Q. Okay. And were you seeing a cardiologist before you had these issues related to your lungs?

A. Yes.

Q. Okay. Any other doctors you see on a regular basis?

A. Family doctor.

Q. Is that Kindall and Kemmerlin still?

A. No, that's the -- Dr. Phillips, here recent.

Q. Do you know the name of his practice, by chance?

A. They moved and changed the name. I'm not exactly sure. It was Easley Family Practice, I think.

Q. Okay. Any other doctors that you see on a regular basis?

A. Only dermatologist.

Q. And what's your dermatologist's name? Where is he located?

A. Greenville.

Q. Across from the hospital?

A. Cross Creek.
Q. Okay.
A. Yes.
Q. You told me you were taking two medications that you believe are related to this case --
A. Yes.
Q. -- that's the prednisone and the Breo.
A. Yes.
Q. Are there any other medicines that you don't believe are related to this case?
A. No.
Q. Okay, so do you take any medicine for your heart?
A. No.
Q. Take any medicine from your family doctor for any reason?
A. No.
Q. And you don't do any skin creams or medicine for dermatology?
A. No.
Q. Okay. Other than the problems with your lungs, is there any other problems you're having related to the case we're here about today?
A. No.
Q. And you're not claiming any other physical, mental, or any other problems related to this case?

A. Repeat that?
Q. Yeah. Are you having any other physical, mental issues related to this case that you haven't told me about?
A. The only other one I would say maybe would be related would be the loss of memory with the -- when I had the lungoscopy and the medication they had to prescribe there in the hospital.
Q. Okay. Anything else?
A. No.
Q. Where did you have the lungoscopy done?
A. GHS.
Q. Okay. And did Dr. Cochrane do that?
A. No. Bolton.
Q. Tell me what is a lungoscopy? Is it just, they go down and just look around?
A. They -- a lungoscopy is when they cut you in three place, and then they go in and then they cut a piece of the lung off.
Q. Okay.
A. And then they send it off.
Q. So like a biopsy --
A. Yeah.
Q. -- essentially? Have you had any other procedures since December of 2016, any surgical procedures of any kind?

A. Huh-uh.
Q. Yes or no?
A. No.
Q. Okay. And when did you have the lungoscopy?
A. 2016, probably, estimating. Because I retired at the end of 2016, so the lungoscopy was, I'm sort of estimating, maybe September 2016.
Q. Okay. So the one that was before your --
A. Yes.
Q. -- we deposed you. All right. Now, have any of your doctors told you what has caused your lung problems?
A. Yes, they have.
Q. Which doctors?
A. Dr. Gregg.
Q. What'd he tell you?
A. He said the interstitial lung disease, with the lab that I work in -- his direct words was, I cannot tell you to stop working. But I can tell you if you go back into the same environment, your lungs are going to worsen.
Q. And when did he tell you that?
A. That was when I was seeing him in 2016, early 2017.
Q. Okay. And so, have you gotten better since you got out of that lab, or gotten worse?
A. The lungs -- I'm wearing oxygen all the time now, so

the lungs have worsened.
Q. So if I remember correctly, when we were together last, you weren't wearing an air machine; correct?
A. That's right.
Q. Oxygen machine.
A. That's right.
Q. So you feel like you've gotten worse since --
A. Yes.
Q. -- we were last together?
A. Yes.
Q. And have you been back in that lab since we were last together in December of 2016?
A. No.
Q. So has Dr. Gregg told you, specifically, though, that the problems you have today are related to your work?
A. Yes.
Q. And what did he say differently than what you just told me?
A. Well, I mean, he didn't go in any kind of great detail, just basically said that soldering fumes can cause this issue.
Q. Do you know if Dr. Gregg has ever been out to SEW to see what --
A. No.
Q. -- kind of fumes you were exposed to?

A. I'm sure he hasn't.
Q. And were you able to take him any documents or anything to show him what you were around?
A. Yes.
Q. And what did you take him?
A. I take him pictures and documentation of solder, sprays and stuff that we use in the lab.
Q. Who took the pictures?
A. I did.
Q. And do you have those pictures?
A. No. I think I just gave them to the medical over there.
Q. Do you have them in your phone?
A. No.
Q. You took them with a camera or with a phone?
A. I took them with my phone, but I don't have them anymore.
Q. You think Dr. Gregg still has them?
A. I'm sure they have them on file.
Q. Okay. I guess what I'm getting at is how would I, like, if I wanted to see those pictures to see if what you gave him was actually something that is there or wasn't there, or, you know, just in the typical investigation, how would I know what he saw? You believe he's got pictures?

A. I don't know if he still has them.
Q. Do you know if your attorneys have pictures that you gave Dr. Gregg?
A. I think they do.
Q. All right. What have you been doing with your time since you retired?
A. Not a lot.
Q. Okay.
A. Because with my lungs, I'm just really limited on physical activity.
Q. When did you start wearing the oxygen machine?
A. The oxygen machine was probably over a year.
Q. So sometime, you think, in 2018, early 2018?
A. Something -- '17 or '18.
Q. And Dr. Cochrane --
A. I'd probably say -- I'd probably say '17, 2017.
Q. And Dr. Cochrane prescribed it?
A. Yes.
Q. Has Dr. Gregg or anybody come out to your house to check to see if there's anything in your house that could be causing your lungs to deteriorate?
A. No.
Q. Okay. Do you think it's possible there's something in your house or in the environment near you, like mold or anything that could be causing these types of problems?

A. No.
Q. Do you know anybody else that's ever worked at SEW that's had a similar problem?
A. No.
Q. Have you done any type of job or any work of any kind, voluntary or paid, since you left SEW?
A. No.
Q. What are your hobbies?
A. Not a lot.
Q. Are you a carpenter or --
A. No.
Q. -- painter?
A. I watch preaching a couple hours a day, and study God's Word and read spiritual books. Try to help my wife basically, with just some basic housework. That's about it.
Q. Do you go to a certain church?
A. Abundant Life.
Q. And are you a deacon or a --
A. No.
Q. -- Sunday School teacher, anything, there?
A. No.
Q. Okay. Are you still able to go on Sundays?
A. Yes.
Q. Who's the pastor at Abundant Life?

A. James Brown.
Q. And where is that church is located?
A. Farrs Bridge Road.
Q. Have you been out of the state of South Carolina since you retired in December of 2016?
A. No.
Q. Haven't been on any trips?
A. Uh-huh.
Q. You been on an airplane?
A. No.
Q. Have you been on any trips in South Carolina, to the mountains or to the beach?
A. No.
Q. Is your wife able to get out of the house?
A. Limited.
Q. Who does your grocery shopping?
A. She does.
Q. So she's able to do that kind of thing?
A. Uh-huh.
Q. Is that a yes?
A. Yes.
Q. Okay. Who does your yard work?
A. I have a yard guy that does my yard work.
Q. What's his name?
A. You hit me off guard here. I know his first name is

Frank. I don't know his last. I'm sorry.
Q. That's fine. You could get that if I needed it?
A. Yes.
Q. All right. Are you able to do any yard work?
A. No.
Q. Do you have a barn behind your house where you piddle and do things?
A. No.
Q. Do you work on any of your cars?
A. No.
Q. What sources of income do you have coming into your home right now?
A. Only Medicare.
Q. Social Security?
A. Yes.
Q. Is it disability, or --
A. I mean, I meant Social Security, I'm sorry.
Q. Okay. Is that age-based Social Security?
A. Yes.
Q. Did you get any disability?
A. No.
Q. What about you wife?
A. Just Social Security.
Q. And is that based on her age?
A. Yes.

Q. Either one of y'all get any kind of disability check?
A. No.
Q. All right. I may have asked you this at the last deposition. I don't think your attorney will mind me asking this. But were you in the military?
A. Yes.
Q. What branch?
A. Air Force.
Q. And do you get any VA benefits?
A. No.
Q. Have you ever treated at the VA?
A. No.
Q. For your lung problem?
A. No.
Q. Any reason why?
A. I just never thought about it.
Q. I gotcha. I didn't know -- you qualify for VA benefits; right?
A. I'm assuming I am.
Q. Yeah, okay. So how do you pay for the medical treatment that you're getting right now for your heart and for your lungs?
A. Medicare.
Q. Okay. And do you have any outstanding bills that haven't been paid?

A. No.
Q. So it's a hundred percent paid for?
A. Yes.
Q. Have you spent the night in the hospital since we were last together in December of 2016?
A. No.
Q. Hadn't had any stays where you had to go to the emergency room and they had to put you --
A. No.
Q. -- in the hospital? And you haven't had any surgeries?
A. No.
Q. Other than the two medicines you told me about, are there any other medicines you take on a daily basis?
A. Yes.
Q. What do you take?
A. I take 81 milligram of aspirin.
Q. Is that for your heart?
A. Yes, a blood thinner.
Q. Blood thinner, okay.
A. And then I take super B complex multivitamin, and B12 and B3.
Q. All of those things you buy at --
A. Yeah.
Q. -- Walgreens or something?
A. I buy it, yeah. Buy at Walmart.

Q. Any other prescription medicine you take?
A. No.
Q. Have you talked to anyone at SEW Eurodrive since you retired about your case?
A. No.
Q. Do you have any friends that work up there that have helped you get information from the plant?
A. No.
Q. Okay. And have you been back to the plant since you retired?
A. No.
Q. I've got a list here of all the doctors I'm aware of that I think you've treated with, and I want to go through this list. And then if there's somebody we need to add, let's do so. You've seen the Allergy Partners of the Upstate at some point in the past?
A. Uh-huh.
Q. Is that a yes?
A. Yes.
Q. You've seen Drs. Kendall and Kemmerlin?
A. Yes.
Q. St. Francis Hospital?
A. Yes.
Q. Greenville Hospital System?
A. Yes.

Q. Cardiothoracic Surgery?
A. Yes.
Q. And did you have some type of surgery, cardiothoracic surgery? Or was that the lungoscopy?
A. I guess that's the lungoscopy.
Q. Okay. You treated at Baptist Easley Hospital?
A. No.
Q. Okay. Pulmonary and Critical Care Medicine? Is that Dr. Cochrane?
A. Yes.
Q. Upstate Cardiology? That's Dr. Siachos?
A. Yes.
Q. Palmetto Pulmonary and Critical Care?
A. Palmetto -- say that again?
Q. Palmetto Pulmonary and Critical Care? And that may have preexisted your claim.
A. That may have.
Q. Okay. All right. Are there any other doctors, therapists, medical providers of any kind you've seen related to this case?
A. No.
Q. Okay. Does your wife have any type of lung issues at this point?
A. No.
Q. Does she have asthma or emphysema --

A. No.
Q. -- COPD, anything like that?
A. No.
Q. Does she smoke?
A. No.
Q. Has she ever smoked since you've known her?
A. No.
Q. Do you have any friends or family members that smoke?
A. Family members smoke.
Q. Who?
A. A couple of my brothers.
Q. They still living?
A. They passed away years ago.
Q. Okay. Either one of them have lung problems when they died?
A. They -- no. They lived in Georgia.
Q. Okay. Do you have any siblings still living?
A. An older brother, and a sister.
Q. Either one of them smoke?
A. No.
Q. Either one of them have lung problems?
A. No.
Q. And I asked you about children. Do you have children?
A. I have a daughter.
Q. And does she have any kind of lung problems?

A. No.
Q. What does she do for a living now?
A. She is in correctional center at this time.
Q. Okay. And what was her issue?
A. Bipolar disorder.
Q. Okay. Is she scheduled to get out any time soon?
A. I think she's scheduled, maybe, in three years.
Q. What's her name?
A. Jennifer Gasperson.
Q. When is the last time you were able to see her?
A. Maybe a couple of months.
Q. And did you go to see her at the correctional --
A. Yes.
Q. -- facility? Where is that located?
A. It's in Columbia.
Q. Is it Lieber? Or which one? I don't even know the...
A. Say that again?
Q. Is it Lieber Correctional Institution? Or what's the one in Columbia? Or is it Columbia?
A. I think it's just Columbia --
Q. Columbia Correctional.
A. -- Correctional.
Q. CCI.
A. Yeah.
Q. Are there any other benefits that you receive at this

point at all? Do you get your retirement?

A. Only Social Security.

Q. Do you have a retirement plan that you're able to draw if you needed to?

A. Explain.

Q. Yeah, like a 401(k), when you were at SEW --

A. Yes, 401(k).

Q. And have you cashed that out?

A. No.

Q. So it's still available if you needed it?

A. Yes.

Q. And how does that work? Do you just have to elect to get it? Or at some point, are they going to start sending it to you?

A. On the 401(k), I had that rolled over before I had -- before I had left the company. That was back in probably 2015.

Q. When you say "rolled over," into a different type of account?

A. Yeah, into a -- yeah, took it out of 401(k).

Q. And where is it now?

A. It's in a...

Q. Like an IRA or something?

A. Yeah.

Q. And so it's there if you needed it, you just haven't

needed it?
A. Yes, that's correct.
Q. Has anything happened since August -- I'm sorry, since December of 2016 that you feel like have made your problems worse?
A. No.
Q. Have you had any motor vehicle accidents since then?
A. No.
Q. Any slip-and-falls or any incidences --
A. No.
Q. Okay. I asked this question last time, and I suspect I know the answer this time, but I'm going to ask it because I have to. Since we were last together, have you been charged with any crimes?
A. No.
Q. All right. Been convicted of any crimes?
A. No.
Q. Do you have any criminal charges going against you right now that --
A. No.
Q. -- haven't been adjudicated? Since we were last together, have you had treatment or been recommended for treatment for any type of substance abuse?
A. No.
Q. Have you had treatment or been recommended for

treatment for any type of mental or psychological problem?

A. No.

Q. And you're not claiming any type of mental or psychological problem related to this case?

A. No.

Q. All right. Anything else happen since December of 2016 that you feel like I need to know about?

A. No. Just bored.

Q. Anything else about your case that you think I need to know about that maybe we didn't talk about before?

A. No.

Q. Okay. How did you get to this deposition today?

A. My attorney contacted me.

Q. I mean, did you drive, or did somebody --

A. Yes.

Q. -- pick you up?

A. I drove.

Q. I gotcha. So you're still able to drive?

A. Yes.

Q. And is there hope, do the doctors believe that at some point you're going to be able to get off this oxygen machine?

A. No.

Q. So you'll probably wear it...

A. (Indicates affirmative response)
Q. Okay. And do they have a good plan in place to help you get your lungs better? Or are you as good as you're going to get?
A. This is it. This is it.
Q. Okay. I don't think I have any other questions.
EXAMINATION BY MR. PHILLIPS:
Q. Ken, some of the medications you're on, do they give you anxiety?
A. Yes.
Q. They do? Okay. You didn't have any pre-existing anxiety problems before?
A. No, none.
Q. Okay. I have no further questions.
EXAMINATION BY MR. RENFROW:
Q. Do you get down and anxious from time to time about your daughter being in prison?
A. No.
Q. What about your wife's sickness? Does that cause you any stress or anxiety?
A. No.
Q. Okay. So you think you have some anxiety related to this case?
A. Yes.
Q. Have you told doctors about it?

A. Yes.
Q. Have you seen any doctors about it?
A. Only Dr. Cochrane.
Q. Okay, the lung doctor. Does he have you on any medicine for it?
A. No.
Q. Okay. Have you ever been on any medicine for it?
A. I went to see my family doctor, which is Kendall, and he had put me on -- I don't know the name of it because it was so many months back, because of the anxiousness, because of the anxiety and stuff. And he said that -- and he put me on some for a while to help me along there until I get --
Q. Did it help you?
A. -- get on stronger ground. Yes.
Q. Okay. And so, today, do you feel like you need that medicine anymore?
A. Not at this point.
Q. Okay. Had you ever taken anxiety medicine in the past?
A. No.
Q. You'd never taken it before that time when Dr. Kendall --
A. No.
Q. -- recommended it? Okay. I don't think I have any other questions.

MR. PHILLIPS:

Nothing further.

(There being no further questions, this deposition concluded at 10:21 a.m.)

CERTIFICATE OF REPORTER

I, Marla J. O'Brien, a notary public in and for the State of South Carolina, do hereby certify that the foregoing 29 pages represents a true and accurate transcript of the deposition of Kenneth Christian, which was taken by me on the 15th day of February, 2019.

That the witness was first duly sworn to tell the truth, the whole truth and nothing but the truth of his own knowledge concerning this matter.

That I am not related to nor the employee of any of the parties hereto, nor related to or employed by any attorney or counsel employed by the parties hereto, nor interested in the outcome of this action.

That all offered exhibits, stipulations and objections, if any, involved in this cause are duly attached to included herein or retained by the parties.

_____

MARLA J. O'BRIEN, CVR-M, ACR

NOTARY PUBLIC FOR S.C.

COMMISSION EXPIRES: 8-12-2021

BEFORE THE SOUTH CAROLINA
WORKERS' COMPENSATION COMMISSION
W.C.C. FILE NO. 1614297

KENNETH CHRISTIAN, CLAIMANT, VS. SEW EURODRIVE, INC., EMPLOYER, AND GREAT AMERICAN ALLIANCE INSURANCE COMPANY, CARRIER, DEFENDANTS.	DEPOSITION OF RICKEY JONES

THE DEPOSITION OF RICKEY JONES, TAKEN BEFORE SALLYE D. NELSON, PROFESSIONAL VERBATIM REPORTER AND NOTARY PUBLIC IN AND FOR THE STATE OF SOUTH CAROLINA, COMMENCING AT THE HOUR OF 10:23 A.M., FRIDAY, THE 26TH DAY OF JULY, 2019, AT THE LAW OFFICES OF WILLSON JONES CARTER & BAXLEY, P.A., 872 SOUTH PLEASANTBURG DRIVE, GREENVILLE, SOUTH CAROLINA.

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EXHIBITS

*DIGITALLY RECORDED AUDIO RETAINED FOR TWELVE (12) MONTHS FROM DATE OF CERTIFICATION.

STIPULATIONS

IT IS STIPULATED BY AND BETWEEN COUNSEL FOR THE RESPECTIVE PARTIES THAT ALL OBJECTIONS ARE RESERVED UNTIL THE TIME OF TRIAL, EXCEPT AS TO THE FORM OF THE QUESTION.

THIS DEPOSITION IS BEING TAKEN PURSUANT TO THE SOUTH CAROLINA RULES OF CIVIL PROCEDURE.

- - - -

THE READING AND SIGNING OF THIS DEPOSITION IS WAIVED BY THE DEPONENT AND COUNSEL FOR THE RESPECTIVE PARTIES.

WHEREUPON, RICKEY JONES, BEING DULY SWORN AND CAUTIONED TO SPEAK THE TRUTH, THE WHOLE TRUTH, AND NOTHING BUT THE TRUTH, TESTIFIED AND DEPOSED AS FOLLOWS:

EXAMINATION

BY MR. PHILLIPS:

Q Mr. Jones, my name is Thomas Phillips. We met a few minutes ago before we went on the record. I represent Ken Christian in his workers' compensation claim. We're here today to talk about the safety policies and procedures at SEW. Have you ever given a deposition before?

A I have not.

Q All right. Well, let's go over a few quick things.

The lady to my right here, to your left, she's a court reporter. She's taking down everything that we say. So it's important to speak loudly, clearly; avoid head nods, uh-huhs, uh-uhs, things like that. If you do it, I'll just ask you to repeat your answer. I'm not trying to be rude; I'm just trying to get a good transcript. If you can't understand me -- this change of weather's got my allergies acting up, so if you can't understand me, don't hesitate to ask me to repeat my question. Okay?

A Okay.

Q Are you under the influence of any alcohol or drugs that would affect your ability to understand or answer my questions?

A I am not.

Q All right. Please state your full name for the record.

A Rickey Sanchez Jones.

Q Okay. Mr. Jones, what is your date of birth?

A 3/18/90.

Q Okay. And your current telephone number?

A 864-431-9774.

Q Okay. And your current address?

A 549 Bumblebee Lane, Wellford, South Carolina 29385.

Q Okay. How long have you lived there?

A My whole life.

Q Who lives there with you?
A My grandmother.
Q And I ask this question to everyone. I'm not trying to be rude, but have you ever been arrested or charged for a crime?
A No.
Q Have you ever been a party to any lawsuit?
A No.
Q Have you ever been terminated from any position of employment?
A No.
Q Okay. Where are you currently working?
A SEW Eurodrive.
Q And you work there onsite?
A Correct.
Q Okay. And what is your position there?
A Environmental Health and Safety Coordinator.
Q Okay. And you've been identified today as the person most knowledgeable as to SEW's safety policies and procedures; is that true?
A Correct.
Q Do you oversee all safety policies and procedures at SEW?
A I'm a part of the team that works to oversee the safety policies, yes.

Q Okay. What is your background and training?
A So my experience is I've been with SEW for going on 13 years. Part of that included working with our current safety manager, Wade Blackwell. So I've had some on-the-job training to familiarize myself with various aspects of the company in regards to safety for the past six years that I've -- excuse me -- seven years that I've been working with Wade Blackwell directly.
Q Okay. So who do you report to, Wade?
A Wade, correct.
Q Is there a reason why he was not sent today?
A He's focused more on the purchasing role that he also has, and I, in the past couple of years, have taken on more of the safety roles.
Q Okay. What are your functions and responsibilities in your role?
A So, as EHS coordinator, I am a resource for our management team, as well as our employees. I have dedicated time to investigating any hazards that may be present, as well as advise on any unsafe conditions that may be brought to my attention. I do that for both the environmental side, as well as the safety side.
Q Okay. Are you a director or officer or managing agent?
A I -- could you repeat that question?

Q Are you a director, officer, or a managing agent?
A No. Not by title.
Q Of your department?
A Not by title.
Q How many people do you oversee?
A I have a group of four gentlemen that work in the maintenance utilities group. So they're slightly different. They're not as involved in safety as I am, but as part of my functions at SEW, I also supervise that group.
Q Okay. And what's your authority?
A Could you give me an example of the question you're asking?
Q How much power do you have over those people?
A So I'm their direct -- their direct supervisor.
Q So they report directly to you?
A Correct.
Q Can you hire and fire?
A I could, yes.
Q Are you able to exercise discretion and judgement in your job?
A Correct.
Q Are you expected to carry out the directions of SEW?
A Correct.
Q How -- how do you do that?

A To carry out the direction -- say that one more time, just to make sure I'm understanding your question.
Q How do you carry out the directions of SEW in your job?
A By writing policies, if they are needed, implementing practices where they're needed, so on and so forth, in that manner.
Q Okay.
A Similar manner.
Q Do you know Ken Christian?
A No, not personally.
Q Have you ever met him?
A I've seen him in passing.
Q Okay. You are aware of his workers' compensation claim?
A I am.
Q The one we're here about today?
A Correct.
Q What is your understanding of that claim?
A From my understanding, Mr. Ken Christian has an illness, and he is seeking a claim against SEW Eurodrive, alleging that his illness is due to his time at SEW.
Q Okay. How do you know that information?
A Provided by our legal counsel.
Q And who is your legal counsel?

A Alex Cable.
Q What is your role in the defense of this claim?
A I am here as a representative of SEW, to provide under the best of my abilities, as much information as I can in regards to SEW's safety ---
Q Okay.
A --- practices.
Q Okay. Are you aware of any other complaints similar to Mr. Christian's?
A I am not.
Q How about any complaints made to your predecessor?
A I am not.
Q And who was your predecessor?
A Wade Blackwell.
Q Was Ken a good employee at SEW?
A I don't have the experience enough to answer that question with Mr. Ken.
Q Okay. But you never heard anything bad about him?
A If so, I wouldn't have been privy to those conversations.
Q Do you know what Ken's job at SEW was?
A I know that for a certain period of time he worked in our electronics lab. I can't attest to how long that was during his overall time at SEW.
Q Okay. Do you know what those jobs in the electronics

lab entail?
A I have a general understanding of those jobs.
Q Can you tell me about that.
A Our electronics lab is where our employees would troubleshoot, service, or repair any customer electronics products that they may have had an issue with while in the field, so different functions surrounding those particular tasks.
Q Okay. Do -- do they work with solder?
A They do.
Q What is a typical day like at SEW for you?
A For me?
Q Yes.
A Typical day, well, first, I comb through my emails, to see if there's anything -- any fires that are required to put out for the day. But I will check in with my direct reports, make sure that they're okay. I will then work on any projects that I'm currently on. If there's anything that any supervisors or managers may need my immediate attention on, I'll address those. So that's kind of a general bird's eye view ---
Q Okay.
A --- of what I do, as far as on a day-to-day basis, and kind of attacking things as they're required or as they're needed.

Q Okay.
A Depending on urgency.
Q Now, is your office in close proximity to the electronics lab?
A It is not.
Q How far away is it?
A So we have two adjacent buildings. I would be in what is classified as the manufacturing building. Ken would have been in the assembly building.
Q Okay. On a typical day, how often are you near the electronics lab?
A I walk throughout the plant a couple of times a week. So I would pass by Mr. Ken's area a few times a week. That's not necessarily to say that it would happen every day. Just sometimes I'm more based in the manufacturing building than I would be in the assembly building.
Q Okay. So you didn't actually go in the electronics lab often?
A Correct.
Q Okay. So would Ken be more knowledgeable as to his exposure to the solder than you would?
A He would have firsthand experience.
Q Okay.
A So he would have that over my particular knowledge,

because I -- I've never soldered. So he would know that, based on his experiences.

Q Okay. Since SEW has been aware of Ken's claim, have any investigations been performed?

A We have done some investigating, correct, on the safe measures surrounding that environment; correct.

Q And tell me about those.

A So I think it's important to know that we do take safety very seriously. And a part of that can oftentimes look like reaching out to outside experts to help us identify and tackle any hazards that may be present. One of those resources was Palmetto EHS, an outside consultant of industrial hygienists, that we asked to come in and do an industrial hygiene sampling of those exposures in that particular working environment.

Q Okay. What did those -- what did that testing reveal?

A So those results indicated and concluded that there were no hazards above any OSHA regulatory limits.

Q Okay. And have any incident reports been made by your office ---

A None that I'm aware of.

Q --- in particular?

Okay. Are you being paid to be here today?

A Well, I'm a salaried employee, so I'm on ---

Q So ---
A --- behalf of SEW; so...
Q So you're on the clock today?
A Yes.
Q All right. And speaking of those hygiene reports.
A Yeah.
Q I have a copy that ---
A Okay.
Q --- your attorney sent me.
A Yeah.
MR. PHILLIPS: And I don't know if you have another copy of this.
MR. RENFROW: I do.
BY MR. PHILLIPS:
Q Because every time I tried to print it, it was cutting a lot of it off. But just in case you need to refer to it, and I'm going to talk about these, the reports I was sent for a few minutes.
A Yep.
Q Are these reports conclusive of the testing done by SEW?
A Could you repeat that question?
Q Are these reports conclusive of the testing done by SEW?
A In regards to the industrial hygiene sampling of that

area, yes.
Q Okay. So the testing is for standard chemicals, compounds, and metals; is that correct?
A It would -- it would be for the -- the items, chemicals included, that they would be using that could potentially pose a threat to the employee.
Q Okay. So, again, just standard chemicals, compounds, and metals?
A Correct.
Q How often is the testing done?
A Since my involvement, it's something that I have -- I believe this was done in 2017. I have done several additional tests in the past year, not necessarily of this particular environment. So, my goal is to do these periodically every few years or so, or if there is a, you know, a major change that would warrant wanting to resample a working environment.
Q Okay. Are they standard over -- over time, or is there a specific event that triggers the need for these reports?
A Well, they're -- they're actually not required by OSHA to do that, but it is a measure that we as a company take to ensure that we are being diligent, and that we are doing our best to ensure the -- the safety of our employees. So they're not a set schedule that they

have to be done, but we try to do those every so often.
Q Okay. What times of the day are these tests performed?
A So, for these particular tests, we do a full eight-hour weighted test of the employee's working environment. So it would typically be done during the entire shift of that particular employee.
Q And how is the employee picked?
A So I ask the supervisors -- I lean on our management team to help -- help me to identify employees that they would feel who would have the ability to assist us as best as possible. If they're familiar with the environment enough to -- to do most of the tasks, if not all of them, we try to make sure that we get an individual who's going to give us an accurate data sampling.
Q Okay. So these tests are done during business hours.
A Correct.
Q Working hours.
A Correct. Correct.
Q Okay. At the time these tests are conducted, are people soldering?
A The individuals would be doing their day-to-day tasks that they would normally do, which would include soldering.
Q Now, in the reports there was a guy named Garret Cheek.

A Correct.
Q Do you know who that is?
A Yes. That is the supervisor for that particular group.
Q And what group is that?
A The electronics, the electronics lab workers.
Q Is there any other testing done at SEW, besides these air samples?
A In regards to what, specifically?
Q Just any type of testing for the safety of the employees.
A I can't say they're limited to just this. We have various expertise that will come in and -- and either evaluate it visually, or we could do something similar to this with an actual data sampling.
Q Okay. So, as far as reports that are generated, these are the only reports?
A To my knowledge, yep.
Q Aren't you the safety coordinator?
A I'm part of the safety team; correct.
Q So wouldn't you know if there were -- there were other reports?
A That would be correct, for the most part, yes.
Q Has any testing of the rosin been conducted?
A To my understanding, if rosin was used in this particular industrial hygiene sampling, that would have

been collected as well.
Q Okay. And you've seen these reports; correct?
A I've looked through them; correct.
Q And have you seen any testing of rosin in these reports?
A I'd have to go back in it and look through, just to be sure, certain.
Q Okay. He can give you one.
A I got one.
Q Oh. You've got one right there?
A Yeah.
MR. PHILLIPS: We can go off the record while he looks.
(OFF THE RECORD)
BY MR. PHILLIPS:
Q Mr. Jones, we're back on the record. And you were looking through the reports from Palmetto Hygiene.
A Yeah.
Q We were -- I previously asked if any testing had been done for rosin, specifically.
A So, to answer your question, we took a minute to take a look at the SDS. During my quick review of the SDS, I found a couple of things that I think are worth noting and can point to our abilities to test for particular components of this. So I think it's important to note

that the SDS is going to be an extremely beneficial tool that we can use as a company. Palmetto EHS would have also used this as well.

So we'll start with the ---

MR. RENFROW: There's the numbers on it.

THE WITNESS: Yep. Yep. Yep.

BY MR. PHILLIPS:

Q Is there a page number?

A So if we look to page 542.

MR. RENFROW: If you don't have it, he has my prehearing brief that goes out to ---

MR. PHILLIPS: Oh. Okay.

THE WITNESS: So there is a section that says composition information and ingredients. On page 542, at the bottom, in bold letters there it says, there are no ingredients present, which within the current knowledge of the supplier. And then the concentrations applicable are classified as hazardous to health or the environment, and hence require reporting in this section. Occupational exposure limits, if available, are listed in section eight. And, so, if we turn to section eight, under the exposure controls/personal protection, under the occupational exposure limits, there are none.

BY MR. PHILLIPS:

Q Does that report speak to rosin, specifically?
A So this particular report, in order to -- to conduct the safety industrial hygiene sampling, we would have to know the particular -- the particulars of the rosin, so the components which would cause harm. I'm not familiar enough with rosin to know if that is a trademark name or if that is the actual chemical that's -- that's -- that's in question; therefore, based on the SDS and what I'm looking at, the SDS states that it's a rosin-coated braided copper wire. So, out of this description, along with the other information given, our industrial hygienist did sample for copper, which is by the means of what the SDS says correlates to the information I am able to find on the SDS.
Q Okay. But you would agree that there's more to it than just copper?
A That would be a question that I wouldn't be able to answer.
Q Okay.
A As not being the manufacturer of the -- the product itself.
Q Okay. So you're saying in that report, all they tested for was the copper?
MR. RENFROW: I'm going to object to that. I think the report speaks for itself. It's about 100 pages

thick. And -- and we hired the experts to make those determinations because that exceeded the safety director's role. And, so, the report speaks for itself. Just I want to put that on the record.

BY MR. PHILILPS:

Q But you can answer.

A I would say we did -- SEW did the best that we could do to try to ensure the safety of our employees. That is the -- the number one reason why we -- we even go to a professional industrial hygienist in this manner, is because we understand there are aspects that we cannot answer; therefore, we rely on the experts to come in and evaluate the situation.

Q So you would defer to their judgement?

A Absolutely.

Q Okay. Is it safe to say that SEW was not aware that these problems could be caused by the solder and were not looking at rosin, in particular?

MR. RENFROW: Object to the form. Go ahead and answer.

THE WITNESS: I think SEW -- before I answer that, I'll ask you just to repeat it, just to make sure I'm understanding you correctly.

BY MR. PHILLIPS:

Q Okay. Y'all order these tests.

A Uh-huh.
Q Because of potential hazardous chemicals that might be in the air.
A Correct.
Q And for the safety of the employees.
A Correct.
Q Is it safe to say that SEW was not aware that solder could cause lung disease and, therefore, was not specifically looking at the rosin components to see if they were hazardous?

MR. RENFROW: Object to the form of the question. But go ahead and answer it.

THE WITNESS: I think that is a two-part question you're asking. So, if you could separate those and reask it, just to make sure there's nothing that is misconstrued, that could be great.

BY MR. PHILLIPS:
Q Are -- are you aware that rosin can cause lung problems?
A I would not be aware of that personally. No.
Q All right. We'll move on for now.
A Okay.
Q Several weeks ago I toured the electronics lab.
A Okay.
Q And I'm not a good artist, but I have sketched out the

two rooms. All right. And I'm just going to give you, just look at it and tell you kind of what I've drawn out. I've done Room A and Room B.

A Uh-huh.

Q And this is the current electronics lab, Room A.

A Okay.

Q Room B is the little side room.

A Okay.

Q If you walk into the electronics lab to the right, and this is the warehouse area.

A Correct.

Q Is that an accurate description of what these room -- how these rooms are laid out?

A I'd say they're not drawn to scale.

Q Obviously, not to scale, but for the ---

A I think a general overview of what you're saying looks to be accurate.

Q Okay.

MR. PHILLIPS: And I'm going to mark this as Claimant's 1.

(COURT REPORTER MARKS FLOORPLAN SKETCH, CLAIMANT'S EXHIBIT 1, ATTACHED.)

BY MR. PHILLIPS:

Q Can you put your initials on that?

A Yeah. Is there anywhere in particular you would like

me?
Q No. Just anywhere.
A (Mr. Jones complies.)
Q Is there any ventilation in Room A?
A There would be the HVAC of the building that would include that area; correct.
Q Okay. Where is the ventilation located in that room? And you said a -- you said the HVAC, but is there anything actually sucking fumes out of that room?
A Well, there is. You -- you, by default, have a return duct that would be pulling the ambient air out of that room.
Q Okay. Where is that duct located?
A I didn't know to prepare for that question.
Q Okay. Is testing done to make sure that the vents, the out vents are working properly?
A We have, as far as specific testing -- ask the question one more time.
Q Okay. You said there were -- there were vents that were pulling air out of the room and fumes and whatnot; correct?
A I think that there is vent- -- there is the HVAC of the room; correct.
Q But is there anything specifically drawing out fumes from that room?

A By default that would be a part of it, although we do have fume extractors available as well for employees to use, if they would like.
Q Okay. What do you mean by, by default?
A So the -- the purpose of the HVAC system is to provide fresh air to the room, just as with any other room in the SEW facility. And there is -- when I say by default, there is a return duct in there as well that would pull the air out of that, from my understanding.
Q Okay. And how often is that return duct tested to make sure it's properly working?
A That would be a question I would have to go back and find an answer for you. But to my understanding, we don't.
Q Okay. How about in Room B?
A I don't know the answer to that, but I could do my best to find that out for you.
Q Okay. And assuming that they're set up the same ---
A Uh-huh.
Q --- would that room probably have a return duct as well?
A It would solely be a guess, but my guess would be yes.
Q Okay. Would that return duct be tested?
A I think in regards to the -- the testing, testing and as a whole, it would -- would be based on the -- the

need to test that. I think from our work that we've had done, we've concluded that there aren't any hazards present that would require additional testing.

Q Okay. But you said earlier those testings are done at various times throughout the year; correct?

A Right. Right. Correct. And with our HVAC system, we do have a contract with an outside provider who makes sure that, you know, if something is working, it's working properly. Or if it is not working, they will provide us, you know, a quote to get it fixed.

Q Okay. But you're not aware of any testing that's been done on the return ducts?

A Not to my knowledge. No.

Q Okay. Does Room B have any windows?

A Not that I can recall, off the top of my head, so I will say to your answer, I don't know, but I could find out for you.

Q Okay. And going back to Room A, do you know where Ken's work area was?

A I do not.

Q Okay. Do you know about how long he worked in Room A?

A I do not.

Q It's my understanding that he was previously in Room B, the old electronics lab. Or let me ask you. Was the old electronics lab in Room B originally?

A That is a question I don't have the answer to, but I could find out for you.
Q Okay. In Room A, is there a window?
A Based on your drawing, there is a window.
Q Okay. Is that window open to allow for ventilation?
A I do not know the answer to that.
Q Is that window tested to determine if it's able to be opened?
A I don't know the answer to that, as -- because I don't know what that testing would be. So, to my knowledge, no, it is not.
Q Okay. And it's my understanding that y'all now have carbon filter fans at the work stations.
A That is a question that our supervisors and managers of the particular department would be able to answer better than I could.
Q Okay. Do you -- are you aware that there are carbon filter fans?
A I don't know the specifics of those particular fans. No.
Q Okay. So, as safety manager, you don't have a role in providing safety ---
A Safety coordinator.
Q Safety coordinator, you don't have a role in providing safety devices ---

MR. RENFROW: Object.
BY MR. PHILLIPS:
Q --- for the employees?
MR. RENFROW: Object to the form.
THE WITNESS: I think it's important to know that, at SEW, safety is not the sole responsibility of one particular person, and it is a collective effort. And safety is not only my responsibility, but it's the responsibility of our managers and supervisors, because I am not going to be an expert at every department. Therefore, we rely on the expertise of our managers and supervisors and to assist the team as a whole on safety measures. So I am honest and will say I am not an expert in this particular area, but we do, as a team, work together to provide a safe working environment. And that can be done in the form of our managers and supervisors using their discretion on what measures are needed.
BY MR. PHILLIPS:
Q Are carbon filter fans in the policies and procedures, the safety policies and procedures of SEW?
A Carbon filter fans are not in a specific policy or procedure, to my knowledge, no.
Q And the reason I'm asking, I'm questioning you, because you've been designated as the person most knowledgeable

---

A I understand. I understand.

Q --- as to SEW's or safety policies and procedures.

A I understand.

Q So, as the person most -- most knowledgeable, you're not aware that -- if they have carbon filter fans at the work stations to draw these fumes out?

MR. RENFROW: Objection to the form. It's been asked and answered, and he says he didn't know but can get you answers, which is his responsibility as a 30(b)(6). But if you've got a different answer, answer his question.

BY MR. PHILLIPS:

Q Are the workers given any respiratory devices to wear?

A There aren't any hazards present that would require a respiratory device.

Q Can you repeat that?

A There aren't any hazards present that would require a respiratory device.

Q Do you think SEW's safety measures are adequate to protect conditions like Ken's, protect from conditions like Ken's?

A I think, as you can see from the documentation that we provided, we put our best foot forward to do the best that we can do to ensure a safe working environment for

all employees.
Q Have you made any recommendations?
A Pertaining to?
Q New safety measures.
A From time to time, yes.
Q What kind of -- what recommendations have you made?
A I think that is a question that I would have to prepare for prior, or excuse me, before meeting with you. So I don't have an answer to give you off the top that would be appropriate.
Q Knowing what you know now, do you propose any changes?
A No.
MR. RENFROW: Object to the form.
BY MR. PHILLIPS:
Q Why not?
A Based on the data collected in the industrial hygiene sampling.
Q Since Ken's claim, have any remedial measures been taken?
A Enviro- -- remedial, you mean what?
Q To prevent against the -- the rosin fumes.
MR. RENFROW: Object to the form.
THE WITNESS: I'd say the measures that were taken in the industrial hygiene sampling would be adequate in determining the hazards present in the working

environment that they are in.

BY MR. PHILLIPS:

Q Okay. And, again, those -- that testing entailed the copper; correct?

A Correct.

MR. RENFROW: Object to the form.

MR. PHILLIPS: I don't think I have any questions. Do you have any?

MR. RENFROW: None.

(WHEREUPON, THE DEPOSITION CONCLUDED AT 10:59 A.M.)

CERTIFICATE

This is to certify that the foregoing deposition of RICKEY JONES consisting of 31 pages is a true and correct transcript of the testimony given by said deponent after first being duly sworn; said deposition was reported by method of Stenomask with digital backup. This transcript may contain quoted material; said material is transcribed as read or quoted by the speaker.

I further certify that I am neither employed by nor related to any of the parties in this matter nor their counsel; nor do I have any interest, financial or otherwise, in the outcome of the same.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 3rd day of August, 2019.

_____

Professional Verbatim Reporter

Notary in and for the State of South Carolina
My Commission Expires: May 8, 2022

PENGAD 800-631-6989
CLAIMANT'S EXHIBIT
Jones, R.M.
1
26/19

DESK
DESK
DESK
Desk
Door
Doors
Doors
Window
"A"
"B"

WAIT House

BEFORE THE SOUTH CAROLINA
WORKERS' COMPENSATION COMMISSION
W.C.C. FILE NO. 1614297

KENNETH DORSEY CHRISTIAN, CLAIMANT, VS. SEW EURODRIVE, INC., EMPLOYER, AND GREAT AMERICAN ALLIANCE INSURANCE COMPANY, CARRIER, DEFENDANTS.	DEPOSITION OF GREGORY FELDMAN, M.D.

THE DEPOSITION OF GREGORY FELDMAN, M.D., TAKEN BEFORE HOLLY W. WILSON, PROFESSIONAL VERBATIM REPORTER AND NOTARY PUBLIC IN AND FOR THE STATE OF SOUTH CAROLINA, COMMENCING AT THE HOUR OF 8:34 A.M., FRIDAY, THE 23RD DAY OF AUGUST, 2019, AT UPSTATE LUNG & CRITICAL CARE SPECIALISTS, P.C., 151 HAROLD FLEMING COURT, SPARTANBURG, SOUTH CAROLINA.

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EXHIBITS

*DIGITALLY RECORDED AUDIO RETAINED FOR TWELVE (12) MONTHS FROM DATE OF CERTIFICATION.

STIPULATIONS

IT IS STIPULATED BY AND BETWEEN COUNSEL FOR THE RESPECTIVE PARTIES THAT ALL OBJECTIONS ARE RESERVED UNTIL THE TIME OF TRIAL, EXCEPT AS TO THE FORM OF THE QUESTION.

THIS DEPOSITION IS BEING TAKEN PURSUANT TO THE SOUTH CAROLINA RULES OF CIVIL PROCEDURE.

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THE READING AND SIGNING OF THIS DEPOSITION IS WAIVED BY THE DEPONENT AND COUNSEL FOR THE RESPECTIVE PARTIES.

WHEREUPON, GREGORY FELDMAN, M.D., BEING DULY SWORN AND CAUTIONED TO SPEAK THE TRUTH, THE WHOLE TRUTH, AND NOTHING BUT THE TRUTH, TESTIFIED AND DEPOSED AS FOLLOWS:

EXAMINATION

BY MR. PHILLIPS:

Q Dr. Feldman, we met a little while ago while we were off the record. My name is Thomas Phillips, and I represent Ken Christian in his workers' compensation claim.

We're here today to discuss an opinion that you rendered in this case. You're familiar with the report I'm talking about?

A Yes.

Q Okay. I believe I know the answer to this question, but have you ever given a deposition before?
A I have.
Q All right. Were all of those expert witness depositions?
A You can say that. I've done some expert witness depositions as well.
Q Okay. Have you ever given a deposition that wasn't as an expert witness?
A No.
Q Okay. All right. Just a refresher, the lady to my right and to your left is a court reporter. She's taking down everything that we say, so it's important to speak loudly, clearly; avoid head nods, and uh-huhs and uh-uhs, things like that.

And I'm just trying to get a good record, so if I ask you to repeat your answer, I'm not trying to be rude. I'm just trying to get everything clear on the record when she types it out.

Please state your full name for the record.
A Gregory Jacob Feldman, F-e-l-d-m-a-n.
Q All right. And can you give me a brief run-down of your educational background and training.
A Finished medical school in Moscow, USSR, between '73 and '79; done research in between '81 and '84; done

residency in internal medicine at Seton Hall University in New Jersey. I finished at Dartmouth-Hitchcock Medical Center in New Hampshire between '78 -- strike it -- between '85 and '90 -- in '89; and finished fellowship at Dartmouth-Hitchcock Medical Center between '89 and '92; and in private practice since '92 here in Spartanburg.

Q Okay. In what areas are you board certified?

A I'm board certified in internal medicine, pulmonary medicine, and critical care medicine; triple board certified.

Q Okay. Where are you currently employed?

A I am employed by Upstate Lung & Critical Care Specialists, PC, where you are right now.

Q Okay. What is your position here?

A I am a -- one of the partners. We're all partners.

Q And do you have hospital privileges?

A I do.

Q What hospitals?

A I have privileges with Spartanburg Regional Medical Center. I have privileges with Mary Black Memorial Hospital. I have privileges at Providence downtown hospital in Columbia.

Q Have those ever been revoked or suspended for any reason?

A No.
Q All right. What is your main focus of -- what's the main focus of your practice?
A Pulmonary medicine and critical care medicine.
Q Okay. And how long has that been the focus?
A Always, since 1992.
Q All right. And what all -- what journals and medical sources do you prefer?
A Well, it's a broad array. I think that for the general purpose of a discussion, I would say online journals are better now days, and they will up to date.
Q Okay.
A That will be CHEST. There will be a Blue Journal, we call it, and there are a variety of others. But it's no longer possible to tell you the journals, because we don't rely on them.
Q Okay.
A We rely on worldwide web.
Q Okay. That's fair.
A That's where the medical literature is as pertains to any particular subject. That's what is most important.
Q Okay. Are you familiar with the College of American Pathologists?
A I am aware of the College. I'm not a member of the College. I'm a pulmonologist.

Q Okay. What's your opinion of the College of American Pathologists?
A I think it's a reputable college.
Q Okay. In this case that we're here about today, Mr. Christian's case, did you render an opinion regarding his lung injuries?
A I have.
Q Okay. And what was the conclusion of that opinion?
A Patient has a UIP, usual interstitial pneumonitis.
Q And how did you reach that conclusion?
A Constellation of a clinical findings, constellation of findings, clinical history, and pathological reports, as well as blood work and other lab reports; and, importantly, imaging, as well.
Q Okay. Where did you get this information?
A I got the information that was supplied by the attorneys.
Q Okay. By Mr. Renfrow?
A Yes.
Q All right. And in your report, you mention that Mr. Christian was in the Navy and worked in the Naval shipyard. Was that influential in your conclusions?
A No.
Q Okay. Well, it must have been important since you mentioned it, correct?

A Yes. It's important in the sense of occupational history, and it's primarily important to exclude things like asbestosis, which is pneumoconiosis, and I have seen no evidence of asbestosis. But when you go into interstitial lung disease probably divide this into certain categories. And pneumoconiosis is a big one, and asbestos, a big one. So the shipyard become a prominent history for that reason.

Q So is it fair to say that you mentioned the shipyard to rule out other causes?

A Yes.

Q Okay. What other parts of his history are influential in your conclusions?

A Progressive course of the disease, eosinophilia in the blood from bronchial lavage pointing to eosinophilia predominant lung disease were the keys. Also, a pathological report confirming the presence of interstitial pneumonia, which is a hallmark of my conclusion as far as correlation with the clinical history and imaging.

Q Okay. Did you -- did any outside factors influence you, say, his work history, or anything he does outside of work?

A No.

Q And daily life?

A No. I have not seen anything that he does influence my conclusion.
Q Okay. Why do you not believe Mr. Christian's case is not representative of interstitial lung disease or hypersensitivity pneumonitis?
A He has interstitial lung disease.
Q Okay. Well, why do you think it's not hypersensitivity pneumonitis?
A There's just no demographic evidence. Now, first of all, I could not entirely exclude organic cause of it, organic meaning because of the late stages of biopsy. There's a lot of overlap that we see, and organic cause rarely causes hypereosinophilic syndrome, which he has, hypereosinophilic syndrome. Organic causes cannot be entirely excluded. They're less likely, okay, but they're in the differential, which I listed in my report.
Q What do you believe could have caused or contributed to Mr. Christian's lung problems, or is it -- I'm trying to figure out if it's purely idiopathic?
A It is by all constellations idiopathic, yes.
Q Okay. Have you ever treated a patient with hypersensitivity pneumonitis?
A Yes, of course.
Q And do you believe that solder can cause

hypersensitivity pneumonitis?
A Well, we know from the literature that it can.
Q Okay. It's rare.
A Well, it is rare for many reasons. Not many people have biopsies as well. But it's -- to me, it is an improbable diagnosis whatsoever. It's not in my differential.
Q Okay. But it's a known cause of hypersensitivity pneumonitis?
A Yes.
Q Are you familiar with the pathology of hypersensitivity pneumonitis?
A I am.
Q What is your understanding of the pathology?
A Well, the pathology is a very tricky subject because there's a lot of variability between pathologist. There's a lot of problems relying on the pathology alone. There's overlapping features that pathologists readily admit. It's a very difficult diagnosis to make at the end stage of the disease.

However, there's characteristic findings in the pathology as well, which usually involves airways, and it makes sense, because hypersensitivity means you inhale.
Q Okay.

A Okay. So there's a lot of constrictive bronchiolitis airway involvement, centrilobular involvement that we see. But even that may not be reliable at the end stage.
Q Okay.
A Okay. In some percentage, we see extensive granulomas, but that's usually in the early stage.
Q Okay. And you said something about inhaling. That's what causes this condition, inhaling substances?
A Well, I will answer your question from a pathological standpoint.
Q Okay.
A And x-ray point of view, okay? On x-ray, you see centrilobular part and nodular part around airways because you talk about inhalation of something that cause it.
Q Okay.
A And, therefore, both on x-ray and pathologically, you see that centered around airways.
Q Okay.
A Make sense?
Q I believe so. I believe so. I'm going to hand you an article from the American College of Pathologists, or College of American Pathologists.
A Sure. Uh-huh.

Q And this is from, in your words, a reputable body. I'm just going to give it to you, and there's two places on here I would like you to look at, on Page 1 and Page 3. And they are actually highlighted areas.

(Document handed to witness.)

MR. PHILLIPS: And I'm going mark that as Claimant's 1.

(MARKED FOR IDENTIFICATION, CLAIMANT'S EXHIBIT NUMBER 1, ARTICLE, ATTACHED.)

THE WITNESS: I'm looking at "Archives of Pathology & Laboratory Medicine." I'm not familiar with this journal.

BY MR. PHILLIPS:

Q Okay.

A Okay. In fact, I have never seen this journal. So I have been asked to look at the article of "Pathology of Chronic Hypersensitivity Pneumonitis. What is it?" That's a question mark. "What Are The Diagnostic Criteria?" question mark. And "Why Do We Care?" question mark. It is written by Andrew Chung, MD, from Vancouver General Hospital, which is a Canadian institution. And I have been asked to look at the highlighted conclusion.

(As read) "Upper lobe-predominant fibrosis and/or air-trapping on computed tomography scan are features

of CHF, but UIP/IPF; however, radiologic separation is possible in only 50 percent of the cases. Morphologically, CHF" or rather CHP, chronic hypersensitivity pneumonitis, "sometimes mimics UIP/IPF, but CHP often shows isolated foci of peribronchiolar (centrilobular) fibrosis, frequently associated with fibroblast focis, and in CHP, fibrosis may bridge from the centrilobular regions to another bronchiole."

I agree with that.

Q Okay.

A Yeah, I ---

Q You do agree?

A I have no beef with that.

Q Okay. How about on Page 3?

A That would not be relevant. Subacute, we're not discussing subacute here.

Q Okay. But are you familiar with the pathology reports in this case?

A Yes.

Q I know we ---

A Can I have it in front of me, though?

Q And I know in your report, you said that you were unable to get a copy of one of them.

A I was not -- I was unable to get a copy of something

that was sent to New York.

MR. PHILLIPS: Okay. Well, I have a copy of it, and I'm going to mark these as Defendant's 2 and 3 -- I mean, Claimant's 2 and 3.

(MARKED FOR IDENTIFICATION, CLAIMANT'S EXHIBIT NUMBER 2, REPORT, AND CLAIMANT'S EXHIBIT 3, REPORT, ATTACHED.)

(Documents handed to witness.)

BY MR. PHILLIPS:

Q And I believe the one on top ---

A I've seen.

Q --- you've seen. The one on the bottom is the one you have not seen.

A Let me see. (Reviewing.) Very good.

Q Do you agree with that report?

A I am not ruling out hypersensitivity pneumonitis myself.

Q Okay.

A It's in my differential diagnosis. However, the diagnosis of hypersensitivity pneumonitis is no longer in pathologist's hand. Okay? In our literature and in their literature as well, it's a multi-disciplinary approach. Okay? A pathologist, of course, is not aware of eosinophilic lung disease. It would have changed his mind.

Pathologist is not aware of many things that I am aware of. Okay? As a clinician that has access to radiology reports, to the CAT scans, to the bronchial lavage done by pulmonologist, to the bloodwork revealing eosinophilia.

So is no longer a pathologist drives a diagnosis. A pathologist can be very helpful. This is very helpful. Okay?

Q Okay.

A But it is not -- but it cannot be taken out of isolation of a clinical picture. In fact, it no longer is. It's clearly stated by every scientist, physician that deals with those issues.

Q Okay.

A It's a multi-disciplinary approach. I believe I have taken that approach because I have synthesized an entire picture.

Q So you're not disputing that he may have hypersensitivity pneumonitis?

A Organic type.

Q Organic. Can you define that?

A Well, organic materials, feathers, or a variety of maybe birth-related, maybe something that comes from previously living organisms. Inorganic materials, like chemicals, that would be totally inconsistent with

hypersensitivity pneumonitis clinically, that it was caused by chemicals or metals.

Q But you said that solder was a known cause ---

A Solder is a not a known cause of eosinophilic lung disease, not a known cause.

Q Okay.

A In fact, it's a known cause of that type of -- so you -- you've got to distinguish two type of hypersensitivity pneumonitis, which I have for you, organic and non-organic. It's consistent with organic. It's inconsistent with non-organic.

Q But wouldn't you need to know about Mr. Christian's outside influences in order to make that diagnosis?

A I don't need to know nothing. Fifty percent of organic cause to hypersensitivity pneumonitis is of unknown etiology, and home-related, meaning it's occur -- it could be pillow; it could be something else. But would we know -- or more than 50 percent. We'll never know what caused it.

Q So you said that it could be -- you mentioned bird -- feathers of a bird?

A I'm mentioning feather pillows, pillows.

MR. RENFROW: Pillows.

THE WITNESS: What you sleep on, pillow.

BY MR. PHILLIPS:

Q Okay. Did you -- have you examined the pillows that he sleeps on?
A It make no difference because 50 percent we don't know.
Q So you're just making a guess?
A No, it's not a guess. I'm quoting you the literature, which I'll give it to you today.
Q Okay.
A Fifty percent comes from home, and we never know what it is.
Q Okay. So you made this diagnosis when the pathologist clearly did not make that. They ruled that diagnosis -- they did not make that diagnosis.
A Diagnosis of what?
Q Of the UIP.
A Pathologists do not make diagnoses. Pathologists look at the slides. Clinicians make diagnosis.
Q So what's the purpose of sending a sample to a pathologist?
A To exclude things that -- well, first of all, we no longer biopsy, as you know.
Q You said to exclude things, correct?
A Wait a second. No, no, no. That's not what I said. What I said, we no longer send a majority of our patients to pathologists. Number one, surgery is dangerous. It's precipitated acute deterioration. So

the samples are very rare now days. Okay? So pathologists frequently disagree with one another. Okay. But they're very helpful in diagnosing, ruling out like asbestos, other things.

So now you're dealing with eosinophilic lung disease and UIP. They confirm that. It's all over. There's no doubt about that. It's usual interstitial pneumonia. Now, the question, what caused usual interstitial pneumonia. There's a differential diagnosis, which I have listed. Okay.

Q Okay.

A The hypersensitivity pneumonitis is in that differential diagnosis but just not non-organic.

Q And can you explain that No. 3 on your report?

A I'm reading from my report. (As read) "Chronic hypersensitivity pneumonitis secondary to chemicals is not a known cause with eosinophilic lung disease. However, organic material on rare occasions immunologically-mediated organic material, but not any chemicals, such as soldering."

Q And that's the UIP?

A Hypersensitivity pneumonitis is in the differential diagnosis of UIP.

Q Okay.

A UIP can be caused by a variety of diseases.

Q Okay.
A Rheumatological diseases, asbestosis, idiopathic, chronic hypersensitivity pneumonitis.
Q Okay.
A However, it is not just a UIP. It is an eosinophilic type.
Q Okay. So what I'm trying to understand is if -- he can have UIP, and then hypersensitivity pneumonitis is, I guess, a subpart of UIP?
A No. Sarcoidosis, asbestosis, hypersensitivity pneumonitis, idiopathic pulmonary fibrosis, okay, all present to pathologists as UIP.
Q Okay.
A Okay? So pathologists cannot -- frequently cannot separate. They can say favor, disfavor, and so forth. Only clinicians can. Pathologists cannot, because what they see is very, very similar.
Q Okay.
A Okay? Once they see UIP, they can't say what caused UIP. They can -- they can speculate. Okay. Well, clinician -- clinician has much more data, which I review all of that data. Okay? We're dealing with eosinophilic disease.
Q Okay.
A UIP with eosinophilic disease has a total differential

diagnosis. And what I'm telling you, that hypersensitivity pneumonitis can do it, organic, but soldering cannot.

Q So you're saying soldering cannot cause hypersensitivity pneumonitis?

A Eosinophilic type.

Q And what's eosinophilic type?

A Eosinophilic.

Q What is that?

A That is where you have a predominance of eosinophils. You know, blood, bronchial lavage, as well as on the pathology report.

Q And, again, how did you conclude the organic factors in this case?

A I cannot rule it out. To me, it's all IPF, idiopathic pulmonary fibrosis, but I cannot rule it out. It is impossible to rule it out completely. Okay? But because it's eosinophilic, there are the cases where hypersensitivity pneumonitis is associated with eosinophilic, but never soldering, or any chemicals.

Q So you wouldn't need to know more about his background and his home, and what pillows he sleeps on to make that determination?

A I would not, because fifty percent we never know. That's by literature. It's not Greg Feldman's opinion.

I'm relying on our pulmonary literature. Fifty percent is impossible to know, and we never know. But that's the most common now days, home-related hyp- -- not hypereosinophilic but hypersensitivity pneumonitis is overwhelmingly a majority of the cases.

Q Okay.

A But I also have a benefit of bronchial lavage showing eosinophilia. I have a benefit of a bloodwork showing as eosinophilia. I have a benefit of a pathologist describing eosinophils. None of them are consistent with soldering. Actually, it rules it out.

Q Would his wife not be suffering similar symptoms?

A I don't know anything about his wife. I haven't seen anything about that.

Q Well, if it's caused by something in the home, would they not -- would she not be suffering?

A Of course not, because hypersensitivity pneumonitis is in predisposed individuals, genetically and otherwise. We do not know what cause hypersensitivity pneumonitis in 50 percent of the cases. In some people, but not in others.

Are you asking me where the families, all of them get affected? No. But if it was birds, that's not the case. Some people do; some people don't.

Q Well, I think I'm trying to figure out, because you say

hypersensitivity pneumonitis, then you say UIP. So, which one is it that you think he has?

A I'm going to try to educate you really better on that.

Q Okay.

A UIP is not a disease.

Q Okay.

A It's pathological findings.

Q Okay.

A Fever is not a disease. It can be caused by urinary infection; it can be caused by pneumonia. It can be caused by a variety of things. Okay?

Q Okay.

A Pathologically, that's what pathologists see -- see UIP. That becomes differential diagnosis, because all of those diseases, including asbestosis, they lead to the UIP, pathologically.

Q Okay.

A So it's not a disease in itself. It's a pathological finding that have a differential diagnosis.

Q So would a toxicologist -- would you defer to a toxicologist to make the finding of what caused the UIP?

A Right. Toxicologist has no role, play no role, other than excluding toxic causes of some acute illnesses. This is not acute illness. We're talking about years

and years and years in development. So, toxicologists have absolutely no role in this.

Q A toxicologist does not?

A Have no role; zero. Toxicologist is not a professional dealing with chronic illnesses. Toxicology is dealing with acute illnesses. Those type of diseases takes many, many years to develop, decades.

Q Okay. Even though he was inhaling solder for many, many, many years?

MR. RENFROW: Object to the form.

THE WITNESS: I have not seen those data that he was exposed to it. I assume he was. It make no difference in a clinical diagnosis because eosinophilic lung disease is not known to occur with that. Okay?

So soldering is not in differential diagnosis of what he got.

BY MR. PHILLIPS:

Q And, again, why is that, because it's eosinophilic?

A Because eosinophilic. It's eosinophilic disease. Soldering is excluded just by that.

Q And explain that. Explain what a -- are you saying -- say that again.

A Eosinophilic.

Q And explain what that is.

A Let me just write it down for you. Where can I write

it down? Okay. Eosinophilic, e-o-s-i-n-o-p-h-i-l-i-c.

Q Now, explain what that is.

A That is -- the blood cells are differentiated into the red blood cells and white blood cells. The white blood cells are differentiated into the neutrophils, lymphocytes, many others, but, importantly, eosinophils, which, once elevated, lead to the totally different set of disease. They're not elevated for no reason. Okay?

There's a differential diagnosis, okay, and hypersensitivity pneumonitis second to organic, okay, can cause it. And presence of eosinophils in lung biopsy on bronchial lavage and in the blood rules out soldering.

Q Okay. So, what you just described, that tells you that it was caused by something organic?

A No, that's not what I said. I think that this man has hypersensitivity -- does not have hypersensitivity pneumonitis. Okay. I think this man has idiopathic pulmonary fibrosis, with possible eosinophilic pneumonia superimposed. Okay. However, organic hypersensitivity pneumonitis cannot be excluded.

The question that you posed to me why soldering is excluded. Soldering is not the cause of hypereosinophilic syndrome or lung involvement. And,

in fact, it rules it out.

In addition, the CT scan of the chest, okay, is inconsistent with soldering, inconsistent. Okay. All the reports describe totally different picture of CT scan related to soldering. Remember, there's few, very few, case reports. They're all inconsistent with the CT scans that we see.

And, therefore, it's not in the differential diagnosis. Okay. I don't know why we're debating that.

Q So, even though two pathologists concluded that it was?

A Pathologists cannot make a diagnosis with soldering. Okay? It is impossible for them to do. Okay. No pathologist in the world can.

Q Is it common for you to make your own diagnoses in contradiction to a pathology report?

A Never in contradiction; in synthesis. We never contradict pathologists. Pathologists do not make a diagnosis. They're not the clinicians. They only describe what they see.

Q Are you board certified in pathology?

A No.

Q How about toxicology?

A I am not. All right. I am going to respond a little bit to the question in greater detail.

I am reading from "The role of histology idiopathic pulmonary fibrosis: An Update." "In the last few years the diagnosis of idiopathic pulmonary fibrosis (IPF) has gradually shifted from the situation in which biopsy was a single gold standard to a more complex paradigm in which the histology is part of a dynamic, multidisciplinary approach, integrating the clinical, radiographical, and pathological data."

It's out of pathologist's hand. Pathologist is no longer qualified to make a diagnosis of any of those. Clinicians do. And I think I'm eminently qualified to make that conclusion.

MR. RENFROW: Can I ---

THE WITNESS: So you can put it in.

MR. RENFROW: Just so it's clear for the commissioner, I want to mark this as Exhibit -- did you mark Exhibit 1 already?

MR. PHILLIPS: I've done 1 through 3, so this will be 4.

(MARKED FOR IDENTIFICATION, DEFENDANTS' EXHIBIT NUMBER 4, ARTICLE, ATTACHED.)

THE WITNESS: There's no contradiction with clinician and pathologist. The clinician integrates all the data.

BY MR. PHILLIPS:

Q And this includes the HP?
A That includes all the data, okay, including chronic hypersensitivity pneumonitis being in the differential diagnosis.
Q All right. What percentage of your practice is workers' comp patients?
A Very tiny.
Q Very tiny.
A Less than one percent.
Q How often do you act as an expert for defense attorneys?
A Maybe a couple of times a year.
Q How much money a year are you paid a year by defense attorneys?
A Maybe in the neighborhood of three to five thousand dollars.
Q In total?
A In total.
Q Okay. And did you and Mr. Renfrow have any conversations about your report?
A I have not.
Q You haven't talked to Mr. Renfrow?
A I have not talked to Mr. Renfrow. I just sent him a report. He sent me letter.
Q Do you have a copy of that letter?

A I might. Let me see.

MR. RENFROW: You should have a copy as well, Thomas.

MR. PHILLIPS: It wasn't in my package yesterday.

THE WITNESS: I may have the letter somewhere. If you want it, I give it to you, but do you want me to find it? I can step out.

MR. PHILLIPS: Oh, no. I'm about done. I was just going to ask you about this.

BY MR. PHILLIPS:

Q On June 26th, there's an email between your office and Mr. Renfrow's office that is setting up a telephone conversation between the two of you. Do you not recall that conversation?

A No.

Q You don't?

A I don't. It was very brief conversation that would I possibly review the case, maybe.

Q Okay. Well, this was right before you submitted your report.

A I don't recall discussing it with Mr. Renfrow. I may have, but I don't remember.

MR. PHILLIPS: Okay. I'm going to mark this Exhibit 5.

(MARKED FOR IDENTIFICATION, CLAIMANT'S EXHIBIT

NUMBER 5, LETTER, ATTACHED.)

MR. PHILLIPS: All right. I have no further questions.

MR. RENFROW: Thank you.

EXAMINATION

BY MR. RENFROW:

Q Doctor, again, my name is Ben Renfrow, and we actually did speak briefly several weeks or months ago, based on ---

A That might well be.

Q --- that email. Has anything I've ever said to you influenced your opinion in this case?

A No.

Q Okay. Have I given you any mandate that you're to prepare a report, and only prepare a report that would help my case?

A No.

Q Okay. And in your experience, and you've been doing this a long time, would you ever let a lawyer pick up the phone and call you and tell you to say something you didn't believe to be true?

A No.

Q Okay. Now, in your -- in the reports that you provided to my office, and I've submitted to the other side, there was a CV, a curriculum vitae, that you prepared,

or someone prepared on your behalf, and it's 54 pages. And I marked this in the pre-hearing brief, just for the record, Supplemental Pre-Hearing Brief No. 25, pages 687 to 740.

Will you look at this document that's already been submitted into evidence.

A Okay.

Q Is that your CV?

A Yes.

Q And it's 54 pages of your experience as a board-certified ---

A It may be more now. It maybe more like 65.

Q Maybe more since then?

A Yeah.

Q Okay. And, again, you're a board-certified what?

A Internal medicine, pulmonary medicine, and critical care medicine.

Q Okay. So you've been doing this a long time?

A I have been doing it a long time, yes.

Q And do you gain -- do you gain any advantage, or do you make more money if you give an opinion that's favorable to the person that hired you versus the other side?

A I make no money either way because I lose my time.

Q All right. Now, you submitted, or were asked some questions about an article, and the attorney for the

other side said that you found this article to be credible in some earlier testimony. Had you ever seen that article before today?

A I have not.

Q All right.

A But I have no disagreement with what he asked me to read.

Q Sure. Okay. And do you know the doctors specifically ---

A I don't know those doctors.

Q Okay. Based on the questions that you've gotten here today from Mr. Phillips, has anything changed your opinion that you've provided in your report on June 28, 2019?

A No.

Q Okay. Now, you were asked some questions about, well, if it was something Mr. Christian was exposed to at home, maybe the pillow he sleeps on, or something else of that nature, would his wife not have the same symptoms. And I need you to educate me a little bit. You know, I've learned a little bit about mesothelioma and asbestosis over the years. And it's my understanding from that disease that you could be exposed to something in your twenties, and because of the latent effect of that disease, it not manifest

itself and become symptomatic till 30 or 40 years later. Is that true?

A That usually is the case, yes.

Q All right. So, in the condition that you believe, based on your evaluation of Mr. Christian's file and pathology reports, and everything else that you've reviewed related to this case, is the condition you believe he has, is it also something that he could have been exposed to 20 or 30 years ago that's now just manifesting itself?

A Well, yes. It takes decades of usual idiopathic pulmonary fibrosis, or even one to accept that it's a chronic hypersensitivity pneumonitis, second to organic material, both will decades to be progressive.

Q So ---

A It is impossible to know what he was exposed 20 or 30 years ago.

Q So, to the extent something organic or inorganic caused his problem, to that extent, it could have been something he was exposed to as a child?

A Well, let me answer that question in a little bit more sensitive way. Okay? I am not going to come to your side, but ---

Q I'll come over to your side on that.

A --- because otherwise. Okay. I am reading from the

article, "Chronic hypersensitivity pneumonitis," published in Journal of Asthma and Allergy. Okay. "Interstitial Lung Disease Program."

"Over many years, the home slowly emerged as a primary causative environment for exposure to ordinary antigens under common living conditions in individual cases, rather than reports of large outbreaks."

Okay. "New sources of airborne organic particles are recognized every year."

Q So let's assume, and I get the premise that Mr. Phillips and I could be -- could grow up together and live together every second of our lives, and one of us could develop a disease due to some exposure we had at some point, and the other not because of a predisposition to have that condition.

A Exactly. It's not a contagious disease.

Q I understand.

A Sometimes people develop it; some people don't. And, unfortunately, we don't know why some people develop and others don't. We just don't know that.

Q And I understand that premise completely. But let's assume that we put that aside for a moment. It's very possible that Mr. Christian could have been exposed to something as a child or in his teen years, long before he was married, that his wife was never exposed to.

Correct?
A It's possible, yes.
Q Okay. All right. Is there anything else that you need or believe that would help your opinion in any way with regards to this matter?
A No.
Q Would seeing Mr. Christian, would that help you?
A It would not.
Q Lots of times we get attacked or accused of hiring experts but not letting them see the individual patient. Is there anything that seeing Mr. Christian would do for you to help you with your diagnosis, or your understanding of what has caused his problem?
A No, I have all the information that I need.
Q And that includes his medical records and pathology reports that you have reviewed, either prior to today or today?
A Correct. I have reviewed the pathology reports on several occasions prior to today.
Q All right.

MR. RENFROW: I have no further questions.

MR. PHILLIPS: I have no questions.

(MARKED FOR IDENTIFICATION, DEFENDANTS' EXHIBIT NUMBER 6, ARTICLE, ATTACHED.)

(WHEREUPON, THE DEPOSITION CONCLUDED AT 9:11 A.M.)

CERTIFICATE

This is to certify that the foregoing deposition of GREGORY FELDMAN, M.D., consisting of 35 pages, is a true and correct transcript of the testimony given by said deponent after first being duly sworn; said deposition was reported by method of Stenomask with digital backup. This transcript may contain quoted material; said material is transcribed as read or quoted by the speaker.

I further certify that I am neither employed by nor related to any of the parties in this matter nor their counsel; nor do I have any interest, financial or otherwise, in the outcome of the same.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 10th day of September, 2019.

_____

Holly W. Wilson
Professional Verbatim Reporter

Notary in and for the State of South Carolina
My Commission Expires: February 22, 2022

Respiratory Medicine (2010) 104, S11–S22

available at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/rmed

The role of histology in idiopathic pulmonary fibrosis: An update

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Available online 14 May 2010

KEYWORDS
Idiopathic pulmonary fibrosis;
Usual interstitial pneumonia;
Non-specific interstitial pneumonia;
Diffuse parenchymal lung disease;
Histology;
Review

Summary
The diagnosis of idiopathic pulmonary fibrosis (IPF) currently requires an integrated clinical–radiological–pathological approach in which the histology plays a different role from in the past. The first reason for this change is that non-invasive diagnostic procedures, particularly pulmonary function tests and high resolution computed tomography, have become increasingly competitive with biopsy in providing prognostic information. The other reason is a better appreciation of the limitations of histology: sampling error and interobserver variation. In this review we analyze the reasons for this change of perspective, provide an update on the practical role of histology in the diagnosis of IPF and discuss some of its complications.

Introduction

In the last few years the diagnosis of idiopathic pulmonary fibrosis (IPF) has gradually shifted from a situation in which biopsy was the single gold standard to a more complex paradigm in which the histology is part of a dynamic multidisciplinary approach integrating the clinical, radiological and pathological data.[1–4]

The reasons for this profound change are twofold. First, the non-invasive diagnostic procedures, particularly pulmonary function tests[5–9] and high resolution computed tomography (HRCT),[10,11] became increasingly competitive with biopsy in providing prognostic information. Nowadays they are a sufficient surrogate of biopsy in a significant proportion of patients, and when biopsy remains necessary they integrate with histological results. For example,

Abbreviations: AE, acute exacerbation; CVD, collagen vascular disease; DAD, diffuse alveolar damage; HP, hypersensitivity pneumonitis; HRCT, high resolution computed tomography; ILD, interstitial lung disease; IPF, idiopathic pulmonary fibrosis; LCH, Langerhans' cell histiocytosis; NSIP, non-specific interstitial pneumonia; OP, organizing pneumonia; UIP, usual interstitial pneumonia.

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0954-6111/$ - see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.rmed.2010.03.013

when HRCT appearance is typical of usual interstitial pneumonia (UIP) a non-invasive (clinico-radiological) diagnosis of IPF is almost always accurate.[12] As a corollary, biopsy is required only when the HRCT scan and/or the clinical features are not typical of UIP, a situation occurring in <50% of patients with IPF. In this scenario the correct classification of the disease is based on histology, and the histological distinction between UIP and non-specific interstitial pneumonia (NSIP) provides important prognostic information.[13] In other words, when clinico-radiological data are inconclusive and biopsy is deemed necessary, histology generally remains the most important piece of the diagnostic puzzle. However, HRCT maintains a role in determining the most appropriate site of biopsy, and the prognosis is further refined when histological data are integrated with HRCT[14] and clinico-functional parameters.[15]

Together with the growing importance of non-invasive procedures, the other reason for the change in the role of histology in IPF is a better appreciation of its limitations. The first limit of histology is sampling errors – any disease in the lung is heterogeneous, and a biopsy in different areas may provide different results. For example, in IPF an optimal biopsy will demonstrate UIP, but a suboptimal biopsy may show only non-diagnostic honeycomb, areas of NSIP or a background of smoking-related changes. In particular, areas histologically indistinguishable from NSIP commonly occur in UIP[16]: they are generally focal, but sometimes they are extensive. If the wrong area is sampled a histological diagnosis of NSIP can be misleading because the prognosis will be dictated by the non-sampled UIP.[17,18]

The problems related to sampling can be reduced by obtaining an optimal biopsy (Table 1) and correlating the histology with the clinical and radiological data: if the histology does not explain the clinico-radiological scenario, the possibility that the relevant disease has not been sampled should be considered. It is important to note that the pathologist has to maintain an open mind because the histological interpretation can be modified by clinical and radiological data.

The second limit of histology in interstitial lung disease (ILD) is interobserver variation. Several recent studies evaluating this issue showed variable agreement not only among pathologists but also among clinicians and radiologists.[19–23] In particular, Flaherty et al.[23] reached the following conclusions: 1) interobserver agreement is better among experts than non-experts, but is not perfect even among experts; 2) agreement between experts and non-experts is variable, but in general is quite low – the field in which experts and non-experts most frequently disagree is the differential diagnosis of IPF, NSIP, collagen vascular disease (CVD) and chronic hypersensitivity pneumonitis (HP), with non-experts being more likely to assign a diagnosis of IPF; and 3) an iterative diagnostic approach improves the interobserver agreement.

It is likely that continued education and increased interaction between experts and non-experts could reduce interobserver variation[23]; however both interobserver variation and sampling errors are only partially avoidable because they are intrinsic to histology. Not surprisingly, pathologists have to deal with them not only in ILD but also in many other fields.[24–33] As emphasized by Wells, "... histopathologic appearances may be intermediate between two entities in a significant proportion of cases, and observer variation may be an appropriate and accurate reflection of this fact".[2]

In summary, in IPF (and in ILD in general) the growing importance of non-invasive procedures and the better perception of the limits of histology (particularly sampling errors and observer variation) have gradually transformed histology from the sole gold standard to a piece of the diagnostic puzzle, a much more complex and stimulating situation for the pathologist because it requires not only correct evaluation of the histology but also its correct interpretation in light of the clinical and radiological information. In the following pages we will examine the practical role of histology in IPF, focusing on the main scenarios in which the pathologist can be involved.

Histological diagnosis of UIP

The histological features of UIP are beautifully described in recent papers.[34–36] The diagnostic keys are: 1) a patchwork appearance resulting from alternating areas of scarred and normal lung; 2) architectural distortion; and 3) fibroblastic foci.

At low magnification (Fig. 1A), the disease is non-uniform because of an irregular juxtaposition of scarred and normal or nearly normal lung (spatial heterogeneity). The scarred areas frequently prevail in the subpleural/paraseptal regions (Fig. 1B), with an abrupt transition with normal lung (patchwork pattern).[16,34] The architecture is distorted, with honeycomb and thick scars obscuring the alveolar framework.

Honeycomb (Fig. 1C), which can be absent in early cases, consists of enlarged airspaces lined by bronchiolar epithelium and frequently filled by mucous and inflammatory cells, mostly neutrophils and macrophages. The background architecture is distorted, which is the key to differentiating honeycomb from the enlarged airspaces

Table 1 Characteristics of an optimal biopsy.

Surgical biopsy	Transbronchial biopsy
Accurate selection of the site of biopsy (based on computed tomography)	Accurate selection of the site of biopsy (based on computed tomography)
Artefacts as few as possible	Artefacts as few as possible
Multiple biopsies from at least two different areas; biopsies deep and large enough (>3 cm)	Biopsies adequate for dimension and number (at least 4–6 fragments, with alveolar parenchyma present in the majority)

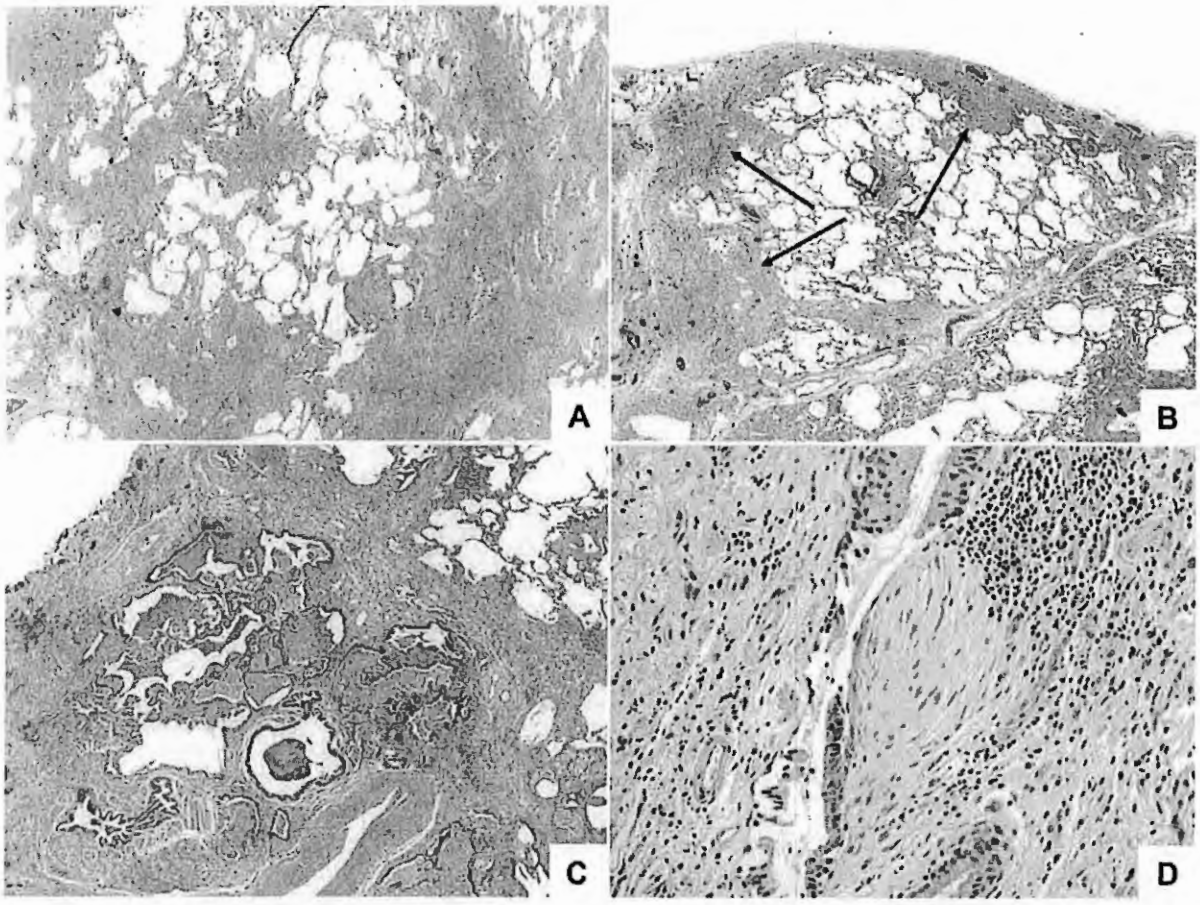

Figure 1 Histology of usual interstitial pneumonia. A) At low magnification the diagnostic key is the abrupt alternating of scarred and normal lung (patchwork pattern: scar-normal-scar-normal). In the scarred areas the alveolar architecture is obliterated (haematoxylin–eosin × 20). B) The fibrosis frequently prevails at the periphery of the lobule in the subpleural–paraseptal regions (arrows), with relative sparing of the centrolobule. This is a useful diagnostic clue, particularly in early cases like here (haematoxylin–eosin × 20). C) Honeycomb consists of enlarged airspaces lined by bronchiolar epithelium, frequently filled by mucus and surrounded by dense scars. Note the architectural distortion and the abrupt transition with residual normal lung seen in the right upper corner (haematoxylin–eosin × 20). D) A fibroblastic focus consisting of a dome-shaped proliferation of myofibroblasts immersed in a myxoid matrix. Fibroblastic foci can be covered by bronchiolar epithelium, as here, or by hyperplasic pneumocytes (haematoxylin–eosin × 100).

that can be seen in fibrosing NSIP (see below) and from peribronchiolar metaplasia, a frequent incidental finding in many conditions, including UIP.[37] Smooth-muscle hyperplasia is frequently seen in scarred lung and can be prominent in some cases.

Fibroblastic foci (Fig. 1D) are present in the background of scarring, frequently at the interface with normal lung, and consist of small, dome-shaped interstitial collections of myofibroblasts within myxoid stroma, covered by hyperplastic pneumocytes or bronchiolar cells. Generally they are easily seen, even at low magnification, because of their pale appearance, which contrasts with the pink colour of scars. Being the site of ongoing injury fibroblastic foci indicate active disease, whereas fibrotic scars and honeycomb indicate an injury occurring in the distant past (temporal heterogeneity). In patients with IPF extensive fibroblastic foci have been associated with a particularly poor prognosis in some studies, but not all.[38]

Inflammation is frequently present in UIP, including small areas simulating eosinophilic pneumonia[39] and occasional incidental granulomas. A cellular infiltrate including lymphoid follicles can be quite prominent in honeycomb, but outside these areas inflammation is generally minimal and overshadowed by fibrosis.

The role of special stains

Histochemical and immunohistochemical stains are invaluable in some specific settings, in particular Ziehl-Neelsen, Grocott, Gram and several immunohistochemical markers if an overinfection is a consideration; elastic stains to evaluate vessels in pulmonary hypertension; iron stains to search for asbestos bodies; and p63 or high-molecular-weight cytokeratins to differentiate adenocarcinoma from peribronchiolar metaplasia in difficult cases.[40] However, none of these markers has proved useful in the diagnosis of uncomplicated UIP. Trichrome stains fibrosis, but fibrosis is generally obvious in sections routinely stained with haematoxylin–eosin.

Much more promising are immunohistochemical markers, which may be useful in difficult cases to highlight subtle modifications that may be overlooked when stained with haematoxylin–eosin.[41] We think it is worth investigating if this level of sensitivity is practically relevant, i.e. if diagnosing IPF with immunomarkers has a superior prognostic impact to using haematoxylin–eosin. Until these studies are performed, in our opinion, the pathological diagnosis of UIP should be based on the careful evaluation of high-quality routinely stained slides. In our practice we use special stains when the artefacts are so heavy as to preclude a detailed evaluation of routine sections.

The role of transbronchial biopsy

Occasionally, transbronchial (but also transthoracic) biopsies performed in patients with IPF show histological features of UIP (Fig. 2). In the only article addressing this topic, the diagnostic sensitivity of transbronchial biopsies in UIP was about 30%.[42] However, this was a retrospective and unblinded study in which all the patients were known to have UIP, and further prospective studies in which a variety of fibrotic ILD are blindly evaluated are clearly needed before transbronchial biopsy can be recommended in the workup of patients with suspected IPF. In our opinion, as also emphasized in the editorial accompanying the paper of Berbescu et al.,[43] until such studies are performed the histological diagnosis of UIP requires a surgical biopsy.

We also think that the claimed role of transbronchial biopsy in suggesting an alternative diagnosis[44] is questionable in the subset of well-studied patients with idiopathic fibrosing ILD and an HRCT atypical for UIP, the setting in which a biopsy is required for the diagnosis. For example, occasional granulomas can be found in IPF as an incidental finding, and their presence is not *per se* diagnostic of HP or sarcoidosis if the clinico-radiological scenario does not support these possibilities. In practice, if the fibrosing ILD is considered idiopathic after an accurate clinical workup, very rarely will the results of a transbronchial biopsy be strong enough to be diagnostic and spare the patient a subsequent surgical biopsy.

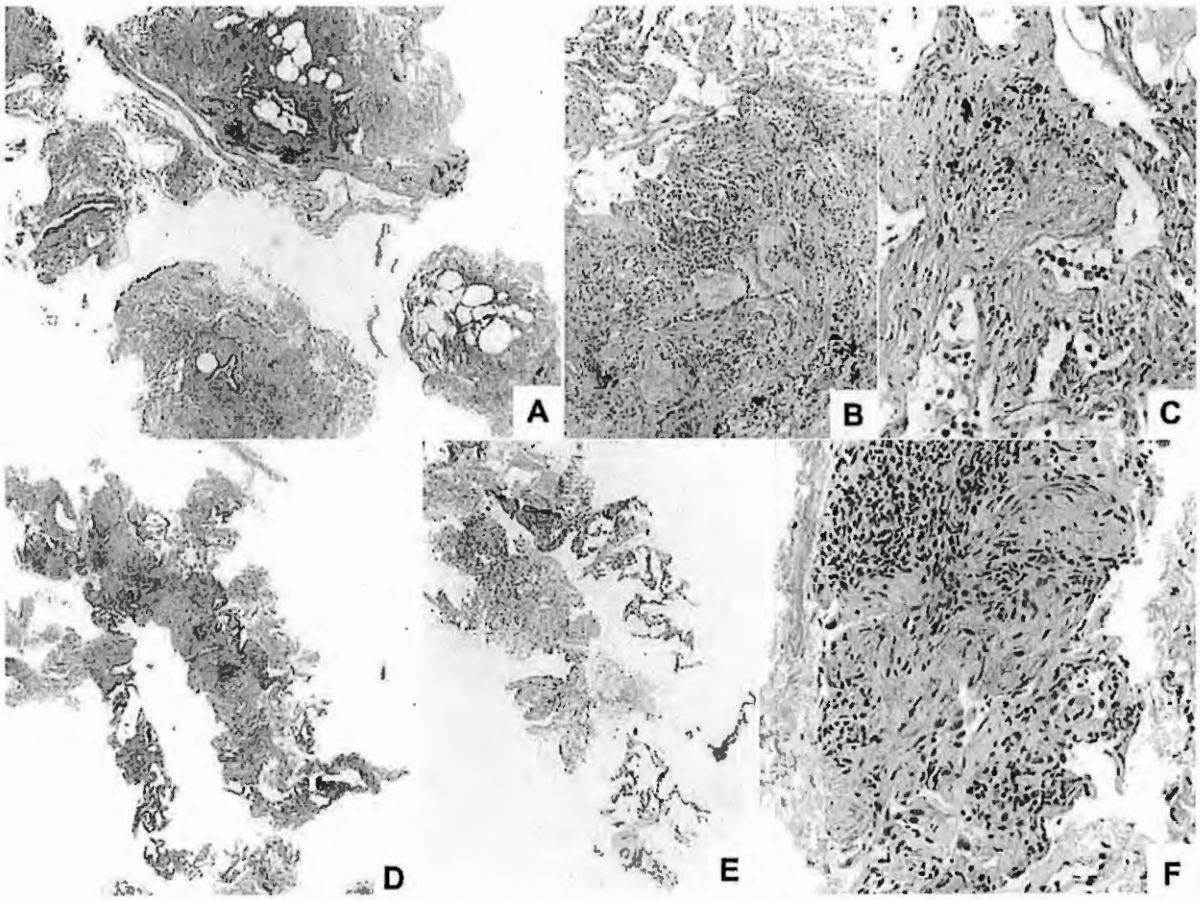

Figure 2 Histological features of usual interstitial pneumonia in small biopsies. A) A generous transbronchial biopsy in an elderly male with a clinico-radiological diagnosis of idiopathic pulmonary fibrosis (haematoxylin–eosin × 20). B) A small area of patchwork pattern, with a dense scar side-by-side with normal lung (haematoxylin–eosin × 100). C) A fibroblastic focus (haematoxylin–eosin × 200). D) A transthoracic biopsy in an elderly male with a clinico-radiological diagnosis of IPF, showing a scarred lung. The biopsy was performed for a peripheral nodule, which was not sampled (haematoxylin–eosin × 20). E) Abrupt transition between scarred and normal parenchyma (haematoxylin–eosin × 20). F) A fibroblastic focus (haematoxylin–eosin × 200). Although suggestive of usual interstitial pneumonia, the diagnostic specificity of these findings is not proved.

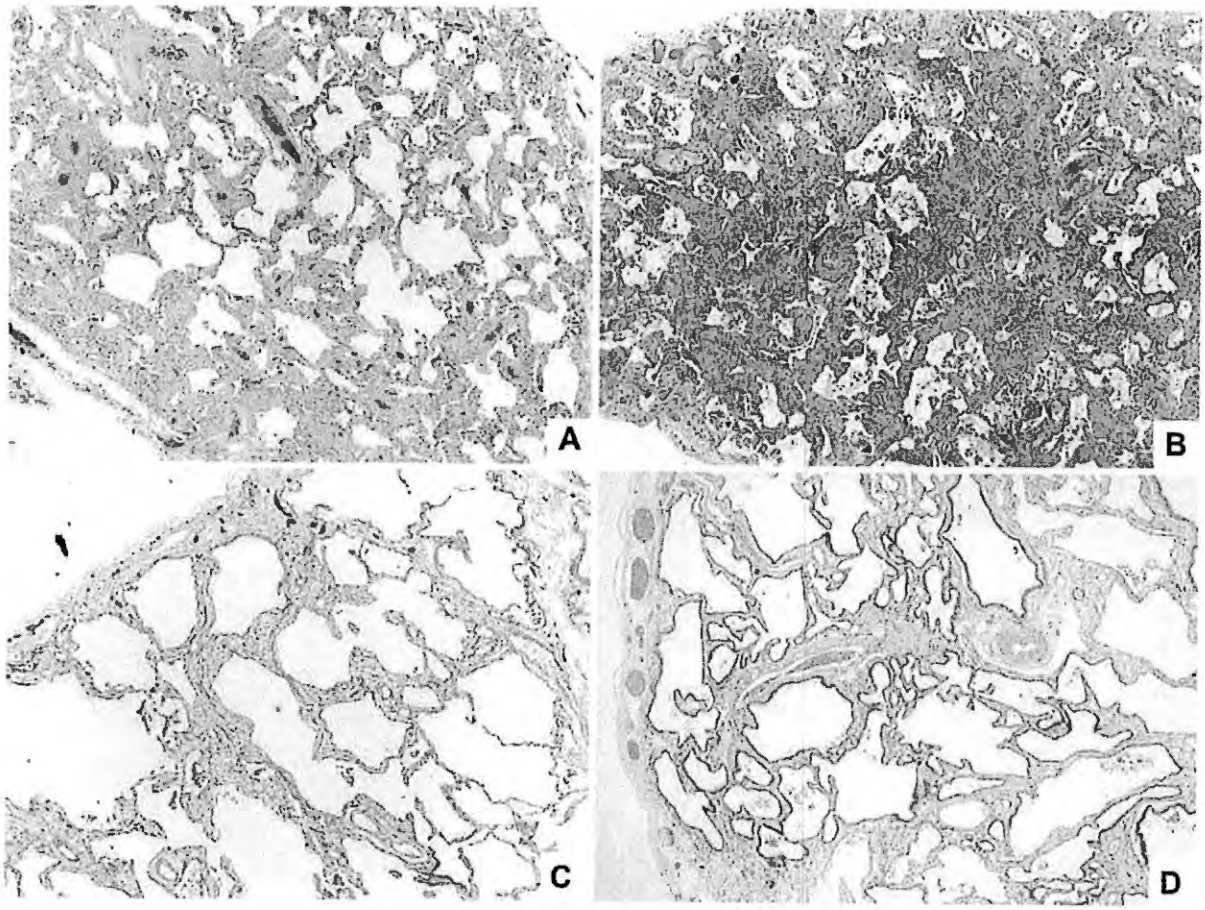

Figure 3 Histology of fibrosing non-specific interstitial pneumonia (NSIP). A) Uniform interstitial fibrosis with preservation of the alveolar architecture. At low magnification the absence of patchwork and architectural distortion are the keys to differentiating NSIP from usual interstitial pneumonia (compare with Fig. 1A). Note the absence of honeycomb and fibroblastic foci (the fibrosis is all of the same age) (haematoxylin–eosin × 20). B) Also in areas in which fibrosis is more marked, the alveolar framework is still recognizable (haematoxylin–eosin × 20). C) Sometimes in NSIP the fibrosis is looser, a feature rarely seen in usual interstitial pneumonia (haematoxylin–eosin × 40). D) Enlarged airspaces surrounded by interstitial fibrosis and lined with bronchiolar or alveolar epithelium. These enlarged airspaces are quite frequent in fibrosing NSIP and differ from honeycomb in the finer character of the fibrosis, which respects the alveolar architecture (compare with Fig. 1C) (haematoxylin–eosin × 40).

Differential diagnosis of UIP and fibrosing NSIP

A pattern of NSIP can be found at histology in several clinical settings, particularly CVD, HP and drug reactions, or it can be idiopathic. In two recent papers[13,45] 4% and 10% of patients initially considered idiopathic developed a CVD during the follow-up, and in another study[46] 88% of idiopathic cases met the definition of undifferentiated connective tissue disease. In practice, a histological diagnosis of NSIP should prompt the clinician to carefully exclude a secondary form. By contrast with IPF, which typically occurs in old smokers, idiopathic NSIP prevails in middle-aged patients who have never smoked.[13] Although it is not clear how much weight can be attached to this clinical difference in a single case,[47,48] in practice the pathologist has to be particularly careful before making a diagnosis of UIP in a relatively young patient who never smoked or a diagnosis of NSIP in an old smoker.

Table 2 Contrasting histological features of usual interstitial pneumonia (UIP) and fibrosing non-specific interstitial pneumonia (NSIP).

	UIP	Fibrotic NSIP
Character of the fibrosis	Non-uniform (spatial heterogeneity/patchwork)	Uniform
Architecture	Distorted	Preserved
Honeycomb	Frequently present	Absent or minimal
Fibroblastic foci	Present (temporal heterogeneity)	Absent or very few

Table 3 Histological features which, when present in usual interstitial pneumonia, suggest diseases different from idiopathic pulmonary fibrosis (IPF).

Histological feature	Consider
Cellular lymphoplasmacytic infiltrate and/or cellular bronchiolitis and/or lymphoid follicles	Collagen vascular disease, chronic hypersensitivity pneumonitis
Peribronchiolar fibrosis (sometimes bridging to the periphery of the lobule)	Chronic hypersensitivity pneumonitis, pneumoconiosis
Pleuritis	Collagen vascular disease
Granulomas	Depending on the morphology and localization of granulomas[64,65]: infection (particularly atypical mycobacterial infection secondary to traction bronchiectasis), chronic hypersensitivity pneumonitis, chronic sarcoidosis, IPF arising in a background of incidental sarcoidosis, incidental finding in IPF
Abundant coarse iron pigment	Asbestosis (do iron stains on several slides to search for asbestos bodies, which can be few), chronic haemorrhage (consider the possibility of ANCA-associated fibrosis[66])
Foamy macrophages with eosinophils	Drug reaction (focal areas resembling eosinophilic pneumonia are an unusual incidental finding in IPF[39])

Microscopically, NSIP is characterized by thickening of the interstitium by inflammatory cells (lymphocytes and plasma cells) in the cellular variant, or by fibrosis in the fibrosing variant.[13,49] Mixed forms occur, and are included in the fibrosing group.[13] Whereas the distinction between UIP and cellular NSIP is straightforward, in a minority of patients the differential diagnosis between UIP and fibrosing NSIP (although clinically relevant)[13,50] is difficult, with occasional cases in which a firm distinction is impossible. This generally results from poor sampling, although occasional cases are difficult to classify because they lie in the grey zone between the two entities. In these situations an open discussion between clinician, radiologist and pathologist can be particularly fruitful, but when the case remains

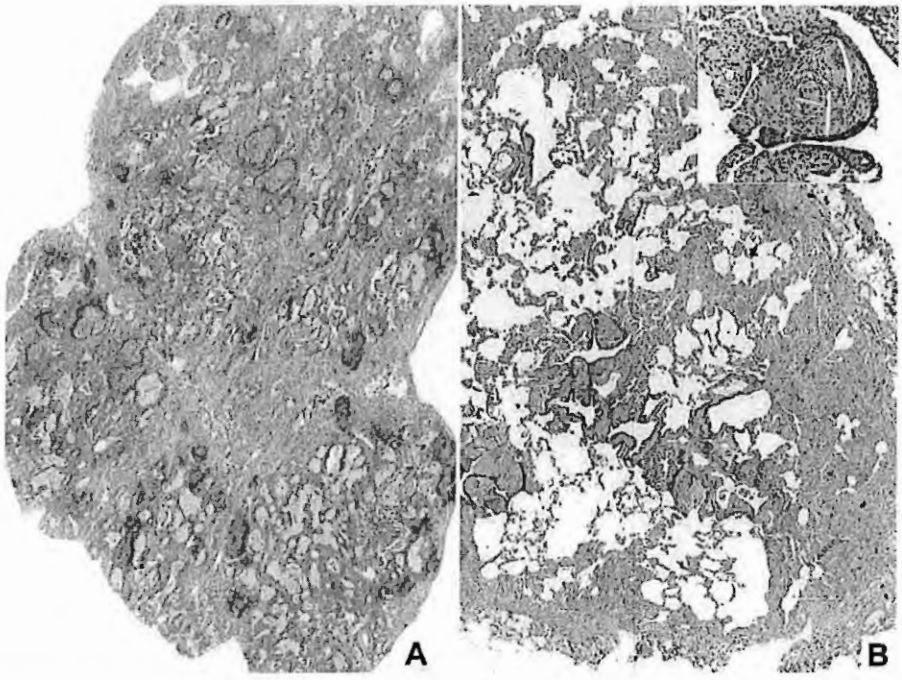

Figure 4 Examples of secondary usual interstitial pneumonia. A) Surgical lung biopsy in a middle-aged woman with rheumatoid arthritis (case courtesy of Prof. T.V. Colby, Scottsdale, USA). Note the numerous lymphoid follicles with germinal centres, which are the clue to suspecting an underlying collagen vascular disease (haematoxylin–eosin × 20). B) Surgical lung biopsy in an elderly farmer. The centrolobular involvement with fibrosis bridging to the periphery of the lobule, and the small peribronchiolar granuloma (insert), are characteristic of chronic hypersensitivity pneumonitis (haematoxylin–eosin × 20).

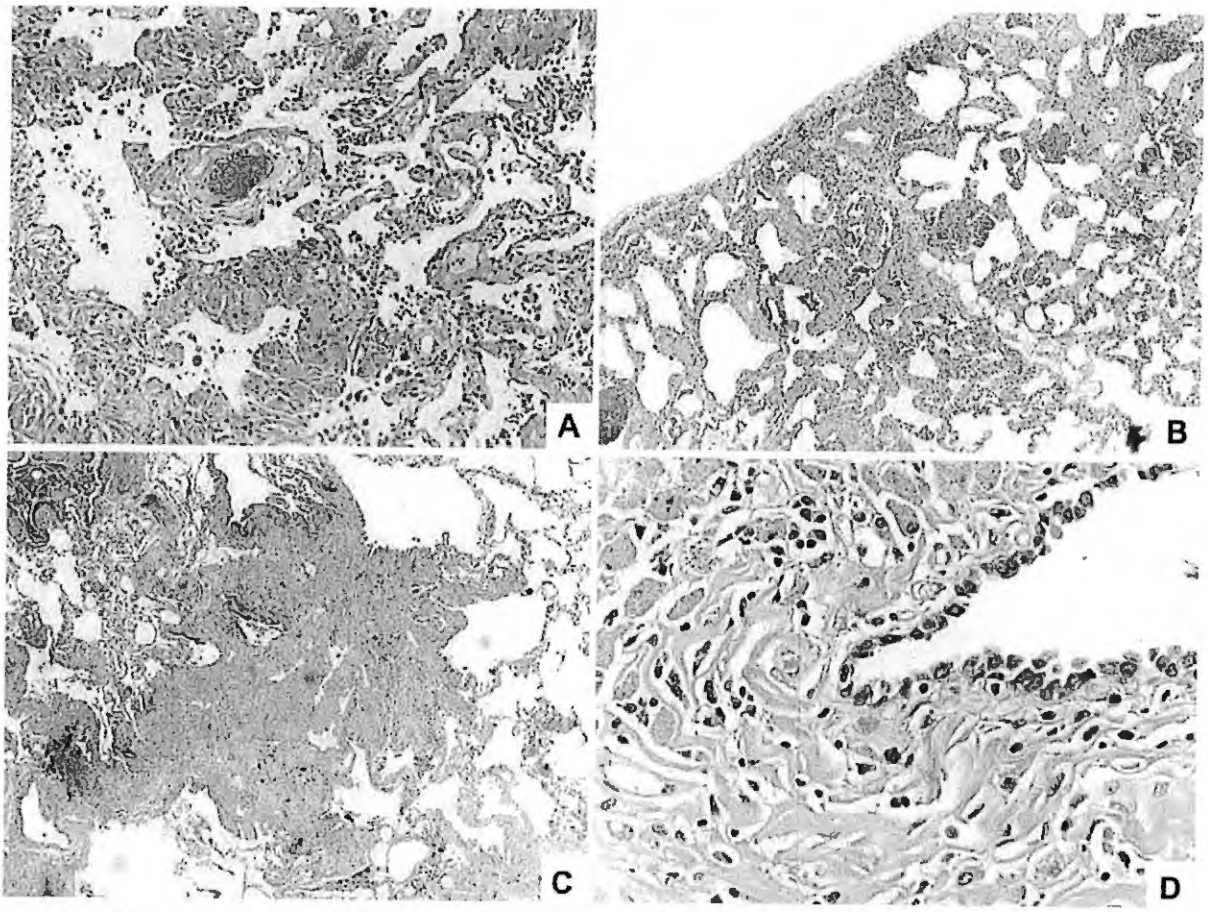

Figure 5 Histology of smoking-related fibrosis and chronic Langerhans' cell histiocytosis (LCH). A) Dense ropy collagen typical of smoking-related fibrosis (haematoxylin–eosin × 40). B) Smoking-related fibrosis frequently surrounds enlarged airspaces, both in subpleural and centrolobular regions. In the centre-right of the picture note the intra-alveolar accumulation of pigmented macrophages (respiratory bronchiolitis) (haematoxylin–eosin × 20). C) Stellate peribronchiolar scar typical of chronic LCH, causing traction emphysema. This kind of fibrosis, totally different from usual interstitial pneumonia, is diagnostic of chronic LCH even in the absence of residual Langerhans' cells (haematoxylin–eosin × 20). D) Pigmented macrophages entrapped within fibrosis. Although not entirely diagnostic, this feature is characteristic of LCH (haematoxylin–eosin × 200).

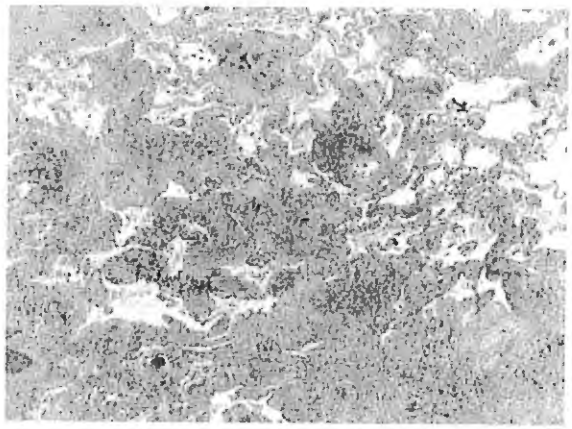

Figure 6 Surgical lung biopsy showing usual interstitial pneumonia with numerous fibroblastic foci and organizing pneumonia. A case like this lies somewhere on the spectrum between stable idiopathic pulmonary fibrosis and acute exacerbation. This biopsy was performed for a recent worsening of symptoms, but the patient did not satisfy the clinical criteria for acute exacerbation (haematoxylin–eosin × 40).

unsolved it may be advisable to refer the patient (or the slides) to a centre with expertise in ILD.[23] The histology of fibrosing NSIP is shown in Fig. 3, and the contrasting features with UIP are presented in Table 2.

Differential diagnosis of IPF and secondary UIP

In addition to IPF other diseases that may present with a UIP pattern include CVD,[51,52] chronic HP,[53–59] asbestosis,[60] drug reaction[61] and familial ILD.[62,63] In some cases these diseases are perfect histological mimics of IPF and the distinction is based exclusively on clinical grounds. In other cases there are histological features (sometimes subtle) that may suggest the possibility of one of these diseases (Table 3, Fig. 4). Importantly, none of these features is diagnostic *per se* and the final diagnosis should always rest on the careful correlation of the histology with the clinical data. Nonetheless, it is important for the pathologist to suggest (when it is possible) a secondary UIP rather than IPF because the distinction may have prognostic implications in some settings, although it is probably less

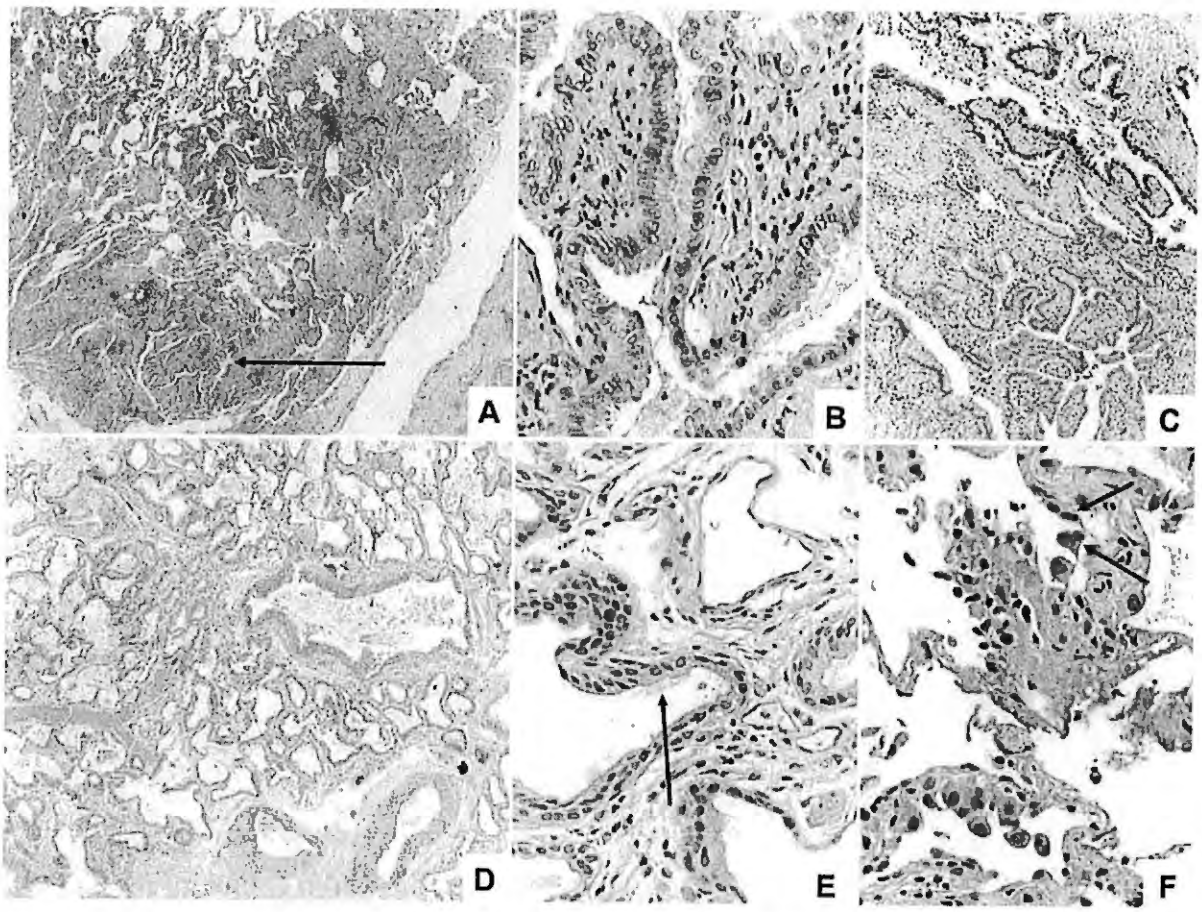

Figure 7 Adenocarcinoma arising in usual interstitial pneumonia and its main simulators. A) Surgical lung biopsy showing usual interstitial pneumonia partially obscuring a complex epithelial proliferation (arrow) (haematoxylin–eosin × 20). B) At higher magnification the epithelial proliferation is composed of columnar cells with crowded nuclei and uniform moderate atypia: their monomorphism and the lack of cilia are the keys to recognizing this bland proliferation as adenocarcinoma (haematoxylin–eosin × 400). C) An immunohistochemical stain for p63 demonstrating the lack of basal cells in adenocarcinoma; by contrast, p63-positive basal cells are present in the benign bronchiole seen in the upper part of the picture (peroxidase–antiperoxidase × 100). D) A surgical lung biopsy showing fibrosing non-specific interstitial pneumonia, with a marked peribronchiolar metaplasia, simulating an adenocarcinoma in its complexity (haematoxylin–eosin × 20). E) At higher magnification the proliferating cells are bland and focally show long cilia (arrow). Long cilia are not present in adenocarcinoma of the lung and are a helpful clue to benign disease (haematoxylin–eosin × 200). F) Transbronchial biopsy with diffuse alveolar damage secondary to methotrexate, showing markedly atypical pneumocytes. These worrisome but benign cells are flatter, less crowded and less uniform than adenocarcinoma: large bizarre cells are present side-by-side with small bland cells (arrows; compare with the monotony of adenocarcinoma shown in Fig. 7B). The acute background with fibrin is a further clue to their reactive nature (haematoxylin–eosin × 400). Case shown in A, B and C is courtesy of Prof. C. Capella, Varese, Italy; case shown in D and E is courtesy of Dr A. Dubini and Dr V. Poletti, Forli, Italy.

meaningful in others. The field is still controversial, but the presence of UIP at histology seems to predict a poor survival, similar to IPF in patients with rheumatoid arthritis and chronic HP, whereas the prognosis seems better than IPF when UIP is related to other CVD.[51,67]

Diagnosis of UIP against a background of smoking-related changes

Alongside the more frequent chronic bronchitis, emphysema, bronchogenic carcinoma and accumulation of finely pigmented macrophages (respiratory bronchiolitis),[68] cigarette smoking can cause fibrosis, sometimes significant, which is part of the morphological spectrum of smoking-related ILD (Fig. 5A and B).[69–72] In some cases the diagnosis of early UIP arising on a background of smoking-related fibrosis can be challenging. To complicate matters, in a recent paper in which the background parenchyma of specimens resected for lung cancer was carefully evaluated, foci of UIP were found in 3.5% of non-smokers, 15.4% of mild smokers, 23.6% of moderate smokers and 22.4% of heavy smokers.[72] The patients for the most part had no clinical evidence of ILD, and whether these foci of UIP corresponded to early/subclinical IPF or were just incidental findings is not known. Interestingly, acute respiratory failure following surgery developed only in patients with foci of UIP.[72]

Table 4 Contrasting features of well-differentiated adenocarcinoma, pneumocyte hyperplasia and peribronchiolar metaplasia in the setting of interstitial lung disease.

Feature	Adenocarcinoma	Pneumocyte hyperplasia	Peribronchiolar metaplasia
Clinical context	A mass is frequently (but not always) present	No mass	No mass
Characteristics of the cells (better appreciated if compared with nearby benign bronchiolar cells)	Uniform mild–moderate atypia, columnar and crowded, no cilia	Polymorphous (large atypical cells side-by-side with small bland cells), flattened/ cuboidal	Bland, with long cilia
Characteristics of the histological background	Fibrosis/inflammation	Acute lung injury (diffuse alveolar damage or organizing pneumonia)	Fibrosis/inflammation
Immunomarkers for basal cells (p63, cytokeratin 5/6, cytokeratin 34βE12)	Negative	Negative	Positive in the basal cells surrounding the proliferation

Another smoking-related ILD that can superficially mimic UIP is Langerhans' cell histiocytosis (LCH) in its chronic phase, when the lesion becomes fibrotic and the Langerhans' cells frequently disappear (Fig. 5C and D).[73,74]

Acute exacerbation of IPF and other fibrosing ILD

Some patients with IPF (but also with other fibrosing ILD, including idiopathic NSIP,[75–77] chronic HP[75,78,79] and ILD related to CVD[76,77,80,81]) experience episodes of acute deterioration of their illness with a high mortality rate. When idiopathic these episodes are called acute exacerbation (AE).[82–87] The frequency of AE in IPF is not known. A recent retrospective review on 147 patients with IPF[84] showed a 2-year incidence of AE of 9.6%; interestingly, the incidence increased to 18% if less strict diagnostic criteria were applied (see below). Several studies suggest that surgical lung biopsy[88] and bronchoscopy[84] may occasionally contribute to AE. AE can occur at any time during the course of IPF and occasionally is the presenting manifestation of the disease.[89] In any patient in whom acute interstitial pneumonia/idiopathic diffuse alveolar damage (DAD) is a consideration, the possibility of an underlying chronic ILD should be kept in mind, particularly in older smokers.

A recent paper[82] proposed the following diagnostic criteria for AE of IPF: 1) previous or concurrent diagnosis of IPF; 2) unexplained worsening or development of dyspnoea within 30 days; 3) HRCT with new bilateral alveolar infiltrates superimposed on a background reticular or honeycomb pattern; and 4) exclusion of alternative causes (including no evidence of pulmonary infection by endotracheal aspirate or bronchoalveolar lavage). The previously required documentation of abnormal gas exchange, which rendered very strict the inclusion criteria in the studies preceding this definition, was dropped.

Biopsy is not necessary for the diagnosis in most patients; when it is performed it generally shows DAD (or less frequently organizing pneumonia (OP) or numerous large fibroblastic foci)[75,90] superimposed on a chronic background of UIP. Because of the sampling problems outlined above, the biopsy may show just one of the two components (DAD or UIP), and documentation of the non-sampled component requires the correlation with the clinico-radiological data.

An important point is that the definition of AE is clinico-radiological, not histological. In a biopsy showing fibrotic ILD there is sometimes an extensive acute/subacute component (profusion of large fibroblastic foci or OP, Fig. 6). In these cases the biopsy is generally performed for worsening of symptoms, but the patient may or may not reach the clinical level of impairment required for the diagnosis of AE. As it is currently defined (and particularly as it was defined before the paper of Collard et al.)[82] AE represents the most severe end of a spectrum. Not surprisingly, patients with less extensive opacities at HRCT[91] and with OP rather than DAD at histology[75,76,90] have less severe disease and a better outcome.

Carcinoma in IPF

Patients with IPF or other fibrosing ILD are at increased risk of developing pulmonary carcinoma. Preliminary data suggest that squamous cell carcinoma[92] and unusual variants of adenocarcinoma, including the enteric type[93] (Chilosi M, personal communication) are more frequently seen in IPF than the general population. The diagnosis of malignancy in this setting is generally straightforward but occasionally very difficult, particularly on small biopsies, but sometimes also on surgical specimens.[94,95] Some pulmonary adenocarcinomas are so well differentiated they are difficult to appreciate as neoplastic, in particular if the tumour cells are few and masked by fibrosis; moreover, some reactive conditions, particularly pneumocyte hyperplasia and peribronchiolar metaplasia, can be so exuberant as to closely mimic a tumour. Some examples are shown in Fig. 7, and the criteria for differentiating adenocarcinoma from reactive conditions in ILD are summarized in Table 4.

Conflict of interest statement

The authors have no conflicts of interest to declare.

Acknowledgements

The authors are grateful to Thomas V. Colby MD, Kevin O. Leslie MD, and Henry D. Tazelaar MD, Mayo Clinic Scottsdale, for thoughtful discussions on these themes.

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J Asthma Allergy. 2016; 9: 171–181.
Published online 2016 Sep 21. doi: 10.2147/JAA.S81540
PMCID: PMC5036552
PMID: 27703382

Chronic hypersensitivity pneumonitis

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Abstract

Hypersensitivity pneumonitis (HSP) is a common interstitial lung disease resulting from inhalation of a large variety of antigens by susceptible individuals. The disease is best classified as acute and chronic. Chronic HSP can be fibrosing or not. Fibrotic HSP has a large differential diagnosis and has a worse prognosis. The most common etiologies for HSP are reviewed. Diagnostic criteria are proposed for both chronic forms based on exposure, lung auscultation, lung function tests, HRCT findings, bronchoalveolar lavage, and biopsies. Treatment options are limited, but lung transplantation results in greater survival in comparison to idiopathic pulmonary fibrosis. Randomized trials with new antifibrotic agents are necessary.

Keywords: interstitial lung diseases, extrinsic allergic alveolitis, diffuse lung disease, lung immune response, HRCT, farmers lung

Introduction

In a National Heart Lung and Blood Institute/Organization for Rare Diseases workshop, hypersensitivity pneumonitis (HSP) was defined as a complex syndrome of varying intensity, clinical presentation, and natural history.1 HSP is the result of an immunologically induced inflammation of the lung parenchyma (specifically, the disease involves the alveoli, terminal bronchioli, and interstitium) that occurs in susceptible individuals in response to a variety of antigens.2

The prevalence varies considerably around the world, depending on disease definition, diagnostic methods, type and intensity of exposure, geographical conditions, agricultural and industrial practices, and host risk factors.3 In Brazil, HSP is a common interstitial lung disease (ILD). In our database, which includes 3,168 cases of ILDs, HSP was the second most common disease (15%), after connective

tissue diseases (17%), followed by idiopathic pulmonary fibrosis (IPF) and sarcoidosis (14% each, data not published). In a study of 431 incident cases in central Denmark, HSP was the third most common ILD (7%), after IPF (28%) and connective tissue diseases (14%).4

Typically, HSP has been classified as acute, subacute, and chronic. However, the imaging findings do not necessarily correlate with the duration of symptoms. In general, both subacute and chronic HSP develop after a low but long exposure to antigens, due to molds or birds at home. In general, there is an insidious onset of dyspnea, weight loss, and cough that develops over several weeks or months, or even years.

Textbooks of radiology commonly describe subacute HSP based on a variable combination of ground-glass opacities, poorly defined centrilobular nodules, and mosaic pattern and chronic HSP based on findings indicative of the presence of fibrosis. A cluster analysis of a large cohort showed that most of the cases examined fit best into a two-cluster model.5 The study also showed that subacute HSP is particularly difficult to define because the features in this subset overlap with both the "acute" and "chronic" components. Patients in cluster 1 had features of acute HSP, whereas those in cluster 2 showed features of chronic HSP, including fibrosis on a high-resolution computed tomography (HRCT) scan. The presence of fibrosis in specimens of lung biopsy or on HRCT portends a worse prognosis, as shown in several studies. Based on these findings, we propose to classify HSP into acute and chronic forms. Chronic HSP can be further classified into fibrosing and nonfibrosing.

Pathogenic mechanisms

HSP is an immunopathological disorder occurring in susceptible individuals, where both humoral and cellular mechanisms participate in the development of lung lesions. However, the genetic basis of the disease is poorly understood.

Familial cases can be found (17.5% in a series from Japan).6 Both environmental and genetic factors can be involved in these cases.

If exposed to agents capable of inducing HSP, most individuals develop immune tolerance, and inhalation of the antigen may result in a mild increase in local lymphocytes, without clinical significance.2 Low levels of interleukin-17 were detected in sera and bronchoalveolar lavage (BAL) from both normal and asymptomatic individuals, whereas measurable levels were found in patients. Regulatory T-cells may be involved in antigen tolerance in asymptomatic subjects. Defective regulatory T-cell function, potentially caused by increased interleukin-17 production, could account for the exacerbated immune response characteristic of HSP.7 However, according to a "two-hit" hypothesis, the coexistence of inducing factors (eg, antigens) and promoting factors (eg, genetic abnormalities or additional environmental exposures) may lead to the development of an exaggerated immune reaction that results in marked lung inflammation.3

Following antigen exposure, the BAL fluid shows increased numbers of neutrophils, which peaks after 48 hours. This is then followed by an increase in lymphocytes. Both cluster of differentiation 4 (CD4) and cluster of differentiation 8 (CD8) are involved in the pathogenesis of HSP. T-cell responses are controlled by the molecular interaction between the clonotypically expressed αβ T-cell receptor and cognate peptide–major histocompatibility complex (MHC) antigen. Typically, CD8 T-cells recognize peptides bound to MHC class I molecules and mediate direct target cell lysis, whereas CD4 T-cells recognize peptide–MHC class II-restricted ligands.

Natural killer T (NKT) cells are a heterogeneous population of cells with elements of both innate and adaptive immune systems, capable of rapid responses to antigens with cytotoxic NK cell activity and production of T-helper 1 and T-helper 2 cytokines. NKT cells are elevated in BAL from patients with HSP.8

In HSP, the immune processes that lead to persistent disease and progression to fibrosis are less clear. However, features associated with chronic HSP include an increase in CD4+ T-cells and in the CD4+/CD8+ ratio, a skewing toward Th2 T-cell differentiation and cytokine profile, and an exhaustion of CD8+ T-cells.9 Increased T-helper 17 cells following chronic inhalation of aerosolized antigens may also contribute to the development of lung fibrosis (by promoting collagen deposition).2 Despite this progress, the reason for some patients showing resolution of disease and others progressing to fibrosis even without further antigen exposure is still unknown.

Histologic findings

Histologic findings of HSP have been recently revised.10 The diagnosis of chronic nonfibrosing HSP is best made on a wedge biopsy, but the diagnosis can occasionally be suggested on a transbronchial biopsy with appropriate clinical correlation, when peribronchiolar chronic inflammation and small granulomas or giant cells are found.

The histopathological features comprise chronic bronchiolocentric inflammation and poorly formed nonnecrotizing granulomas. Bronchiolitis is common and can be cellular, follicular, or obliterans. Peribronchiolar metaplasia is a prominent finding, especially in airway-centered interstitial fibrosis (ACIF), and should point to diagnosis.11

The granulomas characteristic of HSP are small, loose, and epithelioid and may be difficult to find. In fact, up to 30% of biopsies obtained from patients with clinically documented HSP lack granulomas. The granulomas and giant cells are typically located in the bronchiolar wall or interstitium, but can also be found in alveolar spaces.12 In HSP, due to nontubereulous mycobacteria, granulomas can be large and well-formed.

Foci of organizing pneumonia are common. Sometimes the disease presents as a pattern of organizing pneumonia.13 Foamy macrophage accumulation may also be present within alveolar spaces due to airway obstruction. In some instances, the chronic interstitial inflammation may be relatively diffuse and mimic cellular nonspecific interstitial pneumonia (NSIP).14 In these cases, a careful search for giant cells and granulomas must be made, but they can be absent.15,16 In some cases, an isolated granulomatous bronehiolitis is seen.

Chronic fibrosing HSP can be diagnostically challenging as the findings overlap with other chronic lung diseases, such as usual interstitial pneumonia (UIP) and NSIP, and it can present with an ACIF, all with or without granulomas or giant cells.

Centrilobular fibrosis, characteristic bridging fibrosis (fibrosis between the respiratory bronchioles and the interlobular septa, with adjacent respiratory bronchioles or with subpleural areas), and organizing pneumonia are characteristic features of chronic HSP with a UIP-like pattern.17 Features more typical of subacute HSP may be present in some cases, particularly if more than one lobe is biopsied including areas devoid of fibrosis in CT.

ACIF is a common pathologic pattern observed in chronic HSP. The main diagnostic criteria include a fibrosis, predominantly bronchiolocentric, associated with bronchiolar or peribronchiolar inflammation and peribronchiolar metaplasia. In a study conducted by our group, 68 cases with ACIF were

evaluated.11 Hypersensitivity pneumonitis and GERD, isolated or combined, were the most common etiologies. Granulomas were absent in all cases; giant cells were observed in a small percentage of cases, but were not specific.

In a study from Spain, 20 (43%) out of the 46 patients with a diagnosis of IPF according to 2011 guidelines had a subsequent diagnosis of chronic HSP.18 In 16 out of the 20 patients, there were histopathological features on surgical lung biopsy that were consistent with the diagnosis of HSP.

Multidisciplinary review is critical as HRCT scans may show findings suggesting HSP, even if granulomas are not identified on biopsy.

Differential features from UIP in surgical biopsies should be carefully looked for.17,19

A case of fibrotic HSP submitted to surgical lung biopsy, with fragments retrieved from three lobes at right, is shown in Figure 1. The diversity of pathologic findings is illustrated in this case.

Open in a separate window

Figure 1

Chronic HSP caused by feather pillows.

Notes: Male, 67 years of age, nonsmoker, asymptomatic, but with progressive ILD; on HRCT since 2009. Use of feather pillows for 8 years. FVC =3.02 L (70%), DLCO =12.3 mL/min/mmHg (74% of predicted). Videothoracoscopic biopsy from three lobes on the right side.

Abbreviations: HSP, hypersensitivity pneumonitis; ILD, interstitial lung disease, HRCT, high-resolution computed tomography; FVC, forced vital capacity; DLACO, diffusing capacity for carbon monoxide.

BAL

The BAL cell profile in HSP is characterized by a significant increase in the total cell count, especially in the percentage of lymphocytes. The presence of plasma cells, mast cells, and macrophages with a foamy cytoplasm (expressing bronchiolitis) reinforces the diagnosis.

In the appropriate clinical context, lymphocytic alveolitis is a major criterion for the diagnosis of HSP in the absence of pathological confirmation. BAL lymphocytosis can be characterized up to ≥30% in non-and ex-smokers and ≥20% in current smokers.20

It was suggested that in the absence of lymphocytic alveolitis, the diagnosis of HSP would be excluded.21,22 However, in the chronic fibrosing disease, an increased percentage of lymphocytes is absent in a significant proportion of cases. In a large study from Japan, increased numbers of lymphocytes in BAL were absent in many cases of chronic HSP due to bird-related HSP and home-related HSP.23 In two small series involving patients with fibrotic HSP, increased numbers of lymphocytes in BAL were found in seven out of 16 (43%) cases.24,25 When the pathologic pattern is "usual interstitial pneumonia-like", increased numbers of lymphocytes are usually absent in BAL.15 This correlates with the absence of granulomas, a finding which is also common in ACIF.11

Typically, BAL shows an accumulation of activated CD8+ suppressor/cytotoxic lymphocytes, with a CD4/CD8 ratio lower than 1.00. Nevertheless, as shown in an extensive review not all HSP patients display CD8 alveolitis.20 Several reasons may account for this variability, such as the type and dose of inhaled antigen, time elapsed since last exposure, tobacco smoking, and forms of HSP. In fibrosing chronic HSP, an elevated CD4/CD8 ratio is more common.26

The ATS guideline recommends that lymphocyte subset analysis should not be a routine component of BAL cellular analysis.22

Exposures

More than 200 antigens have been identified as causal agents for HSP.27 The vast majorities of causative antigens of HSP are derived from fungal, bacterial, protozoal, and animal proteins, or are small-molecular-weight chemical compounds. HSP has been classified in the past as an occupational disease, because most reports were based on the workplace and antigens particular to that environment (farmer's lung, suberosis, sauna taker's lung, fish meal worker's lung, and others). Over many years, the home slowly emerged as the primary causative environment from exposures to ordinary antigens under common living conditions in individual cases rather than reports of large outbreaks.28–30 New sources of airborne organic particles are recognized every year.31

Bird fanciers' lung (BFL) is a common form of HSP. It has been reported that the prevalence of BFL among pigeon breeders is between 0.5% and 22%.32 Antigen exposure from many different types of birds may cause BFL. BFL is most commonly reported after exposure to parrots, pigeons, lovebirds, and budgerigars. Some cases of BFL result from exposure to poultry, most commonly canaries. Excreted intestinal mucin and immunoglobulins A and G from bird droppings and bloom (a waxy keratinous powder that coats the feathers of pigeons and serves as waterproofing) are highly antigenic and are the likely major sources for inhalant bird antigen.33 Both bird droppings and pigeon bloom are major reservoirs for pigeon intestinal mucin. The latter has been previously isolated from mucus and pigeon intestines and is implicated as an important antigen in pigeon-breeder's lung. The intensity of exposure to avian bioaerosol is also important, for example, cleaning of bird cages and walking through enclosed pigeon cages are associated with more intense exposure and hence a possibly increased risk for BFL in the susceptible individual.33 Avian antigens gradually decline after extensive environmental control measures and can be detected for several months.34

Feather duvets and pillows can induce acute and chronic BFL. In these cases, specific antibodies against avian antigens are positive in acute BFL patients, but can be negative in chronic BFL cases. The diagnosis can be made by antigen-induced lymphocyte proliferation in peripheral blood or BAL and an environmental or inhalation provocation test.[35]

An important study highlights the importance of occult exposure as a cause of disease and the ability of HSP to mimic IPF.[18] In that study, 60 consecutive patients diagnosed with diagnosis of IPF were prospectively followed up for 6 years. Almost half of the patients were subsequently diagnosed with chronic HSP, and most of these cases were attributed to exposure to occult avian antigens from commonly used feather bedding.[18]

Large diversity of molds may occur within and between countries, depending on climates, seasonal changes, lifestyles, and operation of home or workplace environments. Traditionally, HSP has been associated with occupational environments, but more recently, exposures in domestic environment are more recognized.

In the search for antigen at home, particular attention should be paid to possible microbial products: visible contamination with molds or mildew on walls, floors, furniture, air conditioning vents or filters, presence of musty odors in the home or workplace, liquid sources that could allow growth – humidifiers, vaporizers, hot tubs, and pools, and potential sources of water contamination – known water damage from floods, leaks, and broken pipes in the home or workplace.[19]

Hot-tub lung represents HSP due to inhalational exposure to *Mycobacterium avium* complex. These bacteria have been recovered from hot and cold water in showers and from showerheads.[36–38]

Another cause of occupational HSP has been described in the last decade, due to metal working fluid exposure contaminated with *Mycobacterium chelonae* or *Mycobacterium immunogenum*. This exposure became the most commonly reported cause of occupational HSP in the UK.[39] Based on the evidence base collected during a large UK outbreak, a case definition was proposed.[40]

Farmer's lung is a classic form of HSP that results from repeated exposure to inhaled antigens from moldy hay or straw. The species more commonly implicated are thermophilic actinomycetes species, including *Saccharopolyspora rectivirgula* (formerly *Micropolyspora faeni*), *Thermoactinomyces vulgaris*, *Thermoactinomyces viridis*, and *Thermoactinomyces sacchari*, among others. These organisms flourish in areas of high humidity and prefer temperatures of 40°C–60°C. An incidence of 8–540 cases per 100,000 persons per year has been reported in farmers. Many cases are still seen in the USA, UK, France, and Sweden. In Brazil, farmer's lung is uncommon.

Synthetic low-molecular-weight compounds, such as isocyanates, insecticides, and epoxy resins, can form bonds with human protein molecules and incite an immunologic response leading to HSP. Common exposures include toluene diisocyanate and diphenylmethane diisocyanate, specifically toluene typically found in paints, foams, and sealants.[41]

Cases of HSP due to wind instruments contaminated by bacteria and molds have been published.[42,43] A well-documented case of HSP due to sensitization to fungi- and mite-contaminated flours in a baker was recently published.[44] Other rare causes of HSP have been discovered as chacinero's lung.[45]

Serum precipitins

The presence of specific immunoglobulin G antibodies reflects an immune response to a specific exposure and in the appropriate clinical setting supports the diagnosis of HSP. Conversely, the absence of serum precipitins does not rule out HSP.[2]

Precipitating antibodies against potential antigens may be present in serum and BAL specimen in patients with HSP and in asymptomatic subjects exposed to antigens responsible for HSP. A study that evaluated 43 exposed asymptomatic dairy farmers demonstrated that asymptomatic subjects who had specific serum antibodies to farmer's lung antigens or a lymphocytic alveolitis did not develop abnormal respiratory outcomes after a 20-year follow up.46

The diversity of antigens and immunological techniques used and the interval since last exposure to the causative antigen are responsible for low sensitivity and specificity.3 In addition, sensitivity declines when the underlying pathologic pattern is UIP.15

Recently, a study evaluated the presence of antibody to antigen collected in the environment of individuals with HSP and controls.47 Nineteen individuals with HSP participated in the study with 15 of them classified as having fibrotic disease. Of the seven individuals who were tested positive to one or more environmental samples, three had a positive response to more than one antigen from the environmental sample (range: 1–9). Several antigens from bacteria fungi and yeasts resulted in positive responses. A significant association existed between the results of interviews/site evaluations and the ability to collect antigens eliciting a positive response ($P<0.001$).

Clinical manifestations and diagnostic criteria

HSP is often unrecognized or misdiagnosed. Exposure to a relevant antigen is a key component of clinical evaluation. In some series, an exposure is not identified in many cases.48,49 In these patients, the diagnosis is suspected based on histopathology, BAL findings, and HRCT characteristics. We hypothesize that exposure to molds at home was not recognized in many of these cases. The inability to identify an inhaled antigen is independently associated with shortened survival.48,49

Exposure conditions vary from country to country. The most common causes of HSP in Brazil are exposure to bird's feathers and droppings (including feather pillows), molds at home, or both, and exposure to isocyanates.50 In other countries, farmer's lung and pigeon breeder's lung are more common, whereas summer-type HSP is limited to Japan.

Cigarette smoking has a protective role against the development of HSP, but this does not apply to ex-smokers. Nicotine is thought to inhibit macrophage activation and lymphocyte proliferation and function.51 On the other hand, when smokers develop HSP, fibrosing disease with a worse prognosis is more common.52

HSP is more common in females (due to greater exposure at home). Patients are younger in comparison to IPF patients.50 Dyspnea and cough are the most common symptoms, and both may improve during periods away from the inciting antigen. Wheezing, a less common symptom in other ILDs (except sarcoidosis), was referred by 33% in a large series, in comparison to 11% of controls ($P<0.001$)53 and in physical examination in 13% in another series.54 In sarcoidosis and in HSP, bronchial hyperresponsiveness seems to be related to an extensive epithelial damage in airways.55 Some of the agents that cause occupational asthma, such as diisocyanates and fungal spores, can also cause HSP.56 Although uncommon, HSP can be associated with wheezing, airway hyperresponsiveness, and a normal chest radiograph. Patients with chronic HSP can refer recurrent episodes of symptoms that are misdiagnosed as recurrent pneumonia. Similar to IPF, in chronic HSP, the clinical examination can reveal velcro crackles at lung bases as well digital clubbing. On lung auscultation, a suggestive clinical finding in chronic HSP is the presence of inspiratory squeaks, which are caused by coexisting bronchiolitis.21 However, in fibrosis resulting from microaspiration and in rheumatoid arthritis, conditions where the coexistence of bronchiolitis and ILD is common, inspiratory squeaks can also be heard. Weight loss is common in chronic HSP.

Like other ILDs, the most frequent lung function abnormalities are a restrictive ventilatory impairment and impaired gas exchange (decreased diffusing capacity or increasing hypoxemia during exercise).

Only a few patients show obstruction of the peripheral airways in lung function tests. The correlation between pulmonary function abnormalities and extension of disease in HRCT scans is poor.

In HSP, the chest radiograph and even HRCT scans may be normal.57 HSP can present as isolated bronchiolitis with HRCT scan showing air trapping, which is present only in expiration. In these cases, residual volume should be measured by plethysmography.

CT features play a central role in the diagnosis of HSP. Histologically, ground-glass opacification is thought to represent either active interstitial inflammation or fine fibrosis, which can be reversible or not.58

Ground-glass opacification is frequently found in association with other CT abnormalities, such as centrilobular nodules or air trapping, findings indicative of peribronchiolar infiltration and bronchiolitis. In nonsmokers, the combination of ground-glass with poorly defined centrilobular nodules or focal areas of decreased attenuation on inspiratory HRCT and/or air trapping on expiratory HRCT should suggest immediately the diagnosis of HSP. Lobular areas of decreased attenuation and vascularity should be bilateral and present in three or more lobes.59 Their extension correlates with severity of air trapping, as indicated by an increased residual volume.60 When air-trapping areas, ground-glass opacities, and normal lung are seen at the same HRCT section, the pattern is called "headcheese sign". The CT imaging pattern is reminiscent of the variegated appearance of headcheese cold cut meat.

Irregular linear opacities, architectural distortion traction bronchiectasis and bronchiolectasis, lobar volume loss, and honeycombing usually indicate fibrosis. Suggestive findings of fibrosing HSP in HRCT are upper lobe predominance, peribronchovascular distribution, and relative subpleural sparing in the lung immediately adjacent to the pleura in the dorsal regions of the lower lobes or relative sparing of the lung below the level of the dome of the diaphragm.61,62 Although upper lobe predominance of fibrosis is suggestive of HSP, this is seen in <25% of cases of fibrosing HSP. The remaining cases had a similar percentage of distribution, diffuse or predominant in lower lobes. In some cases, the findings are similar to those seen in IPF-lower lobe predominance, with subpleural honeycombing.63

ACIF has, in many cases, a peribronchovascular distribution on HRCT.11 HSP and fibrosis due to microaspiration should be entertained in these cases.

In patients with a reticular pattern on CT, without honeycombing ("possible UIP"), some studies have suggested that in the appropriate clinical context, the diagnosis of IPF can be accepted.64–66 In our center, these cases are submitted to surgical lung biopsy, and in several patients, the final diagnosis was chronic HSP.67 Increased numbers of lymphocytes in BAL can be absent.

There is no gold standard for diagnosis of HSP. In a classical study, exposure to a known offending antigen, positive precipitating antibodies, recurrent episodes of symptoms, inspiratory crackles, symptoms 4–8 hours after exposure, and weight loss were found to be indicative findings of HSP.53 By logistic regression, exposure to a known offending antigen had the greatest odds ratio (38.8). In the absence of a unique gold standard defining the presence or absence of HSP, the final diagnosis relied on findings of BAL, HRCT, and, if needed, other diagnostic procedures. BAL lymphocytosis and bilateral ground-glass or poorly defined centrilobular nodular opacities on HRCT were required for a diagnosis of HSP to be accepted without resorting to additional diagnostic procedures.

In some centers, a specific inhalation challenge is available. A positive result is specific for diagnosis.

Current criteria for the diagnosis of HSP apply only to the classic acute presentation and are of limited value in the chronic forms. The presence and extension of fibrosis seen in lung biopsy and HRCT is a major determinant of survival in HSP (see the section "Natural history and prognosis"). In Table 1, we suggest criteria for chronic nonfibrosing HSP ("subacute disease") and chronic fibrosing HSP. In HRCT, ground-glass opacification can express interstitial inflammation or fine fibrosis,58 and hence the implication of this finding in the absence of surgical lung biopsy must be dictated by evolution.

Table 1

Comparative findings between chronic nonfibrosing and fibrosing HSP (relevant exposure and two or more criteria from other separated categories are suggested as diagnostic.)

Finding	Chronic nonfibrosing HSP ("subacute")	Chronic fibrosing HSP
Exposure/positive precipitins (Fibrosis features in HRCT Irregular linear opacities, architectural distortion, traction bronchiectasis and bronchiolectasis, lobar volume loss, honeycombing)	Present[a] Absent Gound-glass opacities without findings of fibrosis is common In some cases, HRCT can be normal (air trapping on expiratory HRCT can be helpful in these cases)	Present[a] Present Suggestive of HSP vs other fibrosing ILDs (one or more): 1. Ground-glass opacities > fibrosis 2. Predominant distribution in upper lobes 3. Peribronchovascular distribution 4. Relative sparing of lung bases[b]
Features indicative of associated or isolated bronchiolitis		
Inspiratory squeaks	Occasional	Uncommon
Air trapping/mosaic[c]	Common	Common at expiratory HRCT
Centrilobular nodules	Common	Occasional
Airflow obstruction or increased residual volume	Occasional	Rare
Course of disease	Worsening with exposure or improvement away from exposure common	Progressive; worsening with exposure or improvement away from exposure occasional ("chronic with exacerbations")
Lymphocytosis in BAL[d]	Present	Absent in ~60%
Pathology	Giant cells or granulomas in TBB or typical findings in surgical lung biopsy (sufficient for diagnosis)[e]	Typical findings or ACIF or NSIP or UIP

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Notes:

[a]Can be nonapparent,
[b]sparing of the lung immediately adjacent to the pleura in the dorsal regions of the lower lobes or relative sparing of the lung below the level of the dome of the diaphragm,
[c]bilateral and present in three or more lobes,
[d]≥30% in non and ex-smokers and ≥20% in current smokers,20 and
[e]chronic bronchiolocentric inflammation, poorly formed nonnecrotizing granulomas, bronchiolitis.

Abbreviations: HSP, hypersensitivity pneumonitis; ILD, interstitial lung disease, HRCT, high-resolution computed tomography; ACIF, airway-centered interstitial fibrosis; NSIP, nonspecific interstitial pneumonia; UIP, usual interstitial pneumonia; BAL, bronchoalveolar lavage; TBB, transbronchial biopsy.

Exposure to relevant antigens and two or more findings are suggested as sufficient for the diagnosis in each category. These criteria should be validated in a prospective trial.

Findings on HRCT and lung biopsy in nonfibrosing and fibrosing chronic HP are shown in Figures 2 and 3, respectively.

Figure 2

Chronic nonfibrotic HSP.

Notes: Female, 56 years of age, ex-smoker; dyspnea in the last 7 months. Exposure to molds in the bedroom. FVC =2.31 L (94%); FEV_1/FVC =0.87; RV =1.98 L (145%). Inspiratory HRCT without abnormalities. (**A**) Expiratory images showing several areas of air trapping. (**B**) Surgical lung biopsy showing cellular bronchiolitis with ill-defined granulomas, (**C**) focal peribronchiolar lymphocytic interstitial pneumonia, and air trapping. Removed from exposure with reversion of dyspnea and return of residual volume to normal range.

Abbreviations: HSP, hypersensitivity pneumonitis; HRCT, high-resolution computed tomography; FVC, forced vital capacity; RV, residual volume.

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Figure 3

Chronic fibrosing HSP.

Notes: Male, 64 years of age, ex-smoker. dyspnea and cough for 2 years. Exposure to molds at home. HRCT-reticular pattern predominant in upper lobes, with peribronchovascular distribution, peripheral reticular pattern with honeycombing, asymmetric in lower lobes (**A**) and (**B**). Surgical lung biopsy-centered airway fibrosis (**C**) with chronic inflammatory infiltrate (**D**) and organizing foci in airways (**E**).

Abbreviations: HSP, hypersensitivity pneumonitis; HRCT, high-resolution computed tomography.

Pulmonary hypertension (PH)

ILDs are common causes of precapillary pulmonary hypertension (PH) and are classified into group III of the international etiological classification of PH. The prevalence of PH varies widely among the different forms of ILD. Data on PH in chronic HSP are scarce. A study from our center was the first to determine the prevalence of PH in fibrotic HSP patients with hemodynamic data.68 Precapillary PH was found in 44% of 50 cases. Patients with precapillary PH had lower forced vital capacity, diffusing capacity for carbon monoxide, arterial oxygen tension, and saturation after the 6-minute walk test. The predictive value of PH on survival was not determined.

Treatment

Detecting relevant exposures and removing offending antigens have prognostic and therapeutic implications.69

The most important intervention in managing HSP is to avoid the inciting antigen, but exposure removal is not always possible, because frequently, the causal antigen cannot be identified or complete avoidance may mean major changes in occupation, hobbies, and in the domestic environment.48,49 Continuous exposure carries the risk of progressive pulmonary impairment.70 The levels of exposure to avian antigens were related to disease progression and prognosis in chronic bird-related HSP.71

Currently, courses of corticosteroids are frequently prescribed for HSP patients, when there are symptoms and physiologic abnormalities, but randomized controlled trials of prednisone and immunossupressants in fibrotic HSP patients have not been performed.72,73 The best available

evidence comes from a randomized placebo-controlled trial in farmer's lung that showed a faster improvement in lung function with corticosteroids, in comparison to avoidance only, but there were no differences in the long-term outcomes between the two groups.[74]

A subset of patients develop progressive fibrosis, even after removing the causative antigen.[75] In these cases, prolonged courses of oral corticosteroids are often required.[76] Therefore, each patient's treatment needs to be individualized.

The conventional dose for oral corticosteroids is 0.5–1 mg/kg/d of prednisone for a month, followed by a gradual reduction until a maintenance dose of 10–15 mg/d is reached.[2,76] In patients with symptoms of cough, wheezing, or airflow obstruction, the use of inhaled bronchodilators and inhaled steroids is appropriate.[73,76]

In patients with hot-tub lung, antimycobacterial therapy does not appear to be necessary. Although corticosteroids may be helpful in the treatment of severely affected patients, others can be managed by avoidance of additional exposure alone.[77]

In chronic progressive HSP, immunosuppressor drugs may be added to corticosteroids, but no controlled trials are available to support this strategy.[78,79]

More recently, rituximab was used as alternative treatment in a case of progressive HSP, refractory to conventional treatment. Compared with the prerituximab, diffusing lung capacity for carbon monoxide (DLCO) and forced vital capacity (FVC) values increased significantly.[80] In a study of six patients with progressive HSP and severe physiological impairment, treatment with rituximab resulted in stabilization in three cases.[81] More studies are necessary to confirm the utility of this expensive drug in HSP.

There is no evidence to support the prescription of anti-fibrotic agents (nintedanib and pirfenidone) in the treatment of chronic HSP. Randomized studies in this common ILD are urgently necessary.

In chronic progressive HSP cases that do not respond to corticosteroid and/or immunosuppressant therapy, lung transplantation should be considered.

A study compared the outcomes in 31 HSP patients submitted to lung transplantation to those in 91 subjects with IPF.[82] Survival rates at 1, 3, and 5 years after lung transplantation in HSP patients compared with IPF patients were 96%, 89%, and 89% vs 86%, 67%, and 49%, respectively. Subjects with HSP manifested a reduced adjusted risk for death, when compared with subjects with IPF (hazard ratio, 0.25; 95% confidence interval (CI), 0.08–0.74; P=0.013).

Further studies should be conducted aiming to determine response to immunosuppressive agents in the individual patient and the best time to refer to lung transplantation in HSP patients.

Natural history and prognosis

The prognosis of HSP varies greatly and depends on the type and duration of antigen exposure, the dose of the inhaled antigen, and the clinical form of disease. Some patients may experience progression, despite avoiding exposure and undergoing treatment.[19] In a long-term follow-up study of patients with pigeon breeders' lung, those who were asymptomatic had stable spirometric data, in contrast to those who were symptomatic.[83]