IN RE:	BALTIMORE CITY	*	IN THE
	PERSONAL INJURY	*	CIRCUIT COURT
	AND WRONGFUL DEATH	*	FOR
	ASBESTOS CASES	*	BALTIMORE CITY
		*	April 5, 1994 Trial Cluster
		*	(Judge Edward Angeletti)
		*	Case No. 94095701

****

RALPH GARRETT, et al.,		*	Case No. 93-117501
	Plaintiffs,	*	
vs.		*	
ACANDS, INC., et al.,		*	
	Defendants.	*	

****

CASE AFFECTED: LOTUS BITTNER, as Personal Representative for the Estate of RALPH D. GARRETT, Deceased.

****

ORIGINAL

D E P O S I T I O N

Pursuant to due notice, the deposition of **RAYMOND D. HARBISON, Ph.D.**, was taken by the Plaintiffs before Pamela A. Chorlog, C.M., Registered Professional Reporter and Notary Public, State of Florida at Large, at the Progress Center, One Progress Boulevard, Alachua, Florida, commencing at 10:05 a.m., Thursday, March 10, 1994.

APPEARANCES:

SHERYL INGRAM, ESQUIRE (By Telephone), Ness, Motley, Loadholt, Richardson & Poole, P.A, Post Office Box 1137, Charleston, South Carolina 29402, Counsel for Plaintiffs.

PEGGY A. WHIPPLE, ESQUIRE, Baker, Worthington, Crossley, Stansberry & Woolf, Post Office Box 1792, Knoxville, Tennessee 37901, Counsel for Defendant Owens-Illinois.

FORD LOKER, ESQUIRE (By Telephone), Church & Houff, Suite 700, 117 Water Street, Baltimore, Maryland 21202, Counsel for Defendants Armstrong World Industries, ACMC, GAF and A.P. Green.

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S T I P U L A T I O N

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

1. All objections, except as to form of the question, be reserved until hearing on the same or until trial.

P R O C E E D I N G S

MR. LOKER: This is Ford Loker. I am attending this deposition by telephone and appearing on behalf of the defendants who are members of the Center for Claims Resolution. I can give you the exact companies when the deposition is finished.

We first received notice of this deposition when we received a hand delivery of the deposition notice from the firm of Ashcraft and Gerel and it didn't arrive in our office until after 4:00 p.m. yesterday. It was physically impossible to go from Baltimore to the doctor's location in time to attend in person, which we would have done.

It was also virtually impossible to do proper background checks for the deponent to prepare for the deposition. And I would, therefore, object and in the future request that the standard notice provisions be utilized whenever possible. Thank you.

MS. INGRAM: Are we ready to proceed?

MR. LOKER: Yes, we are.

Thereupon, RAYMOND D. HARBISON, PH.D., being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MS. INGRAM:

Q. Doctor, could you please state your full name for the record?

A. Yes. My name is Raymond Harbison.

Q. And your personal and business address, sir?

A. Progress Center, One Progress Boulevard, Alachua, Florida.

Q. And your home address, sir?

A. 343 Northwest 50th Boulevard, Gainesville, Florida.

Q. And you are a toxicologist by trade. Is that correct, Doctor?

A. I am a pharmacologist and a toxicologist.

Q. You are not a medical toxicologist?

A. Well, I certainly have experience and practice in the area of medical toxicology. I am not a physician.

Q. How would you define medical toxicology, doctor?

A. The evaluation of and a study of the effects of chemicals on humans.

Q. But you are not an M.D., correct?
A. That is correct.
Q. So you do not have the authority to diagnose diseases in humans, correct?
A. I do not diagnose, that is correct.
Q. Can you tell me, Doctor, the last time that you were deposed in any proceeding?
Sir, can you hear me?
A. Yes, ma'am. I'm sorry, I am thinking.
Q. I'm sorry.
A. It's going to take me a minute here to think about that question.
Q. That's fine.
A. It would have been approximately two months ago.
Q. And what proceeding was that, sir?
A. It was involving polychlorinated biphenyls.
Q. And were you testifying on behalf of the defendant or the plaintiff?
A. Well, I was reviewing information with regard to the effects of PCB's, and I believe it would have been with regard to the defense of a matter regarding PCB's.
Q. How many times would you approximate that

you have either testified in court or been deposed?

A. It would have been more than 30 times for each of those. I don't have a record of exactly how many.

Q. How many times would you guesstimate per year, say, for the last five years?

A. I really couldn't give you a number. I would estimate it might be six times a year or thereabouts.

Q. How many times have you been deposed or testified in a proceeding relating to asbestos diseases?

A. I'm sorry, deposed or testified?

Q. Yes, sir. And we can break it apart if you like. It doesn't matter.

A. I would estimate that that has been four times.

Q. And when was that, sir?

A. It would have been in 1994, 1993 and probably about 1992 or '91. That would be a rough estimate.

Q. And can you tell me which cases these are you're referring to?

A. I can tell you geographically where they were. I don't have a knowledge of names.

Q. Can you tell me who you were working for and then in what state?

A. Yes, ma'am, I can do that.

Q. Okay, let's start with the 1994.

A. That would be Peggy Whipple and that would have been in Kentucky.

Q. And was this for the defendant? Were you being deposed on behalf of the defendant?

A. Yes, ma'am.

Q. This was a deposition as opposed to testimony, correct?

A. I'm sorry, there was no deposition. It was testimony.

Q. This was testimony at trial?

A. Yes, ma'am.

Q. Can you hear me?

A. Yes, ma'am.

Q. This was testimony in trial or this was a deposition? I didn't hear you.

A. I'm sorry. It was testimony at trial.

Q. And Peggy Whipple is who, an attorney?

A. Yes, ma'am.

Q. And who does she represent in that case?

A. I believe that she represented Owens-Illinois.

Q. Is there any doubt in your mind or are you sure about that?

A. The best I know, she represented Owens-Illinois.

Q. And in 1993, sir?

A. 1993 would have been David Hendricks -- I'm sorry, Hendrickson, and that would have been in West Virginia.

Q. And who did Mr. Hendrickson represent?

A. He represented Owens-Illinois.

Q. And the '91 or '92 case you were referring to?

I'm sorry, as far as the West Virginia '93 case, would that have been a deposition or testimony, live testimony?

A. It would have been both.

Q. All right. And the '91 or '92, sir?

A. That would have been in Tampa, Florida, and I'm sorry, I don't remember the attorney's name.

Q. Who was the company?

A. I believe it was Owens-Illinois.

Q. How many years have you testified on behalf of Owens-Illinois, Doctor?

A. Well, I don't testify on behalf of Owens-Illinois. I review materials and on occasion

I am called upon to provide my opinions with regard to those. I have been reviewing materials for Owens-Illinois for probably about three years.

Q. So prior to the '91 or '92 proceedings that we were discussing in Tampa, you had not reviewed any materials prior to that on behalf of Owens-Illinois that you can recall?

A. That's correct.

Q. Whether it be asbestos related or other, correct?

A. The best I know, yes.

Q. Can you tell me, I realize this is going back and it's difficult to recall, but as best you can, Doctor, how many times have you been deposed or testified on behalf of a plaintiff, if ever?

A. Well, again, I don't testify on behalf of plaintiffs. I review and evaluate exposures. I have done it many times. I probably have testified with regard to a plaintiff I would estimate, I could probably recall about a half a dozen times.

Q. As best you can recall, let's go through those and list those for us.

A. List the attorney and the place?

Q. Yes, sir.

A. It would have been Chattanooga,

Tennessee. The attorney would be Jeff Boehm.

Q. Jeff --

A. Boehm, B-O-E-H-M.

Q. He represented a plaintiff?

A. Yes, ma'am.

Q. And when was this roughly?

A. I would say roughly it was probably the mid to late 1980's.

Q. Was this deposition or testimony?

A. It would have been both.

Q. Was this asbestos related?

A. No, ma'am, it was not.

Q. All right. Any other times that you knew that you were being deposed or working with the plaintiff, sir?

A. Yes.

Q. That would be?

A. Chicago, Illinois, Mr. Fogel. That probably would have been about two or three years ago.

Q. Was that asbestos related?

A. It was not.

Q. Next?

A. It would have been Little Rock, Arkansas, the attorney's name Sandy McMath. It would have

been probably again in the '80s, middle to late 1980s.

Q. Was that asbestos related?

A. It was not.

Q. To your knowledge have you ever been deposed or testified on behalf of plaintiffs in an asbestos-related proceedings?

A. I have not.

Q. Doctor, each of the times that you were being deposed or testifying on behalf of Owens-Illinois, whether it be asbestos related or not, in those cases was it your opinion to a reasonable degree of scientific certainty that the exposure to those substances, whatever they may have been, was not a cause of the plaintiff's alleged injury or disease?

A. Again I don't testify on behalf of Owens-Illinois, and the answer to the question is no.

Q. All right. Of the cases that we went over in '94, '93 and '92, Kentucky, West Virginia and Tampa, can you tell me, starting with the '94 case, did you find that the substance, and I believe you said that these were all asbestos related, was not a cause of the plaintiff's injury?

MS. WHIPPLE: I'm going to object at this time to the form of the question and point out that the question is not related to the testimony that this witness has been offered to give.

MS. INGRAM: Your objection is noted.

Q. Doctor, can you please answer my question?

A. I'm sorry. Could I have the court reporter read the question, please?

(Whereupon, the portion of the record requested was read by the reporter.)

MS. WHIPPLE: And I'll just note my objection again for the record.

A. (Continuing) I don't recall specifically all the testimony, but I don't believe that I testified to the cause of the injury, to the best of my knowledge.

Q. Well, starting with the 1994 case, what was the substance of your testimony?

A. Well, the substance was with regard to the testing of Kaylo at Saranac Laboratories and evaluation of that testing. That would be the general areas that I testified about.

Q. That would have been the same for the

West Virginia and the Florida case?

A. Yes, ma'am.

Q. Doctor, would you define dose for me?

A. Dose is the amount of a substance that enters the living system, or the body.

Q. And what factors would you say go into establishing what the dose would be?

A. The exposure, the length of exposure, the physical-chemical properties of the substance, the routes of exposure, the location of the material in the environment or outside the body. Those would be some of the factors that determine the dose.

Q. A few other preliminary questions that I wanted to finish up, and I sort of took that out of context and I apologize.

Doctor, what is your hourly rate for testifying in a deposition?

A. I request reimbursement of $175 per hour.

Q. And testimony at trial?

A. It would be the same.

Q. Has that rate changed in the last two years?

A. In the last how many years?

Q. In the last several years has that rate changed at all?

A. It may have. It probably has, yes.

Q. Is that the same rate for review of materials or consulting with lawyers?

A. It would be the same rate for the consulting that I do without regard to who it's for or what I do.

Q. In 1993, Doctor, approximately what percentage of your income was derived from consulting with attorneys regarding litigation matters?

A. Oh, I would estimate it's somewhere between 15, 20 percent, 25 percent.

Q. In '93?

A. Yes, ma'am.

Q. In '92 would it be the same?

A. Well, it would vary. I'm not sure I could tell you for '92. It's probably similar to that.

Q. Has there been any significant change over the past, say, seven or eight years? I mean did you have 50 percent one year and five percent the next, or would you say it has fairly averaged out?

A. Well, I would say it varied year by year, but it's going to be around that range.

Q. When is the first time that you ever testified as an expert in the fields of toxicology or pharmacology, Doctor?

A. I would have to give you a range of years. It was probably early to mid 1970s.

Q. Do you recall what the very first case you ever testified in was about?

A. Well, it may have been Elvis Presley.

Q. Elvis Presley?

A. Yes, ma'am.

Q. What did you have to do with Elvis Presley?

A. I was one of three people who were involved in the autopsy and evaluation of the cause of death of Elvis Presley.

Q. What was the cause of death, is that a secret?

A. No. Drug overdose.

Q. Who were you working for in that case, Doctor?

A. The Attorney General of the State of Tennessee.

Q. Regarding this proceeding that you're being deposed about here today, who contacted you and when was that?

A. I would have been contacted I think by Peggy Whipple, probably several months ago.

Q. For the review of materials that you have done for O-I in the past -- strike that.

When you first had a conversation with Peggy Whipple regarding this litigation, did she indicate what Owens-Illinois's feeling of the case was?

A. She did not.

Q. Regarding the Kaylo product, did she ask you whether or not the documents would indicate to you as a toxicologist whether or not the Kaylo product, which was the subject of the examination, could be dangerous to human beings? Was that question ever asked of you by her?

MS. WHIPPLE: I'm going to object just for a clarification of the question. I think the doctor has indicated that his first contact with a person from Owens-Illinois was some time ago; however, your question pending is regarding the contact for this particular deposition today, and I'm sorry, I'm just not sure that I understood your question.

Q. Doctor, did anyone that contacted you on behalf of Owens-Illinois ever ask you that question?

And if you need me to read it back or have the court reporter read it back, that's fine.

A. At any time has anyone ever asked me that specific question?

Q. Anyone associated with Owens-Illinois, whether it be a representative, an attorney or such.

A. Well, I think a question similar to that has certainly been asked of me with regard to questions asked in a deposition or in testimony, yes.

Q. Well, when they initially contact you, and again I mean anyone, whether it was in '92, '93, '94, on behalf of Owens-Illinois, obviously you were asked to evaluate the information to determine whether the testing was appropriate. Correct?

A. Correct.

Q. When you reached your conclusion, did you base those conclusions on '94 standards if we're talking in '94 for this litigation, or did you base it on the medical and scientific standards of the late '40s and early '50s regarding the Saranac documents?

A. I would have based my opinions on the time of the testing.

Q. Not the current time then?

A. I don't think I have been asked with regard to the current time.

Q. So have you at any time discussed with Ms. Whipple what the issues are in this proceeding, this Baltimore proceeding?

A. No.

Q. How many hours would you estimate that you have reviewed materials or prepared for this deposition, Doctor?

A. I would estimate probably about three.

Q. And what did you do in those three hours?

A. I went back and I looked at Mr. Hazard's deposition and the exhibits to Mr. Hazard's deposition.

Q. Did you review documents attached as exhibits? Did you say that you had reviewed the exhibits? I didn't hear you.

A. Yes, ma'am, I did.

Q. Anything else that you reviewed in preparation for this deposition today?

A. No.

Q. Is that no?

A. No.

Q. Did you bring anything with you today, Doctor?

A. I did not. I mean I have a pen.
Q. That doesn't count.
A. I'm sorry, that's all I have.
Q. Just to go through it real briefly, what percentage of time would you estimate per week that you spend consulting for attorneys, or if it's easier for you to do it monthly, what would that be?
A. Again it would be about -- I'm sorry?
Q. I think before I had asked you about money, and if it's a duplicate, I'm sorry, but percentage of time.
A. It would be about the same. I would estimate 15, 20, 25 percent.
Q. I have your CV, Doctor. Is 27 pages correct to your knowledge?
A. No, that's an old one.
Q. How old is this?
A. Well, I think it's pretty old.
MS. INGRAM: Counsel, I would ask that a current CV be provided us.
A. It's now 37 pages.
Q. 37. Can you tell me what the additional 10 pages are, Doctor?
A. No. It's going to be hard for me to do that. I suspect it's --

Q. Are they mostly articles or what?

A. I suspect it would be articles, it would be appointments to various groups, changes in assignments. It would be those sorts of additions.

MS. INGRAM: Again, I don't know if it was heard, but I ask that a current CV be provided to plaintiff's counsel.

MS. WHIPPLE: That will be no problem.

Q. Doctor, have you ever written any articles or texts or chapters in any texts dealing with asbestos-related diseases?

A. I don't believe so.

Q. Have you ever edited any articles dealing with asbestos-related diseases?

A. By edited, you mean peer reviewed?

Q. Yes, sir.

A. Sure.

Q. When was that, do you recall?

A. Over the last 20 years.

Q. So that's something you do fairly often then?

A. Yes, ma'am.

Q. Have you ever conducted any studies dealing with asbestos or asbestos-related diseases?

A. By studies you mean in the laboratory

exposing animals or humans to asbestos?

Q. Yes, sir.

A. I have not.

Q. Do you consider yourself an expert in epidemiology, sir?

A. I would consider myself to have knowledge of epidemiology to use it in the practice of toxicology. I would not hold myself out to be an epidemiologist.

Q. You have no formal training in epidemiology, is that correct?

A. I have some training in epidemiology. I have not taken a formal course in epidemiology.

Q. Do you claim expertise in mineralogy, sir?

A. I'm sorry, I lost track of that question. Do I have expertise in mineralogy?

Q. Yes, sir.

A. I certainly have some knowledge of minerals. I wouldn't hold myself out to be an expert in mineralogy.

Q. Do you claim expertise in cardiology, sir?

A. No, ma'am, I would not.

Q. Pulmonology?

A. No. By expertise, again you mean am I an expert. I certainly have knowledge about cardiology and pulmonology, I use it in the practice of toxicology, but I am certainly not an expert.

Q. I guess, what do you consider an expert to be and would you define yourself as an expert is what I'm asking, and if you want to clarify that as you're doing, that's fine.

Do you claim expertise in the area of oncology, sir?

A. I would have some expertise in oncology, yes.

Q. Tell us about that.

A. I teach oncology and pathology. I conduct research in the area of oncology. I have training in oncology and pathology. Those would be the general areas of expertise.

Q. You said you did teach in the area of oncology, sir?

A. Yes, ma'am.

Q. How long have you been teaching in that area?

A. For probably the last 10 years.

Q. One year?

A. 10.

Q. 10. Do you claim yourself to be an expert in the area of occupational medicine?

A. I would have expertise in the area of occupational medicine, yes.

Q. And how would you describe your expertise in that area?

A. Having worked in that area for the last 20 years, having some training in occupational medicine, having been involved in developing, promulgating, managing occupational medicine programs for again about the last 20 years.

Q. Do you claim any expertise in the area of pathology, Doctor?

A. Yes.

Q. And what formal training do you have in pathology?

A. I have formal training in pathology at the University of Iowa, College of Medicine. I am also a professor of pathology at the University of Florida, College of Medicine.

Q. How many courses did you take in pathology?

A. I have taken probably two.

Q. Do you have any postgraduate degrees in pathology?

A. I do not.

Q. Sir?

A. I do not.

Q. Do you claim expertise in the area of industrial hygiene?

A. I would have some expertise in the area of industrial hygiene, using industrial hygiene in the practice of toxicology.

Q. Explain that relationship to me.

A. Well, industrial hygiene is used in the evaluation of exposure, and in order to assess the risk or the potential adverse effects associated with exposure, industrial hygiene is the process, the methodology, the science that is used to evaluate that exposure.

Q. Have you taken any courses in industrial hygiene, Doctor?

A. I have not taken any specific courses in industrial hygiene. Industrial hygiene has been included in various toxicology courses that I have taken.

Q. Do you claim any expertise in the area of dust counting or dust measurements?

A. I would not.

Q. You don't claim to be an expert in

radiology, do you, sir?

A. I do not.

Q. Do you claim expertise in the area of biostatistics?

A. I would have some expertise in the area of biostatistics as it's used in the practice of toxicology.

Q. And explain a little bit about that use.

A. Well, I would use biostatistics in the evaluation of experimental data, would use biostatistics in evaluation of epidemiological data. Those would be the general uses of biostatistics.

Q. Have you ever conducted a search of the scientific or medical literature on asbestos-related diseases, Doctor?

A. Yes,

Q. You have? When would that have been?

A. It would have been for the last 20 years.

Q. For the last 20 years?

A. Yes, ma'am.

Q. But you never published in that area?

A. I have not published in that area.

Q. What would your search have included?

A. Well, I have a responsibility for teaching physicians, for teaching medical students

and for teaching graduate students, and so it would be part of my responsibility to have knowledge of asbestos, the effects of asbestos, the general area of exposure to asbestos.

Q. How long have your teaching responsibilities included the teaching of the hazards associated with asbestos?

A. Well, it certainly would have been for the last 20-some years.

Q. The last 20 years, sir?

A. It would have been more than 20. Around 20-some years.

Q. You're saying in the early '70s you were teaching about the hazards associated with asbestos?

A. Yes, ma'am.

Q. And in what class would that have been?

A. Well, it would have been to physicians and medical students at Tulane Medical School in 1969, 1970. It would have been to physicians, medical students and graduate students at Vanderbilt Medical Center from about 1971 through probably about 1980, 1981. It would have been at the University of Arkansas for Medical Sciences to physicians, medical students, graduate students from about '81 through '88, and then currently at the

University of Florida on those same areas since about 1988.

Q. Have you combined your own materials to teach that subject area or is there some sort of text you primarily use? What do you use, sir? I realize they have probably changed, but I guess I'm trying to determine whether or not you provided your own teaching materials or whether something was provided to you and you taught from a text that was not your own.

A. I didn't talk from a text. I used my own knowledge and provide lectures on that area using a variety of sources, including the scientific literature.

Q. Was there a foremost textbook that you used in teaching toxicology?

A. There was not.

Q. How about pharmacology?

A. No.

Q. So you're saying in those areas you have primarily used your own materials that you have gathered?

A. That's correct.

Q. And that would have been from a research of the medical and scientific literature, is that

your testimony?

A. What would be one source, yes.

Q. What would be the other sources?

A. Well, it would be from textbooks, it would be from reports, from meetings that I have attended, general knowledge gathered as a result of work with the National Institute of Occupational Safety and Health. It would have been from all of those areas.

Q. In your review of articles regarding asbestos-related diseases, what percentage would you say have they been written post 1980?

A. I would have no idea. I couldn't answer that question. I don't know.

Q. You would say the majority, though, wouldn't you, Doctor?

A. No. I wouldn't say one way or the other.

Q. Do you have any sort of index of the articles that you have written?

A. I do not.

Q. Bear with me one moment, Doctor. In the area of textbooks, could you just list for me a couple of texts which you would find valuable to review in the area of toxicology?

A. Ellen Horn, Textbook of Toxicology.

Q. Ellen Horn?

A. Right. Goldfrank's Textbook of Toxicology. Those would be two.

Q. Have you ever published any chapters in toxicology textbooks?

A. I have.

Q. And which ones would those be?

A. Casarette and Doull, Textbook of Toxicology.

Q. Any others?

A. Patty's Industrial Hygiene Textbook of Toxicology.

Q. Do you believe that Casarette and Doull is a respected textbook on toxicology?

A. I have no opinion about whether it's a respected textbook or not. I suspect for some areas it may be, for other areas it may not.

Q. You were published in that, were you not, sir?

A. I was.

Q. So you're saying overall that you do not have an opinion of whether it's a respected body of work?

A. I don't know if others consider it a respected body of work or not. Again I think there

are probably some areas in which the answer is yes and probably some in which the answer is no.

Q. I'm asking you whether you consider it overall a respected body of work, not others.

A. The answer would be the same. There are some areas and some topics in which the answer would be yes and some in which the answer would be no.

Q. What areas would it be no?

A. Well, I would have to go through the textbook.

Q. Well, there must be something that stands out in your mind for you to say that.

A. Well, I would have to go through it page by page. There are some that I would agree with and others that I would not.

Q. Do you consider Dr. Doull to be a respected toxicologist?

A. Dr. Doull is certainly a toxicologist who has contributed to the area of toxicology and he certainly has respect in some areas. I would certainly respect him in some areas and perhaps might differ with him in others.

Q. What areas do you differ from him?

A. Well, I would have to know what those areas are. I don't know all of the areas that

Dr. Doull may write about or have opinions about.

Q. How do you know that you may differ from him?

A. Well, I suspect that there may be areas in which we have differing opinions.

Q. So you don't know of any area off the top of your head that you differ with him?

A. At this moment in time, I couldn't give you a specific area. I would have to review his opinions and what he says.

Q. So you're not familiar with his opinions in general?

A. In general I am not.

Q. Have you ever taken any course or had any training with asbestos-related diseases, Doctor?

A. Yes.

Q. When would that have been?

A. It would have begun in the late 1960s and continued through the present. At course work at the University of Iowa, College of Medicine, and continuing education in the Society of Toxicology and other professional societies, including classes at the various universities that I have been on the faculty.

Q. And some of these are formal courses that

you took?

A. Well, these would be courses that I have either participated in or have been present during the discussion of asbestos.

Q. Doctor, when is the first time you have ever had any experience dealing with animal studies, what year?

A. It would have probably been 1961.

Q. Based on your review of the Saranac documents, would you agree that protocols for animal inhalation studies were known in the '40s, back in 1940?

A. No, I would not agree with that.

Q. All right. To your knowledge when were the first published studies relating asbestos -- dust inhalation to asbestos?

MS. WHIPPLE: I'm going to object in that this question is well outside the scope of the testimony for which this witness is offered.

MS. INGRAM: I can't hear that very well, but I know there was an objection of some sort.

MS. WHIPPLE: I objected that it is outside of the scope of the testimony for which this witness has been offered. It has been clearly stated that he has not been asked to do

a review of scientific or medical articles over time.

MS. INGRAM: Well, he's clearly going to discuss the Saranac documents, which are going back in time. But your objection is noted and I will continue, Doctor.

A. I'm sorry, the question you asked me, you want me to answer that question?

Q. Yes.

A. Okay. I'm sorry, I don't remember it.

MS. WHIPPLE: Could we read it back, please?

THE REPORTER: Question: "All right. To your knowledge when were the first published studies relating asbestos -- dust inhalation to asbestos?"

MS. WHIPPLE: Maybe we could try it again. I think we're all agreeing it's a little bit vague.

BY MS. INGRAM:

Q. Okay. Doctor, based on your review of the Saranac documents, would you agree that protocols for animal inhalation studies were known in the '40s; and I believe you said no. Is that correct?

A. That's correct.

Q. Now, based on your review of the literature dealing with pneumonoconiosis, do you know whether or not scientific protocols existed and appeared in the literature concerning inhalation studies of animals in the 1930s?

MS. WHIPPLE: Okay. Let me object again to the form in that the doctor has not stated that he has been asked to do a review of medical and scientific literature. He has stated clearly that he reviewed the Saranac documents and the Hazard deposition, and I wonder if maybe we've got that confused in the last two questions.

MS. INGRAM: I can't hear all of that. I'm not sure why it's not coming through well, but all I can say is your objection is noted.

And, doctor, if you will go ahead and answer my question.

MS. WHIPPLE: Maybe we can clear this up. I had to object to the form of your last question because you asked him based on his review of the I think general medical and scientific literature. My objection is that he has not testified that he has been asked to

make such a review.

He has testified that he has been asked to review the Saranac documents that are attached to the Hazard deposition. And if you want to ask him something based on that review, then I think we'll all be on the same page.

MS. INGRAM: Well, he has testified as well that he has reviewed the medical and scientific literature for some-odd more than 20 years regarding asbestos and has been involved in courses and taught such. I believe he is familiar with the literature.

Q. Doctor, are you not? Is there some point that you stopped going back in review, is there some year that you did not review articles regarding asbestos and the hazards associated with it? Does that make sense to you?

A. Not exactly. The question is, is there some period of time historically beyond which I have not looked at information with regard to asbestos?

Q. Yes, sir.

A. No, I didn't exclude historically any particular time.

Q. Are you familiar with any of the studies that were published regarding the animal studies in

the '30s or '40s?

MS. WHIPPLE: Okay, let me try one more time. This is the objection: If you want to ask questions that are of a general state-of-the-art nature, then we have designated witnesses that we are offering for that purpose. Your questions along that line with regard to this witness are no more relevant to this litigation than if you asked him about his studies on alpha-fetoprotein. And so it just doesn't make sense to go on with questions like that since it's totally unrelated to this witness in this litigation.

MS. INGRAM: I don't think it's totally unrelated.

Q. Doctor, did you read any studies which were authored by members of the Saranac Laboratories concerning inhalation studies with silica which appear in the literature in the '30s?

A. I have not looked at those, no.

Q. You do claim expertise in conducting animal studies, correct, Doctor?

A. Yes, ma'am.

Q. Do you claim expertise in the history of knowledge of animal studies?

A. I certainly have knowledge of the history of animal studies, yes.

Q. Did you ever conduct any animal studies yourself while at Drake University?

A. Yes.

Q. Could you estimate how many?

A. It was a long time ago.

Q. Were any of them inhalation studies?

A. No, they were not.

Q. Did you conduct any inhalation studies while at the University of Iowa?

A. I don't recall any at the University of Iowa.

Q. Did you conduct any inhalation studies as part of your doctoral training?

A. I did not.

Q. Have you ever conducted any inhalation studies at all with animals?

A. Yes.

Q. When was the last time?

A. Currently doing it at the present and began at Tulane Medical School in 1969.

Q. Were any of these studies dealing with asbestos?

A. They were not.

Q. Have you reviewed inhalation studies dealing with asbestos?

A. I have.

Q. When would that have been, sir?

A. That would have begun in 1965, continued through the present.

Q. What were the purpose of those studies, do you recall?

A. The purpose of the specific studies?

Q. Yes, sir.

A. Would have been to evaluate the inhalation of a variety of substances to determine the potential, both beneficial as well as adverse, effects of those substances on the living system.

Q. What was the relationship for evaluation as to humans as a result of occupational exposure, if any?

A. I'm sorry, I don't understand that question.

Q. The inhalation studies that you're referring to that we've been discussing, what relationship, what consequence were they evaluated for the results of humans because of occupational exposure? Does that make sense?

A. No, it doesn't. Are you asking what

value the animal studies had with regard to occupational exposure?

Q. Yes, sir.

A. It depends on the substance and it depends on the exposure. They may in some instances be relevant and in other instances they may not, depending on the substance, the exposure, the animal model, the species. All of those factors would determine whether or not those test results might be useful in determining the potential effects of occupational exposure.

Q. The CV that I have that you said was old, do you know what year this CV is that I have, this 27 pages?

A. No, but I suspect it must be pretty old.

Q. Is your work experience accurate on here, 1989 to present, Director of Center for Environmental Toxicology, University of Florida?

A. I am at the University of Florida. I am a professor. I suspect that's probably changed. I am now Professor of Pathology. I'm not sure if that's on the one you have or not.

Q. Professor of Pathology?

A. Yes, sir.

Q. Professor of Pathology you stated?

A. Yes, ma'am.

Q. No, that's not on here. The things that it lists as your current -- 1989 to present, staff, St. Vincent Infirmary Medical Center, Little Rock, Arkansas.

A. Correct.

Q. That's still current?

A. Correct.

Q. 1989 to present, National Institute of Drug Abuse, Pharmacology II Study Review Group?

A. Correct.

Q. 1988 to present, Professor, Department of Pharmacology and Therapeutics, School of Medicine, University of Florida?

A. Correct.

Q. 1988 to present, Professor, Department of Physiological Sciences, Health Science Center, University of Florida?

A. Correct.

Q. '87 to present, Clinical Professor, Department of Preventive Medicine, Medical College of Wisconsin, Milwaukee?

A. Correct.

Q. '86 to present, National Institute of Environmental Health Sciences Study Review Group.

At present you are still involved in all of these things we have just listed?

A. No, that's not correct.

Q. What are you not anymore presently involved in that I just went over?

A. I just answered all the questions you went over. Now, the last question you asked me is the one that's not correct.

Q. Are all these current?

A. No. You asked me all those questions, I answered them. Then you asked me the last question, whether from 1986 to present the National Institute of Environmental Health Sciences was correct and all the other things. The 1986 to present is not correct.

Q. I see. The other ones are, Doctor?

A. Yes, ma'am.

Q. The other ones are correct?

A. That's correct.

Q. Bear with me a moment. I'm going to skip some more. Is it possible to have about five or six minutes?

A. Yes, that's fine.

(Brief recess.)

BY MS. INGRAM:

Q. Doctor, has your knowledge of asbestos reached a point where you have an opinion one way or another as to whether different types of asbestos cause mesothelioma?

MS. WHIPPLE: Objection.

A. I don't have an opinion about that. I haven't been asked to do that.

Q. What latency periods do you believe are typically associated from the first exposure to asbestos to development of an asbestos-caused malignancy?

MS. WHIPPLE: Objection.

A. Again I haven't been asked to do that and I don't have an opinion about that.

Q. You don't have an opinion?

A. No, ma'am.

Q. Are you familiar with the latency periods of mesothelioma?

MS. WHIPPLE: Objection.

A. Again I haven't been asked to do that, so I don't have an opinion about that.

Q. But are you familiar with the latency periods, Doctor?

MS. WHIPPLE: Objection.

A. The answer is the same.

Q. What knowledge do you have of the disease mesothelioma and where have you obtained that knowledge?

MS. WHIPPLE: Objection.

A. I haven't been asked to evaluate the mesothelioma. I don't have an opinion about that. The only thing I have been asked to do is review the Saranac Lake documents.

Q. I was under the impression from someone in my law firm, so it could be an inaccurate impression, but I was under the impression that you were going to comment on the two different cases that we had involved, mainly the Ralph Garrett case and the Harvey Lee Scruggs case. Is that incorrect?

MS. WHIPPLE: Ms. Ingram, I believe that's incorrect. I talked to Mr. Hooper yesterday because his firm is really handling this case. I just came down for the deposition. And he told me that he had not provided the doctor with anything regarding these cases and had no intention to do so.

MS. INGRAM: Well, then I have been misinformed. I thought that you had read records relating to these two cases and that you were prepared to issue an opinion on these

two cases. That's inaccurate?

MS. WHIPPLE: That is inaccurate.

BY MS. INGRAM:

Q. So, Doctor, please tell me in your mind what you think your expected testimony will be in the upcoming litigation.

A. I would expect to testify about the Saranac Lake documents, about the exhibits to Mr. Hazard's deposition as to the testing that was performed and an evaluation of that testing.

Q. When you say the testing that was performed, what testing do you mean?

A. The testing at Saranac Lake and the other testing that Saranac Lake did --

Q. Doctor, can you hear me?

A. I'm sorry. Hello?

Q. You can't hear me?

MS. WHIPPLE: Ms. Ingram, there appears to be a lot of static at your end all of a sudden.

(Discussion off the record.)

BY MS. INGRAM:

Q. I asked you, Doctor, what testing are you referring to and explain and describe to me what testimony you plan to give regarding the testing.

A. Okay. I would testify concerning the animal testing that was done by Saranac, the testing in the workplace that was done by Saranac, the general description of the testing and evaluation of the testing. Those would be the general areas that I would expect to testify about.

Q. What is your opinion of the results that were found from the animal testing that was done at Saranac?

A. Well, that the conclusions that were provided by Saranac were consistent with the animal testing data, that at some levels of exposure to the dust there was a finding after some period of time, changes that were consistent with asbestosis. Those would be the general descriptions or the general areas of testimony.

Q. Do you believe in a dose response? I know we had talked about that briefly before.

A. Yes.

Q. What level of exposure do you feel is necessary for an asbestos-related disease to occur?

MS. WHIPPLE: Objection.

Q. Is that something that you don't feel that you are going to be testifying about?

A. I would not be. I would testify only

with regard to the testing that was done on the animals.

Q. All right. Same question for the animals. What level of exposure do you feel was necessary for there to be an asbestos-related disease consequence in the animals?

A. In the animals the exposure was in excess of 100 million particles per cubic feet of air.

Q. Is this something that you know from your review, is this something that you have memorized? Are you reading something?

A. Well, I am not reading anything.

Q. So you know that from your review?

A. Yes, ma'am, I do.

Q. Do you feel that any conclusions found because of the Saranac testing were inaccurate in any way, and why?

MS. WHIPPLE: I'm going to object and just ask that you specify the timeframe that you're talking about. I'm going to object because the question is vague as to the timeframe intended by your question. Are you asking the doctor whether or not the conclusions were valid based upon what was knowable at the time the tests were conducted

or are you asking him were the conclusions valid based on knowledge today?

Q. Valid based on knowledge at the time.

A. Well, I have to go over all of the conclusions that were reached by Saranac.

Q. Let's do that, then.

A. Okay.

Q. Doctor, bear with me for a second because I've got a lot of information here that is inaccurate. Let me run through it.

If I already asked you this, I apologize: Doctor, when is the first time that you reviewed the Saranac documents which relate to the Kaylo studies?

A. You did ask me that, and I said probably about three years ago, four years ago.

Q. What was your understanding of why Owens-Illinois referred their material to Saranac Laboratory?

A. Because they wanted testing conducted on the new product and they were concerned about the silica and they were interested in knowing whether or not the exposure to the dust would result in silicosis, and so because of that they referred it to the Saranac Laboratories for inhalation testing.

Q. To your knowledge there was no concern

about asbestos, was there?

A. I don't believe so.

Q. Do you know if anyone, any individual or Mr. Hazard, believed that the animal studies would be a guide to the human experience?

A. I'm sorry. Do I believe that Mr. Hazard believed that the animals would be a guide to the human experience?

Q. The animal studies. What is your perception of what Mr. Hazard thought?

A. I really don't know what Mr. Hazard thought.

MS. WHIPPLE: I'll just object, and maybe this will help, in that, of course, Mr. Hazard's testimony speaks for itself.

Q. I'm getting bits and pieces of that.

MS. WHIPPLE: I objected that Mr. Hazard's testimony speaks for itself as far as what he thought or knew.

MS. INGRAM: I think I'm entitled to ask what his idea of that perception is, but we can move on.

Q. You said you did read the Hazard deposition, correct, Doctor?

A. That's correct.

Q. Do you know whether or not he indicated that he believed that the Saranac studies on the Kaylo products would be a guide to the human experience?

MS. WHIPPLE: Same objection.

A. I don't specifically recall his stating that.

Q. Would that be something that would be important to you in determining whether or not these studies would be valuable?

A. No.

Q. Why not?

A. Well, because I didn't judge them based upon what Mr. Hazard thought. I judged them based upon the scientific evaluation of the studies, the protocol and the results.

Q. Doctor, is it correct that there are often effects which can be produced in laboratory animals which cannot be produced in man?

A. I'm sorry. Is that often the case?

Q. Yes.

A. Well, that's certainly sometimes the case. I don't know if I would agree that it's often or not. It may be. I would certainly say that there are instances in which that is correct.

Q. If a cancer is produced in an animal as a result of an animal study, is there a presumption that the material is carcinogenic in man?

A. For regulatory purposes there certainly would be today. Certainly back in the '40s, the '50s, the '60s there was not. Today that would certainly be a presumption that would be made and it would be classified potentially as a carcinogen.

Q. And what do you base that conclusion on, Doctor?

MS. WHIPPLE: I'm going to just interpose an objection in that these proceedings are not regulatory proceedings and, therefore, this line of questioning is clearly irrelevant.

MS. INGRAM: Your objection is noted.

Q. Doctor, please answer my question.

A. It would be based upon my knowledge of the regulatory process, based upon my knowledge of the use of animal testing for regulatory purposes and for the purpose of assessing risk.

Q. What is a mechanistic toxicologist? Am I saying that correctly?

A. What is a mechanistic toxicologist?

Q. Yes, sir.

A. I'm not sure. I would think it would

describe a toxicologist who studies the mechanisms by which chemicals produce the various effects that they produce in the living system.

Q. Do you believe that all chemical-induced diseases are dose related?

A. Yes.

Q. How do you define poisons?

A. A poison would be a substance that would be able to produce adverse effects at some level of exposure. Essentially all substances are potentially poisons. So it would apply to essentially many substances that at some dose could produce some harmful effect depending on the dose.

Q. Doctor, when you conduct an animal study, you try to determine whether or not exposure to a substance causes an injury or disease, do you not?

A. Well, that could certainly be one objective, or you might be trying to determine how it produces the effects that it produces.

Q. With the animal tests when you determine that, do you look for the degree of risk that may be associated with a given exposure?

A. Well, animal tests for regulatory purposes are certainly used for assessing risk or potential risk associated with exposure.

Q. If you exposed animals to 100 million particles per cubic foot and that animal develops disease, do you as a scientist try to extrapolate from that experiment to determine whether or not exposure of the substance at lower levels would or could have also caused the disease?

A. Well, you would certainly use that information for attempting to determine whether or not there would be a hazard at other levels of exposure, and that would certainly include lower levels of exposure.

Q. What is the purpose of conducting animal studies?

A. Well, there are many purposes.

Q. What are they?

A. One would be to identify potential effects, harmful or beneficial, of exposure to a chemical; to determine whether or not the mechanism or the effect that is produced is an effect that could be produced in other living systems, including man. Those would be the general reasons for using animal testing.

Q. We went through this briefly before, but from your review of the literature, when was the first reference to animal inhalation studies

published to your knowledge in the medical or scientific journals?

MS. WHIPPLE: Objection. I'm sorry, I cut you off, Ms. Ingram. I objected.

A. I'm sorry. Could you repeat that question?

Q. From your review of the literature, when was the first reference to animal inhalation studies published in any of the scientific and/or medical journals to your knowledge?

MS. WHIPPLE: Objection.

A. I don't have an opinion on that. I haven't looked at that.

Q. I'm not asking an opinion. Do you know when?

MS. WHIPPLE: Objection.

A. I can't answer the question because I haven't looked at that.

Q. All right. Are you familiar at all with Dr. Meriwether's study?

MS. WHIPPLE: Objection.

A. I haven't looked at that to prepare for this. I don't have a recollection of that.

Q. Do you have an opinion within a reasonable degree of scientific probability as to

when it was known, that is, established in the medical and scientific community, that the scientific methodology existed to conduct animal inhalation studies?

MS. WHIPPLE: Objection.

A. I don't have an opinion about that.

Q. What was the reputation of the Saranac Laboratories in the '30s and '40s? Was it considered -- what was their reputation as far as the ability to conduct inhalation studies in animals to your knowledge?

A. The reputation was a good reputation for the ability to conduct animal studies, and particularly inhalation studies.

Q. Do you know whether or not Dr. Gardner was considered an authority on asbestos-related diseases in the '30s and '40s?

A. I do not.

Q. Is that something you have ever tried to determine?

A. I have not.

Q. When you conduct animal studies to determine whether or not a substance is toxic, do you study the disease processes which you think may occur from that inhalation?

A. That's certainly one objective, yes, sometimes.

Q. What are your other objectives?

A. Well, it may be to find out how it produces various effects, what the mechanism is by which the chemical produces its effects. All of those would be potential purposes for the animal testing.

Q. When you conduct an animal study, do you have a hypothesis as to what may happen when particular animals are exposed to particular substances, Doctor?

A. May have, yes.

Q. Is it important to you to know the pathogenesis of the diseases which you believe may occur from exposure to the substances?

A. I'm sorry, I didn't get that.

Q. Is it important for you to know the pathogenesis of the diseases which you believe may occur, you said they may, from exposure to the substances?

A. Well, it may be important --

Q. Before you do the testing.

A. I'm sorry?

Q. Before you do the testing.

A. No, that's not necessarily important.

Q. Is it at any time important?

A. Well, if one ultimately wants to try to determine how the disease is produced, then a knowledge of the pathogenesis of the disease would certainly be important in trying to elucidate the mechanism by which that chemical produces a specific disease.

Q. Would it be important to you to know whether or not the disease had a latency period?

A. Well, it may or may not depending on the design of the study. Certainly time of exposure would be an important consideration.

Q. Well, it would certainly influence the testing protocol, would it not, Doctor?

A. What?

Q. To know the latency period.

A. It would certainly influence the design, yes.

Q. Would it be important to you as a scientist to know whether or not the disease was generally progressive in nature?

A. That would be knowledge that would certainly be helpful, but not necessary, because again the design of the study could be such that the

purpose, or the goal, would be to look at a long period of exposure that would give time for that disease to occur.

Q. Do you attempt to determine the characteristics of the disease before you conduct the study?

A. This would be for any substance now?

Q. Yes, sir.

A. Not necessarily.

Q. Would you for asbestos?

MS. WHIPPLE: Objection. The doctor has stated that he has never conducted such tests.

Q. Would you know the answer to that, Doctor?

A. I'm sorry. Could I have the question read, please?

Q. Would you attempt to determine the characteristics of an asbestos-related disease before conducting an animal study? Not have you, because you haven't, but would you?

A. Not necessarily. If I am simply testing the material and have little knowledge about its effects, then probably not.

Q. How important in the animal testing is the fact that a particular agent was used in a

particular way by a human? Does that make sense?

MS. WHIPPLE: I'm going to just object that that's awfully vague. If the doctor can answer it, more power to him.

A. Is the question --

Q. What significance do you give to the fact that a particular agent was used in a particular way by a person? I'm talking about the normal use of the agent. Does that make any sense to you? Wouldn't the normal use of the agent influence the exposure?

A. Yes.

Q. Do you know from your reading of the literature and/or the documents from Owens-Illinois as to whether or not Dr. Garner and other scientists at Saranac had an understanding of the pathogenesis of the disease asbestosis during the period of time in the 1940s to the early '50s? Do you know that, Doctor?

A. I don't know of their understanding of the pathogenesis of the disease asbestosis.

Q. Would that information assist you in trying to determine whether or not their conclusions which they based from those studies were valid or not?

A. No, not necessarily.

Q. Why not?

A. Well, because the study is a study of the material and the pathogenesis is what it is, it's what is observed. They observed certain findings and they described those.

Q. Doctor, when you evaluated the dust studies at Saranac on Kaylo products, did you do so based on the scientific knowledge at the time period when those tests were conducted?

MS. WHIPPLE: Objection. Asked and answered, and the answer was no.

MS. INGRAM: I can't hear.

Q. Doctor?

A. I'm sorry. The question?

Q. I believe I had asked you that earlier, but I wanted to make sure if I hadn't covered it. Do you need me to read the question back?

A. Yes, please.

Q. When you evaluated the dust studies at Saranac on Kaylo products, did you do so based on the scientific knowledge of the time period when those tests were conducted? I believe you said you had, although before I was talking about standards I think.

A. Yes. The answer is yes.

Q. Do you have an opinion or do you plan to render an opinion to a reasonable degree of scientific certainty as to what was known in the 1940s concerning what levels of exposure to asbestos would cause the disease asbestosis?

A. No.

Q. No?

A. No.

Q. When you're evaluating these dust studies at the Saranac Lab with Kaylo dust, don't you agree that it would be important to know what levels of exposure were believed to have caused asbestosis in the '40s and '50s? Wouldn't you agree with that, Doctor?

A. No, I wouldn't necessarily agree with that at all.

Q. Why not?

A. Well, because I was evaluating the studies, the outcome of the studies, and looking at the responses of the animals to various levels of the Kaylo dust.

Q. So you're saying that the level does not matter?

A. No, I didn't say that.

Q. Explain a little more thoroughly. I don't think I understand your answer.

A. What I did is to evaluate the levels of exposure to Kaylo dust that resulted in changes or effects in the laboratory animals, and used that information for evaluating the adequacy of the studies and the amounts that it took to produce those specific effects.

Q. Is there anything which appeared in the Saranac documents or in the deposition of Mr. Hazard which indicated that there was a safe level of exposure to Kaylo dust which contained asbestos?

MS. WHIPPLE: Ms. Ingram, we've got that static again.

(Discussion off the record.)

BY MS. INGRAM:

Q. Is there anything which appeared in the Saranac documents or in the deposition of Mr. Hazard which indicated that there was a safe exposure to Kaylo dust which contained asbestos?

A. Yes. The threshold limit values were the levels that were not associated with adverse effects, and those levels were the levels that Owens-Illinois used for protecting individuals exposed to the Kaylo material.

Q. I'm not sure if I'm not hearing you because of this rain, but was there a safe level of exposure to the asbestos-containing dust? I didn't hear if you answered that.

A. I did.

Q. Can you repeat it, because the rain was loud.

A. The threshold limit value that was used at the time was a level that did not result in adverse effects associated with exposure and that level was considered to be a level that was safe and did not result in adverse effects.

Q. Considered safe by whom?

A. By the American Conference of Governmental and Industrial Hygienists, by the State of New Jersey, generally a consensus in the scientific community that that was a level that would be a guide to the workplace exposure.

Q. What year would you be referring to here when you're talking about the TLV and the Kaylo products were safe?

A. It would be 1942, 1943 through 1958.

Q. Through 1958?

A. Yes, ma'am.

Q. One moment. And again, Doctor, you have

no opinion, do you, on what would be the safe level of exposure for the result of mesothelioma, do you?

MS. WHIPPLE: Objection.

A. I'm not sure that question makes sense. Could she read it back or do you want to give me the question again?

Q. Let me try it again. I believe we had covered it a little bit more, but in your opinion is there a safe level of exposure to asbestos as related to the disease mesothelioma?

MS. WHIPPLE: Objection.

A. I wasn't asked to review that.

Q. And you do not have an opinion?

A. I don't have an opinion at this time.

Q. All right. Doctor, do you have any knowledge about how the 5 million particles per cubic foot guidelines and/or standard came into effect?

MS. WHIPPLE: Objection.

A. They were developed by the State of New Jersey. They were also developed by the American Conference of Governmental and Industrial Hygienists.

Q. And how did you come about that information, Doctor?

MS. WHIPPLE: Objection.

A. I have documents that describe those levels.

Q. Do you know whether or not the 5 million particles per cubic foot standard in New Jersey was designed to protect all individuals from disease who are exposed to asbestos at that level?

MS. WHIPPLE: Objection.

A. Yes, I believe so.

Q. Did you hear me, Doctor?

A. Yes. I'm sorry. I said I believe so.

Q. Doctor, have you ever reviewed any of the articles which appear in the New York Academy of Sciences about the biological effects of asbestos or the Selikoff studies?

A. Have I ever seen any of that information?

Q. Have you ever reviewed any of those articles?

A. Yes, I have.

Q. How long ago would that have been?

A. I couldn't give you an answer as to how long ago.

Q. Do you feel like you're familiar with them, though?

A. Yes.

Q. Did you ever read an article by E. Lynn Shaw on the present threshold limit value, which appeared in I believe the New York Journal?

MS. WHIPPLE: Objection. Ms. Ingram, your question was compound. The Selikoff article, if you're talking about the 1955 one, is actually an exhibit to this deposition and I did ask the doctor to look at that. But just generally going through articles that might have appeared in the New York Academy of Sciences publications, I'll have to object again because it's not something the doctor was asked to look at.

MS. INGRAM: I'm not necessarily speaking about his review for today, but if they are articles he is familiar with in general.

MS. WHIPPLE: No, we're not going to go into what he's familiar with in general. I already told you, we've got general state-of-the-art witnesses that you're welcome to discuss this with. But this doctor's testimony has been quite specifically stated and, you know, he is available for you to depose him as long as you need to on those areas.

Q. You did a study -- There was a study done at the Sayreville plant, is that correct?

A. Correct.

Q. That was an industrial hygiene study, was it not?

A. Yes.

Q. Tell me what the results were of that study to the best of your knowledge.

A. They looked at the dust levels at a variety of locations within the facility and found that they did not exceed the threshold limit value.

Q. When was that?

A. The date of the survey?

Q. Yes, sir.

A. I think it was 19 -- hold on. I'm going to have to look that up. 1951.

Q. Saranac took certain dust levels at the plant, correct?

A. That's correct.

Q. Do you know how many separate tests were conducted?

A. I would have to look at the report.

Q. All right.

A. Okay. Do you want me to do that?

Q. Please.

A. (Peruses document.) There were seven.

Q. Doctor, do you know whether or not there was ventilation being used at Sayreville at the time that the dust studies were performed by Saranac?

A. I don't specifically recall the ventilation. I would have to read the report. I don't specifically recall that.

Q. Could you look for it?

A. Sure.

Q. Wouldn't you agree that's an important piece of information in determining whether or not the levels of dust at the plant were truly representative of the working conditions?

MS. WHIPPLE: I'm going to just object on the vagueness. The working conditions. I'm sorry, where, in the plant itself or somewhere else?

MS. INGRAM: In the plant.

A. No, I wouldn't necessarily agree with that. The measurements are what they are in the locations where they are.

Q. You don't feel that ventilation is an important factor to know, Doctor?

A. No, I didn't say that.

Q. You're saying that it may be depending on

where, or can you clarify your answer for me a little bit more?

A. Sure. Ventilation can certainly affect the levels of dust that are present, but when you measure the dust in the specific area, it is what it is based upon the ventilation at the time.

It says exhaust systems removing the dust had been installed and the amount of dust suspended in the plant atmosphere was revealed by the survey to be relatively low.

Q. Doctor, were you aware of what the working conditions were like at that plant?

A. General knowledge of the mixing and the preparation of it, yes.

Q. How did you obtain that information?

A. From the description of the preparation of the material.

Q. Do you know whether or not individuals who used the Kaylo asbestos-containing insulation product in the late '40s and early '50s had the use of ventilation when they worked with those products?

MS. WHIPPLE: I'm going to object because I'm not sure I understand the question. Are you still talking about inside the Sayreville plant?

Q. Yes. I'm sorry.

A. I'm sorry. Do I know whether or not ventilation was used in the Sayreville plant?

Q. Regarding the workers that were using the Kaylo insulation products. You talked about the exhaust system, but you don't have any specific information about the workers using the Kaylo insulation products, do you, sir?

A. None other than what I described to you.

Q. Did the disclosure statement that has been provided on your behalf, did you write that, sir, or did someone else?

A. I'm not sure which one you're referring to.

Q. It talks about what your testimony will be. Have you not reviewed that?

MS. WHIPPLE: Probably not.

A. I'm not sure.

Q. All right. It starts by saying you are Professor and Director of the Center for Environmental Toxicology, blah, blah, blah; then it says, "Dr. Harbison will discuss the scientific methodology for establishing the cause and effect." Is this not a document that you have in your possession, sir?

A. No, it's not.

Q. Have you not reviewed this document to your knowledge?

A. I do not have the document, no.

Q. Have you reviewed this document?

MS. WHIPPLE: For the record, I just handed it to the doctor. It was faxed to me yesterday. I just handed him a copy of what I think you're referring to.

Q. Well, someone obviously has compiled a 26(b)4 and I'm trying to find out whose language this is and who is it that has determined what your testimony is going to be and who has discussed this testimony with you.

MS. WHIPPLE: Okay, now I'm going to object to that. The question about who has determined his testimony is certainly not the same thing as who prepared this particular 26(b) statement.

MS. INGRAM: Well, who prepared the 26(b) statement?

MS. WHIPPLE: I believe the doctor has just told you that he didn't prepare it. It clearly was prepared by Owens-Illinois attorneys if it was filed up there. I'm sorry,

Ms. Ingram, but I don't have a complete pleading. I can't answer that for you, either. I'm assuming O-I attorneys did it there in Maryland.

MS. INGRAM: Well, this is information that has been provided as to what the testimony will be of this witness, so I feel like I'm certainly able to pursue a line of questioning as to what his knowledge of this statement is and what he thinks that he is going to be testifying about in regards to what has been set forth on this 26(b)4 statement.

MS. WHIPPLE: Well, I honestly have no problem with you asking him if he would like to review this statement and see if there is anything he has concern about or whatever. I just wanted you to know that I just now handed it to him since he hadn't seen it before this deposition.

MS. INGRAM: All right.

Q. Sir, if you would please read that, take a moment.

A. (Witness complies.) Okay, I have read it.

Q. Is there anything on there that you do

not agree with or did not realize was going to be the subject of your testimony, sir?

A. Yes.

Q. What is that?

A. The areas of --

Q. I'm sorry, have you finished?

A. No, I'm sorry, I haven't said it. With regard to the discussion of the scientific methodology --

Q. I'm sorry, where are you looking?

A. With regard, "He will discuss the scientific methodology for establishing the cause-and-effect relationship in disease processes."

MS. WHIPPLE: Maybe I can short circuit this a little bit and offer to help. I believe that this is a general statement of what the doctor's testimony, what it might ever possibly be for any case, and I believe that the Owens-Illinois lawyer there made a determination, as we mentioned to you earlier, not to ask Dr. Harbison to take a look at anything specific with regard to these particular plaintiffs, although I believe on another occasion in another case he was asked to do that, and so that may well explain why

this statement is perhaps over-inclusive for your purposes in these cases in Maryland.

Q. So you do or you do not think that your testimony will include establishing the cause-and-effect relationship in disease processes?

A. I haven't been asked to do that in this matter.

Q. But you have in the past, is that correct?

MS. WHIPPLE: Did you do a risk assessment in Florida?

A. That may have been the case, yes.

Q. Well, what disease processes have you testified as to the cause and effect regarding asbestos in the past?

MS. WHIPPLE: Okay, now I feel like the confusion may be my fault. Let me try again. I was not the attorney involved, but I think that the Florida case the doctor mentioned to you, I think that he was asked to take a look at risk assessment for that particular plaintiff, I believe based on his alleged exposure. I don't believe it had to do with the actual cause and effect of the disease, although, you know, I haven't gone through that

deposition, I don't have it in front of me. But that may be why this particular statement is this inclusive.

Does that help?

MS. INGRAM: Perhaps.

MS. WHIPPLE: Okay. I do know for a fact that the doctor has not been provided with anything at all specific to these cases and I was told by Mr. Hooper yesterday that there is no such intention to do so.

MS. INGRAM: All right.

Q. Doctor, beyond that statement is there anything else? I believe you were not finished.

A. Well, it's going to be easier for me to tell you what I'm going to at least, I think, testify about, and I think I've already done that.

Q. Well, yes and no. It's easier for me, because I have this document in front of me, for you to tell me what on this sheet of paper you do not agree with or did not understand that you would be testifying about, because I can look right at it and know quickly what you do and do not think you will be testifying about in the upcoming litigation.

So is there anything else in the remaining two or three paragraphs you did not

realize you would be testifying about?

A. Well, I really don't understand some of it. For example, "In connection therewith he will discuss the restrictions and boundaries to the expression of scientific opinion in the litigation context."

Q. What does that mean, do you know?

A. I have no idea.

Q. So I guess you won't be discussing that.

A. Well, not unless I understand what it means.

Q. All right. How about in the following paragraph, any problems with that language?

A. The next one, "Will discuss the use of animal testing to determine scientifically significant correlations." I'm not sure what that means, either.

Q. So that doesn't really make sense to you?

A. No. Well, when you say --

Q. Does that make sense to you?

A. When you say it doesn't make sense --

Q. Do you know what they mean in the next sentence, "In that regard he will discuss the development of areas of toxicology." Since we don't know exactly what the writer meant by the previous

sentence, then obviously we don't know exactly what they mean by "in that regard."

A. That's the problem I'm having with this review. It is my understanding that the areas of testimony that I will provide are those that I have described to you, which are the review of the Saranac documents, the review of the testing and the review of the other studies made by Saranac. And that is my understanding of the limits of my testimony.

Q. You are limited simply to Saranac?

A. That is correct.

Q. Bear with me one moment, Doctor. If you wanted to find out whether or not individuals working with asbestos-containing Kaylo products, whether they were exposed to levels which were capable of causing bodily harm, how would you go about that?

MS. WHIPPLE: I'm going to object.

Q. Doctor, will you please answer my question?

A. I haven't evaluated that. What I have evaluated is the levels of exposure of 5 million particles per cubic foot of air and the Saranac testing. Those are the only two data sets or data

evaluation that I have completed. I haven't looked at what levels would cause various diseases or effects.

Q. Even though you've touched on it before, please describe the extent of your testimony regarding the validity of the Saranac testing.

MS. WHIPPLE: Object. Asked and answered.

A. That the testing demonstrated that at exposure to in excess of 100 million particles per cubic foot of air for some period of time in the Guinea pig there were changes that were consistent with asbestosis, and those are the results of studies that were conducted by Saranac.

Q. And that is based on your review of the documents, sir?

A. Yes.

Q. And based on anything else?

MS. WHIPPLE: Objection. Asked and answered.

A. Based upon the deposition and the exhibits to the deposition of Mr. Hazard.

MS. WHIPPLE: Ms. Ingram, just as a matter of scheduling, may I ask if you have an estimate of how much longer you have?

MS. INGRAM: I'm just looking at my notes. I may be finished.

MS. WHIPPLE: No problem.

Q. I apologize, Doctor, for jumping around. We were not real clear on what your testimony would be, either. I believe just one or two final questions, Doctor.

The end of the disclosure statement that we were discussing, the last paragraph on the first page about the Saranac documents, it states, "He will further discuss the difference between and the significance of toxicology in both the regulatory process and the scientific process."

A. I'm sorry, that's on the first page?

Q. Yes.

A. Oh, I see it, yes. Sorry. I've got it.

Q. Do you see that, Doctor?

A. I do.

Q. Okay. Tell me what is your opinion, what do you plan to testify to regarding the differences in that statement, the significance of the differences as set forth in that statement.

A. I'm sorry, I don't have any knowledge about the preparation for testimony in that area. I haven't been asked to do that, so I don't know what

that is referring to.

Q. So you don't plan to testify in that area or you don't know because you just haven't been told at this time?

A. To the best of my knowledge, I don't plan to testify with regard to those issues. I haven't been asked to do that.

Q. Is that an issue that you know? Do you know the differences?

A. Sure.

Q. All right. What differences do you find of significance? What are they referring to there?

MS. WHIPPLE: I'm going to just put an objection on the record. I'm at somewhat of a disadvantage here because I'm not the attorney trying the case. But again I was assured by Mr. Hooper yesterday that this witness will only discuss the Saranac experiments as evidenced by the Hazard deposition and the exhibits thereto, and so it seems to me that this particular statement is not relevant to this litigation.

MS. INGRAM: Well, once again it has been set forth in the disclosure statement and I think it's an area that the doctor is familiar

with and it's in keeping in the same paragraph with the Saranac documents, so someone was thinking that there was some relationship. Of course, we don't know who that person is because no one seems to know.

MS. WHIPPLE: That is true and I'm sorry I can't answer that question for you, but we do know, however, that the doctor didn't write this, because he didn't see it until I just handed it to him, so we know it's not his own statement.

Q. Doctor, can you please go ahead and answer that question for me of what the significant differences would be?

MS. WHIPPLE: While he's reading, could I make a suggestion?

MS. INGRAM: Sure.

MS. WHIPPLE: And again this is your deposition and you do whatever you want with all the time you need, but would you like me to try to call up there and talk with the O-I lawyer up there and see if we can clear this up?

MS. INGRAM: No, I don't feel that's necessary at this point, and I don't doubt your

word of what he said yesterday. I just wanted to ask these couple other things if he has testified about this in the past. This is information that he is aware of and has knowledge of and it shouldn't take but a moment or two to go through it.

A. Okay. With regard to the regulatory process, there is not a requirement in the regulatory process for the use of a scientific method to be sure or to evaluate whether or not an animal test, for example, is extrapolatable to the human experience. It is for regulatory purposes assumed that it can be extrapolated and it is.

To determine the cause of a human ailment or a disease, one has to consider, using the scientific method, whether or not the animal testing data can be extrapolated to the human, and in some cases it can and in other cases it may not.

Q. Thank you, Doctor. Now, that last sentence that follows that, I assume that that's not correct either, that, "Dr. Harbison will discuss from a toxicological standpoint the development of knowledge as to the risk of asbestos-related disorders"?

A. I haven't been asked to do that.

MS. INGRAM: Thank you, Doctor. I don't have any further questions.

MR. LOKER: This is Ford Loker. I don't have any questions, and before we close the record, let me state that I have been attending on behalf of Armstrong World Industries, ACMC, formerly known as National Gypsum, GAF and A.P. Green as to the Ralph Garrett case; and as to the Scruggs case my appearance is limited to Armstrong World Industries, GAF and ACMC, formerly known as National Gypsum.

Thank you very much.

THE REPORTER: What is everyone's preference about reading and signing?

THE WITNESS: I would like to read and sign.

MR. LOKER: I would simply ask that the court reporter provide a copy to me.

MS. INGRAM: I would like the updated CV.

MS. WHIPPLE: We'll make it Exhibit Number 1, okay?

MS. INGRAM: Okay, good.

(Witness excused.)

(Whereupon, at 12:25 p.m. the taking of the deposition was concluded.)

CERTIFICATE OF OATH

STATE OF FLORIDA

COUNTY OF ALACHUA

I, Pamela A. Chorlog, a Notary Public of the State of Florida at Large, being duly authorized by Statute to administer oaths (Ch. 29, F.S., and Fla.R.Jud.Admin. 2.070), certify that the witness, RAYMOND D. HARBISON, Ph.D., was first duly sworn by me to testify the whole truth.

Witness my hand and seal at Gainesville, Florida, this 21st day of March, 1994.

Pamela A. Chorlog

C.M., R.P.R., AND NOTARY PUBLIC
STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES 2/16/94

CERTIFICATE WITH ACKNOWLEDGEMENT

I, Pamela A. Chorlog, C.M., Registered Professional Reporter, certify that I was authorized to and did stenographically report the foregoing deposition; and that the transcript is a true record of the testimony given by the witness.

I further certify that I am neither attorney or counsel for any of the parties, nor a relative or employee of any attorney or counsel connected herewith, nor financially interested in the event of this case.

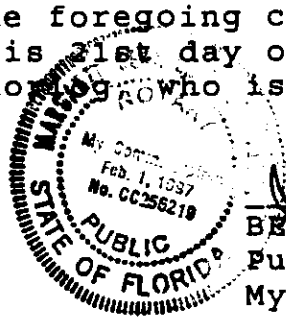
I further certify that the original of this deposition was delivered to Ms. Ingram and was true and correct at the time of delivery.

Pamela A. Chorlog

PAMELA A. CHORLOG, CM, RPR

STATE OF FLORIDA
COUNTY OF ALACHUA

The foregoing certificate was acknowledged before me this 21st day of March, 1994, by Pamela A. Chorlog, who is personally known to me.



Bernice Oosterhoudt

BERNICE OOSTERHOUDT, Notary Public, State of Florida
My Commission Expires 2/1/97

Summary of Deposition
of Raymond D. Harbison, Ph.D.
~~April 5~~, 1994
March 10, 1994

Ralph Garrett Plaintiff
ACandS, Inc., et al, Defendants

4 I am a pharmacologist and a toxicologist. I am not a physician.I would define medical toxicology as the study of the effects of chemicals on humans.

5 I am not an M.D., I do not have the authority to diagnose diseases in humans. I was deposed two months ago involving polychlorinated biphenyls. I was testifying on behalf of defense with regard to the effects of PCB's.

6 I have been deposed and testified thirty times for each of those. For the last five years, about six times a year. I have been deposed or testified four times in a proceeding relating to asbestos diseases. It would have been in 1994, 1993 and probably about 1992 or 1991. Have no knowledge of names.

7 In 1994 it would be Peggy Whipple in Kentucky. I testified in trial. Ms. Whipple represented Owens-Illinois.

8 In 1993 it would be David Hendrickson in West Virginia. It was a deposition and live testimony. In 91 or 92 it would have been in Tampa, Florida, I do not remember the attorneys name. The company was Owens-Illinois. I do not testify on behalf of Owens-Illinois, I review materials and am called upon to provide my opinions with regard to those. I have been reviewing materials for Owens-Illinois for about three years.

9 Prior to 91 or 92 proceedings that we were discussing in Tampa, I had not reviewed any materials to that on behalf of Owens-Illinois. I do not testify on behalf of plaintiffs I have testified with regard to Plaintiffs, I would estimate half a dozen times.

10 Listing the attorneys and the place he testified on behalf of plaintiffs; Chattanooga, the attorney Jeff Boehm, he represented a plaintiff. Mid to late 1980s. Chicago, Illinois was Mr. Fogel two or three years ago. It was not asbestos related. Next would be Little Rock, Arkansas the attorneys name was Sandy McMath. It was not asbestos related.

11 In each of the times being deposed or testifying my opinion was not to a reasonable degree of certainty that the exposure to those substances, whatever they may have been was not a cause of the plaintiffs alleged injury or disease. Was asked did you find in 1994 case that the substance and I believe (Ms.Ingrim) that you said these were all asbestos related was not a cause of the plaintiffs injury.

12 Does not believe he testified to the cause of the injury. The substance of my testimony was with regard to testing of Kaylo at Saranac Laboratories and evaluation of that testing.

13 That would be the same for West Virginia and Florida case. Raymond Harbison gives definition of Dose. Exposure, length of exposure, physical-chemical properties of the substance, the routes of exposure, the location of the material in the environment or outside the body. Hourly rate for testifying in a deposition and a trial would be $175 per hour. In last several years the rate may have changed.

14 Same rate for review of materials or consulting with lawyers In 1993 twenty five percent of income derived from consulting with attorneys regarding litigation matters.

15 The first case testified as an expert in the fields of toxicology was probably early to mid 1970s.for the Attorney General of the State.of Tennessee.

16 Regarding this proceeding today Peggy Whipple contacted me several months ago.Regarding the Kaylo product, has been asked whether or not the documents would indicate as a toxicologist whether or not the Kaylo product could be dangerous to human beings. "Did anyone associated with Owens-Illinois ask". "Yes."
Was asked to evaluate the information on behalf of Owens-Corning to determine whether the testing was appropriate.

17 Would have based my opinions on the time of the testing not the conclusions based on the medical and scientific standards of the late '40s and early 50s regarding the Saranac documents.

18 Has not been asked with regard to the current time. Has not been discussed with Ms. Whipple what the issues are in this Baltimore proceeding. Estimate three hours reviewing materials for this proceeding.I went back and looked at Mr. Hazard's deposition. Reviewed documents attached-as exhibits. Reviewed nothing else in preparation for deposition today.

19 Ms. Ingrim asked that a current CV be provided to them.

20 Has never written any articles,texts or chapters in any text dealing with asbestos-related diseases. Has edited articles dealing with asbestos-related diseases, over the last twenty years. cont from page 20.

21 Has not conducted any asbestos disease-related studies in a lab in which animals or humans were exposed to asbestos. Has no formal training in epidemiology but has knowledge of epidemiology. Is not an expert in mineralogy. Is not an expert in cardiology, nor pulmonology, but has knowledge about them, which he uses in the practice of toxicology but does not consider himself to be an expert.

22 Said he would have some expertise in oncology. Teaches oncology and pathology. Has training in both. conducts research in the area of pathology. Teaching in the area of oncology for past ten years.

23 Would have expertise in the area of occupational medicine. Having worked in that area past twenty years. having some training in occupational medicine, having been involved in developing, promulgating, managing occupational medicine programs for past twenty years. Claims expertise in pathology. Formal training in pathology at the University of Iowa, College of Medicine. Also a professor of pathology at the University of Florida, College of Medicine. Has taken two courses in pathology. no postgraduate degrees in pathology.

24 Has not taken any courses in industrial hygiene. Industrial hygiene has been included in various toxicology courses taken. no expertise in area of dust counting or dust measurements.

25 Claims expertise in the area of biostatistics because used in practice of toxicology. Has conducted a search of the scientific or medical literature on asbestos-related disease. Was never published in that area.
Said he has a responsibility in teaching to have knowledge of asbestos, the effects of asbestos, the general area of asbestos.

26 In the early seventies was teaching about the hazards associated with asbestos, to physicians and medical students at Vanderbilt Medical Center from about 1971 thru 1980-81 At University of Arkansas for medical sciences to physicians, medical students, graduate students from about 81 thru 88 and currently University of Florida on those same areas since 1988..

27 Did not talk from a text. There was no foremost textbook used in teaching toxicology nor pharmacology. Used his own materials that he has gathered.

28 Source for teaching: Research of the medical and scientific literature; textbooks; reports from meetings attended. General knowledge gathered as a result of work with National Institute of Occupational Safety and Health. Does not have any sort of index of the...

29 ...articles he has written. Textbooks used to review in the area of toxicology, Ellen Horn, Textbook Of Toxicology. Goldfranks Textbook of Toxicology. Has published chapters in toxicology textbooks, Casrette and Doull. Also published chapters in Patty's Industrial Hygiene Textbook of Toxicology.

30 Would differ with Dr.Doull in some areas of toxicology.Is not familiar with Dr. Doull's opinions in general

31 Has taken course or training in the late 1960s and continued through the present with asbestos-related diseases.Course work at the University of Iowa.College of medicine, continuing education in the Society of Toxicology and other professional societies, including classes at the various universities that he was on the faculty.

33 Based on review of the Saranac documents would not agree that protocols for animal inhalation studies were known in the 40

35 In regard to medical and scientific literature, did not exclude historically any particular time.

36 Claims expertise in conducting animal studies and history of knowledge of animal studies. Did not read any studies which were authored by members of the Saranac Laboratories concerning inhalation studies with silica which appears in the literature in the 30s.

37 Did conduct animal studies while at Drake University., inhalation none were inhalation studies. No inhalation studies done while t the University of Iowa.Did not conduct inhalation studies as part of doctoral training.
Did conduct inhalation studies with animals currently and began at Tulane Medical School in 1969. None of the studies dealt with asbestos.

38 Has reviewed inhalation studies dealing with asbestos began in 1965 thru the present.

39 The value the animal studies had with regard to occupational exposure depends on the substance and exposure. May be relevant or may not. Depending on the substance, the exposure the animal model, the species. All those factors would determine or not those test results useful in determining potential effects of occupational exposure. Not sure CV is current and all facts correct. Is now a professor OF Pathology.

40 Reviewing CV as to current status. All things are except from 1986 to present.

42 Has not been asked to give opinion whether different types of asbestos cause mesothelioma. Has not been asked what latency periods typically associated from the first exposure to asbestos to development of an asbestos caused malignancy. Has not been asked to give opinion on latency periods.

43 Has not been asked to evaluate mesothelioma, nor does he have an opinion. Ms. Whipple told Ms. Ingram she talked with Mr. Hooper as his firm is really handling case. He said he had not provided Dr. Harbison with anything regarding the two cases of Ralph Garrett and Harvey Lee Scruggs.

44 Would expect to testify about the Saranac Lake documents, about the exhibits to Mr. Hazards deposition as to the testing that was performed and an evaluation of that testing.

45 Opinion of the results that were found from the animal testing that was done at Saranac was that the conclusions that were provided by Saranac were consistent with the animal testing data that at some levels of exposure to the dust there was a finding after some period of time, changes that were consistent with asbestos. Those would be the general areas of testimony. Does believe in dose response. Would not be testifying about what level of exposure necessary for an asbestos-related disease to occur.

46 In animals, the level of exposure was in excess of 100 million particles per cubic feet of air. Knows that from his review of the conclusions which were based on the knowledge at that time.

47 He said he would have to go over all the conclusions that were reached by Saranac. First time reviewed the Saranac documents which relate to the Kaylo studies about three, four years ago. Owens-Illinois referred material to Saranac because they wanted testing conducted on the new product and was concerned about the silica and was interested in knowing if the exposure to the dust would result in silicosis, so referred to Saranac Lab. for inhalation testing.

48 There was no concern from Owens-Illinois about asbestos. Does not know if Mr. Hazard thought animals would be guide to the human experience. Read Hazard deposition.

49 Did not judge based on what Mr. Hazard thought Saranac studies on the Kaylo products would be a guide to the human experience.Judged them based on scientific evaluation of the studies, the protocol and the results. There are often effects which can be produced in laboratory animals which cannot be produced in man. cont. page 49.

50 Based on knowledge by me of the regulatory process,knowledge of the use of animal testing for regulatory purposed and for the purpose of assessing risk, if a cancer is produced in an animal as a result of an animal study, there is a presumption today that the material is carcinogenic in man.Back in the 43s,50s, 60s, there was not that presumption.

51 An mechanistic toxicologist studies the mechanisms by which chemicals produce the various effects that they produce in the living system. Dr. Harbison believes that all chemical-induced diseases are dose related. Poison would be a substance that would produce adverse effects at some level of exposure. Animal tests for regulatory purposed are used for assessing risk or potential risk associated with exposure.

52 If exposed animals to 100 million particles per cubic ft and that animal develops disease, try to extrapolate from that experiment to determine whether or not exposure of the substance at lower levels would or could also cause the disease. Purpose of animal study identify potential effects of exposure to a chemical to see whether or not the mechanism or the effect that is produced is an effect that could be produced in other living systems, including man.

53 No opinion on when was first reference to animal inhalation studies published in scientific and/or medical journals .

54 No recollection of Dr. Meriwether's study. No opinion when established in the medical and scientific community that the scientific methodology existed to conduct animal inhalation studies. Reputation in the 30s and 40s of the Saranac Lab. was good for the ability to conduct animal studies and inhalation studies. Does not know whether or not Dr. Gardner considered authority on asbestos-related diseases in the 30s and 40s. Has not tried to determine that fact.

55 One objective to determine whether a substance is toxic is to study the disease processes which may occur from that inhalation, other would be find out how it produces various effects, what the mechanism is by which the chemical produces its effects. These would be the potential purposes for the animal testing. It is important to know the pathogenesis of the diseases which he believes may occur from exposure to the substance.

56 May be important to know if the disease had a latency period. time of exposure would be an important consideration. It would influence the design for testing protocol. To know if disease was progressive in nature helpful but not necessary.

57 Would not necessarily attempt to determine the characteristics of an asbestos-related disease before conducting an animal study.

58 Gives significance to the fact that a particular agent was used in a particular way by a person. The normal use of the agent would influence the exposure.
Does not know if Dr. Garner and other scientists at Saranac had an understanding of the pathogenesis of the disease asbestosis during period of time in the 1940s to early 50s. Would not assist him in determining whether or not their conclusions which they based from those studies were valid or not.

59 When evaluating the dust studies at Saranac on Kaylo products did so based on the scientific knowledge of the time period when those test were conducted.

60 Will not render opinion of scientific certainty as to what was known in the 1940s concerning what levels of exposure to asbestos would cause disease asbestosis.
Does not agree when evaluating dust studies at the Saranac Lab. with Kaylo dust that it would be important to know what levels of exposure were believed to have caused asbestosis in the 40s and 50s., was evaluating the studies, the outcome of the studies and looking at the responses of the animals to various levels of the Kaylo dust.

61 There was something which appeared in the Saranac documents or in the deposition of Mr.Hazard which indicated that there was a safe exposure to Kaylo dust which contained asbestos.

62 The threshold limit value that was used at the time was a level that did not result in adverse effects associated with exposure and that level was considered to be a level that was safe and did not result in adverse effects.
Year referred to when talking about the TLV and the Kaylo products safe was 1942 thru 1958. Considered safe by the American Conference of Governmental and Industrial Hygienist, by the State of New Jersey.

63 Does not have an opinion at this time what would be the safe level of exposure for the result of mesothelioma. Was not asked to review that.

64 Agrees the five million particles per cubic foot standard in New Jersey was designed to protect all individuals from disease who are exposed to asbestos at that level.
Has reviewed and familiar with articles which appeared in the New York Academy of Sciences about the biological effects of asbestos or the Selikoff studies.

65 Was not asked to read or review articles by E. Lynn Shaw on present threshold limit value.

66 Did study at the Sayreville plant that was an industrial hygiene study. Results of study--looked at the dust levels at a variety of locations within the facility and found that they did not exceed the threshold limit value. Study done 1951.

67 Saranac took certain dust levels at the plant. Seven separate test were done. Does not recall if there was ventilation being used at Sayreville at the time the dust studies were performed by Saranac. Ventilation can affect the levels of dust present, but when you measure the dust in a specific area, it is what it is based upon the ventilation at the time. Has general knowledge of working conditions at the plant at that time, from the description of the preparation of the material.

69 Does not know whether or not ventilation was used in the Sayreville plant. No specific information about the workers using the Kaylo insulation products other than information already given.

70 Document determining Dr. Harbison's testimony prepared for him by Owens-Illinois attorneys in Maryland.

71 Dr. Harbison asked to read document prepared for him since it was just handed to him before this deposition.

72 Does not agree with statement on document that says-He will discuss the scientific methodology for establishing the cause-and effect relationship in disease processes.
Ms. Whipple offered to help stating the document was over-conclusive for purposes in Maryland.

73 Ms. Whipple asked Dr. Harbison if he was asked to do a risk assessment in Florida and he said yes that may have been the case, for a particular plaintiff and based on his alleged exposure.

74 Dr Harbison asked to review rest of document prepared for him to see if anything else he did not agree with.

76 Dr. Harbison said it was his understanding that the areas of testimony he would provide are those that he has already described in deposition, which are the review of the testing and the review of the other studies made by Saranac. And that is his understanding of the limits of his testimony. Limited simply to Saranac. Has not evaluated whether or not individuals working with asbestos-containing Kaylo products were exposed to levels which were capable of causing bodily harm.

77 Extent of testimony regarding the validity of the Saranac testing--That the testings demonstrated that at exposure to in excess of 100 million particles per cubic foot of air for some period of time in the guinea pig there were changes that were consistent with asbestosis, and those are the results of studies that were conducted by Saranac. Based on Dr. Harbison's review of the documents, based on the deposition and exhibits to the deposition of Mr. Hazard.

78 Has no knowledge about testifying on the disclosure statement previously discussed with reference to "He will discuss further the difference between and the significance of toxicology in both the regulatory process and the scientific process." Has not been asked to do that.

79 Does know the difference between and the significance of toxicology in both the regulatory process and the scientific process.

80 There is not a requirement in the regulatory process for the use of a scientific method to be sure or to evaluate whether or not an animal test, for example, is extrapolatable to the human experience. It is for regulatory purposes assumed that it can be extrapolated and it is. To determine the cause of a human ailment or a disease, one has to consider using the scientific method, whether or not the animal testing data can be extrapolated to the human, and in some cases it can be and in other cases it may not. Dr. Harbison has not been asked to discuss from a toxicological standpoint the development of knowledge as to the risk of asbestos-related disorders.

END

Summarized by Jane Wallace
HARBISON.1