IN THE CIRCUIT COURT
TWENTIETH JUDICIAL CIRCUIT OF ILLINOIS
ST. CLAIR COUNTY

FRANCES E. KEMNER, et. al.	)	
	)	
Plaintiffs,	)	
	)	
VS.	)	NO: 80-L-970
	)	
MONSANTO COMPANY,	)	
	)	
Defendant.	)	

REPORT OF PROCEEDINGS

Before the HON. RICHARD P. GOLDENHERSH

JURY TRIAL

December 13, 1985

APPEARANCES:

Mr. Rex Carr
Mr. Jerome Seigfreid
On Behalf of the Plaintiffs;

Mr. Kenneth Heineman
Mr. Joseph Nassif
On Behalf of the Defendant.

Debra M. Musielak, CSR, CM
Official Court Reporter

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BE IT REMEMBERED, that on the 13th day of December, 1985, the same being one of the regular judicial days of said court, the above-styled cause came on regularly for hearing before the HONORABLE RICHARD P. GOLDENHERSH, one of the Judges at the St. Clair County Building, 10 Public Square, in the City of Belleville, County of St. Clair, State of Illinois. Whereupon the following proceedings were had:

COURT CONVENED:

THE COURT: Mr. Carr, I believe you had finished your questioning, is that correct?

THE COURT: Yes.

WENDELL KILGORE

(being called as a witness on behalf of the Defendant, having resumed the stand, having been previously sworn, continued to testify as follows)

RECROSS EXAMINATION

BY MR. REX CARR

Q. Dr. Kilgore, at the time you were engaged as an expert in this case, and thereafter and up to the time you testified on direct examination, you were given by Monsanto whatever facts you felt relevant to determine whether or not the health effects on the Sturgeon plaintiffs were caused by or associated with that spillage, were you not, sir?

A. No.

Q. Do you understand my question, Dr. Kilgore?

A. I think I do.

Q. Because you were -- you gave your opinion to Monsanto before you ever testified in this courtroom that the health effects suffered by the people at Sturgeon were not caused by dioxin, you do know that, don't you, sir?

A. That's correct.

Q. And for you to give that opinion, you have to know what the health effects are, don't you, sir?

A. No.

Q. You don't have to know what diseases they are suffering from or what their injuries are or what their problems may be, what they claim, what their symptoms were?

A. No.

Q. And you did not know that up to the time you started testifying here?

A. I knew what was reported, yes.

Q. Well, that's what I'm asking you, Doctor, you knew what was reported, did you not, sir?

A. Yes, I did.

Q. And you knew what was reported prior to the time you ever testified in this case, did you not, sir?

A. I believe that's correct, yes.

Q. You were advised as what Dr. Carnow's group -- what the laboratories found, and what the Northwestern doctors found, and what the laboratories found, were you not, sir?

A. That's correct, yes.

Q. So you did not give your opinions in this case without having that full body of knowledge that was in existence, isn't that correct, sir?

A. Yes, I did.

Q. And, you knew at that time what the laboratories reported, what the various laboratories reported on those plaintiffs, did you not, sir?

A. Not at that time.

Q. Now, Doctor, either what you just said was correct, that you had the full body of knowledge, and you answered that you did have that full body of knowledge, including the laboratory reports, including what the Northwestern doctor said, or you did not. Now, did you mean what you said that you did have the full body of knowledge?

A. If I said that, I did not mean that.

Q. You know you said that, Dr. Kilgore. You just said it?

A. I did not mean that.

Q. You didn't mean it?

A. No.

Q. So you did give your opinion to Monsanto prior to testifying in this case without having the full body of knowledge as to what the laboratories and the various doctors found with regard to those plaintiffs, is that correct, sir?

A. I think that's correct, yes.

Q. Doctor, what amount of knowledge were you given by Monsanto before you said that, yes, those health effects were not caused by the spill?

A. The level of the amount of TCDD present.

Q. And you weren't given any of their medical -- you weren't advised what the Northwestern doctors found, what the laboratories found?

A. Some time after that, yes.

Q. Well, when after that were you advised of that, sir?

A. I don't recall.

Q. Before you testified?

A. Oh, yes.

Q. All right. Now, that's good enough. You were given then before you testified in this case, the full body of knowledge as to what the health effects of those plaintiffs were, what the laboratories found and what Northwestern doctors found, what Dr. Carnow found and what in general and in particular what was the opinions and what was

discovered about those people, correct, sir?

A. That's correct.

Q. And that included the laboratory reports, did it not, sir?

A. That's correct.

Q. And you knew before you gave your opinion in this courtroom what the Midwest Organ Bank found as far as those laboratory lymphocyte subsets, did you not, sir?

A. That's correct, yes.

Q. And, Doctor -- and you -- while you may not have seen this particular exhibit, or did you see this particular exhibit? Not this one but -- not the blow-up, but the small exhibit from that? This is a blow-up of -- and by this exhibit I mean Plaintiff's Exhibit 268 A and B?

A. I have seen that, yes.

Q. All right. So you knew what those values were reported for those various Plaintiff's, did you not, sir?

A. That's correct.

Q. So when I asked you the questions on cross examination that I asked you, you answered those questions having full knowledge of what the laboratory reported, did you not, sir?

A. That's correct.

Q. And, Doctor, then yesterday you said to Mr.

Heineman that your answer was dependent upon -- or your answer wouldn't be correct because some of those were just barely abnormal and some were just high and some were just barely low, do you recall that, sir?

A. That's correct.

Q. But in point of fact, that isn't correct, that you knew those things, and when you answered my questions on -- my questions on December 3rd, Page 10 and 11, counsel, when I asked you whether or not those findings, those lymphocyte subset findings were significant, and your answer was that you did consider them to be significant, you had in your mind the full test results, did you not, sir?

A. That's correct.

Q. And it is those full test results, some of which are just -- here's 16 where the normal is 15, here is a 15.1 were normal is 15, you had that in your mind when you testified, did you not, sir?

A. That's correct.

Q. So, it's this full body of knowledge, knowing that 89 percent of those plaintiffs had one or more abnormalities, it is that knowledge that you considered and those findings that you considered to be significant, isn't that right, sir?

A. That's correct.

Q. All right. And if you said yesterday in response

to Mr. Heineman's questions that it made a difference as to whether how high they were or how low they were, that would have been a mistake, is that correct, sir?

A. No.

Q. Doctor, you just got through saying that you had all those results in your mind, did you not, sir?

A. That's correct.

Q. And some of those results are just barely out of the normal, aren't they, sir?

A. That's correct.

Q. So when you answered my questions, you had all those results in mind, did you not, sir?

A. That's correct.

Q. And, with that in mind, you considered those very significant and considered those things as you testified, you consider those very significant and associated with the need for further annual medical checkups, did you not, sir?

A. That's correct.

Q. By competent toxicologists and immunologists, correct?

A. That's correct.

Q. Now, Doctor, you also testified yesterday on Mr. Heineman's questioning, that in the plaintiffs -- do you have Plaintiff's 1679 in front of you?

A. No, I do not.

Q. The testimony that I had referred to you before. It would have not been admitted, Tammy, it would just be this, yes, it's one of those. There it is.

MR. HEINEMAN: Excuse me, Your Honor, may counsel approach the bench?

THE COURT: Sure.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. HEINEMAN: Your Honor, I was prevented by Mr. Carr's objection and this Court's ruling from questioning this witness with respect to the portion of the December 3rd testimony which was not included in 1679, and therefore I think any question on 1679 would be outside the scope of the, of redirect three, if we can put it that way, the third redirect of this witness.

MR. CARR: Counsel, you may --

THE COURT: Didn't you ask him about December 2nd, though, the other part of 1679?

MR. CARR: He asked specifically about 1679. He asked a question was there low dose described in 1679, exactly what he asked.

THE COURT: I don't think that's correct. You asked him about December 2nd in 1679, and then you wanted to

ask him about a part of December 3rd that was not in 1679.

MR. HEINEMAN: I didn't ask him anything about what was in --

MR. CARR: Yes, you did. You most certainly did.

MR. HEINEMAN: What did I ask him?

MR. CARR: You asked him did you get from Plaintiff's Exhibit 1679 those people were exposed to a low dose or were not exposed to a low dose.

MR. HEINEMAN: I did not.

MR. CARR: I have got in my notes exactly what you said. Why don't I write it down?

THE COURT: Objection is overruled.

(The following proceedings were had in open court.)

Q. (by Mr. Carr) Dr. Kilgore, you recall yesterday afternoon that Mr. Heineman asked you with reference to 1679 about whether or not there was any evidence in there that those people were not exposed to a low dose?

A. No -- what you mean those people?

Q. The plaintiffs, the Sturgeon people?

A. Yes, I remember something like that.

Q. All right. Now, Doctor, you said in response to Mr. Heineman's questions, question at that time, that 1679 didn't tell you anything about the exposure of the dose, could you find for me in 1679 where you -- where it says that

those people were not exposed to a low dose as you said yesterday?

MR. HEINEMAN: Your Honor, may counsel approach the bench?

THE COURT: Sure.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. HEINEMAN: Your Honor, I never said any such thing to this witness, when I asked him about low-dose exposure, I asked him did Mr. Carr ask you about low-dose exposure, and Mr. Carr asked you whether or not what your opinion would be if there were a low-dose exposure.

MR. CARR: No, that was earlier. I'm talking about your last few questions yesterday right before we recessed, you asked him was -- did he get any dosage exposure, was he -- it would be 1679, there was no low-dose exposure for those.

MR. HEINEMAN: I ask the Court do the Court's notes show --

THE COURT: Wait a second, I'm reading them now.

MR. CARR: It would have been somewhere around 3:30, quarter to four, somewhere around that.

THE COURT: Yeah, it was brought up a couple times.

MR. HEINEMAN: 3:30 or quarter to four? You passed him to me at 4:20.

MR. CARR: All right, then 4:20, it was in your re-redirect.

THE COURT: Yeah, it would have been around 4:20. You started after your redirect with 1679. The objection was overruled. You may proceed.

(The following proceedings were had in open court.)

Q. Dr. Kilgore, could you show me where in 1679 there is a statement that those people were not exposed to low-dose dioxin, and by those people I mean the Sturgeon people. Let me help you, Doctor, the only mention of exposure in Plaintiff's 1679 is on Page 139 and 140.

A. Okay.

Q. Doctor, is there anything there that you could conclude -- from which you conclude, or anyplace else in 1679, that these people were not exposed to low dose?

A. The statement there asked me to assume that they were exposed.

Q. Yes, to TCDD, correct, sir?

A. That's correct.

Q. Is there anything in that where you can come to the conclusion that you were not exposed to low dose as you testified yesterday afternoon?

A. No.

Q. And, Doctor, because what I asked you simply to do was that they were exposed to TCDD and the chemicals in that tank car, correct?

A. I believe at any levels.

Q. To TCDD and other chemicals. You asked me what they were exposed to and I told you TCDD and other chemicals in that tank car, did I not?

A. I believe that's correct.

Q. Now, Doctor, you also testified yesterday that Mr. Heineman never suggested to you or never influenced the answers that you've given in this courtroom, do you recall that?

A. That's correct.

Q. And, Dr. Kilgore, you have agreed on a number of occasions that you have testified that your testimony has changed after breaks and after conferences with Mr. Heineman, have you not, sir?

A. No, I have not.

Q. Doctor, do you recall just one instance where you, before a break, you testified that the document pointed out that the people at Times Beach in the low-risk group were exposed people? You recall that? And after the break you attempted to say that they were not exposed, do you recall

that, sir?

A. No, I do not.

Q. Well, turn to Page 141 of the exhibit that you had, 140 and 141, it starts Line 15 on Page 140. Actually it would be better for you to start at Line 9, that would give you a better idea.

A. On page 140?

Q. 140, that's correct. Now, Doctor, do you agree that you testified on Page 140 that the Times Beach two groups one was exposed at a high level and one had not been exposed?

A. That's correct.

Q. And do you also agree that that was a change from the testimony you gave us before the recess?

A. No.

Q. Doctor, turn to Page 141 at Line 14. I asked you that very thing, "Doctor, before you talked about to Mr. Heineman, you agreed that the people at Times Beach in a low-risk group and high-risk group both had exposure to dioxin, did you not, sir?" And your answer was, "Yes." You see that, sir?

MR. HEINEMAN: That's not the complete answer.

Q. "Yes, some of them were according to the definition." Isn't that your answer?

A. That's correct.

Q. Doctor, you do now agree that you testified before the break and before the conference with Mr. Heineman that the people in both groups had had exposure to dioxin, do you not, sir?

A. No.

Q. Doctor, you do not say, yes, some of them were according to the definition?

A. That's correct.

Q. And, did you not say on Page 140 that one -- high-risk groups were exposed at a high level and the other were not exposed, did you not say that, sir?

A. That's correct.

Q. And did you then finally come back to say at 142, on Page 142, that the low-risk group had exposure to low doses of dioxin? Very top of the page there, sir, Line 4?

A. That's correct.

Q. Now, do you see there, Dr. Kilgore, a change between your testimony both before and after your conference with Mr. Heineman?

A. Not really.

Q. Doctor, on Page 140, do you say that one group was not exposed, the low-risk group was not exposed?

A. That's correct.

Q. Is that different than what you testified to before the break, before the conference with Mr. Heineman?

A. Not really.

Q. Doctor, when you say one has not been exposed, is that the same thing as saying that the low-risk group has had exposure?

A. No.

Q. It's exactly opposite, isn't it, sir?

A. Yes.

Q. You testified before the break that the low-risk group had exposure, did you not, sir?

A. Not really.

Q. Doctor, not really? Don't you recall you agreed and we have gone through it a half dozen times already that the low-risk group were taken from the 800 that had the exposure and you agreed that the low-risk people had exposure, you recall that, sir? You testify to that before the break?

A. Yes.

Q. Here, right after the break you say one has not been exposed, don't you?

A. That's correct.

Q. Those are opposite answers, aren't they?

A. Yes.

Q. Now, you also agreed at that time that you devised that answer at your conference with Mr. Heineman, did you not, sir, and in your conference with Mr. Heineman, did you not, sir?

A. Yes.

Q. So in fact you did change your answer after a conference and you devised the answer in that conference with Mr. Heineman, did you not, sir?

A. No.

Q. Doctor, would you just please answer me, sir, did I not ask you at that time, question: "Did you not devise that answer after your conference with Mr. Heineman, in your conference with Mr. Heineman," and wasn't your answer, "yes?"

A. Yes, it was.

MR. CARR: No more questions, Dr. Kilgore.

THE COURT: Do you have any redirect?

MR. HEINEMAN: One moment, please, Your Honor.

REDIRECT EXAMINATION

BY MR. KENNETH HEINEMAN

Q. Dr. Kilgore, on this subject of what your answers were in terms of the definition of the low-risk groups?

A. Uh-huh.

Q. Do you recall whether or not prior to the exchange

that Mr. Carr is referring to, prior to any conference with me, you referred Mr. Carr to the definition in the paper?

A. That's correct.

Q. As a matter of fact, on the testimony of December 2nd?

MR. CARR: Your Honor, leading and suggestive, object to it.

THE COURT: Rephrase it, please.

Q. (by Mr. Heineman) Let me direct your attention --

MR. CARR: Your Honor, that's also leading and suggestive.

THE COURT: Objection is sustained.

Q. (by Mr. Heineman) Page 4 --

MR. CARR: Your Honor, that's leading and suggestive to put the answer he wants in front of the witness.

THE COURT: Gentlemen, could you approach the bench, please?

(The following Side Bar conversation was had outside the hearing of the jury.)

THE COURT: We went through this yesterday. I sustained the objections. What you are doing now or attempting to do is leading and suggestive. I'm directly ordering you not to do it. You are an experienced trial

lawyer. You know how to ask non-leading questions and I suggest that you do so. I am ordering you not to do what you were trying to do there. We went through all this yesterday afternoon. I don't want to have to go through it again.

MR. HEINEMAN: All right.

(The following proceedings were had in open court.)

MR. HEINEMAN: Do you have Defendant's Exhibit 55, please?

MR. CARR: May I approach the bench, Your Honor?

THE COURT: Yes, you may.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: Mr. Heineman is obviously now going to try to go through and have this witness define again what he means by a low-risk group of exposure group, or that do not have exposure. That's been gone through several times. I've cross examined at length. He's redirected at length. The only relevance it has at this time is whether or not he devised that answer and in the conference with Mr. Heineman. Whether there was in fact exposure in the low-risk group or not exposure in the low-risk group is not relevant. The only relevant thing in this examination is whether or not he gave one answer before the conference and gave a different answer after the conference, whether or not he devised that answer

in the conference. I object to going through and redefining what is low dose, is a low-risk group.

MR. HEINEMAN: Since you didn't wait for a question you have no idea that that's what I intend to do.

MR. CARR: Yes, I do.

MR. HEINEMAN: I'm glad to have the Appellate Court realize your clairvoyance, Mr. Carr. What exactly I had in mind was to ask him to read that definition to himself and ask whether or not he ever gave you that definition in his testimony before any break or before any conference with me.

MR. CARR: It would be leading and suggestive.

THE COURT: Objection is sustained, it would be leading. Number two, it is outside the scope.

MR. HEINEMAN: It's outside the scope of his examination?

THE COURT: Yes. Of this last recross, it definitely is. Objection is sustained.

(The following proceedings were had in open court.)

MR. HEINEMAN: I have no questions, Judge.

THE COURT: Okay, Doctor, you may step down. Thank you. Gentlemen, could I see you at the bench for just a second?

(The following Side Bar conversation was had outside the hearing of the jury.)

THE COURT: Is Dost next?

MR. HEINEMAN: Yes.

THE COURT: Okay, is he here?

MR. HEINEMAN: Yes.

THE COURT: Why don't you bring him in, we will start.

MR. HEINEMAN: All right.

(The following proceedings were had in open court.)

MR. HEINEMAN: Your Honor, at this time we would recall Frank Dost to the stand.

THE COURT: Okay.

FRANK DOST

(being called as a witness on behalf of the Defendant, having resumed the stand, having been previously sworn, continued to testify as follows)

REDIRECT EXAMINATION

BY MR. KENNETH HEINEMAN

Q. Dr. Dost, in connection with Mr. Carr's cross examination of you, sir, do you recall Mr. Carr cross examining you on the subject of there being four out of eighty in the Pazderova or Spolana incident that did not have chloracne?

A. I remember that, yes.

Q. And one out of the three in the Oliver incident that did not have chloracne?

A. Yes.

Q. All right, sir. Now, do you recall his asking you on a subject of whether you can have exposure to dioxin, based on the data that he had just given you, a serious problem from that exposure without having chloracne, you recall that, sir?

A. Yes.

Q. Now, what facts must you assume, sir, as true in order to reach that conclusion from those two studies?

A. Well, it's necessary -- there was a mixed exposure and I'm not -- I'd like to review the question again, if I might --

Q. You mean the specific question?

A. Yes, I'm not sure that I remember the details of the question precisely.

Q. May I read it to you?

A. I would appreciate it.

Q. The question, sir, was, "So both of those studies show based upon the facts if they are facts that are true in those studies --

MR. CARR: I object to that, that's not what the

witness -- he wants the question repeated.

A. Excuse me --

MR. HEINEMAN: I think he wants what was read at the time.

THE COURT: Would the two of you approach the bench with the transcript, I'd like to see this. I haven't heard it.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: I really think what he wants is Mr. Heineman to repeat his question, doesn't understand what he's been asking in that question.

MR. HEINEMAN: That's not what I understand.

THE COURT: I think he wanted the question that you were asked that you refer it to him because he didn't remember it. I think that's what he asked.

MR. CARR: Well, it could be, but it could well be, but I think before he reads it, he should make sure.

THE COURT: Since we are up, here let's make sure we are talking about the same question.

MR. HEINEMAN: This one right here.

THE COURT: This one starting on 16?

MR. HEINEMAN: Actually the series starts back here.

THE COURT: Yeah, but he wanted the particular question repeated.

MR. HEINEMAN: That's what I thought he said.

MR. CARR: You think he wants that question read?

MR. HEINEMAN: That's what I thought.

THE COURT: That's the way I interpret it also. So you'll read the question that starts on 16?

MR. CARR: Why don't, for my sake, you ask him if that's what he meant, please?

MR. HEINEMAN: All right.

(The following proceedings were had in open court.)

Q. (By Mr. Heineman) Dr. Dost, I want to be sure that we know what it is you want read, you want repeated to you. Is it the question that Mr. Carr had asked you?

A. Yes, I would appreciate that and then if you could ask your question in that context. I'm sorry.

Q. All right. The question was, "So both of those studies show based upon the facts, if they are facts that are true in those studies, that you can have exposure to dioxin, a serious problem from that exposure, without having chloracne, isn't that correct, sir?"

MR. CARR: And his answer was?

Q. Your answer was, "That is correct." You recall that?

A. Yes.

Q. All right. Now, what is it that you must assume to be true, sir, in order to reach that conclusion?

A. That there were, under those conditions, a variety of chemicals involved.

Q. And in the Spolana incident, sir, what was it that the people were exposed to in that incident?

A. They were exposed to pentachlorophenol.

MR. CARR: Your Honor, this is repetitious. Counsel went into that on the 13th of November, what they were exposed to.

THE COURT: Objection is sustained.

Q. Is it your -- let me ask you this, Doctor, what is your opinion with respect to whether or not finding four out of eighty who did not have chloracne, and 76 out of 80 who did have chloracne means in terms of whether or not there is an exposure that is significant to cause effects without chloracne?

A. I don't think that four out of eighty is a very significant number. I think that the -- that it is fair to say that virtually all of the individuals had chloracne, that whatever was the chloracnegen was causing chloracne in virtually every case.

Q. Now, let me ask you this, sir, in an incident of

exposure, where you are looking for a significant exposure to TCDD, is it necessary that every person get chloracne for there to be a significant exposure to TCDD?

A. I don't think. I think it's imaginable that there would be in a large number of people like that there would surely be, may very well be a few individuals who do not.

Q. What would be the factors that would -- that would dictate in an instance whether or not someone would have chloracne and someone would not?

A. I would say the extent of the exposure, the intensity of the exposure, the duration of the exposure, the dose. The dose.

Q. Is it possible, sir, for the dose to vary in a group even though that whole group may be in a single industrial population?

A. Oh, I think so, certainly, yes.

Q. And why is that?

A. Because they have different responsibilities, different assignments. They spend different amounts of time. They may be in different parts of the plant. Certainly no exposure is going to be uniform throughout an operation of that sort, the intensity and the duration both could be expected to vary substantially from individual to individual and from place to place within the plant.

Q. Would the behavior of the individual himself have anything to do with the extent of the dose he might receive?

A. In terms of his particular job or in terms of his personal habits or --

Q. Either way?

A. Well, obviously an individual with a job that requires handling a substance that has the capacity to cause chloracne, such an individual would have at least a greater potential for exposure. An individual who paid close attention to working hygiene or personal hygiene would have a much less, lesser potential for acquiring enough of a dose to cause the problem that an individual who is very careless and sloppy in their work habits or their personal habits.

Q. What do you mean personal habits?

A. Well, a person who changes clothes frequently, bathes frequently, who understands that in a situation as had been described in Spolana that it's possible to carry material out of the plant into the home, for example, differ from a person who does not -- or who does not pay attention, a person who I say bathes frequently. Anything that would either remove or diminish the presence of the material would certainly decrease the potential for exposure and absorption.

Q. If you were looking at a population as a whole, sir, and you were looking for whether or not there had been

exposure in that population as a whole, sir, would the amount or the number of people or the presence of chloracne be significant to you?

A. Yes, I think so.

Q. And, would the fact that 76 out of 80 had chloracne be significant?

A. Most assuredly.

Q. Now, in connection with the Oliver study, sir, this third Oliver patient, Patient C, with respect to that study, what does that study demonstrate as to his exposure and as to whether he in fact had chloracne?

A. It's interesting that it appeared to take a long time for an effect of any kind to show up. He did show some skin changes that seem to be identified as precursor to chloracne. The skin became very oily. The sebaceous glands, that is the glands that secrete the material to lubricate the skin, those I think are the characteristics of that individual.

Q. Is there any indication -- well, is it clear, sir, that he did not have chloracne, that Patient C --

A. I don't know, the author stated that he did not in comparison, at least, with the other two patients that he was examining.

Q. To what extent in the Oliver study did that third

person's exposure or would you compare his exposure to that of the other two?

A. I had the impression that it was a lesser exposure, that it was substantially less.

Q. And what was that impression based on, sir?

A. On the period of time, the nature of his -- of the -- he was handling material in an entirely different way. I think that actually a question could be raised whether he was significantly exposed. I just don't know. He was handling material in a closed system. He was not, as I recall, synthesizing material, working with it in the laboratory in the same way that the other two individuals were working.

Q. Would you hand the witness Plaintiff's Exhibit -- I think it's 1645. You have it now, sir?

A. Yes, I do.

Q. Does that help refresh your recollection with respect to what -- the way in which Patient C was described?

A. Yes, he was not engaged in the experiments to prepare dioxin, had been working in the following few months after that activity with a diluted dioxin standard prepared by Patient B. All his work had been done with the utmost caution and special care to avoid personal contamination. He first reported with symptoms in June 1973 and those symptoms had been present for the preceding twelve months, so it was

at least apparently a year and a half or two years after his exposure that -- or after he had handled the material that he reported those symptoms.

Q. Now, with respect to the -- to the serious problems from exposure that Mr. Carr asked you about, in connection with this Oliver study, what were the indications -- well, strike that. Let me ask it this way. Were there any indications in any of those three patients of any abnormal blood chemistry?

A. Their cholesterol levels were at the high side of normal. They were in the normal range, but they were in the high side of normal, but, the statements -- well, perhaps I should go to the description of the patients. In the case of Patient A, a full blood biochemical analysis was undertaken and this revealed a surprisingly high blood cholesterol for a man of his age. No other significant -- and as I said, that level was within the normal range nonetheless.

No other significant biochemical changes were detected. The liver function tests were normal, again normal, they had been earlier, and no porphyrinuria was undertaken. This was, by the way, an examination in 1973.

The examination in November of 1970, the physical examination other than the chloracne was unremarkable. Liver function tests were normal. There was no porphyrinuria.

The-- in Patient B in 1970, blood examination at this time showed no evidence of liver damage, and they did not -- they did not measure cholesterol at that time. Apparently they did not in the first patient either.

And then in 1973 when they examined them again, still some evidence of skin effects, but they were apparently diminishing. Physical examination otherwise unremarkable. Blood examination showed no evidence of liver damage and no significant biochemical changes with the exception of a raised serum cholesterol. Which was at about the same level as the other individual, and was again, as I said, at the high side of normal. Urine showed no porphyrinuria, and their conclusion was that the primary change was a mild hypercholesterolemia. The serum triglycerides were 114 milligrams per hundred mils, and I think that's within the normal range.

On the third patient, Patient C, liver function tests were normal. The same level of cholesterol in the blood was measured, does say they showed a type 2A hyper lipoproteinemia, but don't identify the amounts, and there was no porphyrinuria.

Q. Now, did any of those three patients have elevated porphyrins, sir?

A. No.

Q. And, with the exception of the residual chloracne and the cholesterol, what happened to the other problems that they did have?

A. Well, if I read this correctly, it appears that -- the measurements in this paper, at least that discuss those individuals, of course don't discuss history after 1973, but there really was not very much in the way of clinical significance seen with those individuals. Chloracne appeared to be resolving.

Q. How is it, sir, that the cholesterol level can be described as hypercholesterolemia, and yet be at the top of the normal range?

A. I think that -- I think that the physicians examining those individuals were considering the age of those individuals, and the normal range is fairly broad, what is considered to be a normal cholesterol level. And I think that they were -- they were essentially suggesting that it was high for those individuals at their age. Now, I don't know whether they took into account dietary factors or anything like that. That's not described here.

Q. Was there any indication that whether or not those people had had elevated cholesterols prior to the experiences related here?

A. No. What is a little surprising to me is that the

cholesterol levels in those three individuals are almost identical, which is surprising in terms of just the general kind of variation that one would expect in any population or any group of people.

Q. You ascribe any significance to that?

A. Well, it would be pretty hard to ascribe significance without information. I don't -- one could make all kind of guessses why they would be similar, but I think that it would be -- there is no way of supporting that kind of speculation.

Q. You think that the fact that the --

MR. CARR: Object to the leading form of the question.

THE COURT: Sustained. Would you please rephrase it.

Q. Is there any significance in that -- in the connection with the cholesterol in your view to their exposure to 2,3,7,8-TCDD?

A. Well, there is a three-year lapse of time here, and I have a little trouble ascribing that elevated cholesterol to an exposure that took place three years prior for which there aren't any other, no other evidence other than the chloracne of an effect, particularly when the blood biochemistry that they looked at was normal, particularly the

liver function tests were normal. And I would have to wonder whether there wasn't some other factor that had had intervened during that long period of time that might have been responsible for those cholesterol levels. They would very very much like to have seen what they were earlier on.

Q. Well, wouldn't this suggest, sir --

MR. CARR: Leading form, Your Honor, object.

THE COURT: Objection sustained.

Q. Do you think that elevated --

MR. CARR: Again, I object to it.

THE COURT: Objection sustained. Please rephrase it.

Q. Is an elevated cholesterol a long-range effect?

A. It can be if there is a metabolic problem that is intrinsic. It can be if an individual has a certain dietary pattern, in terms of a, if you will, a toxic manifestation, I don't know of any that would be sustained for that long period of time.

Q. Well, what is your opinion on that subject, sir, as to whether or not the dioxin exposure could cause as a long-term effect an elevated cholesterol?

A. I would question whether it can.

Q. Why? Why would you question that?

A. Well, primarily because all of the other factors

that were observed in those individuals were normal at the time of those terminal examinations. Also, the effects of this sort that are seen in animals diminish with time.

Q. Now, next, sir --

THE COURT: Before you get into this second section, let's take a break at this time.

MR. HEINEMAN: I can't hear you.

THE COURT: You are getting into another topic?

MR. HEINEMAN: Yes, sir.

THE COURT: Let's take a break at this time.

MR. HEINEMAN: All right.

THE COURT: We will take a short recess at this time. I would remind you, this would go for any other breaks that we take during the day, you are not to discuss this matter among yourselves, or with anyone outside the jury panel or as of yet form any opinions or conclusions about the matters on trial. Court is in recess.

(Following a recess, these proceedings were had in open court.)

Q. (by Mr. Heineman) Dr. Dost, I'd like to -- would you pass him Plaintiff's Exhibit 1443, please. You have 1443, sir?

A. Yes.

Q. And the second page of that exhibit actually bears

Page No. 6, but it's the second page?

A. Yes.

Q. Now, I'd like to ask you about a statement that Mr. Carr directed your attention to in that exhibit, sir, which is at the bottom of the page on the right-hand side, says the severity of illness was not related to the duration of exposure. You see that, sir?

A. Yes.

Q. Now, what do you believe is the validity of that statement in light of the dose-response principle which you testified to here before?

A. Well, those patients -- those individuals were exposed to varying concentrations. I believe I spoke to that just a little while ago, and the duration of exposure by itself does not really govern the dose. The duration of exposure and the intensity of exposure -- it's entirely possible to have a very long low-level exposure that has no consequences and also possible to have a very short and intensive exposure that in fact does have an effect.

Q. You know I don't know that we identified for the jury what study we were talking about here, Plaintiff's Exhibit 1643 is what, sir?

A. This is the study that we have referred to a number of time by Pazderova, <u>The Development and Prognosis of</u>

Chronic Intoxication by Tetrachlorodibenzo-dioxin in Men. This refers to the incident at the -- or the occupational exposure at Spolana the Czechoslovakia work where they were exposed in that plant that was -- this is the follow-up study of those individuals that were exposed in that plant that was characterized by such open transport between all of the components of the plant where there were so many chemicals apparently in the various mixtures to which individuals were exposed to.

Q. Now, did we a moment ago talk about the Spolana incident when we were talking about the four of the sixty or four of the eighty who did not have chloracne?

A. I think we were -- yes, there were -- seems to me that we were talking about -- I don't know whether those numbers corresponded. There were 55 patients and 95 percent of them had chloracne in this particular case. Are we on the same wavelength? Are we talking about the same --

Q. Yes, sir.

A. Okay.

Q. Now, with respect to the statement that the severity of illness was not related to the duration of the exposure, do you interpret that, sir --

MR. CARR: Objection, Your Honor, leading in form.

THE COURT: Objection is sustained.

Q. How do you interpret that, sir, in connection with the dose-response relationship?

A. Well, I think those individuals were exposed to a variety of concentrations, a variety of times, and I don't believe that -- it also mentions job status. Well, in a plant like that, job status may not matter a great deal. In any case, what this tells me is that I see nothing to make this statement as it stands invalid. The problem is that we have no idea what the intensities of exposures were and there were a wide range of intensities of exposures that did not necessarily -- the intensity of exposure does not involve necessarily the duration of exposure, and as a consequence, it would be expected that the duration, the time that the people spent in the plant would not necessarily have a great deal to do -- would not necessarily be well correlated with the severity of disease.

Q. Now, you mention, sir, that this was the follow-up, this particular Pazderova paper is the follow-up?

A. This paper, this study, I believe, was done something like ten years after the individuals were exposed, and that earlier exposure was described in the early series of papers that were -- I think senior author was Dr. Jirasek.

Q. All right. Now, with respect to the papers of

which Dr. Jirasek was an author, do those authors reject --

MR. CARR: Objection, Your Honor, it suggests the answer required.

THE COURT: Objection sustained.

Q. (by Mr. Heineman) What is the position of those authors based upon your review of those papers with respect to the dose-response principle?

A. Well, they describe in the early paper the wide variation in the potential for exposure in the plant. They describe the nature of the plant. They describe all of the factors that could very well be involved, and they as nearly as I could interpret were not -- they recognized that the dose is related to the response, and it was just not readily possible for them to precisely describe the dose in the individuals that they were trying to examine.

Q. Do you have Defendant's Exhibit 1297 in front of you there, sir?

A. No, I have not.

THE COURT: It should be in that stack.

MR. HEINEMAN: In this stack here?

THE COURT: Right.

MR. HEINEMAN: Okay.

Q. Let me hand you, sir, what's been marked as Defendant's Exhibit No. 1297, and would you identify that for

the jury, please?

A. This is a 1973 paper by Dr. Jirasek, Kalensky and Kubec published in what I presume to be the Czechoslovakia Journal of Dermatology, it's a translation of the -- the original and a translation.

Q. Now, what incident is that paper?

A. This relates to the original study of the same individuals were studied ten years later in the paper authored -- which the senior author was Pazderova.

Q. And that is Spolana?

A. Yes.

Q. Now, is that one of the papers that you refer to earlier, sir?

A. Yes.

Q. And, I'd like to direct your attention, if I may, to Page 8 of the paper, you see that, sir?

A. Yes, I'm on Page 8.

Q. Did you mention previously something about the plant conditions?

A. Yes, I did.

Q. And, what is the significance in your view of the plant conditions and the author's position on the dose-response relationship?

MR. CARR: Your Honor, this line of questioning was

gone into already the last time Dr. Dost was on the stand, November the 13th, starting at Page 100, and the jury was passed that particular page at the time.

THE COURT: Objection is sustained. I believe it is repetitious.

MR. HEINEMAN: Your Honor, may counsel aproach the bench?

THE COURT: Sure.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. HEINEMAN: First of all, I resent the fact that Mr. Carr has made a speaking objection in front of the jury when I have been doing my best not to do that. And, secondly, Your Honor --

MR. CARR: I accept the criticism, it's uncalled for me to say that.

THE COURT: Okay. It was a speaking objection so please restrain those and bring them up here.

MR. HEINEMAN: The second thing is Mr. Carr has challenged this witness's position with respect to the importance of the dose and the duration of the exposure to the level of the conditions, or the extent of the conditions which the people reported in this study have come in contact -- or have exhibited.

THE COURT: Uh-huh.

MR. HEINEMAN: And I want to establish through this witness and through the same article that in fact those authors do not reject that dose-response relationship and the articles themselves about the Spolana incident have clearly demonstrated the validity of the dose-response relationship regardless of that one statement and that one article. It is true that this -- I don't remember if we discussed it with this witness or with Dr. Kilgore.

THE COURT: I think we did.

MR. CARR: Page 78 and 9 were passed to the jury.

THE COURT: I think we discussed it with both.

MR. HEINEMAN: The position I would like to take with this man is what the relationship is between the plant conditions described by the authors and the author's position on dose response, and that was not gone into before, and that's what I think I have the right to do at this time.

MR. CARR: Your Honor, he said at that very time in response to that very page, "In other words, the plant was a mess and the exposure would suggest to me that everyone at the plant was exposed to everything in the plant. Well, as I have just stated, there is no is isolation of the various components of the plant, one from another. There is communications such that any substance that escapes is going

to find its way throughout the plant and it appears to me that their mechanism for handling materials is such that there there is going to be a great deal of exposure by skin contact, vapor phase exposure, any manner of exposure that may be possible is going to occur for everybody that is in this whole, in the whole plants. That's on Page 104 and 105.

THE COURT: Objection is sustained.

(The following proceedings were had in open court.)

Q. (by Mr. Heineman) Doctor, next I'd lake to direct your attention, if I may, to Page 13 of this article, and the second paragraph on the page, you see that, sir?

A. Yes.

Q. Are there any -- is there any portion of that part of the article which relates to the position of the authors with respect to the dose-response relationship?

A. Well, they speak of wide differences in the latency period from initial contact to appearance of symptoms. They speak of what appear to be substantial differences in the degree of exposure, pointing out that severe damage occurred after very short time and what was apparently a small exposure, and then they go on, however, in the following paragraph to point out that it's believed that the deciding factor must be the degree of actual exposure which is dependent on a series of other factors, such as work

discipline, personal discipline, adherence to preventative measures, frequency of changing work clothes, and so forth. Their view appears to be very clear to me that the dose-response relationship must apply. They don't seem to be prepared to accept the idea that very short exposures to very small amounts of material produce effects that are -- in other words, they are not prepared to -- they use the term apparent. They have no evidence and they go on to point out that the deciding factor has to be the degree of actual exposure.

Q. In your view, sir, is the Spolana incident an exception to the dose-response --

MR. CARR: Your Honor, that obviously suggests the answer. Leading.

THE COURT: Objection is sustained.

Q. Are there any exceptions in your view to the dose-response relationship?

A. I have never encountered an exception.

Q. Now, in connection with the subject of the immune system, do you recall Mr. Carr asking you some questions on that subject and particularly with relation to the Thigpen study?

A. Yes, I recall that.

Q. Do you recall his discussing with you the Thigpen

studies statement about the minute quantities involved and your not having mentioned that?

A. Yes, I remember that.

Q. All right, sir. When you discussed the Thigpen study with the jury, what information did you give the jury with respect to the exposure level?

A. Example that I showed them was a study, was an experiment in which mice were given varying doses of TCDD and then they were challenged with an infection, a Salmonella injection, Salmonelleae was the species, which is at doses that are lethal to mice, at least to part of the population, and the experiment demonstrated a no-effect level at a dose of a half a microliter per kilogram. In other words, this was a dose at which there was no increased deaths in those mice due to the infection. No -- the mortality in the mice that were treated with TCDD was the same as the mortality that was -- that were not treated with TCDD at that dose.

Q. Now, could you describe for us -- well, let me -- would you hand the witness Plaintiff's Exhibit 1648.

MR. HEINEMAN: Your Honor, I see it's noon now and I don't know if -- before we get started --

THE COURT: Yeah, it is close.

MR. HEINEMAN: It might be convenient for the Court.

THE COURT: That's a good idea. Okay, we will break for lunch at this time. We will resume again at 1:15. The admonishments that I gave you earlier will apply during this break also. Court is in recess for noon.

(Following a recess for the lunch hour, court convened. The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: That motion that you wanted to argue this evening, we cannot argue. My secretary's sister is in the hospital and my secretary didn't get in this morning to prepare my objections. My objections won't be ready until some time this morning.

THE COURT: Fine, Monday or Tuesday will be fine.

MR. HEINEMAN: May we argue it Monday?

MR. CARR: As far as I'm concerned.

THE COURT: I think so. I don't see any reason why not. Some of the jurors have some concern with this weather. They'd like to get off about four.

MR. HEINEMAN: I got to tell you, I was just talking to Joe, you know, it seems like every other Friday or something I get some kind of -- I feel lousy. I really feel lousy this afternoon.

MR. CARR: I don't want --

THE COURT: I gather then you have no objection to

knocking off at four.

MR. HEINEMAN: Not at four, maybe earlier.

Q. (by Mr. Heineman) Dr. Dost, just before lunch, we, I think, passed you Plaintiff's Exhibit 1648. You have it before you there, sir?

A. Yes, I do.

Q. And, I wonder if you would please describe to the jury what those "extremely low levels" were that were administered in that test?

A. The lowest dose, which was the no-effect dose was a half a microliter per kilogram, and this was administered to those mice once a week for four weeks from the fourth week of life to the eighth week, and then after that, that's when they challenged them with the infection.

Q. And what other doses were administered, sir?

A. They administered doses -- they did actually two series of experiments, and the first series they started with a high of twenty microliters per kilogram per week, ten, five, and zero. And then in the second series, they started at five microliters per kilogram per day then one, and .5 per kilogram per week, I beg your pardon.

Q. Per kilogram per week, did you say?

A. Yes.

Q. Now, sir, would you relate those doses to the no

observed effect level which you testified about in your direct testimony?

A. I've been using a no effect -- general no-effect dose of .001 microliters per kilogram, a thousandth of a microliter per kilogram. The no-effect dose in this experiment is .5, a half a microliter, in other words, it's 500-fold higher than the no-effect dose that I use as a general no-effect dose.

Q. Now, with respect to the levels that produced effects in the immune system, in this Thigpen study, how do they relate to the no observed effect level you had testified about in your direct testimony?

A. Well, at a dose of one microliter per kilogram, there was a very clear effect. Compared with the control and the .5 microliter per kilogram dose, the both of those when at a 25 percent mortality rate at one microliter per kilogram, the mortality rate was 65 percent at five microliters per kilogram it was 70 percent.

Q. And, can you relate those doses to the no observed effect level in terms of the size, respective size?

A. The no-effect level that I use as a general no effect?

Q. Yes, sir.

A. Well, one microliter per kilogram would be a

thousand times larger. Five microliters per kilogram would be 5,000 times larger, and then the no-effect dose here is 500 times larger.

Q. Do you have an opinion, sir, as to whether or not those are extremely low levels of TCDD?

A. I don't consider -- in terms of the general toxicity of TCDD, I don't consider those to be extremely low doses.

Q. Dr. Dost, do you recall the calculations you made regarding the amount of contaminated soil at Sturgeon that would have to be absorbed each time in order to get a dose equivalent to the no observed effect level?

A. It's my recollection that we took an amount of ten grams of soil, if I recall, and we made the assumption that at the highest concentration of the chlorophenol total phenols under the -- where it spilled under the tank car, which I believe was on the order of 70 percent, and calculated and assumed that all the TCDD stayed in it, and calculated the concentration of TCDD that ought to be present in the soil given -- assuming that TCDD stayed there with the phenol that was in the soil, and assumed a one percent absorption for TCDD, which is the figure used by the CDC in its document --

MR. CARR: Your Honor, may I object to this? This

is repetition.

THE COURT: Objection is sustained. I believe this was testified to earlier, gentlemen.

Q. (by Mr. Heineman) Dr. Dost, at the time -- do you recall when Mr. Carr was asking you about the levels of TCDD you mentioned a Dr. Cortell, you remember that, sir?

A. Yes.

Q. Who is Dr. Cortell?

A. He is an official in the Epidemiology and Clinical Toxicology Branch of the Food and Drug Administration.

Q. Why did you mention him, sir?

A. I believe we were discussing no-effect levels, and the reason I mentioned him is because he has made a public statement of FDA's position --

MR. CARR: Your Honor, may I approach the bench, please?

THE COURT: Yes.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: Counsel knows this is improper. This is hearsay. We have already been through this objection once when the witness tried to put it out once before. He's trying to make a public statement what some fellow from the FDA say. I object to it. You cannot get hearsay into

evidence this way.

MR. HEINEMAN: Your Honor, my understanding is what the witness is doing is all he's done has said Cortell is the one that established the FDA no-effect level. That's already in evidence.

MR. CARR: He's getting ready to say what this FDA fellow said in public statement. It's hearsay.

THE COURT: My impression that's what he was getting ready to say also. The objection is sustained. You can't do that.

MR. HEINEMAN: All right. I'll steer him clear of anything that Cortell said.

THE COURT: I think you have to.

MR. CARR: Anything that's hearsay and not in evidence in this case.

(The following proceedings were had in open court.)

Q. (by Mr. Heineman) Doctor, where did you derive the no observed effect level that you used during your testimony?

A. Primarily from the research that had been conducted by Dr. Kociba, and that is a daily dose, a daily intake of a thousandth of a microliter per kilogram, and that corresponds with it is as low or lower than a whole host of no other effect level that have been observed in different kinds of experiments.

Q. All right, sir. With respect to the dose level found to be toxic in the immune system in the Thigpen study, sir, can you tell the jury how much contaminated soil a resident of Sturgeon would have to rub on their skin each day in order to reach that dose level?

A. We calculate that by rubbing ten grams of soil there would be, that the dose would be 222 times less than the no-effect dose that we have been using. That means if -- and that's a ten gram -- that's a ten gram amount of soil, and assuming the maximum possible contamination, that means then to -- are we trying to reach the Thigpen no-effect dose?

Q. Yes, sir.

A. The no-effect dose there was 500-fold higher than the no-effect dose I'm accustomed to using. That would mean that to reach the no-effect dose with that kind of soil would require, let's see, 2.2 kilograms roughly, to reach the no-effect dose in Thigpen would require another 500 times that, so, it would be around 1100 kilograms of soil rubbed on the skin that's --

Q. How does that convert into --

A. Well, 2.2 pounds per kilogram, so we are talking here about maybe a ton and a quarter.

Q. Of soil?

A. I beg your pardon, we are talking about close to two and a half tons of soil. Let me make sure that I am -- excuse me, no about a ton and a quarter of soil. That's right, something on that order.

Q. How frequently?

A. The Thigpen experiment administered the material by stomach tube once a week, if we wanted to make a comparison.

Q. All right. In your opinion, sir, could this dose, which you've just calculated be acquired by someone through the inhalation of either vapors or dust?

A. I cannot imagine how, no, sir.

Q. In your opinion, Dr. Dost, is a vapor of 2,3,7,8-TCDD a significant means of exposure?

A. No, sir, I am sure that it is not.

Q. And on what do you base your opinion, sir?

A. I base my opinion on the environmental behavior of the compound. Its extremely low vapor pressure, that is very very limited ability of the material to exist in air. The fact that it does not emerge from soil, doesn't move through soil very very rapidly, it does -- it is subject to degradation by sunlight as it moves through the very top layers of the soil, and I, as nearly as I can see, other people feel the same way. The CDC document, for example --

MR. CARR: Your Honor, may I approach the bench,

please?

THE COURT: Yes, you may.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: Obviously going into hearsay again. He's going to say what some other document says. It's not in evidence. Counsel knows it's not in evidence, and he must know what the witness is about to say.

MR. HEINEMAN: Well, I agree that he shouldn't say anything about what the CDC said, but, I'm still at a loss as to whether or not that CDC document is in evidence. We are talking about the Renate Kimbrough --

MR. CARR: That's what we are talking about, it's not in evidence.

THE COURT: What's the number?

MR. HEINEMAN: Well, there's two.

MR. CARR: Defendant's 93.

MR. HEINEMAN: Defendant's 93, which is I think a draft of the document, probably --

MR. CARR: Plaintiff's 1255.

THE COURT: Didn't you -- didn't we go through this once before and our records indicate that they were not?

MR. CARR: They were not in evidence.

MR. HEINEMAN: We did with 1255.

MR. CARR: We did with 93.

MR. HEINEMAN: I didn't think we did with 93.

MR. CARR: It's not in evidence.

THE COURT: I think we went through this a few days ago, check with the Clerk's notes.

MR. HEINEMAN: Does she have down all the things that were admitted in Chambers that day? You know, those Defendant's exhibits?

THE COURT: Everything.

MR. HEINEMAN: She has got those as well?

THE COURT: I don't remember who the Clerk was but I gave them my notes as to what went in, so they should have everything, because I kept -- they weren't back in Chambers with us, but I kept notes on it for all you whenever we have admitted anything.

MR. HEINEMAN: Do you have Defendant's 93 admitted?

THE CLERK: No.

MR. HEINEMAN: You don't. Okay, good enough.

THE COURT: Okay.

(The following proceedings were had in open court.)

Q. (by Mr. Heineman) Now, Dr. Dost, I'd like to direct your attention to the cross examination which Mr. Carr did of you on the -- in connection with the nervous system,

and is asking you about the complaints of the Nitro workers made for 36 years, you recall that, sir?

A. Yes, I do.

Q. Do you know to whom those complaints were made?

A. I don't know. Certainly, I assume they were made to Dr. Carnow.

Q. Yes, sir. Now, do you know, sir, whether Dr. Moses and her team of physicians examined the Nitro workers in 1979 prior to the time the Nitro lawsuits were filed?

A. Yes, they did.

Q. And, what did Dr. Moses find with respect to those complaints, sir?

A. She found really very little either evidence on examination or evidence in interview of those kinds of complaints; went through a long list, as I recall, of subjective complaints in which she was pointing out that there was no evidence.

MR. CARR: Your Honor, may I approach the bench?

THE COURT: Yes, you may.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: Without the witness identifying the source of his knowledge, I cannot object and say that it's hearsay. Now, if he'll identify what he is referring to for

his source of information, because it sounds as if he's referring to something that he knows from his own investigation of a long list of complaints that was gone through. I assume, I believe, that he may in fact be referring only to Defendant's Exhibit 908, but I don't know that.

MR. HEINEMAN: I'm sure that's right, but I'll be glad to hand it to him.

THE COURT: Yeah, I think you should establish what the basis of his knowledge is.

MR. HEINEMAN: Okay.

THE COURT: Oh, by the way, when did he first get on the stand? If you could check over the break.

MR. HEINEMAN: First of November.

THE COURT: Early November?

MR. HEINEMAN: First of November. I think he was the First.

THE COURT: If you would find out for me so I can do some things.

MR. HEINEMAN: Okay.

THE COURT: Thank you.

(The following proceedings were had in open court.)

MR. HEINEMAN: Would you hand the witness Defendant's Exhibit 908, please?

Q. (by Mr. Heineman) Do you have Defendant's Exhibit 908 before you now, sir?

A. Yes, I do.

Q. What document is that?

A. This is the paper that we commonly refer to as the Moses study, Health Status of Workers With Past Exposure to 2,3,7,8-Tetrachlorodibenzo-p-dioxin in the manufacture of 2,4,5-Trichlorophenoxyzcetic Acid: Comparison of Findings With and Without Chloracne.

Q. Now, sir, when you were discussing the subjective complaints and symptoms a moment ago, what was it that you were relying on for your information?

A. Let me on Page 173, there are two paragraphs under review of symptoms. "Statistically significant differences between those with and without chloracne were found for reported symptoms of muscle pain, insomnia, decreased libido, sexual dysfunction, and eyelid cysts."

"No significant differences were found between those with and without chloracne for the following symptoms: Joint pain, abdominal pain, nausea, vomiting, diarrhea, constipation, weakness, fatigue, nervousness, depression, numbness, vertigo, lightheadedness, or personality change." All right, sir. Now --

MR. CARR: May I approach the bench, please?

THE COURT: Sure.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: So it can be corrected now and not wait for my cross examination, I'd like for the jury to be instructed that what he said primarily was not correct. He said that she found very little or few complaints of any sort, and in point of fact, what it says is that no differences -- there are found significant differences but more importantly no significant differences were found between those with and without chloracne. That is not to say there were no complaints by those workers exposed to TCDD. What it says they found no difference between the complaint -- between those that were exposed to TCDD that had chloracne and those that did not have chloracne. That is not equivalent to saying that they had no complaints, and the suggestion is at this point Dr. Carnow was inaccurate, because this is not -- this is not data that says they did not have complaints. All that it says one area there were differences in the complaints between the two categories of workers and the other area there were no differences in the complaints. Doesn't say at all that they did not have complaints. I'd like for you --

THE COURT: Do you have anything on that?

MR. HEINEMAN: I think I'll be glad to clear that up.

THE COURT: I think you should. I think it's pretty clearly noted there.

MR. HEINEMAN: I don't have any problem with that.

THE COURT: Okay. Fine.

MR. CARR: The Court is instructing him to do it? The Court is not going to instruct the jury?

THE COURT: He's going to do it.

MR. CARR: All right.

(The following proceedings were had in open court.)

Q. Now, Dr. Dost, did I understand a moment ago --

MR. CARR: Your Honor, I object to this, he knows exactly -- may I approach the bench?

THE COURT: Yes.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: He knows exactly what was said. He knows exactly what the inference and implication is, and now he's asking did I understand this. I think he should make it clear, point out --

THE COURT: It just happened a couple minutes ago really does not need to be repeated. I think you should just make the point that it was made, agreed to up here,

basically, and you don't have to re-lay any foundation, it happened within a couple minutes.

MR. HEINEMAN: Well, I'm not understanding the signal here, Judge, because you say I have him repeat, I shouldn't have him say that he said before that there were no complaints.

MR. CARR: My objection is that he has said that there were no complaints, that they found no complaints. I think the only appropriate way, Dr. Dost, you were in error when you said that, were you not, because this doesn't say that, does it, sir, just as I would have to do in cross examination.

MR. HEINEMAN: I don't think that Mr. Carr has the right to put the words in my mouth. I think that I can ask him -- I can clarify the matter in my own way.

THE COURT: The point, the ultimate point which you have to reach and what I think should be a rather speedy clarification, is that what he just referred to did not support what he said.

MR. HEINEMAN: Do you have the notes on exactly what he said?

THE COURT: On the list?

MR. HEINEMAN: No, before he went through the list, that's what Mr. Carr is complaining about.

THE COURT: I don't have the list. Wait a second. Yeah, he said that the Moses team had examined them in 1979, which was before the lawsuit was filed, and that very very little of -- very very few, if any, of the subjective complaints that Carnow talked about were found.

MR. HEINEMAN: Found very little.

THE COURT: That's what he said.

MR. CARR: That's exactly what he said.

(The following proceedings were had in open court.)

Q. (by Mr. Heineman) Dr. Dost, a few moments ago when I was asking you about the Moses study, you said that Dr. Moses found very little in the way of those subjective complaints, is that correct, sir?

A. I guess that was the words I used, yes.

Q. All right. When we went through Exhibit 908 a moment ago, you compared, or you noted that there were comparisons between those with chloracne and those without chloracne, is that right?

A. That's correct.

Q. Now, does that indicate that in fact complaints were made to the Moses physicians by those people?

A. I would imagine that it does indicate that. What it indicates is that the people with chloracne and the people

without chloracne were apparently making complaints at the same frequency. I guess I'm accustomed to thinking of it in terms of differences between, if you will, in the experimental sense treated in control populations and not seeing a difference. What they are saying was they did not see a difference. They did not say that there were no complaints.

Q. All right.

MR. CARR: Your Honor, may I approach the bench again?

THE COURT: Yes.

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. CARR: That's not taking it back. He said they found very little in the way of complaints. He now says they are not saying they made no complaints. That's not taking it back. That's not clarifying, because what he brought out and the way he brought it out, and I suppose what I should have done is wait for cross examination, but I did not want this impression to last. What he brought it out of context was that Dr. Carnow said that they had these complaints and then right after that he said Dr. Moses examined them before the lawsuit was filed, all in context with Dr. Carnow what Dr. Moses found, found very little in the way of complaints. The

inference is that Dr. Carnow was lying or was wrong when the plain fact of the matter is there is absolutely nothing in Dr. Moses study to contradict anything that Dr. Carnow said, and that's not been made clear.

MR. HEINEMAN: I think it has been made clear, Your Honor, that what he said was incorrect, that what he said was that very little found in the way of complaints that that was wrong, that they did --

MR. CARR: He said now they made no complaints.

THE COURT: That's fine as far as it goes. I think it has to go that last step to bring out what Mr. Carr properly is complaining about, and which I said you had to bring out. So you have to add to what you did.

MR. HEINEMAN: To add what?

THE COURT: To show that it does not support his statement that very little was found, which I don't think you did bring up. They are fine as far as you went, but you have to go farther. So, I am ordering you to do that.

MR. HEINEMAN: To make sure I understand, you are ordering me to make it clear that the Moses study does not support that there were no -- there was very little complaints made, right.

MR. CARR: Bring out that --

THE COURT: That very little was found, which was

what he said in contradiction to the Carnow findings.

MR. HEINEMAN: Very little was found to support the statement, to support the statement.

MR. CARR: In the way of complaints.

MR. HEINEMAN: Okay.

THE COURT: As far as the complaints were concerned.

MR. HEINEMAN: Okay

(The following proceedings were had in open court.)

Q. (by Mr. Heineman) So, Dr. Dost, then the Moses study does not support a statement that very little was found in the way of complaints, is that right, sir?

A. I guess that would be correct, because all that I know from this is that they did not find a difference. I do not know what the absolute frequency of complaint was.

Q. All right. Now, in 1979 was there another study done on the Nitro population?

A. There was a study done by Dr. Suskind and Hertzberger.

MR. HEINEMAN: Would you hand the witness Plaintiff's Exhibit 1467?

Q. (by Mr. Heineman) Doctor, would you describe the Exhibit 1467 that you have before you?

A. Called human health effects of 2,4,5-T and its

toxic contaminants. I misspoke the second author. The first authors is Dr. Suskind, the second is Hertzberg, not Hertzberger.

Q. All right. And, with respect to -- direct your attention to Page 2372, please, sir?

A. That's the first page, yes.

Q. Can you tell us what had happened to the nervous system findings from the original 1949 incident?

A. Dr. Suskind was involved in examination of individuals who were exposed in the -- primarily the cleanup of the accident that occurred in 1949, and this -- okay. Just trying to decide where to start reading. Involved in the cleanup of the building and repair of equipment experienced acute symptoms characterized by skin eye, and respiratory tract irritation, headache, dizziness and nausea. Those symptoms subsided within one to two weeks and were followed by an acneform eruption, severe muscle pain affecting the extremities, thorax, and shoulders, fatigue, nervousness and dyspnea, which is difficulty with breathing, complaint of decreased libido and intolerance to cold. An examination of the workers in 1949 revealed a severe and generalized acneform eruption (chloracne), hepatic enlargement, peripheral neuritis, delayed prothrombin time, and increased total serum lipid levels. By 1953 those

symptoms and findings referable to the nervous system and liver had subsided. The chloracne, although much improved, persisted.

Q. Now, if I could direct your attention to Page 2374, which is, I believe, the third page of the exhibit, what conclusion did Dr. Suskind and Dr. Hertzberger with respect to whether complaints of nervousness, depression and anxiety were related to exposure?

A. They refer to Table 2. I'm in the third column close to the bottom of the page. They say as noted in Table 2 the complaint of nervousness, depression, anxiety, and the complaint of impotence were not related to exposure. The sample size was sufficient to detect a two-fold increase in complaint of nervousness, depression and anxiety for exposed or not exposed.

Q. Now, what does that last sentence mean, sir?

A. That relates to the size of the number of people who were involved and it relates to the sensitivity of the study protocol. In other words, the more individuals who were involved, the more refinement could be assigned to the numbers. There is, with any kind of experiment, a certain level at which one can no longer discern either differences or similarities because the numbers of subjects are not large enough. Generally the more subjects, the more definition one

can assign to a finding.

Q. Now, do you recall, sir, on cross examination being questioned by Mr. Carr about the Schecter article for the proposition that TCDD causes an aberrant effect on the human nervous system?

A. Yes, I recall that.

Q. I'd like to direct your attention to that exhibit, if I may, I think it's 1643, if I'm not mistaken, no, it's 1436.

A. Excuse me, I was just going to correct you.

Q. You have it there before you?

A. No, sir, I do not, 1463 is the Pazderova article.

MR. HEINEMAN: Okay. Sorry, Tammy. I've got another copy, my own copy, Dr. Dost. And, let me hand you that. Do you recognize that document?

A. Yes, I do.

Q. Now, sir, in your opinion, sir, are the findings in the -- well, first of all in the Schecter article, were there certain findings made with respect to a number of patients that were examined?

A. This particular -- okay, on Page 248, this Chapter reports three case histories where patients developed abnormal liver[enzymes after exposure to PCB's, chlorinated dioxins, naphthalenes, biphenylenes, and related compounds

and whose liver biopsies, when analyzed at an ultrastructural level two years after exposure, show morphological lesions similar to those found in previously published animal studies after dosing animals with PCB's, or dioxins, and so forth.

Q. In your opinion, sir, are those, the findings, of that article, useful for attributing causation of effects to any one particular chemical?

A. Well, that soot contained 10 percent PCB's. In other words, 100 is -- the number they use is a hundred million parts per billion, which is 10 percent of the soot was PCB's and PCB's are qualitatively caused similar effects, it also contained biphenylenes, which are somewhat related compounds, 20 thousand parts per billion of dibenzo-furans, and 10,000 parts per billion of polychlorinated dibenzo-para-dioxins, and at this point it does not specify which dioxins or furans. It may be that there is another analysis. That was the initial analysis that was made of the soot, so there is an enormous amount of PCB's, vastly greater relatively than the dioxins, the chlorodioxins that were in that mixture, and the furans as a general case without specifying which isomers were also there, in larger quanities than the dioxins, and I don't think that it would be possible to say anything more than that this mixture -- this mixture was probably responsible for the effects, and beyond that I

don't think it would be appropriate to assign the impact to any one of the components.

Q. Now, in your opinion, sir, --

MR. CARR: Object, Your Honor, suggestive. Starting to be suggesting, not asking for his opinion.

THE COURT: Rephrase the question.

Q. (by Mr. Heineman) All right. Do you have an opinion, sir, whether the same condition applies to the Spolana incident and the papers relating to that?

A. I think so, yes.

Q. What is your opinion, sir?

A. Well, my opinion is that there is a mixture of the have -- substantial number of chemicals, many of which were in very very high concentrations, and I do not believe that it's possible to assign specific impacts to any one of those components exclusively.

Q. Now, with respect to the Diamond-Shamrock incident, sir, do you have an opinion whether that incident would involve the same situation?

A. I believe it would.

Q. Now, do you recall, sir, Mr. Carr discussing with you whether porphyria can cause an adverse effect on the nervous system?

A. Yes.

Q. Now, do you recall, sir, from your review of Dr. Silbergeld's testimony in this case, whether she relied on any particular articles in connection with this subject?

A. I remember some.

Q. Would you hand the witness Plaintiff's Exhibit 1640 and 1641.

Q. What is exhibit 1640, sir?

A. Let's see, there are actually two papers. I think the one that we are concerned about here is in the archives of Physical, Medical and Rehabilitation in 1971 called peripheral neuropathy and acute intermittent porphyrias and the author is Willibald Nagler, who is a physician in New York City or was.

Q. I'm sorry?

A. He was a physician in New York City. This paper is in 1971, so --

Q. And Exhibit 1641, sir, would you identify that for us, please, sir?

A. It's a paper in the Journal of Neurology, Neurosurgery and Psychiatry, and is titled, On the nature of the peripheral nerve lesions associated with acute intermittent porphyria, authors J. B. Cavanagh, R. S. Mellick. Apparently they are pathologists.

Q. Now, sir, in your opinion, do you have an opinion

as to whether or not those articles indicate that porphyria is associated with neurological manifestations?

A. Well, those articles which speak of -- yes, I have an opinion.

Q. What is that, sir?

A. Well, those articles which speak to acute intermittent porphyria, which is a genetically based disease, do describe peripheral neuropathy associated with that particular condition.

Q. Now, do those articles -- do you have an opinion whether those articles relate to the issue of whether chemically induced porphyria is associated with peripheral neuropathy?

A. I have such an opinion, yes.

Q. What is that opinion, sir?

A. I do not believe that those relate to the issue of porphyria associated with toxic substances.

Q. Now, do you have an opinion, sir, as to whether or not chemically induced porphyrias are associated with peripheral neuropathy?

A. I believe they are not.

Q. And why do you believe that, sir?

A. Well, that is general medical textbook information. It's found in all the medical, internal

medicine tests that I have indicated, that prophyrias are not associated with neurological manifestations.

Q. Now, do you recall Mr. Carr asking you questions about the relative volatility of DDT and TCDD?

A. Yes.

Q. And you recall him asking whether we should be concerned about TCDD volatilizing and spreading around the world in a vapor form?

A. Yes.

Q. What is your response to that suggestion?

A. I believe I responded at that time that I thought that it was not of consequence, that is that TCDD would not be expected to distribute through its volatility.

Q. Now, what are the reasons for your opinion, sir?

A. The vapor pressure of TCDD is very very low, only very very minute amount of it can exist in the atmosphere at any one time, assuming that it can get into the atmosphere. The vapor pressure of TCDD or its volatility, if you will, is responsible for its exceedingly slow movement within a soil matrix. With respect to a comparison with DDT, DDT is not photodegraded. DDT remains in tact in sunlight. Furthermore, the amounts of DDT involved are enormous and the useage of DDT at the time when it was being used widely as an insecticide were on the order of a hundred million pounds a

year in the United States, and I'm told probably a total of twice that worldwide. It is also much more volatile than TCDD. Its vapor pressure is substantially higher, 50 or a hundredfold. So it has the capacity if it were to emerge into the atmosphere, it has -- it is not in any danger of being broken down by sunlight. It's one of the reasons why it has been so persistent.

Q. Is or was DDT a contaminant in some other material?

A. DDT was a primary chlorinated organic chlorinated hydrocarbon insecticide. It was manufactured in enormous quanities as an insecticide, very widely used from World War II until relatively recently.

Q. And, is TCDD an insecticide or a pesticide?

A. TCDD is a trace contaminant in at least 2,4,5-T and related herbicides.

Q. Is it itself a pesticide?

A. No, sir, it is not.

Q. Now, you mentioned the amount of DDT that had been applied worldwide, how would you compare that, sir, to the amount of TCDD that might be available?

A. My figures on the amount of 2,4,5-T in order of magnitude, I do not have the exact numbers, but the useage of 2,4,5-T at the time of its maximum use was probably less than ten million pounds per year. If the contamination levels of

TCDD were considered to be one part per million, and that is going to be really very high relatively to actual contaminant levels with the exception of some of the product that was manufactured during Viet Nam era, but if that contamination level was considered to be a part per million, one part per million, rather than the less than .1 part per million that was in effect essentially since 1971, that would mean a total of ten pounds.

Q. Of what?

A. Of TCDD across the -- across North America as compared with, what would it be, a hundred million pounds approximately of DDT. In other words, there is a ten million-fold difference, at least, and that does not take into account such events as photodegradation and so on.

Q. Does DDT tend to bind to soil or anything like that?

A. It does, apparently not as effectively as TCDD, but it binds to some extent.

Q. All right, sir --

THE COURT: Before you get into your next topic, is this a good point for a short break?

THE COURT: Oh, sure, Judge.

THE COURT: We will take about a ten-minute recess and continue with testimony. I would remind you that the

admonishments I gave you earlier will apply during this break also. Court is in recess.

(Following a discussion in Chambers which was off the record, Court adjourned for the day.)

COURT ADJOURNED:

STATE OF ILLINOIS)
)
TWENTIETH JUDICIAL CIRCUIT) SS
)
COUNTY OF ST. CLAIR)

I, DEBRA M. MUSIELAK, certify the foregoing to be a true and accurate transcript of the testimony and proceedings in the above-entitled cause.

Dated this 18 day of December, 1985.

Debra M Musielak