

IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL CIRCUIT

ST. CLAIR COUNTY, ILLINOIS

FRANCES E. KEMNER, ET AL.,

Plaintiffs,

vs.

MONSANTO COMPANY,

Defendants.

NO. 80-L-970

REPORT OF PROCEEDINGS

MAY 31, 1985

Before the HONORABLE RICHARD P. GOLDENHERSH, Circuit Judge

APPEARANCES:

MR. REX CARR and MR. JEROME SEIGREID, Attorneys at Law,
on Behalf of the Plaintiffs; and

MR. KENNETH HEINEMAN and MR. JOSEPH NASSIF
on Behalf of the Defendant, Monsanto Company.

1 Counsel.

2 MR. HEINEMAN: Your Honor, may I object to this
3 procedure. What in the world is he doing? Is he asking
4 Dr. Roush to comment on somebody else's testimony?

5 THE COURT: Gentlemen, can you approach the bench
6 for a minute, please.

7
8 (Colloquy held at the bench out of the hearing of
9 the jury.)

10 THE COURT: What do you have in mind?

11 MR. CARR: I want to show that they are the ones
12 that have said 2, 3, 7, 8 is in 2, 4-D by the testimony of
13 Hileman under the questioning of Musgrave.

14 MR. HEINEMAN: Well, your Honor, it's totally
15 improper for him to--

16 MR. CARR: Unless Mr. Hileman--

17 MR. HEINEMAN: Why don't you ask this witness
18 whether 2, 3, 7, 8 is in 2, 4-D.

19 THE COURT: Go ahead.

20 MR. HEINEMAN: My objection is overruled, your
21 Honor?

22 THE COURT: It's overruled. I didn't know you had
23 made one. But it is overruled.

24

1 (The following proceedings were held within the
2 hearing of the jury.)

3 Q (By Mr. Carr) Dr. Roush, have you had an opportu-
4 nity to read the testimony of Dr. Hileman?

5 A No, sir, I couldn't tell what the subject was
6 starting out in the middle like that.

7 Q All right. Could you get that can of Weed B Gon,
8 if it's not already out.

9 MR. HEINEMAN: Do you have a copy of it for me,
10 Mr. Carr?

11 MR. CARR: I don't, Counsel. I assumed you had.

12 MR. HEINEMAN: I didn't really know you'd be bring-
13 ing up Dr. Hileman's testimony.

14 MR. CARR: You oughtn't make accusations if you
15 weren't there for the facts.

16 MR. HEINEMAN: Why don't you ask this witness about
17 it. Your Honor, I would like to state for the record an
18 objection that Mr. Carr's representation of what is in that
19 testimony. This is cross examination, a clarification of
20 Dr. Hileman by Mr. Musgrave after Mr. Carr had asked Dr.
21 Hileman a hypothetical question to assume that if there had
22 been dioxin in 2, 4-di and it had gone through in 2, 4-D,
23 and if it had gone through into the Weed B Gon, then to make
24 certain calculations, and that's what Dr. Hileman was

1 testifying to in this clarification. The calculations that
2 were being made based on the hypothetical question, asked
3 him by Mr. Carr, in no sense was there an admission that in
4 fact 2, 4-D as it's been sold as a herbicide contains 2, 3,
5 7, 8-TCDD. I object to the manner in which Mr. Carr is
6 trying to misuse this information.

7 MR. CARR: Your Honor, for the record, Monsanto
8 has admitted through its various witnesses that at least up
9 until 1981 when Diamond Shamrock changed the process of
10 manufacturing 2, 4-D, that the phenolic contents of 2, 4
11 dichlorophenol would go into the 2, 4-D, that in September
12 of '81, or sometime in late '81, the Diamond Shamrock reactiv-
13 vated the process known as toluene extraction, which they
14 said removed the dioxin content from the 2, 4 dichlorophenol.
15 Mr. Musgrave in examination of Dr. Wilson--of Dr. Hileman,
16 and the plaintiffs in examination of Dr. Wilson, demonstrated
17 that if there was 2, 3, 7, 8, or for that matter any TCDD in
18 the 2, 4 dichlorophenol it would pass into the 2, 4-D that's
19 being manufactured. This examination that was done by Mr.
20 Musgrave on March 21, 1985 of Fred Hileman is totally
21 consistent with those statements that are in evidence, in that
22 2, 3, 7, 8 would be in the 2, 4-D.

23 MR. HEINEMAN: Your Honor, I believe that the
24 EPA said in the document that Mr. Carr introduced in

1 evidence, and I'm trying to find it, I think the EPA said
2 that no 2, 3, 7, 8 has ever been found --

3 MR. CARR: We agree one hundred percent that that's
4 exactly the statement.

5 MR. HEINEMAN: -- in 2, 4-D. Never been found in it.

6 MR. CARR: I agree one hundred percent that that's
7 in the statement there. It's also demonstrated that the 2, 4-D
8 they were examining was from Dow, and there's a table of
9 material that they have in there. It's Dow material. No state-
10 ment ever been made that the 2, 4-D made from Monsanto to 2, 4
11 dichlorophenol, and we have conceded that 2, 3, 7, 8 is not
12 detectable levels in all batches of 2, 4 dichlorophenol. We are
13 not representing that it is. It's a batch--at least up until
14 1979 when they quit using caustic that contained high levels
15 of 2, 3, 7, 8 and Counsel doesn't know that, but he should
16 know that, if he's read the record.

17 MR. HEINEMAN: Counsel doesn't know
18 what?

19 THE COURT: Okay. The objection is overruled.
20 Excuse me, I'm losing my voice. Mr. Carr, you may proceed on
21 your line of questioning.

22 Q (By Mr. Carr) Doctor, does the testimony of Dr.
23 Hileman here that I've asked you to examine propose that
24 there would be twenty-five parts per billion of 2, 3, 7, 8

1 or coeluting isomers that would be analyzed with 2, 3, 7, 8
2 in the original 2, 4 dichlorophenol. The middle of page
3 sixty-one.

4 A Yes.

5 Q And on the next page. Does Dr. Hileman give an
6 answer saying that, starting on the bottom of page sixty-one,
7 "the concentration that I calculated as being in the can of
8 being one point six parts per billion?" Do you see that, sir?

9 MR. HEINEMAN: Your Honor, may I have a continuing
10 objection to the use of this transcript as being totally
11 improper and totally beyond the rules of evidence?

12 THE COURT: Sure. The objection is overruled.
13 It's noted as a continuing objection in improper use.

14 THE WITNESS: I see that, yes.

15 Q (By Mr. Carr) There's no question but what the
16 answer is referring to the--that fraction of the--or that
17 part of the 2, 3, 7, 8 that was in the can; isn't that
18 correct, Doctor?

19 A It doesn't say it's 2, 3, 7, 8.

20 Q Well, Doctor, if you look at the question immediately
21 ly above it, the answer immediately above it, it talks about
22 twenty-five parts per billion of 2, 3, 7, 8, does it not, sir?

23 A Or it says coeluting isomers. It doesn't say
24 specific 2, 3, 7, 8.

Q Doctor, for the time being would you assume that

1 it coelutes with 2, 3, 7, 8, that it might well be 2, 3, 7,
2 8, or is 2, 3, 7, 8?

3 MR. HEINEMAN: Your Honor, it's asking him to
4 assume what maybe he hopes is in the testimony. What in
5 the world is this, Judge? I'm objecting to it as an improper
6 procedure.

7 THE COURT: That's the third objection. The first
8 one I've overruled. The second one was a continuing objection.
9 This objection contains nothing new. It is a continuing
10 objection and is so noted. Unless you have any new
11 objection, I don't want any further objections from you
12 on this line of questioning. Mr. Carr, you may continue.

13 MR. HEINEMAN: Your Honor, may I speak? I thought
14 this was different in that he asked him to assume something
15 that wasn't in the transcript, and that's what I was
16 objecting to.

17 THE COURT: The question itself directed him to
18 something in the transcript two questions away. This is
19 covered under your continuing objection. Unless you have
20 something new, I don't want to hear any repetition of the
21 continuing objection. Mr. Carr, you may proceed.

22 Q (By Mr. Carr) Dr. Roush, his answer on page sixty-
23 one says, quote, you asked me to use a value of twenty-five
24 parts per billion of the 2, 3, 7, 8 or coeluting isomers

1 that we would analyze with 2, 3, 7, 8 in the original
2 2, 4 dichlorophenol. Isn't that exactly what he says?

3 A Yes.

4 Q And does not his answer that there's one point
5 six parts per billion in the can refer to the twenty-five
6 parts per billion of 2, 3, 7, 8 or coeluting isomers?

7 A Yes.

8 Q And that would be one point six parts per billion
9 in that can of either 2, 3, 7, 8 or coeluting isomers,
10 would it not, sir?

11 A Yes.

12 Q And that would be in this can for your information,
13 Doctor, right in front of you. Now, Doctor, Dr. Wilson
14 has also testified to the truth of plaintiff's exhibit 1411.
15 While it does not say 2, 3, 7, 8-TCDD, it does describe
16 2, 4-D as being an indirect, and for that matter a direct
17 source of TCDD in human beings, doesn't it, sir?

18 A Yes.

19 Q And you, yourself, along with Dr. Suskind, have
20 written documents which describe TCDD as a contaminate of
21 2, 4-D, have you not, sir?

22 MR. HEINEMAN: I'm sorry, Mr. Carr, was that
23 TCDD?

24 MR. CARR: TCDD.

1 MR. HEINEMAN: Not 2, 3, 7, 8. Okay.

2 THE WITNESS: Yes.

3 Q (By Mr. Carr) And TCDD is a term that includes
4 all the tetras, doesn't it, sir?

5 A Not necessarily.

6 Q Does tetrachlorodibenzo-p-dioxin include 2, 3, 7,
7 8?

8 A Yes.

9 Q All right.

10 A But when you say that it doesn't mean that's what
11 it is.

12 Q It doesn't mean that that's what it is not, does
13 it, sir?

14 A That's right.

15 Q And when you're referring to TCDD, you mean to
16 refer to TCDD tetrachlorodibenzo-p-dioxin, do you not, sir?

17 A Yes.

18 Q Which includes 2, 3, 7, 8-TCDD?

19 A Yes.

20 Q Yes. And, Doctor, the term TCDD here in this
21 exhibit includes 2, 3, 7, 8-TCDD, does it not, sir?

22 A No, not necessarily.

23 MR. HEINEMAN: Objection, how could he know that?

24 THE COURT: Objection is overruled.

1 THE WITNESS: Not necessarily.

2 Q (By Mr. Carr) Didn't you just agree, sir, that
3 the tetrachlorodibenzo-p-dioxin includes 2, 3, 7, 8-TCDD?

4 A Yes.

5 Q This is the term TCDD.

6 A That doesn't mean it includes 2, 3, 7, 8.

7 Q Well, Doctor, didn't you just say two seconds ago
8 that the term TCDD includes 2, 3, 7, 8?

9 A Yes.

10 Q And the term here is TCDD, is it not, sir?

11 A Yes.

12 Q All right. Let's just stop right there. Now,
13 Doctor, I hand you--would you mark this as an exhibit.

14
15 (At this time Plaintiff's exhibit 1434 was marked
16 for identification by the court reporter.)

17 Q (By Mr. Carr) I hand you what's been marked
18 plaintiff's exhibit 1434 and ask you to look at that and
19 see if you recognize that as a document, I think, from your
20 file, but not necessarily, but certainly the file of
21 Monsanto. Make this 1434A, please.

22
23 (At this time Plaintiff's exhibit number 1434A
24 was marked for identification by the court reporter.)

1 Q (By Mr. Carr) Doctor, I'd like to also hand you
2 exhibit 1434A and see if you don't see that as a copy of the
3 page you're looking at at this very moment.

4 A Yes, sir.

5 MR. CARR: Your Honor, I'd like to introduce 1434--
6 I don't believe I got an answer to the 1434. You recognize
7 that as a Monsanto document, don't you, sir?

8 A Yes. Yes.

9 MR. CARR: I'll offer 1434 and 1434A into evidence,
10 and ask leave to pass 1434 to the jury.

11 THE COURT: Any objection?

12 MR. HEINEMAN: Object, your Honor, total lack of
13 foundation laid for this witness as to this document.

14 THE COURT: Objection is overruled. It's admitted
15 over objection.

16
17 (At this time Plaintiff's exhibits 1434 and 1434A
18 were admitted into evidence over objection.)

19 MR. HEINEMAN: Which is 1434A, Mr. Carr?

20 MR. CARR: The second page, Counsel, here. You
21 can have a copy.

22 Q (By Mr. Carr) Doctor, this copy "Preparedness"
23 Q & A Re 'Agent Orange' Dioxin At Krummich," was that
24 document given to you for review?

1 A Yes.

2 Q And the writing on the document, is that all your
3 writing? I recognize some as your writing, but I don't
4 recognize all of it as your writing, or is it all your
5 writing?

6 A It's not all my writing.

7 Q All right. Do you know who else it is? It's
8 not important. If you don't know.

9 A I know Dr. Tillman's writing.

10 Q All right. Doctor, the second page there that
11 has been passed to the jury discusses the human effects of
12 TCDD and PCDF, that would be polychlorinated furans
13 is that right, sir? TCDD standing for tetrachlorodibenzo-
14 p-dioxin, which would include 2, 3, 7, 8-TCDF, would it not,
15 sir?

16 A Yes, sir.

17 Q And occupational exposures TCDD and PCDF would be
18 then considered to be contaminants of Trichlorophenol,
19 Trichlorophenolate, 2, 4-D, 2, 4, 5T, and PCB, would it not,
20 sir?

21 A Yes.

22 Q And now, Doctor, is this second page a document
23 that you prepared, or is it one that was prepared by Dr.
24 Suskind? See Dr. Suskind, an article by Dr. Suskind is

1 attached to this document in which he makes the same
2 statement.

3 A No, this is from our department.

4 Q All right. Your department prepared this state-
5 ment then, based upon the knowledge that you have of the
6 chemistry from your department that TCDD's are contaminants
7 of 2, 4-D's; is that correct, sir?

8 A Yes.

9 Q All right. Now, the statement that Dr. Suskind--
10 turn to the very last page of exhibit 1434, which I handed
11 you. He also says that populations involved in the manu-
12 facture and use of 2, 4, 5T and 2, 4-D are good sources of
13 information for human health--human health effects, does he
14 not, sir?

15 A I haven't read this yet.

16 Q Oh, I'm sorry.

17 A I haven't read the statement of Suskind yet.

18 Q Well, go ahead and read enough to become familiar
19 with it, and then direct your attention to the last page, if
20 you would, please. The only part of the article that I
21 really wish to discuss with you, Doctor, so you need not
22 read it all for purposes of this cross examination at this
23 time at least, is just that part that refers to TCDD ex-
24 posure as to include those populations involved in the man-

1 manufacture and use of 2, 4-D. Did you read that, sir--

2 A Yes, sir.

3 Q --so that I can ask you that?

4 A All right. Yes, sir.

5 Q Dr. Suskind does say in this document, does he
6 not, he discusses the human health effects of exposure to
7 TCDD's starting with the accident in 1949, that Nitro
8 exposure to TCDD, he discusses as well, does he not, identi-
9 fiable populations known to have been exposed to TCDD are
10 good potential sources of information, and that includes
11 those populations involved in the manufacture and use of
12 2, 4-D, does it not, sir?

13 A Yes. But he doesn't mean 2, 3, 7, 8 necessarily.

14 Q Well, Doctor, he doesn't not mean 2, 3, 7, 8
15 either, does he, sir?

16 A He didn't know.

17 Q He uses TCDD just as you use it, don't you, sir?

18 A No, he didn't at that time.

19 Q Excuse me, Doctor. Don't you use the term TCDD
20 just exactly as everyone else does, that is to include
21 2, 3, 7, 8-TCDD?

22 A No, sir.

23 MR. HEINEMAN: Objection as everyone else does.
24

1 How in the world do you know how everyone else uses the
2 term? You're asking this witness to speculate how everyone
3 else uses the term. Clearly TCDD includes twenty-two
4 isomers, your Honor, any one or more of twenty-two isomers.
5 I'll object to the question.

6 MR. CARR: I certainly agree one hundred percent.

7 Q (By Mr. Carr) When you use the term TCDD, you
8 mean to include all those isomers of TCDD, including 2, 3,
9 7, 8, do you not, sir?

10 THE COURT: For the record, the objection is
11 overruled.

12 THE WITNESS: Everything--

13 Q (By Mr. Carr) Do you not, sir?

14 A No.

15 Q When you use the term TCDD you're not talking
16 about tetrachlorodibenzo-p-dioxin?

17 A Yes.

18 Q And is 2, 3, 7, 8-TCDD a tetrachlorodibenzo-p--
19 dioxin?

20 A Yes.

21 Q Now, Dr. Suskind says that identifiable populations
22 include those involved in the manufacture and use of 2, 4-D,
23 doesn't he, sir?

24 A Yes.

1 Q And he's discussing TCDD, is he not, sir?

2 A But he is not being specific what he means.

3 Q Sir, I didn't say he was being specific, did I,
4 sir?

5 MR. HEINEMAN: Objection, your Honor.

6 THE COURT: Objection is overruled.

7 Q (By Mr. Carr) All the TCDD isomers have some
8 toxicity, don't they, sir? All of them, every single one of
9 them.

10 A Not the same.

11 Q I didn't say the same.

12 A Every chemical has toxicity.

13 Q Doctor, I'm not even quarreling with that. He's
14 talking about all of the TCDD isomers, is he not, sir?

15 A No.

16 Q Well, Doctor, does he not use--he's a scientist,
17 isn't he, sir, just as you are?

18 A Yes.

19 Q And when you use the term TCDD, you mean to include
20 all the TCD isomers, don't you, sir?

21 A No, I do not.

22 Q Well, which ones do you mean to exclude?

23 A If I'm talking about 1, 3, 6, 8, I'd say 1, 3, 6, 8.

24 Q Sir, I'm not asking you when--I'm asking you what

1 you mean when you use the term TCDD.

2 A I don't use that without being specific.

3 Q Well, Doctor, you just used it here. This is
4 your document that you prepared, Human Health Effects TCDD.
5 You used that.

6 A Yes.

7 Q You said yourself you prepared it.

8 A Yes.

9 Q So, Doctor, don't tell us you don't use it. You
10 did use it here in this document, did you not, sir?

11 A Yes.

12 Q Doctor, the term TCDD as used in this document
13 includes 2, 3, 7, 8, does it not, sir, 1, 3, 6, 8, and all
14 the other TCD isomers?

15 A It's hard to be sure what he meant by that.

16 Q Doctor, we are talking now about what you meant.
17 When you included the term TCDD, did you not mean to include
18 2, 3, 7, 8 in the use of that term?

19 A We were trying to find out whether--

20 Q Excuse me. Doctor, could you answer that question?

21 MR. HEINEMAN: He is answering it, Judge. He got
22 four words out and Mr. Carr is interrupting him. May he
23 please answer the question?

24 THE COURT: He's not responsive. Overruled.

1 Please answer the question, Doctor.

2 THE WITNESS: Repeat the question for me, please.

3
4 (The previous question was read back by the
5 court reporter.)

6 THE WITNESS: Yes.

7 Q (By Mr. Carr) Thank you, Doctor. Do you have
8 any knowledge that when Dr. Suskind used the term TCDD in
9 this document that he meant to exclude 2, 3, 7, 8 from
10 that term, sir?

11 A No.

12 Q Now, Doctor, you also have put out other documents
13 at Monsanto in which you use the term TCDD, have you not,
14 sir? Haven't you, sir?

15 A Yes, sir.

16
17 (At this time Plaintiff's exhibit 1435 was
18 marked for identification by the court reporter.)

19 Q (By Mr. Carr) Handing you now what's been
20 marked plaintiff's exhibit 1435. If you could look at
21 that and see if you recognize that as a document either
22 prepared by your department or by somebody in your--by you
23 or somebody in your department. Make this 1435A.

24

1 (At this time Plaintiff's exhibit 1435A was
2 marked for identification by the court reporter.)

3 Q (By Mr. Carr) I show you 1435A and ask you if
4 you recognize that as a page from 1435, one more page.

5 A Yes, sir.

6 Q Do you recognize 1435 as a Monsanto document
7 prepared by your department?

8 A Yes, Sir.

9 Q I offer 1435 and 1435A into evidence, if it
10 pleases the court.

11 MR. HEINEMAN: Which page is 1435A.

12 MR. CARR: I'll give you a copy.

13 MR. HEINEMAN: Thank you. I'm sorry, was the
14 exhibit offered, your Honor?

15 THE COURT: Yes. Both of them were.

16 MR. HEINEMAN: We have no objection.

17 THE COURT: They are admitted without objection.

18 Q (By Mr. Carr) Doctor, directing your attention
19 to the first page of exhibit 1435, right about one-third
20 of the way down, (Tetra-2, 3, 7, 8-TCDD).

21 A Yes, sir.

22 Q Now, you understand there are including--your
23 department is including there that the Tetra-2, 3, 7, 8-
24 TCDD all to mean one and the same, more or less, aren't

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1 THE COURT: You may continue.

2 Q (By Mr. Carr) Doctor, you meant what you said,
3 did you not, sir, where there's 2,4-D or PCB or 2,4,5T in
4 the environment that TCDD may be found in the soil, animals
5 or fish?

6 A The answer is it can.

7 Q My question is you meant what you said there,
8 did you not, sir?

9 A Well, this was written in 19--

10 Q Excuse me, Dr. Roush. I know when it was written.
11 It was written October 24, 1979. The document clearly says
12 that. My question is you meant what you said in this
13 document, did you not, sir?

14 MR. HEINEMAN: Your Honor, I object. He's assum-
15 ing that Dr. Roush wrote it. I don't think he's established
16 that.

17 MR. CARR: He has agreed that his department
18 wrote it. When I say you, the witness knows I don't mean
19 him personally. But I mean Monsanto. He's a representative
20 of Monsanto, Counsel, just as you are.

21 MR. HEINEMAN: So you mean everybody in Monsanto.
22 Okay.

23 Q (By Mr. Carr) You meant what you said in this
24 document, didn't you, sir?

1 MR. HEINEMAN: You're asking him to--I would
2 object to--

3 MR. CARR: Your Honor, could I continue this
4 cross examination without this continued harassment by Mr.
5 Heineman?

6 MR. HEINEMAN: I think I'm allowed to make an
7 objection, your Honor.

8 THE COURT: I think the question was clarified.
9 Your objection is overruled. Mr. Carr, you may proceed.
10 Doctor, please answer the question.

11 THE WITNESS: That sentence is only partially
12 correct.

13 Q (By Mr. Carr) Doctor, my question is not whether
14 it's correct or false. It may be the wrongest statement.
15 It may be a total lie. It may be completely the truth.
16 All I'm asking you, Doctor, is when you said that did you
17 mean it, sir?

18 A Yes.

19 Q Doctor, this statement that you made was in the
20 same year that the Sturgeon spill took place, isn't that
21 correct, sir?

22 A Yes.

23 Q And it was in that year that Monsanto decided to
24 do this study on its chloriphenols to find out the extent

1 of the problem, isn't that correct, sir?

2 A No.

3 Q No, that isn't correct?

4 A No.

5 Q Well, what part of my question is incorrect, that
6 '79 is not the year you chose to make the study?

7 A No.

8 Q Or that you did not make a study?

9 A We chose to make the study before 1979.

10 Q When did you choose to make that study? What
11 year, sir?

12 A On the Nitro population?

13 Q What year did you make the study of your chlori-
14 phenated--the effect on the chloriphenals on the world's
15 environment?

16 A In 1978.

17 Q And you tested your chlorinated phenols in 1978?
18 What chlorinated phenols did you test other than a couple
19 of batches of OCB in March of 1978, in the total year of
20 1978, Doctor.

21 MR. HEINEMAN: Let me object to this, your Honor.
22 The witness said that that's when they decided to do the
23 Nitro study.

24 MR. CARR: My question wasn't directed to Nitro,

1 Counsel.

2 THE COURT: The objection is overruled.

3 THE WITNESS: I thought we were talking about
4 Nitro when you said the study.

5 Q (By Mr. Carr) My question was you determined to
6 do a study. I wasn't talking about the workers of Nitro.
7 I didn't even mention Nitro. Counsel did to you, but I
8 didn't.

9 A All right.

10 Q I said when Monsanto decided to do its study,
11 and this status summary is part of that study. It's part
12 and partial of that study, isn't it, sir? Talking about
13 dioxins, where you can find them, the chemistry of them,
14 the occurrence, the precursors, the biological effects on
15 man, Monsanto's involvement in it. This is a summary of
16 work that was started--Nitro is mentioned one place in
17 this document--two places. Now, Doctor, my question refers
18 to the study that Monsanto undertook. You undertook it in
19 1979, did you not?

20 A Yes. Yes.

21 Q You did a program of studying chlorinated phenols
22 to find out what TCDD's, or for that matter what total
23 dioxins were in your products, and you undertook other
24 studies in addition, and this document 1435 is a result--

1 a partial result of that study, isn't that correct, sir?

2 A Yes.

3 Q Doctor, I'll get back to this document at a later
4 point, I believe as to the human health effects that are
5 mentioned therein. But I'd now like to pass to--get back
6 to the line of testimony that we were into yesterday before
7 this diversion took place. Doctor, the view that you at
8 Monsanto, and that you have yourself, insofar as TCDD's
9 are concerned, and 2, 3, 7, 8 in particular, you have a
10 view, don't you, sir, I think you testified yesterday that
11 they only cause skin problems in people. You also have a
12 view, don't you, sir, that if it doesn't cause chloracne
13 that it's not going to cause any problems whatsoever.

14 A Yes.

15 Q And, Doctor, that view that you said here that
16 if it doesn't cause chloracne that it's not going to cause
17 any human health problems whatsoever, that's a view that
18 Monsanto has as well as just you personally, isn't it, sir?

19 A Yes.

20 Q It is that view of yours and Monsanto's that has
21 guided your actions, your efforts insofar as possible bad
22 health effects might be upon the people at Sturgeon and
23 the world in general, isn't that correct, sir?

24 A Yes, sir.

1 Q And now, you, of course--you know that acute
2 exposures to 2, 3, 7, 8 or TCDD's can cause a number of
3 effects, don't you, sir?

4 A Yes, sir.

5 Q And you know also that all the--that all the
6 human health effects to 2, 3, 7, 8-TCDD have not yet been
7 established. You know that as well, don't you, sir?

8 A The full range of effects have not been establish-
9 ed probably. I don't know. I can't answer that question.

10 Q Well, didn't you--didn't you testify that
11 affirmatively that it has not been established that there
12 are not other effects, Doctor? I don't want to take ad-
13 vantage of you, because I have read your deposition, and
14 maybe you haven't. Specifically, it hasn't been established
15 as yet, sir, that there are not other effects from exposure
16 to TCDD other than chloracne; isn't that correct, sir?

17 A That's right.

18 Q Doctor, but yet you've taken the position
19 affirmatively that 2, 3, 7, 8-TCDD is not highly toxic to
20 man. You've taken--you interrupt me if I'm saying anything
21 that's not correct.

22 A No, I haven't said that.

23 Q You haven't said that?

24 A No.

1 Q I don't want to use it to impeach you at this
2 point, Doctor, because I think you probably have forgotten
3 what you said. But I'll direct your attention to the
4 deposition which you gave in 1983 and see if you don't--
5 if that doesn't refresh your recollection as to your
6 statement.

7 MR. HEINEMAN: Do you have a page number?

8 MR. CARR: Yes. Sixty-eight, Counsel.

9 MR. HEINEMAN: Page sixty-eight in the margin?

10 MR. CARR: Yes.

11 MR. HEINEMAN: 1983?

12 MR. CARR: Yes.

13 Q (By Mr. Carr) Does it refresh your recollection,
14 Doctor?

15 A Yes.

16 Q And you did say at that time you do not agree
17 that 2, 3, 7, 8-TCD is highly toxic to man, didn't you?

18 A Yes, but what you're saying is what you mean
19 by highly toxic.

20 Q Doctor, I used exactly the same words then that
21 I used now. You said today that you didn't ever say that
22 it wasn't highly toxic to man. But in 1983 you did say
23 that, didn't you, sir, using exactly the same words? You
24 understand that, sir?

1 A Yes.

2 Q Yes. Now, have you since 1983 come to the con-
3 clusion that 2, 3, 7, 8-TCD is highly toxic to man?

4 A Define what you mean by highly toxic.

5 Q Doctor, however you took the words to mean highly
6 toxic in 1983. You didn't ask me for any further definition
7 then. You understood what I meant then. I think you under-
8 stand what I mean now.

9 A Yes.

10 Q Now, do you say today that 2, 3, 7, 8-TCD is
11 highly toxic to man?

12 A Highly toxic is--it has to be defined. Highly
13 toxic as compared to a rat or the mouse, or highly toxic in
14 man--

15 Q Doctor, however you feel like defining the word
16 highly toxic. You define the word highly toxic for us,
17 please, sir, as you want to and then tell us whether or not
18 2, 3, 7, 8-TCD is highly toxic to man.

19 A 2, 3, 7, 8 tetrachlorodibenzo-para-dioxin is
20 highly toxic to the guinea pig.

21 Q Doctor, first of all I've asked you to define the
22 words how you use highly toxic.

23 A I'm trying to.

24 Q You're using the words highly toxic, just tell us,

1 if you would, please, sir, what you understand others to
2 mean or yourself to mean when the words highly toxic are
3 used. That way we can communicate using the same meaning,
4 once I understand what you mean by it, sir.

5 A Yes. It can refer either to acutely toxic or
6 chronically toxic. It can be acutely toxic and be highly
7 toxic, and not highly toxic in a chronic exposure. Or vice
8 versa.

9 Q Okay. Now, is that your definition--you've got
10 two meanings then, highly toxic is highly toxic in an acute
11 basis, or highly toxic in a chronic basis.

12 A Or comparing with other.

13 Q Is 2, 3, 8-TCD highly toxic to man in either an
14 acute sense or a chronic sense?

15 A It's highly toxic.

16 Q Yes. In both senses, Doctor? I take it you mean
17 that to be in both senses?

18 A No.

19 Q You didn't mean it in both senses. All right.
20 What sense do you mean it?

21 A Acute.

22 Q I'm sorry?

23 A Acutely, it is highly toxic.

24 Q But chronic exposure it's not highly toxic; is

1 that what you're saying?

2 A Yes.

3 Q Doctor, then do you believe that the 2, 3, 7, 8-TCDD
4 cannot accumulate in the body?

5 A Yes, it can.

6 Q Doctor, if it can accumulate in the body, it can
7 take a series of small doses to add up to a large dose, can
8 it not, sir?

9 A Yes, sir.

10 Q And will it then be, when it adds up to the equiva-
11 lent of an acute exposure, would it then be highly toxic,
12 sir?

13 A I don't know.

14 Q Well, Doctor, if you know that an acute exposure
15 to TCDD is highly toxic to man, and you know, logic tells
16 you, and your past knowledge as a scientist in this field
17 tells you that you can accumulate enough doses to reach
18 that acute level. Why don't you know that if X amounts of
19 2, 3, 7, 8-TCDD is highly toxic to man, when exposed to an
20 acute one-time basis, that it's not highly toxic when
21 accumulated on a chronic basis?

22 MR. HEINEMAN: Your Honor, I object. He assumes
23 that the two levels are the same.

24 MR. CARR: That's correct.

1 THE COURT: Objection is overruled.

2 THE WITNESS: If a man has an acute exposure,
3 the amount of dioxins that get into the body will be dis-
4 tributed differently than the same dose, the same amount
5 with chronic exposure.

6 Q (By Mr. Carr) How is that, Doctor?

7 A It's the way it goes into the body. When it goes
8 in chronically, it goes into the tissue that has the great-
9 est affinity for the material, or in which it has the
10 greatest solubility. Acutely that doesn't take place.
11 It's distributed throughout the body in a different fashion,
12 and only after that acute exposure is the material leaving
13 the general tissues and will go back into the fat.

14 Q What you're saying is that, if I understand you
15 correctly, is the body doesn't have the capacity to deal
16 with large doses of TCDD, but it can deal with to some
17 extent smaller doses of TCDD; is that correct?

18 A Yes.

19 Q All right. Is that the sense of what you are
20 saying? Have I misinterpreted?

21 A No, no. It has something to do with equilibrium
22 in various tissues in whether you are going to see an
23 effect.

24 Q Doctor, we know that the liver has a great

1 affinity for TCDD, don't we, sir?

2 A Yes.

3 Q On a chronic or acute basis?

4 A No.

5 Q No. We don't know that?

6 A We know that--the only real knowledge that we have
7 is from the Seveso study where they found high levels of
8 dioxins in the liver. I haven't seen other studies in
9 which they vandalized the liver for dioxins.

10 Q Doctor, is what you're saying, and there was just
11 one lady that died of cancer six months or so after the
12 exposure, and there was just that one liver study is what
13 you're saying today based upon that sole, single, solitary
14 lady that died?

15 A I don't know what the question is.

16 Q No. You said that the Seveso, Italy death liver
17 was examined.

18 A Yes.

19 Q And found high concentrations of TCDD?

20 A Yes.

21 Q All right. Now, is the judgment that you have
22 given us here, the opinion that you've given us here, is
23 it based only on that study?

24 A What opinion?

1 Q The opinion that you've given us that the liver
2 has an affinity for acute exposures in dioxins--to dioxins.
3 The liver tissue will attract dioxins.

4 A The only data that we have that says it accumulates
5 in the liver is that--that's the only evidence I know that
6 it accumulates there.

7 Q All right. That's what I've asked you.

8 A Yes.

9 Q Your opinion then is based solely on that one
10 incident, that one liver study.

11 A I didn't say that it was concentrated in the liver.
12 You asked me what I knew about. I was trying to say the
13 only knowledge we have that it does accumulate in the liver
14 as it does in the rat is from that one study. That's the
15 only piece of information that I have.

16 Q Doctor, maybe we're not--because I believe you're
17 trying to answer my question, we must have some breakdown
18 in communication. I asked you to compare chronic and acute
19 exposures relative to high toxicity of dioxins.

20 A Yes, sir.

21 Q You answered to me that on an acute basis the
22 body deals with it differently than it does on a chronic
23 basis.

24 A Yes, sir.

1 Q All right. And then I asked you, well, isn't it
2 a fact that the liver attracts on an acute and on a chronic
3 basis the dioxins, and you said based upon one study yes,
4 you thought that to be so.

5 A I didn't say anything about chronic.

6 Q Well, what do you mean by the affinity of dioxins
7 and the liver on a chronic basis?

8 A In terms of where the dioxins will concentrate in
9 the liver chronically?

10 Q Yes.

11 A It's difficult to say. I'm sure that there will
12 be with the same level of exposure chronically--we have to
13 talk about a chronic exposure as we sit in the work place--

14 Q Long time, long range, day after day, year after
15 year exposure to--

16 A There will be a less concentration of dioxins
17 in the chronic exposed liver than there would be in an acute
18 one with the same dose.

19 Q Is what you're saying that if one is exposed, for
20 example, to a hundred parts per billion of TCD on occasion,
21 and exposed to a hundred parts per billion over a period of
22 two years, let's suppose, that there will be less concentra-
23 tion in the liver on the two year exposure than there would
24 be on the one day exposure?

1 A I can't do it when you talk about concentration.
2 A A hundred parts per billion. You have to talk about
3 absolute amounts.

4 Q Well, absolute amounts, a hundred grams, or a
5 hundred micrograms, or whatever.

6 A If we give a hundred grams over a long period of
7 time, there will be less in the liver than there would if
8 you gave it acutely.

9 Q On the one day?

10 A Yes.

11 Q Doctor, what's the basis for that? I'm not
12 quarreling with you. But I'm just telling you, what's the
13 basis for that opinion?

14 A It's the affinity of the fat for the dioxins that
15 take it out of the liver.

16 Q Well, it goes into the liver first then?

17 A Yes, sir.

18 Q And over a period of time it will pass from the
19 liver to the fat?

20 A That's right.

21 Q And it gets there through the blood, doesn't it,
22 sir?

23 A Yes, sir.

24 Q So for a time being, so what's in the blood is

1 then being transported from the liver to the fat?

2 A Yes, sir.

3 Q All right. So there's always a greater amount
4 in the fat at the end of a chronic exposure than there is
5 in the blood?

6 A Yes, sir.

7 Q Now, the Seveso study indicated that there was
8 three hundred to one. Is that consistent with what you
9 know about it?

10 A Three hundred to one of what?

11 Q Three hundred parts greater of dioxin concentra-
12 tion in the fat than there is in the blood.

13 A Oh, it's much more than that. It was something
14 of the order of eighteen hundred to one in the blood. It
15 was three hundred to one between the liver and the fat, I
16 think. It was a great disparity in getting into the blood,
17 into the fat as compared to in the liver.

18 Q Well, I think you're misapprehending the document.
19 It was a level of six, was the lowest level, and that was
20 in the blood. A level of eighteen hundred, I believe--

21 A In the fat.

22 Q Was in the fat.

23 A Yes, sir.

24 Q Now, that's a three hundred to one, the highest

1 level was eighteen hundred, Dr. Roush. That was in the fat.

2 A Yes.

3 Q The lowest level was in the blood.

4 A Yes, sir.

5 Q That was six.

6 A I remember that.

7 Q And eighteen hundred divided by six is three
8 hundred.

9 A Right. I thought that--

10 Q You see?

11 A I was relating that to liver rather than the
12 blood.

13 Q You thought the eighteen hundred was to liver?

14 A No. No, eighteen hundred was the fat. I thought
15 the intermediate was three hundred in the liver--

16 Q Then it would only be fifty to one if it's three
17 hundred. A ratio, sir, of three hundred to one, that is
18 the fat concentration of dioxins is three hundred times
19 greater than the blood concentration.

20 A I've forgotten what the blood concentration was.

21 Q It was six. Now, will you accept that, sir?

22 A Yes.

23 Q All right. Now, Doctor, these chronic health
24 effects that could occur, it is your judgment and Monsanto's

1 judgment that there are no chronic health effects from
2 dioxins; isn't that correct, sir?

3 A Yes, but there are others that will say the
4 same thing.

5 Q Doctor, I don't want to quarrel with you. I know
6 there is others that say the same thing. There's others
7 that say the opposite. I'm not attempting to examine you
8 on the world of literature, on who says what about dioxins.
9 Because there are views on both sides of the fence. Are
10 there not, sir?

11 A Not on chronic effects.

12 Q There are no views on chronic effects--

13 A Established fact.

14 Q Sir?

15 A Data that will establish whether there's a chronic
16 effect or not.

17 Q Excuse me. You said there are others that will
18 say the same thing. I'm saying there others that will say
19 the opposite, aren't there, sir?

20 A Yes.

21 Q Doctor, I'm not talking about what Monsanto
22 believes about this.

23 A Yes.

24 Q Not about what anybody else believes about it.

1 A Yes, sir.

2 Q All right.

3 A Yes, sir.

4 Q Now, it is your view, for instance, that 2, 3, 7,
5 8 is not a carcinogen to human beings?

6 A Not established.

7 Q Well, it's more than that, sir. Not established
8 can mean a variety of things. It can mean that it's not
9 been proven beyond a reasonable doubt, or there's not a
10 unanimity of opinion, or it means that fifty-one people
11 believe one thing, and forty-nine believe another. I'm
12 talking now about your views, sir. Is it your view that
13 2, 3, 7, 8 is a potent carcinogen to human beings?

14 MR. HEINEMAN: Let me object to the form of the
15 question. The prior portion obviously was a speech relating
16 to Mr. Carr's opinions. I object to it and ask that it be
17 stricken and ask that the jury be instructed to disregard it.

18 THE COURT: The objection is overruled. Proper
19 clarification.

20 THE WITNESS: Will you repeat the question for me.

21
22 (The previous question was read back by the
23 court reporter.)

24 THE WITNESS: No.

1 Q (By Mr. Carr) Now, there are other reputable
2 scientists that have the view that 2, 3, 7, 8 is a potent
3 carcinogen to human beings, aren't there, sir?

4 A I don't know who they are.

5 Q Doctor, when your deposition was taken in, I think,
6 in December of '83, on page seventy-four I asked you this
7 question: "Doctor, aren't there reputable scientists that
8 hold a view, whether you agree or not, that 2, 3, 7, 8 is
9 a potent carcinogen to human beings?" And wasn't your
10 answer at that time "yes."

11 A I think there's been a change since then in
12 definition--

13 Q Excuse me, Doctor. Was that your answer to that
14 question at that time, sir, right here?

15 A Yes.

16 Q And you believed a year and a half ago at least
17 that there were reputable scientists that hold the view
18 that 2, 3, 7, 8 is a potent carcinogen to human beings.
19 You believed that at that time, did you not, sir?

20 A No. It's very difficult to answer the question
21 yes or no.

22 Q Didn't you believe what you were saying, sir, at
23 that time?

24 A What I said there, and I think I said it, is it

1 was difficult to define whether there are reputable--

2 Q Excuse me, sir. Weren't you telling me your
3 true and honest belief at that time? Weren't you being
4 honest and candid with me then, sir, when I asked you that
5 question?

6 A Yes.

7 Q Thank you. And that was your honest belief at
8 that time, wasn't it, sir?

9 A That's a qualitative question when you talk about
10 reputable people.

11 Q Doctor, I'm not even quarreling about reputable
12 or not reputable, all I'm asking you is it was your honest
13 belief in December of 1983 that reputable--other reputable
14 scientists held the view that 2, 3, 7, 8 was a potent
15 carcinogen to human beings.

16 A Yes.

17 Q And, Doctor, it is Monsanto's view that 2, 3, 7,
18 8 can neither cause nor promote cancer; isn't that correct,
19 sir?

20 A Yes.

21 Q Now, so we don't have any later quarrel about it,
22 cause would be where the TCD is the direct initiator of
23 the cancer, and promote means that it would by acting in
24 concert with or synergistic effect, or however it might do,

1 that if you're exposed to one carcinogen and then exposed
2 to TCDD, that is 2, 3, 7, 8-TCDD, that the TCD has a unique
3 effect, perhaps not unique, there are other things that
4 will do it as well, to cause that known carcinogen to be
5 more active, to promote more cancer, or more likely to
6 promote cancer than it would otherwise, that's what you
7 mean, and you understand me to mean when I'm talking about
8 TCDD being a promoter or not being a promoter of cancer;
9 isn't that correct, sir?

10 A Yes, sir.

11 Q Now, there are also reputable scientists that
12 hold the view that 2, 3, 7, 8-TCD is a promoter of cancer;
13 isn't that right, sir?

14 A Yes, sir.

15 Q Now--

16 A In the animal model.

17 Q They don't believe that it promotes it in human
18 beings?

19 A They don't know.

20 Q Sir, you're again suggesting positive knowledge.
21 I don't know that anything is known certainly or with
22 certainty. What I'm asking you, it is the opinion of
23 reputable scientists that TCDD is, or 2, 3, 7, 8-TCDD is
24 a promoter of carcinogen or cancer; isn't that correct, sir?

1 A Yes.

2 Q But Monsanto differs with the view of those
3 scientists, doesn't it, sir?

4 A Based on the information available today.

5 Q I'm sorry?

6 A Based on the information available today.

7 Q And part of the information that--perhaps all of
8 the information that you're relying upon for that view
9 today is the Monsanto studies, Dr. Gaffey, Dr. Susking
10 and Hombarger; isn't that correct, sir?

11 A No, there have been other studies done.

12 Q Well, that's part of your evidence for--

13 A Yes.

14 Q --your view; isn't it, sir?

15 A Yes, sir.

16 Q Now, as far as low dose exposure is concerned,
17 sir, I understand that you take the view that a low dose is
18 something that doesn't cause chloracne, and that if it
19 doesn't cause chloracne that there are--if it's that low
20 that there are no ill effects from such exposure. That's
21 correct thus far, is it not, sir?

22 A Yes.

23 Q Yes. But now there aren't any studies that state
24 that exposure to doses as low as thirty-seven parts per

1 billion of 2, 3, 7, 8 or forty-five parts per billion don't
2 pose a health hazard or a risk to the health of humans, are
3 there, sir?

4 A There are tolerances established that say a
5 hundred parts per billion is safe to use.

6 Q Doctor, are there any studies that you're aware
7 of, or works or publications with which you're familiar
8 that would indicate that exposure to substances that contain
9 ten parts per billion of 2, 3, 7, 8-TCD is not hazardous or
10 does not pose a health risk or may be injurious to human
11 beings, any studies been done on it?

12 A No, sir.

13 Q Is there any studies that you know of that says
14 exposure to something forty-five parts per billion of 2, 3,
15 7, 8-TCD does not pose a health effect or health risk?

16 A The studies have been done on industrial popula-
17 tion--

18 Q Excuse me. Could you answer that question, Doctor?

19 A Yes. The studies have been done on industrial
20 populations would certainly include those concentrations.

21 Q So you're saying there are studies that indicate
22 that thirty-seven parts per billion don't pose a health
23 hazard?

24 A Yes.

1 Q Have those studies come into existence since
2 December 22, 1983?

3 A The study of our population at Nitro would give
4 evidence to that effect.

5 Q Excuse me. Is that the study that was published
6 in 1984?

7 A Yes.

8 Q You're talking about the Suskind Hartzberg?

9 A Yes, and the Moses study.

10 Q And the Moses study. Other than those, that
11 study or those studies of the same population, not necessar-
12 ily the same population, but Nitro workers, are there any
13 studies that say such exposure does not constitute a health
14 risk or health hazard?

15 A I think the other industrial studies would say
16 the same thing.

17 Q Were those published before December, 1983?

18 A Yes, sir.

19 Q And, Doctor, the question that I asked you in
20 December of 1983, on page fifty-one, starting at page
21 fifty, the bottom of page fifty, I asked you whether or not
22 you answered this question accordingly: "were you familiar
23 then or were you aware of then any studies either that you
24 conducted yourself, or conducted by others or published

1 which stated that exposure to thirty-seven parts per billion
2 of 2, 3, 7, 8-TCDD does not pose a health hazard or health
3 risk or have an injurious effect on the health of human
4 beings?" Your answer was, "there are none."

5 MR. HEINEMAN: Let me object, your Honor.

6 Q (By Mr. Carr) "There were none then?" May I
7 finish?

8 MR. HEINEMAN: Certainly.

9 Q (By Mr. Carr) "There were none then?" Answer:
10 "There were none then." Question: "And there are none now?"
11 Answer: "That's right." Question: "Was there any then,
12 or is there now any studies or works, publications with
13 which you're familiar which indicates that exposure to
14 a substance that contains ten parts per billion of 2, 3,
15 7, 8-TCDD is not hazardous or poses a health risk, or may
16 be injurious to human beings?" Your answer was "There
17 are none." Question: "There were none then and there are
18 none now; is that correct?" And your answer was to that
19 "That's right." Werent those your answers to those
20 questions at that time, sir?

21 A Yes, sir.

22 Q Now, Doctor, you have in your organization at
23 Monsanto something called a Biohazards Committee, don't
24 you, sir?

1 A Yes, sir.

2 Q And that Biohazards Committee has a responsibility
3 for--well, it contains a number of people that you consider
4 reputable, prestigious, and knowledgeable in the field of
5 human health hazards and risks from toxic chemicals and
6 other sorts; isn't that correct, sir?

7 A Yes, sir.

8 Q Dr. Neal, for instance, from Vanderbilt University,
9 now from the Chemical Institute was a member of that
10 Biohazards Committee, Dr. Olson, and many other people--
11 well, not many, but at least a half a dozen scientists--

12 A Four.

13 Q --belong to that committee.

14 A Four.

15 Q Sir?

16 A There are four of them.

17 Q Four. And your organization contributed to that;
18 isn't that right, sir?

19 A Contributed to what?

20 Q To that membership.

21 A What membership?

22 Q Of the Biohazards Committee.

23 A Oh, yes.

24 Q I mean four were outside people. There are others

1 from Monsanto on that committee--

2 A No.

3 Q --in addition to those four?

4 A No. That is the committee.

5 Q Just four total?

6 A Yes.

7 Q All right. Are you familiar with a book--I had
8 it with me, but now I just have a photocopy of the pages
9 from it. Are you familiar with a book called "Chlorinated
10 Dioxins and Dibenzofurans in the Total Environment" volume
11 two by L.H. Keith, Christoffer Rappe, Gangadhar Choudhary,
12 that contains articles--well, the entire book deals with
13 dioxins. Are you familiar with that, sir?

14 A I've read parts of it.

15 Q Yes. And it has a number of prestigious con-
16 tributors to that book, doesn't it, sir?

17 A Yes.

18 Q Do you consider that book authoritative, not
19 necessarily that you agree with everything that it says,
20 but do you consider it authoritative in the field of dioxins?

21 A No. It's up-to-date, but that doesn't mean it's
22 authoritative.

23 Q Well, do you consider--well, let me show you
24 something. People that contributed to it are authorities

1 in the field, aren't they, sir?

2 A They are workers in the field. Yes. That doesn't
3 mean they're authorities.

4 Q Well, do you understand what we mean when I say
5 authority? When we use the word authority in the courtroom?
6 A book that others in the profession would accept as written
7 by credible people having a scientific interest, and that
8 one can rely on their integrity, and their knowledge in the
9 field, not necessarily that you would agree with what their
10 results are, but that they are sincere, and knowledgeable,
11 and an expert in their field, if you will, in that area.
12 Now, I didn't mean to suggest by authority that they're the
13 last word on it, they cannot be contradicted.

14 A Right.

15 Q Would you agree that that book is authoritative
16 in the sense that I've given it to you, sir?

17 A No. What so many of these books--

18 Q That's all right, Doctor. Would you agree that
19 you've heard of Thomas Tiernan from Brehm Laboratory, haven't
20 you, sir?

21 A Yes, sir.

22 MR. HEINEMAN: Your Honor, I object to this. I
23 remember Mr. Carr would not permit me to examine Dr. Carnow
24 on books that he did not admit were authoritative. And,

therefore, I would object to his doing so now.

MR. CARR: I'm not doing it, Counsel, I'm now going to a part of the book to establish whether or not that part the doctor would consider as written by authorities in the field.

THE COURT: Go ahead. You may do that.

MR. HEINEMAN: Is that over my objection, your Honor?

THE COURT: Yes, it's over your objection.

Q (By Mr. Carr) Do you consider Arnold Schacter, Department of Preventive Medicine, Clinical Campus of the Upstate Medical Center, State University of New York; Fenton Schaffner of the Mt. Sinai School of Medicine; Thomas Tiernan of the Brahm Laboratory, Department of Chemistry at Wright State University; Michael Taylor, G.F. Van Ness, John H. Garrett and D.J. Wagel of the Wright State University; G. Gitlitz and M. Bogdasarian of the New York State University as authorities in the field, sir, dealing with "Biological Markers After Exposure to Polychlorinated Dibenzo-p-Dioxins, Dibenzofurans, Biphenyls, and Related Chemicals?"

A They're working in the field, yes.

Q All right. Would you mark this, please?

(Plaintiff's exhibit 1436 was marked for

1 identification by the court reporter.)

2 Q (By Mr. Carr) I'll hand you what's been marked
3 plaintiff's exhibit 1436, which I'll represent and I'll tie
4 it up with the book, I'll represent it this time, your
5 Honor, that it is a chapter from the book that I mentioned,
6 and that these are the authors of that chapter of the book.

7 MR. HEINEMAN: Your Honor, I object.

8 MR. CARR: I would offer that exhibit into
9 evidence.

10 MR. HEINEMAN: I object, your Honor, first to his
11 having it marked as an exhibit and attempting to question
12 the witness about it, because the witness did not say that
13 it was authoritative. He said they were working in the
14 field, yes. He did not admit it was authoritative.
15 Secondly, to admit it into evidence, there's no foundation
16 laid for its admission into evidence, and I object to it
17 as hearsay.

18 THE COURT: Mr. Carr, do you have any response
19 you wish to make?

20 MR. CARR: Your Honor, in addition to the wit-
21 ness' establishing that these gentlemen have written that
22 chapter, I grant you the court will have to take my re-
23 presentation that it is from the book, the authors. The
24 witness has said that he recognizes these gentlemen are

1 authorities in the field.

2 MR. HEINEMAN: You want to read back what he
3 said?

4 THE COURT: I quoted what he said. He said they
5 work in the field, yes, in answer to the question as to
6 whether they were authorities. I take that in the context
7 in which it was asked, they are recognized as authorities,
8 the objection is overruled. Fourteen thirty-six is
9 admitted over objection.

10 MR. CARR: I might point out for the further
11 record, your Honor, that Monsanto witnesses have acknowledged
12 that Brehm Laboratory, Wright State University Brehm
13 Laboratory, Thomas Tiernan are authorities in the field.

14 MR. HEINEMAN: I'm not objecting to that. He
15 asked whether this witness was. That's what I'm objecting
16 to.

17 THE COURT: I know that. I know that. I'm
18 ruling on what was argued before and what I stated. Before
19 you get into the article we'll take a short break at this
20 time. I want to advise the jury, as I do before any break,
21 and this will go for any other breaks, you're not to discuss
22 this matter among yourselves or with anyone outside the
23 jury panel, and as yet form any opinions or conclusions in
24 trial. The court is in recess.

1 (Short recess)

2
3 (Plaintiff's exhibit 1436A was marked for
4 identification by the court reporter.)

5 Q (By Mr. Carr) Dr. Roush, I hand you 1436A and
6 ask you to look at the book and see if exhibit 1436 is not
7 chapter nineteen taken from that book. Doctor, I see you're
8 looking at something other than what I'm directing your
9 attention to. I don't mind.

10 A Yes.

11 Q But if you could just answer my question.

12 A Yes, sir.

13 Q Would you please .

14 A Yes, sir.

15 Q All right. Thank you. Your Honor, plaintiff's
16 exhibit 1436A is the book that was authored by Keith,
17 Rappe and Choudhary.

18 THE COURT: Fine. Thank you.

19 Q (By Mr. Carr) Now, Doctor, directing your
20 attention to the chapter that was written by the authors
21 that I previously asked you about, I'd like to direct your
22 attention to page 249, if you would, please, sir. That
23 page deals with an incident called The Binghamton State
24 Office Building fire or accident, does it not, sir?

1 A Yes, sir.

2 Q And you've heard of that, you know about that
3 Binghamton State Office Building incident?

4 A Yes.

5 MR. HEINEMAN: Excuse me, your Honor. May I have
6 a continuing objection to this line of questioning?

7 THE COURT: Sure.

8 MR. HEINEMAN: With respect to this article in
9 this part of the book.

10 THE COURT: Sure, so noted.

11 Q (By Mr. Carr) And you, of course, have read other--
12 you've read this book dealing with that incident?

13 A I hadn't read this part of it.

14 Q I'm sorry?

15 A I hadn't read this part of it.

16 Q You hadn't read this part of it?

17 A No.

18 Q You have read other articles dealing with The
19 Binghamton State Office Building incident?

20 A Yes.

21 Q It's been a widely discussed and written about
22 occurrence?

23 A Yes, sir.

24 Q And there was--it was an electrical panel fire that

1 involved releasing up to two hundred gallons of transformer
2 fluid, PCB Aroclor, tetrachlorinated benzines, benzines
3 that had been converted to polychlorinated dibenzofurans
4 and polychlorinated dibenzodioxins; is that correct, sir?

5 A Yes.

6 Q And you know that to be the case for other docu-
7 ments in addition to that which you're holding in your hand
8 now at this time, don't you, sir?

9 A Yes.

10 Q All right. Now, and you also know that there was
11 found in the soot, and it's described in this article, that
12 the soot was found to have 2, 3, 7, 8-TCDD in it, scraped
13 from the walls of The Binghamton State Office Building?

14 A Yes.

15 Q Yes. And there have been a number of studies
16 that have confirmed that it was 2, 3, 7, 8-TCDD that was
17 in that soot in that--following that Binghamton State Office
18 Building fire; isn't that correct?

19 A I knew there was TCDD. I didn't know whether it
20 was 2, 3, 7, 8 or not.

21 Q Well, you haven't read the other articles that
22 were written confirming the presence of 2, 3, 7, 8-TCDD at
23 two point eight parts per million in that soot?

24 MR. HEINEMAN: Do you have the article to refer

1 him to?

2 MR. CARR: I do. But I'm asking the witness. I
3 have three articles to refer him to, but I'm asking the
4 witness whether or not he has read such articles.

5 MR. HEINEMAN: Why don't you let him see them.

6 THE WITNESS: I don't recall--

7 MR. CARR: You can examine the witness the way
8 you'd like to. But if you don't mind I'd like to examine
9 the witness in my own manner.

10 THE COURT: Mr. Carr, you may proceed.

11 MR. HEINEMAN: I object to your asking him about
12 whether he's read articles if you don't show him what they
13 are.

14 THE COURT: The objection is overruled. It's a
15 proper course of cross examination. You may proceed, Mr.
16 Carr.

17 THE WITNESS: Could you repeat the question for
18 me.

19

20 (Question read by the court reporter.)

21 THE WITNESS: Not that I recall. Not specifically.

22 Q (By Mr. Carr) Let me help you, and see if this
23 refreshes your recollection, or--could you mark this as
24 an exhibit.

1 (Plaintiff's exhibit 1437 was marked for
2 identification by the court reporter.)

3 Q (By Mr. Carr) Doctor, I'll hand you now what's
4 been marked plaintiff's exhibit 1437, which is a literature,
5 publication called "Toxicology and Applied Pharmacology."
6 You recognize that as an authoritative publication in this
7 field of toxicology, do you not, Doctor?

8 A Yes, sir.

9 MR. HEINEMAN: Do you have--

10 MR. CARR: No, I don't. These are the other
11 articles.

12 Q (By Mr. Carr) All I'm going to ask you about that
13 article, Doctor, is just the reference to the concentration
14 2, 3, 7, 8-TCD as contained on the very first page of the
15 article, so you needn't read on. You can do it at some
16 other time, but I'd like to go on. Do you see the reference
17 there to the 2, 3, 7, 8?

18 A Yes.

19 Q And the reference is two point eight parts per
20 million of 2, 3, 7, 8-TCD as being found in that soot in
21 The Binghamton Office Building, is it not, sir?

22 A Yes.

23 Q All right. Now, Doctor, referring back to exhibit
24 1436, I think it is, on page two hundred and forty-nine, it

1 discusses that fire and more specifically it points out
2 that there were three persons--in this article they're
3 dealing with three patients or persons that were in that
4 building and exposed to this soot on one or more occasions.
5 Do you see that, sir?

6 A No, I'm not with you. Where are you reading from?

7 Q Well, the top of the page and the page preceding
8 it, two four eight, talks about three persons that were
9 studying that have been in the building.

10 A Top of page two forty-eight?

11 Q All right. Look on page two fifty then, and
12 that will help you a little more. Where it says findings,
13 liver biopsies contained in 1983 from three patients are
14 presented in this chapter. Do you see that, sir?

15 A Yes.

16 Q All right. Now, back to two forty-nine, the
17 last paragraph on that page. It says, does it not,
18 'chloracne, a skin lesion, was used as a biological marker
19 in past incidents, but was noted infrequently in--that is
20 infrequently in adults in Seveso, Italy, and was rarely
21 seen in Binghamton. However, Binghamton soot was found
22 to cause toxicological findings similar to that found in
23 animals fed 2, 3, 7, 8-TCDD when guinea pig oral toxicity
24 studies were performed." Do you see that, sir?

1 A Yes.

2 Q All right. Now, the authors state, do they not,
3 that this chloracne that has been used in biological skin
4 markers was rarely seen on the Binghamton, don't they, sir?

5 A Yes.

6 Q And this is Binghamton where there's two point
7 eight parts per million of the soot on the walls, isn't it,
8 sir?

9 A Yes.

10 Q It's also noted infrequently at Seveso, Italy.

11 A Yes.

12 Q You know that to be a fact?

13 A But it was found frequently in children.

14 Q Found infrequently in adults.

15 A Yes. But in children it was found frequently.

16 Q Well, Doctor, the point that I'm making is that
17 you can be exposed to large doses of 2, 3, 7, 8-TCD and not
18 develop chloracne.

19 A Not on that basis, not based on Seveso.

20 Q Doctor, weren't all these people at Seveso that
21 were studied there, didn't they get exposed to the same
22 contaminate, that is 2, 3, 7, 8-TCD?

23 A But not the same dose.

24 Q Doctor, how on earth do you know that?

1 A Well, the children frequently had chloracne.

2 Q Yes.

3 A Well, how did they get--

4 Q Yes. And the adults in the same family infrequently.

5 A Because they hadn't very much exposure.

6 Q Doctor, we have here, do we not, these are adults
7 that we're talking about here again. There's no children
8 involved in Binghamton. Is that right, sir? It says rarely
9 seen in Binghamton, doesn't it, sir?

10 A Yes.

11 Q And two point eight parts per million is a pretty
12 heavy dose of 2, 3, 7, 8-TCD to be exposed to, isn't it, sir?

13 A But they didn't let the people go in the building.

14 Q Well, sir, we will move on, and we'll find out
15 that these were people that were in the building that we're
16 talking about.

17 A Of course.

18 Q The statement says, does it not, that those people
19 in the Binghamton Office, those people that were exposed to
20 that contaminate, chloracne was rarely seen?

21 A It doesn't say how they got to that conclusion.

22 Q Well, Doctor, would you not agree with me that
23 that's what this article says?

24 A Yes.

1 Q And, Doctor, and now if you move over to page
2 two fifty where they are talking about their findings, this
3 was the first person they had studied was a thirty-five
4 year old worker who had been in the building for over twelve
5 months after the incident. Correct, sir?

6 A Yes.

7 Q And he developed elevated liver enzymes and was
8 evaluated; isn't that correct, sir?

9 A Yes.

10 Q And he had SGOT findings above the normal range,
11 SGPT findings above the normal range, GTP findings above
12 the normal range, triglycerides above the normal range, did
13 he not, sir?

14 A Yes.

15 Q Now, there is no mention that he had chloracne,
16 is there, sir?

17 A Well, I haven't read it.

18 Q Well, you want to go ahead and read it.

19 A Well, this is only a summary. It doesn't describe
20 the findings.

21 Q Excuse me, Doctor, would you just go ahead and
22 read it, please.

23 A Sir, how far should I read?

24 Q Read about that first person, the thirty-five year

1 old person.

2 A All right.

3 Q And I want to ask you about that.

4 A All right.

5 Q There is no mention there that he developed
6 chloracne, is there, sir?

7 A No, sir.

8 Q And he did have these other abnormal laboratory
9 findings, did he not, sir?

10 A Yes.

11 Q And he was exposed to the 2, 3, 7, 8-TCD, wasn't
12 he, sir?

13 A Yes.

14 Q Now, the second patient was a forty-one year old
15 engineer who was in the contaminated building repeatedly
16 during 1981. Do you see that, sir?

17 A Yes.

18 Q And what did he complain of, sir?

19 A Weakness, headaches, irritability, and dizziness.

20 Q Did he complain of any chloracne, sir, or any
21 acne conditions, or does the article mention that he had
22 any chloracne?

23 A I haven't gotten that far.

24 Q Well, read it please, sir.

1 A All right.

2 Q Is there any mention of chloracne?

3 A No, sir.

4 Q He had headaches, didn't he, sir?

5 A Yes.

6 Q And you know headaches is a complaint that
7 workers at Nitro and at Krummrich have made for years, you
8 know that, don't you, sir?

9 A Yes.

10 Q And fatigue. He calls it weakness here. That
11 would be similar to fatigue, wouldn't it, sir?

12 A Not necessarily.

13 Q Well, not necessarily. But it could be, couldn't
14 it, sir?

15 A Well, a lot of people have weakness, they don't
16 call it fatigue.

17 Q All right. I won't quarrel with you, Doctor,
18 if you don't accept that. Nevertheless, there are workers
19 at Krummich and Nitro that complain of weakness, don't they?

20 A Yes..

21 Q And, Doctor, also irritability that's a neural
22 behavioral change. There are workers, many, many workers
23 that complain of neural behavioral complaints at Krummich
24

1 and Nitro; isn't that correct, sir?

2 A At Nitro.

3 Q But not at Krummich?

4 A No.

5 Q Doctor, have you looked at the Krummich study that
6 was performed by Dr. Suskind in 1979 and 1980?

7 A Yes.

8 Q Did you look at the history of those people, of
9 those workers? Did you look at their medical history?

10 A I didn't get a copy of the medical histories.

11 Q Doctor, I'm going to inquire of you about that
12 later on, about what you found, what your people found in
13 your workers at Krummich. Are you telling me now that you
14 haven't looked at their histories, what complaints that these
15 men have had?

16 A In the Krummich study?

17 Q Yes.

18 A I wasn't given a copy of it.

19 Q Doctor, I've got copies of it from your file
20 dated September, 1980.

21 A I thought you were talking about the Krummich
22 study.

23 Q I am talking about the Krummich study. I've got
24 copies from your file dated September the 9th, 1980 that

1 were delivered to me by Counsel.

2 MR. HEINEMAN: You mean the ones from Dr. Suskind?

3 MR. CARR: That's correct, the Krummich study.

4 MR. HEINEMAN: Right. That's Dr. Suskind's files;
5 correct?

6 MR. CARR: No. Dr. Roush's file.

7 THE WITNESS: I don't think so.

8 Q (By Mr. Carr) You don't think so?

9 A No.

10 Q Doctor--

11 A The Krummich study was done by Suskind and we were
12 not given copies of that report.

13 Q Doctor, well, we'll get to that shortly, Doctor.

14 A All right.

15 Q In any event, you haven't read it; is that right?

16 A I haven't looked at it. I read the final report,
17 but not the individual histories.

18 Q That's what I'm talking about, the final report.
19 You have got that?

20 A The final report.

21 Q You have got that and you have read that?

22 A Yes, sir.

23 Q That's dated September the 9th, 1980.

24 A Yes.

1 Q You did get that final report, didn't you, sir?

2 A Yes, sir.

3 Q Are we all straight on that?

4 A Yes, sir.

5 MR. HEINEMAN: You asked him about the histories.

6 Q (By Mr. Carr) Doctor, I asked you about the
7 report and you said you didn't get it, but now you say you
8 have got it.

9 MR. HEINEMAN: That's not true, Mr. Carr. I
10 object to that representation.

11 MR. CARR: Didn't he just say he--

12 THE COURT: Objection is overruled. Number one.
13 Number two, we are arguing about a tangent. Go ahead, Mr.
14 Carr.

15 Q (By Mr. Carr) Now, Doctor, the medical histories
16 that Suskind got from your workers at Krummich plant, have
17 you ever seen those, sir?

18 A I saw them just recently in preparation for this
19 trial, but I haven't gone through them in detail.

20 Q You don't know what percentage of your workers at
21 Krummich plant have consistent complaints of headaches in the
22 chlorinated phenol departments?

23 A No.

24 Q Do you know what percentage of your workers have

1 consistent complaints about fatigue?

2 A No.

3 Q About neural behavioral changes, irritability, or
4 sleep difficulties, do you know what your workers at
5 Krummich have complaints about that?

6 A Not from that record, no.

7 Q Doctor, you're the doctor, you're responsible for
8 the health of these people. This study was performed in
9 1979.

10 A Yes, sir.

11 Q The report was given to you in 1980.

12 A Yes, sir.

13 Q And you paid for it.

14 A Yes, sir.

15 Q And you haven't looked to see what the people
16 complain about, what was bothering them; is that correct, sir?

17 A I didn't get a copy of those records.

18 Q Did you ask for a copy of it?

19 A Yes.

20 Q And he didn't give you the medical histories?

21 A No, he wouldn't.

22 Q He gave it to us, Doctor, and your lawyers.

23 MR. HEINEMAN: Under court order.

24 Q (By Mr. Carr) Doctor, didn't you pay for it?

1 A Yes.

2 Q And he refused to give the medical histories to
3 you--

4 A Yes.

5 Q --even though you paid for it?

6 A Yes.

7 Q Do you have any letters asking him for it, Doctor,
8 because I didn't see any letters where you asked him for
9 them.

10 A I talked to him numerous times asking for it.

11 Q Dr. Suskind said to you "I'm not going to give
12 you those medical records?"

13 A That's right.

14 Q You point blank said, "you should give me those
15 medical histories," and he point blank said he wasn't going
16 to?

17 A That's right.

18 Q Doctor, didn't that make you a little suspicious
19 about the reports--

20 A No.

21 Q --that he gave to you about the workers at
22 Krummich?

23 A No.

24 Q Didn't that make you just a little bit suspicious

1 that perhaps what he said in his report wasn't backed up by
2 what was in the records? Didn't it make you just a little
3 suspicious?

4 A No.

5 Q Doctor, we'll get into that report in some detail
6 at length, and you will be advised of what your workers have
7 wrong with them at Krummich. It's 1985 now the report came
8 out in 1980, Doctor, but perhaps it won't be too late. But,
9 Doctor--

10 MR. HEINEMAN: I object to that, your Honor, as
11 a ridiculous speech trying to influence the jury.

12 MR. CARR: You may think it's ridiculous.

13 MR. HEINEMAN: I ask that it be stricken. And
14 that the jury be instructed to disregard it. If he wants
15 to make jury argument, he can wait until that occurs. God
16 knows when it will be.

17 THE COURT: Objection is overruled. You may
18 proceed.

19 Q (By Mr. Carr) Doctor, could we get back to this
20 report. The worker here complained of weakness, headaches,
21 irritability and dizziness, didn't he, sir?

22 A Yes, sir.

23 Q And you have no knowledge at this time, if I
24 understand you correctly, whether or not your workers in

1 the chlorinated phenal departments have this same complaint;
2 is that correct, sir?

3 A I have it from my own records. We do our own
4 physical examinations, and they don't include these kinds
5 of statements.

6 Q You have records of these workers and it doesn't
7 include that?

8 A It doesn't say that.

9 Q Was the question asked because Suskind asked the
10 question and got responses. Did you ask the question?

11 A I'm not sure we asked those specific questions.

12 Q Perhaps if you don't ask the question, you don't
13 know, Doctor, you don't find out unless you ask. Isn't
14 that possible--

15 A That's true.

16 Q Possibly true?

17 A That's true.

18 Q All right. Doctor, getting back to this worker,
19 he developed elevated liver enzymes, did he not, sir?

20 A Yes, sir.

21 Q And again as in his case, with the first case,
22 no evidence of alcoholism, legal or illicit drug use or
23 hepatitis.

24 A Yes.

1 Q He had SGPT elevations, GTP elevations, triglycerides
2 elevations that persisted until 1983 when he was last examined.
3 This book was written in 1985. The last examination mention-
4 ed here is 1983, is it not, sir?

5 A Yes.

6 Q Now, Doctor, that's two years after his exposure,
7 isn't it, sir?

8 A Yes.

9 Q Doctor, could you not deduce from that that that
10 is a long time, long-term effect from exposure to 2, 3, 7,
11 8-TCDD?

12 A Yes.

13 Q Yes. And again no chloracne is mentioned, is
14 there, sir?

15 A No.

16 Q The third worker there, the third patient C, a
17 thirty-one year old firefighter that was just in there on
18 the occasion of fighting the fire; correct, sir?

19 A Yes.

20 Q And he had liver enzymes that were abnormal in
21 1981 and still abnormal in 1983; correct, sir?

22 A Yes.

23 Q No mention of chloracne, is there, sir?

24 A No.

1 Q He had an SGOT of fifty-nine--fifty percent higher
2 than normal, gamma GTP of 54.9, thirty percent higher than
3 normal, SGTP at 41.4, albumin of 5.4, globulin 2.0, did
4 he not, sir?

5 A Yes.

6 Q Now, Doctor, these three workers that were studied
7 in this study, all of them had abnormal findings after
8 exposure to 2, 3, 7, 8-TCD that persisted at least through
9 1983, the last time they were looked at and mentioned; is
10 that correct, sir?

11 A Yes.

12 Q Now, you mentioned before that the liver study
13 of the lady at Seveso was the only one that you were aware
14 of. In point of fact, there were three biopsies done in
15 this case, wasn't there, sir? By this case, I mean the
16 Binghamton case. These three workers there.

17 A Yes.

18 Q Yes. So if you'll turn to page two sixty, it
19 discusses these biopsies, doesn't it, sir?

20 A I don't know yet. So I read the ultra-structure,
21 the finding, or just go--

22 Q Just acknowledge please that there were liver
23 biopsies that were performed on these three people. That's
24 all I'm asking you for.

1 A All right.

2 Q And at the top of page two sixty-one it points
3 out, does it not, sir, that the biopsies were performed
4 as a part of a medical evaluation in 1983, two years after-
5 wards, and longer after the exposure than is customary in
6 animal studies?

7 A Yes.

8 Q Doctor, there was found, or perhaps you better
9 look at it, there were found pathology in the liver of all
10 three of those workers, wasn't it so found?

11 A Where does it talk about the pathology?

12 Q All the pages preceding that.

13 A I haven't looked at those.

14 Q Well, let me help you, a short cut on page two
15 sixty-two, the last sentence before the acknowledgments.

16 A I still don't know what the liver pathology was.
17 It just says liver pathology.

18 Q I'm not trying to inquire of you, Doctor, precise-
19 ly what the pathology is. The point of this examination
20 is to show you that you can have a serious disorder from
21 dioxin exposure without chloracne. Doctor, on page two
22 six two the authors make a statement on the mid-page
23 paragraph, do they not, sir, "it is important to note that
24 liver, rather than skin, is--"

1 A Where are you reading?

2 Q Two sixty-two in the middle of the page, that
3 paragraph that begins at the middle of the page, Doctor.

4 A All right.

5 Q "It is important to note that liver, rather than
6 skin, is the organ most frequently responding in a pathologic-
7 al fashion to dioxins, PCB's, and related chemicals in
8 animal experiments. It is also of significance, as pointed
9 out by Crow in 1970, that liver lesions may be seen in some
10 patients and skin lesions in other patients after exposure
11 to compounds that may lead to chloracne." You see that,
12 sir?

13 A Yes.

14 Q Now, that's as far back as 1970 that Crow pointed
15 that out, didn't he, sir?

16 A Yes.

17 Q And that is another--Crow is a responsible path-
18 ologist, is he not, sir?

19 A He's not a pathologist.

20 Q Well--

21 A He's a dermatologist.

22 Q Dermatologist. He's responsible, isn't he, sir?

23 A Yes.

24 Q He points out that liver lesions are seen in some,

1 and chloracne seen in others, skin lesions in others.

2 A Related to exposure to what?

3 Q To compounds that may lead to chloracne, such as
4 2, 3, 7, 8-TCDD.

5 MR. HEINEMAN: It doesn't say that, does it?

6 THE WITNESS: He could have been talking about
7 chlornapthaleins.

8 Q (By Mr. Carr) Sir?

9 A He could have been talking about chlornapthleins.

10 Q So he could have, but that leads to chloracne,
11 doesn't it, sir?

12 A Yes. But it doesn't necessarily mean you're
13 going to have the same lesions in other organs.

14 Q Doctor, if you look at the bottom then of page
15 two sixty-two it says, does it not, "The finding that three
16 out of three patients with liver pathology presumably arising
17 from exposure to dioxins, PCB's, and related compounds,
18 who were biopsied to establish a diagnosis for their liver
19 pathology, had similar lesions to those seen in animals
20 after similar exposure demonstrates that ultrastructural
21 analysis of liver tissue provides a useful biological
22 marker of exposure to these compounds." You see that, sir?

23 A Yes.

24 Q And these authors make the finding, and they make

1 it--make sure that you understand this, and it's important
2 to note that the organ most frequently responding to it,
3 to dioxin, is the liver and not the skin.

4 A You can't do that based on three patients.

5 Q Doctor, three patients shows it to be a fact,
6 doesn't it, sir, with those three patients? They didn't
7 have chloracne, did they, sir?

8 A It doesn't mean that was caused from exposure to
9 these chemicals either.

10 Q Doctor, aren't these people--I thought you said
11 these folks were responsible authorities in the field.

12 A No, I didn't say that. I said they're working
13 in the field.

14 Q You said they were authorities in the field.

15 A No, I didn't.

16 Q Isn't Dr. Tiernan an authority in the field, sir?

17 A He's a chemist.

18 Q Isn't he an authority in this field? Doesn't
19 he examine these things?

20 A Examine what things?

21 Q For the prescance of TCDD in human tissue.

22 A I don't know that.

23 Q Sir?

24 A I don't know that he does in tissues or not. I

1 know--

2 Q Doctor, your organization has hired his laboratory
3 just recently to do this. You've sent him things, you know
4 that, don't you, sir?

5 A I'm--I don't know whether he was able to do it
6 with fat samples.

7 Q My question is you have sent them things to do
8 work for you, have you not, sir?

9 A Yes. But we haven't sent fat samples.

10 Q Doctor, these people so far as you know are
11 responsible people in this field. They're not going to
12 make these things up, are they, sir?

13 A The fact that they report it, that doesn't mean
14 they made it up. I'm not suggesting that.

15 Q And they were reported reliable so far as you
16 know, weren't they, sir?

17 A When you find--

18 Q Excuse me. Would they be capable and would they
19 report it reliably?

20 A Report what reliably?

21 Q Whether or not these people had chloracne.

22 A Yes.

23 Q You wouldn't expect them to lie about something
24 like that, would you, sir?

1 A They didn't have a dermatologist involved in this.

2 Q Doctor, you would not expect them to lie about it,
3 would you, sir?

4 A They may have missed it, missed chloracne.

5 Q Doctor, we have here--we have A. Schecter, who is
6 the Department of Preventive Medicine, Clinical Campus of
7 the Upstate Medical Center. We've got Fenton Schaffner,
8 who is the Department of Medicine, Mt. Sinai School of
9 Medicine. We have Taylor, Van Ness, Garrett and Wagel,
10 who are pharmacology and Toxicology. We have Gitlitz and
11 Bogdasarian, who are the Departments of Surgery, Clinical
12 Campus of the Upstate Medical Center. Are you really
13 suggesting to us that these people could have missed acne?

14 A Yes.

15 MR. HEINEMAN: Was that acne or chloracne?

16 THE WITNESS: Chloracne.

17 MR. CARR: I said acne.

18 THE WITNESS: Chloracne.

19 Q (By Mr. Carr) You think they could miss acne,
20 first of all, Doctor? Sir?

21 A If we're talking about acne vulgaris, they may
22 even miss that.

23 Q Doctor, do you think that they could recognize
24 blackheads if they saw them?

1 A Yes. But they may not call it chloracne.

2 Q Doctor, are all blackheads in your judgment
3 chloracne?

4 A No.

5 Q Doctor, you think these people are incompetent
6 to know what they're talking about when they talk about
7 chloracne as skin lesions, when they use the words chloracne
8 a skin lesion? You think they're incompetent to describe
9 it, Doctor?

10 A I think they could well miss it.

11 Q Do you have any knowledge of your own as to these
12 people in Binghamton, as to whether or not they did or did
13 not have chloracne?

14 A I have no way of evaluating that.

15 Q Doctor, my question is do you have any knowledge
16 of your own about the people at Binghamton whether or not
17 they had chloracne?

18 A No.

19 Q Doctor, these men say, on page two forty-nine,
20 that it was rarely seen at Binghamton. That means, I
21 believe it means, that they did see it at Binghamton.

22 A Yes, sure.

23 Q But only rarely. That indicates that they are
24 capable of recognizing chloracne, doesn't it, Doctor, just

1 barely indicate that they know chloracne of the skin?

2 A No.

3 Q It doesn't? Sir?

4 A It doesn't mean that they could determine whether
5 every man has chloracne or does not have chloracne.

6 Q And what you're saying is that while these
7 scientists, these doctors that you consider to be expert
8 in the field, and they know what chloracne is, they discuss
9 it in the book, they discussed it in the article, and you're
10 telling us that you believe that these workers had chloracne
11 and that these experts couldn't recognize it; is that what
12 you're telling me?

13 A I think they could have missed it.

14 Q Sir?

15 A They could have missed it.

16 Q For that reason you are not willing to accept what
17 they conclude in the liver rather than a skin as a more
18 reliable indication of exposure to 2, 3, 7, 8-TCDF; is that
19 correct, Doctor?

20 A It's difficult to talk about what you can tell
21 from a liver biopsy.

22 Q Excuse me. But could you answer the question that
23 I gave you? You're not willing to accept what these men
24 say because you believe they are incapable of recognizing

1 chloracne; is that correct?

2 A That's part of my answer.

3 MR. CARR: I've got noon, your Honor, and it's
4 a convenient place.

5 THE COURT: Okay. Ladies and gentlemen, we'll
6 break for lunch at this time. We'll resume again at one
7 thirty. The admonishments that I've given you earlier will
8 apply to this lunch break also. Gentlemen, can I see you
9 in chambers after court's recess? The court is in recess.

10
11 (At this point the lunch recess was taken.)

12
13 (At this point court was reconvened.)

14 THE COURT: Mr. Carr?

15 MR. CARR: Would you give the witness exhibit
16 1399A, please.

17 THE COURT: Before we start on the testimony,
18 in keeping with our policy of letting you know at times
19 when we will be off for one reason or another, sofar as I
20 know these are the only times in June. Let me give those
21 to you. June 7, which is a Friday, all day. June 11, in
22 the afternoon. June 14, in the afternoon. June 21, in
23 the afternoon.

24 MR. CARR: Then our vacation will be extended.

1 THE COURT: Right. That hasn't changed.

2 Q (By Mr. Carr) Doctor, you have in your hand
3 now 1399A, which I'll advise you is part of plaintiff's
4 exhibit 1399, which is an analysis of analytical data on
5 dioxin, human tissue made by Colonel Young for the Veteran's
6 Administration Agent Orange Projects Office. You are
7 familiar with this, aren't you, Dr. Roush?

8 A Yes, sir.

9 Q Now, it refers to the fifty-five year old lady
10 who died from the pancreatic cancer seven months after the
11 Seveso accident, doesn't it, Doctor?

12 A Yes, sir.

13 Q It talks about how she was at home, how she was
14 significantly exposed to the toxic cloud, that she was eating
15 a meal in her home with doors and windows open, she consumed
16 vegetables, that animals in the area adjacent to the home
17 began to die in a period of fifteen days, and that two young
18 nephews living in the same building developed serious chlor-
19 acne. Do you see that, sir?

20 A Yes, sir.

21 Q Now, this is obviously, Dr. Roush, three people
22 who are exposed to the same amount of dioxin at the same
23 time, is it not, sir?

24 A I don't think that's--that's not necessarily

1 correct.

2 Q Doctor, it describes that she was sitting there
3 in a home with doors and windows open when the toxic cloud
4 passed over, and it describes her tissue that had enormous
5 amounts of 2, 3, 7, 8-TCDD in her various tissues, doesn't
6 it, sir?

7 A Yes, sir.

8 Q And she did not develop chloracne, but her two
9 nephews in the same building did.

10 A Yes, sir.

11 Q Doctor, doesn't that indicate then, sir, that you
12 can be exposed to 2, 3, 7, 8-TCDD, and depending on how you
13 are made up genetically and otherwise that you may not
14 develop chloracne when others with the same dose of TCDD,
15 or perhaps less TCDD will develop chloracne? Doesn't that
16 suggest that to you, Dr. Roush?

17 A Not at all, sir.

18 Q It doesn't suggest that at all to you?

19 A No.

20 Q Well, this lady had it in her tissue, didn't she,
21 sir?

22 A Yes, sir.

23 Q And she didn't have chloracne, did she?

24 A That's right.

1 Q And so that shows that 2, 3, 7, 8-TCD in her case
2 did not cause chloracne, doesn't it?

3 A The dose that she got did not produce chloracne.

4 Q I'm sorry.

5 A The dose that she got did not produce chloracne.
6 But that doesn't mean that the children didn't get appreciably
7 larger dose than she did.

8 Q Now, Doctor, she had in her fat tissue 2, 3, 7, 8-
9 TCDD at parts per billion, nearly two parts per billion, did
10 she not, sir?

11 A Yes.

12 Q And she had it in her pancreas, one part per billion,
13 didn't she, sir?

14 A Yes.

15 Q Doctor, that is certainly more 2, 3, 7, 8-TCD than
16 you have ever heard of being in the tissue of anybody, isn't
17 that correct, sir?

18 A This was an unusual circumstance, yes.

19 Q Indeed. And she didn't get chloracne, did she,
20 sir?

21 A That's right.

22 Q And doesn't that suggest to you that one can be
23 exposed to massive doses of 2, 3, 7, 8-TCD and not get
24 chloracne?

1 A That's true. But it also says those children
2 got more than she did.

3 Q It says that the children got more than she did?

4 A Yes.

5 Q How do you read that from this document, Doctor,
6 other than the fact that the children got chloracne?

7 A There is writing on many--many writings--

8 Q From this article, Doctor, how do you get from
9 this that the two nephews got more of the dose of TCDD
10 than this woman did that was right there when the toxic
11 cloud went over the house?

12 A You can't draw that from this, from this data,
13 but it doesn't mean that it couldn't happen.

14 Q Well, Doctor, I'm not arguing that it couldn't
15 happen. Indeed it could happen. But the children got a
16 greater dose, but from the document there is certainly
17 nothing to indicate that, is there?

18 A But there's other writings that suggest the
19 children did get more exposure.

20 Q Is there any writing, sir, that indicates that
21 these two nephews living in the same building would develop
22 serious chloracne on the third and fourth days got more
23 exposure to 2, 3, 7, 8-TCDD than she did?

24 A There's everything--every place to believe that's

1 correct.

2 Q Where does it say that?

3 A Not from this data, but from other writings on
4 Seveso.

5 Q Doctor, do you have writings indicating that
6 these two people had more exposure?

7 A No, I'm just talking about children in general.

8 Q Doctor, I'm talking about the specific evidence
9 that we have here now. If you don't mind, sir. From this
10 document. Now, we talked about three people that were in
11 the Binghamton accident that had no chloracne and were
12 exposed to 2, 3, 7, 8-TCD. Now we're talking about three
13 people here that were exposed to 2, 3, 7, 8-TCD, two of them
14 got chloracne and one did not. Isn't that correct, sir?

15 A Yes.

16 Q And, Doctor, you, of course, are familiar with
17 the horse arena case that happened here in Missouri, aren't
18 you, sir?

19 A Yes, sir.

20 Q As a matter of fact, it was the subject of
21 Biohazards Committee meeting, wasn't it, sir?

22 A Was the subject?

23 Q Yes.

24 A We discussed it, but it wasn't the reason that we

1 met.

2 Q Doctor, it was the very first item on your agenda,
3 on your--I'm not suggesting that it was the sole thing
4 discussed at that meeting.

5 A It was--yes.

6 Q It was the subject of one of your meetings, was
7 it not?

8 A Yes, sir.

9
10 (Plaintiff's exhibit 1438 was marked for
11 identification by the court reporter.)

12 Q (By Mr. Carr) Handing you now what's been marked
13 plaintiff's exhibit 1438, I'll ask you to recognize that as
14 the minutes for your Biohazards Committee meeting on
15 November 17, 1982.

16 A Yes, sir.

17 MR. CARR: I'll offer that exhibit into evidence,
18 if it pleases the court, and I have--

19 THE COURT: Any objections?

20 MR. CARR: --a page from it that I want to pass
21 to the jury.

22 MR. HEINEMAN: I have no objection, your Honor.

23 THE COURT: Fine. It is admitted without objection.

24 MR. CARR: Would you mark this 1438A.

1 (Plaintiff's exhibit 1438A was marked for
2 identification by the court reporter.)

3 Q (By Mr. Carr) Doctor, 1438A is the first para-
4 graph from the minutes of that meeting, is it not, sir?

5 A Yes, sir.

6 MR. CARR: I offer that exhibit into evidence if
7 it please the court.

8 THE COURT: Any objection to that?

9 MR. HEINEMAN: The first paragraph?

10 THE COURT: The first paragraph on the first page.

11 MR. HEINEMAN: Where it says who the committee
12 members are?

13 MR. CARR: No, Counsel, I've given you a copy.
14 It's the first major paragraph after the meeting being
15 called to order.

16 MR. HEINEMAN: You've given me?

17 MR. CARR: Haven't I given you a copy of that
18 1438A, Counselor?

19 MR. HEINEMAN: No, sir.

20 MR. CARR: Oh, I passed it to Jerry to pass to
21 you.

22 MR. HEINEMAN: Well, what can I say? I have no
23 objection to that exhibit, your Honor.

24 THE COURT: Fine. Admitted without objection.

1 Q (By Mr. Carr) Doctor, this meeting that's con-
2 ducted with Dr. Golberg, Dr. Kuschner, Dr. Olson and
3 yourself, was it not, sir?

4 A Yes, sir.

5 Q And at that time you all discussed this horse
6 arena case did you present the information contained in
7 that paragraph, sir?

8 A No, sir. No, I did not.

9 Q What was the source? Who gave that? Dr. Kuschner,
10 Dr. Olson, Dr. Golberg?

11 A None of them. We would bring in--one of the
12 members of the staff would come in and present the data.

13 Q That person is then not identified in this--in
14 these minutes then as to who gave the information to you
15 that is contained in these minutes?

16 A That's right.

17 Q In any event, it was reported that at the horse
18 arena case that horses died, birds flying overhead fell ill,
19 and that children playing in the arena became sick, and
20 samples of the soil produced chloracne in rabbits; isn't
21 that correct, sir?

22 A Yes.

23 Q Now, the children are not reported here as having
24 developed chloracne, are they, sir?

1 A No.

2 Q And you know for a matter of fact that they never
3 developed chloracne, don't you, sir?

4 A I don't know that.

5 Q Well, you know that there's no reports that they
6 ever developed chloracne.

7 A There is a report that they had dermatitis. There
8 were no further discussions of it.

9 Q Well, dermatitis and chloracne are not equivalent,
10 are they?

11 A I'm not saying that they are.

12 Q But my question is it's never been reported that
13 these children that got sick had chloracne; isn't that
14 correct, sir?

15 A That's right.

16 Q But, now the rabbits did get chloracne, didn't
17 they, sir?

18 A They were reported to.

19 Q Yeah. And there is a--while most animals don't
20 get chloracne when they're exposed to dioxin, rabbits do in
21 their ears, don't they, sir?

22 A Yes, sir.

23 Q Yeah. And the rabbits in this case got chloracne,
24 but the people did not get chloracne, according to the

1 information that you have; isn't that correct, sir?

2 A According to this information, what was given to
3 me, that's right.

4 Q According to any and all information that you
5 had about the people associated and the children associated
6 with the horse arena case, they did not get chloracne?

7 A I don't know that.

8 Q Well, sir, do you have any information that they
9 have been studied, they've been examined by Dr. Ayers,
10 they've been examined by Dr. Carnyle, they've been examined
11 by other people, have you ever read a report that says they
12 had chloracne?

13 A No. But I'm not surprised.

14 Q Doctor, I didn't ask you if you were surprised.
15 I'm simply trying to establish a point, sir, that the rabbits
16 ear got chloracne, which is a standard test for rabbits.
17 They can get chloracne when exposed, but the people didn't.
18 See what I'm trying to do is establish a consistent pattern
19 of exposure and no chloracne. This is indeed another
20 case of exposure without a doubt and no chloracne; isn't
21 it, sir?

22 A I don't accept that they didn't have chloracne.

23 Q Well, Doctor, for you to suggest that they do
24 have chloracne, you'd have to have some information, some

1 knowledge, some report from some source that tells you that
2 they had chloracne, and you have no such knowledge, informa-
3 tion or source; isn't that correct, sir?

4 A I'm not sure they were evaluated for chloracne.

5 Q Isn't that correct, sir?

6 A What? I'm sorry.

7 Q That you have no information, no source, no
8 knowledge that these kids, or anybody else therein the
9 horse arena where the horses died and the birds fell out
10 of the sky, that they got chloracne?

11 A That's right.

12 Q Doctor, are you aware of the problems that the
13 girls did have even though they did not have chloracne?

14 A I knew one of the girls had a problem. I didn't
15 know about the other one.

16 Q Doctor, I'll read to you some of the testimony
17 in this case from a doctor that examined these girls, and
18 ask you whether or not you know these abnormalities of your
19 own knowledge, or if you've heard of them, or if you know
20 these to be--well, I'll just read them to you, then I'll
21 ask you about them. This testimony was--

22 MR. HEINEMAN: Excuse me, Mr. Carr.

23 MR. CARR: --June 14, 1984.

24 MR. HEINEMAN: May I make an objection?

1 MR. CARR: Sure.

2 MR. HEINEMAN: I'd like to object to the use in
3 this fashion, asking this witness to comment on the testi-
4 mony of somebody else. I think it's an improper use of
5 testimony.

6 MR. CARR: I'm not asking for comment. I'm
7 giving the witness some thoughts and I intend to ask him
8 some questions about the facts that are in evidence in
9 this case.

10 THE COURT: Objection is overruled. You may
11 proceed.

12 MR. HEINEMAN: He can ask him to assume things,
13 your Honor. I would object to it as improper use of
14 testimony.

15 THE COURT: I understand what your objection is.
16 It's overruled. You may continue.

17 Q (By Mr. Carr) Doctor, I want you to take us
18 back to what's been testified in this case that the girls
19 were examined and were found to have a wide range of
20 abnormalities, and that both girls that were examined
21 developed heart disease, one at age sixteen and the other
22 one at age twenty or twenty-one, that the twenty-one year
23 old girl had abnormal female hormones, she had asymmetrical
24 breasts, that they had seizures, severe seizures, having

1 had no history of epilepsy prior to that time. One girl
2 had a couple of blackouts, they are not seizures, when
3 she was very young, and that she began to be having bad
4 seizures where she could fall and hurt herself after the
5 exposure. The youngest child had chronic anemia confirmed
6 by laboratory, that they had joint problems, costochondritis,
7 requiring injections of cortisone into the joints. The
8 youngest one developed mental aberrations, neural behavioral
9 tests, evidence of depression. The youngest one had re-
10 current urinary tract infections, bleeding from the bladder
11 shortly after the episode. And their mother also developed
12 heart disease. Doctor, would you agree that those problems,
13 if they were caused in children who did not have chloracne,
14 that those problems could indeed be caused by the dioxin to
15 which they were exposed?

16 A I don't think so.

17 Q And Doctor, did I give you any hypothetical any
18 exposure to anything other than dioxin that could suggest
19 that a sixteen year old child would have heart disease other
20 than dioxin exposure?

21 A I don't know that dioxin will cause heart disease.

22 Q Doctor, even though you don't agree to the studies,
23 you do know that there are scientists that say that you can
24 have significant heart problems from exposure to dioxin?

1 You do know that, don't you?

2 A Yes.

3 Q And, Doctor, this heart disease at age sixteen is
4 certainly significant, isn't it, sir?

5 A Yes.

6 Q And if dioxin can cause that, as other scientists
7 believe, and you apparently do not, Monsanto doesn't, could
8 that be caused by the dioxin in your judgment to which they
9 were exposed, and which was reported to you in your November
10 the 17th, 1982 meeting?

11 A No, I don't think so.

12 Q Doctor, do you still--the words of the last para-
13 graph, the last sentence rather of this paragraph, "the
14 company is concerned about this public delirium regarding
15 reported dioxin contamination because it does manufacture
16 polychlorinated phenols which contain traces of TCDD," were
17 those your words, Doctor?

18 A No, sir.

19 Q Whose words were those, sir?

20 A Dr. Olson.

21 Q Did you ever--Robert E. Olson II. Did you ever
22 ask that the minutes be corrected to change the use of the
23 words "public delirium?"

24 A No, no we did not.

1 Q I take it then that you agree that the public's
2 concern about dioxin, or at least its concern in 1982 is
3 a public delirium?

4 A When he wrote this, this was just a way of saying
5 it. I don't think he meant public delirium.

6 Q Well, Doctor, at each meeting you get these
7 minutes, and you get the minutes after the meeting--

8 A Yes, sir.

9 Q --you have an opportunity to correct those
10 minutes, if it's not accurately stating the consensus of
11 the meeting; isn't that correct, sir?

12 A Yes, sir.

13 Q And this was stated that the company was concerned,
14 and of course Olson doesn't work for the company, does he,
15 sir?

16 A No, sir.

17 Q You were the only employee of the company there,
18 weren't you, sir?

19 A There were those who participated in presenting
20 that would be there.

21 Q Did somebody say that the company considered it
22 to be public delirium?

23 A No.

24 Q Did you say it, sir?

1 A No. No, sir.

2 Q And so you say you believe that Dr. Olson is
3 the one that described it as public delirium?

4 A Yes.

5 Q Any reason why you didn't correct that--well,
6 first of all, do you believe that it's public delirium?
7 The public's concern about this, that it's delirium?

8 A I wouldn't call public concern delirium.

9 Q My question isn't what you would call it, but
10 I'm asking for your belief. Now, do you believe that this
11 public connection or thought or belief about the dioxin
12 contamination is public delirium?

13 A No.

14 Q All right. Did you believe it then at the time?

15 A No.

16 Q Then I take it you didn't correct it simply
17 by oversight.

18 A Yes.

19 Q Doctor, do you feel that the public is entitled
20 to know whether or not there is TCD in the soil that may
21 be in their community? 2, 3, 7, 8-TCD, do you believe
22 that they are entitled to know that, sir?

23 A Yes.

24 Q Doctor, but you don't believe that the people in

1 Sturgeon are entitled to know that, do you, sir?

2 A I think they're entitled to know if something is
3 a hazard to their health.

4 Q But, Doctor, I didn't ask you that. What I asked
5 you, whether or not the public is entitled to know that
6 2, 3, 7, 8 is in the soil where they're working and living?

7 A If in fact it's there.

8 Q Well, do you think it would be wrong to tell the
9 people at Sturgeon that 2, 3, 7, 8 is in their soil?

10 A If in fact they find it there, they should be told.

11 THE COURT: I'm sorry, I didn't hear the last
12 couple of words.

13 THE WITNESS: If in fact it's present there, then
14 they should be told.

15 Q (By Mr. Carr) Doctor, you know that it's in the
16 soil now, don't you, sir?

17 A At some level, I suspect.

18 Q Yes. And--do you recall when you testified in
19 December of '83, when I asked you the question--

20 MR. HEINEMAN: I'm sorry, do you have a page?

21 MR. CARR: One moment, sir. Page seventy-two.

22 Q (By Mr. Carr) These questions were asked you,
23 starting at page seventy-one at the top of the page, line
24 three. Let me start at the bottom of page seventy to put it

1 in context. "Now, Dr. Roush, were you ever told by anybody
2 concerned with Monsanto that it was confirmed that the
3 isomer present in the tank car that spilled was indeed
4 2, 3, 7, 8-TCD?" And your Answer was "No." "Question:
5 Is the extent of your present knowledge today that it has
6 never been confirmed by Monsanto or anybody else at
7 Monsanto's request that TCD contaminant in that tank car
8 was 2, 3, 7, 8-TCD?" And your Answer then was "That's
9 never been told to me that that had been confirmed."
10 And then the Question: "After the initial stages of the
11 first couple of months following the spill, did you take
12 it upon yourself to ever inquire again at subsequent times
13 or subsequent months or subsequent years as to whether or
14 not it's ever been definitely been decided and confirmed
15 that the contaminant in that tank car is 2, 3, 7, 8-TCD?"
16 And your Answer was "No." "Question: You just simply
17 didn't do it?" And your Answer was "No." "Question: If
18 you had known that it was 2, 3, 7, 8-TCD positively, and
19 confirmed, would you have given any different advice to
20 the people that came to you for opinions as to medical
21 risks and hazards then what you have stated here today?"
22 And your Answer was "No." Then this Question, "Would you
23 have given any different advice then what you gave at that
24 time had you known that it was confirmed that it was

1 2, 3, 7, 8-TCD?" "Answer: No. Just gave me--I mean--"
 2 And then I said, "I'm sorry?" Your Answer was, "No, I
 3 would not have." "Question: You would not have advised
 4 Monsanto to play any different role in the cleanup or any
 5 different role in advising the public than what they in
 6 fact played; is that correct, Dr. Roush?" And your Answer
 7 was, "That's right." Then this Question, "Would you have
 8 advised Monsanto to tell the public that it's confirmed
 9 that there was 2, 3, 7,8-TCD in the tank car if Monsanto
 10 had learned that it was 2, 3, 7, 8-TCD?" And your Answer
 11 was at that time, "No." Were those your Answers to those
 12 Questions at that time?

13 A Yes, sir.

14 Q And you said--

15 MR. HEINEMAN: I'm going to object, your Honor.
 16 Was that supposed to be offered as an impeachment of what
 17 he just said? I don't know what the conceivable use of
 18 that deposition testimony was.

19 THE COURT: Are you objecting?

20 MR. HEINEMAN: I'm objecting to it.

21 THE COURT: Okay. I think it was impeachable.

22 Overruled.

23 Q (By Mr. Carr) Doctor, now you say today that the
 24

1 people should be told that there's 2, 3, 7, 8-TCD in the
2 soil, but in your deposition you said that you would not
3 have advised Monsanto to tell the people that it was
4 2, 3, 7, 8. Do you see an inconsistency in those two
5 answers, Doctor?

6 A Yes.

7 Q All right. Doctor, has something occurred now
8 since December of '83 when you gave that answer to today
9 for you to come to the opinion now that the public should
10 be told?

11 A Changing definition of what people should be
12 told.

13 Q You now today have a different view as to what
14 people should be told that you did not have prior to today;
15 is that correct, sir?

16 A Yes.

17 Q When did you come--did you come to that view
18 after this case was started, and after you learned that
19 we were seeking punitive damages for what Monsanto has
20 done or failed to do in this case, Dr. Roush?

21 A No, sir.

22 Q When did you come to the view then that the
23 people should be told?

24 A Part of this present right- to-know concern in

1 the United States, I'm reflecting that.

2 Q Doctor, the right-to-know concern has been in
3 existence since 1776. We have believed in this country
4 that we are equal members of our society, that nobody is
5 superior one to the other, and that we're all entitled to
6 know. That's not something that has occurred since 1983.

7 MR. HEINEMAN: I object to the speech, your Honor.
8 I ask that the jury be instructed to disregard it. It's
9 nothing--I don't know whether I was expected to direct a
10 brass band while that was going on or what. But I object
11 to it. It's not a question and I ask that the jury be
12 instructed to disregard it.

13 THE COURT: Overruled. Please finish your question,
14 Mr. Carr.

15 Q (By Mr. Carr) Doctor, what occurred in between
16 December of 1983 and today for you to now believe that the
17 public has the right to know?

18 A I said it's a reflection of the present concern
19 of definition of right-to-know.

20 Q Well, Doctor, don't you understand it's not just
21 a present concern, that it was a concern of the people of
22 Sturgeon in 1979, that several of them, three of them, two
23 at least, underwent painful fat tissue biopsies so as to try
24 to find out if there was 2, 3, 7, 8-TCDD there?

1 MR. HEINEMAN: There's no evidence of that, your
2 Honor, and I object to it. There's absolutely no evidence
3 as to the reason why these people have had that test done.

4 MR. CARR: Your Honor, there is reason. It's
5 sworn testimony of Joyce and Frances ^{KEMNER} Kim, your Honor. Maybe
6 Counsel wasn't here at the time.

7 MR. HEINEMAN: Oh, I was here. I also remember
8 that Bill Kemner said that he was never even told the
9 results in front of this jury.

10 MR. CARR: What's that got to do with the question
11 I'm asking?

12 THE COURT: Wait a second. Wait a second. Objec-
13 tion is overruled. Mr. Carr, you may continue.

14 Q (By Mr. Carr) Doctor Roush, do you believe that
15 it's just a recent thing that's occurred that people's
16 concern about 2, 3, 7, 8-TCD and the right to know about
17 it? Has it just occurred, sir?

18 A You have to put in context of whether it's a
19 lot or a little bit.

20 Q Doctor, you didn't differentiate a moment ago.
21 You said a moment ago if there was 2, 3, 7, 8-TCD in the
22 soil they've got a right to know. Don't they have the
23 right to know that, sir, whatever it might be? Don't
24 they have the right to know about it?

1 A That's what the world is struggling with right
2 now.

3 Q I'm asking you as representative of Monsanto,
4 don't the people have the right to know if there's 2, 3,
5 7, 8-TCDD in their soil or in the products that they use,
6 sir?

7 A Yes.

8 Q Doctor, the right that they had today, that you
9 conceived they have today, they have that right in 1983,
10 did they not, sir?

11 A Yes.

12 Q They had that right in 1982, did they not, sir?

13 A Yes.

14 Q They had that right in 1981 and 1980, did they
15 not, sir?

16 A Yes.

17 Q They had that right in 1979, did they not, sir?

18 A Yes.

19 Q They had that right in 1950, didn't they, sir?

20 A If we knew about dioxin--

21 Q Doctor, they had the right in 1950 to know, did
22 they not, sir?

23 MR. HEINEMAN: Objection. Why don't you let the
24 man answer the question?

1 THE COURT: Objection is overruled. It's not
2 responsive.

3 THE WITNESS: They have a right to know what we
4 know, but if we don't know--

5 Q (By Mr. Carr) Doctor, my question is if they have
6 a right to know. Don't they, sir? I'm not asking you to
7 perform miracles. I'm asking you to agree whether or not
8 they have the right to know. The right to know has been
9 in existence all of your lifetime, the public's right to
10 know in this country. It's been in existence all that time,
11 hasn't it, Dr. Roush?

12 A Yes.

13 Q Obviously if you don't know something is there,
14 you can't say it, can you, sir? You don't fall down in a
15 duty if you don't know yourself. But, Doctor, if you know
16 that it's there, and you don't tell somebody about it, you're
17 failing in your duty, aren't you, sir?

18 A If it's my responsibility to tell them.

19 Q Doctor, if you are the one that has the knowledge,
20 then you have the duty, and you're the manufacturer that
21 created the product that put the 2, 3, 7, 8 in the soil, or
22 in the can, or in the bottle, or in the air, or in the tissue,
23 you are the one with that knowledge, then you have the duty
24 and the responsibility to tell the people, do you not, sir?

1 MR. HEINEMAN: Object to the question as invading
2 the province of the jury, your Honor.

3 THE COURT: Objection is overruled.

4 THE WITNESS: Repeat the question for me.

5
6 (The previous question was read by the court
7 reporter.)

8 THE WITNESS: If I'm the only one that has the
9 knowledge.

10 Q (By Mr. Carr) Are you saying that you can pass
11 the buck to somebody?

12 A The responsibility for that spill was not Monsanto.
13 For that cleanup.

14 Q You're not responsible for the spill, so therefore
15 if you know there is 2, 3, 7, 8 in that tank car, you don't
16 have to tell the railroad workers that get down into it and
17 work in it, and you don't have to tell the school kids that
18 cross the track while the cleanup is going on, and in the
19 school right next door; is that what you're saying, Dr.
20 Roush? Because you didn't spill it you don't have to tell
21 anybody what's in there? Is that what you're saying, Dr.
22 Roush? You're not saying that, are you, sir? You don't
23 mean that, sir.

24 MR. HEINEMAN: You want to let him answer one of

1 those questions. Or do you want to keep talking?

2 Q (By Mr. Carr) You don't mean that, do you, sir?

3 A I mean if we have the authority we can go and say
4 what we want in Sturgeon. That the cleanup responsibility
5 was the responsibility of the railroad--

6 Q I understand that, Dr. Roush. But my question
7 is you don't mean what you just said, do you, sir?

8 MR. HEINEMAN: Will you let him answer?

9 THE WITNESS: The EPA was a part of this. It
10 was between their responsibility what was told. They knew
11 what the concentration of dioxin was in that spill.

12 Q (By Mr. Carr) Doctor, they have their own re-
13 sponsibilities, but now I'm talking about your responsibility.
14 Each of us has a responsibility in this society. Simply
15 because my brother has a responsibility to do what is right,
16 that doesn't mean that I don't have the same responsibility
17 to do what is right. We each have our own burdens of re-
18 sponsibility to carry. You understand that, don't you, Dr.
19 Roush?

20 A Yes, sir.

21 MR. HEINEMAN: Your Honor, I object. First of
22 all it's an incorrect statement of the law, if that's what
23 he's trying to do.

24 MR. CARR: I'm not even talking about the law.

1 There is no law except human morality involved at this
2 point. I'm just simply talking about--

3 MR. HEINEMAN: Can I ask the court to instruct
4 the jury--

5 MR. CARR: Human morality is what I'm talking
6 about. What is right and what is wrong.

7 THE COURT: Wait a second. Are you making an
8 objection?

9 MR. HEINEMAN: I'm objecting to the question,
10 your Honor.

11 THE COURT: The question was proper.

12 MR. HEINEMAN: It's nothing but a jury speech,
13 and it's trying to be a final argument.

14 THE COURT: The objection is overruled. It was
15 a proper question.

16 Q (By Mr. Carr) Doctor, don't you understand that
17 Monsanto has a responsibility notwithstanding what the
18 responsibility of others might be? You do understand that,
19 don't you, sir?

20 A Yes, sir.

21 Q And what you said a moment ago because you didn't
22 spill it, you really didn't mean that. That was just an
23 off the cuff response to a question of mine, wasn't it, sir?

24 A No.

1 Q All right, Dr. Roush. I have given you the
2 opportunity.

3 MR. HEINEMAN: I beg your pardon. I want that
4 comment stricken, your Honor. If he were given the
5 witness the opportunity, he'd be letting the witness
6 answer questions instead of interrupting him and trying
7 to mischaracterize his testimony. And I object to it.
8 If he wants to ask a question, let the witness answer it
9 instead of interrupting him all the time.

10 Q (By Mr. Carr) Dr. Roush, have I prevented you
11 from answering a question in any way?

12 A Yes.

13 Q Is there something that you want to say that I
14 haven't allowed you to say? Please say it.

15 A The responsibility for the cleanup of that spill
16 was the railroad and the EPA. And Monsanto was there to
17 guide them in the cleanup of it. We told them that because
18 of the chlorophenol there, that is a poison that man cannot
19 tolerate, then it should be cleaned by men properly pre-
20 pared to protect them. We also knew the concentration of
21 that dioxin in that chlorophenol was so low that it was
22 less than the concentration that is found in 2, 4-D that's
23 spread across the United States. Because of it being so
24 low, I did not consider it a hazard to man, and I therefore

1 had no concern about the dioxin content.

2 Q Doctor, I'm not asking you that now. What I'm
3 asking you, sir, is whether or not the people had the right
4 to know that 2, 3, 7, 8-TCDD is there, no matter what the
5 amount is, and you said they do have that right to know.

6 A Yes.

7 Q You agree with that?

8 A Yes.

9 Q So you're talking about something else now, see.
10 What I'm asking you, sir, you said that since you didn't
11 spill it that you didn't have to tell the people what was
12 there, and what I'm asking you, nearly pleading with you,
13 sir, to agree that Monsanto has the obligation, not with-
14 standing whose responsibility it is to clean it up, that
15 you have the obligation to tell the people what's there,
16 that 2, 3, 7, 8-TCDD is there.

17 A No matter what the concentration?

18 Q Absolutely. Isn't that what you just said
19 earlier?

20 A The problem is--

21 Q Isn't that what you just said earlier, Dr. Roush?

22 A That's right.

23 Q All right. Now, so that's what I'm asking you
24 about is what you said earlier. Now, sir, you don't mean

1 then, do you, sir, that you don't have the responsibility
2 to tell the people simply because you didn't spill it?
3 You didn't mean that, did you, sir?

4 A I'm not sure whose responsibility it is to tell
5 the people.

6 Q Doctor, you've agree that it is your--you made
7 the product, you know the OCP, you know it, and you had
8 chemists analyze it. So you are the one, and you're
9 the one that people called up, the EPA called you up and
10 said--somebody at this meeting asked you could there
11 possibly be dioxin. This is a month later. Could there
12 possibly be dioxin in an OCP. You are the people that
13 made it. You have the knowledge. It is your responsibility,
14 isn't it, Dr. Roush?

15 A When we confirmed it was there, we told them it
16 was there.

17 Q Dr. Roush, that's another point. My question is
18 it is your responsibility, isn't it, sir?

19 A To do what?

20 Q To tell them that 2, 3, 7, 8-TCD is in there if
21 it's in there.

22 A We did tell the EPA, and we did tell the railroad.

23 Q Doctor, you just told us earlier that the first
24 time you learned that it was confirmed that it was

1 2, 3, 7, 8-TCD was just recently. You weren't aware of the
2 fact that your lawyer stood up in front of this jury and
3 admitted for the first time that it was 2, 3, 7, 8-TCD,
4 don't you recall you just said that yesterday?

5 A Yes, sir.

6 Q Doctor, nobody ever told the people at Sturgeon
7 that it was 2, 3, 7, 8-TCD in that tank car, did they, sir?

8 A I don't know.

9 Q Doctor, it was your belief in 1983 that the public
10 shouldn't be told that it was 2, 3, 7, 8 in the tank car.
11 That was your belief then, sir. You now have said you--
12 you agreed that it is. And until Mr. Heineman stood in
13 front of this jury in February or March of last year and
14 told this jury that we stipulate for the purpose of this
15 case, we stipulate that it was 2, 3, 7, 8-TCD in the tank
16 car, having denied it earlier under oath, that's the first
17 time there was a public acknowledgment that it was 2, 3, 7,
18 8-TCD in that tank car. Are you aware of that, sir?

19 A No.

20 Q You are not aware of that, are you, sir?

21 A (Indicating no)

22 MR. HEINEMAN: Excuse me, Mr. Carr, did you
23 represent that I denied it under oath?

24 MR. CARR: I said Monsanto denied it under oath.

1 I don't know who signed the denial, sir.

2 MR. HEINEMAN: Oh, sure, it's an exhibit in the
3 case here, isn't it? Didn't you question Mr. Nassif about
4 that? The jury has heard all about that.

5 Q (By Mr. Carr) Doctor, there has been 2, 4, 5T
6 or has been Lysol, there has been 2, 4, dichlorophenol
7 throughout the United States. Has Monsanto to your knowledge
8 ever told the public, ever told the EPA, ever told anybody
9 that there was 2, 3, 7, 8-TCDD in those products that
10 Monsanto was putting out?

11 A We told if there was dioxin in them and what the
12 concentration was.

13 Q You told them that there was dioxin. Did you
14 understand my question to say dioxin?

15 A You said 2, 3, 7, 8.

16 Q You heard me use the words 2, 3, 7, 8, didn't
17 you, sir?

18 A Right.

19 Q I used those words specifically that way, sir.
20 Would you answer that question that I asked you, sir?

21 MR. HEINEMAN: I'm sorry, your Honor, I'm going
22 to object to that question as being misleading to the
23 witness, because Mr. Carr already cross examined him at
24 length about why TCDD means 2, 3, 7, 8, that it's all the

1 same thing. That's what Mr. Carr was implying.

2 MR. CARR: He didn't even say TCD, he said dioxin.

3 THE COURT: The objection is overruled. The
4 question is clear. The terminology was clearly stated to
5 the jury and to the court. Please answer the question.

6 THE WITNESS: If there was 2, 3, 7, 8 in it we
7 would tell our customers.

8 Q (By Mr. Carr) My question was did you, sir?

9 A It's not my--

10 Q Do you have any knowledge that you told any
11 customers about the prescence of 2, 3, 7, 8-TCD in Santophen,
12 for instance?

13 A I don't think there is any 2, 3, 7, 8 in Santophen.

14 Q Doctor, haven't you seen your own analyses done
15 by Mr. Taulli and by others that show there was 2, 3, 7, 8-
16 TCD in the Santophen drug, havne't you seen those, sir?

17 A Yes.

18 Q Then, Doctor, you could know that 2, 3, 7, 8-TCD
19 was in Santophen then, if you've seen them.

20 A Yes.

21 Q Then you want to take back the statement that you
22 just said?

23 A Yes.

24 Q All right.

1 MR. HEINEMAN: Excuse me, Mr. Carr, are you
2 representing to this witness that that's what those docu-
3 ments show?

4 Q (By Mr. Carr) Now, Doctor, do you know whether
5 or not any customer has ever been told that 2, 3, 7, 8-TCDD
6 is in Lysol or was in the Santophen?

7 MR. HEINEMAN: You don't want to ask that question,
8 do you?

9 THE WITNESS: I know we told them about the dioxin
10 content, if there was 2, 3, 7, 8 in there we would have
11 told them.

12 Q (By Mr. Carr) Doctor, you're speculating, aren't
13 you? Do you have any knowledge, do you have any documents,
14 anybody ever told you that they've ever told any customer
15 of yours that the Santophen contained dioxins? Even
16 dioxins, sir, not just 2, 3, 7, 8-TCDD. But dioxins?

17 A I don't recall.

18 THE COURT: Gentleman, could I see you up at
19 the bench for a minute please.

20
21 (At this point colloquy was held at the bench
22 out of the hearing of the jury.)

23 THE COURT: I heard the last comment, and I heard
24 it up here. Wasn't that last comment being, "you don't want

1 to ask that question, do you." It was not directed to the
2 court. It was not directed as an objection. It was
3 improperly made. I am going to tell you and order you
4 outside the presence of the jury that I don't want anymore
5 extracurricular comments like that made. If you to make
6 something for the record, if you want to make an objection,
7 if you want to ask for a conference at the bench, that's
8 one thing. I've been very liberal to all of you as to what
9 goes on as far as that's concerned. But I'm really tired
10 of these extracurricular comments like that. I'm telling
11 you that it won't be tolerated any longer.

12 MR. HEINEMAN: Your Honor, is that an issue
13 directed to both sides?

14 THE COURT: It is directed to you since you just
15 did it. I have not had that problem with Mr. Carr. If I
16 feel that I have it, it will be directed to him.

17 MR. HEINEMAN: May I address the point on the
18 record since we're on the record?

19 THE COURT: Sure.

20 MR. HEINEMAN: Your Honor, Mr. Carr throughout
21 the year and a half that this case has been going on has
22 been making extracurricular comments just like that in the
23 course of interrupting my examination of witnesses, making
24 extracurricular comments when I said that I didn't choose

1 to ask a certain question that he suggested I ask. He
2 would say things like "I didn't think so, I didn't think
3 you wanted to ask that question," and he said it many times
4 during the course of my examination both of the plaintiffs
5 and Dr. Carnow. I don't think it's fair for the court to
6 pick me out on this occasion for such a comment when I
7 think the record will amply show that it's been going on
8 by Mr. Carr for months and months and months in this case.

9 THE COURT: Do you have anything you want to say?

10 MR. CARR: Your Honor, I don't recollect making
11 such comments. There may have been occasions when I went
12 beyond what would have been a proper objection to make.
13 If I do, and I have in the past, I think I should be
14 chastised, reprimanded for doing so. I don't think that--
15 the fact that I may have done it, and I know I have done
16 in the heat of the moment things that might not be consider-
17 ed completely appropriate in the courtroom. It would be
18 impossible not to do so. But Mr. Heineman has reduced it
19 to a science. He has done it consistently today. I have
20 ignored his comments and proceeded a number of times.
21 He has been harassing me today. I would think the court
22 is quite properly suggested to Counsel that he has to stop.

23 THE COURT: All right. Now, to reiterate what
24 I said before, I am making this particular point, when I

1 feel that anything is being done by any of you that is
2 improper, I will note it and do something about it. It
3 is my judgment, it is my discretionary judgment, it is
4 made within the context of everything done, and whether
5 someone else is the recipient of such an order or not is
6 something that depends on their--his and their actions
7 alone, and not on anyone else's, which is basically what
8 I said before. Your comments of both of you are noted
9 in the record. Let's proceed.

10
11 (At this point colloquy was held at the bench
12 in front of the hearing of the jury.)

13 Q (By Mr. Carr) Dr. Roush, at the same meeting
14 of November the 17th, 1982 there was a Dr. Timothy Long
15 that was introduced and reviewed with the Biohazards
16 Committee of the toxicology of dioxins; isn't that correct,
17 sir?

18 A Yes, sir.

19 Q MR. CARR: Would you mark this 1438B, if you
20 would.

21
22 (Plaintiff's exhibit 1438B was marked for
23 identification by the court reporter.)

24 Q (By Mr. Carr) Fourteen thirty-eight B is

1 that page or part of pages dealing with what Dr. Long
2 presented to the committee, is it not?

3 A Yes, sir.

4 MR. CARR: I have that to pass to the jury, your
5 Honor.

6 MR. HEINEMAN: May I have the number, please?

7 MR. CARR: Fourteen thirty-eight B.

8 Q (By Mr. Carr) Doctor, while that's being done,
9 with regard to the notification of the public, of the
10 customers of the presence of dioxin in your products, were
11 you a part of the meeting in April of 1979 when people at
12 Monsanto, McPhillips and Rosen, and others discussed whether
13 or not to tell the Santophen customer, Lane and Fink,
14 Sterling Drug, whether or not they should tell them that
15 dioxin was in the Santophen? Were you a part of that
16 meeting, sir?

17 A No, sir.

18 THE COURT: I'm sorry, I didn't hear your answer.

19 THE WITNESS: No, sir.

20 THE COURT: Thank you.

21 Q (By Mr. Carr) Were you ever asked for advice
22 at that time as to whether or not Lane and Fink should be
23 told about dioxin in Santophen?

24 A No, sir.

1 Q Was your view in 1979 about the public's right
2 to know the same as it was in December of 1983 when I asked
3 you about telling the public about the presence of 2, 3, 7, 8-
4 TCD? Do you understand my question?

5 A Would you repeat it? That was a complicated
6 question.

7 Q Well, I'll break it down a little bit. You've
8 indicated that just recently, since December of 1983, you've
9 come to the opinion that the people have the right to know.
10 What I'm asking you is was your view before December, 1983
11 with regard to the customer's right to know the same as
12 your view about the public's right to know about dioxins or
13 2, 3, 7, 8-TCD in the product?

14 A Customers have a right to know.

15 Q All right. Now, I know they've got the right to
16 know. I'm not asking you that.

17 A All right.

18 Q What I'm asking you is your view of the customer's
19 right to know the same today as it was before December of
20 1983, and was your view before December of 1983 that the
21 customers have the right to know?

22 A At that time we thought that the definition of
23 a contaminate in a product has not been established, and
24 it isn't established today. When we sent--on our safety

1 data sheets today it is not clear that we have to write on
2 the safety data sheet that we give to our customers, based
3 on what O.S.H.A. says that it contains dioxin. The document
4 says today if it contains more than a tenth of a percent
5 you have to tell. Beyond that, there's no clear definition
6 of what our responsibility is.

7 Q Doctor, perhaps you misunderstood my question.
8 My question was not what you may legally have to put on
9 your safety data sheets. My question was directed at your
10 view--you said the customers have a right to know. Now,
11 all I'm asking you, Doctor, do you have the view--is the
12 view today that you've pronounced clearly that customers
13 have a right to know if dioxin is in the product, no matter
14 what the level, or in the soil, no matter what the level,
15 that's your view today, and you clearly stated it. What
16 I want to know is was that your view in regard to the
17 customers back in 1979, or that is before December of 1983.

18 A If I thought it was a hazard, I thought I should
19 tell them.

20 Q All right. Now, your view then was that you were
21 the one to determine whether or not it's a hazard, and if
22 you believed that 2, 3, 7, 8 was no hazard and then you
23 didn't feel that you should, or had--you didn't feel that
24 the customer had the right to know that?

1 A Didn't feel that was our responsibility to tell
2 them.

3 Q What you felt was that if they are going to know
4 about it, they have got to dig in and find it out for them-
5 selves because Monsanto is not going to tell them; is that
6 correct, sir?

7 A If we thought it was a hazard we'd tell them.
8 If we didn't think it was a hazard, and talking about con-
9 taminants, we didn't have to tell them.

10 Q That isn't what I asked you, Dr. Roush. I under-
11 stand why you're giving that answer. But could you read
12 my question to him. Would you listen to that and see if
13 you could answer that.

14 A Right.

15
16 (The previous question was read by the court
17 reporter.)

18 THE WITNESS: At that time it would be, yes.

19 Q (By Mr. Carr) And it has been just since that
20 lawsuit started that that view has changed--

21 A No, sir.

22 Q --isn't that correct, Dr. Roush?

23 A No, sir.

24 Q When did it change?

1 A This problem of public responsibility, and we
2 still haven't decided how we're going to do it.

3 Q My question is when did it change, sir?

4 A I don't have a date. That--

5 Q You said today that they do have the right to know,
6 and that you would tell them, but at that time in '79
7 and before 1983 they didn't have the right to know, and
8 you wouldn't tell them. Now, this lawsuit started in
9 February of 1984, Dr. Roush. Did your view change after
10 February of 1984?

11 A No, sir.

12 Q When did it change?

13 A I can't answer that. I don't know.

14 Q Well, your view in December of 1983 was that the
15 public did not have the right to know, wasn't it, sir?

16 A Yes.

17 Q So your view changed from December of 1983,
18 sometime between December of '83 and February of '84
19 is that correct, Dr. Roush?

20 A Yes.

21 Q Was this the company policy that changed at that
22 point in time?

23 A No, sir.

24 Q Did you attend, shortly before this lawsuit

1 started--strike that. Were you aware at the time that this
2 lawsuit started, Dr. Roush, that we were suing for and
3 seeking not just compensation for injuries that may have
4 been done our clients, but indeed Mr. Seigfreid and I were
5 seeking punitive damages from Monsanto because of what we
6 conceive they did wrong that they should be punished for?
7 Were you aware of that fact after December of '83 and before
8 February of '84, sir?

9 A No, sir.

10 Q Well, were you aware of that fact before December
11 of '83 that we were seeking those punitive damages?

12 A I know nothing of that.

13 Q When did you learn that we were seeking punitive
14 damages?

15 A Recently.

16 Q Now, Doctor, did your view as to the people's
17 right to know, did it change at the time, or nearly at
18 the time that you at Monsanto--no, strike that, not at
19 Monsanto, but that you learned that we were seeking punitive
20 damages?

21 A No, sir.

22 Q Doctor, then I am somewhat at a loss to understand
23 just when sometime between December of '83 and February
24 of '84 your view changed. Let me explore that. Was there
a meeting of top Monsanto officials that took place between

1 December of '83 and February the 6th of '84--

2 A No.

3 Q --in which this case was discussed?

4 A Not--I was never present at one.

5 Q Well, that isn't what I asked you.

6 A I don't know about anything else.

7 Q All right. You don't know whether there was or
8 was not--

9 A No, sir.

10 Q --is that correct, sir? All right. Did you have
11 a conference with somebody, yourself, whether it was a
12 meeting or not as to the public's right to know, as to the
13 customer's right to know, and Monsanto's responsibility
14 with regard to those rights?

15 A No, sir.

16 Q Doctor, then did this view that's changed the
17 attitude of yours, this changed opinion of yours, did it
18 just come about then on your own volition?

19 A It's a part of this public discussion that's
20 going on about public right to know. My responsibility
21 has always been to protect the customer. That has been
22 what we controlled by. Our concern is about dioxin in the
23 environment. We work to protect them. The Sturgeon spill
24 I was very much involved in whether the dioxin content was

1 going to be a problem for Sturgeon. I didn't think so.
2 And because of that, I thought I was doing right. Now,
3 in determination of what man has got a right to know when
4 there is no hazard is that I don't know how to answer
5 that, when there is no hazard. It's the same sort of
6 thing that the fact that there is dioxin in their cigarette
7 smoke, does the public have a right to know that, should
8 they be told that, too?

9 Q In a word, absolutely. The public has the right
10 to know where anything, any damage that may affect their
11 health, and their happiness, and their children. You
12 know, dioxin is not just said by reputable scientists
13 to be causing cancer, it's said to be a teratogen, a
14 mutagen. It's said to be feogenic. It's said to be all
15 of these things, is it not, Doctor?

16 A In animal species, yes.

17 Q And some scientists say that it may well happen
18 in humans as well, don't they, sir?

19 A Yes.

20 Q Doctor, in this society don't I have the right
21 to decide the risks--if I want to smoke, and I see the
22 warning on the label--my wife smokes like a smokestack.
23 Now, she's an intelligent woman. And I did too for many
24 years. She's an intelligent woman. She has the right,

1 and she knows that, she has the right to make her own
2 choice.

3 A But--

4 Q Now, Doctor, but if the U.S. government hadn't
5 told, hadn't forced the tobacco companies to put the warn-
6 ing on the cigarette package, the tobacco companies to
7 this day wouldn't be telling my wife not to smoke. You
8 know that, don't you, sir?

9 A I would suspect that's right.

10 Q Now, the tobacco company, they take the position
11 that cigarette smoking doesn't cause cancer, that it doesn't
12 cause these bad effects, but the rest of us, you included,
13 take the contrary position. Now, the tobacco companies
14 have a financial stake in their beliefs in what they say.
15 But nevertheless, we the public have the right to know.
16 You may believe that the 2, 3, 7, 8--and you may be per-
17 fectly right that the 2, 3, 7, 8 in this can of Lysol
18 couldn't harm a flea. But I might differ with you. You
19 said yourself that there are reputable scientists that
20 believe that 2, 3, 7, 8 is a carcinogen, that reputable
21 scientists believe that 2, 3, 7, 8 is a promoter. And
22 you know all these other things that were presented to
23 your Biohazards Committee, which we'll get to, things that
24 you know about. You are not, Dr. Roush, do you really

1 believe that Monsanto has the right to make a decision for
2 me as to whether or not I can use Lysol and be exposed to
3 it or not, that you've got the right to make that decision
4 for me.

5 MR. HEINEMAN: Your Honor, may I object to the
6 speech, that forty or fifty second speech that finally
7 preceded a question and had nothing to do with the question.
8 I object to it and ask that it be stricken, and ask that
9 the jury be instructed to disregard it.

10 THE COURT: Overruled. Please answer the
11 question, Doctor.

12 THE WITNESS: Would you repeat the question for
13 me.

14
15 (The previous question was read by the court
16 reporter.)

17 THE WITNESS: The problem of definition of
18 right, when they're talking about contaminants of a product,
19 at what level the company has responsibility to tell, and
20 how to tell it, to be meaningful has not been described
21 yet.

22 Q Doctor, my question is do you at Monsanto have
23 the right to decide for me whether or not I should or
24 should not be exposed to 2, 3, 7, 8.

1 A It depends on the concentration that's in there.

2 Q Then you're saying that you do have the right to
3 decide what I should know, dependent upon the concentration?
4 That's what you are saying--

5 A That's right.

6 Q --aren't you, Doctor?

7 THE COURT: Mr. Carr, is this a good point for
8 a short break?

9 MR. CARR: Yes, sir.

10 THE COURT: Ladies and gentlemen, we'll take a
11 break at this time. The admonishments that I've given
12 you earlier will apply. The court is in recess.

13
14 (At this point a short recess was taken.)

15 Q (By Mr. Carr) Dr. Roush, I'd like to make it
16 clear that it is still your present view that the public
17 and customers have the right to know that the presence
18 of 2, 3, 7, 8-TCB in the product or in the soil, no matter
19 what the level that it may be, that is your present view?

20 A The only problem I've got with what you just
21 said is the concentration--

22 Q Excuse me, Doctor. I hate to interrupt you.
23 But did you not testify to that earlier today?

24 A Yes, but I didn't finish--

1 Q On two occasions?

2 A Yes, but I didn't finish what I wanted to say.

3 Q I understand that, but I want to get this point
4 established, and then you can go on and say what you want
5 to say. It is your view as you stated several times this
6 afternoon that the public and the customers have a right
7 to know if 2, 3, 7, 8-TCDD is in the product or in the
8 soil no matter what the level; isn't that correct, sir?

9 A Yes.

10 Q Thank you. Now, you can go ahead and say what
11 you wanted to say.

12 A The problem with what I've just said is that
13 there is a level, at some low level that doesn't have any
14 meaning, then you can always find it down at some low
15 level that we're not going to report. We can always
16 measure to a lower level, and someone will say we are re-
17 sponsible to go down there, and we're not going to be able
18 to do that.

19 Q Well, Doctor, nobody is asking you what you cannot
20 do. We have seen how you have progressed in your ability
21 to detect dioxin from parts per million back in the '60's
22 and '70's, down to parts per billion, and today you're
23 down in parts per trillion.

24 A Right.

1 Q Nobody has suggested to you that you need to
2 report that which you cannot report. But when you do know
3 that there are levels, no matter what the level might be,
4 of dioxin in the product and in the soil, it is your present
5 view that the public has the right to know that; isn't
6 that correct, sir?

7 A I am struggling with that definition of where we
8 have decided we should be telling customers, and how far
9 we should go in looking for dioxin.

10 Q You're mixing up the two things, sir. You're
11 mixing up how far should you go with what should you tell
12 the customers. All I'm asking, isn't it your view, as you
13 have stated two or three times today, the customer has the
14 right to know of the presence of 2, 3, 7, 8-TCD in the
15 product?

16 A Yes. And my struggle still is--

17 Q I'm not asking for your struggle. All I want to
18 know is that is your present view?

19 MR. HEINEMAN: Objection, your Honor, he told the
20 witness he was going to let him have his say in this matter.

21 MR. CARR: I did let him have his say, and I'm
22 back to wanting an answer.

23 THE COURT: The objection is overruled.

24 Q (By Mr. Carr) Have we now passed from that point,

1 Doctor?

2 A I really haven't stated what I wanted to say.

3 Q Well, then say what you want to say.

4 A What I'm saying, when we're talking about what
5 level of contamination that we are going to report is I'm
6 not clear where that should go. At what level we are re-
7 sponsible to tell about contamination of any product with
8 any chemical. That includes dioxin. There's a whole issue
9 of what we should tell people about levels that are not
10 hazardous is a most difficult one to deal with. I don't know
11 the answer to that.

12 Q Well, at least the way you're operating at the
13 present time is that the public has the right to know the
14 dioxin, the 2, 3, 7, 8-TCD is present no matter what the
15 level at the present time; isn't that correct, sir?

16 A I'm not sure at no matter what the level part.
17 I agree with you, except I don't--

18 Q Currently has there been any level of dioxins
19 since this lawsuit started, has there been any products
20 that you've been aware of at Monsanto that has had any
21 level whatsoever of 2, 3, 7, 8-TCD that you have not told
22 to the customer, or to the public, or that you have
23 discovered?

24 A I don't know.

1 Q Well, within the knowledge that you have, sir, I'm
2 not asking for something you don't know, has there been any
3 levels that you are aware of that have not been reported to the
4 public in your products or in the soil, wherever it might be,
5 at the Lilling Plant, at the Queeny Plant, the Krummich Plant,
6 or the Nitro Plant, or in Santophen--well, you don't make that
7 anymore--or tetra-soil, or whatever it is that you are making at
8 the present time, is there any 2, 3, 7, 8 contaminate in any
9 of those circumstances that you have discovered--by you, I mean,
10 Monsanto to your knowledge--that you have not reported to the
11 customer or to the public?

12 A It's not my responsibility to do the reporting.

13 Q I'm asking you not your responsibility, Dr. Roush,
14 I'm asking you to your knowledge has there been any such
15 levels that have not been reported.

16 A No.

17 Q All right. Now, then, you have 1438B in front of
18 you, do you not, sir?

19 A Yes, sir.

20 Q Yes, sir. And Dr. Long is a toxicologist, is he
21 not, and he reported to your meeting, did he not?

22 A Yes.

23 Q And among other things he described to your
24 committee all about the toxicology of dioxins, and he
discussed the effect of dioxin on various animals including

1 man, did he not?

2 A Yes.

3 Q And he said one thing that I wish to discuss
4 with you, no one is sure where man stands in this spectrum
5 of animal sensitivity, did he not, sir?

6 A Yes.

7 Q He's talking about the fact that one animal, I
8 think it's the guinea pig, is not sensitive--

9 A The guinea pig is very sensitive.

10 Q But the hamster is at the other end of the
11 spectrum.

12 A Guinea pig most sensitive, but the hamster is
13 the least sensitive.

14 Q Vice versa. I got them mixed up. He says no
15 one knows where man stands in that spectrum, doesn't he,
16 sir?

17 A For sure.

18 Q We will add for sure, if you want. But no one
19 is sure where man stands in this spectrum of animal
20 sensitivity. That's exactly word for word what he said,
21 isn't it, sir?

22 A Yes, but he's reporting what he read in the
23 literature.

24 Q Well, sure. Unless he's done all the work

1 himself that is the method by which you, and other toxicolo-
2 gists learn, isn't it, sir, what's reported in literature
3 by other reputable scientists?

4 A Yes, but there are those who say that man is not
5 nearly as sensitive as the guinea pig.

6 Q Doctor, I'm not quarreling with you on that point.
7 No one is sure where man stands, in fact; isn't that right, sir?
8 You're not sure where man stands, are you, sir?

9 A That's right.

10 Q And no one else is, are they, sir?

11 A The only thing I want to add to that --

12 Q Dr. Roush, could you answer that question before
13 you add it, because I have to get an answer to the question.
14 Then you can add what you want to add.

15 A The answer to that is yes.

16 Q You do know where man stands?

17 A No, that we don't know where man stands.

18 Q All right. Now, you can add what you want to add.

19 A It has been stated many, many times that because
20 of man's exposure to dioxin, and it has not produced death,
21 that man is not nearly as sensitive as the sensitive
22 animals.

23 Q Now, Doctor, you know that that isn't true, that
24 man has died from exposure to dioxin.

1 A No, I don't.

2 Q Well, I haven't got the file with me today because
3 I was going to save it for later on, but documents in
4 Monsanto's file referring to a man at BASF--

5 A Yes.

6 Q Well, then you do know what I'm talking about.

7 A But that case has not been established as being
8 connected.

9 Q Doctor, scientists that studied that case had a
10 man exposed to dioxin and he developed--I forget what it
11 was now--some kind of--they discovered it in his pancreas,
12 I believe it was, and he died from pancreatitis, that the
13 attending physician reported was caused by the dioxin.
14 Isn't that correct, sir?

15 A Yes.

16 Q All right. Now, Doctor, if the man died from
17 pancreatitis, and the pancreatitis was caused by dioxin
18 according to the treating physician, don't you interpret
19 that as a death caused by dioxin?

20 A No, sir.

21 Q Doctor, if I had a gun in my hand, and I aimed it
22 at you, and I pulled the trigger, now the bullet actually
23 is traveling from the gun to you, and it actually strikes
24 you and kills you. The bullet did the killing. But didn't

1 I cause it by pulling the trigger? Didn't I cause the
2 death by pulling the trigger of the gun?

3 A Yes. The relationship--

4 Q All right. Now, Doctor, if the dioxin causes
5 the pancreatitis, just as I caused the bullet to leave the
6 barrel of the gun, and the man dies from pancreatitis,
7 didn't dioxin cause the death of the man?

8 A If the pancreatitis was caused by the dioxin.

9 Q Yes, that's right. That's what the doctor said,
10 the attending physician said that. Didn't he, sir?

11 A Yes. But--

12 Q All right. Doctor, that's all I'm asking you.

13 MR. HEINEMAN: Objection, your Honor. He con-
14 tinually cuts the man off and won't let him explain his
15 answer.

16 MR. CARR: He can explain all he wants, Counsel,
17 but I want an answer to my question first.

18 Q (By Mr. Carr) Doctor, the evidence that you have,
19 that we all have, is that which was reported in this lit-
20 erature. It was reported that the attending physician
21 said the man had a massive exposure to dioxin, which caused
22 pancreatitis, which caused his death. Isn't that correct,
23 sir?

24 A He had--the man who did that and developed

1 pancreatitis and died.

2 Q Isn't that correct, sir?

3 A Yes.

4 Q Now, go ahead and say what you want to say.

5 A But that doesn't mean that association is real.

6 Q Oh, I understand that, Doctor. But you have no
7 evidence other than what was reported, do you, sir?

8 A The literature on dioxin would indicate it doesn't
9 cause acute pancreatitis.

10 Q Doctor, there was a lady at Seveso who died of
11 cancer of the pancreas.

12 A Yes.

13 Q The lady we just talked about.

14 A Yes, sir.

15 Q We know--you don't know--you don't agree that
16 dioxin is the promoter, do you, sir?

17 A Yes, in animals.

18 Q In human beings I'm talking about.

19 A There's no evidence that it is.

20 Q Well, Doctor, then you understand that when you
21 give me an answer to a question that you say pancreatitis
22 isn't caused by dioxin, that I can't accept that because
23 you also say that dioxin is not a promoter. I'm going to
24 get to in a minute, very shortly, in your own meetings with

1 your own people, your biohazards people say that it is a
2 promoter. I mean I've got the documents here. You will
3 agree that I should be--I should not accept what you say
4 when I have the documents where your own people counter
5 what you say. Do you understand that, Doctor?

6 A Yes, I understand that.

7 Q All right. Now--

8 A Let's go--

9 Q The literature states, why don't you agree with
10 it, the literature states that a man did die from dioxin
11 exposure, does it not say that?

12 A It does say that.

13 Q All right. Now, Doctor, your toxicologist goes
14 on to say here that it has been reported in man not only
15 chloracne, but that neuromuscular changes occur, porphyria,
16 and hypertriglyceridemia occurs following acute exposure
17 to dioxin; doesn't it, sir?

18 A Yes.

19 Q And he also--now, that's a lot more than chloracne,
20 isn't it, sir?

21 A Yes.

22 Q He also goes on to say that these dioxins produce
23 hyperplasia of hepatocytes, hepatomegaly, and in some
24 animals hepatic necrosis; doesn't it, sir?

1 A Yes.

2 Q He goes on to talk about how--let's talk about
3 animal studies for a while. The reason animal studies are
4 done is to help you understand what can happen to human
5 beings without subjecting human beings to the same process;
6 isn't that correct, sir?

7 A Yes, sir.

8 Q And while we all are beings on this earth, and
9 we love animals, we do like humans more than we like animals,
10 and therefore if people are going--if things are going to
11 be subjected to experiments, we much prefer that it be
12 animals rather than humans; isn't that correct, sir? You
13 have to say--

14 A Yes, sir.

15 Q And now in regard to these animal studies, your
16 toxicologist did report that low doses of TCDD causes
17 reproduction failure and cancer, didn't he, sir?

18 A Yes, sir.

19 Q And that's in animals.

20 A Yes, in rats.

21 Q And it's also a teratogen; correct, sir?

22 A Yes, sir.

23 Q He says it's probably not a mutagen, however,
24 doesn't he, sir?

1 A Yes, sir.

2 Q And he says it's probably not a mutagen, however,
3 doesn't he, sir?

4 A Yes, sir.

5 Q He also says that there's a possibility that it
6 can alter the chromosomes, doesn't he, sir?

7 A Yes.

8 Q Now, the chromosomes is part of the DNA change
9 that makes up our--it's basic genetics, isn't it, sir?

10 A Yes.

11 Q We pass that on to our children, people that
12 come behind us.

13 A If it's in our reproductive genes.

14 Q Yes. And, Doctor, it goes on also to say that
15 there have been in two year lifetime studies, there have
16 been found tumors of the lung, the liver, the tongue and
17 nasal passages, does't it, sir?

18 A Yes, sir.

19 Q And he also describes how TCD might be a particular
20 promoter. He's talking about cancer there, being a promoter
21 of cancer, isn't he, sir?

22 A Yes, sir.

23 Q He gives a reason for it, doesn't he, it appears
24 to react with the estrogen receptor; correct, sir?

1 A Yes.

2 Q All right. Now, Doctor, in addition to your
3 other duties, you have had occasion in the past to serve
4 on what's been called The Governor's Task Force in
5 Missouri on the dioxin problem, haven't you, sir?

6 A Yes, sir.

7 Q When did you first join that committee, Dr.
8 Roush?

9 A I don't recall the date.

10 Q I'm sorry.

11 A I don't recall the date.

12 Q Well, could you give me the approximate year?

13 A I think it was in late '83.

14 Q And you've served on that committee up to the
15 present time?

16 A No.

17 Q When did you leave the committee?

18 A That committee was disbanded after about a year.

19 Q Well, during that period of time you were also
20 on a subcommittee of the Task Force, were you not, that
21 dealt with health effects of dioxin in man?

22 A Yes, sir.

23 Q And you served on that committee, at least you
24 were serving on it in September of '83, were you not?

1 A Yes, sir.

2 Q And that subcommittee of which--did you participate
3 in the activities of the subcommittee?

4 A Yes, sir.

5 Q And participate in the documents that it drafted
6 and prepared, sir?

7 A Yes, sir.

8 Q And it prepared a report, the subcommittee prepared
9 a report on the health effects of dioxin, did it not, sir?-

10 A Yes, sir.

11 Q And you participated in the preparation of that
12 report, did you not, sir?

13 A Yes, sir.

14 Q I thought I had four copies.

15

16 (Plaintiff's exhibit 1439 was marked for
17 identification by the court reporter.)

18 Q (By Mr. Carr) Doctor, I'll now hand you what's
19 been marked 1439, and ask you if you recognize that as a
20 document that bears your--not your signature, your name in
21 the upper left-hand corner. That's a report of that sub-
22 committee that you just described. Your Honor, I was sure
23 I had a fourth copy.

24

THE COURT: That's okay.

1 THE WITNESS: I don't think this is our final
2 report. This is only an early draft.

3 Q (By Mr. Carr) Well, do you have another report,
4 because as far as I'm aware of, I could be wrong, this
5 is the only report of that subcommittee that I've got.

6 A No. No. There's a final report. This isn't
7 the final draft.

8 Q When was the final draft compiled?

9 A Within a month of this.

10 Q All right. Did it vary substantially from this
11 report?

12 A I think a great deal.

13 Q Perhaps I can offer this into evidence. We can
14 explore where the variance was, because I--

15 A I have a copy.

16 Q With you?

17 A No.

18 Q Well--

19 A But I don't think this reflects what we had in
20 the final draft at all.

21 Q It doesn't reflect at all?

22 A No.

23 Q Let me direct your attention to just one part of
24 it right now, but it concerns the area that I want to talk

1 to you about, page six, where it talks about the chloracne.
2 That's the area that I'm in right now. Without reading it,
3 Doctor--without reading it out loud, tell me if you would,
4 if the final report contains a statement similar to the last
5 sentence in that paragraph dealing with chloracne and dioxin
6 intoxication. Did the final report contain an equivalent
7 statement? I want to ask questions about it if it did.

8 A I can't answer that.

9 Q You don't know?

10 A No, I don't remember.

11 Q All right. Doctor, without a specific reference
12 to it, does the subcommittee of which you are a member
13 believe that chloracne is not a prerequisite to dioxin
14 intoxication?

15 A It says unequivocally under some circumstances.

16 Q Is that the subcommittee's belief?

17 A That was the opinion of some of the members of the
18 subcommittee.

19 Q Well, that's the opinion--well, what I'm asking
20 you, Doctor, is whether or not the subcommittee as a whole,
21 of which you are a member--

22 A Yes--

23 Q --published its view that you cannot state un-
24 equivocally that chloracne is a prerequisite to dioxin

1 intoxication.

2 A I can't tell you whether this appeared in the
3 final report or not. This is one of the issues that we
4 spent a great deal of time. So the quarrel was about that
5 word "unequivocally." Under some circumstances it could be
6 without chloracne. But I'm not sure that we have left it
7 in that form.

8 Q Well, what about the statement that some soft
9 tissue sarcomas developed in individuals without previous
10 chloracne. Did you all agree on that statement?

11 A Yes.

12 Q All right. Doctor, and I have a file on soft
13 tissue sarcomas, I'll get to that later on, but the fact
14 that Hardell and others have reported that soft tissue
15 sarcomas can be caused by dioxin exposure; isn't that right,
16 sir?

17 A Yes.

18 Q And your subcommittee, and you as a member of that
19 subcommittee, would agree that soft tissue sarcomas have
20 developed in people without prior chloracne; isn't that
21 correct, sir?

22 A Yes, Sure.

23 Q Doctor, doesn't that tell you, sir, you said
24 earlier that it's Monsanto's view that you can have no bad

1 effects from dioxin without chloracne. You can't get a much
2 worse effect than a soft tissue sarcoma, can you, sir?

3 A That's correct. But that doesn't mean it's related
4 to dioxin exposure.

5 Q Doctor, the soft tissue sarcomas came about, and
6 I don't want to jump ahead, but came about in people -- it's
7 a very, very rare type of cancer. It only occurs in point
8 zero seven percent of the population. Very rare kind of cancer.
9 Doctor, it happened to people that were exposed to dioxin,
10 and they didn't get chloracne. Isn't that suggestive to
11 you as a medical person that the dioxin caused this very
12 rare form of cancer?

13 A No, sir.

14 Q It doesn't suggest it to you. All right.

15 A Can I explain why?

16 Q If you'd like, sure.

17 A You've mentioned the Hardell study, that says asso-
18 ciation between exposure to dioxin and soft tissue sarcomas.
19 You did that twice and came to the same conclusion. There are
20 two other studies--three other studies done just exactly like
21 it that did not find soft tissue sarcomas in the same circum-
22 stances. So the Hardell epidemiology study is open to
23 question because it wasn't found in others. If you can't
24 find it every time you do it, you can't draw a conclusion

1 as to association. To go further than that, in occupational
2 exposure there's little evidence such as a soft tissue sarcoma
3 problem.

4 Q Dr. Roush, to jump ahead for a moment. It was
5 point zero seven percent that is the rarity of the soft tissue
6 sarcomas, but soft tissue sarcoma in the chemical industry,
7 when you take the Dow soft tissue sarcomas and Monsanto
8 soft tissue sarcomas, reputable scientists have concluded
9 that three percent of your workers have soft tissue sarcomas,
10 two point nine percent, I'm sorry, I exaggerated slightly,
11 two point nine percent had soft tissue sarcomas. That would
12 be a factor of seven--seven into--four times higher. Four
13 times higher rate.

14 A Yes, sir.

15 Q Four hundred percent greater rate of soft tissue
16 sarcomas in the chemical industry.

17 A Yes.

18 Q Of those workers that were exposed to dioxin.
19 Isn't that suggestive in your own backyard of a connection
20 between dioxin and soft tissue sarcoma, disregarding Hardell?

21 A Yes. This statement you just made--

22 Q Excuse me. Could you answer that question please,
23 sir. Isn't that evidence of soft tissue sarcoma causation
24 by dioxin in your own backyard, sir?

1 A No. Can I finish on that statement?

2 Q Sure.

3 A When you reported those are based on seven soft
4 tissue sarcomas, in the epidemiology studies that have been
5 done on man, and four of those soft tissue sarcomas have been
6 discredited by NIOSH as being related to dioxin exposure. So
7 it isn't all that common in terms of occupation, and it's
8 common enough without exposure. Four of the cases of soft
9 tissue sarcoma have been taken out. One or more of those were
10 taken out because they were diagnosed as being soft tissue
11 sarcomas, and since they have been diagnosed as other tumors.

12 Q Doctor, who took them out?

13 A NIOSH.

14 Q Do you have some documents --

15 A Yes, sir.

16 Q We'll get to the soft tissue sarcoma. I won't
17 quarrel with you on that point at this time. All right?
18 Doctor, in regard to the ability of dioxin to promote, you had
19 a meeting just a year ago, February 17 of 1984, did you not,
20 sir, of your Biohazards Committee?

21 A We have one every month.

22 Q All right. Would you mark this.

23

24 (Plaintiff's exhibit 1440 was marked for

1 identification by the court reporter.)

2 Q (By Mr. Carr) I'm handing you now what's been
3 marked plaintiff's exhibit 1440 and ask you if you recognize
4 that as the minutes from the Monsanto Biohazards Committee
5 of February 17, 1984?

6 MR. HEINEMAN: This was 1440?

7 MR. CARR: Fourteen forty.

8 THE WITNESS: Yes, sir.

9
10 (Plaintiff's exhibit 1440A was marked for
11 identification by the court reporter.)

12 Q (By Mr. Carr) Doctor, I hand you now what's
13 been marked 1440A and ask you if you recognize that as a
14 page from those minutes we've just described. I'll offer
15 1440 and 1440A.

16 MR. HEINEMAN: No objection.

17 THE COURT: They're both admitted without
18 objection, Counsel.

19 Q (By Mr. Carr) Doctor, when it comes to whether
20 something is a promoter or an initiator, it really doesn't
21 make much difference because in the end the result is
22 going to be the same, is it not? That is, more cancers?

23 A Everything suggests that's right.

24 Q Yeah. And so the dispute as to whether or not

1 2, 3, 7, 8 is an initiator or is initiator and a promoter
2 is really just kind of an academic dispute that you scientists
3 like to engage in, is it not? As far as the end result is
4 concerned, whether it's an ititiator or promoter, it really
5 makes no difference. You're going to get more cancer in
6 either event, aren't you, sir?

7 A Except for one point. A promoter, first of all
8 initiator is thought to be a carcinogenic response in which
9 there's no threshold. In other words, the dose goes back to
10 the one molecule three. But the promoter isn't that way.
11 A promoter is thought to produce the cancer by stimulating
12 something after the cell has been initiated. And that
13 promoter affect is dose related, and there is a threshold
14 for response for promoters.

15 Q If I understand correctly, what you believe to be
16 the case, one molecule of an ititiator can cause cancer?

17 A That's a--

18 Q But one molecule of a promoter cannot cause an
19 initiator to cause a cancer?

20 A That's right.

21 Q So if it has to have a certain amount to be able
22 to cause a cancer if it's a promoter, whereas if it's only
23 an initiator it doesn't take a certain amount, one molecule
24 can do it theoretically?

1 A Yes, sir.

2 Q All right. And has anybody determined the level
3 at which TCDD will promote cancer in humans?

4 A No.

5 Q All right. Then what they've done, and this
6 study deals with, and I'll direct your attention to the
7 report of Dr. Levinskas at this meeting, he reported the
8 work being done at the Chemical Institute, did he not, sir?

9 A Yes.

10 Q Now, on this Chemical Institute, it's been some
11 time the jury had a deposition read of Dr. Neal
12 last spring, a year ago. The Chemical Institute is an
13 organization funded and operated--not operated by, but
14 funded by chemical companies, isn't it?

15 A Yes, sir.

16 Q And Monsanto is on the board of directors, or
17 has representatives on the board of directors of that?

18 A Yes, sir.

19 Q And are you that representative?

20 A No, sir.

21 Q Who is?

22 A Mr. Singer.

23 Q All right. And in any event, Dr. Neal who was
24 with the Vanderbilt University is now at Chemical Institute,

1 and he's the director?

2 A Yes, sir.

3 Q And he comes to Monsanto--well, he was, prior
4 to becoming a director, he in fact was a member of your
5 Biohazards Committee, wasn't he, sir?

6 A Yes, sir.

7 Q And he still returns to Monsanto from time to
8 time to give you the benefit of what he has learned in
9 the Chemical Institute, doesn't he, sir?

10 A There is no regular time. He may have been
11 there once or twice. But he really hasn't been to St.
12 Louis on a regular basis since Biohazards.

13 Q I didn't say on a regular. I really said from
14 time to time.

15 A Once or twice in the last four or five years he's
16 been there.

17 Q All right. And you discussed with him projects
18 that you at Monsanto want the Chemical Institute to under-
19 take, don't you, sir?

20 A Yes.

21 Q And as a matter of fact they undertook certain
22 studies at the request of Monsanto, didn't they, sir?

23 A The only thing they have done for us, they have
24 initiated studies on certain chemicals of interest to us.

1 Q That's what I've asked you, they have in fact
2 done that, haven't they?

3 A More as we give the chemical to them, they
4 decide what they're going to do on that chemical.

5 Q I understand. Doctor, in any event it was
6 reported by Dr. Levinskas that they had discovered in
7 their investigation as to whether or not TCD is a complete
8 carcinogen, that is an initiator and a promoter or simply
9 a promoter, they have discovered at least that in the mouse,
10 while it doesn't induce a malignancy, it is a potent
11 promoter, didn't they?

12 A Yes, sir.

13 Q And actually it's ten thousand times more potent
14 than some other chemical substance. What is that other
15 substance, that phorbol myristate?

16 A I don't know. But it's one that they use as a
17 standard for promotion. *THOUSAND*

18 Q This TCD is ten times more potent than that
19 standard?

20 A Yes.

21 Q All right. Now, Doctor, he goes on to tell you
22 that they've done--now, this work being done by the CITT,
23 you accept that as fact, don't you, sir? You're not
24 challenging what the chemical industry says is a fact, are

1 you, sir?

2 A Sometimes. We question a lot of things that they
3 do.

4 Q You're not challenging what they report as far as
5 TCD being a potent promoter, ten thousand times more potent
6 than the standard?

7 A The way I look at that, that's in one model--

8 Q Excuse me. My question is are you challenging
9 that, Dr. Roush? Are you accepting this as fact?

10 A I don't accept it as fact.

11 Q You don't accept it as a fact. All right. Doctor,
12 they also reported to your--that point for a moment. Did
13 you, after this Biohazards Committee, or any other bio-
14 hazards committee, did you say "look, I don't accept that,
15 I don't think that's so, I don't think that's a fact, ten
16 thousand times more potent than phorbol myristate?"

17 A No.

18 Q Have you ever stated that on the record?

19 A No.

20 Q Have you ever said that anywhere?

21 A No.

22 Q Is today the first time you're saying it?

23 A No. It's a fact, but what the implication of it--

24 Q Doctor, I don't want to confuse you. I'm simply

1 asking you to accept as fact that TCDD in this particular circum-
2 stance is ten thousand times more potent as a cancer promoter
3 than phorbol myristate.

4 A I would say probably so. That's the way I think
5 about that.

6 Q All right. Did you even put that down on the record?

7 A No.

8 Q Now, Doctor, the next thing that was reported to
9 you had to do with the fact that TCDD in human skin cells --
10 now, this is not working with animals, it's working with
11 human skin cells, is it not, sir?

12 A Yes, sir.

13 Q And that it was found to have a profound effect
14 on a skin growth factor; isn't that right, sir?

15 A Yes.

16 Q Now, do you accept that report from CIIT that we
17 used in human skin cells, that TCDD has a profound effect
18 on this epidermal growth factor?

19 A Yes, sir.

20 Q And, Doctor, that is in humans, right, not talking
21 about animals?

22 A Yes.

23 Q Doctor, the next thing reported by CIIT, on the
24 immune system. The immune system, Dr. Roush, you will agree

1 is extremely important, not just in every day health,
2 but in the prevention, or the destruction of, or the
3 curing of cancer by the human's own system. You will agree
4 to that, will you, Dr. Roush, that the immune system is
5 important in those aspects that I told you?

6 A I think it probably is, but I'm not sure it is.

7 Q Doctor, isn't it accepted by all scientific work-
8 ers in the field of immunology that our immune system
9 protects us against cancer that we have the ability in our
10 body to send out cells to take these perspective carcin-
11 ogens and do things with them, and destroy them. Isn't it
12 just about a basic accepted scientific premise?

13 A No.

14 Q It is not?

15 A What we do know is that if your immune system is
16 severely crippled by taking something so that you don't
17 reject, if you've got a heart transplant, those people who
18 have their immune system almost destroyed have an increased
19 incidence of cancer. But in the normal range of people
20 who've got immunologic abnormality, there's no evidence
21 on how that's related, whether there's an immune function
22 in that.

23 Q Doctor, you're talking about, I take it from
24 the way you've answered, proof positive.

1 A Pardon?

2 Q You're saying there is no proof positive of it;
3 is that what you're saying?

4 A No. Under some circumstances, I know it's active,
5 and whether it's active in all types of cancer, with all
6 immunologic responses, that hasn't been established.

7 Q Well, Doctor, perhaps my question was too broad. I
8 wasn't saying that the immune system is that which protects us
9 against all cancers. I'll ask you simply, the immune system does
10 have a significant role in protecting us against carcinogens,
11 doesn't it, sir?

12 A Probably, yes.

13 Q Doctor, this report on the immune system that was
14 being studied by CIIT found that there was a significant decrease
15 in the weights, the spleen cellularity, the antibiotic platform
16 and cell responses, and the mitogenic responses to T&D lymphocyte
17 mitogens.

18 A Yes.

19 Q Now, Doctor, I won't get into it with you, the T&D
20 cells, but we've had that discussed at some length by Dr. Zahouski
21 here last year, and this is evidence from CIIT that in the studies
22 they conducted that TCD does have an effect upon the T&D cells;
23 isn't that correct, sir?

24 A Yes, at the level of exposure used.

Q Doctor, are you familiar with the results of the
OKT 10 studies for the plaintiffs in this case?

A No.

Q No one has advised you as to what--are you familiar with any of the health effects claimed by the plaintiffs in this case?

A Not enough for me to discuss.

Q All right. Doctor, there was another meeting. Would you mark this, please.

(Plaintiff's exhibit 1441 was marked for identification by the court reporter.)

Q Handing you now what's been marked plaintiff's exhibit 1441 and I'll ask you if you recognize that as the minutes of your Biohazards Committee for April the 21st, 1983?

A Yes, sir.

Q I offer that into evidence if it please the court.

MR. HEINEMAN: Fourteen forty-one, your Honor?

THE COURT: Right, 1441.

MR. HEINEMAN: No objection.

THE COURT: Admitted without objection.

(Plaintiff's exhibit 1441A was marked for identification by the court reporter.)

Q (By Mr. Carr) Doctor, I hand you now what's been

1 marked plaintiff's 1441A. Do you recognize that as a page
2 from those minutes? Do you not, sir?

3 A Yes, sir.

4 MR. CARR: I offer to the court 1441A.

5 THE COURT: Any objections on that page?

6 MR. HEINEMAN: No objection, your Honor.

7 THE COURT: Without objection.

8 Q (By Mr. Carr) What's the date of those minutes,
9 Doctor?

10 A April 21, '83.

11 MR. CARR: Fourteen forty-one B, please.

12
13 (Plaintiff's exhibit 1441B was marked
14 for identification by the court reporter.)

15 Q (By Mr. Carr) Doctor, you recognize 1441B as
16 a blow-up of 1441A, do you not, sir?

17 A Yes, sir.

18 Q I offer to the court 1441B, your Honor.

19 MR. HEINEMAN: No objection.

20 THE COURT: Pardon?

21 MR. HEINEMAN: No objection.

22 THE COURT: Thank you. It will be admitted
23 without objection.

24 Q (By Mr. Carr) Doctor, the subject of that

1 meeting had to do with an EPA paper, and a paper from the
2 Canadian Health Department, did it not, sir?

3 A Yes, sir.

4 Q And the point is what they are trying to do was to
5 develop an acceptable risk level for exposure to TCDD; isn't
6 that correct, sir?

7 A Yes, sir.

8 Q And, Dr. Levinskas points out that it is difficult
9 to do it because TCDD is one of the most toxic man-made -- man-
10 made organic chemicals known given in a single dose, that it is
11 persistent in the environment, and living organisms with a half-
12 time life of one to ten years, that it has a pronounced cumulative
13 toxicity and has been shown to promote carcinogenesis and affect
14 reproduction, hepatic function and immune function; isn't that
15 correct, sir?

16 A Yes, sir.

17 Q Doctor, he is talking about, at this point in time,
18 about human beings, isn't he, sir? what is acceptable risk level
19 for exposure to human beings?

20 A Yes.

21 Q Isn't he, sir?

22 A Yes, sir.

23 Q And he has reported to your committee that TCDD has
24 a pronounced cumulative toxicity, didn't he, sir?

A Yes.

1 Q That means in the human body as it accumulates it
2 gets more toxic, doesn't it, sir?

3 A No. It means with continued exposure you'll get an
4 effect. It doesn't mean it's building up.

5 Q What does cumulative mean, sir, if it doesn't mean
6 building up, accumulate?

7 A Cumulative can be either with accumulated effect or
8 accumulation of the chemical, either way. You can't tell which
9 it is by what's stated here. Cumulative toxicity doesn't mean
10 cumulative of dioxin.

11 Q That's what you're talking about is TCDD?

12 A Yes. But he says cumulative toxicity, not cumulative
13 dose.

14 Q Well, what he's saying that over a period of time this
15 can cause -- it's a toxic over a long period of time as well
16 then, is that what he's saying?

17 A Yes.

18 Q Well, that even makes it worse, doesn't it, sir?
19 What he's saying is it's not an acute problem, that it's a
20 problem because of it's being in there for a long period of
21 time, one to ten years, it can become toxic then; isn't that
22 what he's saying then?

23 A That's true. But he also says it's also one of the
24 most acute toxic chemicals in the first statement.

Q I don't think that helps us any, Doctor. If it's

1 one of the most acute toxic substances, and it's also one
2 of the most acute substances on a chronic or cumulative
3 basis, that makes it doubly bad, doesn't it?

4 A This is based on animal data. That's correct.

5 Q He's talking about human beings, he's not talking
6 about animals.

7 A He's talking about extrapolating from animals to
8 man.

9 Q That's exactly what he's doing.

10 A That's right.

11 Q He's saying it's been shown to promote cancer.
12 He's talking about humans.

13 A No, he isn't.

14 Q Sir?

15 A No, he isn't.

16 Q Doctor, I thought you just agreed that he was
17 talking about what is exposure to TCDD in the human body.

18 A Yes.

19 Q In the human being.

20 A He's basing--

21 Q He's basing his judgment on what has happened to
22 animals.

23 A Yes, sir.

24 Q But it's his judgment that based upon what is

1 happening to animals, it is a risk to human beings because
2 of what it can be to animals --

3 A Yes.

4 Q It may do that to human beings. That's what
5 animal studies are all about.

6 A That's right.

7 Q He's also saying that it affects the reproduction,
8 the hepatic function and the immune function. Again
9 that's a lot more than chloracne, isn't it, Dr. Roush?

10 A Yes.

11 Q Dr. Roush, it is Monsanto's view, notwithstanding
12 what's been reported to the--back up a little bit. Was it
13 ever contemplated that what was going to be said in the
14 Biohazards Committee meetings would ever be made public?

15 A No. No, these were internal minutes so that the
16 committee can refer back to them on subsequent times.

17 Q I understand. I understand perfectly what you
18 are saying. You can be more forthcoming and frank and
19 honest in the minutes of a meeting that you think won't
20 be made public than you would be in a document that you
21 would think that would be made public; is that correct,
22 Dr. Roush?

23 A I think you have to be more careful in the
24 preciseness of your words, at least.

1 Q Well, you all, when you were saying these things,
2 you didn't expect that it would be read in court someday,
3 did you, Doctor?

4 A No, sir.

5 Q All right. And Doctor, this does not support
6 your position, your public--your publicly pronounced
7 position, Dr. Roush, or Monsanto that the only thing that
8 you can get wrong with you from dioxin exposure is chlor-
9 acne? It doesn't support that, does it, sir?

10 A It doesn't quarrel with it.

11 Q Doctor, it says here that you can get cancer,
12 it affects reproduction, it affects hepatic function,
13 it affects the immune function. Now that's one hell of
14 a lot more than chloracne, isn't it, sir?

15 A Yes, but this is in a rat.

16 Q I'm sorry?

17 A This is in a rat.

18 Q But we just established that your toxicologist
19 extrapolated that to human beings, and that he believed
20 that it represents a risk to human beings, didn't we just
21 establish that, Dr. Roush?

22 A Yes.

23 Q Yes. Doctor, he goes on to say things that we've
24 discussed earlier with other witnesses about how it persists

1 in subsurface soil, how it volatilized under some conditions,
2 and though it has a relatively low vapor pressure, and
3 that soil bacteria doesn't affect it. Does he say that,
4 sir?

5 A Yes.

6 Q And, Doctor, that again is consistent with a
7 view that if somebody is living on and walking over soil
8 that has TCD in it that they may well be exposed and be
9 taking in that vapor; isn't that correct, sir?

10 A Albeit small.

11 Q I'm sorry?

12 A But it's very small.

13 Q The answer to my question is yes, that's true,
14 but it's small?

15 A Yes.

16 Q Doctor, he goes on to point out that it is
17 extraordinarily difficult to extrapolate these toxicities
18 to man simply because the sensitivity of man to dioxin is
19 not yet known, doesn't he, sir?

20 A Yes.

21 Q And, Doctor, he goes on to talk about how the
22 estimating--the variation in estimating no-effect levels,
23 species sensitivity to acute and chronic intake, skin
24 intake and the absorption from the gut would lead to a

1 variation of thirty thousand fold in estimating risk to man.

2 A Yes, sir.

3 Q Now, that shows indeed that the difficult problem
4 of predicting what's going to happen in each human being,
5 doesn't it, sir?

6 A Yes.

7 Q Because we know that just as animals differ from
8 man, individuals differ from one another as to how they
9 resist cancer, how they can resist diseases, how they
10 resist infections. We know that too, don't we, sir?

11 A Yes.

12 Q One person not with the same strong genetic
13 background that another might have might be one that's
14 more susceptible to disease, a person, an elderly person
15 in a nursing home, or a hospital more susceptible to
16 disease, might be more susceptible to the risks of TCDD,
17 would he not, sir?

18 A Yes.

19 Q Doctor, the conclusion that was reached by your
20 committee after Dr. Levinskas reported these things is that
21 it was impossible to determine what is a safe level of
22 dioxin.

23 A That's right.

24 Q And that is still true today, is it not, sir?

1 A CDC came out with a position--

2 Q Excuse me, Dr. Roush. You have a committee made
3 of prestigious men, Duke University, New York University,
4 University of Pittsburg, and yourself, and that committee
5 said that it's presently impossible to determine what is
6 a safe level of dioxin, did it not, sir?

7 A Yes.

8 Q And that is still presently that committee's
9 view, is it not, sir?

10 A I can't answer that question. Probably yes.

11 Q Have you seen any committee meeting bulletins,
12 memos, statements in which they say now they can determine
13 what is a safe level of dioxin, or is this the last pro-
14 nouncement of the committee on the point?

15 A This is the last time we've discussed it with them.

16 Q All right.

17 THE COURT: Gentlemen, could I see you up at the
18 bench for a minute, please.

19 MR. CARR: Your Honor, I know what you're going
20 to do, I forgot one thing.

21 Q (By Mr. Carr) The Crump extrapolation, Crump by
22 the way, isn't he one of the experts that's going to be
23 called in this case?

24 A I don't think so.

1 Q He may not be. I may be confusing him. He is
2 a risk assessor, is he not? He assesses risks?

3 A He's one who worked out one of the models for
4 testing of risks.

5 Q All right. He said that in his judgment from
6 this extrapolation that it's one tenth of a minimum ex-
7 posure, calculated from one part per billion in soil,
8 isn't it, sir?

9 A Yes.

10 Q What he's saying, what's a tenth of a billion?
11 It's not a trillion.

12 A No. It's one in ten billion.

13 Q One tenth of a billion is some fraction thereof.
14 What he's saying there is the risk level, the minimum
15 exposure is from an even smaller amount than one part per
16 billion in soil, isn't he, sir?

17 A Yes.

18 Q One tenth of one billion. All right. That's
19 all I wanted to point out.

20
21 (This colloquy was held at the bench out of
22 the hearing of the jury.)

23 THE COURT: Is there anything that we have to
24 do in chambers?

1 MR. HEINEMAN: Not that I'm aware of.

2 THE COURT: Fine. Then we'll break then until
3 Monday.

4
5 (At this point colloquy was held back in the
6 hearing of the jury.)

7 THE COURT: All right. Ladies and gentlemen,
8 it's a pretty afternoon and it's Friday, so we're going
9 to break at this time. We will start again Monday morning
10 at nine-thirty. I would remind all of you on any overnight
11 break, including the week-end break, that you're not to
12 discuss this matter among yourselves, with anyone outside
13 the jury panel, or as yet form any opinions or conclusions
14 about the matters on trial. I'd also remind you that you
15 are not to read, or listen or watch anything about this
16 case, in particular, or subject matter in general in any
17 of the media, print or electronic. Thank you for your
18 attention and patience this week. We'll see you Monday.
19 Court is adjourned.

20
21 (End of day 5-31-85)
22
23
24

1 STATE OF ILLINOIS)
2 COUNTY OF ST. CLAIR)

3
4 I, KATHLEEN W. BRUNSMANN, CSR, RPR, Official
5 Court Reporter in and for the Twentieth Judicial Circuit,
6 do hereby certify that the foregoing transcript of
7 proceedings is a true and accurate record of the pro-
8 ceedings had in the case of: Frances E. Kemner, et al
9 v. Monsanto Company, case number 80-L-970 had on the
10 31st day of May, 1985. These proceedings had before the
11 Honorable Richard P. Goldenhersh, Judge.

12 Dated this _____ day of June, 1985.

13
14
15 Kathleen W. Brunsmann, CSR, RPR
16 Official Court Reporter
17
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19
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21
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23
24

1 STATE OF ILLINOIS)
2)
3 COUNTY OF ST. CLAIR)
4

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11 31st day of May, 1985. These proceedings had before the
12 Honorable Richard P. Goldenhersh, Judge.

13 Dated this 7th day of June, 1985.
14

15 
16 KATHLEEN W. BRUNSMANN, CSR, RPR
17 OFFICIAL COURT REPORTER
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1 STATE OF ILLINOIS)
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3 COUNTY OF ST. CLAIR)
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5 I, HONORABLE RICHARD P. GOLDENHERSH, Circuit Judge
6 in and for the Twentieth Judicial Circuit, do hereby certify
7 that the foregoing transcript of proceedings is a true and
8 accurate record of the proceedings had in the case of:
9 Frances E. Kemner, et al v. Monsanto Company, case number
10 80-L-970 had on the 31st day of May, 1985.

11 Dated this _____ day of June, 1985.
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15 HON. RICHARD P. GOLDENHERSH
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