

1 IN THE CIRCUIT COURT OF THE TWENTIETH JUDICIAL CIRCUIT

2 ST. CLAIR COUNTY, ILLINOIS

3 FRANCES E. KEMNER, ET AL.,

4 Plaintiff,

5 vs.

Case No. 80-L-970

6 MONSANTO COMPANY,

7 Defendant.

8
9
10 REPORT OF PROCEEDINGS

11 July 26, 1985

12
13
14 Before the HONORABLE RICHARD P. GOLDENHERSH, Circuit Judge

15
16 **APPEARANCES:**

17 Mr. Rex Carr and Mr. Jerome Seigfreid, Attorneys at
18 Law, on Behalf of the Plaintiffs; and

19 Mr. Kenneth Heineman and Mr. Joseph Nassif on
20 Behalf of the Defendant, Monsanto Company.

21
22
23 Kathleen Watson Brunsmann
24 Official Court Reporter

INDEX OF WITNESSES

Called on behalf of the Plaintiffs:

DR. GEORGE ROUSH

Cross Examination

(By Mr. Carr)..... 2

INDEX OF EXHIBITS

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1 BE IT REMEMBERED AND CERTIFIED, that heretofore,
2 on to-wit: July 26, 1985, the matter as hereinbefore set
3 forth came on for hearing before the Honorable Richard P.
4 Goldenhersh, Circuit Judge in and for the Twentieth Judicial
5 Circuit, and the following was had of record, to-wit:

6
7
8 GEORGE ROUSH,
9 having previously been called as a witness under
10 Section 2-1102, having previously been sworn,
11 continued cross examination as follows:)

12
13 RECROSS EXAMINATION (Continued)

14 BY MR. CARR:

15 THE COURT: Okay. Mr. Carr, you were question-
16 ing. You may proceed.

17
18 (Plaintiff's Exhibit Number 1520 and 1521 were
19 marked for identification by the court reporter.)

20
21 Q (By Mr. Carr) Doctor, I'll hand you what's
22 been marked Plaintiff's Exhibit 1520, which is a letter to
23 Harry Gilmer, dated February 12, 1979, written by Mr.
24 Metcalf; and Plaintiff's Exhibit 1521, which is a memo

1 dealing with a telephone conversation Mr. Metcalf had with
2 Mr. Gilmer, dated February 13, 1979. I ask you if you
3 recognize those.

4 A Yes, sir.

5 MR. CARR: I offer those exhibits into evidence.

6 MR. HEINEMAN: As I understand, 1520 is the
7 letter?

8 THE COURT: Right.

9 MR. HEINEMAN: 1521 is the memo?

10 THE COURT: Right.

11 MR. HEINEMAN: No objection, your Honor.

12 THE COURT: Both are admitted without objection.

13 MR. CARR: And for the record, so there won't
14 be any confusion, 1520 has been previously used by Mr.
15 Heineman and marked as Monsanto's Exhibit 867; 1521 has
16 been previously used by Mr. Heineman and has been marked
17 as Monsanto's Exhibit 875.

18 THE COURT: So noted.

19 Q (By Mr. Carr) Doctor, you recognize these two
20 exhibits as exhibits that Mr. Heineman had interrogated you
21 about?

22 A Yes, sir. Yes, sir.

23 Q And you read portions of these exhibits to the
24 jury?

1 A Yes, sir.

2 Q Now, the exhibit marked 1520, that is dated
3 February the 12th, 1979. The second paragraph tells Mr.
4 Gilmer that you at Monsanto were not able to distinguish the
5 isomer or isomers involved. Do you see that, sir?

6 A Yes, sir.

7 Q But it doesn't tell Mr. Gilmer that your
8 chemist estimated, however, that 90 percent of the tetra
9 isomers was, in fact, 2,3,7,8, does it, sir?

10 MR. HEINEMAN: Objection, your Honor. That's
11 contrary to Dr. Kaley's testimony.

12 THE COURT: Objection is overruled.

13 THE WITNESS: No, it does not.

14 Q (By Mr. Carr) Doctor, the next page of that
15 exhibit, third paragraph, says that Mr. Metcalf was asked
16 by Mr. Gilmer to explain why Monsanto wouldn't expect it
17 to be there, that is the 2,3,7,8 isomer, in significant
18 amounts. And he goes on to explain that. And then in the
19 second to last paragraph he says, "It follows, then, that
20 the 2,3,7,8 tetrachloro dioxin, if present at all, would be
21 only a small fraction of the total tetrachloro dioxins."
22 Do you see that, sir?

23 A Yes, sir.

24 Q And you know, however, that 90 percent of 37 is

1 Q (By Mr. Carr) This McCardle finding.

2 A But not the same thing.

3 Q Doctor, if you will turn to the third paragraph,
4 if you go down to the third paragraph, the last sentence --

5 A Yes, sir.

6 Q -- they show that this work that was done in
7 1983, and this is an exact quote, is it not, quote, Using
8 this in vivo system, they were able to demonstrate that
9 TCDD is a tumor promoter but not an initiator. Do you see
10 that, sir?

11 A No, sir, I'm not with you.

12 Q Third paragraph, last sentence, first page.

13 A Yes, sir.

14 Q Now, Long tells you that the McCardle people,
15 doing an inbred study with these mice, demonstrated that
16 TCDD is a tumor promoter; is he not telling you that, sir?

17 A Yes, sir.

18 Q And is not that, sir, support for Marcie Strauss'
19 statements that TCDD, Nitro workers would be at increased
20 risk of developing cancer from one or more of other cancer
21 causing chemicals?

22 A No, sir.

23 Q That doesn't support it, sir?

24 A Yes, it supports it. Yes, sir.

1 Q Yes. That's what I asked you.

2 A I'm sorry.

3 Q So there is scientific support for what she
4 has said here, isn't there, sir?

5 A Yes, sir.

6 Q And you had a copy, the copy of this memo,
7 you are one of the recipients of this memo, you knew that at
8 the time you were testifying, when Mr. Heineman was asking
9 these questions, you knew the existence of this statement,
10 did you not, sir?

11 A Yes, sir.

12 Q And you knew of the existence of that statement
13 at the time I was asking you about Mrs. Strauss' statement,
14 or Miss Strauss' statement, and you said that she believes
15 it for herself, but not for Monsanto.

16 A Yes, sir.

17 Q Well, Monsanto does believe it.

18 A No, sir.

19 Q Isn't this prepared by Monsanto?

20 A Yes, sir.

21 Q And isn't this a statement that TCDD is a
22 promoter of cancer?

23 A No, sir.

24 Q Doctor, doesn't this -- didn't you just say that

1 this document supports the proposition that TCDD is a
2 promoter of cancer?

3 A Yes, sir.

4 Q Isn't that just what I asked you, sir?

5 A Yes, sir.

6 Q Then Miss Strauss is supported by this statement,
7 this statement is in Monsanto's possession, and you had
8 knowledge of this statement, did you not?

9 A Yes, sir.

10 Q When you were testifying, when Mr. Heineman
11 was asking you these questions about it.

12 A Yes, sir.

13 Q And you didn't mention this, did you, sir?

14 A No, sir.

15 Q Doctor, if some of these other questions posed
16 by Miss Strauss here, you -- she doesn't detail what the
17 criticisms of epidemiology studies might be, but the
18 epidemiology studies are those that are considered the
19 morbidity studies conducted by Suskind for the Nitro workers
20 or the Krummrich workers; isn't that correct, sir?

21 A That's part of it.

22 Q What other epidemiology studies have you had,
23 sir?

24 A The mortality studies. On the mortality studies.

1 Q On the mortality studies. All right. Those
2 conducted by Zack in the TCP accident workers, and the
3 other workers thereafter.

4 A Yes, sir.

5 Q And, Doctor, she also -- and we ask you -- I
6 ask you about this statement of hers, "A higher percentage
7 of bladder cancers in the PAB workers who were also
8 exposed to dioxin," and she also posed why higher lung
9 cancer rates in those people exposed to dioxin, and what
10 answer did you give to that question, Dr. Roush? Why are
11 there higher lung cancer rates in people exposed to dioxin?

12 A Because they're also in unexposed workers.

13 Q Doctor, even that doesn't wash. Your mortality
14 tables show that there are higher rates in your -- if you
15 will look at the comparison. You've got all those lung
16 cancers in your -- and we went through the Table 10 and 11
17 on that. You saw three lung cancers in your unexposed,
18 in your so-called unexposed group, and ten in your exposed
19 group in your mortality studies. Do you recall that, sir?

20 A Yes, sir.

21 Q And we went through the long process of me
22 convincing you that ten is higher than three, didn't we, sir?

23 A Yes, sir.

24 Q So there is higher lung cancer rates in those

1 people exposed to dioxin, isn't there, sir?

2 A No, sir.

3 Q What makes you say there's not, sir?

4 A Because they're not statistically different.

5 Q Three is not statistically different than ten?

6 A It depends on the denominator.

7 Q The denominator was higher in the unexposed
8 group than it was in the exposed group, wasn't it, Dr. Roush?

9 A But it wasn't statistically --

10 Q Excuse me, Doctor, you say it depends on the
11 denominator?

12 A Yes, sir.

13 Q Now I'm establishing with you in the company
14 denominator there were more people in the unexposed group.

15 A Yes, sir.

16 Q So if it depends upon the denominator, then it
17 also proves that lung cancer rates are also higher in the
18 unexposed group.

19 A If the statistics are there.

20 Q If it depends upon the denominator the rates
21 are higher in the exposed group, isn't it, sir?

22 A I have to see the data.

23 Q Doctor, do you need to see the Table 10
24 where there's three -- or Table 11 where there's three in the

1 unexposed group? We went through that.

2 A Yes, sir.

3 Q And the unexposed group is larger than the
4 exposed group. We went through that, didn't we, sir?

5 A Yes, sir.

6 Q So the denominator is higher for the unexposed
7 group than it is for the exposed group, isn't it, sir?

8 A I think that's right. But I'd like to see that
9 Table.

10 Q And, Doctor, here is the Table 11, which has
11 the four cancers in it that have been exposed to TCDD that
12 we took out, and put in the other Table, in Table 10. Do
13 you recall that, sir?

14 A Yes, sir.

15 Q Now you want to look at that Table any closer?

16 A Yes, sir -- no, sir, that's fine.

17 Q And there are -- there are, we counted one,
18 two, three -- counted three lung cancers, did we not, sir?

19 A Yes, sir.

20 Q In the unexposed group.

21 A Yes, sir.

22 Q And we take those four that were in that Table
23 and put them here. There were four, five, six, seven,
24 eight, nine, ten lung cancers in that group, don't we, sir?

1 A No, sir, you can't add those. You can't add
2 those to this group.

3 Q Doctor, those four were exposed, were they
4 not, sir?

5 A Yes, sir.

6 Q And they have lung cancer, don't they, sir?

7 A Yes, sir.

8 Q These are exposed, aren't they, sir?

9 A Yes, sir.

10 Q So you can add the two exposed groups, can't
11 you, sir? How many lung cancers were there, Doctor, from
12 people that were exposed to TCDD?

13 A In the exposed group there were ten.

14 Q Yes. And how many were there in the unexposed
15 group, Doctor?

16 A How many -- I didn't recall.

17 Q Three.

18 A Three.

19 Q Ten is higher than three, isn't it, Doctor?

20 A Yes, sir.

21 Q The unexposed group is larger than the exposed
22 group, isn't it, Doctor, the denominator?

23 A No, sir.

24 Q No?

1 A I don't know, because you're mixing groups.

2 Q No, Doctor, I'm not mixing groups.

3 A Yes, you are.

4 Q We've got the groups, we've got one exposed
5 group and we've got one unexposed group. However you look
6 at it the unexposed group is larger than the exposed group.
7 It was 207 or 107 for the unexposed group, and 58 or 60,
8 something like that, for the exposed group. Don't you
9 recall that, Doctor?

10 A Yes, sir.

11 Q Now, Doctor, the denominator for the unexposed
12 group is larger than the exposed group. Isn't it, sir?

13 A Yes, sir.

14 Q Then, Doctor, it depends upon the denominator
15 as you said. The lung cancer rate is higher in the exposed
16 group than it is for the unexposed group, isn't it, sir?

17 A Yes, sir.

18 Q Yes. Now, Doctor, why? Doctor, why do you have
19 higher lung cancer rates in those people exposed to dioxin?

20 A Because it can occur by chance.

21 Q Well, what you're saying then, chance would
22 cause it, sir?

23 A Statistics would say that could happen the next
24 time by chance alone.

1 Q Doctor, if all of these things can be explained
2 by chance, why do you go to the trouble of preparing these
3 tables? Why did you pay thousands, perhaps millions of
4 dollars to have these studies to try to show that it's safe
5 to work with dioxin, and then when we come in and show the
6 falsity of your tables and where you padded the figures, and
7 changed the figures, you then say, "Well, it could all happen
8 by chance." Why did you go through the farce of having
9 these mortality studies, Dr. Roush, if you can explain away
10 the results by chance?

11 A What's the question?

12 Q Why did you go through the farce of having these
13 studies if all of the results of these studies can be ex-
14 plained away by chance, Dr. Roush?

15 A We used standard epidemiologic procedures in those
16 studies.

17 Q And they can all be explained away by chance,
18 and you knew that when you started, so why go through it,
19 Doctor? Your cohorts are very, very small, aren't they, sir?

20 A Yes, sir.

21 Q So you knew when you started this that your
22 cohorts were very, very small?

23 A Yes, sir.

24 Q And you know a chance of proving something

1 statistically because you've got such small cohorts, next
2 to nil. You knew that too, didn't you, sir?

3 A No, sir. No, sir.

4 Q What would you have to have, a hundred lung
5 cancers --

6 A No, sir.

7 Q -- in the exposed group and one in the unexposed
8 group before you would say it was statistically significant?
9 What would you have to have?

10 MR. HEINEMAN: Objection, your Honor. Would
11 he let him answer the question, or does he have to have 80
12 questions in a row?

13 THE COURT: Doctor, you may answer.

14 THE WITNESS: The three bladder cancers was
15 sufficient to show that there was an excess. The three
16 bladder cancers showed that there were 800 times expected,
17 800 percent that was expected. So it's three tumors was
18 enough to show it.

19 Q (By Mr. Carr) Well, then you're going by the
20 table of what's expected. Then even on your Table of the
21 six, Doctor, if that's your criteria, Zack-Gaffey said the
22 lung cancer rate was higher even for your six, didn't they,
23 sir?

24 A I don't recall. I'd have to see the table.

1 Q Could you get out the Gaffey Report. It's --
2 I think it's 1465, or thereabouts.

3 According to this, Plaintiff's Exhibit 1465-A,
4 with the 10 deaths, it's 143 percent higher than expected,
5 isn't it, sir?

6 A I don't think that table is right.

7 Q I understand that, Doctor. You've said that
8 already.

9 A Yes, sir.

10 Q But according to this, it's -- 10 deaths is
11 143 percent higher, isn't it, sir?

12 A Yes, sir.

13 Q I think it's Exhibit 281 is probably the study
14 itself. These tables were all taken from 281. Doctor,
15 if you will look at the lung cancer rates in Table 9 of
16 Exhibit 281, your own people say it's 159, don't they, sir?

17 A Yes, sir.

18 Q That's statistically significant then, isn't it?

19 A No, sir.

20 Q Doctor, didn't you just get through saying --
21 now you're shifting again, huh?

22 A No, sir.

23 Q Doctor, does your table -- does your exhibit
24 there, 281, Table 9, does Zack-Gaffey find a higher than

1 expected rate?

2 A Well, yes, sir.

3 Q Yes, indeed. Now, Doctor, I'll ask you the
4 question again. These are words used by your people, not
5 by me --

6 A Yes, sir.

7 Q -- why higher lung cancer rates in those people
8 exposed to dioxin?

9 A We have an excess, but it's not statistically
10 significant.

11 Q Doctor, my question to you is why higher lung
12 cancer rates? Strauss says they're higher rates, Zack-
13 Gaffey says there are higher lung cancer rates.

14 A Yes, sir.

15 Q My question is, sir, why higher lung cancer
16 rates in those people exposed to dioxin?

17 A Because the difference can happen by chance.

18 Q Then we're back to chance again?

19 A Yes, sir. That's -- that's what epidemiology is.

20 Q Doctor, eliminate chance, what else could cause
21 higher lung cancer rates in people exposed to dioxin?

22 MR. HEINEMAN: Objection, your Honor. The
23 Doctor's answer is that it happens by chance. Now he's
24 being asked to eliminate that chance.

1 MR. CARR: No. He's giving us a possible answer
2 for the one possible answer for the lung cancer rates being
3 higher in people exposed to dioxin.

4 Q (By Mr. Carr) Aren't you, Doctor?

5 A Yes, sir.

6 Q Yes. Now what are some other possible explana-
7 tions for the lung cancer rates being higher in those people
8 exposed to dioxin?

9 A Lifestyle.

10 Q Lifestyle?

11 A Yes, sir.

12 Q By lifestyle, you mean smoking cigarettes?

13 A Yes, sir.

14 Q Doctor, the people that were in the unexposed
15 group were smokers of cigarettes as well?

16 A Yes, sir.

17 Q So that is the same element.

18 A Yes, sir.

19 Q Now what else could cause higher lung cancer
20 rates in people exposed to dioxin?

21 A This study --

22 Q What else, Doctor?

23 A Chance.

24 Q You already said chance.

1 A Nothing else.

2 Q Doctor, what about the finding of Dr. Poland
3 and others at the McCardle Institute, and other studies,
4 and that is shown in this exhibit that I handed you earlier,
5 that they demonstrated that TCDD is a tumor promoter? What
6 about that as a possible explanation for lung cancer rates
7 being higher to people exposed to dioxin? Do you think that
8 might fit, Doctor?

9 A It's possible.

10 Q Yes, indeed it is. Doctor, why wouldn't you
11 say that?

12 A Because --

13 Q Why do you insist --

14 MR. HEINEMAN: Objection, your Honor. He didn't
15 let him answer the first question.

16 Q (By Mr. Carr) All right. I agree. Why do you
17 say that, Doctor?

18 A Because we're talking about a difference of one
19 cancer between the difference -- the difference between the
20 observed and the exposed. We expected seven cancers --
21 6.8 cancers in the unexposed, and we expected four cancers
22 in the exposed group, and there's a difference of one
23 cancer between those two --

24 Q Oh, but Doctor, you know already, you've got

1 four too many in the unexposed group in that table. We
2 already took those out. Do you remember that, sir?

3 A No, sir.

4 Q Didn't we take those out, Doctor?

5 A No, sir.

6 Q Well, look here, Doctor, see those four. We
7 took those out. They were exposed, weren't they, sir? Do
8 you recall that, Doctor?

9 A Yes, sir.

10 Q So we did take them out, didn't we?

11 A Yes, sir.

12 Q So now look at your table again. Deducting
13 the four, Doctor, from the unexposed group.

14 A You can't do that.

15 Q No, Doctor, what you can't do is put people that
16 have been exposed to dioxin and put them in a table and say
17 that they haven't been exposed. You can't count those lung
18 cancers in people not exposed to TCDD. But that's exactly
19 what your study has been trying to do, isn't that correct,
20 Doctor?

21 A No, sir. No, sir.

22 Q Aren't those four lung cancers included in
23 that eight, Doctor?

24 A Yes, sir.

1 Q IF You take those away, you get four, don't
2 you, sir?

3 A But you can't do that.

4 Q You can't take those four away. You have to
5 take those four away. Must you not, Doctor?

6 A If you take that away, you've got to change
7 these.

8 Q Surely, no question about that. You change
9 those. You have to take those away, don't you, Doctor?
10 You cannot have a scientific fact established upon a false-
11 hood, can you, Doctor?

12 A This is not a falsehood.

13 Q The four were exposed to dioxin, weren't they,
14 Doctor?

15 A Yes, sir.

16 Q IT's a falsehood to say that they were not
17 exposed, isn't it, Doctor?

18 A They defined what --

19 Q Doctor, it's a falsehood to say they were not
20 exposed, isn't it, sir?

21 MR. HEINEMAN: Objection.

22 THE COURT: Objection is overruled. Not respon-
23 sive.

24 THE WITNESS: I'm sorry, would you repeat the

1 question?

2 Q (By Mr. Carr) Is it a falsehood to say that
3 those people were not exposed to 2,3,7,8 TCDD?

4 A No, sir.

5 Q Doctor, you know they were part of the hundred
6 and twenty-two that were in the accident in 1949. You know
7 they were working in that production department. You know
8 that.

9 A Yes, sir.

10 Q So it's false to say -- and they were exposed
11 to TCDD there, were they not, sir?

12 A Yes, sir.

13 Q So it's false to say they weren't exposed when
14 you know they were exposed.

15 MR. HEINEMAN: Objection. That table says
16 2,4,5-T, not 2,3,7,8. We've gone over this for five days.

17 THE COURT: Objection is overruled. Answer
18 the question, Doctor.

19 THE WITNESS: Your study is different than this
20 study.

21 Q (By Mr. Carr) Doctor, my question is simple.
22 It's a falsehood to say that these four people who were in
23 that TCP accident were not exposed to 2,3,7,8 TCDD, isn't
24 it, sir?

1 A IF that's the question.

2 Q That is the question. So please answer the
3 question, sir.

4 A No, sir.

5 Q Were they exposed to 2,3,7,8 TCDD in the
6 accident?

7 A Yes, sir.

8 Q The truth is they're exposed, isn't it, sir?

9 A Yes, sir.

10 Q It's false to say they weren't exposed to TCDD,
11 isn't it, sir?

12 A Yes, sir.

13 Q All right. Thank you, Doctor.

14 Now, Doctor, the next question: "Did you have
15 any workers who did not develop chloracne after working in
16 the 2,4,5-T department for three to six months?"

17 A I don't know.

18 Q Doctor, you've seen the Moses-Selikoff Study.
19 You've seen the chart. We passed it to the jury. Were the
20 people that were in that department, for the Nitro people, 50
21 percent didn't develop chloracne, in the moderate exposed
22 group, 24 percent in the heavily exposed group.

23 MR. HEINEMAN: Objection.

24 Q (by Mr. Carr) So you do know there's people

working in that department that did not develop chloracne,
don't you, sir?

MR. HEINEMAN: Objection, your Honor. The
chart says it's by recall, not by medical records.

THE COURT: Objection is overruled.

Q (By Mr. Carr) You do remember seeing the Moses-
Selikoff Study?

A Yes, sir.

Q Monsanto's Exhibit. You put it in evidence.

A Yes, sir.

Q That chart did say that, didn't it, sir?

A No, sir.

Q It didn't say that?

A No, sir.

Q It didn't say that 49 percent of the people
had moderate exposure, never did have chloracne?

A No, sir.

Q Dr. Roush, don't you recall you testified to
that under oath yesterday?

A Yes, sir.

Q And you said that yesterday, didn't you, sir?

A What did I say?

Q That that chart said that 49 percent of the
people who had moderate exposure to TCDD never did get

1 chloracne. That's what you said yesterday.

2 A No, sir.

3 Q You didn't say that yesterday?

4 A No, sir.

5 MR. CARR: Your Honor, would you instruct the
6 witness that he did say that yesterday.

7 MR. HEINEMAN: Your Honor, may I object to the
8 request for an instruction on the grounds that Mr. Carr did
9 not let this witness read the paragraph that refers to the
10 chart, and the subscript under the chart where they talk
11 about the difference between what the worker says by recall
12 as opposed to what the figures actually show. And that's
13 what I object to. I think Mr. Carr is trying to mislead
14 this witness. I object to it.

15 THE COURT: Objection is overruled. That's not
16 misleading. You have an opportunity to go into that. It
17 goes to the weight. This is a question of something which
18 he, in fact, did so testify to yesterday. Your objection
19 is overruled.

20 Doctor, I am instructing you to assume that you
21 did so testify yesterday, which, in fact, the record shows
22 you did.

23 Mr. Carr, you may proceed.

24 Q (By Mr. Roush) Dr. Roush, the answer to that

question, if the Moses-Selikoff graph is correct, and true, assuming that it's correct and true, then you do have workers that were in that department that did not get chloracne, didn't you, sir?

A Yes, sir.

Q Now, Doctor, what about the next question? Why doesn't Monsanto admit that people have died from dioxin exposure, either in industrial accidents, or at Yusho? You do know what Yusho is, don't you, Doctor?

A Yes, sir.

Q And there were a lot of deaths at Yusho, weren't there, sir?

A No, sir.

Q There weren't?

A No, sir.

Q How many deaths were there?

A I don't think there were any deaths.

Q No deaths from the Japanese eating that poison oil?

A No, sir.

Q Doctor, you haven't read the studies on that?

A Yes, sir. Yes, sir.

Q And no deaths were reported in your knowledge?

A No, sir.

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1 Q What about industrial accidents?

2 A No, sir.

3 Q How about the case of the worker at BASF that
4 died of pancreatitis after being exposed to dioxin?

5 A Unrelated.

6 Q Doctor, why do you say it's unrelated? He was
7 in an industrial accident, wasn't he?

8 A Yes, sir.

9 Q And the coroner, the pathologist said he died
10 from dioxin, didn't he, sir?

11 A No, sir.

12 Q He didn't say that?

13 A No, sir.

14 Q Doctor, I remind you you're under oath.

15 A Yes, sir.

16 Q That's exactly what the record said. Now you
17 may dispute -- you don't believe that that's the truth, that
18 he died from that, but that's what the official records
19 Cause of Death said, isn't it, sir?

20 A I don't think so.

21 Q You don't think so?

22 A No, sir.

23 Q I don't have that immediately handy, but apparent-
24 ly Mrs. Strauss -- is it Miss or Mrs.?

1 A Miss Strauss.

2 Q And is she a doctor or not? PhD or not?

3 A No, she's an epidemiologist.

4 Q Well, you can be a PhD --

5 A She's not a PhD.

6 Q All right. Is she a Master's?

7 A Yes, sir.

8 Q Do you know the source of her information --

9 A No, sir.

10 Q -- in posing that question?

11 A No, sir.

12 Q What about the next one, Doctor, "Since dioxin
13 and benzene are carcinogens, and you did have leukemia and
14 a soft tissue sarcoma, how do you know these cancers are not
15 work related?"

16 A Because we only had one case.

17 Q Well, Doctor, if you've got one case, and you
18 had more than that, but even one case can be caused by
19 the chemicals to which you're exposed, can't it, sir?

20 A No, sir.

21 Q Doctor, why can't one case be caused by -- be
22 caused by these chemicals, dioxin? Is there something about
23 dioxin that makes you believe it cannot cause cancer,
24 considering the fact that it causes cancer in all the

1 laboratory animals?

2 A There have been a number of epidemiologic
3 studies that have been done that have been done that have
4 not demonstrated dioxin to be a carcinogen in man.

5 Q Doctor, what these studies haven't done, because
6 the cohorts are so small in human beings, that in each case
7 they have said yes, these are cancers, and these people
8 were exposed to this substance, but because the cohorts are
9 so small we can't say definitively or with scientific cer-
10 tainty that it was caused. But none of them are saying that
11 it wasn't caused, Doctor. Do you understand that? Don't
12 you, sir? All these studies no one has said that these
13 cancers were not caused by the dioxin. All they've ever
14 said is that because the cohorts are so small, they can't
15 prove that they were caused by dioxin. Isn't that correct,
16 sir?

17 A No, sir. That isn't --

18 Q That isn't correct?

19 A No, sir.

20 Q What's wrong with that statement?

21 A If cancer is seen in the exposed group, are the
22 same or less in the unexposed --

23 Q Doctor --

24 A -- then there's no evidence of cancer.

Q Doctor, you're talking about something else again. Please address your remarks to the question that I asked you.

A Yes, sir.

MR. HEINEMAN: Objection, your Honor. The answer was directly responsive to the question.

THE COURT: Not in the least responsive. The objection is overruled.

THE WITNESS: Yes, sir.

Q (By Mr. Carr) Doctor, the fact that these studies --

A Yes, sir.

Q -- although Hardell and others, Honcher and others have said that it is evidence that the sarcomas are caused by exposure to dioxin, others have said the cohort is too small, that that can be a definite yes answer; isn't that correct, sir?

A No, sir.

Q That isn't correct?

A No, sir.

Q What's wrong with that?

A The study by Hardell were studies of case control studies that suggested that by going back and asking those people who had soft tissue sarcomas, had they been

1 exposed to 2,4,5-T and other herbicides. And these two
2 case control studies said that there was an excess of soft
3 tissue sarcomas.

4 Q All right. So I was right up to that point?

5 A Yes, sir.

6 Q Okay.

7 A A study in Finland, that was a study of exactly
8 the same group, same case control type study, came to a
9 conclusion that there was no association. There was also
10 the study in New Zealand that duplicated the study of
11 Hardell, but even more so. The level of exposure in Sweden
12 was for only a few months out of the year, because they
13 have such short growing season. In New Zealand the exposure
14 time was almost the whole year around. So the exposure was
15 much higher, and in New Zealand study found no association.
16 Then in addition, when you talk about the Honcher study,
17 the Honcher study was based upon taking the data from the
18 four epidemiologic studies by Monsanto, and Dow and finding
19 excess soft tissue sarcomas in there because it was related
20 to two or three soft tissue sarcomas. They then followed
21 that up, and added four more soft tissue sarcomas, and then
22 said you've got an excess of, what is it, 36 times, or some
23 number.

24 Q That's correct.

1 A All right. They subsequently went at the data
2 to find out what was the cause of death --

3 Q The data was given to them by Monsanto. Do you
4 recall that, Doctor? Then go on in your explanation.

5 A What data was given to them?

6 Q The data was given to NIOSH by Monsanto. Do
7 you recall that you testified to that earlier?

8 A Yes, sir.

9 Q Go ahead.

10 A They had the seven soft tissue sarcomas,
11 apparently coming from these four studies. They subsequently
12 have found that two of those soft tissue sarcomas were not
13 soft tissue sarcomas.

14 Q Again, Doctor, that's based upon data given by
15 Monsanto?

16 A No, sir.

17 Q No?

18 A No, sir.

19 Q Based upon what data.

20 A The CDC on their own -- I take that back. NIOSH
21 on their own went out and got the death certificates on these
22 people, and then went out on their own and got the histology
23 on those.

24 Q Where do you get that, Doctor? Where's that been

1 published?

2 A That's in the -- that Rockefeller statement, as
3 well as other places.

4 Q The Rockefeller statement says that?

5 A Yes, sir.

6 Q Do you have that statement, Doctor?

7 A Yes, sir.

8 Q Would you mind bringing it in when you --

9 A Yes, sir.

10 Q -- when you find it?

11 A Yes, sir.

12 Q Aside from that, Doctor, that isn't addressing
13 my question. What you're saying is these studies, according
14 to your interpretation, have not firmly established that
15 these cancers were caused by dioxin. Now, my question is,
16 has there been any studies saying that they weren't caused
17 by dioxin? Have they ever been able to prove that they
18 weren't caused by dioxin? That's the question, Doctor.

19 A No, sir, I don't have anything.

20 Q That's what I asked you to start with, Doctor.
21 And on the New Zealand, aren't you aware of the fact that a
22 later -- a 1985 study came from New Zealand? Are you aware
23 of that fact, Doctor?

24 A No, sir.

1 Q That said there was a relationship. You're not
2 aware of that?

3 A No, sir.

4 Q I'll bring a copy back at noon for you.

5 A All right.

6 Q Now again, Doctor, is your answer to question
7 number five that they are not work related because no one
8 has yet been able to prove to your satisfaction that they
9 are work related?

10 A And others. Say the same thing that they're
11 not related.

12 Q Well, my question was no one has been able to
13 prove to your satisfaction that they're not work related.

14 A Yes, sir.

15 Q Now, Doctor, no one as I've asked you, no one has
16 proved that they are not work related either, have they, sir?

17 A No, sir.

18 Q So, therefore, they may be work related, and just
19 simply cannot be proven; isn't that correct, sir, because
20 the cohort is so small?

21 A No, sir.

22 Q That isn't correct?

23 A No, sir.

24 Q How can you prove that these cancers are caused --

1 this leukemia was caused by dioxin, Doctor?

2 A How can you prove it is?

3 Q Yes.

4 A By having an excess in leukemia in that group.

5 Q Doctor, you can have one case of leukemia caused
6 by a chemical, and never have an excess of leukemias. It's
7 all according to how many people are exposed. It's all
8 according to the size of your cohort.

9 A No, sir.

10 Q It isn't?

11 A No, sir.

12 Q Then, Doctor, why do you use cohorts? Why do
13 you use the p.m.r.? Why do you use the expected? It's
14 all tied in with the number of people that you're studying.

15 A Yes, sir.

16 Q If you study just five people, the odds of you
17 getting deaths from lung cancer, and leukemia and prostate
18 cancer, and bladder cancer would be thousands to one against,
19 wouldn't it, sir? If you're just studying five people.

20 A Yes, sir.

21 Q You can't get the wide range of diseases that
22 human beings are subject to if you just have a small popula-
23 tion, can you, sir?

24 A No, sir.

1 Q So the larger the study group, the more you are
2 able to say there is or is not a relationship; isn't that
3 correct, sir?

4 A Yes, sir.

5 Q So it does depend upon the size of the study
6 group, doesn't it, sir?

7 A Partially.

8 Q Yes. Now, Doctor, the next question there, do
9 "Do you believe that a healthier and safer work place and
10 the products of industry have contributed to this longevity
11 improvement."

12 A Yes, sir.

13 Q Do you also believe that diseases that we have
14 today are caused by chemical accidents?

15 A No, sir.

16 Q Doctor, you know of the -- from 1900 on the
17 number of deaths that have been caused by chemicals and,
18 for that matter drugs, unsafe drugs, you know that, don't
19 you, Doctor?

20 A No, sir.

21 Q Doctor, just one little example of a modern day
22 drug, the Thalidomide drug.

23 A Yes, sir.

24 Q Now there were, perhaps, no deaths, but there

1 were a lot of deformed babies from Thalidomide.

2 A Yes, sir.

3 Q That Thalidomide is a product of modern
4 civilization, isn't it, sir?

5 A Yes, sir.

6 Q And it was never in existence before the drug
7 or chemical industry made it, was it, sir?

8 A No, sir.

9 Q So, therefore, the chemical industry or the
10 drug industry made that Thalidomide which made these
11 deformed babies; isn't that correct, sir?

12 A Yes, sir. Yes, sir.

13 Q And that goes along with the chemical and drug
14 industry, doesn't it, sir?

15 A Yes, sir.

16 Q There are hazards that go with it.

17 A In some cases.

18 Q Yes. Now, Doctor, because an industry has
19 contributed to safety, it doesn't mean that they should not
20 be held responsible for their mistakes, does it, sir?

21 MR. HEINEMAN: Objection, your Honor. This
22 witness' impression of that statement is irrelevant to the
23 issues in this lawsuit.

24 MR. CARR: Well, your Honor, it may be. It's a

1 question, though. I didn't want to skip it. I wanted --

2 THE COURT: The objection is sustained.

3 MR. CARR: I'll agree that it is irrelevant
4 what this witness believes.

5 Q (By Mr. Carr) All right. What about question
6 number seven then, Doctor? Miss Strauss says affirmatively,
7 as I have suggested to you, that these people that were
8 terminated before 1955 were the people with the highest
9 exposure.

10 A Are you reading seven or eight? Talking about
11 seven or eight?

12 Q I'm sorry. I did skip it. Yes, Number seven.
13 Why weren't the TCD incident employees included in the Zack-
14 Gaffey study?

15 A Because they're different studies.

16 Q Well, Doctor, you can say that of every study
17 on earth. They are different studies. They're studying
18 the same thing. The subject is the same. Mortality
19 associated with dioxin. Exactly the same --

20 A Yes, sir.

21 Q -- subject.

22 A Yes, sir.

23 Q And people died that were exposed to the TCP
24 and people died after that and before that, didn't they, sir?

1 A Yes, sir.

2 Q So the question -- the fact that they were
3 different studies doesn't answer the question, does it, sir?
4 Why weren't they included?

5 A Because they were different studies.

6 Q Well, Doctor, I can see I'll not get anywhere
7 with that, if you repeat your same answer.

8 Doctor, the employees were included, some of the
9 employees were included in the Zack-Gaffey Study that were
10 in the TCP accident, weren't they, sir?

11 A Yes, sir.

12 Q And others were not?

13 A Yes, sir.

14 Q Why weren't they all included, Doctor? They
15 were all exposed to 2,3,7,8 TCDD.

16 A It was a study of 2,4,5-T exposure.

17 Q Doctor, we went through that before. The study
18 says TCP and 2,4,5-T or 2,4,5-T.

19 A Yes, sir.

20 Q It just doesn't say 2,4,5. So let's not get
21 in that culdesac again. All right?

22 A Yes, sir.

23 Q Now my question, Doctor, why weren't they
24 included?

1 A It wasn't the design of the study.

2 Q Well, I will agree with that, Doctor. It wasn't
3 the design of the study. But my question is why wasn't it
4 the design of the study?

5 A It could be.

6 Q Yes. My question is it could be. My question
7 was why wasn't it, Doctor. Let me suggest an answer. It
8 wasn't because if you did combine, if you did study every-
9 body that was exposed to dioxin, either in the production
10 or in the accident, or in the work place, that it would
11 have shown a high death rate, that it was your hope that
12 by separating these two studies it wouldn't show a high
13 death rate. Let me suggest that as an answer. Would you
14 comment on that, sir?

15 A Yes, sir. It wouldn't show it. If you combined
16 them, you do not get an excess death rate. You do not get
17 an excess cancer rate. If you do combine them as you suggest.

18 Q Doctor, has anyone combined them?

19 A I have.

20 Q That's that study you pushed the button in?

21 A Yes, sir.

22 Q You didn't do that, someone else did that,
23 Doctor.

24 A Yes, sir, you're right.

1 Q And, Doctor, Question Number 8. Why weren't the
2 people who were terminated before '55, why weren't they
3 included?

4 A We couldn't identify them.

5 Q Well, Doctor, you could identify a lot of them.

6 A You could identify those under TCP Unit, yes.

7 Q You could have identified more than that. Easy
8 to find out who was working for you. You don't have to just
9 go to your computerized records, all kinds of records,
10 showing who these people were.

11 A That is -- everything that can be done --

12 Q There are all kinds of ways to identify these
13 people.

14 MR. HEINEMAN: Objection, cut him off again.
15 Won't let him answer the question.

16 THE COURT: Objection is overruled.

17 THE WITNESS: If it's possible for this to be
18 done, it has been done. All of that information has been
19 given to NIOSH --

20 Q (By Mr. Carr) No, Doctor. You specifically --

21 MR. HEINEMAN: Objection, cut him off again,
22 Judge.

23 MR. CARR: I'm not asking him about NIOSH.

24 THE COURT: He was answering a question where

1 I had overruled your objection, first of all. I don't think
2 he had been cut off. Mr. Carr, go ahead.

3 Q (By Mr. Carr) We're not talking about the NIOSH
4 Study. We're talking about the Monsanto Study. Monsanto
5 specifically designed their morbidity study to exclude those
6 people who were terminated before 1955, knowing that those
7 people would be the sickest, knowing that those people had
8 the greatest exposure.

9 A No, sir.

10 Q The longest time exposure.

11 A No.

12 Q The highest exposure according to Marcie Strauss.

13 A No, sir.

14 Q You don't think it's true that these were the
15 people with the highest exposure?

16 A I don't know that.

17 Q Well, she says it is. She says that it is a
18 fact, and you don't know that it's not a fact.

19 A She doesn't know it's a fact.

20 Q She says it's a fact, does she not?

21 A That's what she says.

22 Q Yes. I see that it's 12:00, your Honor.

23 THE COURT: Okay. Ladies and gentlemen, we will
24 break for lunch at this time. We'll resume again at 1:00.

1 The admonishments that I normally give you at breaks apply
2 to this one also. The Court is in recess.

3
4 (Lunch recess.)

5
6 (The following proceedings were had in the
7 presence and hearing of the jury:)

8
9 THE COURT: Mr. Carr.

10 Q (By Mr. Carr) Doctor, with regard to Plaintiff's
11 Exhibit 1482, there are a number of statements in there by
12 Miss Strauss that -- to the effect that dioxin is harmful
13 and causes various troubles, and Monsanto hasn't done
14 anything about it. Now, if I were to ask you about each
15 of those statements by Mrs. Strauss -- Miss Strauss, is it
16 fair to say that you would disagree with each statement
17 where it has the effect of indicating that dioxin causes
18 cancer, promotes cancer, or has caused cancer in the Kanawha
19 Valley, or is an injurious substance? Is this a fair
20 statement? Or would you disagree with those statements in
21 here?

22 A I Don't know. I haven't gone through the
23 questions as you've asked them.

24 Q Doctor, I'm trying to save us sometime in this --

1 A I Understand.

2 Q -- regard. This has been in existence, this
3 exhibit has been in existence, in your possession, Miss
4 -Strauss worked for you, and this has been in existence for
5 at least a year, if not longer, and you haven't attempted
6 to answer these questions?

7 A I haven't attempted to generalize them.

8 Q Well, Doctor, look at Question Number 10, has
9 Monsanto ever done anything to warn and compensate employees
10 who have this excess of CHD -- what is CHD, by the way?

11 A Coronary heart disease.

12 Q And she says there seems to be an excess of that
13 and she says that Monsanto, in effect, was trying to hide
14 that fact, and she asked did you ever do anything to try
15 to warn your employees. Would you agree that if there is
16 an excess of coronary heart disease in exposed employees?

17 A Yes, sir.

18 Q And would you agree that you were trying to
19 hide the fact?

20 A No, sir.

21 Q What did you do to make it apparent?

22 A We published the article in the Referee Journal.

23 Q And what article is that, Doctor?

24 A The -- both the Zack-Suskind and the Zack-

1 Gaffey Study. The Zack-Gaffey wasn't in a Referee Journal,
2 but was in an EPA and Veteran's Administration Symposium.

3 Q Doctor, you're saying that there is no excess
4 of coronary heart -- you said in this court that there is
5 no excess of coronary heart disease in these exposed employees,
6 that they have the same kind of heart disease, have no
7 connection with exposure at all?

8 A Yes, sir.

9 Q Haven't you?

10 A Yes, sir.

11 Q So you are hiding the fact that these exposed
12 employees have this excess rate, aren't you, sir?

13 A It's not excess --

14 Q You're not saying that it has anything to do
15 with their exposure?

16 A That's right.

17 Q You're saying that it has to do with their
18 lifestyle?

19 A Yes, sir.

20 Q Just like you're saying that everybody in this
21 Valley has this problem because of their lifestyle?

22 A Yes, sir.

23 Q Miss Strauss is suggesting in this statement
24 that your exposed employees have got higher disease rate

1 because of their exposure, is she not?

2 A That's what the question implies.

3 Q Yes. And you don't agree with that?

4 A No, sir.

5 Q And you haven't -- and you've enver stated --
6 you've always stated in public, "Well, that's because of
7 their lifestyle, it's got nothing to do with their exposure."

8 A Yes, sir.

9 Q So you are not warning the workers that exposure
10 to dioxin may cause them to have heart disease, are you, sir?

11 A It would be improper to warn them.

12 Q Well, then what she is saying is that you didn't
13 do anything to warn these employees. She's saying these
14 employees have got excess heart disease because of their
15 exposure to dioxin?

16 A No, she isn't.

17 Q She's saying -- sir?

18 A No, sir.

19 Q You just got through --

20 A I said that's what the sentence --

21 Q -- reading, Dr. Roush, that that's what she is
22 saying.

23 A That's what the sentence is saying.

24 Q That's what I just got through asking you.

1 A That isn't what she says.

2 Q I'm sorry?

3 A She doesn't say that.

4 Q Isn't this her document?

5 A Yes, sir. But these are questions for the
6 Nitro lawsuit.

7 Q These are things that she put on this paper, is
8 it not, Doctor?

9 A Yes, sir.

10 Q She said these things in this document, didn't
11 she, sir?

12 A Yes, she did.

13 Q But, Doctor, you don't agree with what she has
14 said in this document, do you, sir?

15 A No, sir.

16 Q And you have not been telling your employees
17 that they have this risk, do you, sir?

18 A They don't have a risk.

19 Q Doctor, she is saying in this document that they
20 do have a risk, isn't she?

21 A She says there seems to be an excess.

22 Q Yes.

23 A She didn't say there is.

24 Q Now assume that that's true for the moment. All

1 right?

2 A Yes, sir.

3 Q Assume that all the evidence that we have
4 supports the thesis that what she says there is correct. You
5 haven't publicized that in any way, have you, sir?

6 A Yes, sir.

7 Q How have you -- who have you said, in what
8 document have you said that your exposed employees have a
9 higher heart disease rate?

10 A In the Referee Journal when we published the
11 Zack-Suskind Study. And United Steel Workers doctor has
12 seen that, and he's an adviser to them.

13 Q Doctor, the United Steel Workers people are the
14 ones that helped write the Moses-Selikoff Study.

15 A No.

16 Q They used the Zack-Gaffey Mortality Study and
17 suggested that it was a rate similar to what was in the
18 Kanawha Valley.

19 A Yes, sir.

20 Q Now you have not agreed, as I understand it,
21 that this coronary heart disease in the Kanawha Valley has got
22 anything to do with these chemicals, or anything to do with
23 exposure to these chemical, or anything to do with exposure
24 to dioxin --

1 A Yes, sir.

2 Q -- is that right, sir?

3 A Yes, sir.

4 Q Now you haven't said anywhere in the world,
5 anything other than what you're saying here, have you, sir?

6 A That's right.

7 Q All right. Now that is not telling the world
8 what Miss Strauss says is the fact here, is it, sir?

9 A I don't believe that she's established that
10 fact.

11 Q Doctor, I don't want to go through that again.
12 You've already agreed that that is what she has said here.
13 We're not saying that that's an established fact. It is
14 what she is saying as a fact.

15 A Yes, sir.

16 Q Whether you agree with it or not.

17 A Yes, sir.

18 Q The point that I'm trying to make, sir, is that
19 you haven't told your workers that there is a risk of
20 heart disease by being exposed to these chemicals, have you,
21 sir?

22 A NO, sir.

23 Q And you haven't made any attempt to compensate
24 them for this heart disease that they may be getting because

1 of their exposure to these chemicals, including dioxin;
2 isn't that correct?

3 A We compensate every person who has disabilities
4 from cardial vascular disease.

5 Q Doctor, how on earth do you do that?

6 A We have a disability program to take care of
7 people who are disabled.

8 Q Doctor, this is insurance that they pay as part
9 of their employment benefits that their union negotiated.
10 It's not got anything to do with compensation because of
11 their exposure. They would get that whether they had the heart
12 attack at home, or connected with anything, or lifestyle.
13 That's got nothing to do with compensating them for their
14 heart disease that they get because of dioxin. It's what
15 they earn. That's what they work for. That's what they
16 work with their sweat for, that insurance. That's part of
17 their pay, Doctor. Don't you understand that? You're not
18 giving them anything. They're earning that. Don't you
19 understand that, Doctor?

20 A Yes, sir.

21 Q Now, the question is have you done anything to
22 compensate these employees because of this heart disease
23 risk when they're exposed to chemicals?

24 A I don't think there's a risk.

1 Q Doctor, assume that there is a risk as Miss
2 Strauss said there is.

3 A Yes, sir.

4 Q Let's not go through that again.

5 A All right.

6 Q I have asked you to assume this.

7 A All right.

8 Q Now have you done anything to compensate them?

9 A No, sir.

10 Q The next question, Doctor, do you agree that
11 PAB and dioxin acting together make matters worse?

12 A No, sir.

13 Q You don't agree with that?

14 A Well, we just talked about it yesterday. It
15 says it doesn't. As a matter of fact --

16 Q You and Mr. Heineman talked about that. And
17 the clear statement in your -- that we went through earlier,
18 Dr. Roush, if you'll recall, was that these people who have
19 bladder cancer get more of it if they're exposed to dioxin.
20 Don't you recall that in the Zack-Gaffey Study?

21 A No, sir.

22 Q You don't recall that?

23 A Yes, sir, I recall. But, no, sir, I don't think
24 that's what we agreed.

1 Q You don't agree that the Zack-Gaffey Study
2 showed that they had a higher rate of bladder cancer when
3 they were exposed than the people who were unexposed?

4 A Yes, sir, Zack-Gaffey did. Yes, sir.

5 Q Doctor, hold that in your mind --

6 A Right.

7 Q -- that Zack-Gaffey showed that.

8 A Right.

9 Q All right. Now that shows that dioxin and PAB
10 working together can cause more bladder cancer than PAB
11 alone, doesn't it?

12 A No, sir.

13 Q Doctor, didn't you just say that Zack-Gaffey
14 Study showed that? Am I not hearing the words that you're
15 saying? Didn't you just say that, Doctor?

16 A I said in that study they showed an excess of
17 bladder cancer, that's right.

18 Q Now, Doctor, that study shows that the ones that
19 were exposed to dioxin and PAB have more bladder cancer
20 than those that are not exposed to dioxin; correct?

21 A No, sir, I don't know that.

22 Q ISn't that what the study showed, Doctor?

23 A No, sir.

24 Q Do you have an exhibit in front of you, Doctor?

1 A No, sir.

2 MR. HEINEMAN: Page 582?

3 MR. CARR: Page 586, I think is the proper one.

4 Q (By Mr. Carr) Is it not, Doctor?

5 MR. HEINEMAN: Bottom of page 582.

6 THE WITNESS: Table 9?

7 MR. CARR: 582? Table 9. Not 582.

8 Q (By Mr. Carr) Doctor, in each instance there is
9 a high rate of bladder cancer, is there not, sir?

10 A Yes, sir.

11 Q And according to Zack-Gaffey it's 809 percent
12 higher than expected for the people exposed to dioxin, is it
13 not, sir?

14 A Yes, sir.

15 Q Doctor, doesn't that indicate that there is a
16 connection between dioxin and bladder cancer?

17 A No, sir.

18 Q It doesn't indicate that?

19 A NO, sir.

20 Q Doctor, the group of people at the Monsanto
21 Plant that we've established all have some exposure to
22 dioxin, don't they, sir?

23 A Theoretically, yes.

24 Q Well, not just theoretically. We know, in fact,

1 that they have some exposure to dioxin.

2 A NO, sir.

3 Q You don't know that?

4 A No, sir. Absolutely not.

5 Q Didn't you just agree to that, Doctor?

6 A Pardon?

7 Q Didn't you agree -- haven't you agreed to that
8 a half a dozen times?

9 A Theoretically each time.

10 Q It's not theory, Doctor. The chemical is there.
11 The department takes one whole block of the Nitro Plant.
12 The railroad, where it's carried right through to the other
13 end of the plant. There's a building at the one end of the
14 plant that was used to create the stuff, and package the
15 stuff. There's buildings all over the plant. You can't
16 go in that plant at Nitro without being next to someplace
17 where they have done something with 2,4,5-T, or TCP; isn't
18 that correct? They've excavated -- as late as 1983, Doctor,
19 the EPA required you to excavate soil because it was dioxin
20 contaminated. Many years after you quit doing it. After
21 you quit making the stuff.

22 A No, sir, I don't think that's correct.

23 Q You don't think that's right?

24 A No, sir.

1 Q You don't recall excavating the soil along the
2 south fence in 1983? You don't recall paving over areas of
3 your plant to prevent people from being exposed to the
4 dioxin? You don't recall the wipe samples being -- the
5 dioxin being found years later, many years later in that
6 plant? You don't recall any of those things, Doctor?

7 A Yes, sir. Yes, sir.

8 Q You do recall those things?

9 A Yes. Yes, sir.

10 Q Now, Doctor, they quit making the dioxin, the
11 2,4,5-T in 1969 and 1970 in that building, other people
12 have worked in that building since that time on other
13 processes, haven't they, sir? In all those buildings.

14 A No, sir.

15 Q Those buildings have been abandoned?

16 A Yes.

17 Q They haven't been used since '69?

18 A I think there's one that's still in use.

19 Q Yes, Doctor. And the people that work in that
20 building are exposed to dioxin everyday, aren't they? Your
21 wipe samples showed that, didn't it, sir?

22 A That doesn't mean they've been exposed everyday.

23 Q Doctor, the dioxin was there, and they're working
24 there, they're exposed to it, aren't they?

1 and places like that to see if there's any evidence of it
2 in the plant.

3 Q What were they getting off the rafters, Doctor?
4 Dust, weren't they?

5 A Yes, sir.

6 Q And, Doctor, does dust -- have you ever seen a
7 train come along -- along next to the plant? Have you ever
8 seen the dust come out of rafters when the building shakes?
9 Have you ever seen that, Doctor? Have you never been in
10 the plant when there's vibrations going on?

11 A The trains don't run passed there.

12 Q A truck runs passed there. Wind. A storm
13 comes along, the building shakes. Haven't you seen things
14 come from the rafters, from those overhead beams, Doctor?

15 A No, sir.

16 Q You haven't seen that?

17 A No, sir.

18 Q Are you suggesting that it doesn't happen?

19 A No, sir.

20 Q Haven't you been --

21 A No, sir.

22 Q You know it happens. You know that dust comes
23 down from those rafters, you know that, don't you, Doctor?

24 A NO, I don't.

1 Q Well, Doctor, does your scientific mind tell
2 you that there are occasions since 1969 when somebody in
3 that building that dust, that dioxin on those rafters could
4 have fallen on those people?

5 A Yes, sir.

6 Q Your mind will permit that deduction, won't it,
7 sir?

8 A Yes, sir.

9 Q Then you do know that it does occur, don't you,
10 sir?

11 A I don't know that.

12 Q Why don't you know it, Doctor?

13 A Because I can't measure it.

14 Q Doctor, they measured -- we went through that
15 once. They measured, they found it in the rafters in that
16 building.

17 A Yes, sir.

18 Q They took wipe samples, they found it there
19 in the dust.

20 A Yes, sir.

21 Q Had been there for years and years.

22 A Yes, sir.

23 Q So they did measure it, didn't they, sir?

24 A YES, sir.

1 Q So you do know it, then, don't you, sir?

2 A NO, sir.

3 Q I thought you said you didn't know it because
4 you couldn't measure it.

5 A Yes, sir.

6 Q Isn't that why you said you didn't know it??

7 A I said I don't know that the man has been getting
8 that exposure.

9 Q No, Doctor, you get different reasons at different
10 times. You said once that you don't know that it ever gets
11 there. We demonstrated it logically that dust would fall
12 on them from time to time. We demonstrated that, and you
13 agreed with that, that logically you would agree. Then you
14 said you don't know it because it's not been measured.
15 But it has been measured.

16 A Not in men. Not by personal exposure.

17 Q Doctor, the dust has been measured in those
18 buildings, by you, and by the EPA, was it not, sir?

19 A Yes, sir.

20 Q And the dust was found to contain dioxin, didn't
21 it, sir?

22 A Yes, sir.

23 Q Doctor, those people in those buildings were
24 exposed to that dioxin, weren't they, sir?

1 A I Don't know.

2 Q Why is it you don't know, Doctor?

3 A Because I don't know whether that exposure has
4 taken place -- if you can't measure it, you can't say it's
5 there.

6 Q Doctor, we went through -- we're going in
7 circles. You agreed that it was measured.

8 A I'm talking about in the air.

9 Q Doctor, when it gets off of the rafters, it
10 settles. It's heavier than air, isn't it, sir?

11 A Yes, sir.

12 Q And it will settle on anybody that's there.
13 It will settle on the floor, it will settle on the workmen,
14 won't it, sir?

15 A If it does settle out, yes, sir.

16 Q So you don't have to measure it in the air to
17 know they're exposed to it, do you, sir?

18 A No, sir.

19 Q Doctor, do you now agree that men working in
20 that plant, not making 2,4,5-T, are exposed to dioxin?

21 A Possibly some of them, yes, sir.

22 Q All right. Now they suggest here, Miss Strauss
23 suggests that these two matters acting together would make
24 matters worse. Do you agree with that?

1 A No, sir.

2 Q All right. I won't get anymore arguments with
3 you. But that's what she suggests, isn't it, sir?

4 A Yes, sir.

5 Q Now she also says, the next question, since it
6 causes multiple tumor types in experimental animals at very
7 low levels of exposure, why do you feel that it may not also
8 cause cancer in the exposed Nitro workers. Do you agree
9 with her suggestion, first of all, that it causes cancer in
10 experimental animals?

11 A Yes, sir.

12 Q And tumors, by the way, when you say tumor, you
13 mean either a malignant or benign tumor, don't you, sir?
14 That's a broad word, includes both kinds?

15 A No, we're talking about malignant tumors.

16 Q Yes. But the word, just using the word tumor by
17 itself, doesn't tell you whether it's benign or malignant,
18 does it?

19 A That's right.

20 Q Tumor is the word that encompasses both benign
21 -- malignant and benign growth?

22 A Yes, sir.

23 Q But she is talking in this instance, because
24 of the context, you know that she's talking about cancer.

1 A Yes, sir.

2 Q And, Doctor, do you agree, her next suggestion
3 that it may also cause cancer in exposed Nitro workers?
4 I can answer it for you, Doctor, you don't agree to that,
5 do you?

6 A That's right.

7 Q And we've already got into 13, so we can skip
8 over that. How about Number 14? Do you agree that you
9 should worry -- first of all, synergistic action between
10 chemicals means that one acts upon the other to make some-
11 thing occur that would not have occurred without the two
12 chemicals being together.

13 A That isn't what is meant. But that's part of
14 it.

15 Q Well, the sum of the two is greater than each
16 one by itself. You will get more than two. One and one --
17 two chemicals put together will give you more than two.

18 A Yes, sir. That's what it means.

19 Q That's what it means. Now what about that?
20 You didn't worry about that, did you, Doctor?

21 A Yes, sir.

22 Q You did worry about it?

23 A Yes, sir.

24 Q Do you agree that there is -- that you did

1 permit exposure to people that had 2,4,5-T, hydrogen sulfide
2 I suppose that is, and PAB?

3 A Yes, sir.

4 Q And you didn't worry about it, or did you worry
5 about it?

6 A We monitored for them to see what was in the
7 affect.

8 Q What did you find?

9 A We didn't find any evidence of affect.

10 Q Well, then you didn't worry about it anymore?

11 A Now if I find out that there's no synergistic
12 action, I don't.

13 Q You don't believe that dioxin and PAB work
14 together, you're back on that thesis again, to promote
15 cancer?

16 A This study here that you asked me to read said
17 it doesn't.

18 Q I'm sorry?

19 A This document you just gave me to read says it
20 doesn't.

21 Q Doctor, all that document is, as you well know,
22 is a study of people exposed to dioxin.

23 A No, sir.

24 Q That document created by Zack-Gaffey put in,

1 made no distinction between people that were exposed to
2 the dioxin, TCP and the people that were exposed to just
3 2,4,5-T, and Table 11 is fine evidence of that, isn't it,
4 sir?

5 A Yes. But that also took out many other causes
6 of death too.

7 Q Well, Doctor, that's not the question that I'm
8 asking you. This Zack-Gaffey Study is no a study of people
9 who were exposed to TCDD, is it, sir? Even though it
10 purports to be that.

11 A Yes, sir, it is.

12 Q They have mixed the groups, have they not,
13 Doctor?

14 A Yes, sir.

15 Q Then you cannot compare the groups if you mix
16 them, can you, sir?

17 A Yes, sir.

18 Q How can you compare it, Doctor?

19 A By comparing the way they did.

20 Q Well, Doctor, you see here they put four people
21 that they knew were exposed to dioxin, they put it in the
22 unexposed group.

23 A Yes, sir.

24 Q Doctor, we don't need to go through that again,

1 do we? Well, Doctor, I won't go through it again. I'm
2 going to pass to the next question here. Cl_2 has got
3 nothing to do with the case. So we can pass by that. What
4 about 16, do you agree that TCDD has been reported to cause
5 toxic effects upon multiple organ systems?

6 A Yes, sir.

7 Q And do you agree that it would potentiate the
8 toxic effects due to other toxic agents in the plant
9 environment?

10 A There's no evidence that it does.

11 Q Then you don't agree?

12 A No, sir.

13 Q You have to have absolutely evidence that it
14 does before you would agree to this statement; is that right,
15 sir?

16 A There's no evidence that they do.

17 Q Excuse me. Do you agree with it or not, Doctor?

18 A I don't agree that it potentiates.

19 Q All right. That's what I expected. Now the
20 next question, "What role do Monsanto wastes play in the
21 increased cancer rate in the Kanawha Valley?"

22 A None.

23 Q Just like Monsanto plays no role in the increased
24 heart disease rate?

1 A Yes, sir.

2 Q How much are the -- how much is the cancer rate
3 increased in Kanawha Valley over the rest of the population?

4 A I don't know what total cancer is. I don't
5 have that data.

6 Q Have there been studies done?

7 A Yes, sir.

8 Q And you do know that they do have higher cancer
9 rates?

10 A Yes.

11 Q If I asked you all those questions about this
12 increased cancer rate, the same questions I asked you about
13 the increased cardio vascular rate, would your answer be
14 that it's the lifestyle that's causing the cancer rates
15 to be higher?

16 A Yes, sir.

17 Q And if I asked you the questions whether or not
18 you investigated the lifestyle of these people in the
19 Kanawha Valley to find out whether or not they're doing
20 something that could cause them to be afflicted with more
21 cancer, would your answers be the same, that you haven't
22 done any such study?

23 A We did a study on our population, of all of our
24 lung cancer was smokers, all but one.

1 Q All that proves, Doctor, is the point that I'm
2 trying to prove, that this causes lung cancer in people who
3 would not otherwise get it, even though they smoke. That's
4 the point, Doctor, of the study. Aren't you aware of that,
5 sir?

6 A Yes, sir.

7 Q Doctor, what it means is that absent dioxin,
8 a smoker might not get cancer. Absent exposure to the
9 chemicals put out by Monsanto, and by others, the smoker
10 might be able to smoke, if he weren't exposed to the dioxin.
11 If he weren't exposed to the chemicals. Do you see that,
12 Doctor, as the affect of these studies? Did the fact that
13 there are 10 lung cancer deaths in smokers, now you know you
14 got a lot more smokers, there is no distinction between
15 exposed and unexposed as far as smokers is concerned, is
16 there, sir? You don't know any difference between whether
17 or not people smoke or don't smoke, and being exposed or
18 not exposed?

19 A We didn't do it like we did on those 10.

20 Q All right. Doctor, what you do know, this
21 population of smokers, if they're not exposed to dioxin,
22 you only get three cases of lung cancer, but if they are
23 exposed to dioxin you get ten in a smaller denominator, in
24 a smaller group.

1 A No, sir.

2 Q Doctor, I'm not going to go through that again.

3
4 But we did establish those numbers this morning, did we
5 not? The ten and the three. Remember that, Doctor?

6 A Yes, sir.

7 Q Just this morning.

8 A Yes, sir.

9 Q We did establish the denominator was greater
10 in the unexposed group than it was in the exposed group.

11 Remember that, Doctor?

12 A Yes, sir.

13 Q Just this morning?

14 A Yes, sir.

15 Q We did establish the denominator was greater
16 in the unexposed group than it was in the exposed group.

17 Remember that, Doctor?

18 A Yes, sir.

19 Q And we established that there are 10 lung cancers
20 in the smaller group is a higher rate than three lung cancers
21 in the larger group.

22 A I'm sorry, I don't accept that. I'm not sure
23 we've got the data -- I have to look at the data before I
24 can say that.

1 Q Doctor, we established this morning, and I'm not
2 going to establish it again, that the exposed group was
3 smaller than the unexposed group, didn't we, sir?

4 A Yes, sir.

5 Q And the smaller exposed group had 10 lung cancers,
6 didn't it, sir?

7 A Yes, sir. I think that's right. I'd like to
8 look at it.

9 Q The larger the unexposed -- the unexposed group
10 was larger, we established that, didn't we, Doctor?

11 A Yes, sir.

12 Q There was only three lung cancers in that larger
13 group, we established that this morning, didn't we, Doctor?

14 A I have to look at the data. That doesn't help
15 me. I have to look at the reports.

16 Q Doctor, this is the report. This table is taken
17 from the report.

18 A Yes, sir.

19 Q You have the report right here in front of you.

20 A Yes, sir.

21 Q Three lung cancers in the unexposed group to
22 TCDD, correct, Doctor? It might help you to look at Table
23 11 there, Doctor. Have you got Table 11? You want me to
24 find it for you?

1 A I've got it, sir.

2 Q Okay. Look at Table 11 and eliminate the four
3 with the underline, and count the lung cancers after
4 eliminating those four.

5 A I have to see what it does to the study.

6 Q Doctor, I'm not asking you to do that. I'm
7 not attempting for you to analyze the study. I'm attempting
8 to establish a point that we established this morning. I'm
9 not asking for a critique of the study.

10 A Yes, sir.

11 Q Now, according to Table 11, there are only three
12 lung cancers in the unexposed group deaths, aren't there?

13 A Yes, sir.

14 Q And now are we agreed that according to Table
15 11 and according to Table 10, Table 10 is the exposed group --

16 A Yes, sir.

17 Q -- we add those four to the ten, to Table 10?

18 A Yes, sir.

19 Q And we've got ten and three, haven't we, sir?

20 A Yes, sir.

21 Q Now, is it possible, Doctor, that -- well,
22 haven't we now established, Doctor, that it's the dioxin
23 has a greater affect on having lung cancer than the cigarette
24 smoking?

1 A No, sir.

2 Q Doctor, we've got only three deaths in a larger
3 group, haven't we, sir?

4 A Yes, sir.

5 Q Much larger group?

6 A Yes, sir.

7 Q And we've got ten deaths in a much smaller
8 group, haven't we, sir?

9 A Yes, sir.

10 Q Doesn't that have just a little bit of
11 convincing you, Doctor, that a person could, perhaps, smoke
12 and the list wouldn't be near as great -- we could get away
13 with smoking. I smoked for 20 years, Doctor, and I finally
14 quit. My wife still smokes.

15 A Yes, sir.

16 Q Isn't it possible that if we weren't exposed
17 to dioxin and other chemicals that can do the same thing,
18 that would promote cancer, isn't it possible that smokers
19 who smoke and have a much lower risk of having -- it
20 wouldn't be eliminated, I'm not suggesting that it would.
21 But isn't it possible, based upon just this study alone,
22 just this one --

23 A NO, sir.

24 Q -- it's not possible?

1 Q Doctor, what other reason could there be for
2 increased cancer rate in the Kanawha Valley, except the
3 chemicals to which those people are exposed?

4 A That they smoke.

5 Q Doctor, we've already gone through that. People
6 all over the country smoke.

7 A Yes, sir.

8 Q Is there any evidence that the people in the
9 Kanawha Valley are more -- smoke more than the people in
10 Belleville?

11 A I don't know that.

12 Q Then you have absolutely no evidence to suggest
13 that it's because -- that the higher rate is because they
14 smoke?

15 A Yes, sir.

16 Q What do you have, sir?

17 A Because when people go in the hospital and they
18 operate them for lung cancer, the ones who get lung cancer
19 are the ones who are heavy smokers.

20 Q There's no doubt about that, Doctor. I'm not
21 quarreling with that. That's got nothing to do with the
22 question that I'm asking you.

23 A I think it does.

24 Q Doctor, what I'm asking you is there any reason

1 for the smokers in Belleville to have a less risk of lung
2 cancer than the smokers in Kanawha Valley?

3 A Yes, sir. They don't smoke as much.

4 Q No, Doctor. You don't know that at all.

5 A No. I don't have a fact, no, sir.

6 Q You don't have the slightest idea that that's
7 the case. Do you, Doctor?

8 A Medical evidence would say it is.

9 Q The only medical evidence you've got is that
10 they got lung cancer.

11 A Yes, sir.

12 Q So what we've got in Kanawha Valley is smoker,
13 lung cancer, plus dioxin. What we have in Belleville is
14 smoker and less lung cancer.

15 A Yes, sir.

16 Q The only difference is the dioxin, or the other
17 chemicals. I don't want to blame it all on dioxin. The
18 other chemicals in the Kanawha Valley. That's the only
19 difference in the hypothetical that I've given you, and you
20 don't know of any other difference, do you, Doctor?

21 A No, sir.

22 Q Doctor, I promised you at the lunch hour that I
23 would give you a copy of the most recent New Zealand Study.
24 Would you mark this as Plaintiff's Exhibit.

1 (Plaintiff's Exhibit 1523 was marked
2 for identification by the court reporter.)
3

4 Q (By Mr. Carr) Doctor, is the American
5 Journal of Epidemiology a recognized, authoritative
6 medical publication?

7 A It's a Referee Journal, yes, sir.

8 Q You recognize Plaintiff's Exhibit 1523 as being
9 an article published in the American Journal of Epidemio-
10 logy in 1985?

11 A Yes, sir.

12 MR. CARR: I offer that exhibit into evidence,
13 if it please the Court.

14 MR. HEINEMAN: No foundation laid for it,
15 your Honor. I have to object on that basis. It's hearsay.
16 There's no foundation for it.

17 Q (By Mr. Carr) Well, let me ask him. Do you
18 accept this article published in the American Journal of
19 Epidemiology as an authoritative publication?

20 A No, sir.

21 Q Why wouldn't you, Doctor?

22 A It doesn't mean -- these are their findings.
23 That doesn't mean it's authoritative.

24 Q Doctor, you don't understand the meaning of the

1 word -- this article -- this is a peer reviewed article,
2 is it not?

3 A Yes, sir.

4 Q And other scientists in the community read
5 this and accept it as peer reviewed. They may not agree
6 with its conclusions, mind you. Nobody is suggesting
7 that. But it is in a recognized authoritative publication.

8 A Yes, sir. Absolutely.

9 Q Yes. And it is peer reviewed, isn't it, sir?

10 A Yes, sir.

11 MR. CARR: I offer it again, your Honor.

12 MR. HEINEMAN: Same objection, your Honor.

13 Hearsay, no foundation.

14 THE COURT: Overruled. Foundation is adequate.
15 Admitted over objection.

16 Q (By Mr. Carr) Doctor, is this the first time
17 you've seen this particular article?

18 A Yes, sir.

19 Q I won't cross examine you at length about it.
20 But it deals with cancer in agricultural occupations.
21 You can see that from the summary at the very first -- at
22 the top of it, can you not?

23 A And forestry.

24 Q I'm sorry. And forestry, yes.

1 A But they're saying -- you're right. It's
2 aggricultural.

3 Q I'm sorry?

4 A You're right, it's aggricultural.

5 Q Doctor, the last sentence of it, and I do not
6 want to suggest to you that the authors of this article
7 say that exposure to herbicides is the only possible cause
8 of this increase. They pose three possible causes in the
9 aggricultural workers. And I don't want to get into
10 detail with it, because it's a lengthy article and you
11 haven't read it. But just directing your attention to the
12 very last sentence in that abstract, it says, does it not,
13 sir, "Mortality from malignant lymphoma and multiple
14 myeloma increased significantly during the period 1955-1979?"

15 A Yes, sir.

16 Q All right. Doctor, I'd like to direct your
17 attention to the Monsanto Exhibit 55, the Missouri
18 Division of Health Study. It was what Mr. Heineman
19 questioned you about.

20 MR. HEINEMAN: Excuse me, your Honor. May
21 counsel approach the bench?

22 THE COURT: Sure.

23 (The following proceedings were had at the
24 bench, out of the hearing of the jury:)

1 MR. HEINEMAN: Could I be mistaken, or does it
2 look like there's a portion of that abstract that's
3 missing?

4 MR. CARR: You're mistaken, because these are
5 key words. That's all that is.

6 MR. HEINEMAN: Is that what that is?

7 MR. CARR: Sure, that's the way it's listed
8 under.

9 THE COURT: You mean for reference, to find it?

10 MR. CARR: Right.

11 MR. HEINEMAN: All right. So that doesn't --
12 there's nothing missing in here?

13 MR. CARR: To my knowledge, this is the way
14 I received it, Counsel.

15 MR. HEINEMAN: Not from me.

16 MR. CARR: No.

17 MR. HEINEMAN: Okay.

18 (The following proceedings were had in the
19 presence and hearing of the jury:)

20 MR. CARR: Do you have the Monsanto Exhibit 55,
21 or do you have it, Counsel? Does the Clerk have it or do
22 you have it?

23 MR. HEINEMAN: We have it right here, if I'm
24 not mistaken. Careful, that first page you're about to

1 lose.

2 Q (By Mr. Carr) Doctor, handing you Defendant's
3 Exhibit 55. Do you recall Mr. Heineman questioned you
4 about that?

5 A Yes, sir.

6 Q First of all, to start with, you are aware of
7 the fact, while Mr. Heineman didn't bring it out, you're
8 aware of the fact that this was a study based upon ques-
9 tionnaires sent to people who live in the contaminated
10 areas around St. Louis. You know that, don't you?

11 A Yes, sir.

12 Q And they divided into two groups, the people
13 they call high risk, the ones that answered that they
14 were most exposed to dioxin, and low risk groups, the ones
15 that would have the lesser exposure to dioxin.

16 A Yes, sir.

17 Q You know that, don't you?

18 A Yes, sir.

19 Q So it was not a study of comparing people who
20 were exposed to dioxin to people who were not exposed to
21 dioxin, was it, sir?

22 MR. HEINEMAN: Objection, your Honor. We've
23 read into evidence what the definitions of high and low
24 risk exposure were right from the paper. Is he implying

1 that we were suggesting that we left that out?

2 MR. CARR: What I'm trying to make clear, Mr.
3 Heineman, is that this study, just like the Zack-Gaffey
4 Study, just like the Moses-Selikoff Study, just like the
5 Zack-Suskind Study is not a study that compares unexposed
6 people to exposed people.

7 THE WITNESS: No, sir.

8 MR. CARR: It is the same sort of thing that
9 compares people with higher exposure to people with lower
10 exposure.

11 THE COURT: Objection is overruled. You may
12 continue.

13 Q (By Mr. Carr) Doctor, to direct your attention
14 to the Page 49, first of all, if you would, called
15 "Appendix A." Do you see that, sir.

16 A Yes, sir.

17 Q Do you see there something that's called
18 "Distribution of Porphyrins and Total Porphyrins in
19 Chronic Hepatic Porphyria?"

20 A Yes, sir.

21 Q And, Doctor, there is a ratio set out there
22 that's for Copro/Uro ratio that they call normal, that
23 this study conducted by St. Louis University Hospital,
24 St. Joseph Hospital, the Centers for Disease Control, and

1 Missouri Division of Health. They put a Table there for
2 a normal Copro/Uro ratio, did they not, sir?

3 A Yes, sir.

4 Q What is the normal ratio according to this
5 document?

6 A Two to six.

7 Q Doctor, are you aware of the fact that people
8 of Sturgeon, many of the people of Sturgeon have Copro-Uro
9 ratios that are outside this normal ratio two to six?

10 A No, sir.

11 Q Are you familiar at all with Dr. Carnow's
12 testimony, long involved testimony, as to the significance
13 of Copro-Uro ratios?

14 A No, sir-

15 Q Nobody has told you that Monsanto has taken
16 the position that the Copro/Uro ratio, there is no such
17 thing as a normal one, and that the two to six ratio
18 testified to by Dr. Carnow is not the normal ratio?

19 A No, sir, but I don't believe in that ratio.

20 Q Well, I didn't ask you if you believed in it --

21 A I understand.

22 Q -- Dr. Roush. I know what your answer would be
23 in advance, if I asked you to believe it. All I'm asking
24 you is do you see that that is the ratio used by the

1 Missouri Division of Health, the Centers for Disease
2 Control, St. Joseph Hospital, Kirkwood and St. Louis
3 University Hospital, for urinary analysis of the porphyrins.

4 A It's certainly cited.

5 Q And they use the word "Normal two to six,"
6 don't they, sir?

7 A Yes, sir

8 Q And they're talking about trying to find chronic
9 hepatic porphyria, aren't they, sir?

10 A Yes, sir.

11 Q And, Doctor, they also show here that
12 Coproporphyrinuria is when the ratio is greater than six,
13 don't they, sir?

14 A Yes, sir.

15 Q And type A of the Chronic Hepatic Porphyria
16 is when the ratio is greater than one; correct, sir?

17 A Yes, sir.

18 Q Type B is where it's less than one?

19 A Yes, sir.

20 Q And both Latent and Overt Porphyria Cutanea
21 Tarda also has ratios of less than one, do they not, sir?

22 A Yes, sir.

23 Q An inverted ratio that is.

24 A Yes, sir.

1 Q Now, Doctor, I'd like for you now to turn to
2 Roman Number IV of this study, and to the bottom of the
3 page.

4 A Yes, sir.

5 Q They point out in this study that, "Finally
6 public health policy in situations such as this environ-
7 mental contamination with TCDD must continue to be focused
8 on the prevention of any potential health effects even if
9 such effects were not demonstrated in a small pilot study."

10 A Yes, sir.

11 Q It does say that, doesn't it?

12 A Yes, sir.

13 Q It goes on to say that "Health effects could
14 occur with a latency period exceeding the time from initial
15 exposure to examination in this study."

16 A Yes, sir.

17 Q "For this reason, all appropriate efforts need
18 to be made to prevent human exposure."

19 A Yes, sir.

20 Q Do you agree with that, Doctor?

21 A No, sir. They don't mean it either.

22 Q They're saying it there, but you're saying they
23 don't mean it?

24 A Yes, sir.

1 Q Doctor, these people from St. Louis University,
2 from the Centers for Disease Control, and the Missouri
3 Division of Health, they're responsible people, aren't
4 they, sir?

5 A Yes, sir.

6 Q Huh?

7 A Yes, sir.

8 Q And they're not given to make irresponsible and
9 rash statements, are they, sir?

10 A Not rash at that time.

11 Q Sir?

12 A Not rash at that time.

13 Q All right. And they meant what they said,
14 didn't they, sir?

15 A In 1983, yes, sir.

16 Q Well, you said they didn't mean it.

17 A They meant what they said in 1983.

18 Q Yeah. And they meant in 1983 that all
19 appropriate efforts need to be made to prevent human
20 exposure, didn't they, sir?

21 A Yes, sir.

22 Q But you at Monsanto don't agree with that,
23 do you, sir? Never have agreed with it, have you?

24 A No.

1 Q And for that reason, because you don't agree
2 with that statement, you at Monsanto have done nothing
3 with regard to the situation at Sturgeon to prevent human
4 exposure, have you, sir?

5 A No, sir.

6 Q Now, Doctor, if you'll turn to page 14, if
7 you would, of this study.

8 A Table 2 there.

9 Q Do you see that, sir?

10 A Yes, sir.

11 Q And Table 2 talks about "Relative Carcinogenic
12 Potencies Among Selected Chemicals Evaluated by the
13 Carcinogen Assessment Group as Suspect Human Carcinogens."
14 Do you see that, sir?

15 A Yes, sir.

16 Q And do you see TCDD listed as one of those?

17 A Yes, sir.

18 Q And they list Aflatoxin B₁, Benzo(a)Pyrene,
19 Beryllium, Carbon Tetrachloride, DDT, Epichlorhydrin,
20 Tetethylene Dibromide, PCBs, TCDD and Vinyl Chloride, do
21 they not, sir?

22 A Yes, sir.

23 Q Do you see that? They list all of those, do
24 they not, sir?

1 A Yes, sir.

2 Q Now, sir, turn your eyes towards the last
3 column, where it says "Order of Magnitude."

4 A Yes, sir.

5 Q Which of those carcinogens, which of those
6 chemicals selected as being suspect human carcinogens,
7 which of those has the highest number in the order of
8 magnitude?

9 A TCDD.

10 Q Yes, indeed. But you don't agree with that
11 either, do you?

12 A Yes, sir.

13 Q You do agree with that?

14 A Yes, sir.

15 Q That TCDD does have the highest order of
16 magnitude among all these carcinogens?

17 A By comparison of those, yes, sir.

18 Q Do you agree that these others are carcinogens?

19 A No, sir. Not in man.

20 Q None of these are carcinogens in man?

21 A Yes, sir.

22 Q By yes, sir, you mean some of them are and
23 some of them aren't?

24 A Some of them are and some of them are not.

1 Q Which ones are and which ones are not?

2 A Aflatoxin B₁ is what's found in peanut butter,
3 and the levels found in peanut butter --

4 Q I'm just asking you, Doctor, to answer my
5 question.

6 A Right.

7 Q Is it or is it not a carcinogen in humans?

8 A Aflatoxin is a liver carcinogen in man. Benzo
9 (a)Pyrene is known to cause skin cancer.

10 Q All right.

11 A Whether it causes lung cancer isn't clear.

12 Beryllium has never been shown to be a human carcinogen.

13 Carbon Tetrachloride has never been shown to be a human
14 carcinogen. DDT has never been shown to be a human

15 carcinogen. I don't know what Epichlorhydrin is. Ethylene

16 Dibromide has not been shown to be a human carcinogen.

17 PC₁ has not been shown to be a human carcinogen, and

18 Vinyl Chloride is clearly a human carcinogen.

19 Q It is clearly?

20 A Yes, sir.

21 Q And, Doctor, of all those that are -- that you
22 say are carcinogens, the TCDD is the one with the greatest
23 test order of magnitude?

24 A Yes, sir.

1 Q Doctor, if you would turn to page 16 in the
2 second paragraph there, in the middle of that paragraph.
3 That paragraph talks about this being a pilot study to
4 assess the current health effects in the highly exposed
5 group, doesn't it, sir?

6 A Yes, sir.

7 Q And it also says it is too early since first
8 exposures at these sites to adequately assess long-term
9 risks for cancer or other effects by direct study of this
10 exposed population. You see that, don't you, sir?

11 A Yes, sir.

12 Q That's because the latency periods for some
13 cancer is as much as 20 and 30 and 40 years; isn't that
14 correct, sir?

15 A No, sir.

16 Q There are not latency periods for some cancer
17 of 20, 30, 40 years?

18 A The longest maybe 20 years, but not the short-
19 est, for any one of the carcinogens.

20 Q Doctor, my question was that there are some
21 cancers that have a latency period of 40 years, isn't
22 there, sir?

23 A As long as 40 years?

24 Q As long as 40 years.

A Yes, sir.

Q And they can have a latency period, I suppose, that's as short as --

A Five years.

Q -- five years. And the first exposure at Times Beach was 197 --

A '71.

Q '75.

A '71, I think.

Q So we've got 14 years there, haven't we, sir?

A Yes, sir.

Q And most cancers have a longer latency period than that, haven't they, sir?

A Not mean.

Q Sir?

A Not the mean of latency. The mean of latency is something less than 15 years.

Q How much less than 15 years?

A Not much. It's something right around 15 years.

Q Well, what you're saying is that from 15 years on you can possibly see some cancers; is that what you're saying?

A If you see them -- you can have them as long as 40, but if you have a population there will be cancers

1 before 40 years in all of them. I don't know of any which
2 you find as late as 40 years, without having cancers
3 occurring early as well. I'm saying the mean for all of
4 them is 15 to 20 years.

5 Q I won't quarrel with that. That goes according
6 to various human susceptibility, with variances again in
7 human beings.

8 A Yes, sir.

9 Q Some people are more apt to fight off the
10 cancer, their systems, they have an immune system that's
11 functioning properly, or functioning differently than some
12 others.

13 A I don't know why.

14 Q Sir?

15 A I don't know why.

16 Q We know for some reason that there is a variance,
17 isn't there, sir?

18 A Yes, sir.

19 Q Now, do you also see the statement there on
20 page -- I'm sorry, turn to Page 35, if you would. You see
21 there is on Table 2 a trend of increased --

22 A Pardon me, sir? I'm sorry?

23 Q Page 35.

24 A That's not a table. Are you talking about a

1 table?

2 Q Doctor, turn to Page 35.

3 A Yes, sir.

4 Q It says "As presented in Table 2."

5 A I'm sorry. I'm sorry.

6 Q "-- there appeared to be a trend of increased
7 urinary tract problems among the high risk cohort as
8 reported from the medical history." Do you see that, sir?

9 A Yes, sir.

10 Q And they repeat the same thing, if you turn to
11 Page 43, don't they, sir?

12 A Page 43?

13 Q Yes. The 6th line from the top, where it says
14 "Of greater interest is the apparent trend indicative
15 of urinary tract abnormalities among the high risk
16 individuals." Do you see that, sir?

17 A Yes, sir.

18 Q And on the next page they talk about the
19 individuals that had the high liver on percussion, and
20 they're concerned about that because of the extensive
21 animal and high-dose human data suggesting hepatotoxic
22 effects of TCDD exposure. Do you see that, sir? Do you
23 see that, sir?

24 A Yes, sir.

1 Q And again that has to do with the porphyrins
2 and the importance of watching and measuring those
3 porphyrins; isn't that correct, sir?

4 A No, sir.

5 Q Doctor, when they talk about a chronic hepatic
6 problem, what are they talking about?

7 A They're talking about something that causes
8 pathology in the liver.

9 Q And, Doctor, isn't that caused -- isn't
10 porphyria a chronic hepatic disease?

11 A No, sir.

12 Q Would you turn to Page 49 again, Doctor.

13 A Yes, sir.

14 Q Do you see that Table there?

15 A Yes, sir.

16 Q What does it say? It says "Chronic Hepatic
17 Porphyrin."

18 A Yes, sir.

19 Q Sir?

20 A Yes, sir.

21 Q And isn't that a form of liver disease?

22 A No, sir.

23 Q What is it, Doctor?

24 A It's an enzymatic disease. It's genetic. This 104.

1 is all genetic related disease.

2 Q You don't think there was any industrially
3 acquired porphyria?

4 A Yes, sir.

5 Q Do you think there's such a thing as an
6 intoxication porphyria?

7 A Yes, sir.

8 Q That's not genetic, is it?

9 A No, sir.

10 Q Doctor, isn't hepatic porphyria a liver disease?

11 A No, sir.

12 Q What is it, Doctor?

13 A It's an enzymatic defect.

14 Q And associated with what organ?

15 A With the liver.

16 Q Doctor, that's what I'm talking about.

17 A If you look at that liver under a microscope
18 you won't see any damage.

19 Q Doctor, there doesn't have to be damage to
20 have a disease process associated with hepatic. What does
21 it mean when you say hepatic?

22 MR. HEINEMAN: Objection, your Honor. He just
23 made a scientific statement and did not ask the doctor
24 whether he agreed with it, or disagreed with it. I move

that it be stricken.

THE COURT: I think you'll have to include it in the question.

MR. CARR: I don't know the scientific statement that I made, your Honor.

THE COURT: Could you read back that question, please.

(Question read.)

THE COURT: Would you restate that question for me?

Q (By Mr. Carr) No. Your lawyer objected to it.

MR. HEINEMAN: The Court ordered --

MR. CARR: Well, I'll restate it.

Q (By Mr. Carr) Doctor, what is a hepatic disease?

MR. HEINEMAN: Well, objection, your Honor. That leaves out --

MR. CARR: Then read the question again to him.

(Question read.)

1 THE WITNESS: In order to have a disease, you
2 have to have some pathology associated with it. But it's
3 also true that genetic disease, such as hepatic porphyria,
4 and it is genetic, and it also can be environmentally
5 related, doesn't have to have pathology to have genetic --
6 to have an enzymatic block.

7 Q (By Mr. Carr) And it is a malfunctioning
8 liver, isn't it, sir?

9 A Yes, sir.

10 Q That's exactly what we're talking about, isn't
11 it, sir, chronic hepatic porphyria?

12 A Yes, sir.

13 Q Is a liver disease, isn't it, sir?

14 A Yes, sir.

15 Q Doctor, you said it wasn't. You understand
16 that it is, isn't it, Doctor?

17 A I was talking about pathology versus genetic
18 disease, yes, sir.

19 Q Doctor, I'm not talking about genetic disease
20 either. I'm talking about intoxication porphyria.

21 A Yes, sir.

22 Q And you do know that that can occur, don't you,
23 Doctor?

24 A Yes, sir.

1 Q And that's what they are talking about here,
2 aren't they, sir?

3 A Yes, sir.

4 Q Sir?

5 A Yes, sir.

6 Q And they say it is important that hepatic
7 function continue to be examined in further studies, don't
8 they, sir?

9 A Yes. But that's unrelated to the porphyria.

10 Q Doctor, porphyria is a hepatic toxic result, is
11 it not, or can be?

12 A Yes, sir.

13 Q Then they are talking about porphyria, path
14 to toxic effect can be porphyria, can it not, sir?

15 A Yes, sir.

16 Q Then they are talking possibly about porphyria,
17 aren't they, sir?

18 A It's possible.

19 Q And they put that table in there showing the
20 normal Copro/Uro ratio in reporting on chronic hepatic
21 porphyria.

22 A Yes, sir.

23 Q In liver disease?

24 A Yes, sir.

1 Q Aren't they, sir?

2 A Yes, sir.

3 Q And they are suggesting that this liver disease,
4 chronic hepatic porphyria, can possibly be caused by TCDD,
5 aren't they, sir?

6 A Yes, sir.

7 Q Now, Doctor, you have exhibits -- Monsanto
8 Exhibit 909 there, or does Counsel have them? Would you
9 put a Plaintiff's sticker on Monsanto Exhibit 909 please.

10
11 (Plaintiff's Exhibit 1524 was marked
12 for identification by the court reporter.)

13
14 MR. CARR: Your Honor, I'll offer into evidence
15 Plaintiff's Exhibit 1524, which has been previously marked
16 Defendant's Exhibit 909.

17 THE COURT: Any objection?

18 MR. HEINEMAN: No, we have no objection, Your
19 Honor.

20 THE COURT: So admitted.

21 MR. CARR: So that we can recognize what I'm
22 passing to the jury, would you mark this Exhibit 1524-A
23 please.

1 (Plaintiff's Exhibit 1524-A was marked
2 for identification by the court reporter.)
3

4 Q (By Mr. Carr) Doctor, handing you 1524-A, if
5 you would compare that to 1524, and acknowledge that it
6 represents certain pages taken from 1524.

7 A Yes, sir.

8 MR. CARR: I offer 1524-A as well, your Honor.
9 And permission to pass it to the jury.

10 THE COURT: Okay. It's part of an admitted
11 exhibit. You may pass it to the jury.

12 MR. HEINEMAN: Your Honor, my copy doesn't have
13 a number on the third page. Are those consecutively
14 numbered?

15 MR. CARR: I don't know, counsel. I'll compare.
16 I think they are. Yes. That's 228.

17 THE COURT: Mr. Carr, before you get into this
18 article, is this a good point for a short break?

19 MR. CARR: Sure, your Honor.

20 THE COURT: Ladies and gentlemen, we'll take a
21 short break at this time. And I would remind you that the
22 admonishments that I've given you earlier will apply during
23 this break also. The Court is in recess.

24 (Short recess.)

1 (The following proceedings were had in the
2 presence and hearing of the jury:)

3 THE COURT: Okay. Mr. Carr.

4 Q (By Mr. Carr) Doctor, before I get into that
5 exhibit I just handed you, I'd like to ask you one addition-
6 al question about the Missouri Health Study from Exhibit
7 55. Directing your attention again to Page Roman Numberal
8 IV of that Exhibit.

9 A Yes, sir.

10 Q You said that when I read the statements to
11 you that all appropriate efforts need be made to prevent
12 human exposure, you said in passing that they no longer
13 believed that. They said that in '83, but that it wasn't
14 true today. Did you not, sir?

15 A Yes, sir.

16 Q Has the Missouri Division of Health and Centers
17 for Disease Control published another study in which they
18 have retracted that statement and said that that isn't the
19 truth?

20 A CDC has.

21 Q What have they published, sir, to say that triple
22 efforts need -- do not need to be made to prevent human
23 exposure?

24 A They say if the amount of dioxin in the soil

1 is less than one -- if 2,3,7,8 tetrachlorodibenzo-para-
2 dioxin in the soil is less than one part per billion, then
3 there is no hazard.

4 Q Doctor, that Study that you're talking about,
5 the CDC statement that was published before 1983, not
6 since.

7 A I thought it was in 1984.

8 Q Doctor, the statement is contained in this
9 document that the exposure, that it's not safe to be
10 exposed to anything that's equal to or greater than one
11 part per billion.

12 A Yes, sir.

13 Q That's CDC's statement.

14 A Yes, sir.

15 Q Doctor, that statement is not the equivalent
16 to saying that appropriate efforts need to be made to
17 prevent human exposure to TCDD because of the latency period
18 of health effects --

19 A No, sir.

20 Q -- is it, sir?

21 A No, sir.

22 Q And, Doctor, this statement that I read to you
23 that health effects could occur with a latency period
24 exceeding the time from initial exposure to examination

1 in this study, for this reason all appropriate efforts
2 need to be made to prevent human exposure. That statement
3 has never been retracted or contradicted by the CDC, has
4 it, sir, or by the Missouri Division of Health?

5 A No, sir.

6 Q Thank you, sir. And when you made that earlier
7 statement, you were confused about what I was asking you,
8 I take it?

9 A No, sir. I just think it's inconsistent.

10 Q Doctor, but you didn't say that. You said
11 that they no longer believed that. You told this jury
12 that the CDC and the Missouri Division of Health no longer
13 believed that this statement was true, that efforts need
14 to be made to prevent human exposure. Now that's what
15 you told us, sir.

16 A Yes, sir.

17 Q But that statement wasn't correct, sir.

18 A I think it was correct.

19 Q Well, Doctor, you just got through saying they
20 have never contradicted or retracted this statement,
21 didn't you?

22 A That's right.

23 Q And you knew at the time you made the statement
24 that they had never contradicted or retracted that statement.

1 A Yes, sir.

2 Q You knew that, didn't you?

3 A Yes, sir.

4 Q Now, Doctor, as you remember saying that at
5 this point in time, is that an effort on your part or is
6 this accidental on your part to mislead us as to what the
7 Missouri Division of Health and the CDC has said on that
8 point?

9 MR. HEINEMAN: Objection, your Honor. The
10 witness just said that he thought the CDC paper was
11 published in 1984.

12 MR. CARR: It wouldn't make any difference if
13 it was published in 1985. The witness said that they no
14 longer believed this. The witness has read this. They're
15 talking about one part per billion greater than or less
16 than in the soil throughout this document. It uses the
17 statement --

18 THE COURT: The objection is overruled. Answer
19 the question, please, Doctor.

20 THE WITNESS: I thought it wasn't a part of
21 this.

22 Q (By Mr. Carr) Well, Doctor, that would make
23 no difference whether it was a part of this, or not a part
24 of this. You have absolutely no knowledge of any statement

1 that the Missouri Division of Health, or the CDC has ever
2 said where they retracted a statement where appropriate
3 efforts need to be made to prevent human exposure to
4 TCDD because of a possible health effects in a latency
5 period.

6 A No, sir.

7 Q Now, Doctor, was your statement that -- well,
8 nevermind. Doctor, from your viewpoint, just suppose
9 hypothetically that only one scientist has ever said
10 that there could be any possible latency period or any
11 possible harm from being exposed to 2,3,7,8 TCDD. Just
12 suppose that. We don't have the body of evidence that we
13 have, and all these studies have been going on for all
14 these years, no animal studies. Wouldn't it be wise if
15 you could avoid it, wouldn't it be wise, and wouldn't it
16 be healthy and safe to avoid exposure to 2,3,7,8 TCDD
17 wherever you could avoid it? Wouldn't that be wise?

18 A Yes, sir.

19 Q Even if there was only one person that said
20 it could be dangerous?

21 A Without other information?

22 Q Yes. Wouldn't it be wise?

23 A That's the only information you have?

24 Q Yes.

1 A Yes, sir.

2 Q Now, Doctor, directing your attention to
3 Monsanto Exhibit 909 and Plaintiff's Exhibit 1524-A,
4 which we have given you now, that is the exhibit that you
5 brought up -- by you, I mean you and Mr. Heineman -- to
6 show the source of Exhibit 1267-A, is it not, sir?

7 A Yes, sir.

8 Q And that Table is contained in this exhibit,
9 but on the last page of the exhibit I've given the jury,
10 that is Page 229, is it not, sir?

11 A Yes, sir.

12 Q You've gone through that already. But I want
13 to direct your attention to Page 227, the second --

14 A Yes, sir.

15 Q So as to bring a point in on the chloracne
16 coming with exposure and/or other effects. Do you see the
17 last paragraph on Page 227.

18 A Yes, sir.

19 Q It's that part of it dealing with Toxic Effects
20 in Humans.

21 A Yes, sir.

22 Q It discusses three scientists who were all
23 three who were self-exposed to 2,3,7,8. Do you see that,
24 sir?

1 A Yes, sir.

2 Q Now of those three, all of whom were exposed to
3 2,3,7,8 two developed chloracne eight weeks after exposure.
4 Do you see that, sir?

5 A Yes, sir.

6 Q The third one showed no evidence at all.

7 A Yes, sir.

8 Q Do you see that, sir?

9 A Yes, sir.

10 Q Now, all three of these scientists were
11 exposed, but only two came up with chloracne.

12 A Yes, sir.

13 Q And you accept that as true, don't you, sir?

14 A Yes, sir.

15 Q Doctor, if you'll go on to read there, there
16 were delayed symptoms that the document that you have
17 brought up here says were probably due to 2,3,7,8 approxi-
18 mately two years later. Do you see that, sir?

19 A Yes, sir.

20 Q The exposure in our case here was in '79.
21 If 2,3,7,8 TCDD does have a latency, and a lay period,
22 you could start seeing some results in the people of
23 Sturgeon in 1981, couldn't you, sir?

24 A Yes, sir.

1 Q And here these scientists, the second two
2 scientists, that would include the one that did not get
3 chloracne, would it not, sir --

4 A Yes, sir.

5 Q -- showed personality changes, loss of energy
6 and drive, impairment of vision, taste, and muscular
7 coordination, sleep disturbances, gastrointestinal symp-
8 toms, and hirsutism. Now the first of the three experienced
9 none of these adverse effects.

10 A Yes, sir.

11 Q Now, the first one had chloracne, but nothing
12 else, according to this paper; isn't that correct, sir?

13 A Yes, sir.

14 Q The second one had chloracne, and all these
15 other symptoms three years later -- two years later, I'm
16 sorry. So he got chloracne and everything else. The
17 third scientist had no chloracne, and all these other
18 symptoms. All these other problems two years later. Do
19 you see that, sir?

20 A Yes, sir.

21 Q Now, Doctor, isn't that strong evidence that you
22 can have exposure to 2,3,7,8 TCDD, get chloracne in some
23 persons, and some persons because of their genetic make-
24 up, not get chloracne and other persons because of their

1 genetic make-up, and in some persons get chloracne and the
2 other things too? You can get chloracne and nothing else.
3 You can get chloracne and everything else. You can get
4 no chloracne and everything else. Isn't that what this
5 shows, Doctor?

6 A No, sir.

7 Q Doctor, doesn't this -- isn't this what it
8 says, even though it may not show it to you? Doesn't it
9 say the first scientist got chloracne?

10 A Yes, sir.

11 Q But he didn't get anything else, did he, sir?

12 A Yes, sir.

13 Q The second scientist got chloracne, didn't he,
14 sir?

15 A Yes, sir.

16 Q Two years later he got all these other problems
17 as well, didn't he?

18 A Yes,

19 Q The third scientist didn't get chloracne at all,
20 did he, sir?

21 A That's right.

22 Q But two years later he got everything else,
23 didn't he, sir?

24 A Yes, sir.

1 Q Now doesn't that show, Doctor, that there can
2 be a varied response to the exposure to 2,3,7,8 TCDD?

3 A That's one possibility.

4 Q That's all I'm asking. It does show that,
5 doesn't it, sir?

6 A No, sir, it doesn't show that.

7 Q Doctor, are there any words that I've left out
8 here that these scientists put in there?

9 A No, sir.

10 Q Have I read it fairly?

11 A Yes, sir.

12 Q And have I interpreted fairly? These
13 scientists all three have these kind of findings, didn't
14 they, sir?

15 A Yes, sir.

16 Q And doesn't it then show that there can be
17 varied effects to exposure to dioxin, to 2,3,7,8 TCDD?

18 A Depending on the dose.

19 Q Well, Doctor, they had, according to this
20 document, they all were working with the same stuff.
21 They're not talking about dose, are they, sir? You see
22 nothing in here that says it depends on the dose. Do you
23 see that? Did I misread that?

24 A No, sir. No, sir.

1 Q I didn't leave that out, did I, sir?

2 A No, sir.

3 Q They don't say anything about this depending
4 on the dose, do they, sir?

5 A They don't even discuss the dose.

6 Q That's exactly correct.

7 A That's right.

8 Q They don't discuss the dose, do they, sir?

9 A No, sir.

10 Q This shows by itself, without any other
11 evidence, without any other knowledge, on the face of
12 this, it shows that you can indeed have varied responses
13 to exposure to dioxin, doesn't it, sir?

14 A Yes, sir.

15 Q And, Doctor, the man that got everything else,
16 but not chloracne, now according to your earlier hypothesis,
17 if he doesn't get chloracne, he's not going to get
18 anything else. Do you recall that being your testimony?

19 A Yes, sir.

20 Q Now, this man didn't get chloracne, did he,
21 sir?

22 A No, sir.

23 Q But he did get everything else, didn't he?

24 A He got the same as the other men, yes, sir.

1 Q Doesn't that indicate, Doctor, that you can
2 get everything else without getting chloracne?

3 A Yes, sir.

4 Q Thank you, Doctor. Now, Doctor, this article
5 also in the table on Page 229, it has certain citations
6 there, references for the findings on this table, doesn't
7 it, sir?

8 A Yes, sir.

9 Q All right. And it goes through -- talks about
10 all the possible places that people can get exposure to
11 dioxin, doesn't it, sir?

12 A Yes, sir.

13 Q And it talks about in the second column there
14 that a potential source of human exposure has been
15 another, an additional potential source of human exposure
16 has been revealed, beef fat taken from cattle raised on
17 what kind of treated grain, Doctor? 2,4,5-T, isn't it,
18 sir?

19 A Yes, sir.

20 Q And, Doctor, the women living in these areas
21 had breast milk samples that contained one part per
22 trillion of 2,3,7,8, didn't they, sir?

23 A Yes, sir.

24 Q And the Yusho Study that is also -- that I

1 mentioned earlier -- also discussed in this column, isn't
2 it, sir?

3 A Yes, sir.

4 Q Twelve hundred percent in Japan were contami-
5 nated with this thing that contains -- I don't know
6 whether it mentions -- it mentions 2,3,7,8 tetrachlori-
7 nated dibenzofurans, but it does not mention 2,3,7,8
8 TCDD, does it, sir?

9 A No, sir.

10 Q Doctor, one citation it makes under the -- in
11 the Table for porphyria cutanea tarda deals with the
12 industrially acquired porphyria. Could you turn to the --
13 you have the complete exhibit, and look at Citation 27,
14 the porphyria citation.

15 A Yes, sir.

16 Q And 27 is the Bleiberg Article on Industrially
17 Acquired porphyria?

18 A Yes, sir.

19 Q Do you recognize that as being Plaintiff's
20 Exhibit 1445, which we discussed?

21 A Yes, sir.

22 Q Sir?

23 A Yes, sir.

24 Q And 1445 is a discussion of the people who were

1 exposed to 2,4,5-T and 2,4,5-trichlorophenol, and only
2 part of them got acne, chloracne, whereas a large number
3 got porphyria. Do you recall that, sir?

4 A Yes, sir.

5 Q And that again indicates that you can have an
6 effect other than chloracne from dioxin exposure, doesn't
7 it, sir?

8 A No, sir.

9 Q Doctor, if it doesn't show it, didn't you just
10 say that it does show that you can get other things without
11 getting chloracne?

12 A Yes, sir.

13 Q Then you do agree that it does show that you
14 can get other things without getting chloracne, don't
15 you, sir?

16 A Are you talking about --

17 MR. HEINEMAN: I'm confused, your Honor. Let
18 me object to the form of the question. What are we
19 talking about, the Bleiberg Article?

20 MR. CARR: This article, 1445.

21 THE WITNESS: What's that?

22 THE COURT: Objection -- I don't think it was
23 confusing. The objection was overruled. You may continue
24 with your question.

1 THE WITNESS: I'm sorry, would you repeat the
2 question now.

3 Q (By Mr. Carr) The article by Bleiberg referred
4 to in the Huff article called Industrially Acquired
5 Porphyria --

6 A Yes, sir.

7 Q -- demonstrates, according to that article,
8 that you can get porphyria without getting chloracne,
9 doesn't it, sir?

10 A Yes, sir.

11 Q Yes. Now, Doctor, do you recall the article,
12 the Dunigan article, written by Dunigan, that Mr. Heineman
13 asked you about?

14 A Yes, sir.

15 Q Monsanto Exhibit 914. That article, Dr. Roush,
16 was not an article dealing with an investigation conducted
17 by the dermatologist Dunigan on his own. What it was,
18 was it not, simply a review article of works and investi-
19 gations done by others?

20 A Yes, sir.

21 Q And in that, Dunigan gave his interpretation
22 of these articles, did he not, sir?

23 A Yes, sir.

24 Q And all he really did was just review these

1 other articles, that contained nothing new, did it, sir?

2 A No, sir.

3 Q And it doesn't show that Dunigan himself ever
4 saw a person exposed to dioxin or ever treated a person
5 exposed to dioxin, does it, sir?

6 A No, sir.

7 Q And different people can interpret the articles
8 that he reviewed in different ways, can they not, sir?

9 A Yes, sir.

10 Q Now, Doctor, I'd like to direct your attention
11 to the Moses-Selikoff Table, if I might. The article
12 if I might, which is Monsanto Exhibit 908. Do you have
13 it, sir?

14 A No, sir. Thank you.

15 Q Now, Doctor, this work that is now called
16 Moses -- this was work that was originally done by Dr.
17 Selikoff, was it not, sir?

18 A I don't think he participated in the study.

19 Q Doctor, you at Monsanto knew that Dr. Selikoff
20 was retained by the Union to do this work, and did this
21 work, and Dr. Moses came in later when Dr. Selikoff was
22 getting ready to retire, and it was referred to in a
23 number of documents in your possession with your signature
24 on it, talking about the Selikoff Study.

1 A Yes, sir.

2 Q Don't you recall that, sir?

3 A Yes, sir.

4 Q And he did participate in it, did he not, sir?

5 A I don't think he participated in the examination
6 at all.

7 Q Doctor, I didn't ask you about the examination.
8 We're talking about the study. You said he didn't parti-
9 cipate in the study.

10 A He was there and got it started.

11 Q And as a matter of fact, he is given -- he's
12 one of the authors of this study, isn't he, sir?

13 A Yes, sir.

14 Q So why would you tell us he didn't participate
15 when it's on the face of it when he did?

16 A Because I didn't think he participated in it.

17 Q Doctor, you had all the documents. I've seen
18 dozens of documents, press releases, everthing else, where
19 you are referring to the Selikoff Study. It was never
20 even called the Moses Study until it got published. You
21 know that, don't you, sir?

22 A Yes, sir. Yes, sir.

23 Q Why do you tell us then that you don't think
24 he even participated when you had all these documents in

1 your files that refer to it as the Selikoff Study? I
2 don't comprehend that, Doctor. I don't understand your
3 reasoning.

4 A I didn't think he participated once the study
5 got started. He was responsible -- the Union came to him
6 and asked him if he would do the study, and he agreed to
7 do it. So he got the study started and let Moses do the
8 work then.

9 Q And he participated throughout writing the
10 document and everything else, didn't he, Doctor?

11 A I don't know.

12 Q Doctor, is he listed as an author of it?

13 A Yes, sir.

14 Q All that aside, Doctor, it's really got nothing
15 to do with the question I want to ask you. But this
16 study that has come out here --

17 A Yes, sir.

18 Q -- and that Mr. Heineman asked you about, it
19 does show, does it not, that there can be possible changes
20 in enzymes that can persist for at least ten years after
21 the exposure to the TCDD?

22 A Yes, sir.

23 Q Now that's an important finding, a very impor-
24 tant finding in this study, isn't it, sir?

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A Yes, sir.

Q Because enzymes are very important in how our body operates.

A Yes, sir.

Q And Dr. Moses-Selikoff found that for as long -- and that was -- they were still finding these enzymes abnormalities ten years after the exposure to TCDD, weren't they, sir?

A Yes, sir.

Q And, Doctor, there was an additional thing that they did, they put a table out on cancer deaths, didn't they, sir?

A Yes, sir.

Q Now how many -- now to put this in frame of reference, they did not have access to the records at Monsanto, did they, sir, when they made their study?

A No, I don't think so.

Q Well, you testified here earlier, Doctor, if I can refresh your memory that Monsanto did not cooperate with them, and did not give them any of the Monsanto records. Do you recall that, sir?

A We didn't cooperate completely with him. So I am not sure what they meant.

Q You didn't cooperate with him at all. You

1 didn't cooperate with him in any way, did you, sir? You
2 were antagonistic to this study, weren't you, sir?

3 A Yes, sir.

4 Q Yes. Now, Doctor, notwithstanding your
5 antagonism to this study, they were, in fact, able to do
6 a cancer death study, weren't they, sir?

7 A Not a death study.

8 Q Oh, I'm sorry. They were able to do a cancer
9 study. They did not do a mortality study.

10 A Yes, sir.

11 Q They were able to do a cancer study?

12 A Yes, sir.

13 Q And, Doctor, they published the table on what
14 they found so far as cancer was concerned, didn't they?

15 A Yes, sir.

16 Q And it's in this report, isn't it?

17 A Yes, sir.

18 Q Would you mark this an exhibit?

19
20 (Plaintiff's Exhibit 1525 was marked
21 for identification by the court reporter.)
22

23 Q (By Mr. Carr) Handing you now what's been
24 marked Plaintiff's Exhibit 1525, I'll ask you if that is

1 Page 172 of the Moses Study?

2 A Yes, sir.

3 MR. CARR: I offer that page into evidence, if
4 it please the Court.

5 MR. HEINEMAN: Your Honor, excuse me. Has 908
6 been admitted in total?

7 THE COURT: Let me check.

8 MR. CARR: I think it has been by agreement of
9 both parties.

10 MR. HEINEMAN: I thought I recalled that, but
11 I wasn't sure.

12 THE COURT: Right, it has been.

13 MR. HEINEMAN: All right.

14 THE COURT: Do you have any objection to this?

15 MR. HEINEMAN: To this page? No, your Honor.

16 THE COURT: Thank you.

17 MR. HEINEMAN: What's the number on it?

18 THE COURT: 1525.

19 MR. HEINEMAN: Thank you.

20 THE COURT: You're welcome. It's admitted by
21 agreement.

22 Q (By Mr. Carr) Doctor, how many cancers does it
23 report?

24 A Fifteen.

Q Doctor --

A I can't make out this. Let's see.

Q Doctor, you've read this article.

A Yes, sir.

Q And you've had it on your desk for over a year, a year. It reports on 30 cancers, doesn't it, sir?

A It reports on 30 cancers.

Q Sir?

A Two rows. There's 30 cancers.

Q Yes, indeed, Doctor. And, Doctor, do you see the Table there that he reported on people that had more than one cancer.

A Yes, sir.

Q And you can see the Subject Number 25, one subject had both leukemia and prostate cancer, didn't he, sir?

A Yes, sir.

Q Does that ring a bell with you, sir?

A Yes, sir.

Q Do you recall that Suskind did not report on the leukemia and prostate cancer, did he, sir?

A No, sir.

Q And Suskind had the access to all this information and it was reported to him on the leukemia and

prostate cancer, did he, sir?

A No, sir.

Q And Suskind had the access to all this information and it was reported to him on the leukemia and the prostate, wasn't it, sir?

A Yes, sir.

Q And, Doctor, it was easy for Moses to identify the ones with multiple cancers, wasn't it, sir?

A Yes, sir.

Q But Dr. Suskind omitted those multiple cancers, didn't he, sir?

A It's a different way of reporting.

Q Could you answer my question, Doctor.

A Yes, sir.

Q Now, Doctor, Moses points out clearly and concisely in this article that there's no such thing as an unexposed worker in that plant, doesn't she?

A No, sir.

Q Turn to Page 170 of the article, Doctor. She puts it in italics, doesn't she? "It is recognized that those without chloracné, but with appropriate work-exposure history, might also have had TCDD exposure and were not therefore "unexposed controls."

A Yes, sir.

Q So she points that out, doesn't she, sir?

A Yes, sir. But I think she says there's a no-exposed group in that plant.

Q I'm sorry?

A She also says there's a no-exposed group in that population.

Q No. What she shows is that there's a no-chloracne group, and she has even -- well, I take that back. She has a table there, the table that you denied the validity of, there were people that had no exposure according to that table, and yet three percent of those people had chloracne, didn't they, sir?

A Yes, sir.

Q And you equate chloracne with exposure, don't you, sir?

A Yes, sir.

Q So in all of those groups in the people that as far as they know they were never exposed all the way down to the heavy exposure, exposure, there's chloracne in everybody, isn't there?

A Yes, sir.

Q And that indicates that, in fact, these people with no exposure, according to your theory, they had enough -- they had a heavy dose of exposure, enough to

cause chloracne, didn't they, sir?

A No, sir.

Q Oh, no? Doctor, chloracne is caused by exposure to dioxin, isn't it, sir?

A Yes, sir.

Q Sir?

A Yes, sir.

Q And three percent of these people had chloracne, didn't they, sir?

A Yes, sir.

Q When they said they had no exposure.

A Yes, sir.

Q And they had to have, in fact, a heavy exposure to cause chloracne, didn't they, sir?

A Yes, sir.

Q So they had a heavy exposure --

A Yes, sir.

Q -- to it. Now where did they get that, Doctor?

To their knowledge they had no exposure at all, to 2,3,7,8 TCDD.

A Yes, sir.

Q Where did they get it?

A She said they had no recall. Their recall was bad.

Q Where does she say that, Doctor?

A Where she classifies them.

Q Where does she say the recall is bad? Where does she say their recall was bad?

A Where she classifies that chart.

MR. HEINEMAN: I'm sure it's on Page 171, Doctor.

THE WITNESS: It says that if the latter figures used to request --

Q (By Mr. Carr) Where? Would you point it out to me, Doctor?

A Yes, sir. On Page 171.

Q And what place?

A In the first, second, third -- fourth paragraph in the middle of it. It says, "If the latter figure is used to question the sensitivity of chloracne as an exposure indicator, the 36 percent prevalence of chloracne among those classified as having minimal exposure underlines the limitations of reliance on recall in assessment of exposure." You can't use their recall as a basis for saying they're exposed or not exposed.

Q Well, Doctor, what it means is you can't use the chloracne as the evidence of amount of exposure.

The whole thrust of the table is you can be working right

1 next to one another. That's the reason you wouldn't
2 agree that 24 percent of the people could have heavy
3 exposure and yet not get chloracne. The whole thrust
4 of it, Doctor, is that you can get chloracne with very
5 little exposure, and you can not get chloracne with very
6 heavy exposure.

7 A No, sir.

8 Q You don't agree that that table shows that?

9 A No, sir. That's what it says just the opposite.
10 They start out by saying it can also be seen that 36 of
11 those classified not -- not defined as being exposed, as
12 having minimal exposure, had a history of chloracne. What
13 they're saying is you can't tell by history how much
14 exposure they've had. And you have to use -- the reason
15 they went to using chloracne as a measure of exposure
16 because they couldn't measure what their exposure was.

17 Q Now, Doctor, isn't the other thing more likely,
18 and haven't we seen it demonstrated? We know in the
19 case of the three scientists that these people had the
20 same exposure.

21 A No, sir.

22 Q We don't know that?

23 A No, sir. There's no way you can tell --

24 Q Where in do you get from the article they had

different exposure?

A Because that's the most logical explanation for the difference.

Q Doctor, what you're doing again is you're making a deduction from everything goes back to your thesis of chloracne. So all of these people, where the 24 percent say they had a heavy exposure, and didn't get chloracne, you're saying they've got bad memory?

A No, sir.

Q Where these 49 percent had moderate exposure and didn't get chloracne, you say they got bad memory?

A No, sir. No, sir. No, sir.

Q Then you're saying they had no exposure then.

A Yes, sir.

Q They said they had a moderate exposure.

A Yes, sir.

Q So they're either lying or they've got a bad memory, one of the two.

A No, sir.

Q Well, which is it, Doctor?

A They can also have a different -- two men doing the same jobs can have a difference of exposure in multiples of difference and levels of exposure, doing the same job. And one man who is assigned to the plant,

1 and he has to go out and take samples, and the other man
2 sits in the control room all the time, or another man has
3 to go up and clean up a spill --

4 Q Doctor, they're not doing the same job then, are
5 they, sir? They're doing different jobs. They have
6 different job assignments, don't they, sir?

7 A Yes, sir.

8 Q If they're doing those things.

9 A Yes, sir, but --

10 Q If two men were working in the bagging depart-
11 ment, they have the same exposure, don't they, sir?

12 A If they both bag. But if they don't both bag,
13 they don't have the same.

14 Q Doctor, what you're saying is these men either
15 are not intelligent human beings and can't recognize if
16 they're being exposed, or not being exposed, and you're
17 saying that as far as the scientists are concerned,
18 these scientists are concerned, these scientists are not
19 intelligent human beings, they don't know that they had
20 exposure. You're saying that all of these people here
21 just simply don't know the score and you do.

22 A No, sir. All I'm saying is that those work
23 all the time.

24 Q Doctor, you're saying it works all the time,

1 only because of your thesis that chloracne is a result
2 of heavy exposure and automatically if you've got a heavy
3 exposure you're going to get chloracne. That's the only
4 reason you say it works everytime. It's not based on any-
5 thing except that, isn't that correct?

6 A It's based on all --

7 Q Doctor, what else is it based upon?

8 MR. HEINEMAN: Objection. He cut him off and
9 won't let him answer.. He asked him a question and then he
10 won't let him answer it. He cuts him off.

11 THE COURT: Doctor, you may answer the question.

12 THE WITNESS: Pardon?

13 THE COURT: Answer the question.

14 THE WITNESS: There have been at least ten
15 episodes of accidental exposure in the workplace as well
16 as chronic exposure in the workplace in which it's been
17 demonstrated that people who will be exposed to this
18 material, if the exposure goes up, their chloracne goes
19 up. Now -- and if the exposure is high enough, as in
20 the case of our episode in 1949, those who get chloracne,
21 some of those who have chloracne, and only those who've
22 got bad chloracne do they get other effects.

23 Q (By Mr. Carr) Now, Doctor, you're changing
24 the subject again. But what you said was that when those

1 people have chloracne, and get more exposure, they get
2 more chloracne. Doctor, all that proves is is that
3 if you are susceptible to chloracne, if you are one of
4 those persons that get chloracne, when you're exposed to
5 more dioxin, you get more chloracne.

6 A No, sir.

7 Q Doctor, where in have you ever seen a study
8 that has shown that everybody that was exposed to dioxin
9 got chloracne?

10 A No, sir, I don't know that.

11 Q Yes. Now, Doctor, the findings of Moses-
12 Selikoff Study which relates to exposure, you know that
13 the exposure for all of your people that have these
14 cancers, you know that one way or another all of the
15 people were exposed to dioxin. You know that, don't you,
16 sir? Simply because they worked in that plant.

17 A No, sir.

18 Q Doctor, do you recall in 1982 people in
19 Czechoslovakia wanting some information from Monsanto
20 in which they wanted to know a history about the 2,4,5-T
21 production, where it was produced in the plant? Well,
22 you probably don't. Mark this as an exhibit.

1 recognize that as work that was required to do after
2 the EPA found dioxin in the Nitro Plant in 1984.

3 A Yes, sir. Yes, sir.

4 Q Doctor -- I offer 1527, your Honor, into
5 evidence.

6 THE COURT: Any objection to that?

7 MR. HEINEMAN: Well, your Honor, it's a
8 proposed response. Does it say the EPA demanded anything?
9 It doesn't say this was actually sent to the EPA. I
10 object to it for lack of foundation.

11 MR. CARR: I'm not offering it for the
12 purpose of showing any EPA, I'm offering it to show where
13 the contaminated soil was according to Monsanto, and for
14 the map of the charter plant that's attached thereto, and
15 illustrate to the jury just where this TCDD was, and
16 where the work went on.

17 MR. HEINEMAN: Well, your Honor, Mr. Carr has
18 now said three times in a question that the EPA ordered
19 this to be done. I haven't seen a document yet that he's
20 presented that establishes that. So I object to this on
21 lack of foundation.

22 MR. CARR: Well, let me withdraw the words
23 "order," and put it in the framework of request.

24 THE COURT: It's admitted over objection. You 143

1 may proceed.

2 MR. HEINEMAN: May I ask what's being passed
3 to the jury, your Honor.

4 MR. CARR: The last page, Counsel. It should
5 be marked 1527-A.

6
7 (Plaintiff's Exhibits 1527-A and 1527-B were
8 marked for identification by the court
9 reporter.)

10
11 Q (By Mr. Carr) Doctor, do you recognize 1527-A
12 as the last page of 1527?

13 A Yes, sir.

14 Q And Do you recognize 1527-B as a blow-up of
15 1527-A?

16 A Yes, sir.

17 MR. CARR: I offer these two exhibits, if it
18 please the Court.

19 THE COURT: I'll incorporate your prior
20 objections. They're admitted over objection.

21 MR. HEINEMAN: Thank you, your Honor. What
22 about B now? I'm sorry. That's a blow-up of A?

23 MR. CARR: A blow-up of A.

24 Q (By Mr. Carr) Now, Doctor, by reading these

1 two documents together, we can find out just where the
2 2,4,5-trichlorophenol acetic acid was produced at the
3 Nitro Plant, can we not, sir?

4 A I don't know that. But you may be right.

5 Q Well, if you'll look at the 1526, the third
6 page of it, it says "Details of 2,4,5-trichlorophenoxy-
7 acetic acid Production at the Nitro Plant." Do you see
8 that, sir?

9 A Yes, sir.

10 Q And it says, first of all, that when it was
11 started it was actually started to introduce in 1946,
12 wasn't it, sir?

13 A On an experimental basis, yes, sir.

14 Q To see whether or not you could do it, see
15 whether or not it would be worthwhile to do it?

16 A I'm sure that's right.

17 Q In 1946 is when it was started. And you
18 started plant production in October of 1948.

19 A Yes, sir.

20 Q Now, Doctor, it started out the pilot plant
21 at Building 32. Now where is Building 32, sir?

22 A I can't read it on mine. Some are kind of
23 smeared.

24 Q Well, I'll concede I can't read it either. So 145

1 we'll have to forget about Building 32. They started
2 it in B-41. We know where B-41 is, don't we, sir?

3 A Yes, sir.

4 Q I'll put a circle around it right here; correct,
5 sir?

6 A Yes, sir.

7 Q That's B-41. And then they transferred it by
8 pipeline to B-34. And B-34 is -- I had it a moment ago --
9 it's right here below it, isn't it, sir?

10 A Yes, sir.

11 Q And from there it went to B-46.

12 A I think --

13 Q B-46 is right here, is it not, sir?

14 A Yes, sir. I think that's a 4.

15 Q And from there it went to drier trays in B-21,
16 and I had 21 located once upon a time, I thought. But I
17 don't see it now. But I do see it went to Building 16
18 and B-79. B-79 we see as way up here. Don't we, sir?
19 Do you see that, sir?

20 A Yes, sir.

21 Q And then it was taken over to B -- back to
22 B-34, which we previously identified as down here.
23 Correct, sir?

24 A Yes, sir.

Q So there is two buildings, three buildings we can't find. B-21, B-46, and B-16; isn't that right, sir?

A I think that's right.

MR. HEINEMAN: I thought we found 46.

MR. CARR: Yes, we do have. I've missed it.

Q (By Mr. Carr) Now these are all streets between these various places, aren't they, sir?

A Yes, sir.

Q And how did they get the material from B-34 to B-79? By truck, or automobile, or railroad? These are railroad lines here, are they not, sir?

A Yes, sir. They wouldn't use rail line for that.

Q I don't think they would either. Well, Doctor, the chart also shows the areas where they found dioxin contamination in 1983.

A Yes, sir.

Q Sir?

A Yes, sir.

Q And if you recall, I referred earlier to the section of the rear fence in the south part of the plant.

A Yes, sir.

Q Let's see. We've got some more buildings to find, first of all. We've got B-51 to find, and B-30 --

1 we found B-34, B-92. Oh, I got the Building 16 that I
2 missed before. That's right here as well. Isn't it, sir?

3 A It looks like a 14 to me.

4 Q It looks like a 16 on mine. Oh, I got 91 too.
5 Or was it 92 that I'm looking for?

6 A 92.

7 Q I'm looking for 92. 91 is here. Doctor, what
8 this chart shows, even without locating these other
9 buildings, is that there was an area of contamination
10 requiring these areas to be paved, some areas to be
11 covered with crushed limestone, some areas to be excavated.

12 A Yes, sir. I'm not sure it was required. But
13 it was initiated. But that's what was planned to do
14 anyway.

15 Q And the area that had to be excavated is right
16 down there at the south area. Do you see that, sir?

17 A Yes, sir.

18 Q It would be right here, would it not?

19 A Yes, sir.

20 Q And this other area here is to be either paved
21 or covered with crushed limestone, all the vacant places
22 between those buildings; isn't that correct, sir?

23 A Yes, sir. Most of that was limestone originally.

24 Q It may have been. But it got contaminated, so 148

1 they needed to cover the limestone that was there because
2 it says area to be covered with crushed limestone,
3 doesn't it, Doctor?

4 A Yes, sir.

5 Q Now, Doctor, the areas where this work is to
6 be done, is all outside, is it not, sir?

7 A Yes, sir.

8 Q And that would indicate, would it not, sir,
9 that dioxin was found in those areas?

10 A Yes, sir.

11 Q And, Doctor, you know that dioxin was found in
12 Building 79 from the wipe samples, you know that, don't
13 you?

14 A Yes, sir.

15 Q And Building 79 is still being used, isn't it,
16 sir?

17 A Yes, sir, I think so.

18 Q What are they doing in 79?

19 A I don't recall.

20 Q I don't intent to make all of the report an
21 exhibit. I'm going to make a part of the Building 79
22 report an exhibit. Counsel can see the entire amount if
23 he wants, the entire file.

1 (Plaintiff's Exhibit 1528 was marked
2 for identification by the court reporter.)

3 Q (By Mr. Carr) Handing you now Exhibit 1528,
4 and ask you if you recognize that as the analysis of wipe
5 samples, but without the nanograms. Counsel, let me show
6 you the entire exhibit, if you want the nanograms.
7 That's here. It's everything up to the nanograms. I
8 offer this exhibit, your Honor.

9 THE COURT: Any objection to 1528?

10 MR. HEINEMAN: Your Honor, may Counsel
11 approach the bench for a moment?

12 THE COURT: Sure.

13 (The following proceedings were had at the bench
14 out of the hearing of the jury:)

15 MR. HEINEMAN: Long ago in this case we approach-
16 ed this subject of the relevancy of the Nitro incident,
17 the Nitro people, the 2,4,5-T, and all of that, and its
18 relevancy in the case. We objected to it at that time.

19 THE COURT: Oh, sure, a long time ago.

20 MR. HEINEMAN: And the Court overruled.

21 THE COURT: Right.

22 MR. HEINEMAN: I assume that I don't have to
23 keep making that objection.

24 THE COURT: Oh, no. It was made as a continuing

1 objection.

2 MR. HEINEMAN: We have an objection to every-
3 thing related to Nitro.

4 THE COURT: I believe it was. That's my
5 knowledge.

6 MR. CARR: That's fine with me.

7 THE COURT: I've been treating it as such.

8 MR. HEINEMAN: Fine. I just assumed that I
9 didn't have to keep making that same objection.

10 THE COURT: Not at all.

11 MR. HEINEMAN: With respect to everything
12 relating to Nitro.

13 THE COURT: No, not at all.

14 MR. HEINEMAN: Thank you.

15 (The following proceedings were had in the
16 presence and hearing of the jury:)

17 THE COURT: Do you have any objection to 1528?

18 MR. HEINEMAN: No other objection, your Honor.

19 THE COURT: Fine. It's admitted.

20 Q (By Mr. Carr) Doctor, if you'll turn to Table
21 1-A, which is the page that has number C11280 in the
22 right-hand corner.

23 A Yes, sir.

24 Q You'll see that they took sweepings from the

1 dry end of the east door from a screen.

2 A Yes, sir.

3 Q From a screen boxtop, and the base of the
4 stairs, and the middle section of the south door, middle
5 section of the northwest corner in the dust collector,
6 from a stacker, from all kinds of places around that
7 building, didn't they, sir?

8 A Does it say which building?

9 Q Building 79-

10 MR. HEINEMAN: Where does it say that?

11 MR. CARR: If you'll look at the bottom of the
12 page numbered C11278, one sample B-79. If you will look
13 at the second to last page of the exhibit that I've given
14 you, you'll see B-79, B-79, all of those things are
15 described as B-79. The analysis requests. Do you see
16 that, Counsel?

17 THE WITNESS: I see it on that page, and on the
18 other page. But I don't see it on Table 1-A.

19 MR. CARR: Do you see the same thing being
20 described there, don't you, Counsel? This all deals with
21 wipe samples in B-79, Building 79.

22 MR. HEINEMAN: Some of them look the same.

23 MR. CARR: They're all the same exhibit. You
24 do see those references to Building 79 in this exhibit,

1 don't you, Dr. Roush? If you'll turn to the analysis
2 request, you see all the 16 samples taken, all referring
3 to Building 79, isn't it, Dr. Roush?

4 A Yes, sir.

5 Q (By Mr. Carr) Now, Doctor, referring to the
6 findings, they find that these various places from these
7 sweepings, 4.68 parts per billion, 15.55 parts per
8 billion, 1.99 parts per billion, 3.87 parts per billion,
9 8.24 parts per billion, 13.56 parts per billion, 12.51
10 parts per billion, 97.74 parts per billion, 6.72 parts per
11 billion, 3.05 parts per billion, and 11.82 parts per
12 billion. Do you not see that, sir?

13 A Yes, sir.

14 MR. HEINEMAN: Which page are you talking
15 about?

16 MR. CARR: Table 1-A, Counsel.

17 MR. HEINEMAN: Where's the 11.82?

18 MR. CARR: On the next page. Table 1-A
19 continues.

20 MR. HEINEMAN: And four non-detected, correct?

21 MR. CARR: I'm interested, Counsel, in showing
22 the TCDD that was there to expose the people in Building
23 79. These sweepings were taken in 1984. Thirteen years--

24 MR. HEINEMAN: You weren't interested in showing

1 the TCDD that was not there.

2 MR. CARR: Of course not, Counsel. What I'm
3 interested in doing is showing that these people were
4 exposed to TCDD, so why would I care about showing where
5 it's not there? I'm proving an affirmative, Counsel, not
6 a negative.

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

8 MR. CARR: Thank you, your Honor.

9 Q (By Mr. Carr) Doctor, you see that all that
10 dioxin detected in the sweepings in all parts of this
11 building, do you not, sir?

12 A Yes, sir.

13 Q Everyplace they look, there's one, two, three,
14 four exceptions, they found dioxin, didn't they, sir?

15 A Yes, sir.

16 Q And whoever was in those buildings from the
17 time they started using it in 1948, or up until 1984 was
18 exposed to the dioxin in that building, were they not, sir?

19 MR. HEINEMAN: Objection, your Honor. It
20 assumes that Building 79 was in existence all that time.
21 I don't think that's been established. I don't know if this
22 witness even knows.

23 THE COURT: Objection is overruled.

24 Q (By Mr. Carr) Isn't that correct, Doctor?

1 A I'm not sure how long Building 79 was there.

2 Q Whatever time it was there, Doctor, the people
3 working in that building up to September 1984 at least
4 were exposed to the dioxin there, weren't they?

5 A Yes, sir.

6 Q Sir?

7 A Yes, sir.

8 Q That wasn't just in the corners, it was all over
9 the building, wasn't it, sir? There were only four places
10 they looked where they didn't find it. They found it
11 everywhere, didn't they, Doctor?

12 A No, sir.

13 Q Everywhere -- well, where didn't they find it?
14 Read the four -- four places where they didn't find it.

15 A They were trying to look and find it.

16 Q Excuse me, Doctor, they took samples from all
17 16 places and they didn't find it in only four of the 16;
18 isn't that correct, sir?

19 A Yes, sir. Yes, sir.

20 Q And the people that were in that -- that were in
21 that building all during the time it was being used to
22 manufacture 2,4,5-T, and thereafter, whatever purpose it
23 might have been put to, were exposed to the TCDD in that
24 building, were they not, sir?

1 A I don't know what you mean by exposed.

2 Q Doctor, you do know what I mean by exposed.
3 You know exactly what I mean by exposed. An opportunity
4 for the dioxin to get on them, be ingested, inhaled, come
5 through their skin, however. You know there was an
6 opportunity for the dioxin to get in them and poison them.
7 That's what I mean by exposed.

8 A There was an opportunity for exposure.

9 MR. CARR: Your Honor, I'm after 4:00, and it
10 is Friday.

11 THE COURT: Okay. Ladies and gentlemen, we'll
12 break for the day at this point in time. We'll resume
13 again at 9:00 Monday. I would remind you, since this is
14 an over night break, besides your regular admonishments,
15 that you're not to read, listen to, or watch anything
16 about this case in particular, or the subject matter in
17 general in any of the media. Thank you for your attention
18 and cooperation and patience this week. We'll see you
19 Monday.

20 Court is adjourned. Have a good weekend.

21 (Court adjourned.)
22
23
24

1 STATE OF ILLINOIS)
2 TWENTIETH JUDICIAL CIRCUIT) SS.
3 COUNTY OF ST. CLAIR)
4

5 I, Kathleen Watson Brunsmann, one of the
6 Official Court Reporters, do hereby certify that the
7 foregoing transcript is a true and correct copy of said
8 proceedings.
9

10 DATED: August 2, 1985.
11

12 *Kathleen Watson Brunsmann*
13 Kathleen Watson Brunsmann, CSR, RPR
14 Official Court Reporter
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1 STATE OF ILLINOIS

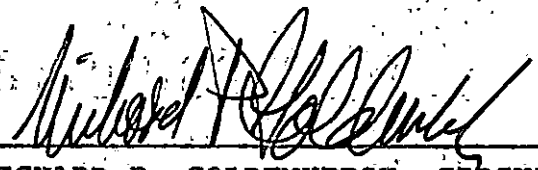
2 TWENTIETH JUDICIAL CIRCUIT

SS.

3 COUNTY OF ST. CLAIR

4
5 I, RICHARD P. GOLDENHERSH, Circuit Judge, do hereby
6 certify that the foregoing transcript is a true and correct
7 copy of said transcript.

8
9
10 DATED: _____

11
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13 
14 RICHARD P. GOLDENHERSH, CIRCUIT JUDGE

1 not a small fraction, is it, sir? It's a major fraction
2 and just about as big as you can get, is it not, sir?

3 A If we base it on what he said here.

4 Q Yes. If you base it on the knowledge that you
5 had, if this exhibit correctly states the facts. And by
6 this exhibit, I mean 1142 correctly states the facts, and
7 the extent of Monsanto's knowledge at that time; isn't
8 that correct, sir?

9 A Yes, sir.

10 Q And you do know that subsequently you had this
11 material examined by Rappe of Sweden, and that he said that
12 there was 45 parts per billion of 2,3,7,8 TCDD. You do
13 recall that, don't you, sir?

14 A No, sir, I don't recall that. I recall the
15 memo that you're referring to, or the letter. I recall
16 the numbers.

17 Q Well, do you know that Monsanto sent it to
18 Professor Christopher Rappe for analysis?

19 A Yes, sir.

20 Q Do you know that Professor Christopher Rappe
21 analyzed it?

22 A Yes, sir.

23 Q And do you know that he reported to Monsanto
24 that it was 45 parts per billion 2,3,7,8 TCDD?

1 A It's not the way I recall it.

2 Q How do you recall it, sir?

3 A There are a number of -- as I recall, there are
4 a number of analyses that were done on that sample, and
5 there were two of them at 45 parts per billion, and one of
6 them was supposed to have been spiked, so that the one
7 spiked and without the spiked both came out at 45 parts per
8 billion. And the reason they spiked it, so they can tell
9 it --

10 Q Excuse me. Dr. Roush, did Professor Rappe tell
11 you that?

12 A No, sir. That's the way --

13 Q Did you read Professor Rappe's evidence deposi-
14 tion that was taken in this case?

15 A No, sir.

16 Q Did anybody tell you what Professor Rappe swore
17 to under oath?

18 A No, sir. No, sir.

19 Q Then what you're giving us is what Mr. Heineman
20 or somebody that way told you?

21 A I can't -- I read it, and I discussed it, and I
22 can't tell which I'm reflecting now.

23 Q You can't tell whether you're reflecting what
24 Mr. Heineman told you --

1 A No, sir.

2 Q -- or what you read?

3 A I can't be sure unless I saw it again.

4 Q Well, you do know now that Professor Rappe
5 testified in this case?

6 A Yes, sir.

7 Q And he analyzed the sample and that it was 45
8 parts per billion 2,3,7,8, and you do know that your Counsel
9 has admitted to this jury that there was 2,3,7,8 TCDD in
10 the tank car? You know that, don't you, sir?

11 A Yes, sir.

12 Q All right. Now -- and you know Plaintiff's
13 Exhibit 188, a Rappe Exhibit, shows that this tank car had
14 45 parts per billion 2,3,7,8 TCDD in it; do you know that
15 too?

16 A No, sir.

17 Q You haven't seen Plaintiff's Exhibit 188?

18 A No, sir.

19 Q Which was a report made by Professor Rappe.

20 A I can't relate it to a number that you're
21 saying.

22 Q I'm sorry. You wouldn't be, or course you
23 wouldn't. I'm sorry. You have seen the charts and the
24 memos prepared by Professor Rappe in which he describes the

1 Contents as having 45 parts per billion 2,3,7,8 TCDD.

2 A I saw one document. I don't know if that's the
3 only one or not.

4 Q Well, whatever it is. You also know that 45
5 parts per billion 2,3,7,8 is a lot more than just a small
6 fraction of the total tetrachloro-dibenzo-p-dioxins in that
7 tank car, don't you, sir, of that tetras?

8 A If that's correct, yes.

9 Q If that's correct. Now, Doctor, the next
10 exhibit, 1521, in the -- which is a memo that Mr. Metcalf
11 made of a conversation he had with Harry Gilmer the day
12 following the writing of the letter that we just referred
13 to --

14 A Yes, sir.

15 Q He now tells him that he doubts seriously that
16 the 2,3,7,8 isomer could even be as much as 16 percent of
17 the 37 parts per billion, doesn't he, sir?

18 A Yes, sir.

19 Q And then he says he doubts it could be that high
20 if it were present at all.

21 A Yes, sir.

22 Q Didn't he, sir? Now, Doctor, that again is not
23 telling the EPA to assume that this is 2,3,7,8 TCDD in the
24 tank car, is it, sir?

1 A No, sir.

2 Q As a matter of fact, it is attempting to persuade
3 them that the opposite is the case, isn't it, sir?

4 A Yes, sir.

5 Q Yes. And, Doctor, would you say that that is
6 proper to try to persuade the EPA that there is no 2,3,7,8
7 TCDD in the tank car, if it's there, it's just a very
8 small fraction of the 37, when you have a chemist who has
9 made a report, made a memo here where he says he estimates
10 that it's 90 percent 2,3,7,8 in that -- of that 37, 40 parts
11 per billion of tetras?

12 A If that's correct, yes.

13 Q You think it's --

14 A If that's correct, then it's improper to say
15 only a small part is.

16 Q Yes, indeed it is. And it would be misleading,
17 would it not, Doctor?

18 A What's misleading?

19 Q If you tell anybody that there's only going to
20 be no 2,3,7,8 present in the tank car, or if it's present
21 it's going to be a very small fraction of 37 parts per
22 billion. Isn't that misleading, sir?

23 A No, sir.

24 Q Doctor, if you have reason to believe from this

1 document that you have 36 parts per billion of 2,3,7,8
2 TCDD in that tank car, or 31 parts per billion 2,3,7,8 TCDD
3 in that tank car, isn't it misleading to tell the EPA that
4 you think -- you doubt seriously that it's present at all,
5 and that if it is present, it's only a very small fraction
6 of 37?

7 A No, sir.

8 Q Don't you believe that's misleading?

9 A No, sir.

10 Q Doctor, it's not telling them what you know to
11 be the case, is it, sir?

12 A No, sir.

13 Q Then if you don't tell them what you believe to
14 be the case, and you tell them the opposite of what you
15 believe to be the case, isn't that misleading? Isn't that
16 leading someone to believe something that you don't think
17 is true?

18 A I'm not sure what the question is.

19 Q Doctor, the question is simply, if I tell you
20 that the value of my automobile is a thousand dollars, when
21 I had an appraiser tell me that he thinks it couldn't get
22 \$250 on the open market, a man that's skilled in appraising
23 automobiles, a man that has been selling them for years, and
24 I just came from him, and he just told me that, and I come

1 to You and say this car is worth a thousand dollars, I
2 think it's worth a thousand dollars, am I not misleading you,
3 sir?

4 A Yes, sir.

5 Q Yes. And if you have a chemist who has told
6 you in this memo that he estimates that it's 90 percent
7 2,3,7,8 TCDD, isn't it misleading for you to tell the EPA
8 that you don't think it could be 2,3,7,8 TCDD?

9 A Yes.

10 MR. HEINEMAN: Objection, Doctor. Your Honor,
11 objection. It assumes that Mr. Kaley told this witness
12 or anyone other than Dr. Mieure about what was in that memo.
13 It also assumes, or it misrepresents what Dr. Kaley testified
14 in court about in respect to that memo. I object to it.

15 THE COURT: Overruled on both objections.
16 Please answer the question, Doctor.

17 THE WITNESS: If Mr. Metcalf had that informa-
18 tion when he wrote this memo --

19 Q (By Mr. Carr) Yes.

20 A -- then it would have been improper. But
21 there's still --

22 Q And wouldn't it be misleading?

23 A Yes, sir. The only problem with this is that
24 in that Rockefeller meeting that we discussed, when they

1 talked about the risk of dioxin, we talked about before,
2 in that document, the EPA in 1983 said that the route to mak-
3 ing 2,3,7,8 come from the tetrachloro-dibenzo route, and
4 not from the phenol route, so that the EPA as of last year
5 is still saying that you don't get to 2,3,7,8 by going the
6 phenol route.

7 Q Now why do you reckon they're saying that,
8 Doctor? Do you reckon they're saying that because they're
9 relying on things that chemical companies have told them?

10 A No, sir. No, sir.

11 Q Now, Doctor, you know, and Monsanto knows, and
12 has known since 1957, that you get 2,3,7,8 by a number of
13 means.

14 MR. HEINEMAN: Objection.

15 Q (By Mr. Carr) You know that, don't you?

16 MR. HEINEMAN: I didn't get the date. Since
17 1957?

18 THE COURT: '57 is when he said.

19 MR. CARR: Yes, when the man from the Univer-
20 sity of Iowa, according to Dr. Wilson, talked about various
21 ways that 2,3,7,8 isomer could be formed. The evidence is
22 in this case already, Counsel.

23 Q (By Mr. Carr) And when you've known since 1975
24 or '76 that your own chemist, Steve Vogel, says you can get

1 2,3,7,8 by adding caustic to the stillpot, and you know all
2 these things, sir, and the EPA doesn't know it, and your
3 chemist having this knowledge, isn't that misleading, sir?

4 MR. HEINEMAN: Objection to the statement of what
5 the prior evidence shows. It's incorrect. The Vogel Report
6 talks about higher chlorinated dioxin.

7 THE COURT: The objection is overruled. It's
8 not an improper statement.

9 THE WITNESS: I can't tell you why the EPA
10 makes the statement it made.

11 Q (by Mr. Carr) Doctor, that isn't my question.
12 My question is you at Monsanto, you had a memo prepared by
13 Dr. Kaley, when he analyzed the reserve sample from this
14 tank car. This is the memo that he put out. He's identified
15 it as his memo.

16 A Yes, sir.

17 Q Somebody else changed it. Somebody else wrote
18 something else on it. But the original memo that he
19 prepared was this one, according to his sworn testimony in
20 this court. All right? And Steve Vogel has also testified
21 in this court, and there have been other chemists testify
22 that, yes, they took the caustic away and the 2,3,7,8
23 wasn't being formed. Now all this was knowledge that
24 Monsanto had in '76, '77, '79, and the spring of '79 when you

1 quit using caustic. You didn't get -- you still got some
2 2,3,7,8, but not near as much. Now all that is information
3 that you know, and the chlorinated phenol, and you sit here
4 and say, and know that the EPA believes it can't come from
5 chlorinated phenols, based upon a 1983 report that they
6 had. You know at Monsanto, you know the EPA doesn't have
7 the full facts, don't you, sir?

8 A No, sir.

9 Q If they believe that you cannot get dioxin from
10 chlorinated phenols, you know that's not a fact, don't you,
11 sir?

12 A No, sir.

13 Q You don't know that that's not a fact?

14 A They said you don't get the 2,3,7,8, you get
15 dioxin, but you don't get 2,3,7,8.

16 Q And, Doctor, you know that you do get 2,3,7,8
17 TCDD from chlorinating phenols, don't you, sir?

18 A In some cases, yes.

19 Q Yes. But the EPA doesn't know that, do they,
20 sir? Based upon what you've said.

21 A I don't know.

22 Q You just got through saying it, Doctor.

23 A I don't know what EPA knows.

24 Q You just got through saying what they knew. You

1 just got through sitting here ten seconds ago and saying
2 the EPA still believes that it comes from benzine and not
3 from phenols.

4 A Yes, sir.

5 Q Didn't you, sir?

6 A Yes, sir. Yes, sir, that's right.

7 Q Now, Doctor, that's the extent of the EPA's
8 knowledge. They don't have the same knowledge about the
9 chemistry and about the chemicals that Monsanto has. They
10 are asking you in these letters, in these memos, in these
11 calls, they're asking you, "Give us your expertise." And
12 what do you do? You tell them, "Hey, it can't be made by
13 that process, and if it were in some part of the 2,4,5, the
14 most it would be, it would be about 16 percent, and it
15 wouldn't be a major fraction at all." And you have your
16 own senior chemist, who just six days before, had prepared,
17 or four days before had prepared this memo, Plaintiff's
18 Exhibit 1142, in which he estimates that 90 percent of
19 what's in there, the 2,3,7,8 isomer. Don't you consider
20 that under those circumstances, Dr. Roush, it's misleading
21 to the EPA?

22 A If that's the truth.

23 Q Yes. Doctor, I'll now hand you what's been
24 marked -- before I do that. I have other exhibits prepared

that I forgot to use. Could I have 1520-A and 1521-A please.

(Plaintiff's Exhibits 1520-A and 1521-A were marked for identification by the court reporter.)

Q (By Mr. Carr) Doctor, you recognize 1520-A as being a blow-up of page two of the February 12th letter to Harry Gilmer by Mr. Metcalf?

A Yes, sir.

Q And do you recognize 1521-A as being the blow-up of the February -- the first page of the February 13th memo made by Mr. Metcalf?

A Yes, sir.

MR. CARR: I offer 1520-A and 1521-A into evidence, if it please the court.

MR. HEINEMAN: No objection, Judge.

THE COURT: Both are admitted without objection. Thank you.

MR. CARR: Your Honor, I'd like now to offer Plaintiff's Exhibit 1482 into evidence. It's been previously identified. Mr. Heineman suggested that I should offer it into evidence, and at that time I didn't wish to do so. But now I do offer Plaintiff's Exhibit 1482 into evidence.

1 THE COURT: Okay. Any objection to 1482?

2 MR. HEINEMAN: No objection, Judge.

3 THE COURT: Admitted without objection.

4 MR. HEINEMAN: May I ask what's being passed to
5 the jury, your Honor?

6 MR. CARR: 1482.

7 MR. HEINEMAN: The entire document?

8 MR. CARR: Yes.

9 Q (By Mr. Carr) Doctor, I'd first like to direct
10 your attention to the question that I have discussed with
11 you on direct examination that Mr. Heineman discussed with
12 you on his clarification examination, that would be question
13 number 13. That would be on the second page. Do you
14 recall, sir?

15 That I discussed this question with you relative
16 to the fact that TCDD is considered to be a promoter
17 of cancer. Do you recall that, sir?

18 A Yes, sir.

19 Q Do you also recall that you and Mr. Heineman
20 discussed a McCardle Laboratory Study that you say showed
21 that dioxin is not a promoter of cancer? Do you recall
22 that, sir?

23 A Yes, sir.

24 Q Now, Dr. Roush, the exact opposite is what was

1 shown in that McCardle Study, that is Marcie Strauss'
2 statement here was shown to be true and the case, rather
3 than your statement that TCDD is not a promoter of cancer;
4 isn't that a fact, sir?

5 A I don't think that's right.

6 MR. CARR: Would you mark that as an exhibit,
7 please.

8
9 (Plaintiff's Exhibit 1522 was marked
10 for identification by the court reporter.)
11

12 Q (By Mr. Carr) Handing you now Plaintiff's
13 Exhibit 1522, and ask you if you recognize that as a memo
14 made by one of your -- I think a toxicologist, Mr. Long,
15 Timothy Long, on behalf of Monsanto, referring to this
16 dioxin seminar put on by the McCardle Laboratory --

17 A Yes, sir.

18 Q -- that you discussed about.

19 A Yes, sir.

20 Q And this was what you and Mr. Heineman discussed,
21 wasn't it, sir?

22 A This --

23 MR. HEINEMAN: This seminar?

24 THE WITNESS: This seminar, no, sir.