

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF HURON

ROGER A. HALEY and VALERIE J. HALEY,
Husband and Wife; and DONALD L.
HALEY and FLORENCE S. HALEY, Husband
and Wife,

Plaintiffs,

-vs-

MICHIGAN SILO COMPANY, a Michigan
Corporation, C & B SILO COMPANY, a
Michigan Corporation; MONSANTO
COMPANY, a Corporation; and CONCRETE
SILO COMPANY, INCORPORATED, a
Corporation, Jointly and Severally,

Defendants.

No. 77 002593 NP

VOLUME XXVI

Excerpt of the proceedings had and testimony
taken in the above-entitled matter on Wednesday, May 9, 1984,
at 9:00 o'clock A.M., at the Huron County Courthouse, Bad Axe,
Michigan, before the Honorable M. Richard Knoblock.

1 APPEARANCES:

2 MC GRAW & BORCHARD,
3 BY: PATRICK MC GRAW, Esq.,

4 and

5 JAMES N. WOODWORTH, Esq.,

6 and

7 CUBITT, CUBITT & TROWHILL,
8 BY: H. DALE CUBITT, Esq.,

9 Appearing on behalf of Plaintiffs.

10 CHAKLOS, JUNGERHELD & DELLA SANTINA,
11 BY: WILLIAM E. JUNGERHELD, Esq.,

12 and

13 ROBERT A. HAHN, Esq.,

14 and

15 DAVID F. MOORE, Esq.,

16 Appearing on behalf of Defendant
17 Monsanto.

18 DAVIDSON, BREEN & DOUD,
19 BY: JOHN DAVIDSON, Esq.,

20 Appearing on behalf of Defendant
21 C & B Silo.

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1 (Whereupon at 9:00 o'clock A.M., Wednesday, May
2 9, 1984, the hearing continued as follows:)

3
4 (Whereupon a legal disucssion ensued outside the
5 presence of the jury.)

6 THE COURT: Good morning, members of the jury.

7 THE JURY: Good morning.

8 THE COURT: Resume the stand. You are still under
9 oath.

10 As you will recall, members of the jury, I believe it
11 was last Thursday when Dr. Kelly was last testifying and
12 Mr. Woodworth was cross-examining him so we'll resume with
13 that cross-examination at this point.

14 MR. WOODWORTH: Thank you, your Honor.

15
16 CROSS EXAMINATION (Continuing)

17 BY MR. WOODWORTH:

18 Q. Doctor, since we were here a week ago, you returned to your
19 home and then returned here again.

20 Did you have any further occasion to discuss the case
21 with counsel or representatives of Monsanto?

22 A. No, I did not.

23 Q. And did you do any further review or anything other than
24 what had been done prior to your testimony last week?

25 A. No, sir.

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1 Q Doctor, there's been some testimony in this case as to
2 opinions of witnesses regarding health effects that may be
3 associated with PCB poisoning.

4 Doctor, I'm going to show you what's been marked as
5 Plaintiff's Exhibit No. 279A, and it has on there a number
6 of physical aspects related, apparently -- or supposedly or
7 allegedly related to PCB poisoning, Doctor.

8 In regard to this, could you tell us your opinion as to
9 whether PCB's induce liver enzymes?

10 A. First of all, when you say PCB's, you have to define what
11 PCB's you are talking about. You have to define whether there
12 are benzofurans present in PCB's.

13 So if you could be specific and tell me what you are
14 talking about, I'll answer the question.

15 Q Well, let's talk about Monsanto's Aroclors.

16 A. Yes, sir.

17 Q And, in your opinion, would they cause induction of the
18 liver enzymes?

19 A. In the amount that the Monsanto employees were exposed to,
20 I saw no evidence of liver inductions -- induction of liver
21 enzymes.

22 Q If we could go then beyond your references to Monsanto
23 employees, but during the time that you were with Monsanto,
24 I would imagine you reviewed literature regarding PCB's?

25 A. Yes, sir.

1 Q And even possibly after that, during the time of 1975 when
2 you were a consultant for Monsanto, I imagine that you might
3 have come across literature referring to PCB's?

4 A Yes, sir.

5 Q And perhaps even after that when you've been in your own
6 private consulting business, have you continued with a review
7 of the literature?

8 A At times, yes, sir.

9 Q And then, in your opinion, not just restricting this to your
10 review or your own contact with the Monsanto workers, the
11 Monsanto employees, but with your review of the literature,
12 do you have an opinion as to whether or not they cause
13 induction of liver enzymes?

14 A Which liver enzymes, sir?

15 Q Well, any.

16 A The response of the liver to any chemical or any food is an
17 induction of enzymes. If a person takes a drink of alcohol,
18 one gets some induction of liver enzymes. So that per se
19 the induction of a liver enzyme is not a pathological
20 situation.

21 If you talk about abnormal presence of liver enzymes,
22 I have not seen the increase in liver enzymes described in
23 human cases from any Monsanto PCB's.

24 I do not recollect if any liver enzyme studies were
25 carried out in the toxicological testing that was carried

1 out with our enzymes -- with our PCB's. At that particular
2 time in the 1950's, the liver enzyme studies, which you
3 are referring to, were not known or carried out.

4 Q There were Monsanto studies that were commissioned with IBT
5 and Younger Laboratories together with other literature
6 during the 50's and 60's which in fact showed that the liver,
7 and I believe you testified a week ago, was so to say the
8 target organ of PCB's, is that correct?

9 A Yes, sir. Not with the Younger Laboratory studies. The
10 Younger Laboratory studies was a simple acute screening.

11 Q The LD-50?

12 A That's right. And so the target organ in the IBT studies
13 was the liver.

14 Q Doctor, can you tell us your opinion as to whether the PCB's
15 crossed placental barrier within mammals?

16 A I can't say that. I do not know.

17 Q Doctor, is there within the literature on up through the
18 time and shortly thereafter that you consulted with
19 Monsanto, evidence supporting that there is formation of
20 arene oxide intermediates during the metabolism of PCB's
21 by several species including rhesus monkeys?

22 Are you aware of that?

23 A I am aware that there are the studies. I'm not in a position
24 to comment on them from a toxicological standpoint.

25 Q Doctor, do you have any information or opinion whether the

1 formation of arene oxide intermediates would in fact be
2 important in considering carcinogenic potential within
3 human beings?

4 A. No, sir, I have no opinion.

5 Q. Doctor, I'm going to show you what's been marked and admitted
6 as Plaintiff's Exhibit No. 154 and that has been represented
7 and admitted as a sales -- summary of sales of polychlorinated
8 biphenyl, probably more specifically the Aroclors. I'm sorry,
9 in fact, it has a note on it and I don't -- okay.

10 That information is in fact limited, is it not, by
11 its note that appears on there? Does not the note state
12 that that is incomplete?

13 A. I have never seen this before. I don't know what this
14 refers to.

15 Do you want me to read all this?

16 Q. No, I don't, Doctor. And I wouldn't expect you to. It's
17 quite detailed.

18 What we've done is made a summarization of those sales
19 charts together with information that the Monsanto attorneys
20 have provided us with sales to silo companies.

21 While you were medical director of Monsanto, Doctor,
22 were you aware of sales to silo companies of Aroclor 1254?

23 A. After I was told by Dr. Hill of Ohio State, Department of
24 Health, I realized that, I had information that Aroclors
25 were used in silo paint. Up to that time I had no idea of

1 it at all.

2 Q In 1970, then, that would have been?

3 A That's correct.

4 Q Now, do you know Rogers Malone? Are you acquainted with the
5 man?

6 A The name is vaguely familiar. I don't know what -- who he
7 was or -- I don't know anything about him. I've heard the
8 name sometime, but I don't know the man.

9 Q We read his deposition at the beginning of the trial, Doctor,
10 and he was a salesman, I believe, he said, for Monsanto
11 during the 40's and 50's. He said that they -- that Monsanto
12 and he, as a salesman, began selling Aroclor 1254 to silo
13 companies in about 1947.

14 Now, this sales summary that you have before you does
15 in fact say that it isn't complete for the years of 1950's
16 and early 1960's, is that correct?

17 A That is what it says here, correct.

18 Q Yes. Well, it does in fact say that, does it?

19 A It does say this, if it's written here. I don't know if this
20 is a correct statement or not.

21 Q Now, what we have is here, Doctor, starting back and assuming
22 the sales summary, what was said by whoever from Monsanto
23 wrote that on there, that it isn't complete for the 1950's
24 and 60's; and also assume that Rogers Malone is correct that
25 Monsanto started selling Aroclor 1254 to silo companies in

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1 1947.

2 We do, in fact, have sales throughout a period of time
3 on up to 1965, do we not?

4 A. That chart says so.

5 Q. Okay. And this has been admitted, Doctor.

6 Let me explain to you that this was what has been
7 provided by Monsanto to the plaintiffs in this case.

8 A. But I don't know -- this is the first time I've seen this
9 chart, but I don't know whether these pounds of Aroclors,
10 where they went. Did they go on the outside of the silo?
11 Did they go someplace else? Do these silo people do anything
12 besides make silos?

13 I cannot assume that those pounds ended up on silo paint
14 inside of a silo. I don't know where they went.

15 Q. When you retired in 1974, Doctor, you were medical director
16 for all of Monsanto?

17 A. Yes, sir.

18 Q. And your principal duty, as I understand it, from your direct
19 testimony, over these years was to look after the health and
20 safety of Monsanto employees, workers, is that correct?

21 A. Yes, sir.

22 Q. And in pursuance of your duties, I would presume, and we
23 partially established that, that part of your ongoing
24 education and to keep you up to date you would review reports
25 and publications from the scientific and medical

1 literature, would you not?

2 A. Yes, sir.

3 Q. And this would be especially interesting if there was any
4 publication as to effects or any information about Monsanto's
5 products?

6 A. Yes, sir.

7 Q. Or products similar to what Monsanto was manufacturing?

8 A. Yes, sir.

9 Q. Doctor, there were two manufacturing plants in the United
10 States for Aroclors, for PCB's, were there not? Sauget,
11 Illinois, and Anniston, Alabama.

12 A. Yes, sir.

13 Q. Were there not at one point in time two other places within
14 the Monsanto Company that manufactured PCB's, one in Japan
15 and one in Great Britain?

16 A. No, sir. As far as I know we never had a plant in Japan
17 that manufactured PCB's.

18 We did have a plant in Great Britain. We had -- the
19 best of my knowledge, all we had in Japan was a fiber plant
20 which made acrylic fiber which is the type of thing you
21 see in carpets.

22 Q. The place in Great Britain that manufactured PCB's, was that
23 in Wales?

24 A. I think it was, yes, sir.

25 Q. And I would assume by your previous answer that you were

1 also medical director of that plant?

2 A. Yes, sir.

3 Q. And if there were any complaints or workers' complaints
4 or complaints from customers overseas in Great Britain
5 regarding PCB's or Aroclors, would they come to your atten-
6 tion?

7 A. Yes, sir, they would.

8 Q. Where would these complaints initially go?

9 A. Which complaints?

10 Q. Assuming there were any. Workers' complaints, would they go
11 right within the plant?

12 A. Yes, they would go to the nurse and to the plant doctor.
13 We have a plant doctor in Ruabon and his name was Dr. Newman.
14 He retired some time ago. I don't know where he is now.
15 I visited Ruabon twice. I don't know which years they were.

16 Q. And, Doctor, prior to 1970, if any complaints were received
17 in Great Britain from consumers, the users of products,
18 where would they go?

19 A. They would go presumably to the plant doctor, the sales
20 department in Great Britain. The sales department would send
21 such complaints to me if they could not be handled in Europe.

22 Q. Would it be fair to say, Doctor, that prior to 1970 all
23 workers' complaints and all public complaints were in fact
24 turned into a memorandum or made a note of, they would
25 ultimately pass through your view for your inspection or your

1 attention?

2 A. I don't think you can quantify that by saying "all," Mr.
3 Woodworth. I mean, I would think that any serious ones.
4 Now, if we have to divide between Europe and the United
5 States, there was certainly much better communication in the
6 United States than there was in Europe.

7 And while I feel quite confident that any major
8 complaint of a worker or customer in the United States would
9 come to my desk, I can't be that confident about Europe.
10 I just don't know.

11 Q. Was it the policy of Monsanto, prior to 1970, that these
12 complaints should come to your attention? Major or minor?

13 A. Not minor, certainly; major, yes.

14 Q. Would there not within your profession at that particular
15 time, prior to 1970, a series of minor complaints, could
16 indicate perhaps a major problem, would it not?

17 A. No, sir. If a person has -- if a person had redness of the
18 skin from a paint remover, that doesn't mean that they have
19 got a major problem, even though they had it every six
20 months for two years.

21 Q. Now, let's divide these, what I've been talking about as
22 complaints, into two arenas.

23 First of all, workers' complaints. If there was any-
24 thing above a minor -- what you termed a minor complaint,
25 and it was -- there was notation made of it, would that

complaint ultimately end up within that worker's file?

A. It should, yes.

Q. And would it not then be considered by Monsanto confidential as relating between an employer and employee?

A. I don't know what you mean by confidential between an employer and an employee. If I am considered an employee, I would certainly have access to it. If the government and the industrial medical service of the government in Great Britain, which was much more thorough in those days than ours was -- than the United States was before OSHA, they would know about it, also.

I do not recall what reports Ruabon plants had to make to the industrial council at Great Britain, but I certainly had to make that.

Q. Let's talk about going from workers over to the public, people in the public and complaints that they might have had regarding possible personal or health effects.

If there was any type of complaints or claims, would that not have ended up, if it came to your attention, would it have been referred over to the legal department prior to 1970?

A. No, sir.

Q. Not in any event or not necessarily?

A. Not necessarily.

Q. Would you take care of some of those?

1 A. Yes, sir, because there was no legal aspect to it at all.

2 Q. If there was some complaint that might have resulted in

3 what you might have feared as litigation, where would that

4 have gone?

5 A. If there was a complaint that appeared to have legal

6 ramifications, I would have consulted with the legal --

7 with our legal counsel, the in-house legal counsel. That

8 would be a very -- constitute a very small percentage of

9 the cases that came to my desk.

10 Q. Now, when you left Monsanto, about how many employees did

11 it have, were under your purview?

12 A. 45,000 in the United States, 10,000 ex-U.S.A.

13 Q. I am going to suppose that Monsanto was not any different

14 than any other industry or corporation at the time you left

15 and that I would presume that there were complaints or

16 suits, claims by workers for Workers' Compensation for

17 injuries and ill health effects that occurred in the work-

18 place, were there not?

19 A. Were there not work --

20 Q. There were?

21 A. You are talking about other companies? Are you talking

22 about --

23 Q. Within Monsanto.

24 A. Certainly there were compensation cases.

25 Q. And did any of these -- or, I'm sorry, when a worker made a

1 complaint or a claim for Workers' Compensation, would it
2 be directed to your attention or to the legal department,
3 or both?

4 A. It very probably would not even be directed to the legal
5 department. It certainly wouldn't be to mine. It all would
6 depend on the case. If a person had a fractured finger, it
7 would be treated by the consulting specialist to whom we
8 send the case. A report would be sent to the compensation
9 board.

10 If there were a claim for permanent disability of this
11 finger, then either the safety director would accompany the
12 worker down to the compensation board and let them decide it.
13 If it were a case of permanent disability, it would be --
14 obviously, then legal counsel would enter the case.

15 Q. To your knowledge during the time that you were with
16 Monsanto, did anyone ever make a claim for inhalation or
17 disability from inhalation; not something such as a broken
18 finger, but inhalation of chemicals?

19 A. Any chemicals anyplace in Monsanto?

20 Q. Yes.

21 A. Yes.

22 Q. During the 1950's and 60's, Doctor, who at Monsanto was
23 responsible, if there was a person or a title, for looking
24 after the health, safety and well-being of the purchasers,
25 users, and consumers of the products that Monsanto put in

1 the marketplace?

2 A. Would you repeat the question?

3 Q. Yes. During the 50's and 60's, prior to 1970, was there a
4 person at Monsanto -- perhaps it would be better to ask if
5 there was a person or a job position that was responsible
6 for looking after the health, safety of purchasers or users
7 of Monsanto's products?

8 A. Well, I think almost -- there was no individual person. I
9 think almost every Monsanto employee was responsible for
10 seeing that the product they made was in accord with the
11 specifications of the product; the people who sold material,
12 sold it for the purposes for which it was intended, so I
13 can't answer your question any differently than that.

14 Q. And the people who sold it for the purposes for which it was
15 intended, that would include the Aroclor plasticizers, would
16 it not?

17 A. Yes, sir.

18 Q. And when it was sold to a silo company as an ingredient in a
19 silo sealant and as a silo plasticizer, that was a purpose
20 for which that product was intended, was it not?

21 A. I can't answer that. I don't know anything about what
22 Monsanto recommended that the material be used as an
23 ingredient in silo paint.

24 Q. Let's presume that knowledge. Let's presume that knowledge
25 on the part of an employee. You said that as an employee

1 they would sell it for the purposes to which it was
2 intended.

3 Let's presume that employee, a salesman, knew that it
4 was being used as a plasticizer ingredient in silo sealant.
5 In that sense would that be a purpose to which it was
6 intended?

7 A. I don't know whether that was correct or not.

8 Q. So prior to 1970, what you are saying, if I interpret it
9 correctly, Doctor, is that there was no specific department
10 and no specific person. If there were problems with
11 products, it could be the salesman who might be looking after
12 it or you as medical director or perhaps it might go to the
13 legal department or director of Organic Chemicals Division,
14 something like that?

15 A. Is that a question? Would you repeat that question?
16 You have a number of phrases in there, clauses, that I'd like
17 you to break down and ask me.

18 Q. Prior to 1970, Doctor, as I understand it, there is no one
19 place within Monsanto that would be in charge of product
20 safety, is that correct?

21 A. That is not correct.

22 Q. Okay. Was there one place where these things would
23 ultimately end up?

24 A. If there were any aspects -- any health aspects related to
25 Monsanto products in the consumers, such a place would be

1 the medical department.

2 Q And that would be your department?

3 A That's correct.

4 Q And did that change after Mr. Papageorge was appointed
5 manager of environmental pollution on January 1st, 1970?

6 A No, sir, it did not.

7 Q It still was a medical department?

8 A That is correct.

9 Q And did you work with Mr. Papageorge after January 1st, 1970?

10 A Yes, sir, I did.

11 Q And did he review the complaints that came in or was there
12 supposed to be any type of communication or relationship
13 between the two, you and Mr. Papageorge, regarding any
14 complaints?

15 A If the complaints were of an environmental aspect, not
16 related to humans, such a complaint would be handled and
17 -- referred to and handled by Mr. Papageorge. If there were
18 complaints referable to alleged human effects, they would
19 be referred to me.

20 Q And as medical director prior to 1970, was it one of your
21 responsibilities to make sure that there was what would be
22 called safe handling data on labels of Monsanto's products?

23 Let's at least confine ourselves -- we'll cut it down
24 to the Aroclors.

25 A The medical department was responsible for reviewing the safe

1 handling data which was generated by other areas in the
2 company.

3 Q And just so I make sure I understand you properly, this data
4 would be generated within other areas of the company, come
5 to the medical department, you would comprise a label or
6 something, is that right?

7 A Not a label. I would comprise a statement concerning --
8 that would describe the toxicological properties or the
9 safe handling recommendations.

10 Q And would that be what you might call -- or could I call it
11 a data sheet on the product for safe handling?

12 A Well, there was everything from a label this size that
13 went to this size that went on to a 55-gallon drum, to a
14 data sheet or a developmental sheet, yes, sir.

15 Q The labels in the 50's that were on Monsanto's products, the
16 Aroclors, were they developed by you?

17 A The labels were not developed by me, no, sir.

18 Q The contents of the labels?

19 A Not all the contents. If there were a material relating
20 to toxicological aspect or warning statements, they were
21 reviewed by me, yes, sir, and approved by me.

22 Q I guess that is what I was aiming at, Doctor, rather than
23 the weight or whatever of the product; the toxicological
24 effect would have been ultimately brought to your attention
25 or for your approval?

1 A. Yes, sir.

2 Q. Was part of this safe handling data that was needed, was
3 that required by the Department of Transportation or was
4 that insome way related to freight classification?

5 A. Would you break that down a little? There is two questions
6 there. Break them down one at a time.

7 Q. I wasn't aware there was a difference, apparently there is.

8 Was the safe handling data that was put into the labels
9 for Monsanto's products, say, in the 50's and 60's, was
10 that partly for what we would call freight classification?

11 A. Yes, sir. I'm not sure of the time frame. I don't know
12 when that was necessary.

13 Q. And then the same question as to the Department of
14 Transportation.

15 A. Yes, sir.

16 Q. And was that required by the DOT?

17 A. Yes. I don't know when, though. I don't know what your
18 question -- your statement is the 50's or 60's is correct.
19 I don't know if this was necessary.

20 Q. There were some LD-50 tests done in 1962 by, I believe,
21 Younger Laboratories on Aroclor 1254.

22 A. I know there were some done. I don't know if it was -- if
23 1962 is the correct date. I don't remember the date it was.

24 Q. Were one of the reasons for these tests for that freight
25 classification?

1 A. Yes, sir.

2 Q. Was that the primary reason for the Younger test that you
3 needed at that time freight classification data, so you
4 had to run that or commission an LD-50 test as to the
5 toxicity -- to toxicity?

6 A. I don't think that was the primary reason. I think we wanted
7 some information about the acute toxicity in case we had
8 to answer the question: What will happen if somebody spills
9 this on me?

10 Q. The Younger tests, let's assume they were in 1962, that were
11 done for LD-50, that is the acute toxicity test.

12 Are you aware of whether or not all the Aroclors or a
13 number of Aroclors were tested at that time for the LD-50?

14 A. I'm sure all of them were not. I don't know how many were.

15 Q. Would it be fair to say that a number of them were, to your
16 recollection?

17 A. I don't recall the number.

18 Q. If different Aroclors were tested at that particular time,
19 would it have been for the same reason?

20 A. Which reason, freight or whether we wanted to know -- to
21 get some approximation of the acute hazard?

22 Q. Either.

23 A. It very probably was for one of the two, yes, sir.

24 Q. And if you would have sent four, five Aroclors in, would it
25 have been for one or the other or the same percentage

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1 between the -- either freight or acute effects for the whole
2 group?

3 A. If we sent in four or five, and I do not know whether we
4 sent in four or five, I do not recall whether we sent in
5 four or five, whether or not the primary reason was for
6 freight classification or whether it was because we wanted
7 to get some idea of the gross toxicity of the product to
8 answer inquiries. I cannot say. I would believe it would be
9 more likely to be the latter.

10 Q. You just wanted the acute toxicity information?

11 A. That's correct.

12 Q. If you sent the whole group in, wouldn't the purpose for
13 testing have been the same for the entire group?

14 A. Yes, sir, I think so.

15 Q. Do you recall what you said in your deposition to the Howell
16 and Parsons case as to the reason for the 1962 Younger acute
17 -- or LD-50 test?

18 A. No, sir, I don't recall.

19 Q. I'm going to -- perhaps, Doctor, I should just let you read
20 this from page 14 of your deposition in the Howell and
21 Parsons case. And, for the record, this was taken in St.
22 Louis on September 20, 1979.

23 I'm going to ask you to start reading right there at:
24 line 16, the question and then your answer.

25 A. Question: Can you tell me --

1 Q. Just read it to yourself, Doctor, maybe to refresh your
2 recollection.

3 A. Okay.

4 Yes, sir, I read it.

5 Q. Okay.

6 A. Can I keep it here or --

7 Q. Just let me look at it.

8 Okay. Was it not that the '62 tests were done for
9 freight classification and some 1963 tests were done for the
10 acute data? Is that correct?

11 A. No, sir, I'm not sure that's correct, because if I may
12 read this. You asked me:

13 "Can you tell me, sir, why the 1962 and '63 tests were
14 done?

15 Answer: Yes. I would think that the '62 tests was
16 done because of freight classification. I said I would
17 think. At that particular time we had arrived at a
18 certain amount of data on an acute basis to find out
19 what the particular freight classifications there were.
20 And I believe this is why it was done.

21 The 1963 test must have been done to the -- we
22 wanted to find out what the classification of solutions
23 of Aroclor 4465 would have, should people be subjected
24 to prolonged or repeated skin contact with the material.
25 I don't know at this time whether that was important

1 to us in '63. I cannot remember whether this was important.
2 That is what I have said here. This is consistent with what
3 I have said the last two minutes.

4 Q I wasn't sure, Doctor, that is why I asked.

5 It wasn't me for the record that asked you this question,
6 was it, back in '79? It was not me?

7 A. No, it was not you.

8 Q Doctor, would you agree that LD-50 tests are deficient in the
9 sense that when you give a dosage to animals, it may still
10 take another 14, 15, 20 days after that dosage to kill some
11 of them, that some of them may live on?

12 A. That is the purpose of an LD-50, you want to kill half of
13 them.

14 Q Right.

15 A. So the other half obviously are living.

16 Q And one of the animals -- if you'd give a dosage to a group
17 of animals, that some of them may die immediately, is that
18 correct?

19 A. They will die within a matter of hours, days, depending on
20 what compounds you are giving.

21 Q Well, wouldn't there be a deficiency in the test in the
22 sense that it doesn't really consider the chronic effects?
23 You were talking acute, but if an animal lives on for three
24 weeks after that and then dies, it may not be included
25 within that test result?

1 Do you have any understanding of that?

2 A. Well, that is a very minor point. In the first place, an
3 acute test is not supposed to be a chronic test, so it is
4 not deficient in the sense -- what you are trying to do is
5 find out a gross toxicity of the compound. And the common
6 way is to take a group of animals, say, 25, 50, and give
7 divided doses until you hit a dose that will kill half the
8 animals.

9 Q And that is a one-shot thing, just like that?

10 A. That is what the test is, acute LD-50. Now, you generally
11 wait a period of time, I don't know whether it's two weeks,
12 to see if they're going to die.

13 Q That was going to be my next question.

14 What is the period of time that you wait after you give
15 them the one dose to see that they die?

16 A. Probably two weeks.

17 Q And then if one dies in 15 days, they wouldn't be included
18 within that two weeks?

19 A. That's correct. But it really wouldn't make an awful lot of
20 difference.

21 Q Would another problem with the LD-50 test, as to the
22 Aroclors, be that one would have to know specifically what
23 congeners the animals were being exposed to, to the congeners
24 of PCB?

25 A. Would you define congeners?

1 Q There's been a lot of testimony within this case as to
2 toxicity of various congeners and I believe there's been
3 testimony that there are -- that PCB's -- that the Aroclors
4 are made up of a number of different PCB's. And I can't
5 recall the exact number offhand.

6 THE COURT: Approximately 210.

7 Q About 210 different PCB's. Are you familiar with that?

8 A There are a number of isomers of PCB's and Aroclor with a
9 specific number. Suppose we start with 1254. That does
10 not mean that it is all 1254, it means that the average
11 chlorination of the whole -- of the whole compound is 54
12 percent.

13 That means some of them are chlorinated to 42 percent,
14 48 percent, some might be 60, 62 percent, but the average
15 chlorination is 54 percent.

16 Q Is not the batch itself, Aroclor 1254, 54 percent chlorine
17 and within that 54 percent chlorine you might have within
18 Aroclor 1254 a mixture of 90 to 100 of those different
19 isomers?

20 A First of all, it is not 54 percent chlorine. It is
21 chlorinated to 54 percent of the amount of chlorine of these
22 various -- hydrogen is replaced by chlorine, that doesn't
23 mean that the material is 54 percent chlorine. I don't know
24 what the exact amount of chlorine it is.

25 Now, what was the second part of the question?

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1 Q Let's get back to my original question, Doctor, as to
2 wouldn't the toxicity of the LD-50 depend upon the specific
3 isomers; some are more toxic than others.

4 A. And some are less toxic.

5 Q Absolutely.

6 A. But you are testing a standard product and all these things
7 that are in there are tested in one unit. So that whether
8 the compound that is chlorinated to 48 percent or chlorinated
9 to 60 percent, is in there, doesn't really make any differ-
10 ence to the end result because you are testing the whole
11 compound.

12 Q And are you saying then that if we take 1254 and if we took
13 a -- say, an Aroclor 1254, place it in a five-gallon pail
14 that was made one week and we take a pail that was made a
15 week later, we're going to have the same isomers, number of
16 isomers in relation to one another in each pail, or aren't
17 they going to be more of a random selection?

18 A. I can't answer that.

19 Q Doctor, last week I believe you testified that you had
20 given testimony or depositions in other cases, but I think
21 you said the only other one relating to Aroclors was the
22 Howell and Parsons case, is that correct?

23 A. I don't recall that is what I said, Mr. Woodworth.

24 Q And I don't have a note of it, that is why I wanted to
25 clarify that, or if I may ask it at this point.

1 A. Would you ask it? What do you want?

2 Q. Have you testified by way of court testimony or deposition
3 in any other cases regarding Aroclors?

4 A. Yes, sir.

5 Q. And what were they?

6 A. I testified in a case of Aroclor in Cincinnati that was
7 before OSHA, in the use of Aroclors in transformers.

8 I testified in either North Carolina or South Carolina
9 in the case of Aroclors in leaks from transformers or
10 transformer oil. Neither of these cases was Monsanto
11 involved.

12 I gave a deposition in an environmental aspect of
13 Aroclor in St. Louis, but I don't know if the site was
14 Michigan or Wisconsin. Monsanto was involved in the latter
15 instance.

16 Q. And do you know what, in the latter, do you know what
17 Aroclor was involved?

18 A. In the last one?

19 Q. Yes, the latter instance, the deposition in St. Louis.

20 A. I don't recall which one.

21 Q. Is that the one I have referred to or are you accepting that
22 one, the Howell and Parsons?

23 A. It is not the Howell and Parsons.

24 Q. There is another one besides Howell and Parsons?

25 A. Yes, sir.

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1 Q Do you know when that was approximately, Doctor?

2 A Four years ago, five years ago.

3 Q And were there health effects claimed within that case?

4 A No, sir, none.

5 Q Doctor, in the North Carolina case, what case was that?

6 A Ward Transformer.

7 Q Did you testify in the Holly Farms case?

8 A No.

9 Q Or the supposed what is called Campbell's chicken case?

10 A No, sir.

11 Q Doctor, were you medical director of Monsanto when Monsanto
12 was manufacturing agent orange?

13 MR. JUNGERHELD: Your Honor, I wonder if we might
14 approach the bench?

15 (Whereupon a discussion was held out of the
16 presence of the jury.)

17 Q Doctor, we just discussed Aroclors and going to other
18 chemicals that were manufactured by Monsanto.

19 Have you ever testified by court testimony or by
20 deposition regarding -- for one side of the other, regarding
21 any chemicals manufactured by Monsanto as to any -- in cases
22 where there were claims of damage to persons or property?
23 And property would be animals.

24 Now, does that take in too much area?

25 A I will have to correct you. I'm not testifying for anybody

1 or against anybody. So if you would withdraw that item
2 and then you would simplify the question, please.

3 Q. Okay. We went over your testimony that you have given in
4 the Aroclor matters or matters related to Aroclor.

5 Now, have you given any other testimony, and let's
6 except federal agencies such as OSHA or EPA, just for the
7 sake of convenience, have you testified in any other cases?

8 A. I have not testified, sir.

9 Q. Not by deposition or by court testimony?

10 A. Yes, by deposition I have.

11 Q. And what instances were those, Doctor?

12 A. I gave a deposition in a compensation case. I shouldn't
13 say compensation case, I gave a deposition in cases involving
14 exposure to 2,4,5-T in Nitro, West Virginia. I gave a
15 deposition in cases referring to 2,4,5-T in New York.

16 Q. All right. Are those the only other instances, then?

17 A. I gave a deposition as far as fact is concerned, as a factual
18 witness, in a case involving Sturgeon, Missouri, with 2,4,5-T.

19 No, sorry, that was dichlorophenyl.

20 Q. And then have we covered it all?

21 A. To the best of my recollection.

22 Q. Let's go back to the tests regarding 1962, 1963, and even
23 tests that might have been performed before that while you
24 were medical director.

25 Was it you or your department that commissioned these

1 tests? I don't recall exactly how you testified to Mr.
2 Jungerheld and we talked about the Kettering Lab and a
3 number of laboratories. Was it you?

4 A. Either I or my department, yes, sir.

5 Q. And when you went about doing this, would you tell them what
6 you were looking for, what you wanted? For example, you
7 want a subacute test or you want an inhalation test or --

8 A. We really wouldn't go in and tell the person do this test.
9 We would say here's our problem, here is the information we
10 want to obtain, would you suggest what type of tests you
11 think would be necessary to give us this result, give us
12 this knowledge.

13 Q. So you'd say that you were seeking a type of knowledge and
14 turn it over to them?

15 A. Not turn it over to them. We would discuss whether we wanted
16 an acute test, a 30-day inhalation test, or a 90-day feeding
17 test, depending on what the problem was that we might have,
18 that we could foresee.

19 Q. Would there be occasions when you were communicating with
20 these people about the tests that you informed them what
21 use the product was being put to? Would that be part of
22 the information you would provide as a purpose to the test?

23 A. Yes, sir.

24 Q. And did you ever tell any laboratory that Aroclor 1254 was
25 being used as an ingredient in silo sealants?

1 A. No, sir.

2 Q. Do you know whether or not any salesmen represented Aroclor
3 1254 as a good, capable plasticizier for an ingredient in
4 silo sealants?

5 A. No, sir, I do not.

6 Q. We've seen some labels, Doctor. And prior to 1970 and
7 through the years -- well, perhaps the years you were
8 medical director, did the labels on Monsanto's Aroclor 1254
9 ever warn against eating or drinking the material?

10 A. No, sir. This was an industrial chemical and that usually
11 is not put on industrial chemical labels, not to eat it.

12 Q. And, in fact, I think you testified to Mr. Jungerheld in
13 your testimony relating prior to 1942, when you were checking
14 your workers in the plant, you were looking for skin contact
15 and inhalation, you didn't expect them to eat the stuff.

16 A. That's correct.

17 Q. At one point in time, Doctor, it seems that Monsanto did
18 take some action. And maybe not one particular point in
19 time, maybe it was a series of different points, for
20 protection of its workers within the plants from contact
21 and inhalation of the Aroclors or the PCB Aroclors, is that
22 right.

23 A. Yes, sir.

24 Q. And would part of that protection that it took be having a
25 change of clothing there for the worker?

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1 A. Yes, sir.

2 Q. Would part of it have been shoe covers for the workers,
3 some type of foot covering?

4 A. I don't believe so. I don't think there was that much
5 contact on the floor that we would need shoe covering.
6 I don't know.

7 Q. Would some of it have been gloves or hand protection?

8 A. Yes, sir, there would be gloves.

9 Q. And some of it would have been -- and, I don't know, would
10 it have been any kind of face shield or glasses?

11 A. If there were a possibility of spraying out of pipes or
12 pumps or something, but I do not recall face shields.
13 Goggles usually are used throughout a chemical company in
14 all departments.

15 Q. And respirators were at one point made available to employees,
16 were they not, on the premises for safety measure?

17 A. You are still talking about Aroclors?

18 Q. Yes, PCB Aroclors.

19 A. They certainly were available. Whether they would be needed
20 to be used or not with the exhaust ventilation, I don't know
21 whether they were used.

22 Q. And Monsanto also recommended that its PCB Aroclor workers
23 bathe or shower at the end of a shift and a change of clothes?

24 A. Yes, sir.

25 Q. And this --

1 A. To the best of my recollection, yes.

2 Q Okay. And this would be in the interest of the safety and
3 well-being of the employees? That is what Monsanto, as
4 a good employer, was trying to do for its employees, is
5 that correct?

6 A. Yes, sir. If these people were exposed to skin contact with
7 the material, a question of using clean clothes came in.

8 Q Doctor, last week I asked you a question about what historical
9 information you might have possessed about Aroclors in the
10 workplace prior to your arrival there in the mid 1930's and
11 taking on part time your duties as medical director or
12 working in the medical department.

13 And I made reference to the Anniston, Alabama, plant
14 and a worker that I might have referred to as -- I asked
15 you if you might have recalled him, a black worker. I've
16 had an opportunity to go through my notes, Doctor, and
17 perhaps if I could re-ask you about that.

18 Are you aware of the paper written in 1936 by Dr. Jack
19 Jones and Dr. Herbert Eldon of Atlanta, Georgia, regarding
20 PCB exposure in the Anniston plant from 1930 to 1933?

21 A. No, sir, I'm not.

22 Q Were you aware of any reference within a document that they
23 might have at that time of chloracne in workers in the
24 workplace, 23 out of 24 workers up to 1933 in the Anniston
25 plant suffering chloracne?

1 A. No, sir.

2 That was 1930 to 1933?

3 Q. Yes. A paper published in 1936 by Dr. Jones and Eldon.

4 A. In 1933 I do not even know if Anniston belonged to Monsanto.
5 And I did not come -- I think I came to work at Monsanto in
6 1936. And I believe the first time I visited Anniston was
7 something in '37 or '38.

8 Q. That is what I'm asking. Perhaps I should have made it
9 clearer.

10 Your historical knowledge not specifically being with
11 Monsanto, but your historical knowledge as to PCB's in the
12 environmental action of the workplace.

13 A. I have no knowledge of that article or those two doctors you
14 talked about.

15 Q. You referred to Dr. Drinker and said there were two Dr.
16 Drinkers.

17 A. Yes, sir.

18 Q. One was Cecil, isn't it?

19 A. The other was Phillip.

20 Q. And during the 1930's there were publications by the two
21 doctors, were there not?

22 A. I don't know. Cecil was the one that did most of the publi-
23 cation. I don't know if Phillip was involved.

24 Q. Were you familiar with Phillip in publication along with Dr.
25 Warren and Bennett in 1937 in the Journal of Industrial

1 Hygiene and Toxicology?

2 A. I feel sure I read it because that was one of the journals
3 that we got, but I cannot give you details of it. If you have
4 it, I will be happy to comment on it.

5 Q. Perhaps if I can attempt to refresh your recollection as to
6 a report within that article of three fatal cases among
7 seven workers of jaundice --

8 MR. JUNGERHELD: Just a moment. I'm going to
9 object to the procedure. The Doctor has indicated that he
10 does not recall that paper specifically.

11 Counsel is now trying to testify as to what the paper
12 said. The Doctor has offered if he wants to give him the
13 paper so he can read it; he will be glad to comment on it.
14 So I don't think this is a fair procedure.

15 MR. WOODWORTH: Well, Your Honor, I can get the
16 paper at recess. I have some of the papers here with me.
17 I think that he said that he commonly read -- that it was
18 one of the publications they received, it was the Journal of
19 Industrial Hygiene and Toxicology, and I don't think that is
20 so prejudicial as to ask him if he recollects certain events
21 which might have been reported within an article.

22 THE COURT: It does imply that it is within
23 the article and without having the article I don't think it's
24 fair to read from it, so I will sustain the objection.

25 Q. What I'll do is limit it then, Your Honor, as to without

1 great detail, as to any report in 1936 by Dr. Drinker, Warren
2 and Bennett as to any claims of liver -- chloracne or liver
3 atrophy problems in the workplace related to chlorinated
4 naphthalenes and PCB's.

5 A. I'm not familiar with the details. I cannot recollect the
6 details. I certainly know that he talked about chloracne
7 giving liver problems. I mean, sorry, chlorinated naphtha-
8 lene giving liver problems.

9 Q. You remember that article then?

10 A. I remember the article. I don't remember the details.

11 Q. Do you recall whether or not, then, Doctor, within that article
12 there was any reference to jaundice?

13 A. To the best of my recollection, the people who had severe
14 liver damage had jaundice, yes, sir.

15 Q. And do you know whether or not there was any reference to
16 cirrhosis?

17 A. I cannot recall.

18 Q. Going on to Dr. Cecil Drinker's article. He published one --
19 do you recall the one that he published in the same magazine
20 in 1939 regarding chlorinated hydrocarbons and effects they
21 might have had upon the liver?

22 A. I don't recall the date. I don't recall the details of it.

23 Q. May, 1939.

24 A. Again, Do you have the article?

25 Q. Yes, I do, Doctor. Perhaps, so we can move along, I can let

1 you look -- I can get additional ones at the break. I will
2 ask you which ones you recollect and I can get you the other
3 ones, too, during the break because I have a few here and not
4 all --

5 THE COURT: (Inaudible.)

6 Q Do you recollect during the war, and you not being -- or you
7 not being with Monsanto during the war, but any reports of
8 effects of mixtures of halo wax and Aroclor or effects of
9 PCB's with skin painting on rabbits in 1943 and 1944?

10 A. By whom?

11 Q Okay.

12 A. And where?

13 Q 1943 would be by Dr. Von Wendell or Weitz, Halla, and
14 Denton, when it was reported in the publication entitled
15 Rubber Age. In 1944 by Dr. J.W. Miller, published in Public
16 Health Reports. And both of them referred to skin painting
17 of rabbits.

18 A. With halo wax?

19 Q One was halo wax and Aroclor and the other was PCB's?

20 A. I do not recall those articles.

21 Q Doctor, are you familiar with the Walsh Healy Act that came
22 into existence in the early 1950's?

23 A. I should remember the name and that is all I remember about
24 it.

25 Q Do you recollect whether it had to do with tolerance levels

1 for inhalation in the workplace of chemicals?

2 A. I have no recollection of the details of the Walsh Healy
3 Act.

4 Q. Are you familiar with the publication of Flynn and Jarvic in
5 1936 regarding halogenated hydrocarbons and chlorinated hydro-
6 carbons?

7 A. Which one and where were they published?

8 Q. Okay. I'm going to have to look at my notes again. I don't
9 have that one with me.

10 That was published in the proceedings of Society of
11 Experimental Biology in New York in 1936.

12 A. I do not recall the article and I don't know which we are
13 talking about. Before I came with Monsanto, Monsanto had Dr.
14 Flynn, a Dr. Flynn, I don't know if it's the same Flynn,
15 do some work with some Aroclors. I don't know if that is what
16 you are referring to.

17 Q. Do you remember Dr. Swartz that published a number of articles,
18 one out with Dr. Barlow in 1942 in the United States Public
19 Health Reports, then again alone in 1943 in JAMA, prior to that
20 in 1936 with JAMA?

21 A. I remember a Dr. Swartz, yes. Is that the question you asked
22 me or do I remember the article?

23 Q. First of all, do you remember Dr. Swartz?

24 A. Yes.

25 Q. And do you remember his articles and what they generally dealt

1 with?

2 A. They dealt with skin because he was a dermatologist. And I
3 presume he was talking about either chlorinated naphthalene
4 or chlorinated diphenyl. I don't know. I'm sure I've seen
5 the articles sometime in my life.

6 Q. You testified in answer to Mr. Jungerheld as to your use of
7 the Kettering Lab at the University of Cincinnati?

8 A. Yes, sir, I did.

9 Q. And you knew Dr. Treon there?

10 A. Yes, sir.

11 Q. And Dr. Treon in 1955 gave a preliminary report, and sub-
12 sequently in 1956 gave a report, did he not, to Monsanto as
13 to the comparative factors involved in the inhalation of
14 Aroclor 1242 and 1254?

15 A. Yes, sir.

16 Q. And there was some reported liver damage and other tissue
17 damage as a result of inhalation of Aroclor 1254 at .11 parts
18 per million level?

19 A. I don't know the details.

20 Q. And I would conceive that that was heated Aroclors?

21 A. Oh, yes, it has to be.

22 Q. Doctor, are you familiar with the American Conference of
23 Industrial Hygiene?

24 A. Yes, sir.

25 Q. And are you aware of whether they took any action in 1957 as

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1 to the lowering of the threshold limit value of PCB inhala-
2 tion in the workplace?

3 A. Yes, sir, because they used Monsanto data to do that.

4 Q And what was it lowered to? Can you recall?

5 A. It was lowered to .5 milligrams, just a moment, on one Aroclor,
6 and I think it remained at 1 on another Aroclor. I'm not sure
7 which one was which.

8 Q In fact, I had .5 parts per million on 1254.

9 When you say milligrams, that would mean milligram
10 kilogram --

11 A. Milligrams per cubic meter.

12 Q Would that be .5 parts per million?

13 A. We get very involved in milligrams per cubic meter and
14 parts per million in the air, but I believe they use it
15 milligrams per cubic meter.

16 Q Are you familiar with Dr. Elkins' reference work published
17 in 1959, The Chemistry of Industrial Toxicology?

18 A. I'm not familiar with it. I have met Dr. Elkins 35 years ago.
19 I've seen his book sometime maybe 30, 35 years ago, but I'm
20 not familiar with the book.

21 Q Doctor, going into the '60's, the studies that were commission-
22 ed with the Younger Laboratories, the LD-50 studies upon
23 autopsy. These animals showed some tissue damage and liver
24 damage, did they not?

25 A. No, that is a faulty interpretation. If you kill an animal

1 on an LD-50 by giving a large enough amount of the material,
2 you will get congestion in all the abdominal organs. I mean,
3 they die. When an animal dies, things happen to his organs,
4 before he dies or along with dying. The Younger Laboratory
5 work showed some irritation of the intestines.

6 Well, obviously if you are putting down into a rat one
7 or two times the volume of the stomach in an oil, you will
8 get irritation of the intestinal tract.

9 The Younger Laboratory also showed congestion of the
10 liver. Well, almost all acute LD-50's, no matter what
11 compound they're using, if they die within one or two days
12 or die as a result of the LD-50, you will get a congested
13 liver. And that does not mean that that's a very significant
14 item. You are not looking for pathology.

15 So they didn't even do microscopic pathology on those
16 animals. It was just a very crude type of test for a specific
17 purpose.

18 Q And it did affirm that the liver was the target organ again,
19 did it not?

20 A. No, you can't say that.

21 Q Doctor, were you aware of Dr. McLaughlin's paper in 1963
22 regarding that PCB's might be embryotic or teratogenic in
23 eggs?

24 A. No, sir, I'm not. I may have seen it, but I'm certainly not
25 familiar with it or recall any details about it.

1 Q And when you were medical director at Monsanto during the
2 1960's, did you become aware of Dr. Jensen's paper or publica-
3 tion in 1966 about the existence of PCB in the environment?

4 A : Is this the Swede?

5 Q Yes.

6 A Yes.

7 Q And did you subsequently become familiar with Dr. Risebrough's
8 article shortly after that about the PCB's in the, I think,
9 pelicans and maybe seals out in California?

10 A Yes, sir.

11 Q And then I think you already testified that you were aware
12 of the Yusho incident?

13 A Yes, sir.

14 Q I think there was some testimony from you, Doctor, that --
15 as to Yusho and the PCB's and that containing furans and
16 dibenzofurans, is that correct?

17 A Yes, sir.

18 Q Did you know that in 1970?

19 A Know what?

20 Q That there were dibenzofurans contaminants in the Japanese
21 Aroclors or was that Yusho?

22 MR. JUNGERHELD: Excuse me, they were not in
23 Japanese Aroclors.

24 THE COURT: I will sustain the objection.

25 MR. WOODWORTH: My mistake.

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1 Q The Japanese PCB's.

2 A In the 1970's?

3 Q Yes. It was being reported from '68 to '70 just within the

4 literature as being thought of as purely PCB incidents?

5 A Yes, it was.

6 Q Doctor, were you aware of the passing of the National Environ-

7 mental Protection Act in 1970?

8 A Vaguely, yes, sir. I know that they passed it -- an Environ-

9 mental Protection Act. I don't know the details of it at the

10 present date.

11 Q And also in 1970 congress passed, and we discussed this last

12 week, what was called FIFR, the Federal Insecticide, Fungicide

13 and Rodenticide Act in 1970?

14 A I'm not sure of the date and I heard the initials, I don't

15 know any of the details about the act at the present time.

16 Q Were you aware of Dr. Gustafson's publication in 1970 within

17 Environmental Science and Technology Journal? Dr. Gustafson

18 being from the Federal Water Quality Administration.

19 A Was I aware in 1970 or aware now?

20 Q Of his publication in 1970.

21 A In 1970?

22 Q Of PCB's.

23 A To the best of my recollection I never heard of Dr. Gustafson.

24 I don't know whether I knew him in 1970 or not.

25 Q Doctor, did you, as medical director of Monsanto in 1970,

1 receive any 380 letters from EPA?

2 A. Did I receive what?

3 Q Any 380 letters. Any demand letters from the EPA in 1970?

4 A. I don't know at the present date what a 380 letter is and

5 I don't know if I knew then. Or if I got any then, I have

6 no recollection. If you could tell me what a 380 letter is

7 I might be able to remember if I got any.

8 Q A letter from the EPA or from the federal government demand-

9 ing that Monsanto issue or put forth certain sales information

10 as to PCB's.

11 A. I have no recollection of ever getting anything like that.

12 Q Doctor, can you tell us what is meant by the term of product

13 stewardship?

14 A. Meant by whom?

15 Q Within the chemical industry and what you might mean by it as

16 a former medical director of Monsanto.

17 A. I can't speak for the chemical industry. I can speak for my-

18 self as a former medical director.

19 Q If you would, please.

20 A. Product stewardship means that you manufacture a product in

21 accord with your specifications. That you sell it to in-

22 dividuals in accordance with what their order is. That you do

23 sell it to them in a manner in accord with general manufac-

24 turing sales practices in the industry. And I think that's --

25 you do your -- well, I think that is it as far as I'm concerned.

1 Q Would it also include the concept of industry trying to make
2 a safe product, a product that is safe on the marketplace?
3 A Safe for the intended use, yes, sir.
4 Q And would it also include, in your definition, industry
5 attempting to see what uses are being made of its product
6 that it's putting in the marketplace?
7 A I don't believe I could comment on that, but I don't see how
8 anybody can follow down to the ultimate use here in a product
9 that might go through distributors, customers. It's outside
10 my experience and scope. I can't answer that.
11 Q Doctor, in your opinion, would a manufacturer -- should it
12 be the manufacturer who is more responsible or more knowledge-
13 able, let's say, of it's product, then the user of the com-
14 ponents and what it's made up of?
15 A A manufacturer certainly is more knowledgeable of about what
16 the product is made up of, yes, sir.
17 Q Even more so than the government?
18 A You mean the United States government?
19 Q Yes.
20 A Yes, sir.
21 Q In your opinion, Doctor, the concept of product stewardship,
22 should a manufacturer be free to sell a product, any product
23 it desires, on the marketplace and leave the determination of
24 the wholesomeness or the safety of that product up to the
25 government to determine?

1 A. I don't --

2 Q Or should the manufacturer participate in that decision or
3 assist the public?

4 A Well, that's got so many ramifications that I can't answer
5 that yes or no. I don't know.

6 I mean, if a man sells an axe to a customer, does that
7 imply that he should tell them don't use this on your wife?

8 Q Fair enough. I guess I asked for that, Doctor.

9 But let's go to chemicals. Let's go to chemicals. Would
10 you say that a chemical manufacturer then would be free to
11 sell whatever chemicals it saw fit for whatever intended pur-
12 poses on the marketplace and leave the determination whether
13 they are wholesome or safe up to the government?

14 A I don't think the government enters into the safety of all
15 chemicals that are sold in the United States.

16 Q Should it not be the responsibility of the manufacturer to
17 also assist or to primarily determine the safety and suit-
18 ability of its product when it goes on the marketplace for the
19 purposes to which it's intended?

20 A To which the manufacturer intends, yes, sir.

21 Q And for the purposes for which it's sold?

22 A Yes, sir, if it's sold for one particular purpose. However,
23 the manufacturer has no idea of knowing what the intended
24 user is liable to use this product for.

25 Q Let's go to Aroclor 1254 and these silo companies I put up

1 here before.

2 Rogers Malone testified that he reported back to Monsanto
3 that silo companies were using this material in silo sealant,
4 putting it on the inside of silos as a sealant.

5 Now --

6 MR. JUNGERHELD: No, no, Your Honor. Excuse me,
7 Your Honor, I have to object. I believe Counsel is mis-
8 characterizing the testimony.

9 Mr. Malone, as I recall, testified it was being used in
10 silo paint and he didn't know whether it was inside, outside
11 on the roofs, or what.

12 MR. WOODWORTH: Okay. Perhaps then, Your Honor,
13 if I might get another exhibit.

14 Q Did you know David Bechtold at Monsanto?

15 A The name is vaguely familiar. I may very well have known him
16 in the '70's or '60's when I was with Monsanto. I don't
17 recall or connect any name, face or position with that name at
18 the present time.

19 Q Doctor, as medical director and the person who was at one
20 point in time responsible for putting labels on goods for
21 Monsanto --

22 A I was responsible for reviewing safe handling and warning
23 data on labels, yes, sir.

24 Q And in that sense, would you state -- would you agree that it
25 doesn't require scientific certitude to warn of potential

1 dangers?

2 A. I find that hard to answer that question. Would you --

3 Q. What point do you determine that there should be warnings that
4 have to go to a user of a product? Does it require absolute
5 scientific certitude there is going to be a danger to the
6 user or consumer of the product?

7 A. No, sir. You do not put on, for example, on an industrial
8 chemical, don't take internally, don't mix it in root beer,
9 don't do this.

10 Q. I'm going to show you, and I showed you this last week,
11 Monsanto's technical bulletin that's been admitted as
12 Defendant's Exhibit No. 31. And I believe you said this was
13 dated March of 1970.

14 And there is reference in there that this material should
15 not be used -- shouldn't be used as paint or sealant and it
16 mentions silos.

17 Is that correct?

18 A. I will read it. It says:

19 "Some specific applications for the use of PCB should
20 definitely be avoided are in paints and sealants for
21 swimming pools, paints and waterproofing agents in silos
22 and other buildings where food products for humans or
23 animals are stored, and as a component of any container
24 of wrapping used in the packaging of food products."

25 Yes, sir.

1 Q And then, Doctor, we come to in March -- also in March of
2 1970, your memorandum that you wrote to Mr. Papageorge.

3 Now, Doctor, do you know whether that bulletin that you
4 have before you was published prior or subsequent to this
5 letter? The bulletin being dated March of 1970.

6 A I don't know.

7 Q Assuming that this was published in 1970, as you have testi-
8 fied, would it be fair to assume that prior to March of 1970,
9 then, that Monsanto had knowledge that Aroclor 1254 or Aroclors
10 were being used in silo paints and silo sealants?

11 A If this bulletin were published in -- before 19 -- March of
12 1974 --

13 Q 1970, I believe.

14 A I do not know whether or not they had knowledge that it was
15 being used in paints. I certainly seem to have knowledge that
16 it shouldn't be used in paints, but whether they had knowledge
17 that it should not be used in paints, I don't know.

18 Q Was this the first you heard of it when you wrote -- when you
19 got the communication from Dr. Hill?

20 A Yes, sir.

21 Q Do you know what Monsanto did in March of 1970 or what information
22 Monsanto Company had as to silo sealants in order to write
23 that bulletin?

24 A No, sir, I do not.

25 Q Do you know who wrote that bulletin or whose department that

1 came into?

2 A. No, sir, I do not.

3 Q. Do you know Dr. Tucker at Monsanto?

4 A. There was a Dr. Tucker who was in the analytical laboratory.

5 Q. I'm going to show you what's been marked and admitted as
6 Plaintiff's Exhibit 180B and ask if you have ever seen that
7 before?

8 A. I see that I received a copy. It does not -- I'm not sure
9 whether I -- I have no recollection of it. This doesn't jog
10 my memory. This was 14 years ago. I don't recall it.

11 Q. Doesn't Dr. Tucker, within that letter, identify scrapings
12 from a silo as, in fact, being Monsanto's product, Aroclor?

13 A. It says in here, "Unaltered Aroclor 1254 was found on the
14 silo scrapings at a level of 2.8 percent." Yes.

15 Q. That bulletin, that technical bulletin before you says that
16 it doesn't have anything to do with what problems or re-
17 percussions might result as a result of Aroclor 1243 to paint,
18 does it?

19 A. I haven't read it all. Should I read it?

20 Q. If you desire. You don't have to read it out loud, Doctor.

21 Are you going to read the entire booklet? Why don't we
22 do that during break and I'll move on and give you an oppor-
23 tunity over the recess.

24 Were you aware of claims that developed out of Ohio as
25 to Aroclors or PCB's being used in silo sealants inside the

1 silos?

2 A. Claims for what and when?

3 Q. Claims for economic loss, let's start with.

4 A. At what point in time?

5 Q. 1970.

6 A. No, sir, I do not recall claims in 1970.

7 Q. Let me show you Plaintiff's Proposed Exhibit 153D and 153E
8 which have been admitted as being Mr. Papageorge's memorandum
9 -- confidential memorandum to a number of people, including
10 yourself, regarding the Humphrey's and regarding the
11 Schwarzwalders, and ask you if you have seen those
12 before.

13 A. I believe I have seen these, yes, sir.

14 Q. And, Doctor, were you aware, besides of any economic claims
15 of 1970, of any claims for animal loss or health effects as a
16 result of that material being used as a silo sealant?

17 A. There are no claims in here, in this memorandum. So I said
18 in 1970 to the best of my recollection I have no knowledge
19 of any claims for economic loss. And you had me these two
20 exhibits and I'm going over the first one, Exhibit 153E, and
21 they describe Mr. Humphrey's problem, but I don't see any
22 claims.

23 Q. Why don't you look at Mr. Schwarzwalders, then.

24 A. Fine.

25 Q. Paragraph 8?

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1 A. Yes, sir.

2 Q Is there not a reference to a number of lost animals, 20
3 calves?

4 A. Yes, sir.

5 Q How old, two or three days?

6 A. Two to three days, yes, sir.

7 Q Did you make note of that as medical director for Monsanto?

8 A. I don't know what you mean by "make note."

9 Q Well, here we have a person saying or perhaps attributing,
10 whether or not it's truthful, that Mr. Papageorge has pointed
11 out that a man has said he lost about 20 calves, and he has
12 certain levels of Aroclor PCB on his farm.

13 A. Yes.

14 Q Is that significant to you or was it significant to you as
15 medical director of Monsanto?

16 A. Yes, sir, it was.

17 Q In what sense?

18 A. It was significant that Mr. Schwarzwaldler states that he had
19 PCB in the milk and it's also significant that Mr. Papageorge
20 was handling the matter.

21 Q Let's go to the 20 calves. And would you read Paragraph 8,
22 please, out loud?

23 A. "During the period January, February and March, which Mr.
24 Schwarzwaldler refers to as the PCB period, he claims he
25 lost 20 newborn calves, two to three days old, valued at

1 \$100 each. He also claims that he had an unusual high
2 incidence of false pregnancies."

3 Q And those are in fact claims, are they not? Mr. Schwarzwald
4 claim those things?

5 A Well, what you are saying there, you are using the term,
6 "states" and "claims" as interchangeable. When you ask me
7 different knowledge of any claims, I had inferred that he
8 meant claims against Monsanto.

9 Mr. Schwarzwald claims to me, that means he states he
10 lost. Who'd he claim it to, I don't know. I don't know what
11 you mean by claims in that sense. This is in the sense Mr.
12 Schwarzwald states he lost 20 newborn calves.

13 Q Are you saying, Doctor, then, that had no meaning to you,
14 that was -- whatever Mr. Schwarzwald was saying he says,
15 that means nothing?

16 A No, I'm not saying --

17 Q What significance if any did that have to you, that statement,
18 without going through what statements and claims, Paragraph
19 A, what significance did that have to you as medical director
20 at Monsanto?

21 A The significance to me that Mr. Schwarzwald stated he lost
22 20 calves in January and February.

23 Q Well --

24 A I haven't finished. He lost 20 calves. And it also is
25 significant to me that Mr. Papageorge was going to investigate

1 this to see if there was any way they could find out what was
2 the cause of these calves dying.

3 Q And were you aware of other people making claims, not for
4 calves but for economic losses relating to silos in Ohio
5 besides Schwarzwalders and Humphrey at that time?

6 A I recollect that there were some. I do not know the names or
7 the numbers of cases.

8 Q We still have on the blackboard here some writing. And this
9 is left over from the testimony of Mr. Egan who testified he
10 ran Michigan Silo Company out of Massillon, Ohio, for a
11 number of years. And he recollected besides Humphrey and
12 Schwarzwalders, that there was also a Baldwin.

13 Do you remember Kenneth Baldwin?

14 A No, sir, I do not.

15 Q Any claims that he may have made?

16 A I do not.

17 Q How about Dean Spicer?

18 A I did not recollect any of them.

19 Q How about Mr. Jones? Do you recollect any claims that Mr.
20 Jones --

21 A Are you defining claims against Monsanto or --

22 Q Yes, yes. Claims against Monsanto.

23 A Because in this particular date there was this claim against
24 Monsanto. I do not recall.

25 Q How about Mr. Dillman?

1 A. I do not recall a Mr. Dillman.

2 Q. Loren or William Dillman?

3 A. No, sir, I do not.

4 THE COURT: In light of the hour, we'll take
5 our mid-morning recess.

6 (Whereupon a legal matter ensued out of the
7 presence of the Jury.)

8 (Whereupon a recess was taken.)

9 THE COURT: You may continue, Mr. Woodworth.

10 MR. WOODWORTH: Thank you, Your Honor.

11 Q. (By Mr. Woodworth, continuing:) Dr. Kelly, you referred in
12 direct examination to a communication that you had with Mr.
13 Egan of Michigan Silo Company.

14 Do you remember that?

15 A. Yes.

16 Q. And that was expressed to us in the form or reference within
17 a letter that Mr. Egan had written to Broomfield Silo.

18 Did you ask Mr. Egan in your communication with him for
19 a list of the silos that were built using this coating in
20 Ohio?

21 A. No, sir, I have no recollection of doing that.

22 Q. You had knowledge that there were other silos in Ohio besides
23 the ones you were initially informed of by Dr. Hill back in
24 March of 1970, were you not?

25 A. I do not know how many silos Dr. Hill referred to or whether

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1 he referred to silos at all. He talked -- I recollect him
2 talking to me about PCB's in the milk. So I do not know how
3 many silos he was talking about.

4 Q Was there not some concern on your part about PCB's being in
5 the animals themselves, in their fat?

6 A. No, sir.

7 Q And did you then take any action besides contacting Mr.
8 Papageorge about having something done about this besides the
9 memorandum you wrote to Mr. Papageorge?

10 A. Well, the memorandum I wrote to Mr. Papageorge, I believe,
11 I carboned in the represented people of that particular
12 division who were in charge of the PCB's.

13 Q And why did you do that, to give them notice and let them
14 know about the problem that occurred out of Ohio?

15 A. Yes, so they could take some action.

16 Q That they could do something?

17 A. Yes.

18 Q To assist these farmers?

19 A. I think their action was to assure that the silos would not
20 be painted with any -- on the inside with any compound that
21 included PCB's.

22 Q How about those that were already in existence? What did you
23 have in your mind at that time about those that were already
24 out there?

25 A. I had nothing in my mind about that.

1 Q Do you think you should have told -- or the people should have
2 been told, those silo owners, all through Ohio, should have
3 been told not to use those silos?

4 A I think it depended on whether or not the paint was flaking
5 off in their silos.

6 Q And do you think that Monsanto at that time should have told
7 or gone into other states and told silo owners, or would it
8 be the -- depends upon whether it was flaking off or not?

9 A I think it would depend upon whose responsibility it was,
10 whether it was the responsibility of the state, whether it
11 was the responsibility of the individuals that put the paint
12 on the silos. I don't know whose responsibility it was.

13 Q Would you think then, when you say the responsibility of
14 the state, you would think that is the government's responsi-
15 bility to go out then and tell them, and that gets back to
16 my prior questions, the responsibility of the government in
17 this matter?

18 A Well, the government in a food problem is involved. The
19 government is not involved in all industrial chemicals. It
20 appeared that certainly Dr. Hill was involved in the cases
21 in Ohio.

22 Q May we presume Monsanto made a profit off the sale of this
23 material, Aroclor 1254?

24 A I do not know whether it was a profit or a loss. I don't
25 know.

1 Q Monsanto is a profit corporation?

2 A. They want to be, yes, sir.

3 Q I asked you before the break, Doctor, whether or not you
4 were aware of any claims and you answered that and then you
5 used the word -- statements that were -- or I was confused.

6 If I may ask you this, Doctor, out of the State of
7 Ohio, at any time in the 1970's, were you made aware of any
8 type of information, whether it be statements of people,
9 claims of people, complaints, grievances, whatsoever, any
10 communications or any information from the people having
11 problems with -- problems either economically, with their animals
12 or with their persons regarding silo sealants?

13 A. Would you repeat that to me? I've lost the verb.

14 THE COURT: Go ahead, re-read it.

15 (Whereupon the question was read by the Reporter.)

16 A. I had no knowledge of any statements or claims about injuries
17 to anyone's person.

18 Q Okay.

19 A. If you include Mr. Egan's statement, I believe was that --
20 was he out of Ohio? I don't know if he was in Ohio or
21 Michigan. I was aware of that.

22 Q What I want to get away from, Doctor, is the strick -- and it
23 was such a long question, is get away from the stricter
24 word "statement" or the word "claim".

25 I'm talking about, did you get any information in the

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1 Medical Department about problems, any types of problems
2 relating to this stuff being used in silo sealants?

3 A. No, sir, I have no recollection of it.

4 Q. I'm going to direct your attention to the memorandum,
5 Plaintiff's Exhibit 179A.

6 Now, in the introductory paragraph, if we can just first
7 address ourselves to that, and I'll give you an opportunity
8 to read it first yourself.

9 A. Yes, I read the first paragraph.

10 Q. There is information conveyed to you that there were PCB's
11 found in the milk of at least three herds in Ohio, is there
12 not?

13 A. Three different silos. I don't know if they were all -- oh,
14 three herds, yes.

15 Q. Three herds?

16 A. Okay.

17 Q. And it states concentrations within the milk and concentrations
18 in the material.

19 May we presume material is silage, next to the walls?

20 A. I would presume that, yes.

21 Q. And that there were concentrations in the milk and it states
22 the parts per million and some of the milk had been destroyed,
23 right?

24 A. Yes, sir.

25 Q. And would that lead one to presuppose that someone suffered

1 some economic damage or don't we know, if milk had to be
2 destroyed?

3 A. Yes, I would think they suffered economic damage.

4 Q. The second paragraph, if you first want to read it to your-
5 self, familiarize yourself.

6 A. Yes, I've read it.

7 Q. Now, as to the first sentence where you refer to containing
8 1254, may we presume that what you're referring to is Aroclor
9 1254, Monsanto's PCB's?

10 A. Yes, sir.

11 Q. And you also state in the second sentence that referring to
12 Aroclor, again, you don't know if there is any other Aroclor
13 in the formulation, perhaps if I use this, but we don't know
14 the coating manufacturer, although this could be found out
15 if important.

16 A. Yes, sir.

17 Q. Was that, may we take it -- or may I take it, as to asking
18 Mr. Papageorge whether that was important or not?

19 A. I would think so, yes, sir.

20 Q. And the presence, you said, of PCB's in the silage, came from
21 flaking off of the material and possibly from leeching out
22 during the silage storage, correct?

23 A. Yes, sir.

24 Q. And that as to destroying, they had to destroy a hundred fifty
25 tons of silage valued at about \$30 per ton.

1 Again, that would lead one to believe that these people
2 were suffering some economic damage?

3 A. Yes, sir.

4 Q. As a rough guess, they would consider there may be about 50
5 other silos involved in Ohio?

6 A. Is that a question?

7 Q. Yes.

8 A. What is the question?

9 Q. It does in fact say that, does it not?

10 A. It does say that, yes.

11 Q. And that is what information -- and that is what thoughts you
12 had in your mind at that time that there might be up to 50
13 other silos?

14 A. No, that is what Dr. Hill told me.

15 Q. You didn't have any opinion as to whether this was accurate?

16 A. I knew nothing at all about it. All I know is what Dr. Hill
17 told me.

18 Q. Were you just passing that along to Dr. Papageorge?

19 A. Yes, sir.

20 Q. And they're also looking into the fat contamination of the
21 cows themselves. You weren't concerned with the fat contamina-
22 tion of cows?

23 A. Well, they hadn't any yet. They had no figures.

24 Q. So you weren't concerned? That was my question. Were you
25 concerned about that at that point?

1 A. No, sir.

2 Q. That wasn't a concern of any fat contamination that may have
3 gotten from --

4 A. I was -- (Inaudible.)

5 Q. In fact, you knew that PCB's, Aroclors, were fat soluble?

6 A. Yes, but I do not know if the question of retention was known
7 by me at that time.

8 Q. If you'd read the next sentence which is the next paragraph.

9 A. Yes, sir, I've read it.

10 Q. You considered this a serious problem then, did you not?

11 A. Yes, sir, I did.

12 Q. And that it would have two types of overtones, it would have
13 legal overtones --

14 A. Yes, sir.

15 Q. -- right? And publicity overtones?

16 A. Yes.

17 Q. This would be publicity overtones to Monsanto, bad publicity,
18 so to say?

19 A. Bad publicity to a lot of people. To the milk industry, to
20 -- yes.

21 Q. And it brings us to again the words serious -- brings us to
22 a serious point, correct? If you'd read this next paragraph.

23 A. Yes, sir.

24 Q. And the next sentence, "When are we going to tell our
25 customers not to use any Aroclor in any paint formulation that

1 it contacts food, feed or water for animals or humans?"

2 A. Yes, sir.

3 Q. Okay. And you thought that was very important that that be
4 done, correct?

5 A. Yes, sir.

6 Q. You refer to the non-extractibility, but I think that a
7 blanket recommendation should be made against its use, is that
8 right?

9 A. Yes, sir.

10 Q. Now, at that time did you consider Aroclor 1254 deleterious to
11 human health if a person ingested it or if they might have
12 gotten it from farm products?

13 A. I did not then or I don't now.

14 Q. And did you consider deleterious to animal health if an animal
15 might have ingested it, a farm animal?

16 A. How much would they ingest? It depends on how much they would
17 ingest.

18 Q. So in certain circumstances it could affect them, is that what
19 you're saying?

20 A. It is possible.

21 Q. If they ate enough of it?

22 A. That's right.

23 Q. And you didn't --

24 A. If there was Aroclor in it.

25 Q. And you didn't know at this particular time how much any

1 animals were eating?

2 A. No, sir.

3 Q And you didn't know anything about these other 50 silos that
4 were existing?

5 A. No, sir.

6 Q I'm going to now direct your attention back to the memorandums
7 or memorandi of Mr. Papageorge. The one on Mr. Schwarzwaldner
8 being 153-O. That has typed at the top of that the word,
9 "Confidential," does it not?

10 A. Yes, sir.

11 Q And that was to be confidential between Mr. Papageorge and
12 those who were to receive it, yourself included?

13 A. I can't answer that because I didn't -- I don't know what
14 was in Mr. Papageorge's mind when he got that.

15 Q When you got that item, when you saw the word, "Confidential,"
16 did you immediately distribute those contents to anyone?

17 A. Everyone in the department that was -- that had a relationship
18 to this, certainly.

19 Q When you receive a memorandum with confidential stamped on the
20 top or typed on the top of it, when you were an employee of
21 Monsanto, what did that mean to you?

22 A. It meant keep it in your files.

23 Q Keep it confidential, in fact?

24 A. Well, confidential means different things to different people.
25 This is, I think, a little different than secrecy in the Army.

1 I just don't know what it means to various people. We didn't
2 have a locked file for this thing.

3 Q Did you recommend, after writing this memorandum, that --

4 A We're back on this memorandum (Indicating.)?

5 Q Yes, the March 30th, 1970, memorandum.

6 Did you recommend after writing that, that Monsanto in
7 fact contact trade journals or run advertisements to make sure
8 that these people owning silos will be contacted or did you
9 want to leave that up to the government in Ohio?

10 A No, I didn't want to leave it up to the government of Ohio
11 solely. I think Mr. Papageorge carried out quite a number
12 of activities to get the information out to our customers.

13 Q And did he take care of the customers, their complaints, their
14 claims, to your knowledge?

15 A Well, I don't know what complaints you are referring to.

16 Q Any complaints that you may have received, you, as medical
17 director or Mr. Papageorge working jointly with him in his
18 -- in this problem as to any economic loss that farmers may
19 have suffered.

20 A Well, I did not receive any of those complaints.

21 Q You didn't have -- you didn't get any of that information?

22 A No, sir, to the best of my recollection I did not.

23 MR. WOODWORTH: Thank you. That's all I have,
24 Doctor.

25 THE COURT: Mr. Jungerheld?

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REDIRECT EXAMINATION

BY MR. JUNGERHELD:

Q Dr. Kelly, going back to the chronic effect studies, the feeding studies that you told us about where you indicated that it was determined that 10 PPM was a safe level as you found it in the rats, was that 10 PPM in the total diet?

A. Yes, 10 parts per million of Aroclor 1254 in the total part of the diet, yes. Everything they ate contained 10 parts per million of it.

Of course, that was a safe level for rats. There was higher levels that were safe for male or female dogs, but 10 parts per million was safe for everything.

Q And when we, perhaps, for a point of clarification, when we talk about the 10 PPM in the total diet, we've had, for instance, some exhibits introduced here which have shown what the PCB level was in milk and milk fat and it varies. But let's say if it was .5, in other words, half a part per million in the total, in the milk, not just the milk fat, but the milk, would it be correct then that if a person consumed nothing but milk, the PCB concentration then in the total diet would be .5 PPM's?

A. One half part per million, yes, sir.

Q If the person ate nothing but milk?

A. That's correct.

Q If the person ate something besides milk, maybe some

1 vegetables and that kind of thing, would the percentage then
2 of PCB in the total diet be further reduced?

3 A. Yes, considerably.

4 Q. Mr. Woodworth asked you about the availability of respirators
5 to the PCB workers in the plant.

6 Could you tell us what would be the process, what would
7 be the exposure, in other words, you would be concerned about
8 to have respirators available?

9 A. Yes. Whenever you are pumping something, a pump may leak
10 in a packing. This material was hot. If they're going to
11 do something with the pump, they would wear a respirator.
12 When you are filling a 55-gallon drum with this hose coming
13 down into the opening this large, material is still hot.
14 If the exhaust system were not good or were not working at
15 that particular time, you would get vapors coming out of this
16 hole, hot vapors. So you would put the respirators on them.

17 Q. This would deal then with exposure to hot fumes?

18 A. Yes, sir.

19 Q. Dr. Kelly, do you know whether or not Monsanto acquired the
20 Anniston Plant in 1935?

21 A. I knew they acquired it prior to my coming with Monsanto. I'm
22 not sure of the date, but I understand it is around 1935, yes,
23 sir.

24 Q. Dr. Kelly, you indicated that in 1957 some organization that
25 Mr. Woodworth mentioned the name of, which escapes me, but it

1 sounded like a government organization, used Monsanto's
2 data to lower the workplace exposure to PCB. And you gave us
3 a figure. I think it was .5 milligrams per cubic meter of
4 air.

5 A. Yes, sir.

6 Q. And is this what you were talking about; that is, the content
7 in the air?

8 A. Yes, sir.

9 When you use milligrams per cubic meter, here we are
10 talking about a gas that is vaporized out of the material,
11 the hot material. It's distributed through the air.

12 So if you collect it, a cubic meter of air, you would have
13 half a milligram of this material. All this gas would have
14 to be condensed down into a liquid and weighed and that is what
15 it is.

16 Q. Dr. Kelly, from the exhibit up there, from your memorandum
17 from you to Mr. Papageorge, well, not from the memorandum
18 but apparently from Dr. Hill, that apparently about the time
19 of this memorandum you learned of this milk presence of
20 PCB, is that correct?

21 A. Yes, sir. I think it was the day before or something like
22 that. It was shortly before that.

23 Q. So in terms of a time sequence here, in March of 1970, is
24 it correct, that you then learned of the presence of PCB
25 in milk?

1 A. Yes, sir.

2 Q Is it correct then that in March of 1970 you wrote the
3 memorandum to Mr. Papageorge?

4 A. Yes, sir.

5 Q Was it about the same time that you had the conference with
6 Mr. Egan of the Michigan Silo Company?

7 A. Yes, sir.

8 Q All of this occurred then within a very short period of time,
9 is that correct?

10 A. Yes, sir.

11 Q Dr. Kelly, was it your impression when you talked to Dr. Hill,
12 that he seemed to have a handle on the situation in Ohio?

13 MR. WOODWORTH: Objection, calling for conjecture
14 and leading and suggestive.

15 MR. JUNGERHELD: Well, Your Honor, I would
16 disagree with that. I'm asking for his impression. He was
17 asked numerous questions by Counsel about what he learned from
18 Dr. Hill and I am asking if he developed an impression from
19 Dr. Hill as to the Ohio situation.

20 THE COURT: All right. I will allow his testi-
21 mony as to his impression, but I don't think you should lead
22 him, though. You did lead him.

23 Doctor, you can testify as to your impression.

24 Q Okay. Can you tell us what your impressions were when you
25 had the conversation with Dr. Hill of Ohio as to the situation

1 in Ohio?

2 A. Yes. He was dealing with milk which is a product that the
3 government authorities don't want anything foreign put in,
4 as a rule, whether it's water, vitamins, anything. So he was
5 concerned that there was a foreign material of two-tenths of
6 a part per million.

7 He did not express, to the best of my recollection, any
8 thought that this was a health hazard or anything else,
9 except it was in the milk, they don't like foreign material
10 in milk, so they were destroying the milk.

11 Q. And did the concentrations that Dr. Hill gave to you, .2
12 PPM in the silage in the center of the silo, 20 PPM in the
13 material next to the wall, 20.1 PPM and .6 PPM in the milk,
14 did those numbers cause you any particular concern?

15 A. Not concern from the health aspect, from the concern that I,
16 too, agreed that things shouldn't be in milk. It should just
17 be milk.

18 MR. JUNGERHELD: Your Honor, I believe that is
19 all.

20 THE COURT: Mr. Davidson?

21 MR. DAVIDSON: No questions, Your Honor.

22 THE COURT: Mr. Woodworth?

23 RECROSS-EXAMINATION

24 BY MR. WOODWORTH:

25 Q. Dr. Kelly, you mentioned within that memorandum that those

1 silos had been coated from 1967.

2 Did you have any thoughts that these people on these
3 farms might have been drinking that milk that was contaminated
4 from 1967 up until the time Dr. Hill got ahold of you?

5 A. Did I have any thoughts that they might have?

6 Q. Yes.

7 A. Yes.

8 Q. Did that give you any concern?

9 A. No, sir.

10 Q. Regardless of age and physical condition of a person, that
11 didn't give you any concern?

12 A. I did not think then or now that one-tenth to six-tenths of
13 a part per million of Aroclor 1254 in milk has any untoward
14 health effect.

15 Q. And you were taking safeguards within your factories to
16 protect workers from exposure to inhalation and escaping
17 contents of this product, and you were not concerned neither
18 then nor now as to people consuming any levels or these levels
19 of milk with PCB's in them?

20 A. Well, there is an enormous difference in exposure of the
21 amount they take in.

22 Q. I will grant you that.

23 A. Well, that, I think, in dealing with any product, you have to
24 figure what is the toxicology of it and how much you are
25 getting. You get ethyl toxin in peanut butter. Ethyl toxin

1 is a very serious carcinogen, but it's in peanut butter in
2 parts per million or fractions of parts per million, but it
3 doesn't concern anybody because of the level.

4 Q Doctor, you didn't follow those people in Ohio? That didn't
5 give you any concern to follow them perhaps for epidemiological
6 study that might have been consuming these products off their
7 farm to see whether a low dose over a long period of time
8 might have had an effect upon them, is that correct?

9 A. What was your question? Did I follow them epidemiologically?

10 Q Yes.

11 A. No, sir.

12 Q And there was not information in 1970, there were no long-
13 term human epidemiological studies at that point in time, were
14 there?

15 A. No, sir, but there were long-term toxicological data.

16 Q Okay. But I'm talking human epidemiological. There was no
17 information at the time, was there?

18 A. There was no human epidemiological data in 1970, no, sir.

19 Q And here you are, as an employee, as a medical doctor, an
20 employee of a manufacturer who manufactured this product, pre-
21 sented with an opportunity to observe a number of farmers for
22 a period of time and you weren't given that opportunity or
23 you did not desire to follow?

24 Can we establish that?

25 A. I didn't see any reason to do it.

Q Was it your choice whether you could do it or not?

A I'm sure if there was a reason in my own mind, I would have had the opportunity to do it.

Q Would it have helped you at all, Doctor, in 1970 to make a decision if you would have known about all the complaints, all the claims, all the allegations that were going on about PCB's and effects they might have been having upon animals and any human complaints that might have resulted, if any?

MR. JUNGERHELD: Well, object to the form of the question. Counsel is testifying to a lot of things that there is no support for, to a lot of things that there is no evidence in this case about.

THE COURT: He had an "if any" to it. I will allow it.

A May I hear it again?

(Whereupon the question was read by the Reporter.)

A First of all, I had no knowledge about any human effects, period.

Number two, the amount of claims that the people were having, economic claims that they were having, had to do with adulteration of milk and adulteration of silo -- silage. I would certainly not have done any epidemiological studies on the basis of that.

So the answer is no, it would not have.

Q Assuming there were, and let's just assume there were

1 complaints that someone -- that some of these farmers did make
2 in 1970, '71, complaints about human health effects, which
3 they were alleging in some way might have been related to
4 PCB.

5 Do you know where they went within Monsanto with those
6 complaints?

7 A. To me.

8 Q. And you say you didn't receive any, is that right?

9 A. To the best of my recollection.

10 Q. And did you ever follow any of these people out of Ohio at
11 any time to see what state of health they achieved or didn't
12 have after 1970?

13 A. Which people? The people that didn't complain to me?

14 Q. The silo people. Any people of the silo people that you
15 found out through Dr. Hill, either the Humphreys, the
16 Schwarzwalders, the Spicers, the Jones, the Baldwins, the
17 Dillmans.

18 A. I had no correspondence to the best of my recollection.

19 MR. JUNGERHELD: Object to the form of the ques-
20 tion. Counsel again has testified that Dr. Kelly found out
21 from Dr. Hill about these specific people and I don't believe
22 that is the testimony.

23 Q. Okay. Is this the end of it, that you heard -- maybe I should
24 establish that, Doctor.

25 Was this all as far as you went? You had that

1 communication with Mr. Egan after this?

2 THE COURT: You are referring to this exhibit?

3 Q. We have March 30th and then Mr. Jungerheld asked you after
4 that you had some communication with Mr. Egan.

5 Is that as far as you went in your contact with anything
6 to do with the Ohio problem?

7 A. No. I talked with Mr. Papageorge repeatedly about what was
8 going on in these areas, what he was doing.

9 Q. And did he inform you of any other claims, whether they be
10 -- for whatever reasons they were made against Monsanto?
11 Did he let you know about those?

12 A. Other than whom, which claims did he --

13 Q. Other than Humphrey and Schwarzwaldner that apparently you
14 were made aware of because you received copies of those
15 memorandums that are sitting in front of you.

16 A. He may have talked to me about some of them, but I have no
17 recollection of the names of any of them or how many there
18 were.

19 Q. Doctor, you said that you don't testify for anyone. You come
20 in to testify as to the truth.

21 Is that correct?

22 MR. JUNGERHELD: Your Honor, now this is going
23 beyond the scope of redirect examination.

24 THE COURT: I believe it is, Mr. Woodworth.

25 MR. WOODWORTH: That is all the questions I have