

IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF TEXAS

BEAUMONT DIVISION

CECIL SCOTT, ET AL]

v.]

No. B-84-1103-CA

MONSANTO COMPANY]

VOLUME 2

VIDEOTAPE DEPOSITION OF

R EMMET KELLY M. D.

April 30, 1987

1300 Post Oak Boulevard

Houston, Texas

Jerry Kelley, Court Reporter

Nell McCallum & Associates Inc.

2900 Smith, Suite 104

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COPY

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Video operator:

Johnna Coalson

1 Volume 2 of the Videotape Deposition of
2 R. Emmet Kelly, M.D., taken on April 29, 1987, at 1300
3 Post Oak Boulevard, Houston, Texas, between the hours of
4 8:30 a.m. and 4:30 p.m. before Jerry Kelley, CSR No.
5 2004 and Notary Public in and for the State of Texas.

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11 VIDEO OPERATOR: We're now back on the
12 record. The time is 8:49 a.m.

13 MR. HENDERSON:

14 Q Before beginning -- recommencing your
15 interrogation, Dr. Kelly, I just wanted to say that
16 we've been here since before 8:30, it's now ten to 9:00.
17 We had offered to start, and you agreed, at 7:30 this
18 morning and then at 8:00. And, frankly, we're going to
19 be awfully rushed in order to finish, and with your
20 travel plans it may be necessary that -- that we have to
21 call you back another day. Would you be willing to do
22 that if we have to do that?

23 A Either that or do it in St. Louis.

24 MR. CRAWFORD: Well, we'll talk about that.
25 I thought we had agreed to be here at 8:30. And we were

1 a little late, but that's --

2 MR. HENDERSON:

3 Q Dr. Kelly, I don't know if it was asked of
4 you, but do you have a -- a formal piece that you call
5 your curriculum vitae?

6 A Yes.

7 Q Do you have it with you?

8 A Not with me, no. But -- the lawyers do.
9 I've sent it to them.

10 Q You've sent it to Monsanto?

11 A To --

12 Q Bistline?

13 A Yes, Bist -- no question Bistline has it.

14 MR. HENDERSON: Well, perhaps we -- you could
15 check, either you, Walter, or you, Mark, could check
16 quickly and find out if -- assuming that neither one of
17 us has it, that you can get it to us quickly so we could
18 look at it before the end of the day.

19 MR. CRAWFORD: We can call Shoebottom -- we
20 can call Shoebottom's office at the break and see
21 what --

22 MR. HENDERSON:

23 Q Specifically, other than those items that you
24 included on your report and that which you testified to
25 yesterday involving your educational background, do

1 you -- can you tell us if you've had any publications,
2 if you've done any scientific -- primary scientific work
3 resulting in any publications involving PCBs in
4 particular?

5 A Not PCBs. I've had other publications, but
6 no publications including PCBs.

7 Q Have there been any publications of yours
8 involving the -- any of the polychlorinated
9 hydrocarbons?

10 A No, sir.

11 Q I believe you've testified previously in the
12 past, Dr. Kelly, that -- that while you were at Monsanto
13 between 1936 and 1974, with the exception of the four
14 years you were in the service of our country, that you
15 had not ordered any epidemiological studies to be
16 conducted by Monsanto. Is that true?

17 A In the sense of saying epidemiological
18 studies, yes. We did have what was called a cancer
19 index, which we kept a record of all the cancers
20 occurring in our employees. But it was not a true
21 epidemiological study.

22 Q The answer to the question, then, is that you
23 did not order or arrange for or otherwise recommend the
24 retention of any outside persons or indeed anybody
25 within Monsanto itself to conduct what -- what I believe

1 you are referring to as a formal epidemiological study.

2 A That is correct.

3 MR. CRAWFORD: What years are we talking
4 about? Was that limited --

5 MR. HENDERSON: 1936 to 1974.

6 MR. CRAWFORD: Is that correct, Doctor?

7 THE WITNESS: That's correct.

8 MR. HENDERSON:

9 Q The cancer index, was this something that was
10 compiled at either the Krummrich plant or the Anniston
11 plant, or were various other plants of the -- of the -
12 entire Monsanto complex? -

13 A It was compiled at the general office from
14 the group insurance records, which at one time included
15 95 percent of our employees and retired employees. And
16 after sometime in those years it included a hundred
17 percent of them.

18 Q When did that -- when did you begin to
19 compile the numbers on the cancer index?

20 A I can't recollect whether that started in '38
21 or '40 or whether it started in '46 or '47. I don't
22 recall.

23 Q Sometime either before you went into the
24 service or shortly after you returned?

25 A That's correct.

1 Q Was there anything that triggered or, said
2 another way, was there any particular reason why you
3 began to compile the what you refer to as the cancer
4 index?

5 A There seemed to be a considerable amount of
6 talk about the occurrence of -- possible occurrence of
7 malignancies in various population groups.

8 Q And those population groups would include
9 persons exposed to chemicals generally and in particular
10 to those exposed to polychlorinated hydrocarbons?

11 A No, sir, there were none --

12 Q I'm asking you -- I didn't ask you if there-
13 were any, I'm asking you: Were those the kinds of
14 occupations that you wanted to survey to -- to either
15 confirm or deny the relationship between the discussion
16 regarding the possible malignancies resulting from
17 chemical exposures?

18 MR. CRAWFORD: I don't understand the
19 question.

20 A No, neither do I. Because I thought I
21 answered it satisfactorily the first time. Would you
22 repeat it?

23 MR. HENDERSON:

24 Q The question -- the question is: What was
25 the reason -- strike that.

1 What were the exposures that you were
2 concerned about that gave rise to the keeping of the
3 cancer index?

4 MR. CRAWFORD: If you were concerned about
5 exposures.

6 I don't think he has testified --

7 A There were no --

8 MR. HENDERSON: Excuse me, Mr. Crawford. I
9 think that question is -- is -- is patently clear. And
10 it seems to me that with a little bit of what you did
11 - yesterday and starting out this morning in terms of -
12 suggesting to the witness, if he doesn't understand a -
13 question, I think he can ask me. But he was ready to
14 answer a question. And it just doesn't seem to me to be
15 appropriate for you to be aiding the witness in any of
16 this.

17 MR. CRAWFORD: Well, if I don't understand a
18 question, and if I think you've loaded the question up
19 with something he hasn't said, I have a right to say
20 something about it.

21 MR. HENDERSON: Thank you.

22 THE WITNESS: I would like the question
23 repeated.

24 COURT REPORTER:

25 "Q The question -- the question is: What was

1 the reason -- strike that.

2 "What were the exposures that you were
3 concerned about that gave rise to the keeping of the
4 cancer index?"

5 A I was not concerned about any particular
6 exposures. I kept the cancer index on all hourly and
7 all salaried employees by Monsanto.

8 MR. HENDERSON:

9 Q Why did you do that?

10 A I wanted to find out if there was any
11 clustering of malignancies anyplace in the organization.

12 Q As a result of what?

13 A As a result of inquisitiveness. I had no --
14 no preconceived idea that there would be cancers
15 anyplace, but I wanted to be sure.

16 Q Well, in 1942 were you -- or shortly
17 thereafter were you aware of the publication of a book
18 by Dr. Wilhelm Hueper on the -- on occupational and
19 allied tumors?

20 A Yes.

21 Q Okay. And in that book Dr. Hueper, did he
22 not indicate a cause-and-effect relationship between
23 various chemical substances and certain cancers?

24 A I recall he -- he was particularly interested
25 or I recall his amino compounds. He was -- he dwelt

1 quite a bit on that particular group of chemicals.

2 -- Q Beta naphthylamine and bladder cancer in
3 particular?

4 A That's correct.

5 Q Was that one of the reasons why you had
6 commenced doing your cancer index in and about sometime
7 between 1942 and 1947?

8 A First of all, from 1942 to 1946 I was not
9 there. So -- and I told you before I either started it
10 from 1938 to '42 or from '46 on. I do not know if it
11 was continued during the war. So I can't answer that --
12 question.

13 Q Would Dr. Hueper's work or the beginning
14 discussions regarding Dr. Hueper's investigations have
15 been one of the kinds of reasons which would have
16 triggered your beginning to keep the -- what you refer
17 to as the cancer index in Monsanto?

18 A Well, it might very well have been. It also
19 might have been the association of malignancies and
20 asbestos. It could be an awful lot of things.

21 Q But it just wasn't a chance type thing as
22 you've suggested a moment ago. It had to do -- and I
23 don't mean to argue with you. It had to do with
24 something that had some scientific possibility. Isn't
25 that true?

1 A Well, it certainly was a chance. There was
2 certainly a reason I did it. And the reason I did it
3 was to find out if we had any excesses of cancer in any
4 of our particular plants.

5 Q Okay.

6 A Yes.

7 Q Monsanto is a chemical company, is it not?

8 A Among other things, yes, sir.

9 Q Now, who reviewed this cancer index -- strike
10 that.

11 A Did you monitor and review this cancer index
12 as it was being compiled from and after when it
13 commenced in -- before the war or shortly after the war,
14 when you returned?

15 A Yes, I reviewed it practically every quarter.

16 Q And did you review it with anybody else?

17 A I can't recall whether I did or not.

18 Q Did you discuss it with Dr. Hueper?

19 A No, I did not.

20 Q Were you aware that at some point in the
21 1950s and the 1960s that he was the head of the National
22 Cancer Institute investigating primary tumors resulting
23 from, among other things, chemical exposures?

24 A Yes, I knew Hueper. I've talked to Hueper
25 off and on. In fact, we had bladder cancers from amino

1 compounds.

2 Q Did you -- did you consult with anybody
3 outside Monsanto regarding the statistics that you were
4 compiling for nearly 40 years or perhaps more of this
5 cancer index?

6 A I talked to some of the people at Du Pont who
7 had epidemiologists, I talked to the medical director at
8 Du Pont.

9 Q Did you go to any outside agency such as the
10 Saranac Laboratory or -- or -- or the National Cancer
11 Institute or any -- or any organization, the Industrial
12 Health Foundation or any organization that -- that was -
13 equipped to look at statistics relating to possible
14 links between exposures and cancers regarding this
15 cancer index?

16 A No. With the exception that I told you I
17 talked to the epidemiologists at Du Pont and the medical
18 director of Du Pont.

19 Q Okay. Thank you. Did you share those cancer
20 statistics with anybody within Monsanto?

21 A I'm sure I shared them with people in my
22 department. But we didn't find any clustering, so I
23 don't believe I shared negative information with other
24 people.

25 Q Are you a trained epidemiologist?

1 A No, sir.

2 Q Well, up until -- when did Dr. Johnson come
3 on board?

4 A Approximately 1956, if I remember.

5 Q Was Dr. Johnson a trained epidemiologist?

6 A No, sir.

7 Q What was the first date when Monsanto had on
8 its medical staff a trained epidemiologist?

9 A You'll have to ask someone else. We did not
10 have one up till December the 1st, 1974.

11 Q Did you ever make that recommendation? -

12 A No, sir, I did not. -

13 Q So that we're clear, did you ever make a
14 recommendation to hire an epidemiologist prior to
15 December 1974?

16 A No, sir, I did not.

17 Q So you would have consulted within your
18 medical department, which at that time would have
19 included Dr. Johnson, Elmer -- Mr. Elmer Wheeler and
20 perhaps one or two other toxicologists whom you
21 mentioned yesterday?

22 A Yes, sir.

23 Q Did you ever -- who did you report to up the
24 ladder at Monsanto?

25 A It varied. Sometimes I reported to the

1 administrative assistant -- I mean the administrative
2 vice -- or vice president for administration, sometimes
3 I reported directly to the executive committee.

4 Q Did you ever tell members of the executive
5 committee of the existence of the cancer index?

6 A I don't remember if I did or not.

7 Q Did you ever tell the vice president in
8 charge of industrial relations of the -- of the
9 existence of the cancer index?

10 A I might very well have.

11 Q Do you recall having done that? --

12 A I can't recall whether I did or not. But as
13 I said, I might very well have. After all, we had
14 negative information.

15 Q You're saying that -- you're saying that as
16 a -- as a person who is not trained in epidemiology?

17 A That's correct.

18 Q Okay. Where is -- did you have that cancer
19 index in December 1974? Did you take it when you left
20 Monsanto?

21 A No, I did not.

22 Q Did you leave it with your records?

23 A Yes, sir.

24 Q Do you -- have you had an opportunity to
25 review that since December 1974?

1 A I have not.

2 Q Have you mentioned that to Mr. Bistline or
3 any of the -- the lawyers representing Monsanto in this
4 action?

5 A No, sir.

6 Q Did anybody ask you about the -- the -- the
7 keeping of and the significance of the cancer index
8 involved in this litigation?

9 A Repeat that.

10 Q Did anybody such as Mr. Bistline, Mr.
11 Crawford, Mr. Hall, Mr. Shoebotham, Mr. Freeman or --
12 anybody else representing Monsanto in connection with --
13 this litigation ask you about the existence and the
14 significance of this cancer index?

15 A No, sir.

16 Q Has any other lawyer or any other person
17 since December 1974 discussed the cancer index with you?

18 A Not that I can recollect.

19 Q Is this the first time that you have ever
20 brought it forward in any deposition?

21 A No, sir, it is not.

22 Q Do you know if that material has ever been
23 produced to any other lawyer?

24 A I do not know.

25 MR. HENDERSON: We'll be making a -- we'll

1 ask you now, Mr. Crawford, to check into that and -- and
2 indicate to us whether that cancer index exists, and
3 we'll be making a motion on the record at this point,
4 followed by some formal motion, to -- to secure the
5 production of it.

6 MR. CRAWFORD: We'll take it under
7 consideration.

8 MR. HENDERSON:

9 Q Would you provide us with the particulars on
10 the case that you told us about yesterday where you were
11 retained by the plaintiff on behalf of the railroader --
12 who had contracted a -- a -- a lung problem as a result
13 of the diesel fumes?

14 A Well, the particulars were --

15 Q When I say particulars, I don't mean to
16 confuse you. What was the name of the plaintiff?

17 A I don't remember.

18 Q In which court was it filed?

19 A It was a compensation court in St. Louis
20 someplace.

21 Q Do you have a copy of that deposition?

22 A No, I do not.

23 Q Do you have a copy of the transcript?

24 A No, sir. This -- I don't even remember how
25 many years ago it was.

1 Q Approximately how many years ago was it?

2 A I don't remember.

3 Q Was it since you were --

4 A It was --

5 Q Was it since December 1974?

6 A To the best of my recollection, yes, it was.

7 Q Do you recall if you had provided the opinion
8 to the plaintiff's lawyer regarding the plaintiff that
9 the -- the pulmonary or lung condition from which the
10 individual was suffering was related to his exposure to
11 diesel fumes? -

12 A Yes, I did. -

13 Q And how -- I was going to ask you how you
14 went about that, but I think I can be more precise.
15 What -- what parameters did you consider in -- in
16 ascribing the cause-and-effect relationship between
17 the -- the exposure to the diesel fumes and the
18 resulting lung condition?

19 A First of all, you have to have a scientific
20 methodology. You have to have:

21 A. A product or a compound that will cause
22 pulmonary irritation and, conceivably, pulmonary
23 allergic response.

24 2. It must be in sufficient -- there must be
25 sufficient exposure.

1 3. There must be an immediate response to
2 the offending agent.

3 4. There must be no confounding variables
4 present in this.

5 5. It -- it must occur and be documented in
6 the literature in -- by independent observers.

7 6. There must be physical evidence of action
8 on the target organ, in which case this was the lung.

9 Q Okay. I'm sorry. What was the -- I had
10 sufficient exposure, immediate response, no confounding
11 variables, documented by other observers, and the target
12 organ. What was No. 1? -

13 A History. Adequate history. Adequate
14 documented history.

15 Q In that case how did you conclude that there
16 was an adequate documented history?

17 A Because I spoke to the employee, I spoke to
18 fellow employees, I spoke to individuals who did the --
19 in the management groups who carried out the same --
20 under whose supervision his type of work was carried
21 out.

22 Q So I understand this, you talked to -- you
23 talked to the employee --

24 A Yes.

25 Q -- and you talked to some number of

1 co-employees?

2 A A management group in railroads.

3 Q You talked to the management?

4 A Well, the superintendent of the roundhouse.

5 Q Do you remember who the lawyer was in that
6 case?

7 A I don't remember who the lawyer was in that
8 case.

9 Q How did you determine that there was
10 sufficient exposure?

11 A Because I talked not only to this employee,--I
12 talked to employees of other railroads who worked in
13 roundhouses, and they said that when you were backing up
14 a diesel machine in a roundhouse you would get sprays
15 from this diesel that would cover your windshield and
16 would come into the -- the cab of the train.

17 Q What was the -- what was the immediate
18 response to the -- the irritant agent?

19 A Wheezing.

20 Q Was this a long time or a short-term
21 exposure?

22 A It was a repeated exposure. I cannot tell
23 you how long an exposure the man had.

24 Q Okay. And the wheezing started immediately
25 after the first exposure? Is that your understanding?

1 A No, it is not my understanding. The wheezing
2 started sometime during his -- during his exposure. I
3 don't know when. I don't know if it was the first time
4 or the tenth time. I can't answer that.

5 Q And he was -- he was a person in his fifties
6 or sixties who had worked for 20 years?

7 A I don't remember how long he worked. I
8 believe he was something in his fifties.

9 Q Now, how did you document -- how did you
10 conclude that -- that this -- this condition or the
11 - conditions were documented by other observers? -

12 A Would you repeat that? How did I document -
13 that this condition --

14 Q Yeah. You said one of --

15 A -- was --

16 Q You said one of your criteria was that --
17 that -- that it -- the condition resulting from the
18 exposure be documented by other observers. And I took
19 that to mean medical or scientific literature supporting
20 what your --

21 A Yes.

22 Q -- what conclusions you're reaching.

23 A There is medical literature that says that
24 exposure to some types of petroleum fuels gives
25 pulmonary irritation which is accompanied by wheezing.

1 Q Those would be in the -- in the category of
2 case reports?

3 -- A Yes.

4 Q Okay. What's a case report, Dr. Kelly?

5 A A case report is a report of a medical case
6 that has occurred in the individual's observation.

7 Q Okay. It's also called clinical
8 epidemiology. Have you ever heard that describing a
9 case report?

10 A I don't believe clinical epidemiology reports
11 refers to individual case reports. I am not an -
12 epidemiologist, but I think a case report is far from -
13 clinical epidemiology.

14 Q So you don't consider yourself an expert in
15 epidemiology?

16 A No, I am not an epidemiologist.

17 Q Now, the -- the effects of the chloracne or
18 the -- or the skin condition was reported even earlier
19 than you were first -- from the -- from PCBs even
20 earlier than when you were first employed by Monsanto.
21 Is that true?

22 A They had occurred from PCBs. Whether they
23 were reported before 1936 I'm not certain. They had
24 occurred before 1936.

25 Q Well, they had occurred in the -- in the

1 Swann company that Monsanto had --

2 A Yes.

3 Q -- purchased in 1932 --

4 A Yes.

5 Q -- or 1931. Is that true?

6 A That is correct. But whether they were
7 reported in the medical literature or not I don't know.
8 I understood that's what you meant by reporting.

9 Q Thank you. You're right, and I did, and I
10 stand corrected.

11 You attended a -- a meeting of -- that was -
12 convened by Dr. Cecil Drinker in 1937, shortly after you
13 were employed by Monsanto, to discuss the findings in
14 his paper, did you not?

15 A I attended a symposium called by Dr. Drinker
16 to -- at which the findings of his laboratory and
17 experimental work were discussed. I do not believe it
18 was just a question of discussing his paper. I do not
19 know if his paper was written at the time of the
20 symposium.

21 Q Did you ever see the -- the article after it
22 was published?

23 A Yes.

24 Q Did you -- did you note that there was a --
25 there were several pages of discussion included after

1 the -- the conclusion of his report and the references?

2 A Yes.

3 -- Q And you'll recall that you were noted as
4 being in attendance at that meeting.

5 A Yes.

6 Q And that was a -- that work by Dr. Drinker
7 and others was a work that had -- that had come about as
8 a result of some reported deaths due to PCBs from liver
9 conditions. Is that true?

10 A If by PCBs you mean chlorinated naphthalene.

11 Q No, I mean -- I mean chlorinated naphthalene
12 and -- and chlorodiphenyls.

13 A That is not correct.

14 Q Are -- are chlorodiphenyls the same as
15 polychlorinated biphenyls, or PCBs?

16 A Yes. But all chlorinated -- all PCBs are not
17 chlorinated diphenyl.

18 Q Isn't the -- the PC -- what are chlorodi --
19 what are chlorodiphenyls?

20 -- A There are two phenyl rings attached to each
21 other with chlorine.

22 Chlorinated naphthalene is also two phenyl
23 rings attached to carbon atoms, chlorinated. So
24 chlorinated naphthalene is a PCB.

25 Chlorinated diphenyl benzene is also a PCB.

1 So the work that Dr. Drinker did was
2 primarily with chlorinated naphthalene.

3 -- Q Which are -- which are PCBs?

4 A Which fall under the generic term, yes, PC --
5 no, it's not PCBs, because it's chlorinated naphthalene.
6 Biphenyl is different than naphthalene. This is a
7 chlorinated naphthalene. I can draw it for you if you
8 want.

9 Q No, it's not important. Because I -- I
10 wouldn't understand it anyway. And it really is not the
11 thrust of my question. -

12 What is -- what are the -- what are the -
13 possible effects from having a damaged liver, Dr. Kelly?

14 A It depends on the extent of the damage.

15 Q If the extent of the damage is great enough,
16 it can cause death, can it not?

17 A Yes.

18 Q What's the -- what does the -- the organ
19 known as the liver do in terms of the human body?

20 A It's the primary organ in almost all
21 metabolism of foodstuffs. It has a great deal to do
22 with enzyme production.

23 Q Well, you'll have to -- you'll have to
24 explain that for -- for me and for the members of this
25 jury. That is, enzyme production and metabolism and the

1 like in terms of what it actually does to the body or
2 for the body. Can you do that?

3 -- A Well, it is the organ that changes the food
4 we take in into chemicals that sustain all the cells of
5 the body. It's a primary metabolic organ of the body.

6 Q Explain, then, what metabolism is, or the
7 metabolic function.

8 A The metabolic function is the physiological
9 process in which chemicals or foods which are taken in
10 are changed into various chemicals that are taken by the
11 blood to various organs -- other organs of the body. -

12 Q Could I translate that and say that if -- if
13 the liver isn't functioning properly that the -- the
14 breakdown of the food products isn't -- isn't done
15 properly and the chemicals that are produced by the --
16 by the metabolism that the liver provides then causes
17 other organs not to be nourished properly?

18 MR. CRAWFORD: Why don't you ask him a
19 question?

20 MR. HENDERSON:

21 Q Did you understand that?

22 A No, sir.

23 Q What is the -- could I translate what you've
24 said to say that the other chemical functions or the
25 chemical functions that are -- that are performed by the

1 liver, if the liver is damaged, aren't -- aren't done
2 properly and other tissues aren't getting the proper
3 nourishment? Is -- is that possible? Is that a proper
4 translation?

5 A No, I don't believe it's proper, because you
6 haven't defined the extent of the damage to the liver.
7 Conceivably -- well, you just haven't.

8 Q Conceivably that's possible if the liver
9 is -- is sufficiently damaged?

10 A If the liver is sufficiently damaged. You'll
11 have to tell me how much is sufficient. —

12 Q Well, I don't want to get into a debate -
13 quibbling about words. But all I was trying to
14 establish was that if -- if the liver is damaged enough
15 then the -- the normal -- the other body functions
16 aren't working properly and someone can become very
17 sick, somebody can become very tired, somebody can't
18 perform in a normal fashion. And if the -- and if the
19 liver becomes even more damaged then a person can die.
20 Are all those true? -

21 A I can't answer to a long question like that
22 with one yes or no. Certainly if the liver is damaged
23 enough a person can die.

24 Q Okay. If the liver is --

25 A If we start with that.

1 Q All right.

2 A That's the one end of the spectrum. If the
3 liver is damaged -- if you take three drinks of alcohol,
4 you get some liver damage. You have no clinical
5 response to that. So even though there is some liver
6 damage, there is no problem with the body or the other
7 organs. Now, along that spectrum from the damage of
8 three drinks of alcohol to death from acute liver
9 atrophy, there could be a whole host of things depending
10 on the amount of damage.

11 Q Okay. Now, include for me that whole host of
12 things that can result from somebody who has a liver
13 which is damaged, but damaged -- not damaged enough to
14 cause death.

15 MR. CRAWFORD: That's a pretty broad
16 question.

17 MR. HENDERSON: I think the doctor just said
18 that there are a whole host of things that can result.

19 Q And I'm asking for you to list some of
20 those -- that whole host of things. If indeed you can
21 list all of them, please do.

22 A I can't list all of them. You could get
23 jaundice, you could get cirrhosis of the liver, you
24 could get swelling of the abdomen, you could get
25 enlarged liver.

1 Q Now, those are the physical reactions. What
2 does a person feel as a result of having a -- a damaged
3 liver with a -- with an enlarged abdomen or a -- or a
4 cirrhotic liver? What does a person feel?

5 A He might have no symptoms at all, and he
6 might have -- he might have other symptoms, certainly.

7 Q What other symptoms might he have?

8 A He might have loss of weight. That's a sign,
9 that's not a symptom. Again it depends -- tell me --

10 Q Can a person -- can a person experience
11 fatigability as a result of a damaged liver? -

12 A Yes. -

13 Q Can a person be weak as a result of a damaged
14 liver?

15 A Depends on the amount of damage, yes.

16 Q Can a person feel nauseous as a result of a
17 damaged liver?

18 A It's questionable.

19 Q Can a person feel bad, the medical term I
20 think may be malaise, as a result of a damaged liver?

21 A Again, depending on how damaged it is.

22 Q That can happen?

23 A If a person has sufficient damage to the
24 liver, they can develop that symptom.

25 MR. HENDERSON: Would you pass those to the

1 court reporter, please.

2 COURT REPORTER: You want to mark them, I
3 guess. Mr. Henderson, do you wish --

4 MR. HENDERSON: Yes, please.

5 [Exhibit 2 marked]

6 [Exhibit 3 marked]

7 [Exhibit 4 marked]

8 [Exhibit 5 marked]

9 [Exhibit 6 marked]

10 COURT REPORTER: Exhibits 2 through 6.

11 MR. HENDERSON:

12 Q Dr. Kelly, the -- the first article that you
13 have before you that the court reporter has marked, I
14 believe, as Exhibit 2 is an article. Do you -- have you
15 seen it yet, before you handed it to your lawyer?

16 A Well, I'm getting it back.

17 Q Okay.

18 A I saw the title.

19 Q Because I can't ask your lawyer any
20 questions, I have to ask you questions.

21 A No, I understand that.

22 Q This is an article entitled "Dermatitis from
23 Synthetic Resins and Waxes" by Louis Schwartz. It was
24 in June 1936, apparently senior surgeon of the United
25 States Public Health Service. Do you see that?

1 A Yes, sir.

2 Q Are you familiar with Dr. Schwartz?

3 A Yes, sir.

4 Q Are you familiar with this article? Have you
5 ever seen it before?

6 A Yes, sir.

7 Q Was that one of the articles that you had
8 reviewed back in 1937 when you were first employed by
9 Monsanto?

10 A I can't tell you when the first time I've
11 seen this article. But I have seen it. Often.

12 Q You've seen it before this litigation began:

13 A Yes.

14 Q Right?

15 A Yes.

16 Q Now would you turn to Page 591? Do you
17 know -- excuse me. Before I ask you that, do you know
18 Dr. Schwartz to be a careful investigator?

19 A Well, first of all, he is dead. He is not
20 living. Dr. Schwartz was the senior surgeon for the
21 United States Public Health Service. I was not in a
22 position to comment on his adequacy or inadequacy as
23 a -- as an investigator. He did write books on the
24 subject.

25 Q Okay.

1 Turning to Page 591, near the bottom of the
2 first column it says: "The workers engaged in
3 chlorinating the diphenyl, especially that part of the
4 operation where the crude Aroclor is being redistilled
5 to remove impurities, are affected with an acne-like
6 condition of the skin. This also occurs in workers
7 exposed to the fumes of the chloronaphthalenes, or
8 Halowax." Do you see where I read?

9 A Yes.

10 Q Did I read that accurately?

11 A Yes, sir.

12 Q Did the -- the Aroclor that they're talking-
13 about is a Monsanto product, is it not?

14 A This was a Swann product.

15 Q Swann was bought by Monsanto?

16 A Yes. But when this occurred it was not
17 Monsanto. It has not occurred in the Monsanto plants
18 since Monsanto bought Swann.

19 Q I understand your advocacy on behalf of
20 Monsanto, Dr. Kelly, but that really wasn't my question.

21 A No.

22 Q My question -- please, please.

23 A Yes, sir.

24 Q Okay. My question was: Is that the same
25 air -- did you change the -- the chemical constituents

1 or were the means by which the aroclors were made from
2 and after Monsanto took over Swann or were they
3 essentially the same?

4 A They were not essentially the same, Mr.
5 Henderson, because the particular batch of aroclors that
6 is referred to in this particular document was -- showed
7 up with a different color of -- of Aroclor, it was a
8 different dielectric, it was bad Aroclor, it was sent
9 back, and that particular batch is the one that he is
10 referring to.

11 Q Now, when he says in chlorinating the --
12 diphenyl, do you not agree that when something is --
13 referred to as chlorinated diphenyls that that would
14 include aroclors?

15 A Aroclor is a chlorinated diephenyl, yes, sir.

16 Q Thank you. I thought your answer a little
17 earlier was somewhat different. But if I heard it
18 wrong, I apologize. Thank you.

19 Now, going to the top of Page 591.

20 MR. FREEMAN: Do you have an extra copy?

21 MR. HENDERSON: No. I just have one for the
22 doctor and one for me.

23 Q In addition -- it says: "In addition to
24 these skin lesions, symptoms of systemic poisoning have
25 occurred among workers inhaling these fumes. Those

1 Q I thought it says: "Those working with the
2 chlorodiphenyls have complained of digestive
3 disturbances, burning of the eyes, impotence and" --

4 A Hematuria.

5 Q -- "hematuria."

6 A But then you have to say -- the next sentence
7 says: The latter symptom," i.e., hematuria, "developed
8 among a number of men making aminodiphenyl."

9 Q Thank you.

10 Going to Exhibit 3, this is the article
11 entitled The Journal of Industrial Hygiene and
12 Toxicology. Do you see that?

13 A Yes, sir.

14 Q And this was published in September 1937 and
15 it's entitled "The Problem of Possible Systemic Effects
16 From Certain Chlorinated Hydrocarbons." Do you see
17 that?

18 A Yes, sir.

19 Q Now, that was the article that we spoke about
20 a few moments ago that was -- the problems that were
21 investigated by Dr. Cecil Drinker and others that --
22 that resulted in the -- in the publication of this
23 paper, which includes the discussion starting at Page
24 300 and -- and continuing through Page 311. Is that
25 true?

1 A Yes, sir.

2 Q And that's the discussion that -- the
3 symposium that you attended whenever that was in 1937 or
4 1936. Is that true?

5 A Whenever it was I attended. I do not know
6 the date of it.

7 Q Now, do you recall with -- without digging
8 into this -- this article that this investigation began
9 as a result of some deaths due to liver damage caused by
10 certain chlorinated hydrocarbons?

11 MR. CRAWFORD: Why don't you ask -- -

12 MR. HENDERSON: -

13 Q Is that true?

14 MR. CRAWFORD: Ask him a question rather than
15 making a statement.

16 MR. HENDERSON:

17 Q Do you recall that this paper was -- this
18 investigation resulting in this paper was -- was
19 triggered by the deaths of three individuals from liver
20 damage who had been exposed to certain chlorinated
21 hydrocarbons?

22 A Yes, sir. It says that here.

23 Q Okay. And that -- this paper, if you'll look
24 through it, among other things, talks about the various
25 patients who -- who died as a result of the liver

1 damage. That starts on Page 283, the first page, and
2 continues for several pages thereafter. Do you see
3 that?

4 A Yes, sir.

5 Q Now, the way that -- that Dr. Drinker
6 investigated this is that he not only gave the
7 appropriate detail for those three workers that died
8 but he also conducted various animal experimentations,
9 did he not?

10 MR. CRAWFORD: I'm going to object to the
11 form of the question. Can you ask him a question rather
12 than this soliloquy we have going on, these -- these
13 comments? Just ask him if that's his recollection or if
14 he knows rather than just making statements. I think
15 it's --

16 MR. HENDERSON:

17 Q Did you understand my question, Doctor?

18 MR. CRAWFORD: -- improper.

19 A I've forgotten it.

20 MR. HENDERSON: Okay.

21 Would you read it, please?

22 COURT REPORTER: "Now, the way that Dr.
23 Drinker investigated this is that he not only gave the
24 appropriate detail for those three workers that died
25 but he also conducted various animal experimentations,

1 did he not?"

2 A Yes, sir.

3 MR. HENDERSON: Okay.

4 Q And those animal experimentations included
5 both feeding and exposing the animals to the vapors of
6 the -- of the various chlorinated hydrocarbons?

7 A Yes, sir.

8 Q And among those chlorinated hydrocarbons were
9 included chlorodiphenyls. Is that true?

10 A No, sir.

11 Q Look at Page 297. -

12 A Yes, sir. -

13 Q Do you see where at the bottom or there near
14 the -- near the bottom of the second column it says
15 chlorinated diphenyl?

16 A Yes, sir.

17 Q And they fed the rats chlorinated diphenyls,
18 did they not, according to this article?

19 A According to this article, Mr. Henderson,
20 they fed what they thought was chlorinated diphenyl. In
21 a subsequent article by Dr. Drinker, he stated that he --
22 on further investigation, he did not feed chlorinated
23 diphenyl, he fed chlorinated diphenyl benzene. I will
24 be happy to furnish you with his latter article, which I
25 believe you already have. So that where Drinker has

1 been referring to chlorinated -- to chlorinated
2 diphenyl, he was using something that was received from
3 the Halowax Corporation that was not chlorinated
4 diphenyl, it was chlorinated diphenyl benzene, an
5 entirely different compound. And that he stated in an
6 article in the same journal within one or two years
7 afterwards, and he stated that I was surprised -- I
8 meaning Drinker -- was surprised at the lack of toxicity
9 in chlorinated diphenyl because we had considerable
10 toxicity in the other specimen, and on further
11 investigation it was not chlorinated diphenyl, it was -
12 chlorinated diphenyl benzene.

13 Q Is chlorinated diphenyl benzene a chlorinated
14 hydrocarbon?

15 A Yes, sir?

16 Q Is chlorinated diphenyl benzene a
17 polychlorinated biphenyl?

18 A Yes, sir.

19 Q Thank you.

20 Is a polychlorinated biphenyl a PCB?

21 A Yes.

22 Q Thank you.

23 Dr. Kelly, would you go to Page 300, please?

24 A Yes, sir.

25 Q There was a person by the name of Dr. --

1 you'll have to help me with the pronunciation. Dr. von
2 Oettingen?

3 A Von Oettingen.

4 Q Did you know him?

5 A Yes.

6 Q That Haskell Laboratory of Industrial
7 Toxicology, is that that -- is that that Du Pont
8 facility that you talked to people that you referred to
9 earlier in some of your questioning?

10 A It is a Du Pont facility. I did not say that
11 I talked to people at Haskell Laboratory. I said I -
12 talked to the medical director as well as their
13 epidemiologist.

14 Q Did you ever talk to Dr. von Oettingen about
15 PCBs?

16 A I don't recall. I talked to Dr. von
17 Oettingen off and on in those early days, but I do not
18 know if I talked to him about PCBs.

19 Q In the second paragraph -- do you know Dr.
20 von Oettingen to be a reputable toxicologist?

21 A Yes, sir.

22 Q In the second paragraph in his discussion,
23 the third -- the last sentence, starting with "Since,"
24 it says: "Since there is no animal which corresponds in
25 all its physiological characteristics to the human being

1 it is important that such compounds be studied with
2 different species of animals so that one can get a cross
3 section of the potential dangers." Did I read that
4 accurately?

5 A Yes, you did.

6 Q Do you understand and agree with what he,
7 Dr. von Oettingen, says here?

8 A I understand what he said, yes.

9 Q Do you agree with that?

10 A Well, I think it all depends on a variety of
11 factors about how many species of animals you use, what
12 the exposures are liable to be. So I -- I think this
13 has to be interpreted in light of several factors.

14 Q What he is saying is that if -- if -- if the
15 rat when -- when challenged with a particular substance
16 this demonstrates a damaged liver, that if you do the
17 same with a guinea pig it may demonstrate a damaged
18 kidney?

19 A Or it may demonstrate no damage at all.

20 Q True. And if you do it with a mouse it may
21 be his lungs may be damaged. What he's -- so I'm trying
22 to interpret it. And what I'm -- what I'm asking you
23 is: Can -- if he did mice and rat -- mice and rats and
24 guinea pigs, then he may see -- he may see nothing or he
25 may see a whole different spectrum of problems,

1 depending on the species.

2 A There is -- he may. There is some species
3 differentiation.

4 Q Okay. That's all. Thank you.

5 A There may be some species differentiation. I
6 want to correct that. Yes, there may be.

7 Q Going to Page 304, and this is in reference
8 to Dr. Schwartz again, he's the same Dr. Schwartz even
9 though he's now -- no, I'm -- I take that back. He's
10 the Medical Director of the Dermatoses Investigations in
11 the United States Public Health Service, according to -
12 the -- his identification on Page 304. Do you see that?

13 A Yes, sir.

14 Q Now, he has something that I want to talk to
15 you, ask you a few questions about regarding prevention.
16 And it's in the second full paragraph. It states:
17 "As far as prevention goes, I felt even before this
18 investigation was undertaken that this substance, like
19 any other poisonous substance, can be handled and used
20 in industry provided proper safety precautions are
21 taken, and I so advocated at the meeting in Pennsylvania
22 when this was discussed."

23 I take it from -- that you -- you agree with
24 that, do you not?

25 A Let me read this and then I will tell you.

1 I agree with his statement when he says "this
2 substance," and he refers to Halowax here, "can be used
3 in industry provided proper safety precautions are
4 taken," yes, I agree with that.

5 Q That's essentially what you said yesterday.
6 Is that true?

7 A That's correct.

8 Q Going to Page 310 of the same article,
9 there's a reference to Dr. B. L. Vosburgh. Did you know
10 Dr. Vosburgh?

11 A Yes.

12 Q Dr. Vosburgh, in 1936 or '37, was the medical
13 director of the General Electric Company, was he not?

14 A Yes, he was.

15 Q How long did he -- how long was he with the
16 General Electric Company in the capacity of medical
17 director, if you know?

18 A I don't know.

19 Q Did you have some -- did you have discussions
20 with Dr. Vosburgh at any time while you were medical
21 director with -- with the Monsanto Company?

22 A Discussions about what? Anything?

23 Q Discussions about chemical substances and
24 their possible -- and their potential hazardous effects.

25 A I may have. I don't recall any details.

1 Q Well, he was -- General Electric was one of
2 Monsanto's customers, was it not?

3 -- A Yes.

4 Q You sold them some PCBs under -- what was the
5 trade name of the PCBs that you sold to the General
6 Electric Company?

7 A Pyranol. It was General Electric's patent.
8 They discovered or invented the compound and we
9 manufactured it for them.

10 Q What year did they -- what year did they
11 discover that? Do you know?

12 A I don't know.

13 Q Did they discover Pyranol or Pydraul before
14 Westinghouse patented Inerteen?

15 A First of all, Pydraul is not a transformer
16 fluid. You mentioned Pyranol or Pydraul. Pydraul is
17 not.

18 Q I -- I -- I beg your pardon. Is it
19 P y r a n o l that GE patented?

20 -- A That is correct.

21 Q And -- and it's used in -- in -- for what --
22 for what function?

23 A A dielectric in transformers.

24 Q When did the -- when was that patented by
25 General Electric, if you know?

1 A I don't know.

2 Q Was it prior to 1937?

3 -- A I still don't know. But I believe it was.

4 Q Okay.

5 Now, in his -- in his statement he says,
6 "We have heard about the possibility of preventing liver
7 damage and skin trouble among manufacturers of wires and
8 cables and so forth, but like the old rhyme, every dog
9 has fleas and the fleas have fleas, we also have
10 customers who use wires and cables in tunnels, in
11 enclosed spaces, splicing them together and doing all --
12 sorts of things. I am not at all certain that we know
13 what the concentration of these chlorinated hydrocarbons
14 is under those conditions."

15 Did I read that accurately?

16 A Yes, sir.

17 Q Now, what he is saying is -- is what -- what
18 you said yesterday. Is that not true? That is, he's
19 concerned about the people who are using the products
20 that they manufacture. Isn't that true?

21 MR. CRAWFORD: If you know, Doctor.

22 A I don't know what he means about this. I
23 don't think he said that. I'll read it back to you.
24 "We have heard about the possibility of preventing liver
25 damage and skin trouble among manufacturers of wires."

1 That speaks for itself. He's heard about them.

2 "We have customers who use wires and cables in tunnels,
3 in enclosed spaces. I'm not at all certain we know what
4 the concentration of the chlorinated hydrocarbons is
5 under these conditions." He hasn't said anything about
6 preventing it. He's just said: We've heard about it
7 and I don't know what the concentration is.

8 MR. HENDERSON:

9 Q If you know, as Mr. Crawford has -- has
10 suggested if you know, if you know, do you believe
11 that -- that Dr. Vosburgh is talking about the concerns
12 of people who are using their products and what their
13 exposures might be and whether or not they could be
14 exposed to a potential toxic substance?

15 A I don't know what he meant by that paragraph.

16 Q Okay. Thank you. And weren't you concerned
17 yesterday as you in your -- in the questioning by -- by
18 Mr. Lacey about how the products were being used at
19 Westinghouse and at the TVA and Ford, that is, the PCB
20 products and their potential toxic hazardous effect?

21 MR. CRAWFORD: What's the question?

22 MR. HENDERSON:

23 Q While you were medical director of the
24 Monsanto Company, were you not concerned about the use
25 of your PCBs by -- by people using the products employed

1 by Westinghouse, TVA, Ford, General Electric, Ward
2 Electric and all the others that you sold PCB products
3 to?

4 A We were concerned that we had adequately
5 given warnings and safe handling data and methods to
6 prevent any ill effect --

7 Q And that's what --

8 A -- in our customers.

9 Q And that's what Dr. Vosburgh is concerned
10 about for people using their products, is he not?

11 A He hasn't said that yet --

12 Q Okay.

13 A -- Mr. Henderson.

14 MR. HENDERSON: Thank you.

15 [Off the record discussion between
16 plaintiffs' counsel]

17 COURT REPORTER: I just want to remind you
18 that can be heard on the mike.

19 MR. HENDERSON:

20 Q Going to Exhibit 4, Dr. Kelly, there's a
21 short piece entitled Chlorinated Naphthalenes and
22 Diphenyls authored by Leonard Greenburg, M.D., who is
23 with the Division of Industrial Hygiene in the New York
24 State Department of Labor. And I represent to you that
25 this article was published in the late 19 -- 194 --

1 well, it's at the bottom. It's 1943. Although there's
2 nothing that I have that shows the date of publication
3 or where it was published. Have you seen this before?

4 A Yes, sir.

5 Q Okay. Do you know Dr. Greenburg?

6 A Yes, sir.

7 Q What -- was Dr. Greenburg -- he's obviously a
8 medical doctor. What was his area of specialty or
9 expertise?

10 A His area of special -- of expertise was
11 occupational medicine in regard to various chemicals. --
12 He worked a great deal with mercury. He reported a
13 great deal about various occupational conditions that he
14 had encountered in New York.

15 Q Have you seen this article in the last three
16 months?

17 A Yes, sir.

18 Q Was this one of the articles that -- that the
19 Monsanto lawyers reviewed with you?

20 A They didn't review it. They showed it to me.

21 Q Okay. Had you seen the article back in the
22 1940s when it was published?

23 A I don't know when it was published, but I've
24 seen the article before this case, certainly.

25 Q Okay. Going to the second page, under

1 Conclusions, No. 1 says: "Chlorinated naphthalenes and
2 diphenyls are in general highly toxic compounds and must
3 be used with extreme care." Do you agree with that?

4 A No, sir, I do not.

5 Q Where do you -- how do you disagree with
6 that?

7 A I do not consider chlorinated diphenyl to be
8 generally highly toxic compound.

9 Q You consider it to be what, moderately toxic?

10 A Yes, sir.

11 Q Okay. Do you agree that even though it's --
12 moderately toxic in your view that it should be used
13 with extreme care?

14 A Then again extreme, Mr. Henderson, is -- it's
15 got to be defined. If you mean by that extreme care
16 that you would use with a radioactive substance and use
17 a space suit, no, I do not believe that. I believe that
18 it should be used with care afforded an industrial
19 chemical and that -- that the two -- that the care to
20 avoid skin -- prolonged or repeated skin contact and to
21 avoid breathing the vapors is care, is the care that's
22 needed. Whether that's extreme care under your
23 definition I don't know.

24 Q It's not my definition. It's what Dr.
25 Greenburg said.

1 A Well -- well, then I don't know --

2 Q I mean --

3 A -- what Dr. Greenburg -- whether he considers
4 that. I would not consider that to be extreme care.

5 Q The next sentence is: "Industrial hygienists
6 should make every effort to see that such exposures are
7 controlled insofar as humanly possible." Do you agree
8 or disagree with that?

9 A Well, I agree that in 1943 that statement was
10 correct. In 1974 I don't believe it would be correct,
11 because we had a great deal of human exposure and
12 industrial exposure with no ill effects. So I don't
13 believe that statement --

14 Q That's what you had at -- that was your
15 experience at Monsanto, wasn't it, Dr. Kelly?

16 A That was the experience at Monsanto, it was
17 also the experience of the government people who checked
18 epidemiologically PCB workers.

19 Q That was your -- your -- you're here to
20 testify, as I understand it, regarding the experience of
21 Monsanto as -- as you concluded it from 1936 to 1974.
22 Is that true?

23 A Among other things, yes.

24 Q Now, in concept, do you agree or disagree
25 with the statement "Industrial hygienists should make

1 every effort to see that such exposures are controlled
2 insofar as humanly possible"?

3 -- A No, I don't agree with it. Because as far as
4 humanly possible, you could put people in a space suit
5 out there. And you don't need to do that. But that is
6 humanly possible. You could put a man who was filling a
7 transformer in a space suit and put an air line
8 respirator on them. You could do that humanly, but that
9 is not necessary.

10 Q Going to Recommendations on the next page,
11 No. 3, just read that over about the foremen. --

12 Did you read that No. 3?

13 A Paragraph 3? Yes, sir.

14 Q Do you agree that the foremen of all
15 departments where the material is being handled should
16 be apprised of the toxic nature of the material and
17 instructed in safe handling practices?

18 A You have to refer that particular statement
19 to his first statement under Recommendations, where he's
20 talking about impregnating materials. Here he's talking
21 about impregnating wire, which I understand it was
22 discarded sometime along in that time.

23 Q Do you agree or disagree with Paragraph 3?

24 A I agree with it as far as his reference to
25 impregnating materials, yes, sir. I disagree with it --

1 Q Do you -- do you -- with respect to --

2 A No, I agree with it that they should be
3 apprised of the toxic nature of the material and
4 instructed in safe handling procedures, yes, sir, I
5 agree with that.

6 Q Okay.

7 If you would, Dr. Kelly, would you go to
8 Exhibit 5? That's the February 1939 article appearing
9 in The Journal of Industrial Hygiene and Toxicology. Is
10 that correct?

11 A Yes, sir.

12 Q Okay. And that's one of the journals that
13 the Monsanto Company subscribed to and received in and
14 about that time. Is that true?

15 A Yes, sir.

16 Q And this is an article entitled "The Systemic
17 Effects Resulting From Exposure to Certain Chlorinated
18 Hydrocarbons" by this same Dr. Greenburg and others. Do
19 you see that?

20 A Yes, sir.

21 Q Go to Page 38, which is the last page of the
22 article. Do you see where it says Recommendations for
23 Medical -- Medical Control at the top?

24 A Yes, sir.

25 Q Go to No. 2.

1 A Yes, sir.

2 Q Says, "Persons suffering from the typical
3 acneform eruption should be removed from further
4 exposure." Do you see that?

5 A Yes, sir.

6 Q Would the typical acneform eruptions be what
7 you referred to yesterday and earlier today as
8 chloracne?

9 A I'll have to read the article. I just can't
10 pick out one sentence and say what he's talking about.
11 So let's look at the article. -

12 Q All right.

13 A Well, the first case is a 17-year-old girl
14 who was exposed to chlorinated tri- and
15 tetrachloronaphthalene. She had a papulo-pustular
16 eruption present on her face. Whether that was
17 chloracne or not I don't know. But it said here she has
18 pigmentation. And that very well may have been
19 chloracne. And if that is correct, she should have been
20 removed from her operation, should not be allowed to
21 come in contact with chlorinated naphthalene, which she
22 was doing.

23 Let's go to No. 2. He was working in a wire
24 factory coating wire with wax with the higher
25 chlorinated naphthalenes. It doesn't mention anything

1 about chlorinated diphenyl in this particular operation.
2 It doesn't say anything about whether he had a rash or
3 not. He had an acute liver failure from inhalation of
4 chlorinated naphthalene.

5 No. 3 worked as the same wire plant as No. 2.
6 The only rash they talked about was healing
7 exanthematous rash of the forearms. That is not
8 chloracne.

9 Now, what was your question again, sir?

10 Q My question was: Do you agree that persons
11 suffering from the typical acneform eruptions exposed to
12 chlorinated hydrocarbons should be removed from further
13 exposure?

14 A Yes, I think, depending on the amount of --
15 of the chloracne. Some cases are minor. I've seen very
16 minor chloracne with insecticides. It was not necessary
17 to remove them. But certainly --

18 Q Did you --

19 A Yes, sir, okay.

20 Q I'm sorry. Are you finished?

21 A That's enough.

22 Q Did you ever communicate that to General
23 Electric?

24 A Communicate what?

25 Q That persons suffering from typical acneform

1 eruptions should be removed from further exposure.

2 A No, sir.

3 Q Did you ever -- did you ever communicate that
4 to Westinghouse?

5 A No, sir. I'm sure their medical departments
6 read the same articles I did.

7 Q Did you ever communicate that to the TVA?

8 A No, sir.

9 Q Did you ever communicate that persons
10 suffering from the typical acneform eruption should be
11 removed from further exposure either to Westinghouse, -
12 TVA or Ford?

13 A No, sir.

14 Q If you would -- what exhibit number is that,
15 Doctor?

16 A Five.

17 Q Would you go to Exhibit 6, please? This is
18 an article that was in The Review of Gastroenterology in
19 the November-December edition, 1944. Do you see that?

20 A Yes, sir.

21 Q It's entitled "Hepato-Toxic Effects Following
22 Occupational Exposure To Halowax (Chlorinated
23 Hydrocarbons)." Is that correct?

24 A That is correct.

25 Q Have you had an opportunity to review this

1 article?

2 - A I don't recall if I've seen it in preparation
3 for this case. May I do it now?

4 Q Sure.

5 A Yes, sir, I think I've -- not in depth, but
6 I've gone over it.

7 MR. CRAWFORD: Be sure you understand it,
8 Doctor.

9 THE WITNESS: Yes.

10 MR. HENDERSON:

11 Q If there's any question I ask you, Dr. Kelly,
12 that you don't understand, you take whatever time you
13 need to review the article to --

14 A Thank you.

15 Q -- familiarize yourself sufficiently with it
16 before you attempt to answer any question.

17 A I will.

18 Q Okay.

19 Would you go to Page 386? I don't want to
20 read all of this into the record, but if you'll take --
21 just take an opportunity to review those three
22 paragraphs starting at "Reports of Toxic Effects on
23 Humans."

24 A Yes, sir.

25 Q What they say there, in effect, is that there

1 have been several reported cases -- ten, in fact -- that
2 have demonstrated liver damage secondary to chlorinated
3 hydrocarbons. Is that true?

4 A I'll have to see whether they're referring to
5 the same cases or not, Drinker's three cases. Let me
6 take this one at a time. He had three cases that had
7 acute jaundice and liver failure after exposure to
8 Halowax. There was no further definition of the
9 Halowax. Halowax is in the main chlorinated naphthalene
10 and some Halowaxes have ten percent chlorinated
11 diphenyl, some have chlorinated diphenyl benzene. -

12 Then he mentions, in addition to the other
13 three cases, "We have learned of four other possible
14 cases." But he gave no description.

15 Greenburg reported three additional cases
16 following exposure to chlorinated naphthalenes.

17 Q Okay. So that's -- that's six -- six persons
18 who died and four others that may be affected?

19 A Due to chlorinated naphthalenes.

20 Q Due to whatever the article says?

21 A Well, he said chlorinated naphthalenes.

22 Q Okay. Is that -- is my mathematics accurate?
23 Six deaths and four other possibilities?

24 A That's correct.

25 Q Okay.

1 A Then we have --

2 Q Do you have something else you want to say?

3 A Well -- beg your pardon.

4 Q Do you have something else you want to say?
5 Because that was my question.

6 A Well, then he comes down to one nonfatal
7 case, reported by Mayer and Smith, who was exposed to
8 Halowax vapor and she developed jaundice.

9 Another case. He was exposed as a machinist
10 in a factory to chlorinated hydrocarbons. I don't know
11 what chlorinated hydrocarbons that was. It could have-
12 been tetrachlorethylene, it could be a lot of
13 chlorinated hydrocarbons. But he died of acute toxic
14 hepatitis.

15 Q Have you completed your review and answer?

16 A Yes, sir.

17 Q Okay.

18 Would you go to Page 396, the last page?

19 A Yes, sir.

20 Q There's a discussion that -- that -- by
21 Dr. Alfred Angrist that's part of this -- part of the
22 article. Do you -- did you know of or do you know of
23 Dr. Angrist?

24 A No.

25 Q Within the last paragraph, starting with

1 "There is another aspect," would you tell me when you
2 have finished reading that?

3 -- A Last paragraph?

4 Q Yeah.

5 A Yes, sir.

6 Q He's -- Dr. Angrist is talking about the
7 synergistic action of the toxic chemicals. What is
8 this -- what is synergistic action?

9 A Synergistic means that if you have one
10 compound that produces a certain amount of toxicity and
11 a second compound that produces a second amount of
12 toxicity that the combined action may be more than
13 simple addition.

14 Q Were you aware that Bennett, Drinker and
15 Weiner had demonstrated synergism experimentally?

16 A In their paper they refer to given carbon
17 tetrachloride and no liver poison to individuals that
18 they had exposed to chlorinated diphenyl. Whether that
19 was synergistic or additive I don't know.

20 -- Q Do you agree with that last sentence where it
21 says, "Certainly no alcoholics should be employed for
22 duties exposing them to such toxic agents"?

23 A If by alcoholics he means a chronic
24 alcoholic, a person suffering from -- I don't know what
25 he means by an alcoholic. If he means -- may I finish?

1 If he means by an alcoholic what is at present day
2 referred to somebody who has alcoholic abuse, certainly
3 they should not be.

4 Q What are the -- what are the modes of
5 exposure to a substance such as PCBs, Dr. Kelly?

6 A Skin absorption and inhalation. Conceivably
7 people could drink it, but -- but that is not a common
8 exposure. The common exposure is skin absorption and
9 inhalation.

10 Q But it -- but it can be ingested. Is that
11 true?

12 A Oh, it could be swallowed, certainly.

13 Q Well, if somebody got it -- if somebody got
14 it on their hands and lighted a cigarette and put it to
15 his lips, it could be taken -- it could be ingested in
16 that fashion, could it not?

17 A Some infinitesimal amount could be, yes, sir.

18 Q All of these -- all three of those modes of
19 exposure were known back in the 1930s, were they not?

20 A At the time of Drinker's work, he gave
21 animals -- I don't know if Drinker did skin absorption
22 tests, but it was known -- so that ingestion was
23 known -- industrial ingestion was certainly not a
24 prominent thing then, isn't prominent now, never has
25 been prominent. Inhalation exposure was known, yes,

1 sir.

2 Q The two principal ones that you referred to
3 earlier, dermal or skin contact and inhalation of fumes,
4 were certainly known 50 years ago?

5 A Yes, sir.

6 Q Can you -- if -- if a person tests at a
7 certain number of parts per billion in the blood, is
8 there -- do you have a way of comparing the toxicity of
9 that -- let's say -- let's assume that it's 10 parts per
10 million PCBs in the blood.

11 A Per million?

12 Q Per billion.

13 A Billion.

14 Q Per billion. PPB.

15 A Okay.

16 Q How does -- in terms of comparing the -- the
17 potential toxic effect, how would -- would you be able
18 to equate that with the same levels in the fat tissue?

19 A I wouldn't. Somebody might.

20 Q What would you do?

21 A Well, I don't know if you can look at a
22 person with 40 parts per billion in the blood and say
23 they've got X amounts parts per million in the fat.

24 Q No, I wasn't saying that.

25 A Oh. Well, you asked me to equate parts per

1 billion in the blood with parts in the fat.

2 Q I understand. And I -- let me rephrase it.
3 If a -- if a person has 10 parts per billion in his
4 blood, would that equate in terms of its toxic --
5 potential toxic effects to 10 parts per billion in the
6 fat?

7 A You're using billion in both cases now?

8 Q Yes.

9 A Would you -- I want to be sure about this
10 question. Repeat it, please.

11 COURT REPORTER: "I understand. Let me --
12 rephrase it. If a -- if a person has 10 parts per
13 billion in his blood, would that equate in terms of its
14 toxic -- potential toxic effects to 10 parts per billion
15 in the fat?"

16 A First of all, 10 parts per billion in the
17 blood does not equate to any toxic effect anyplace.

18 MR. HENDERSON:

19 Q That wasn't my question. We can -- we
20 could --

21 A Your question --

22 Q We could make it -- what would you -- what do
23 you say is the minimum level for toxic effects -- for
24 potential toxic effects in a human of parts per billion
25 in the blood?

1 A You said billion -- million this time?

2 Q I said billion.

3 A You said billion. Okay. It depends on how
4 prolonged the level in the blood was. You have a higher
5 level in the blood when it is being excreted, if it is
6 going to be excreted. So if a person were to have --
7 pick a figure. I'd have to speculate. I can't answer
8 that question.

9 Q Well, I don't -- I didn't want you to
10 speculate in the first place, I just wanted you to
11 compare whether or not the potential for toxic effects--
12 would be substantially the same for a person having the
13 same levels of PCBs in his blood as in his fat.

14 MR. CRAWFORD: If you know.

15 A I don't know. I don't know. Because we've
16 got to give me some levels in the fat and you've got to
17 give me some levels as to how long it's going to be in
18 the blood. I don't know.

19 MR. HENDERSON:

20 Q Is Mr. Crawford saying if you know --

21 A No.

22 Q -- does that tell you that you're to answer
23 "I don't know"?

24 A No, he isn't telling me that. I'm not a
25 puppet here. There are people with elevated levels in

1 their fat that show no toxic effects. So it's hard for
2 me to equate your statement about potential toxic
3 effects in the blood versus potential toxic effects in
4 the fat.

5 Q In other words, you can't answer the
6 question?

7 A I cannot answer your question.

8 Q Okay.

9 Yesterday you -- you used the phrase -- and
10 I'll put it in context, because I need to know what it
11 means. You used the phrase "definite possibility." Do
12 you recall that?

13 A No, I don't.

14 Q Okay. I don't know if you -- I don't know if
15 I copied this verbatim or not, but the sense that I had
16 from some of your answers yesterday was that you -- in
17 the -- in the context of examining periodically your
18 employees, or employees of Monsanto, you indicated that
19 you would recommend that they be examined more
20 frequently if there were a definite possibility of
21 chemically-induced problems. Do you recall that?

22 A I don't know whether I used those particular
23 words, yes, but I recall.

24 Q Well, I recall you definitely using the words
25 "definite possibility."

1 A Well --

2 Q And I'd like to know if you can tell me what
3 you mean by that phrase or those two words.

4 MR. CRAWFORD: Well, you've got to put it in
5 context with some question.

6 A Well, I could give you -- Mr. Henderson, we
7 had a group of people that were exposed to chromic acid.
8 Chromic acid causes nosebleeds. If we knew that this
9 occurred, we knew that if people were left in long
10 enough exposed to chromic acids in addition to their
11 nosebleeds they would have perforation of the nasal -
12 septum. That had been reported in the literature. So
13 there was a definite possibility that if a person had
14 high enough exposure to chromic acid he could get a
15 perforated nasal septum. So we looked -- there was a
16 target and an action that was known. So we looked at
17 these people oftener, because there was a possibility
18 that they may have developed this nasal irritation which
19 could lead to something worse.

20 MR. HENDERSON:

21 Q Well, in the 1930s, then, I take it by that
22 definition that there was a -- a definite possibility of
23 persons developing skin and liver problems some of which
24 could result in death from exposure to chlorinated
25 hydrocarbons.

1 A Where?

2 Q In the literature that we reviewed for the
3 last hour. There was a definite possibility of persons
4 exposed to chlorinated hydrocarbons of developing skin
5 problems, namely chloracne, and certain liver problems.

6 A Not a definite possibility. If they were
7 exposed in sufficient amounts, they would get it. If
8 they were exposed in the wire drawing industry, they got
9 it. But in other uses they did not get it. So there
10 was not a definite possibility in those cases.

11 Q Do you -- are you saying, then, that there is
12 a -- that there is a certain dose necessary for someone
13 to be exposed to before that individual will contract
14 some liver damage or hepatitis condition induced by
15 PCBs?

16 A Yes, sir.

17 Q What is that dose?

18 A I don't think it's known in humans.

19 Q Okay.

20 -- And do you agree that individuals can vary
21 one from the other in terms of what it might take for
22 one individual to develop a certain problem as compared
23 to another individual?

24 A There are cases of individual differences in
25 susceptibility.

1 Q That's otherwise referred to sometimes as the
2 host factor, is it not? Have you ever heard that
3 expression?

4 A Not in this context.

5 Q Okay.

6 What is the Industrial Health Foundation or,
7 something that you may have known it to be, the
8 Industrial Hygiene Foundation?

9 I thought the first designation was the Air
10 Hygiene Foundation, if I remember correctly. Whether it
11 went to the Industrial Hygiene Foundation or something-
12 else I don't know. It was a group in Pittsburgh that
13 did some work in industrial environments, as far as I
14 could tell.

15 Q Did you ever attend any of their meetings?

16 A Yes, I did.

17 Q Did you know Dr. -- did you know or do you
18 know Dr. Dan Braun?

19 A Yes, sir.

20 Q How -- when and -- approximately what time
21 frame and how frequently did you attend meetings of
22 the -- of the Industrial Health Foundation or Air
23 Hygiene Foundation or whatever name it went by at that
24 time that you attended?

25 A I thought it was -- I attended two or three

1 meetings sometime in the late Forties, early Fifties.

2 I'm not sure.

3 Q Okay.

4 Did you also receive at the medical
5 department of Monsanto the Industrial Hygiene Digest
6 that was produced and sent out monthly by the Air
7 Hygiene Foundation or Industrial Hygiene Foundation?

8 A We received it. I don't know how long. I
9 don't know if it came monthly or quarterly. But we
10 received it for a few years.

11 Q What -- what can you tell -- what's your --
12 recollection of what those publications included?

13 A I don't remember. I thought they dealt
14 mostly with dust and fumes. I'm not sure. I don't
15 recall what they -- what they were.

16 Q Were you aware that the -- that the outfit
17 which I'll refer to as the foundation in Pittsburgh,
18 that the foundation also offered to its member companies
19 literature searches based upon whatever articles that
20 they had abstracted and had cataloged?

21 A No, sir. I have no recollection. I may
22 have. I don't know.

23 Q Okay.

24 Did you ever avail Monsanto of any of the
25 services of the foundation in Pittsburgh?

1 A [No reply]

2 Q If you recall.

3 A I don't recall.

4 MR. CRAWFORD: Are we near a breaking point?
5 We've been going --

6 MR. HENDERSON: Anytime you want to break.

7 MR. CRAWFORD: -- pretty -- pretty good.
8 Let's take one.

9 VIDEO OPERATOR: We're going off the record.
10 The time is 10:27 a.m.

11 [Recess]

12 VIDEO OPERATOR: We're now back on the
13 record. The time is 10:36 a.m.

14 MR. HENDERSON:

15 Q Dr. Kelly, did you ever attend any of the
16 meetings of the Saranac Laboratory?

17 A We had a toxicological program up at Saranac
18 Laboratory. I went to Saranac Laboratory three or four
19 times. Whether or not there was a meeting at one of the
20 times I went up there I just don't remember. I was
21 there one time when there were quite a few other people,
22 so whether I hitchhiked on to the meeting or not I don't
23 know.

24 Q Did Saranac ever do any consulting work for
25 Monsanto in terms of any of the -- the toxicological

1 effects of any of the Monsanto chemicals?

2 A Yes, sir.

3 Q Which ones? Which chemicals?

4 A Santocel.

5 Q Santa --

6 A Santocel. S a n t o c e l.

7 Q What is that?

8 A It's a polymorphous silica compound.

9 Q Did it ever do any work with respect to any
10 of the Monsanto polychlorinated hydrocarbons?

11 A No, sir.

12 Q Did you ever have any meetings at Saranac
13 regarding the polychlorinated hydrocarbons?

14 A No, sir.

15 Q Going back to the foundation in Pittsburgh --
16 [Exhibit 7 marked]

17 COURT REPORTER: Exhibit No. 7.

18 MR. HENDERSON:

19 Q You are looking at what has been marked as
20 Plaintiff's Exhibit No. 7 and you are handing it to
21 Mr. Crawford, who is sitting to your right, who is now
22 reviewing it.

23 That, Dr. Kelly, I represent to you, is -- is
24 one of the abstracts that came out of the deposition
25 last week of Dr. Daniel Braun from the foundation in

1 Pittsburgh. And that would have been included in -- in
2 one of the Industrial Hygiene Digests. According to
3 what I understand how the testimony went with Dr. Braun
4 in April of 1945, which is the date that's shown up to
5 the right. Do you -- these, of course, would have been
6 in a much smaller piece when they were abstracted in the
7 digests that were sent to member companies. Do you
8 remember any better now than you did while we were
9 asking the few questions before the break of the
10 composition of that Industrial Hygiene Digest?

11 A No, sir, I don't.

12 Q Do you remember -- do you remember anything
13 about the abstracting of this article or the possible
14 translation of -- of this article into the English
15 language entitled "Toxicology of Some Chlorinated
16 Aromatic Hydrocarbons"?

17 A Well, this is -- do I remember -- what is
18 your question? Do I remember --

19 Q Have you ever had access to this article by
20 translation into the English language?

21 A I don't recall if I ever did.

22 Q Do you recall having seen this -- this
23 abstract?

24 A No, I don't recall having seen it. I don't
25 know whose chlorinated biphenyl it is. This is a

1 European article, is it not?

2 Q Well, it appears to be. I don't know what
3 the -- it says Farmakoľ i Toksikol. And I don't know
4 what --

5 A Doesn't seem English.

6 Q -- language that is.

7 A Doesn't seem English. So presumably it's
8 some European chlorinated diphenyl.

9 MR. CRAWFORD: I think in fairness he
10 probably would need to see the article itself. I mean
11 you've got an abstract and it's just pulled out of -
12 context somewhere and I think that's going to be pretty
13 hard to identify.

14 THE WITNESS: Well, I haven't seen it and I
15 don't know whose diphenyl it is, I don't know which
16 diphenyl it is.

17 MR. HENDERSON:

18 Q Dr. Kelly, it says here about halfway down
19 "Both chlorodiphenyl and trichlorobenzene caused
20 leucocytosis followed by leucopenia." What's -- what is
21 leucocytosis, if you know?

22 A Increase in white cells.

23 Q And what is leucopenia?

24 A Decrease in white cells.

25 Q What's the difference between chlorodiphenyl

1 oxides and chlorodiphenyls?

2 A One has an oxygen radical on which the other
3 one doesn't. I could comment they used very high levels
4 here, didn't they?

5 Q Is that what you want to comment about?

6 A Yes. They used three grams per cubic meter.

7 MR. HENDERSON: Bill, can you find these to
8 hand to the witness? I'll show you which ones I want to
9 give you.

10 MR. LITTLE: Yes. Can I walk in front of the
11 camera?

12 MR. HENDERSON: Do you have these, Mr. -
13 Crawford, the ones that Dr. Kelly -- the medical reports
14 that you brought over after the lunch break yesterday?

15 MR. CRAWFORD: I don't know.

16 THE WITNESS: I never got mine back.

17 MR. HENDERSON: Well, you look to your right.
18 There's Mr. Crawford. He's responsible for it if --

19 MR. CRAWFORD: I don't think so. I think we
20 must have left them up at the -- No. I don't know
21 where they are.

22 MR. HENDERSON: Weren't you going to give
23 those to the court reporter?

24 MR. CRAWFORD: Wait. Hang on.

25 MR. HENDERSON: Just hand the batch of them.

1 MR. FREEMAN: These are the same.

2 MR. CRAWFORD: Yeah.

3 MR. HENDERSON: Have they been marked?

4 COURT REPORTER: No, sir.

5 MR. HENDERSON: Would you mark those, please,
6 Mr. Kelley?

7 COURT REPORTER: Do you want me to take the
8 time right now to mark them individually?

9 MR. HENDERSON: No, no. I just want each
10 group marked, Caves, Curtis, Evans and so on.

11 COURT REPORTER: Would you like to put them
12 in that order? I don't know --

13 MR. HENDERSON: They should be already.

14 COURT REPORTER: Y'all may want to go off the
15 camera while we do this.

16 MR. HENDERSON: Okay. Fine.

17 VIDEO OPERATOR: Off the record.

18 [Exhibit 8 marked]

19 [Exhibit 9 marked]

20 [Exhibit 10 marked]

21 [Exhibit 11 marked]

22 [Exhibit 12 marked]

23 [Exhibit 13 marked]

24 [Exhibit 14 marked]

25 [Exhibit 15 marked]

1 [Exhibit 16 marked]

2 [Exhibit 17 marked]

3 VIDEO OPERATOR: We're now back on the
4 record.

5 MR. HENDERSON:

6 Q Dr. Kelly, you have now before you what have
7 been marked as Exhibits 8 through 17. And if I might,
8 to speed this up, these are the records that you were
9 supplied by Monsanto of the various plaintiffs that are
10 going to -- presently scheduled to go to trial on --
11 beginning June 8th, 1987, in Beaumont. Is that true? -

12 A Yes, sir. They supplied me these, yes, sir.

13 Q These are ten -- these are ten individuals?

14 A Yes, sir.

15 Q Was this the -- was this the total supply
16 of -- of medical records by Monsanto or by any of the
17 lawyers representing Monsanto on these ten cases?

18 A This is all I've ever seen. In fact, I have
19 not looked over the records of Dr. Busch, I believe, who
20 was appended to the back. I haven't seen -- I haven't
21 gone over his at all.

22 Q You just looked over the reports of the
23 examining -- or the experts engaged by the plaintiffs?

24 A Well, I only looked at what I saw here and I
25 made some notes about other medical records which I

1 would have liked to have seen.

2 Q So that I understand it, you're not in any
3 position to offer any opinions one way or another on
4 these particular individual cases at this time.

5 A At the present time, I am not.

6 Q And the only way you would be comfortable in
7 doing that would be reviewing the -- the complete
8 medical records of all these people?

9 A Yes, sir.

10 Q Would you need to do anything else to make
11 yourself sufficiently familiar with all of the other --
12 with any of the other parameters that you told us about
13 yesterday entering into your -- your criteria for
14 determining causation in an individual case?

15 A I would talk to epidemiologists.

16 Q Would you want to review the epidemiological
17 literature as well?

18 A Well, I don't think I would have the time
19 between now and the trial to review the epidemiological
20 literature, but I would ask for the epidemiologist who
21 presumably has reviewed the literature and ask him for
22 his opinion.

23 Q Now, going to what I would -- what I believe
24 is marked as Exhibit 9, that's the -- this first sheet
25 is the March 3, 1987, report of Dr. Daniel T.

1 Teitlebaum. Is that correct?

2 A Yes, sir.

3 Q And on the bottom of the -- of the first
4 sheet you have some handwritten notes. Would you tell
5 me what those are?

6 A One said the man has --

7 Q I'm asking you what your notes are.

8 A Beg your pardon.

9 Q I'm asking you what your handwritten --

10 A That's what I'm writing.

11 Q Yes.

12 A That's what I'm saying. I have two notes
13 on -- on Mr. -- on Dr. Teitlebaum's report. The first
14 has reference to his chronic obstructive pulmonary
15 disease. And I wrote on that that he had 120 pack years
16 of smoking.

17 Q I think you're -- I'm sorry. Are you looking
18 at Howard Curtis?

19 A No. I'm looking at No. 9.

20 Q Which number -- what is No. 9?

21 A Junior Caves.

22 Q I'm sorry. Please look at Mr. Curtis.

23 A Whoops. The first one?

24 Q It may be the one that you have turned over.

25 A Oh, he's 8. He's 8. Yes, sir.

1 Q Would you indicate what your handwritten
2 notes are?

3 A Yes. It said -- I -- said, "Where is the
4 evidence about liver damage?" That's one handwritten
5 note. The other, I circled the statement where it says
6 "generated in the ovens in which transformers were
7 baked." I'm not familiar with transformers being baked.

8 Q And to that you said "This is nonsense"?

9 A I think so, yes, sir.

10 Q Where's -- what evidence would you want about
11 the liver damage?

12 A I would want a history, I would want all --
13 any previous hospitalization, I would want the amount
14 of -- his history of alcoholism, I would want liver
15 enzymes. None of which I see here.

16 Q With reference to the -- the breakdown of the
17 PCBs, you -- you do understand, do you not, that
18 phosgene can be created at certain temperatures at PCBs?

19 A I'm not certain of that, sir. You'll have to
20 ask someone else about that.

21 Q Would you go next to the -- the report of
22 Ralph Evans?

23 A Yes, sir.

24 Q Is that Exhibit 10?

25 A Yes, sir.

1 Q What is that note that you have down to
2 the -- in the right-hand margin at the bottom of the
3 page?

4 A It says: "What is different?"

5 Q Okay.

6 Would you go to Mr. French, please?

7 A Yes, sir.

8 Q Is that Exhibit 11?

9 A Yes, sir.

10 Q You have written at the end of the -- one,
11 two, three -- fourth paragraph, you say, "Where is this
12 evidence?" Do you see that?

13 A Yes, sir.

14 Q Does that refer to the carcinogenicity or the
15 cancer-causing of PCBs?

16 A It refers to a statement "The carcinogenicity
17 of polychlorinated biphenyls undoubtedly contributed to
18 this skin disease." And my question on that was:
19 "Where is this evidence?"

20 Q Okay.

21 Going to Mr. Hutchens' report, which if it's
22 following should be Exhibit 12. Do you have Mr.
23 Hutchens' report?

24 A Yes, I do.

25 Q Is that Exhibit 12?

1 A Twelve, yes, sir.

2 Q Down at the -- near the bottom of the -- the
3 first page of Dr. Teitlebaum's report it says: Exposure
4 to benzene and known leukemogen, and to PCB, a probable
5 human carcinogen, makes it highly unlikely that these --
6 makes it -- makes it highly likely that these two
7 substances were synergistically involved in the
8 causation of his leukemia.

9 And to that you wrote above the first line,
10 "but not leukemia." What did you mean by that?

11 A Well, he states that he has got leukemia. He
12 states that he had chronic lymphocytic leukemia since -
13 1977. And PCB has not been linked to linked
14 epidemiologically with leukemia in humans.

15 Q Have you read the -- have you read the recent
16 articles by Brown and Bertosse?

17 A Yes, sir.

18 Q Is exposure to benzene a known leukemia -- a
19 known substance that causes leukemia?

20 A Yes.

21 Q I take it that you don't have any dispute
22 about PCB being a probable human carcinogen.

23 A I have a great deal of doubt that it's a
24 human carcinogen. In fact, I don't believe it is.

25 Q Going to the report on Mr. Toon, what is that

1 exhibit number?

2 A Sixteen.

3 Q What are your handwritten comments on Mr.
4 Toon?

5 A Said, "Westinghouse, Bloomington," on the
6 first page; nothing on the rest.

7 Q That's your only comment on Mr. Toon?

8 A It's the only one I wrote down. I may have
9 other comments if I study it more carefully.

10 MR. HENDERSON: Would you have those attached
11 as part of the exhibit, Mr. Kelley. —

12 COURT REPORTER: Yes, sir. —

13 MR. HENDERSON: Specifically those that Mr.
14 Crawford has. And provide back to Mr. Crawford copies
15 of those. Because there are --

16 Q There are highlights on those, are there
17 not --

18 A Yes, sir.

19 Q -- Dr. Kelly?

20 A Yes, sir.

21 MR. HENDERSON: And -- and some of them
22 you -- those wouldn't -- I can represent to you did not
23 appear on the copies that I have.

24 May I see those a moment, Mr. Crawford?

25 MR. CRAWFORD: Sure.

1 MR. HENDERSON: Mr. Kelley, would you mark
2 these as the next four exhibits, which should be
3 Exhibits 18, 19, 20, and 21.

4 [Exhibit 18 marked]

5 [Exhibit 19 marked]

6 [Exhibit 20 marked]

7 [Exhibit 21 marked]

8 COURT REPORTER: Exhibits 18 through 21.

9 MR. HENDERSON:

10 Q Dr. Kelly, would you identify Exhibit 18 for
11 the record, please? —

12 A It is a report from Scientific Associates in
13 St. Louis, Missouri, dated November the 10th, 1953,
14 which refers to the acute oral toxicity of Aroclor 1254.

15 Q Is Aroclor 1254 one of the polychlorinated
16 biphenyls manufactured and sold by Monsanto?

17 A Yes, it is.

18 Q Would you refer to Page 3 of that report,
19 please --

20 A Yes, sir.

21 Q -- Dr. Kelly? Under the category
22 Discussion --

23 A Yes, sir.

24 Q -- there's a reference in the last sentence
25 of the first paragraph that says, "There was moderate

1 diarrhea, lethargy and poor appetite in all of the
2 animals."

3 A Yes, sir.

4 Q What -- what significance -- strike that.
5 Isn't the significance of that is that those symptoms
6 can -- I emphasize the word "can" -- occur in humans by
7 exposure to Aroclor 1254?

8 A Can? If somebody took a lethal dose of this
9 by mouth they could get diarrhea, lethargy and poor
10 appetite, yes. But that -- you've got to relate that to
11 the dose. They were killing these animals. Half of --
12 them died.

13 Q Well, the -- the diarrhea and the lethargy
14 and the poor appetite were demonstrated before their
15 deaths, surely, weren't they?

16 A Certainly. But they had a toxic dose that
17 would have killed them in what, three days? One to six
18 days. So -- the majority of the deaths occurred in two
19 to six days. Certainly that's a poisonous dose they
20 were given by mouth.

21 Q Going to Exhibit 20, would you identify that
22 for us, please?

23 A Twenty is a report from the Younger
24 Laboratory on the acute toxicity of Aroclor 4465, dated
25 July the 3rd, 1962.

1 Q Okay. Is that one of the aroclors that was
2 sold by Monsanto?

3 A Yes, sir. Aroclor 4465.

4 Q And that's the -- one of the polychlorinated
5 biphenyls, or PCBs?

6 A It's a mixture of biphenyls and terphenyls.

7 Q It's one of the PCBs?

8 A Yes. But it's -- you said before -- it's
9 terphenyls also. It is terphenyls as well as -- as
10 biphenyls.

11 Q I understand. —

12 Go to the last -- I'm sorry, not the -- it -
13 would be Page 4, with the identification number at the
14 bottom of SCM 002625.

15 A Yes, sir.

16 Q There is a discussion, and these again were
17 lethal doses. It says: "Toxic symptoms included
18 lethargy and reduced appetite after several days. Those
19 succumbing developed tremors and anemic-like appearance
20 several days before death." Do you see that?

21 A Yes, sir.

22 Q What are tremors or tremors?

23 A A tremor is an involuntary muscle movement.

24 Q What causes a tremor?

25 A It could be caused from anything from

1 nervousness, fright, or, in the case of animals, immense
2 doses. Five grams per kilogram to an animal, which
3 would be the equivalent of 350 grams to a 70-pound
4 individual by mouth. Ten ounces of it.

5 Q You reviewed an article published in one of
6 the dermatology journals authored by Dr. Tindall
7 associated with the United States Air Force Academy?

8 A Did you say have I reviewed it?

9 Q Yes.

10 A I don't know. May I see the article?

11 Q Well, I don't have it. I'm just asking you--
12 if you recall it. I'm not going to ask you any
13 questions --

14 A I do not recall it.

15 Q -- about it other than that.

16 Dr. Kelly, have you read the -- have you
17 reviewed the toxicological literature with respect to
18 PCBs including -- of course, including those in those
19 toxicology reports that were produced for Monsanto at
20 its request?

21 A [No reply]

22 Q Let me break that down. You are aware of the
23 toxicology reports, a sample of which you've just
24 reviewed and about which I've asked you a few questions,
25 from Scientific Associates, Younger, Industrial Biotest

1 and others that Monsanto retained and gauged over the
2 years?

3 A Yes, sir, I reviewed the articles, the
4 reports from toxicological laboratories that were sent
5 to me during the time I was with Monsanto. I may have
6 seen some articles or reports that were furnished
7 Monsanto subsequent to my departure. And if you show me
8 those articles, I can tell you whether I reviewed them
9 or not.

10 Q Did you review the -- the -- the
11 toxicological literature in the published medical and --
12 scientific journals between 1936 and 1974?

13 A I reviewed some of them. I didn't review the
14 ones in foreign languages. I depended on our
15 toxicologists in the latter years to do a lot of
16 reviewing.

17 Q Since your retirement in 1974, have you
18 reviewed the -- the toxicological literature regarding
19 PCBs that has -- that has developed since 1974?

20 A I've seen some articles on it. I can't say
21 that I have reviewed the entire scope of all the
22 articles that have been printed about PCB. But I've
23 seen any number -- a good number of them.

24 Q Have you -- did you review the -- the
25 literature -- the epidemiological literature while --

1 regarding PCBs and their possible adverse health effects
2 during the time between 1936 and when you retired in
3 1974?

4 A I do not recall any epidemiological reviews.
5 I may have seen some of them, I don't know. If you show
6 me the article, I'll tell you whether I reviewed it. I
7 do not remember which ones I reviewed. But if you show
8 me any article, I'll tell you if I've seen it before.

9 Q Do you recall specifically for us now, if you
10 can, what articles you have -- epidemiological articles
11 you have reviewed since 1974 in connection with PCBs? --

12 A I've reviewed Dr. Gaffey's epidemiological -
13 review, I've --

14 Q Dr. Gaffey is the --

15 A Epidemiologist at Monsanto.

16 Q When did he -- when was he hired?

17 A Sometime after 1974.

18 Q Who was the coauthor of -- of the -- the
19 report that Dr. Gaffey authored?

20 A I don't know.

21 Q When did you review that?

22 A Sometime in the last two to three years.

23 Q Have you reviewed any of the -- do you know
24 if Dr. Gaffey's report has been published?

25 A I don't know.

1 Q Have you reviewed any of the epidemiological
2 work in the -- in the open literature?

3 A I've read some of them, yes, sir. I can't
4 recall which ones I've read, but, again, if you show me
5 an article I'll tell you if I've read it.

6 Q In particular have you -- do you recall
7 having read the series of articles coming out of the --
8 the rice oil poisoning case -- cases in -- in Japan?

9 A Yes, I've read those.

10 Q Have you also read the series of articles
11 coming out of the -- a similar incident in Taiwan some-
12 years later?

13 A Yes, sir.

14 Q When did you first review the articles
15 that -- that have come out of the Yusho poisoning
16 incident in the late 1960s in Japan?

17 A Sometime within three to six months after it
18 was published.

19 Q Would that have been in the early 1970s,
20 prior to your -- while you were still the medical
21 director of the Monsanto Company?

22 A I can't tell you. If you show me when it was
23 published, I'll tell you when I read it.

24 Q No, I was -- I was not asking you whether you
25 read it. I was asking you about when you read the Yusho

1 articles.

2 A Well, I answered by saying I read it three to
3 six months after it was published. I do not know the
4 date it was published.

5 Q Do you recall reading the -- any of the
6 articles by Fishbein and others at the Mount Sinai
7 School of Medicine regarding their work in connection
8 with the capacitor workers?

9 A I don't recall that. I may have. But again
10 if you show me the article I will tell you. But I do
11 not recall it. -

12 Q Do you remember any of the articles -- do you
13 remember having read any one of the two or three
14 articles by Maroney in connection with the electrical
15 workers?

16 A I've read it at some time. I'm not familiar
17 with the details at the present time. I recall the
18 name.

19 Q Dr. Kelly, do you accept the -- the definite
20 possibility of a relationship between exposures to PCBs
21 and chloracne?

22 A It depends again on how much you quantify the
23 exposure.

24 Q Well, if a person is -- if a person is -- is
25 exposed to PCBs and develops chloracne, do you accept

1 the -- the definite possibility of a relationship
2 between the two, that is, the exposure and the
3 chloracne?

4 A If he is exposed in a sufficient amount. If
5 the chloracne occurs in a time frame relative to his
6 exposure.

7 Q What is that time frame?

8 A Something within three to six months after
9 his exposure.

10 Q After chloracne --

11 A Depending again on the dose. -

12 Q Well, if the chloracne occurs within three to
13 six months after his exposure to PCBs and he has had no
14 other known confounders, that is, anything else that may
15 have caused the chloracne, do you accept the
16 relationship between the exposure and the chloracne?

17 A If he has no other confounders, if he has a
18 definite demonstrable exposure, if he has a sufficient
19 high enough level of exposure, and if the chloracne is
20 diagnosed by a reputable dermatologist on the basis of
21 looking at it while he has the chloracne rather than
22 looking at it from a historical point of view, then
23 there is a possibility that he got it from PCB if there
24 were no other chlorinated hydrocarbons such as
25 agricultural chemicals that this man was exposed to.

1 Q Okay. My questions are going to -- are going
2 to have you assume that all of these other factors
3 are -- are taken into account. Because I'm really not
4 interested in whether or not in a -- in a particular
5 case the chloracne is a cause or is not a cause. I'm
6 asking you if you accept the definite possibility that
7 PCBs can cause chloracne.

8 A Yes, it can.

9 Q Okay. That's all I'm asking you.

10 A Again, in sufficient dose.

11 Q You can add all the things that you want to--
12 add and I'm not -- I'm not -- I'm not gonna hold you to
13 any of those. I'm just asking you, and I think you've
14 answered the question --

15 A But I amended it by saying, Mr. Henderson,
16 that you have to have a sufficient dose. If a man is
17 exposed to a -- a small amount of PCBs, under the
18 allowable limits, he will not get chloracne.

19 Q I understand.

20 A All right.

21 Q I'm only asking -- the word is -- it seems to
22 me the word I'm asking is can. All I'm asking is: Can
23 PCBs cause chloracne?

24 A In sufficient amounts, yes. You've got --

25 Q I -- I -- I asked you -- let's assume that

1 there are sufficient amounts to which he has been
2 exposed. Now I'm asking you: Can PCBs cause chloracne?

3 -- A Yes. But that's a different question than
4 you asked me before. PCBs cannot cause -- cause
5 chloracne if a man is exposed to a tenth of a milligram
6 per cubic meter. Can't cause it. If he is exposed to
7 three, four, five milligrams per cubic meter over a
8 prolonged period of time it could cause it, yes, sir.

9 Q Well, let's go back to the tenth of a -- one
10 tenth of a milligram per cubic meter. Is that what --
11 is that the --

12 A That's what I used.

13 Q Okay. What if he has that exposure and in
14 three to six months he's had no other exposure and he
15 develops chloracne. Are you -- are you saying that --
16 that the exposure that he had three to six months
17 earlier had nothing to do with the development of the
18 chloracne?

19 A It may or it may not have.

20 - Q Okay.

21 Do you -- do you accept the -- that
22 exposure -- in sufficient quantities -- do you accept
23 the fact that exposure in sufficient quantities can
24 cause liver damage?

25 A Yes, sir.

1 Q Do you accept that PCBs in sufficient
2 quantities can cause other forms of systemic toxicity?

3 A No, I do not.

4 Q Do you accept the fact that PCBs and/or their
5 breakdown products in sufficient quantities can cause
6 pulmonary or lung conditions?

7 A What breakdown products?

8 Q Phosgenes. Chlorine.

9 A First of all, I do not know the industrial
10 relationships in which phosgene is formed from
11 breakdowns of PCBs. And I do not know how much
12 phosphene -- phosgene could be -- could occur. I do not
13 know that. It has not been reported in -- to the best
14 of my knowledge, in any quantification. So I can't
15 answer your question. Could I have the question over?
16 See what I'll answer.

17 COURT REPORTER: "Do you accept the fact that
18 PCBs and/or their breakdown products in sufficient
19 quantities can cause pulmonary or lung conditions?"

20 A If PCBs are broken down into phosgene and
21 chlorine or hydrochloric acid fumes in sufficient
22 quantities, they could cause lung problems. Then I said
23 there was no report of industrial situations where that
24 obtained.

25 MR. HENDERSON:

1 Q Well, if I showed you -- your opinion might
2 be different about what's in the literature if I were
3 able to show you something where pulmonary or lung
4 problems associated with PCBs had been reported?

5 A Certainly they have been reported. And they
6 have been discounted also in the literature.

7 Q Who has discounted them?

8 A Kimbrough.

9 Q Are you aware -- when did Kimbrough -- when
10 did -- are you referring to the -- the toxicologist
11 pathologist at the -- in Atlanta? -

12 A Yes, sir.

13 Q Renate Kimbrough?

14 A Yes, sir.

15 Q And she reported -- she discounted the
16 pulmonary effects due to PCBs --

17 A Yes.

18 Q -- in something that she has written?

19 A Yes, sir.

20 Q When was that?

21 A Sometime this year.

22 Q In what journal was that?

23 A I don't recall.

24 Q Who showed you that?

25 A Mr. Crawford.

1 Q When did he show you that?

2 A When?

3 Q Yes.

4 A Last two days.

5 Q Do you have a copy of the article?

6 A No, I don't.

7 MR. HENDERSON: Do you have a copy of the
8 article?

9 MR. CRAWFORD: I can get you one.

10 MR. HENDERSON: Okay. Thank you. When can
11 you get it? -

12 MR. CRAWFORD: I don't know. I'll try to get
13 one this afternoon. It's over at Shoebotham's.

14 MR. HENDERSON:

15 Q Do you accept the -- the fact that PCBs in
16 sufficient quantities can cause neurological conditions?

17 A No, sir.

18 Q Have you read the reports from -- from Yusho
19 in that regard?

20 A Yes, sir.

21 Q Do you reject those?

22 A No. There were other things in there besides
23 PCBs. There were --

24 Q Do you --

25 A -- benzofurans.

1 Q All right. Do you accept the -- the fact
2 that dibenzofurans can cause -- dibenzofurans in
3 sufficient quantities can cause neurological conditions?

4 A I would have to review the literature. I'm
5 not prepared to answer that yes or no at the present
6 time.

7 Q Well, you had reviewed the literature
8 sufficiently to reject out of hand the PCBs, but -- but
9 you're not prepared to give us an answer on the furans?

10 A That is correct. Because I recall them
11 stating that there were a large -- a considerable amount
12 of benzofurans, and they related the untoward conditions
13 to benzofurans rather than PCBs.

14 Q Do you accept the fact that PCBs or
15 dibenzofurans in sufficiently -- in sufficient
16 quantities can cause gastrointestinal disorders?

17 MR. CRAWFORD: You say either/or or --

18 MR. HENDERSON: Either -- or. Or.

19 MR. CRAWFORD: One or the other?

20 MR. HENDERSON: One or the other.

21 MR. CRAWFORD: So that's two questions.

22 MR. HENDERSON: Well, no, it's one question
23 with an or.

24 A Can I answer one at a time? Will you give me
25 two questions if there's --

1 MR. HENDERSON:

2 Q You can answer however you want.

3 -- A All right. I'll answer however I want.

4 What's the question?

5 COURT REPORTER: "Do you accept the fact that
6 PCBs or dibenzofurans in sufficiently -- in sufficient
7 quantities can cause gastrointestinal disorders?"

8 A Benzofurans have been known to cause
9 gastrointestinal problems. What the mechanism is or the
10 particular gastrointestinal disorder I don't -- I can't
11 answer at the present time. PCBs have not, in my
12 experience, been associated with the causation of
13 gastrointestinal disorders. Whether or not in
14 sufficient quantities -- in acute episodes where the
15 liver is overwhelmed, they certainly could cause
16 gastrointestinal disorders in that context.

17 MR. HENDERSON: Thank you.

18 Q Do you accept the fact that PCBs or
19 dibenzofurans in sufficient -- either in sufficient
20 quantities can produce certain immunological effects?

21 A Like which immunological effects?

22 Q Do you know whether or not any immunological
23 effects can be caused by PCBs or dibenzofurans in
24 sufficient quantities?

25 A It is my impression that benzofurans can

1 cause immunological defects when given in sufficient
2 quantities. I am not familiar with any evidence that
3 would show that PCBs in sufficient quantities could
4 cause it. I have no recollection of that at the present
5 time.

6 Q Is -- is your support for your statement
7 about the possible relationship of furans and
8 immunological defects based in part at least on the
9 Yusho experience?

10 A It's been based part on that and part on the
11 reviews of the Yusho experience by other people. -

12 Q Is there any other support that you can lead
13 us to that would provide the basis for -- for your
14 statement that furans can cause -- taken in sufficient
15 quantities can cause immunological defects?

16 A No, sir.

17 Q Do you know who Dr. Harold Klawans is?

18 A No, sir.

19 Q Have you had the opportunity to review any of
20 his -- have you reviewed any papers of Dr. Klawans,
21 either published papers or papers to be published?

22 A I can't say. If you show me one of his
23 papers, I'll answer it. I -- I don't know.

24 Q Have you reviewed any papers -- have you
25 reviewed any medical or scientific literature indicating

1 that certain neuromuscular problems have been associated
2 with exposures to PCBs or dibenzofurans or
3 dibenzodioxins?

4 A Let us take these one at a time. I know that
5 dibenzodioxins have been associated with epidemial
6 literature as stating they have neurological changes or
7 neurological symptoms and neurological occurrences. The
8 dibenzodioxins. I do not know of -- recall or have not
9 reviewed any with PCBs. I don't know of -- of those.
10 Any of those. I may have reviewed some on the
11 dibenzofurans. I -- I don't -- can't answer that. -

12 Q So my question is clear, I asked you about
13 neuromuscular problems and you indicated neurological.
14 Are you distinguishing between neurological and
15 neuromuscular or do you want -- excuse me -- or do you
16 accept the fact that neuromuscular problems can come
17 from neurological disorders?

18 A Well, if you have a neurological disorder, if
19 you have a peripheral neuritis, you may have muscular
20 problems associated with it if that peripheral neuritis
21 is in a muscular nerve.

22 Q Okay.

23 Have you observed or have you seen reported
24 in the open literature the relationship of PCBs or
25 dibenzofurans in sufficient quantities and certain

1 musculoskeletal problems?

2 A No, sir, I have not reviewed those.

3 -- Q Have you seen the reports in the Yusho -- do
4 you recall the reports in the Yusho series of articles
5 regarding the presence of joint pain?

6 A I have a vague recollection, but I can't be
7 positive about it.

8 Q If there were, would that be a
9 musculoskeletal problem?

10 A Well, then again it depends on what you mean
11 by musculoskeletal problem. If a person has a joint -
12 pain for two weeks, he does not have a -- and it goes
13 away, he does not have a musculoskeletal problem. But
14 it obviously has happened to the skeleton, because the
15 joints are part of the skeleton. So by your definition
16 you could consider that. I wouldn't consider temporary
17 joint pain a musculoskeletal problem.

18 Q If the joint pain continued for some months
19 on a regular, perhaps frequent, basis, you would
20 consider that a musculoskeletal problem?

21 A And led to skeletal changes, yes, sir.

22 Q Did you work with phosgene in the -- in the
23 second world war?

24 A I was around where it was, if that's what you
25 mean. I was there when they filled phosgene shells.

1 Q Were you aware of the -- of the potential
2 toxic effects of exposure to phosgene?

3 A Oh, yes.

4 Q What were those?

5 A Pulmonary edema.

6 MR. HENDERSON: I'm about to ask for a break,
7 so -- Okay. Having lost my microphone and having it
8 put back on by the able attendant, I'm going to ask for
9 a few-minute break in order to consult and determine if
10 I have any more questions.

11 MR. LACEY: Do you want to go ahead and take
12 an early lunch break, Walter, at this point and try to
13 maximize our time?

14 MR. CRAWFORD: That may be a good idea.
15 Because you say it's a problem.

16 MR. LACEY: Why don't we shoot for 12:15.

17 MR. CRAWFORD: Well, why don't we take an
18 hour? Because we've been at it pretty hard here for
19 three hours.

20 MR. LACEY: I'm just recognizing we're going
21 to have a real hard time finishing up today. Whatever
22 y'all want to do.

23 MR. CRAWFORD: What have you got? How much?
24 You are going to --

25 MR. LACEY: Quite a bit.

1 MR. CRAWFORD: Okay.

2 MR. LACEY: I'm letting Tom get his questions
3 on the expert issue out of the way, but we've still got
4 quite a bit --

5 MR. CRAWFORD: He's done a good, efficient
6 job. I'd like to see you --

7 Tom, can you give me Klawans' articles, too?
8 Would you do that? I'd like to just take a look at
9 them.

10 MR. HENDERSON: I don't have them with me.

11 MR. CRAWFORD: Okay. --

12 MR. HENDERSON: We're trying to get the --
13 we're trying to get the prepublication, that which he is
14 presenting over --

15 MR. CRAWFORD: Yeah, I'd like to see that.
16 I'll get -- I'll get the Kimbrough thing to you, too.

17 MR. HENDERSON: Can you get that? Can you
18 have that sent up to me?

19 MR. CRAWFORD: I think so. Yeah, I can do
20 that.

21 MR. LACEY: Do you have all the exhibits that
22 we had here yesterday --

23 MR. CRAWFORD: Yeah.

24 MR. LACEY: -- that were --

25 MR. CRAWFORD: Well, I don't know. No, not

1 all of them.

2 MR. HENDERSON: Is this still on?

3 MR. LACEY: Yes, it should be.

4 All the documents that you had here yesterday
5 that were provided him, I'm not through with those. So
6 we need to have those back.

7 MR. CRAWFORD: Now, wait. They were
8 mostly --

9 Are we off the record?

10 MR. LACEY: No, we're on the record. And we
11 need to stay on the record. --

12 There were a group of documents that were
13 brought over yesterday and identified as all the
14 documents he had been supplied by you-all, and we still
15 need to have those here this afternoon.

16 VIDEO OPERATOR: We're now going off the
17 record. The time is 11:38 a.m.

18 [Recess]

19 VIDEO OPERATOR: We're now back on the
20 record. The time is 12:30 p.m.

21

22 FURTHER EXAMINATION BY

23 MR. LACEY:

24 Q Dr. Kelly, yesterday before we took the
25 nighttime recess you were going to do some calculations

1 and have that information for us on the relationship
2 between exposures in parts per million for the
3 categories of highly toxic, moderately toxic and
4 slightly toxic. Have you done that?

5 A Yes, I have. I have done it in a different
6 sense, because you would have to get a toxicologist to
7 calculate dry weight to average weight. But I happen to
8 have here a tabulation of toxicity classes in which it
9 lists extremely toxic up to one milligram, which means a
10 taste, probable lethal dose for a man, a taste or one
11 grain. To put that in context, a small aspirin tablet--
12 is five grains, although it's not all aspirin, there's
13 starch in it.

14 Highly toxic is one to fifty milligrams. And
15 that would mean the probable lethal dose for a man is
16 one teaspoon.

17 Moderately toxic is 50 to 500, which is
18 calculated probable lethal dose for a man is one pint --
19 is one ounce, sorry.

20 - Slightly toxic goes from .5 to 5 grams per
21 single oral dose per kilogram. That's a -- one pint.

22 Practically nontoxic is 5 to 15 grams per
23 kilogram. Probable lethal dose for a man is a quart.

24 Relatively harmless is 15 grams and above.

25 This is from the Society of Toxicology, by

1 Harold Hodge and James Sterner from Eastman Kodak. And
2 I'll be happy to give you a copy of it.

3 Q Fine. Why don't you hand --

4 A If I can get it back.

5 MR. LACEY: Why don't you hand that to
6 reporter and we'll let him mark that as the next
7 exhibit.

8 [Exhibit 22 marked]

9 COURT REPORTER: Exhibit 22.

10 MR. LACEY:

11 Q Dr. Kelly, is Exhibit 22 the source you've --
12 used to give me the information you've just elucidated?

13 A Yes, sir, it is.

14 Q Now, that had an additional category you
15 didn't tell me about yesterday of extremely toxic.
16 Correct?

17 A Yes, sir.

18 Q What sort of things are in the extremely
19 toxic category?

20 A Sodium fluoroacetate, which is Parathion,
21 which is a -- an insecticide, a generic name for
22 Parathion. They may have listed other compounds in
23 there -- sodium fluoroacetate is the only one they list.

24 Q Okay. Is that -- is there a way to translate
25 that into a parts per million or a parts per billion?

1 Did you do that in terms of --

2 A Well, I tried to, but you'll have to get a
3 toxicologist. Because I could tell you how many grams a
4 person eats a day in a standard diet, but I do not
5 know -- that's dry weight. And I don't know how that
6 is -- is -- corresponds to your total intake.

7 Q Okay.

8 Now, you mentioned at some point in your
9 examination about the patenting of PCBs. It's my
10 understanding that the process for the manufacture of
11 PCBs was patented by the Swann Chemical Company. Is --
12 that your understanding?

13 A No. If I mentioned about patenting, I should
14 withdraw any knowledge of the patent. I don't know
15 anything about when it was patented, who patented what.
16 I do know that General Electric had a patent on the
17 material that we manufactured for them. When they got
18 it I don't know.

19 Q You're not aware of the fact, then, that was
20 a use patent for the use as dielectric, but not a patent
21 that even entitled them to manufacture it?

22 A I don't know the details of the patent.

23 Q Are you aware of any PCBs actually being
24 manufactured by General Electric?

25 A Now or ever?

1 Q Well, in the period of time you were employed
2 by Monsanto did they manufacture PCBs for commercial
3 purposes?

4 A I don't know whether they did or not.

5 Q As far as you know, Monsanto was the sole
6 supplier of PCBs to General Electric, were they not?

7 A As far as I know.

8 Q Despite whatever the patent arrangements may
9 have been?

10 A That's correct.

11 Q And you really don't understand what those -
12 patent arrangements are on behalf of GE or Monsanto or
13 Westinghouse or anybody else?

14 A That's correct.

15 Q Okay.

16 You mentioned something about space suits and
17 people wearing space suits. What do you mean when you
18 talk about a space suit?

19 A Well, a space suit is a totally-enclosed,
20 impervious garment.

21 Q Are space suits sometimes used in connection
22 with the handling of chemicals?

23 A Sometimes they are, yes, sir.

24 Q Okay. And in fact isn't it correct that
25 space suits are used today in handling spills of PCB

1 materials?

2 A They may be. They may be. I do not know.
3 The EPA may demand that. I don't know.

4 Q You haven't kept up with the developments in
5 the PCB business enough since your retirement to know
6 what the law requires with regard to their safe
7 handling?

8 A I haven't kept up with the details. But I do
9 know that there was no manufacturer of the material in
10 the United States since 19 -- the middle of 1970s. So
11 during that time -- following that time there have been
12 regulations put out by EPA and OSHA as to what people
13 should wear. Whether I agree with those regulations is
14 a different point of view.

15 Q Well, my question to you is whether you knew
16 enough about those regulations to tell me whether they
17 required the wearing of this thing that you called a
18 space suit.

19 A I'm not familiar enough with the regulations,
20 no, sir.

21 Q Okay. You don't know what level of
22 protection, if any, that they required, then, in
23 handling PCBs?

24 A No, I don't know the levels.

25 Q Okay.

1 When did space suits become available?

2 A They were available during World War I -- or
3 World War II when they were used in places where they
4 were making components for the atom bomb, radioactive
5 materials.

6 Q Okay. So they've been around since World War
7 II?

8 A Yes, sir.

9 Q Are they used in industrial applications at
10 all?

11 A [No reply]

12 Q Commercial production I mean. Say in
13 chemical plants.

14 A They may on certain spills. I do not know of
15 them being used routinely except in some radioactive
16 installations.

17 Q Okay.

18 You or people working for you were
19 responsible for the precautions actually exercised in
20 the Monsanto production facilities for PCBs, were you
21 not?

22 A No, sir. We were responsible for setting
23 forth the precautions and the procedures. The actual
24 implementing of the precautions and procedures were --
25 was a function of the safety department of manufacturing

1 installations. Manufacturing people.

2 Q Let me try to make my question clear. You or
3 your group would recommend, for example, the wearing of
4 gloves if that were necessary. Correct?

5 A Yes, sir.

6 Q You would recommend the availability of
7 protective clothing by the plant, if necessary?

8 A If necessary.

9 Q You would recommend showers on company time,
10 if necessary?

11 A I do not believe we would recommend whether-
12 it was company time or not.

13 Q You would just recommend that there be
14 showers?

15 A That's correct.

16 Q And whether or not it was on company time was
17 a plant decision?

18 A That's correct.

19 Q You would recommend the availability of
20 special creams to put on the skin of workers. Correct?

21 A No, sir. Protective creams really have not
22 been particularly effective, so we wouldn't recommend
23 them.

24 Q I see. Would you then recommend the
25 withdrawal of protective creams so that they wouldn't

1 give a false sense of security?

2 A It would depend on the operation.

3 Q Who determined whether a particular operation
4 within a particular plant was considered a toxic
5 department or not? Your group?

6 A First of all, I do not know whether
7 particular -- particular plants -- particular
8 departments were considered toxic. I don't know what
9 that appellation means -- meant in an individual plant.
10 When I came with the Queeny plant, there were some
11 departments where aniline was used, they were considered
12 toxic departments. But I didn't hear that word used for
13 any except those few departments at the Queeny plant.

14 Q Did you have anything to do with the labeling
15 of the departments as toxic departments or not having
16 such a label?

17 A I had a lot to do with unlabeled them.

18 Q I see. So you went around and unlabeled
19 departments from being toxic departments?

20 A Yes.

21 Q Okay. And what was the effect of your doing
22 that?

23 A Nothing.

24 Q I see. I guess it might make workers who
25 worked in that department feel a little bit better about

1 it that they weren't working in a toxic department.

2 A Well, I don't know. But the -- our
3 experience was such that it was not --

4 Q I see.

5 A -- a toxic department.

6 Q I see.

7 Let me show you a document, 998 through 1002,
8 which relates to plant operating instructions, dated
9 August 29th, 1946. Among other things, that document
10 deals with plant precautions, does it not?

11 A Yes, sir.

12 Q For the manufacture of the PCB aroclors.
13 Correct?

14 A Yes, sir.

15 Q And that document was put out after you
16 became the head of the medical department, was it not?

17 A Well, it was dated after I became the head
18 of -- of that. I don't know if this was existing
19 beforehand and this was a rewrite of the same thing or a
20 second edition of the same thing. The date is after I
21 became medical director, yes, sir.

22 Q Well, unless somebody misdated it, that
23 particular document was put out after you became head of
24 the medical department. Correct?

25 A This one that I'm holding in my hand, yes.

1 Q Yes. And one of your functions as the head
2 of the medical department was to review and comment on
3 the plant precautions that were taken with regard to
4 various manufacturing operations of Monsanto. Correct?

5 A Yes.

6 Q Let me look at the document with you briefly
7 if we can. Let's try to work our way through it.

8 MR. CRAWFORD: Have you got another copy of
9 this?

10 MR. LACEY: No, I don't. They're all
11 documents that you-all produced to us, Walter. -

12 May I see it?

13 MR. CRAWFORD: Sure.

14 MR. LACEY: Thank you.

15 Q This document talks about toxicity, does it
16 not?

17 A Yes, sir.

18 Q And aroclors are defined as toxic materials.
19 Correct?

20 A By their definition, yes, sir.

21 Q Well, this is a Monsanto definition, is it
22 not?

23 A That's right. I do not know who wrote --
24 Mr. Smith and Mr. Soffranko, I don't know who those
25 people are.

1 Q Well, at least we do know that Monsanto is
2 putting out for its own internal use a document in
3 August of 1946 that identifies aroclors as toxic
4 materials. Correct?

5 A No. Two people at some plant, I don't know
6 which plant this is, put out this document. I don't
7 believe that that means Monsanto is putting out this
8 document. Mr. Smith and Mr. Soffranko at a particularly
9 unnamed plant put this out.

10 Q I see.

11 A I don't recall if I've ever seen this -
12 document before.

13 Q Okay. Well, let me -- let me go ahead and
14 finish looking at it with you here, if we could. It
15 indicates that to prevent toxicity clean change of
16 clothes is furnished daily to each employee and time is
17 allotted at the end of each shift for bathing. In
18 addition, one should wash his hands and face before
19 eating. Was that the Monsanto policy for people working
20 in the Aroclor department in 1946?

21 A I can't answer that. I don't remember
22 whether it was or not. This may have been at this
23 particular plant. I don't know which plant it was, so I
24 can't tell you.

25 Q How many plants could it possibly be?

1 A The Anniston plant and the Krummrich plant.

2 Q Okay.

3 -- It also indicates that a spare change of
4 clothes is kept in a case mounted in the actual Aroclor
5 portion of the plant. Correct?

6 A Yes, sir.

7 Q Also indicates that personal safety equipment
8 was provided to employees. Correct?

9 A Yes, sir.

10 Q And in their department --

11 A Please, not in my ear. -

12 Q Oh, I'm sorry.

13 In their department they got goggles,
14 spectacles, rubber-covered gloves, canvas gloves, rubber
15 shoes and a fume respirator. Correct?

16 A Yes, sir.

17 Q Do you recall which plant had those things
18 supplied in the Aroclor department?

19 A I don't know.

20 Q Okay. There was also a gas mask in the
21 department as well. Correct?

22 A Yes, sir.

23 Q Let me show you another document from
24 Monsanto, beginning at 999 -- I'm sorry -- beginning at
25 990 and continuing through 997. Now, this is a document

1 dated April 1955 regarding the process for producing
2 aroclors at both the Anniston and the Krummrich plant.
3 Correct?

4 A Yes, sir.

5 Q Now, this document was put out almost ten
6 years after the medical department had been functioning
7 and you were medical director. Correct?

8 A Yes, sir.

9 Q And you would have examined both the Anniston
10 plant and the Krummrich plant, including the Aroclor
11 departments, on several occasions before this document-
12 was put out.

13 A Yes, sir.

14 Q Correct?

15 A Yes, sir.

16 Q Let me take a look at that document with you
17 as well, if we could. By the way, there's a
18 distribution list that included people in Newport. Is
19 that in England?

20 A Yes, it is.

21 Q Okay. Did they also have a PCB manufacturing
22 facility by this time?

23 A They had one. I do not know the time frame
24 they had it.

25 Q Okay.

1 A But these people are at Newport.

2 Q Okay.

3 — In this document, at the page that's numbered
4 991, there's a discussion of toxicity. Correct?

5 A Yes, sir.

6 Q And it describes the fact or states that
7 there are many literature references to harmful effects
8 of the type of chloracne resulting from exposure to
9 chlorinated diphenyls, especially in cases where people
10 working with small electrical components had been
11 exposed to the fumes -- do you want to look at that with
12 me?

13 A I want to see who wrote this, yes, first.

14 MR. LACEY: Feel free.

15 MR. CRAWFORD: Be sure and read through it,
16 Doctor.

17 THE WITNESS: It doesn't say who wrote it.

18 MR. LACEY:

19 Q Actually --

20 A Mather. Mather wrote it.

21 Q Who is Mr. Mather?

22 A I haven't the slightest idea.

23 Q I see. That very clearly is a Monsanto
24 document put out for use in connection with the
25 production facilities at the two United States plants,

1 is it not?

2 A It is -- I can't answer that, too, because
3 this talks about the process. I do not know who Mr.
4 Mather is. I notice that there was no distribution to
5 the medical department on this. So whether I've ever
6 seen this before or not, I have no recollection. But it
7 certainly was not sent to the medical department. And
8 when you say put out by Monsanto, these are obviously
9 Mr. Mather's opinions, whoever he was, and I've never --
10 I don't recall ever seeing it.

11 Q Well, every document put out by Monsanto is-
12 some employee's opinion, isn't it?

13 A Yes, it is. But when it goes outside the
14 company it is a Monsanto opinion from the corporate
15 point of view. If it's an internal memorandum, it could
16 very well be just an individual's ideas about either
17 historical or his thoughts on it. So I cannot vouch for
18 the accuracy of their many literature references to
19 harmful effects of the type of chloracne resulting from
20 exposure to chlorinated biphenyls, because I only know
21 of the -- of the references in 1936 where they all --
22 everybody referred to the same episode. There was one
23 at the Swann Chemical Company, there was another one in
24 the heat transfer agency that was reported, and there
25 may have been one more. So I know three. But I don't

1 know if they all occurred before 1955.

2 Q Well, in fact, he gives his references at the
3 bottom of the page, doesn't he? And he does give
4 several references.

5 A Well, I don't see any references here as far
6 as chloracne. The first one he talks about is synthetic
7 drugs, the second reference has to do with the safe
8 concentration of aroclors in the air, third is the
9 allowable limits, fourth is the MCC bulletin, mentions
10 systemic effects arising from the oral injection of
11 aroclors. I think Mr. Mather is an Englishman. -

12 Q It goes on -- it goes on to mention here that
13 chloracne is sometimes accompanied by gastric troubles
14 and there are literature references to liver trouble.

15 A Even -- certainly there are literature
16 references to liver troubles. But I do not know any
17 documentation where it says that chloracne is sometimes
18 accompanied by gastric troubles. You would have to ask
19 Mr. Mather, wherever he is, for that.

20 - Q Let me ask you about this last paragraph down
21 here which talks about how things were actually operated
22 in the plants. You visited the Krummrich plant on an
23 annual basis to inspect how they operated, did you not?

24 A Yes, I did.

25 Q And you visited the Anniston plant?

1 A Yes, I did.

2 Q On a yearly basis to see how they operated?

3 A Yes, I did.

4 Q He indicates that from the start of Aroclor
5 manufacture at the Krummrich plant -- now, that's the
6 one that's there in Illinois just across from St. Louis.
7 Correct?

8 A Yes.

9 Q The operators have been supplied a clean
10 change of clothes every day and time has been allotted
11 at the end of the shift for bathing. Is that statement
12 factually accurate?

13 A You can't prove it by me. But he obviously
14 knows more about what happened in 1956 than I do. And I
15 would accept this statement as very probably factually
16 accurate.

17 Q Well, he's not talking about just '56. He's
18 saying ever since the Krummrich plant started that's
19 been the case, isn't he?

20 A That is what he's saying. But I have no
21 independent recollection if this is correct. It very
22 probably is correct, but I don't know.

23 Q Which was the larger and more modern plant,
24 the Krummrich plant or the Anniston plant?

25 A Well, you have to talk about the department.

1 Q Okay. Let me -- let me make my question --

2 A Anniston is an older plant.

3 Q Let me make my question more specifically,
4 then. Which department that made PCBs at the Krummrich
5 plant versus the Anniston plant was the larger
6 department?

7 A I don't believe I can answer that, because I
8 don't know the relative tonnage produced at both of the
9 plants.

10 Q Which department that made PCBs at the two
11 plants was the more modern department?

12 A The Krummrich plant was newer. Whether the
13 manufacturing installation there was any different than
14 at the Anniston plant I don't know.

15 Q Okay.

16 He goes on to say that operators are advised
17 to wash hands and face before eating. Is that factually
18 correct?

19 A I don't know what you mean by "is that
20 factually correct?"

21 Q Were the operators, at the direction of the
22 medical department, advised to wash their hands and face
23 before they ate? Or is that a matter about which the
24 medical director, the medical department of Monsanto
25 gave no attention?

1 MR. CRAWFORD: Well, okay, let's -- which
2 question do you want him to answer?

3 MR. LACEY: Well, either he knows --

4 THE WITNESS: Please not so loud.

5 MR. LACEY: I'm sorry.

6 MR. FREEMAN: Mr. Lacey, you are bothering me
7 standing over the witness on camera with a loud voice in
8 his ear. If you would like to take a few minutes, we'll
9 be glad to let you have the opportunity to make a copy
10 of the document, you can sit in your chair --

11 MR. LACEY: We don't -- we don't have the --
12 time to make the copies. I'll try to not speak quite so
13 loudly, but we need to look at the document together.

14 Q Is it factually correct --

15 MR. FREEMAN: We just took an hour break to
16 make copies. You had these copies marked before the
17 break. And if you want to take the time, you are more
18 than welcome. I just don't like you standing over the
19 witness hollering at him.

20 MR. LACEY: I don't want to take the time.

21 Q What time do you have to leave today?

22 A My plane leaves at 5:20.

23 Q Can you stay over tomorrow with us?

24 A Impossible.

25 Q Why not?

1 A Because I have appointments in St. Louis that
2 I've had long before I had this.

3 Q Okay.

4 Now, my question to you is: Did the medical
5 department direct that the operators be advised to wash
6 their hands and face before eating?

7 A I do not ever recall advising anybody to wash
8 their face before they ate. Certainly we have advised
9 people to wash your hands before you eat.

10 Q Okay.

11 Now, it goes on to say that the Anniston --
12 operators do not have the same issue of clean clothes.
13 Do you know why the people in the southern plant in
14 Alabama did not get the same daily issue of clean
15 clothes that the people did in the Krummrich plant there
16 in Missouri?

17 A Unless it was a plant fringe benefit that was
18 given to the employees at the Krummrich plant and the
19 Anniston employees did not have the same -- did not
20 require the same issue of clean clothes. After 1936 no
21 cases of chloracne ever -- after 1934 no cases of
22 chloracne occurred at the Anniston plant, no cases
23 occurred in the Aroclor departments of the Krummrich
24 plant. So whether they had change of clothes or not
25 doesn't make any difference. There were no chloracne

1 cases in either plant.

2 Q The point is, you really can't explain the
3 difference in treatment, then?

4 A Well, the Anniston people didn't need it
5 and --

6 Q Well, did the Krummrich people need it?

7 A I -- no, I don't believe they needed it. But
8 I think because of plant policy it may very well be that
9 the Krummrich plant were giving change of clothes to
10 everybody.

11 Q Let me -- let me direct your attention to the
12 page numbered 994 under Health and Safety, where it
13 says: "At Anniston no special protective clothing is
14 provided for the diphenyl and Aroclor operators. A
15 daily change of clothing was provided in the past, but
16 this practice ceased before the war." So they had had
17 it in the past and then they stopped. Correct?

18 A That's what this says. I do not know if that
19 is true. They might very well have had the daily change
20 of clothing when they had that episode of the chloracne
21 when they found out that by changing the benzene
22 specifications and changing a small amount of
23 ventilation and changing housekeeping the daily change
24 of clothes was not needed, as proven by the fact they
25 never got any chloracne, Mr. Lacey, from the time of

1 this one episode until they ceased manufacturing it.

2 They didn't have it.

3 Q Did you in your plant visits between 1938 and
4 1942 recommend to the management of the Anniston plant
5 that they cease providing daily clothing to the workers
6 there who worked in the PCB department?

7 A No, sir, not that I can recall.

8 | Q Okay.

9 The next paragraph talks about ointment to be
10 provided to men who can put it on before they start
11 work. Correct?

12 A That's what -- that's what that recommends,
13 yes.

14 Q Monsanto made those ointments available to
15 its workmen, did it not?

16 A Presumably at the English plant they did. I
17 don't recall them ever making it available at any other
18 plant.

19 Q Actually, that's talking about the Anniston
20 plant, is it not?

21 A Oh, no, it isn't. It says Mr. Pennington of
22 Newport reporting on his tour writes --

23 Q On his American tour. He was touring the
24 Anniston plant and the St. Louis Krummrich plant, wasn't
25 he?

1 A Well, I'm looking over it more carefully.
2 I don't know what -- what plant he is referring to. I
3 don't ever recall seeing tins of cold cream, ointment,
4 theatrical quantity, present in any Anniston -- either
5 the Anniston or the Krummrich plant.

6 Q I see.

7 A I would not have recommended it.

8 Q I see. What was the purpose of making those
9 creams available to the employees?

10 A I haven't the slightest idea. I would not
11 have recommended it.

12 Q I see. Is it your opinion that people who
13 are reputable in the business of medical concerns and
14 toxicology would not recommend creams to try to block
15 out the absorption, the skin absorption, of chemicals
16 people were working with?

17 A Depends on the chemical. If you have a
18 chemical that is soluble in fat, I think creams make it
19 worse.

20 Q I see.

21 Also notes, then, in the third paragraph
22 under Health and Safety that emergency showers are
23 provided on each floor of the diphenyl building, and
24 safety notices are widely used. Is that correct?

25 A Yes, it is.

1 Q And then the fourth paragraph talks about the
2 St. Louis Plant B. Now, that's the Krummrich plant,
3 isn't it?

4 A That's correct.

5 Q It talks about the Aroclor building is rated
6 as a toxic department. Correct?

7 A That's what it states.

8 Q Okay. And at that place, that is, the
9 Krummrich plant, each operator is provided with a
10 complete set of clothes, comprising a hat, a coat,
11 trousers, combination underclothes, socks and rubber -
12 shoes. Correct?

13 A That's what is stated.

14 Q In fact, that clean change of clothing,
15 except for the shoes, is placed in the operator's locker
16 in time for the following shift. So when he comes in
17 each day all that clothing has been prepared for him by
18 Monsanto. Correct?

19 A That is what is stated there.

20 Q In fact, men working over, working extra
21 shifts, are given a clean set of clothing for the
22 beginning of the second shift, aren't they?

23 A That's what he states.

24 Q They also provide canvas gloves and goggles,
25 and ply hand barrier cream is available for use when

1 necessary.

2 A I told you I never saw barrier creams in any
3 Aroclor department.

4 Q Did you visit the Arocilor department?

5 A I certainly did.

6 Q Of the Krummrich plant on a regular basis?

7 A Yes, I did.

8 Q Would these people be hiding that stuff from
9 you for some reason?

10 A I would know no reason why they would be
11 hiding it.

12 Q Now, at the St. Louis Plant B it also notes
13 that 20 minutes paid time is allotted for bathing at the
14 end of the shift. Correct?

15 A That's what is stated, yes, sir.

16 Q And there are instructions that hands and
17 face should be washed before eating. Correct?

18 A That's what this states, yes, sir.

19 Q And it finally concludes that employees in
20 toxic departments are given an annual medical
21 examination and a lung x-ray every three years. And
22 that would include the employees of the PCB department
23 of the Krummrich plant. Correct?

24 A Yes, if they call that a toxic department.

25 And according to him, they called it a toxic department.

1 Q Well, do you have any reason why Mr.
2 Pennington, who was employed by Monsanto in England, in
3 making a tour of the American PCB plants, wouldn't
4 correctly report?

5 A I have no idea. But I did not hear the words
6 "toxic department," to the best of my recollection,
7 referred to in context with any departments outside of
8 the Queeny plant in St. Louis.

9 Q I see. Did you ever attempt to have the PCB
10 department at the Krummrich plant declassified as a
11 toxic department? -

12 A I said I never even knew that they had it. -

13 Q I see.

14 A I don't -- realize I did not get a copy of
15 this article in 1955.

16 Q I see.

17 Did you continue to review the departments at
18 the Krummrich and the Anniston plants that made PCBs
19 from the middle Fifties on up through the 1960s?

20 A After we had industrial hygienists I may have
21 not reviewed all the departments in the Krummrich plant
22 until they ceased operations.

23 Q Okay. But somebody in your department would
24 have?

25 A Yes.

1 MR. LACEY: Let me show you another document,
2 if I might.

3 -- MR. CRAWFORD: David, if you are going to
4 walk over, can you bring that last one and let me look
5 at it and get the numbers off of it?

6 MR. LACEY:

7 Q This is a document that is called the Organic
8 Chemical Division Research Report No. 3281, dated
9 February 16th, 1966, Document No. 7393 through 7435. Do
10 you recognize that type of document?

11 A I recognize the type of document. I don't -
12 recognize this particular document.

13 Q Okay. Those documents were put out by the
14 research department of Monsanto, were they not?

15 A Yes, they were.

16 Q Would you consider those documents a Monsanto
17 document?

18 A This is an internal Monsanto document.

19 Q Well, is that just somebody's opinion or does
20 that rise to a level of being a little bit more than
21 just some one man's opinion?

22 A Well, it was written by one person, a
23 research chemist, Mr. --

24 Q But that's a form --

25 A Huh?

1 Q That's a formal report, is it not?

2 A It's a formal research report, certainly.

3 -- Q In fact, it's the final version. Doesn't it
4 indicate it's gone through the approval process and is
5 the final version?

6 A It's the final version of how to fractionate
7 Aroclor 1142 for improving product stability, yes, as
8 far as that's concerned. They're talking about a
9 particular research problem and they're saying "This is
10 our report on how far we fractionate Aroclor 1142," yes,
11 sir. -

12 Q Okay. And that would be an official Monsanto
13 document, then, would it not?

14 A No, it isn't an official -- it's a research
15 document put out by Mr. Lee for internal purposes
16 reporting on how to fractionate 1142.

17 Q Let me look at Page 7411 with you, or
18 Document No. 7411, where the toxicology and hazards are
19 discussed. Do you see that section of the report by
20 Mr. Lee?

21 A Yes.

22 Q And he indicates that Aroclor has a medium
23 toxicity range for liquid ingestion and a high toxicity
24 for vapor inhalation. Correct?

25 A That's what he indicates, yes, sir.

1 Q He indicates that Aroclor can cause
2 dermatitis, systemic poisoning from the fumes, and
3 yellow atrophy of the liver. Is that correct?

4 A Yes, sir, that's what it states.

5 Q He also recommends extreme caution, those are
6 his words, extreme caution?

7 A At elevated temperatures, yes, sir.

8 Q Okay. Now, again, you would not consider
9 that to be an official Monsanto document?

10 A That is a research document put out by a
11 research chemist whose expertise in -- in medical -
12 matters has certainly not been established. I don't -
13 know who he is, I've never seen that report before, it
14 is not an official medical department document.

15 Q I see.

16 Was one of the reasons that all the
17 information that went through the medical department
18 with regard to toxicology and safe handling was so that
19 you could make sure it went out consistently with what
20 you personally thought?

21 A Consistent with what was correct.

22 Q I see.

23 A So that we did not have chemists, advertising
24 people, anybody else sending out information.

25 Q I see.

1 Certainly there's an eye hazard. If you get it on your
2 skin, it's a -- it's an irritant to the skin. Certainly
3 that's true.

4 Q I see.

5 Let me show you another document, entitled
6 "The Standard Manufacturing Process for Pydraul A-200 in
7 Department B-246," with a 10/66 date on it, document
8 5707 through 5754. Let me ask you first if you would
9 consider that an official Monsanto document.

10 A It depends -- you're the man using the term
11 "official Monsanto document." You'll have to explain to
12 me what you mean by an official Monsanto document and --
13 I'll be able to tell you whether this corresponds to
14 your definition.

15 Q I guess my question is whether it's a
16 document that Monsanto would put out and expect people
17 to rely on and use within the Monsanto organization.

18 A It is a document -- this is a document that
19 is primarily designed to discuss the manufacturing
20 process for Pydraul A-200. Now, this again is written
21 by manufacturing people. There is no information here
22 that has ever been submitted to the medical department
23 or the medical department had any input in it. So I
24 cannot tell you whether -- this is not the type of a
25 thing we would put out to our workers.

1 Q That's the type of thing that would go out to
2 the supervisors who were responsible for what the
3 workers did, isn't it?

4 A This? I don't know who this goes to. This
5 is a process -- manufacturing process. Whether that
6 goes to manufacturing people, whether it goes back to
7 research people I just don't know.

8 Q Can you agree with me, Dr. Kelly, that one of
9 the most important things that Monsanto would want to do
10 is to make sure that its workmen who are making any
11 chemical for the company were adequately protected so -
12 they wouldn't be harmed by the chemicals they were -
13 working with on the job?

14 A There is no question about it. And there is
15 no question that in the case of chlorinated biphenyls
16 that is absolutely what happened. They were protected
17 while they were working on the job.

18 Q And one of the ways to do that is to make
19 sure that the people who are responsible for supervising
20 the units where the materials are manufactured have the
21 proper instructions and carry out the proper
22 instructions to -- to ensure that the workmen remain
23 safe, isn't it?

24 A That's correct.

25 Q And that document contained in it the

1 information that went to the people who operated the
2 units, who told them how to make the product and also
3 how to try to protect the workmen from getting sick?

4 A No, it did not go to the people who
5 manufactured -- the workers. This does not go to the
6 workers.

7 Q No. It goes to the supervisors of the unit
8 who knew how to operate it and what they were to do,
9 didn't it?

10 A I don't know who this went to. You will have
11 to ask the people who -- to whom this document was sent.
12 It went to research, the general superintendent and the-
13 technical production manager. I don't know the purpose
14 of this document.

15 Q I see. Well, maybe we can -- maybe we can
16 look at the table of contents and help you figure it
17 out. It describes the process, has the flow sheet for
18 the process, describes the equipment used, the materials
19 used, the raw materials, the finished goods, the
20 constant, utilities, the personnel, how to package it,
21 how to ship it, how to dispose of the waste, how to
22 control it, and also discussed the safety and toxicology
23 to go with it, didn't it?

24 A That's in the table of contents, yes. I have
25 not looked at --

1 A And that's -- beg your pardon.

2 Q Did you give those instructions in writing?

3 -- A We gave them in bulletins, yes. We sent them
4 out in bulletins.

5 Q The same sorts of bulletins we looked at
6 yesterday?

7 A No. There were other bulletins that we sent
8 out. We sent out bulletins from the -- anytime an
9 official -- a bulletin came out from -- Monsanto made
10 safety data sheets of their own that they sent out.
11 They had safety -- to their employees. They had -
12 reprints from the American Conference of Industrial -
13 Hygienists. When they arrived, we sent those out to the
14 plants. So those were bulletins that you did not show
15 me yesterday.

16 MR. LACEY: I'm not sure I've seen those
17 bulletins that went to describe the safety, if the ones
18 that we're looking at now don't contain that
19 information. Let me show you --

20 MR. CRAWFORD: What is the safety data sheet?

21 THE WITNESS: Well, Monsanto had about 200
22 safety data sheets that -- on their own products that we
23 sent out to the plants.

24 MR. CRAWFORD: Just describes the product?

25 THE WITNESS: Described the safety and safe

1 handling data of the product.

2 MR. CRAWFORD: Okay.

3 MR. LACEY: Let me see if I can't find
4 something maybe that will look like that.

5 Q Are you telling me that a material safety
6 data sheet was the only type of document that you used
7 to communicate with the plant employees about the safe
8 handling of your products?

9 A No, that is not correct. Whenever a new
10 product was put in at the plant, it received letters
11 from us, the plant received letters from us detailing -
12 the safety, the toxic properties and safe handling of -
13 the various products. Of the various raw materials and
14 finished product.

15 Q Let me show you another document, which is
16 reference the standard operating instructions for
17 drumming and flaking, Monsanto Company Anniston plant,
18 October 1969, Document No. 8481 through 8639. And I
19 want to direct your attention to the page 8602 and ask
20 you whether that page 8602 is the type of data sheet
21 you're talking about putting out to provide the plant
22 with information on their products.

23 A No, sir.

24 Q I see.

25 A There's no relationship at all.

1 Q I see. Okay. Because that document right
2 there has information on all sorts of aspects of the
3 problem except it doesn't say anything about toxicology,
4 it says just call the medical department. Right?

5 A Yes. It shows that these people knew that
6 they got the information from the medical department and
7 we supplemented this -- this physical properties. This
8 is talking about physical constants.

9 Q I see. Okay.

10 Let me see if I can find another document.
11 Maybe this is -- is what you're talking about. Let me-
12 show you a document 19732733. Is that the sort of -
13 safety sheet you're talking about?

14 A No, sir. This is a later one that was --

15 Q I see.

16 A -- put out to customers in response to Labor
17 Department OSHA requirements that we list certain
18 things. This is not the type of thing that I said was a
19 Monsanto medical department safety data sheet. This is
20 not it.

21 Q I see. Well, describe for me what a Monsanto
22 medical department safety data sheet looked like.

23 A It looked like this without the lines in it.
24 It had paragraphs, it had -- it was not a filled-in
25 form. It started with the product, it said, "This is

1 what the physical characteristics of it is, this is what
2 the toxic characteristics of it is, this is what our
3 plant experience has been, this is how to prevent any
4 ill effect."

5 Q I see. And to whom was that provided?

6 A To the safety department, to the medical
7 departments and to the manufacturing superintendents of
8 the plants.

9 Q What provision did you make to get
10 information to the individual operators in the plant?

11 A That was the responsibility of both the
12 safety department and the line manufacturing operators.

13 Q I see. Let me ask you to look at that
14 particular material safety data sheet you have there.
15 Can you tell me whether that relates to a toxic or
16 nontoxic chemical?

17 MR. CRAWFORD: That's not a material safety
18 data sheet, is it?

19 MR. LACEY:

20 -- Q What does it say at the top? Material safety
21 data sheet?

22 A United States Department of Labor.

23 Q And right below that the title of the
24 document is --

25 A Yes, Department of Labor. We're talking

1 about two different things now, remember.

2 Q I'm just asking you to take a look at that
3 material safety data sheet.

4 A Yes, I am looking at it.

5 Q That relates to a nonhazardous chemical, does
6 it not?

7 A It's nonhazardous by the definition in 29 CFR
8 Section 15, Federal Register, 1501-2.

9 Q Okay. And it was permissible to dispose of
10 that material the same as motor oil, wasn't it?

11 A Yes, sir.

12 Q This was not a PCB-containing material, was -
13 it?

14 A I don't know what this -- what OS 45 is.

15 Q I see. Well, don't we know that you couldn't
16 dispose of PCBs just like motor oil by the date of that
17 document?

18 A Yes, certainly. But you asked me -- I do not
19 know what this is.

20 Q No. My question to you was: We know it
21 wasn't a PCB material, don't we?

22 A If this document is correct, we know it
23 wasn't. But it's easy enough to find out what OS 45 is.
24 I can't say that this is a PCB or not a PCB without
25 knowing the chemical --

1 Q Well, let me ask it this way.

2 A -- structure of it.

3 -- Q Let me ask it this way. If this was a PCB-
4 containing material, the directions for safe handling
5 and disposal are incorrect, aren't they?

6 A That is correct.

7 Q Okay. And if we assume the information on
8 the document is correct, that the material referred to
9 there is a nonhazardous material --

10 A From the standpoint of the definitions in the
11 Federal Register, yes, sir.

12 Q Look on over on the next page where it talks
13 about spill or leak procedures. Doesn't it say there to
14 clean up like other nonhazardous liquids?

15 A Yes. But that refers back to the first page,
16 where it says not hazardous by these definitions.

17 Q Right. And up at the top it indicates it's
18 impossible to get overexposure at ambient temperatures,
19 doesn't it?

20 A Yes, sir.

21 Q And down in the special precautions section
22 it indicates respiratory protection is not necessary.
23 Correct?

24 A Yes, sir.

25 Q Protective gloves are not necessary?

1 A Yes, sir.

2 Q No other protective equipment is needed.
3 Correct?

4 A Yes, sir.

5 Q And then it references: Even though in
6 special precautions -- even though no special
7 precautions appear necessary, it still recommends good
8 industrial practice as to housekeeping and personal
9 hygiene. Correct?

10 A Yes, sir.

11 Q Further recommends avoidance of prolonged and
12 repeated skin contact. Correct? -

13 A Yes, sir.

14 Q That was something that you recommended at
15 Monsanto for every chemical, even the nonhazardous
16 chemicals.

17 A Yes, sir.

18 Q Correct?

19 A Yes, sir. Industrial chemicals are not meant
20 to be put on your skin.

21 Q Right. But if someone simply sees the
22 direction "avoid prolonged or repeated skin contact,"
23 that in and of itself doesn't tell them whether they're
24 dealing with a hazardous or nonhazardous chemical, does
25 it?

1 A Well, certainly it does. This has been
2 prefaced with by the statement that says although no
3 special precautions appear necessary. We never said
4 that about PCBs or any hazardous chemicals.

5 Q That wasn't my question, Doctor.

6 A Well, yes, but you were giving me a loaded
7 question.

8 Q Your answer is not responsive. Let me ask my
9 question again.

10 A Do it, please.

11 Q Simply seeing the phraseology "avoid
12 prolonged and repeated skin contact" would not tell a
13 person whether the chemical he was working with was a
14 toxic or nontoxic chemical, would it?

15 A Yes, it would if there were no other
16 qualifications on it. This states that, but there are
17 qualifications.

18 Q I see. So you're telling me when I see the
19 phrase "avoid prolonged or repeated skin contact," I
20 can't tell whether it's a toxic or nontoxic chemical
21 without looking for other information. Correct?

22 A That -- no, not necessarily. This particular
23 phrase just tells you what you shouldn't do.

24 Q And that's true for every chemical Monsanto
25 manufactured, wasn't it?

1 A No, I don't believe so.

2 Q What chemicals did you not give advice to
3 avoid repeated and prolonged skin contact?

4 A I can't tell you. But there are any number
5 of labels that we had on chemicals that did not have
6 that particular phrase on it.

7 Q I see. I see. But we do know at least with
8 regard to some chemicals that you considered
9 nonhazardous you nevertheless said to avoid repeated and
10 prolonged skin contact?

11 A But I qualified it that you are not reading--
12 the whole statement, Mr. Lacey. -

13 Q I'm just trying to understand your use of
14 those terms. And you use them even for nonhazardous
15 chemicals, don't you?

16 A With qualifications.

17 MR. LACEY: Okay.

18 MR. FREEMAN: Mr. Lacey, are you using the
19 words "toxic" and "hazardous" as synonyms here? You've
20 used those very frequently interchanging.

21 MR. LACEY: The witness, I'm sure, is having
22 no trouble with it. If you've got a problem with it,
23 you might want to talk with the witness about it after
24 the deposition is over.

25 Q Now, are you aware of the fact that the --

1 tell me about what the National Institute for
2 Occupational Safety and Health is.

3 -- A It's a government body that regulates safety
4 and -- in the workplace.

5 Q And do they make recommendations for the safe
6 handling of chemicals in the workplace?

7 A Yes, they do.

8 Q Are you familiar with the recommendations
9 that they made for the safe handling of PCB-containing
10 materials?

11 A Who, NIOSH --

12 Q Yes.

13 A -- itself? Well, NIOSH is a research arm.
14 They put out a -- recommendations which have to be
15 approved by OSHA.

16 Q My question to you is: Are you familiar with
17 the recommendations that NIOSH made for the safe
18 handling of PCBs in the workplace?

19 A Yes, I am.

20 Q Okay. Those recommendations were
21 considerably more stringent in protecting workmen from
22 exposure to PCBs than the recommendations that had
23 previously been made by Monsanto, weren't they?

24 A I don't know. Will you show me them?

25 Q Sure. Happy to. Let me show you a document

1 1209 through 1441. And I direct your attention to 1220
2 and following.

3 -- A What about -- what do you want me to comment
4 on in this?

5 Q Well, you asked to see the document.

6 A Yes. I couldn't very well comment without
7 seeing it.

8 Q Okay.

9 A Now, do you want me to go through the 200
10 pages?

11 Q No, I think probably that would be a little
12 bit much. Maybe we can take a look here at some of the
13 specific recommendations. One of the recommendations
14 had to do with concentrations in the environmental --
15 and what it talks about is the workplace air. Correct?

16 A Yes, sir.

17 Q And the recommendations there are no greater
18 than one microgram of PCBs per cubic meter of air.

19 Correct?

20 -- A That's what they recommended, yes, sir.

21 Q The Monsanto recommendations ranged from a
22 number about a thousand times higher than that, did it
23 not?

24 A Yes, sir.

25 Q Okay.

1 A Now let me tell you -- first of all, where is
2 the date on this? Do we have one? September '77. This
3 was a recommended standard. OSHA is the regulatory arm
4 of the United States Government. They have not accepted
5 the standard.

6 Q Well, do you know what the standard is?

7 A The standard was accepted by the American
8 Government Industrial Hygienists of five-tenths
9 milligrams per cubic meter in the case of 1242 and one
10 milligram per cubic meter in the case of 1254. I may
11 have them reversed. -

12 Q That's the OSHA standard? -

13 A No, that's -- OSHA has not made a standard,
14 to the best of my knowledge.

15 Q Oh, I see.

16 A They have not accepted this standard,
17 however.

18 Q But the government standard recommended by
19 the National Insitute for Occupational Safety and Health
20 is a thousand times lower than that promulgated by
21 Monsanto to its customers. Correct?

22 A Yes. But also Monsanto has promulgated the
23 standards set by the American Government Industrial
24 Hygienists Association, which is a authoritative group
25 of industrial hygienists whose standards were in great

1 part accepted by OSHA all the way through, and OSHA has
2 not accepted this particular standard.

3 -- Q Didn't accept the association of hygienists
4 standards that were a thousand times higher, either, did
5 they?

6 A No, they didn't. They haven't accepted any
7 standard.

8 Q By the way, that group of industrial
9 hygienists, is that primarily made up of people who work
10 for companies like Monsanto as industrial hygienists?

11 A It's made up exclusively of people who work-
12 for the government. Monsanto people or General Electric
13 people are not in it. It is city, state and government
14 employees, as the name implies.

15 Q I see.

16 Let me direct your attention now to the
17 section of the document that deals with labeling and
18 posting. Here they're talking about labeling and a
19 warning label on PCB processing or other equipment and
20 on PCB storage tanks or containers. Correct?

21 A Yes, sir.

22 Q And they recommend that warning labels be
23 readily visible. Correct?

24 A Yes, sir.

25 Q And the warning label reads: Polychlorinated

1 biphenyls (PCBs). Danger. Contains polychlorinated
2 biphenyls. Cancer suspect agent. Use only with
3 adequate ventilation. Do not get in eyes, on skin or
4 clothing. Correct?

5 A Yes, sir.

6 Q That wasn't exactly the warning that Monsanto
7 was giving, was it?

8 A In 1977, I don't believe we were even making
9 the material.

10 Q My question to you is --

11 A Well --

12 Q That's --

13 A This is the thinking of NIOSH in 1977. And
14 you -- Monsanto was not manufacturing PCBs in 1977. And
15 I didn't have PCB processing or other equipment or on
16 PCB storage tanks. So, no, they did not use this.

17 Q Well, actually, Monsanto was still making
18 PCBs in 1977, wasn't it?

19 A I don't know. Were they?

20 Q I believe they were.

21 A I can't answer that.

22 Q I believe they were. And they were still
23 selling PCBs in 1977, weren't they?

24 A You'll have to ask someone else. I can't
25 answer.

1 Q I see, I see.

2 They also recommended warning placards to be
3 affixed in readily visible locations in or near PCB work
4 areas. Correct?

5 A Yes.

6 Q And that placard was similar to the warning
7 sticker that said: Polychlorinated biphenyls (PCBs).
8 Danger. Cancer suspect agent. Authorized personnel
9 only. Do not enter unless area is adequately
10 ventilated. Do not get in eyes, on skin or clothing.
11 Correct? -

12 A Yes, sir. -

13 Q Then they went on to talk about personal
14 protective equipment --

15 A But remember again, Mr. Lacey, the sister
16 body of this organization in the Labor Department did
17 not accept this standard.

18 You're asking me: Did Monsanto accept it?

19 I'm saying to you: No, they didn't.

20 But I asked you: Did OSHA accept it?

21 And you haven't answered me. But I'll have
22 to say OSHA did not accept it and required that these
23 standards be put on.

24 MR. LACEY: I'm going to object to the last
25 part of the answer as nonresponsive to the question.

1 MR. CRAWFORD: Well, David, just a second.
2 Before you go on with all this ad nauseum, a couple of
3 observations here. First of all, you're asking him
4 about standards from NIOSH that apparently were not
5 adopted and you are also asking him about standards that
6 were promulgated after he was no longer with the medical
7 department. So I really don't know what you're -- where
8 you're going with all this, but I -- I think it's
9 probably improper.

10 MR. LACEY: Well, let me ask you this, Dr.
11 Kelly.

12 Q There's no reason that Monsanto couldn't have
13 made the same recommendations that were made by NIOSH
14 with regard to protection of workers in the workplace,
15 is there?

16 MR. CRAWFORD: That's speculative.

17 MR. LACEY: No, that's a simple matter of the
18 English language in writing it down and sending it out.

19 MR. CRAWFORD: Well, you're asking him to
20 speculate.

21 MR. LACEY: I'm not at all.

22 Let me make the question clear, since Mr.
23 Crawford believes it calls for speculation.

24 Q You as the medical director of Monsanto had
25 the power to draft Monsanto documents on toxicology and

1 safe handling to provide for the same levels of air
2 concentrations that NIOSH recommended, didn't you?

3 -- MR. CRAWFORD: He wasn't medical director
4 when those came out.

5 MR. LACEY: I'm not talking about now. I'm
6 talking about when he was medical director.

7 Q You could have in 1950 promulgated the same
8 air concentration standards that NIOSH suggested,
9 couldn't you?

10 MR. CRAWFORD: NIOSH wasn't around in '50.

11 MR. LACEY: You know, we're going to be at --
12 this a long time, Walter, if you don't let him answer --
13 the question. The question is -- let me rephrase it so
14 it's real simple.

15 MR. CRAWFORD: Well, you've been screaming at
16 the witness now for an hour --

17 MR. LACEY: I haven't been screaming at the
18 witness for an hour.

19 MR. CRAWFORD: -- and dropping documents on
20 him. I suggest we get on to something that's -- that's
21 relevant.

22 MR. LACEY: I think this is highly relevant,
23 I think the jury is going to find it highly relevant.

24 Q Now, you could have in your documents that
25 the medical department prepared for Monsanto in the

1 1950s and 1960s recommended that air concentrations of
2 PCBs be controlled so that the concentrations were no
3 greater than one microgram per cubic meter of air,
4 couldn't you?

5 A I could have if I believed that was accurate.

6 Q And the difference and the reason you didn't
7 is because you don't have the same belief as apparently
8 the drafters of this document did. Correct?

9 A And also the same belief that OSHA did as far
10 as the combined belief of every government industrial
11 hygienist. They all put it -- they all approved the --
12 label -- the concentrations that we adopted. We went --
13 with the current thinking of all the government
14 industrial hygienists who worked for the U. S.
15 Government, the states and the cities, and they put out
16 and still put out, to the best of my knowledge, the same
17 levels that Monsanto used.

18 Q OSHA never approved the standards or levels
19 recommended by Monsanto, did they?

20 A No. And they never approved the standards
21 recommended by NIOSH either.

22 Q And the reason they didn't is because the
23 manufacture, sale and distribution of PCBs was banned in
24 this country. Correct?

25 A I don't know the reasons they didn't. You

1 would have to ask people from OSHA.

2 Q That made it unnecessary, didn't it?

3 A I don't think so. Because you have just said
4 that there are still PCBs around.

5 VIDEO OPERATOR: Excuse me. We need to take
6 a short pause.

7 [Recess]

8 VIDEO OPERATOR: We're now back on the
9 record. The time is 1:42.

10 MR. LACEY:

11 Q Dr. Kelly, let me hand you a group of
12 documents numbered 15252 through 15377. I believe all -
13 these documents are labels of one type or another. I'll
14 ask you to briefly review those for me and see if you
15 recognize those types of labels.

16 A That one, too. Yes, sir.

17 Q Those are all warning labels or labels of
18 some sort, whether they're warning labels or not, that
19 Monsanto put on products containing PCBs, are they not?

20 A Yes, sir. I'm not sure about all the
21 Pydrauls. Some of the ones have not -- I'm not sure
22 about them. They don't mention the fact that they
23 contain chlorinated hydrocarbons. But there may be
24 other labels that would define it.

25 Q If I could get all these labels back in front

1 of you, I'd like to have some help from you in
2 establishing when these labels were used. And in
3 particular if we can sort out maybe early from late or
4 into the decade by which they were used, what was used
5 in the Forties, what was used in the Fifties, what was
6 used in the Sixties, what was used in the Seventies,
7 that will help us understand the type of information
8 that you were arranging to have put into the hands of
9 your customers about any health hazards.

10 A I don't believe I'll be able to help you in
11 dating it.

12 Q I see. Well, I thought you were responsible-
13 for reviewing the literature and making sure that the
14 warning labels had the appropriate warnings as to what
15 the literature at any point in time contained.

16 A Well, yes, but that is a different statement
17 than do I know when this label was dated.

18 Q I see. Do you know when the labels were
19 used?

20 A No, I don't know when these labels were used.

21 Q You can't give me any help at all with trying
22 to identify which of these labels might have been used
23 in the Forties versus which ones might have been used in
24 the Seventies?

25 A The ones that talk about environmental

1 contamination were certainly late in the game. They
2 were presumably in the Seventies.

3 -- Q Okay.

4 A Late Sixties.

5 Q Can you separate out those that talk about
6 environmental contamination from those that don't?
7 Maybe we can at least get two stacks of documents.

8 A Well, that many.

9 Q Okay. The group you are handing me now are
10 ones that are --

11 A Presumably later than the others. -

12 Q Okay. -

13 A Assumedly -- assuming that the -- where they
14 mention environmental contamination that would be later.

15 Q We in fact know that has to be later, don't
16 we?

17 A Well, yes. Later than what? Some of the
18 others without --

19 Q Later than the mid-Sixties, don't we?

20 -- A Yes, sir, I think so.

21 Some more.

22 Q Have you got them separated now into two
23 groups, one group which you believe is after the
24 mid-1960s, where environmental matters are --

25 A Have come to the surface, yes.

1 Q Have come to the surface? And the other of
2 which is before that time?

3 -- A To the best of my knowledge, yes.

4 Q Okay. And have you handed me all of those
5 that are after environmental matters came to the
6 forefront?

7 A Of this group you sent me -- you gave me,
8 yes.

9 Q Yes. To help us distinguish between those of
10 the group that I gave you which are after the
11 mid-Sixties and those which may not be because they have
12 nothing about environmental matters, can you give us the
13 numbers of the documents there that you have separated
14 out as being possibly before the time that environmental
15 concerns came to the fore? And you don't need to read
16 the SCM letters, you can just read the last digits to
17 help us identify them.

18 A 15295.

19 15352.

20 15351.

21 15353.

22 15354.

23 15355.

24 15356.

25 15357.

1 Whoops. Got another one here.

2 — Q Okay.

3 — A 15345.

4 15346.

5 15347.

6 15348.

7 15349.

8 15350.

9 15344.

10 15338.

11 15339. —

12 15340. —

13 15341.

14 15342.

15 15343.

16 15358.

17 15360.

18 15359.

19 15361.

20 15362.

21 15363.

22 15364.

23 15368.

24 15367.

25 15370.

1 153 -- 15281.

2 15283.

3 152 -- whoops. There's another one. One for
4 you.

5 15272.

6 15252.

7 15255.

8 Q You've now listed the numbers of the
9 different labels in this first group that we've looked
10 at that do not reference environmental matters and
11 therefore may be before that matter came to the
12 forefront. Correct? -

13 A Correct.

14 Q Are you able to tell within that group any
15 order or sequence that those labels would have been used
16 in?

17 A No, sir, I'm not.

18 Q I see. Some of those labels reference
19 specific Monsanto products that contain PCBs, do they
20 not?

21 A Yes, sir.

22 Q And we at least would know with regard to a
23 label that referenced a specific product that it
24 wouldn't exist before that product went to the market?

25 A Yes, that's correct.

1 Q Okay. Otherwise you -- you can't tell us
2 anything about them?

3 -- A No, I can't.

4 Q Okay.

5 There are a couple of labels in that group
6 that are very general. I notice the one on the top
7 there is a rather general label, doesn't reference a
8 specific product. Correct?

9 A Yes, sir. It does not. It just says
10 chlorinated diphenyl technical. It doesn't say anything
11 more than that. -

12 Q And the next document in the group that's -
13 laying there is likewise a very general document.
14 Correct?

15 A Yes, it is.

16 Q Are those the types of labels that were first
17 used on PCBs, very general labels?

18 A I don't know. I can't -- I can't put these
19 into a time frame at all.

20 Q Let me get you to identify by document number
21 those documents that have the least information in this
22 group, those that we just looked at. Can you give me
23 the document numbers on those two we just looked at?

24 A Do you mean these --

25 Q Yes.

1 A These two documents? The least information?

2 Q Well, they have the least -- they have less
3 said on them than the rest of them. Correct?

4 MR. FREEMAN: He just wants the number, the
5 SCM number of those first two documents.

6 A Oh. 15253. 15254. They have -- they do not
7 describe which Aroclor it is. They do have a second
8 page with them. Caution labels.

9 MR. LACEY:

10 Q When you started to work at Monsanto and took
11 over, as you said, the de facto job of medical director
12 in about '38 or so but without your portfolio, were you
13 involved in looking at the information that went on
14 products and out to customers about health matters?

15 A Sometime along in that time I did. But it
16 was a gradual accumulation of duties. I cannot tell you
17 when -- when I did. It was certainly much less formal
18 than when I came back in '46.

19 Q By '46 you very definitely had that
20 responsibility as a formal responsibility?

21 A Well, whether it was formal or not, I was
22 there all day and people -- I think with our increased
23 toxicological information it became -- whether it was
24 formalized or not, the medical department was furnishing
25 information and people would come in to us with it. And

1 we had an accord with the labeling supervisor for the
2 corporation who -- who saw us frequently.

3 -- Q You had mentioned that when questions arose
4 regarding health and toxicological matters sometime in
5 the 1940 time frame the word had gone out that those
6 questions were to come to you. Correct?

7 A Correct.

8 Q And the information that went into technical
9 bulletins or product bulletins that were published with
10 regard to toxicology and safe handling had to be
11 approved by you? -

12 A Yes, sir. -

13 Q Did the labels that went on containers of
14 products have to likewise be approved by you?

15 A Yes, sir. I believe that's correct.

16 Q So then the labels that went on PCB products
17 did not go out unless they had been approved by you as
18 appropriate with regard to health effects and safe
19 handling?

20 A Unless there were no change in -- there could
21 be graphic changes in the label.

22 Q Graphic changes?

23 A Yes. In other words, there could be
24 different logos or different typing or that -- different
25 printing. But if the text of toxicological statements

1 or safe handling statements were changed it would have
2 to come to us -- from us.

3 -- Q Who decided what the label looked like?

4 A Somebody in the art department.

5 Q Okay. Who decided what the substance of the
6 information on the label was?

7 A That was a division of responsibility. The
8 people who -- the marketing people decided on some of
9 the material. The safe handling and toxicity data or
10 precautions was the medical department's responsibility.

11 Q So you had the final say on the toxicology -
12 and safe handling? -

13 A Yes, sir.

14 Q And the marketing department had the final
15 say on the portion of the label that dealt with
16 things --

17 A I can't be sure. I don't know who did it.

18 Q Somebody other than the medical department?

19 A That's correct, certainly.

20 -- Q But you are certain that your department was
21 responsible for the toxicology and safe handling
22 information?

23 A And caution statements, right.

24 Q Okay.

25 A With the exception of fire or explosion.

1 Q Okay. Now, is there some consistency within
2 the chemical business about the terminology used on
3 these labels?

4 A I don't know whether there is any consistency
5 now. At the time of my contact -- my employment with
6 Monsanto there was some consistency as far as the
7 information about chlorinated hydrocarbons was
8 concerned.

9 Q What was the source of that consistency that
10 you recall?

11 A I don't recall. I -- I just don't recall. -

12 Q How did you select, for example, whether to-
13 say danger or warning or caution or -- or what -- what
14 criteria did you use in trying to make the decision how
15 to word the information on toxicology, health effects,
16 safe handling?

17 A I think the nature of the compound, the
18 physical nature of it, its proposed use.

19 Q With regard to these labels, I know that many
20 of them say caution as opposed to, say, danger or as
21 opposed to, say, warning. Why did you choose the word
22 "caution"?

23 A Well, we used it because we considered it
24 strong enough that the label was protecting our
25 customers and there were no problems.

1 Q Was there something stronger than caution
2 that you could have used?

3 -- A Sure. We could have said danger, we could
4 have said warning. If we wanted to be -- we could put
5 skull and crossbones on. I don't think there's any
6 particular level that people put skull and crossbones
7 on. But there are other things you could use.

8 Q Was it your decision to use the word
9 "caution" on these labels?

10 A Where it appeared, yes.

11 Q Okay. And the details of the handling
12 precautions beyond the word "caution," were those also--
13 your choice of words?

14 A You'll have to show me the label and I'll
15 tell you.

16 Q Well, any label in this stack that you have
17 got here.

18 A All right. Let's take this one right here.

19 Q Surely.

20 A Caution. Avoid prolonged and repeated
21 contact with the skin. Avoid prolonged breathing of
22 vaporous dust. Avoid contact with eyes or prolonged
23 contact with skin. If skin contact occurs, remove by
24 washing with soap and water. If clothing becomes soaked
25 with fluid, launder before wearing again.

1 Yes, that's certainly from me. Now, I do not
2 know if the format "Caution. Contains chlorinated
3 hydrocarbon" was an industrywide type of -- of warning
4 label. I don't know. I don't know if that came from
5 there and we followed their format. But the rest of it
6 certainly was approved by me.

7 Q Okay. And do you know at what point in time
8 those sorts of labels were being used?

9 A I don't.

10 Q Okay. These labels weren't dated, were they?

11 A I don't know. There are some codes down --
12 here, but I don't know what they mean. --

13 Q I see.

14 A 1040-240-7-54-53. I don't know what that
15 means. I don't know if that's dated or not.

16 Q I see. Those aren't your numbering schemes?

17 A Mine?

18 Q Yes.

19 A I had nothing to do with anything except
20 the -- the precautionary statements.

21 Q What -- what was the purpose of having a
22 label like that on the product that went out?

23 A Well, several. One to tell people what was
24 in it.

25 Q All right.

1 A No. 2. To tell them about the size of the --
2 the amount in there.

3 -- No. 3. To give them precautions as to safe
4 handling of the material.

5 4. To give -- well, that's really three.
6 That's about it. Those were some of the reasons.

7 Q To tell them what the product was, to tell
8 them how much was in it and to tell them how to handle
9 it safely?

10 A That there may be -- that there are other
11 things that the marketing people had in their mind when
12 they put a label on. But as far as the -- as the --
13 medical department was concerned, I can only say that we
14 put -- we were responsible and the purpose of the
15 medical department was to put on safe handling
16 procedures and cautions to protect the user against any
17 ill effects.

18 Q And it was your intention, to the extent you
19 put on information regarding toxicology and safe
20 handling, that the words that you used be sufficient to
21 convey to the purchaser what you intended that they
22 should do by the way of safe handling. Correct?

23 A Yes, sir.

24 Q Did you ever undertake as the medical
25 department of Monsanto to actually go into customers'

1 facilities and observe how the product was being used so
2 as to figure out whether the labels were accomplishing
3 your purpose?

4 A In these products here we're talking about?

5 Q Yes.

6 A No, I did not.

7 Q Did anyone in your department?

8 A I -- they may have gone into the departments,
9 not for the -- the primary purpose of seeing whether the
10 individuals were following the labels. We were sending
11 these compounds to General Electric, Ford, TVA, Allis--
12 Chalmers, who were, as I said, pretty sophisticated -
13 manufacturers. And we sent it to them, we sent them
14 the -- the product bulletins, and we expected them to
15 follow the procedures outlined. We did not go in and
16 check them, no, sir.

17 Q Well --

18 A As far as I know.

19 Q Okay. My question was not so much whether
20 you expected them to follow the procedures outlined, but
21 whether or not the way you wrote up what you wanted to
22 be accomplished or what you thought needed to be
23 accomplished was in fact communicating to the customer
24 what you intended for it to communicate.

25 A Repeat that, please.

1 Q Let me see if I can give you an example. For
2 example, the word "avoid prolonged contact," to you did
3 that mean if you got some on your skin you should wash
4 it off immediately?

5 A To me it would mean wash it off within five
6 minutes, ten minutes.

7 Q Okay. My question, then, would be: Did you
8 go, for example, into a customer's plant to ensure what
9 they meant by that was -- or they didn't interpret that
10 to mean wash it off at the next break or at the lunch
11 break and let it stay on the skin for two or three -
12 hours? -

13 A No, sir, it did not.

14 Q My question to you was whether you went into
15 customers' plants to see if they might be
16 misinterpreting what you intended by prolonged contact.
17 For example, five or ten minutes versus two or three
18 hours.

19 MR. FREEMAN: He's already answered the
20 question he was not in any customers' plants to do that.
21 You can answer the question again, I guess.

22 A I think I said no, I did not.

23 MR. LACEY: Okay.

24 Q Were you ever able to determine whether your
25 customers were interpreting your labels the same way you

1 intended them to be interpreted?

2 A Well, I think from the empirical point of
3 view I was, because we had -- there was no ill effects
4 of any workers getting -- from exposure to PCBs as
5 reflected by reports in the literature as reports from
6 our sales and marketing people as reports from these
7 individuals back to us. We had no records of any ill
8 effects. There were no records of any medical
9 conditions that surfaced in the literature.

10 Q So you concluded that because you didn't hear
11 anything that meant people were understanding the -
12 directions you gave and following it. Correct? -

13 A Yes.

14 Q Okay.

15 Let me show you another group of labels. Let
16 me get those back here and we'll get them all batched
17 together. Nos. 445 through 4 -- strike that.

18 Let me show you another group of labels,
19 Nos. 444 through 460, and ask that you do the same
20 thing. I think they may be already somewhat in
21 sequence.

22 A Do the same thing? I do not know what you
23 mean by do the same thing.

24 Q To separate out those that would be involving
25 environmental problems and therefore assuredly after the

1 mid-Sixties versus those that have no reference to the
2 environmental problem.

3 -- A I am handing you those that to the best of my
4 information represent labels that were used when
5 environmental contamination became important.

6 Q Okay. And the reason you are able to
7 separate these out is because they talk about protecting
8 the environment?

9 A Yes. And disposal procedures.

10 Q And those were not things that anyone would
11 have any reason to put anything on the label about -
12 before it came to Monsanto's attention that there was a
13 problem of PCBs in the environment and their
14 persistence. Correct?

15 A Correct.

16 Q Okay. Now, which ones of that group, then,
17 are ones that don't talk about the environment and
18 therefore potentially earlier labels?

19 A Three zeros 444, 445 --

20 COURT REPORTER: Excuse me. The three zeros
21 threw me off.

22 THE WITNESS: 000444, 000445, 000446.

23 COURT REPORTER: Thank you.

24 MR. LACEY:

25 Q Now, with regard to the actual warnings or

1 labeling about potential health effects and safe
2 handling, from your standpoint, was there ever any
3 reason for the labels to get more detailed in that
4 regard than they initially were?

5 A Repeat that, Mr. Lacey.

6 Q Yes. Was there ever any reason for the
7 labels that talked about how to handle PCBs safely or
8 that warned about any adverse consequences of PCBs to
9 get more detailed than they were in the 1940s or
10 Fifties?

11 A If -- was there any reason for them? -

12 Q Yes. To become more -- -

13 A Real reason or projected reason or possible
14 reason?

15 Q Whatever.

16 A Well, if something had occurred to show that
17 in our customers we were having -- they were having ill
18 effects with our product, there may have been a reason
19 to be more detailed about it. But this did not occur.
20 And to answer your question, no, I didn't see any reason
21 for more detailed.

22 Q Okay.

23 Let me show you one of the documents that
24 you've handed back to me and -- it's document 460 --
25 and ask you to take a look at the caution statement

1 there on that document and compare it with the caution
2 statements on the earlier documents that you have
3 identified which did not contain the environmental
4 warnings.

5 A Yes, sir.

6 Q Do you believe that that statement on the
7 later document contains more detail about appropriate
8 handling procedures to protect a person using PCBs from
9 possible harm as a result of working with them?

10 A Well, it has practically the same
11 information. It says caution. Both say caution. -
12 Contain chlorinated hydrocarbon -- carbons. It says -
13 harmful substance if taken internally or in prolonged
14 contact with the skin. We say on the other labels avoid
15 skin contact, prolonged skin contact. They talk about
16 skin irritation. Eyes. We didn't mention eyes in the
17 other one, but it says causes irritation of the skin and
18 eyes. Then they have several pages -- several sentences
19 about avoiding spills and contamination of other
20 products. Keep container tightly closed. Do not eat or
21 smoke while using. Avoid breathing vapors, mist or
22 fumes. Do not wear contaminated clothing. I would say
23 the only thing they've added here is: Do not eat or
24 smoke while using and causes irritation of the skin --
25 of the eyes.

1 Q There's a reference to not wearing
2 contaminated clothing, is there not?

3 A Yes, sir.

4 Q Was that in the earlier label?

5 A It's in some labels I've seen. Discard or
6 launder clothing before use. I don't know if it was in
7 the earlier ones.

8 Q All right. Launder clothing before use?

9 A Reuse, I think is -- I thought I saw in some
10 of the labels.

11 Q You would take that to mean exactly the same
12 thing as do not wear contaminated clothing? -

13 A Yes, sir.

14 Q You wouldn't understand do not wear
15 contaminated clothing to mean that if you spill some on
16 you you ought to immediately change clothing?

17 A It depends how much you spilled on you.

18 Q I see.

19 A If you had a teaspoonful, you wouldn't. But
20 if you were doused with it, both legs were sprayed on
21 it, you would get rid of that, certainly.

22 Q Okay. And you feel that both the early
23 labels and the late labels would communicate that
24 concept?

25 A I think so.

1 Q Okay.

2 Now would you hand me those others there and
3 we'll put them together.

4 You mentioned your customers to whom this
5 material went. Were the warning labels for the benefit
6 of even customers like General Electric and Westinghouse
7 and TVA and Ford -- did they get warning labels on their
8 products?

9 A They got the same -- the labels that -- yes,
10 they got the warning labels on them.

11 Q And did they look to you as the manufacturer
12 of that chemical for advice as to how to handle it and-
13 how to use it safely?

14 A No, sir. They knew all about how to handle
15 and use PCBs.

16 Q You don't recall them then ever looking to
17 you for information on how to handle the chemicals?

18 A No, sir, I do not recall it.

19 Q I see.

20 A It may have occurred, but I -- I do not
21 recall it.

22 Q Okay.

23 Would people in your department have talked
24 with you before they were involved in providing
25 information to customers about how to properly handle

1 chemicals?

2 A They may and they may not have. In many
3 instances they would not. If they knew what to do, they
4 would go ahead and do it.

5 Q Now, Inerteen was a Westinghouse product, was
6 it not?

7 A Yes, it was.

8 Q Let me show you a letter, No. 25320 through
9 25322, dated October 23rd, 1959, from Elmer Wheeler to
10 Wilbur Speicher -- I'm not sure if I've pronounced that
11 correctly -- with Westinghouse. -

12 A Yes, sir, I've seen this letter before. -

13 Q When did you see that letter?

14 A I've seen it -- oh, gosh. Sometime while I
15 was with Monsanto.

16 Q Did you talk with Mr. Wheeler before he sent
17 that letter out?

18 A I don't remember if I did or not.

19 Q Okay.

20 - That letter was sent to Westinghouse by Mr.
21 Wheeler in response to questions for more information
22 about Inerteen, was it not?

23 A I'll have to read it.

24 Q Maybe if your lawyers can let you look at it
25 we can move ahead here.

1 A I don't see the earlier correspondence on it.
2 That doesn't seem to be on it.

3 -- Q I provided to you what Monsanto has provided
4 to me.

5 A There was a letter of October the 21st which
6 seems to have not -- to have been discarded. So
7 obviously he inquired about the safe use of
8 trichlorodiphenyl, a mixture of 40 percent
9 trichlorbenzil -- benzene and 60 percent
10 hexachlorodiphenyl, yes, sir.

11 Q And that's what Monsanto provided to --
12 Westinghouse as Inerteen PPO. Correct? --

13 A Yes, sir.

14 Q And while we don't have the letter to which
15 Mr. Wheeler is responding attached to it, it's clear
16 from the response that is given by Mr. Wheeler that they
17 had asked for some information on the safe handling and
18 toxicology of that product, is it not?

19 A Yes, sir.

20 Q And Mr. Wheeler's response here is
21 considerably more detailed than the information on
22 toxicology and safe handling given in one of our
23 technical bulletins or product bulletins we looked at,
24 is it not?

25 A Yes, it is.

1 Q Does that letter suggest at all to you that
2 Westinghouse might be looking to Monsanto for assistance
3 in understanding the toxicology and the safe handling
4 procedures for the PCB products that you supplied to
5 them?

6 A This might have been a new PCB to them and
7 they wanted to know what the information was about this.
8 I -- I don't -- I don't think I could say what else it
9 suggests to them. I don't know how -- Mr. Speicher was
10 an industrial hygienist and he asked some specific
11 questions about when you should use exhaust ventilation.
12 It said here, of course, "I have been told your company
13 has had some 20 to 25 years experience with the products
14 discussed above." And he suggested that Mr. Ford, the
15 manager of Transformer Manufacturing Engineering at your
16 Sharron plant would be a source of information regarding
17 your experience with Inerteen.

18 Q And yet the industrial hygienist at
19 Westinghouse was looking to Monsanto, the manufacturer
20 of the chemical, for the information, was he not?

21 A He was. But it was obvious that other people
22 in Westinghouse had the information, because we referred
23 them to two people that --

24 Q Well, actually, Mr. Wheeler didn't just write
25 back and say, "I received your letter, please talk to

1 Mr. Whoever," did he?

2 A No, of course not.

3 Q He supplied all the information?

4 A What he asked, yes.

5 Q One of the things that's a reality of a --
6 of a large company like a Monsanto or a Westinghouse or
7 a Ford is that what one individual knows may not be
8 known to another individual in the company.

9 A That can occur, yes, sir.

10 Q I mean you've indicated to me in some cases
11 here that you don't know about everything that everybody
12 else at Monsanto was doing.

13 A That's correct.

14 Q And you would certainly recognize that that
15 problem would be the same one at large customers that
16 you had. Would you agree with me?

17 A It could be that some people in large
18 customers didn't know what other people knew about a
19 product, yes, sir. It could occur.

20 Q For example, where was the headquarters of
21 Westinghouse? Do you know?

22 A Pittsburgh.

23 Q And the headquarters of Ford?

24 A Outside Detroit.

25 Q And the headquarters of the TVA?

1	A	Knoxville.
---	---	------------

2 Q Just because any one individual in Detroit or
3 outside Detroit with Ford or with Westinghouse in
4 Pittsburgh or with the TVA in Knoxville knew particular
5 information about a product supplied by Monsanto would
6 not necessarily mean that Monsanto could reasonably
7 assume everybody in the company knew that same
8 information, would it?

9 A They could reasonably assume that the people
10 who were responsible for the use of the product would
11 know about it, yes, sir.

12 | Q I see.

13 Well, would people in Monsanto reasonably
14 assume, then, that you would know about all the safety
15 precautions that were being taken with regard to
16 Monsanto workers in the units that manufactured PCBs?

17 MR. FREEMAN: I object to the form of the
18 question. It calls for an assumption of what somebody
19 else knew and outside this man's knowledge.

20 MR. LACEY: You can go ahead and answer the
21 question.

22 A Can I have the question again?

23 MR. LACEY: Certainly.

24 Will you read it back, please?

25 COURT REPORTER: "Well, would people in

1 Monsanto reasonably assume, then, that you would know
2 about all the safety precautions that were being taken
3 with regard to Monsanto workers in the units that
4 manufactured PCBs?"

5 A What people in Monsanto? Everybody?

6 MR. LACEY:

7 Q Yeah.

8 A The 55,000 employees they have?

9 Q That people would assume that you as the
10 medical director would know about what was going on in
11 manufacturing units and in the efforts to protect the
12 workers' safety.

13 A I think the people in Monsanto recognized the
14 fact it was the medical department's responsibility to
15 protect the workers and they would assume that we had
16 inaugurated, instituted procedures to protect these
17 workers, yes, sir, I believe they would.

18 Q And that you as the medical director would
19 know the details of that?

20 A I may not know all the details, but I would
21 know that procedures had been instituted.

22 Q Okay. But knowing the details, that wouldn't
23 be a reasonable assumption, would it?

24 A I don't know. It might be reasonable to some
25 people, not reasonable to others.

1 Q Okay.

2 Let me show you another letter, dated
3 February 12th, 1969 from Mr. Wheeler to a Mr.
4 Bindschadler with Westinghouse, document 25326, 25327,
5 also supplying additional or technical information on a
6 PCB product from Monsanto to Westinghouse.

7 A Yes, sir.

8 Q Again, this appears to be provided in
9 response to a request for information about a PCB
10 product. Correct?

11 A Yes, sir.

12 Q And Westinghouse is looking to Monsanto for-
13 information about those products.

14 A I do not know exactly how long Mr.
15 Bindschadler was with Westinghouse, whether he was a new
16 employee there, whether he knew anything about the
17 workings of the organization, and he probably thought
18 the easiest thing is to write Monsanto and find out from
19 them, because again we referred to them that they had
20 many years of experience in handling and using these,
21 and in a -- in a sense -- well, stating that their
22 experience is wider than ours in terms of exposure
23 levels. So again I don't know what he was asking in
24 this letter of February the 3rd to the safety
25 department. This is a safety man. And the medical

1 department at Westinghouse certainly knew about the safe
2 handling procedures for -- for their transformer fluid.
3 Whether Mr. Bindschadler was an old-time employee there
4 and knew I don't know, and I don't know what specific
5 questions he asked in this letter to Waiger, the safety
6 man.

7 Q We do see again, though, Mr. Wheeler
8 providing information from Monsanto to its customer
9 Westinghouse on a PCB product, do we not?

10 A Yes, sir.

11 Q In response to a request from the customer --

12 A Yes, sir.

13 Q -- for information. And as you've pointed
14 out, sometimes there's a change in employees. And that
15 happens in large corporations, does it not?

16 A Yes, it does.

17 Q And again that just reiterates or
18 demonstrates the need to continue to supply information
19 to make sure that when new employees come on board they
20 have the same information that they need, doesn't it?

21 A No, it doesn't. I mean it -- it means that
22 the company, Westinghouse, should inform their new
23 employees. It doesn't mean that Monsanto should inform
24 every new employee that goes with Westinghouse something
25 that has been going on. We expect that a company like

1 Westinghouse which has had all the information available
2 on their own copyrighted product would tell their new
3 employees.

4 Q Let me show you another document, dated
5 September 27th, 1967, from James G. Bryant to a large
6 number of people, including Mr. Pappageorge and others,
7 document 25282. It references a visit by Monsanto to
8 the Anniston, Alabama, PCB plant of Monsanto, does it
9 not?

10 A Yes, sir.

11 Q And it indicates that Westinghouse employees
12 are coming there to try to learn more about how to -
13 handle PCBs in order to avoid toxicological problems,
14 doesn't it?

15 A Repeat the question. I was reading this.
16 I'm sorry.

17 Q Let me. I'll repeat it for you. The memo
18 clearly indicates that employees of Westinghouse were
19 coming to Monsanto's Anniston, Alabama, PCB plant to
20 learn more about how to handle PCBs in order to avoid
21 dermatological and toxicological problems?

22 A Yes, sir, that's what it says, the prime
23 purpose is to discuss the best methods for handling
24 Aroclor 1242 to avoid problems of dermatitis and
25 toxicology.

1 Q So once again we see Westinghouse looking to
2 Monsanto as the manufacturer and supplier of the
3 chemical for information about how to handle the
4 chemical. Correct?

5 A Well, at this particular plant, this may be
6 when they started using the material, so they came to us
7 rather than going to their own headquarters.

8 Q The point is, that clearly shows that
9 Monsanto was looking to -- I mean Monsanto was being
10 looked to by Westinghouse, in particular the people in
11 Bloomington --

12 A The people from Bloomington, yes.

13 Q -- for information on how to handle the
14 chemical to avoid toxicological --

15 A Yes, sir.

16 Q -- dermatological problems?

17 A Yes, sir.

18 Q Let me show you another document. This one
19 does have attached to it the original correspondence
20 from Westinghouse to Monsanto, some memos about making
21 responses, along with the Monsanto response. The entire
22 package is document 25286 through 25297. And you might
23 look at the last part first, because it shows the
24 question letter coming in, and then going forward you
25 see the response. That one does have the letter from

1 Westinghouse to Monsanto attached, does it not?

2 A Yes, sir.

3 Q And that's a request for information from
4 Westinghouse to Monsanto about the PCB products that
5 Monsanto supplied to Westinghouse. Correct?

6 A I have to read it.

7 Q Okay.

8 A Because this occurred after I left Monsanto.
9 This is dated 1975.

10 Q Fine.

11 A Well, this again, as I said, is a letter from
12 Westinghouse to Monsanto in 1975 following the publicity
13 concerning PCBs in the environment. The workers had
14 asked -- had brought up several concerns. So they did
15 come to us asking these concerns -- to get answers to
16 these concerns, yes, sir, they did.

17 Q And Monsanto provided a response to each one
18 of those questions to Westinghouse --

19 A Yes, they --

20 Q -- for their use. Correct?

21 A Yes, they did.

22 Q In each of these letters that we've looked at
23 we see Westinghouse coming to Monsanto as the
24 manufacturer of PCBs to get additional information about
25 the toxicology and/or safe handling of the chemicals

1 that Monsanto supplied to Westinghouse, don't we?

2 A We see individuals in Westinghouse getting --
3 asking for information.

4 Q Of Monsanto?

5 A Of Monsanto. This is individuals, and this
6 does not mean that these people represent the body of
7 toxicological information in Westinghouse.

8 Q Well, companies can only work through
9 individuals, can't they?

10 A Yes, certainly.

11 Q And each of these individuals was asking that
12 question on behalf of his employer Westinghouse.
13 Correct?

14 A Yes. He is asking questions --

15 Q And each --

16 A -- that were -- some were -- these were new
17 questions about supposed conditions due to the
18 environmental publicity about PBCs in this case.

19 Q You're talking about the last one?

20 A Yes, the last one.

21 Q The others didn't -- weren't the result of
22 environmental publicity, were they?

23 A No, they were not. But I do not know what
24 they were the result of. I do not know whether that was
25 the result of a man figuring out it was easier to get it

1 from Monsanto than his own company. I don't know.

2 - Q I see. By the way, do you know whether or
3 not Westinghouse even had a medical director or not?

4 A Yes, I believe they did. I really -- I
5 believe they did. I feel quite sure they did. I can't
6 tell you his name, but --

7 Q Do you recall giving a deposition in a case
8 called Charles Wright versus Monsanto Company --

9 A Yes, I do.

10 Q -- in the Eastern District of the United
11 States of Texas, Beaumont Division, back on September -
12 28th, last year?

13 A Yes.

14 Q Have you reviewed and signed that deposition
15 yet?

16 A I can't answer that.

17 Q Okay.

18 A When was the deposition?

19 Q It was taken on September 26th, 1986. I note
20 that it must have been typed up a little bit late,
21 because the signature sheet provided for it to be
22 notarized in 1987. So I assume it wasn't typed up until
23 early this year.

24 A I don't know whether I signed it or not.

25 Q Okay. Do you recall being asked there:

1 What about with Westinghouse? Would you have had
2 contact with Westinghouse medically? Do you recall
3 being asked that question?

4 A Well, if you show it to me. I don't recall
5 it.

6 Q Okay. Let me show you the deposition. Let
7 me bring it over here. Beginning at Line 10: What
8 about with Westinghouse? Would you have had contact
9 with Westinghouse medically?

10 And then the lawyer there interposes an
11 objection. And then there's an answer. Says: You can
12 answer it.

13 Then your answer starts right here, and you
14 say: No, I don't know if Westinghouse had a medical
15 director or not.

16 A Well, I didn't recall whether they did. I
17 still don't recall whether they did, but -- my
18 impression is they did, but I couldn't answer that
19 positively.

20 Q I see.

21 A I knew positively General Electric had one, I
22 knew positively Ford had one, I knew Westinghouse had a
23 very large industrial hygiene group. My belief would be
24 that they had a medical director, but I didn't know.

25 Q That would be speculation on your part?

1 A It would be speculation.

2 - Q I see.

3 Now, even companies with medical directors
4 might look to Monsanto for information on PCB products
5 supplied by Monsanto to those companies, mightn't they?

6 A Yes, they might.

7 Q That wouldn't really be surprising to you,
8 would it?

9 A No, it wouldn't.

10 Q Do you recall an inquiry from Ford Motor
11 Company asking for specific information on a PCB
12 product?

13 A I don't recall it, but show me the
14 correspondence. It may refresh my memory.

15 Q Surely. Let me show you a package of
16 documents here that's numbered 25330 through 25333. And
17 the first one is a handwritten note apparently to Elmer
18 Wheeler, although it just says Elmer. There's a -- the
19 second sheet would indicate it went to Mr. Wheeler.

20 And then there's a response that was actually
21 written to that question that you prepared and signed.
22 Correct?

23 A Well, it appears to me that these people were
24 not using Pydraul at this time. Because it says Ford
25 looks bigger and bigger as a Pydraul potential. So it

1 appears that Mr. Falls, whoever Mr. Falls was, wanted to
2 know about the safe handling of Pydraul before he
3 started using it.

4 Q And they were looking to Monsanto as the
5 supplier for information on that. Correct?

6 A Certainly. They were a new customer and they
7 were looking for it, so we sent them the toxicity and
8 safe handling bulletin on it, yes, sir.

9 Q And that should have been sufficient to
10 satisfy their needs without doubt. Correct?

11 A That should have been sufficient to satisfy
12 their needs?

13 Q Yes. I mean what I'm saying is the letter
14 that you sent them along with the materials that you
15 sent them would have been what they would have needed to
16 answer any questions they had about that product.
17 Correct?

18 A Yes, I think so.

19 Q And that product, of course, was a PCB
20 product, was it not?

21 A I don't know if Pydraul 312 is or not. I --

22 Q I see. You don't recall?

23 A I don't recall.

24 Q Okay.

25 Let me show you another document, dated April

1 25th, 1968, document 25334, 25335. That memo indicates,
2 does it not, that the information in the letter that you
3 sent to Ford was not considered adequate by them? Does
4 it not?

5 A That's what this reported, yes, sir.

6 Q So apparently the standard literature that
7 you sent out was not something that Ford found
8 sufficient to meet their needs for information.

9 A This is my letter to them. The standard
10 information was this letter. Let's see what happened.
11 Well, he asks some things that were -- would certainly-
12 not be common if this is what he was concerned about. -
13 He asked three things:

14 He would like it explained that the Pydraul
15 fluid would contain the same components as Pydraul 312.
16 In other words, we gave them the safe handling bulletin
17 that was -- or the safety data sheet on Kettering, and
18 he just said, "Look, I want to be sure this is the same
19 stuff." Well, I didn't say this Pydraul 312 is the same
20 as was used at -- at Kettering, if that's what he was
21 complaining about.

22 No. 2. What are the actual chemical
23 constituents of the decomposition vapors of Pydraul 312?
24 Well, he wanted to know that. That wasn't included in
25 it.

1 information that was in the technical materials.

2 - A That's correct.

3 - Q Let me show you another letter, dated May
4 7th, 1968, from Mr. Wheeler to Mr. Falls, document
5 25336, 25337. This is the letter that was written back
6 in response to the memo that we've just looked at, is it
7 not?

8 A Yes. Well, this he wrote back and said that:
9 We checked the decomposition and didn't find any
10 phosgene in it.

11 Q Also, were you able to tell from that -
12 response whether the material contained PCBs or not? -

13 A Well, it said: The chlorinated hydrocarbon
14 components of our -- of our fire -- of our fire-
15 resistant fluids are not the simple short chain organic
16 compounds. So conceivably that would refer to aromatic
17 diphenyls. But I'm sure along with all this information
18 he had product bulletins about discussing whether it's
19 PCBs in it or not. But this is pretty clear.

20 - Q It does or does not contain PCBs?

21 A What?

22 Q It does or does not contain PCBs?

23 A I would think if it's -- this fire resistant
24 in 1968, it contained PCBs.

25 Q One of his specific questions was: What were

1 the chemicals that went into Pydraul 312? Correct?

2 - A That was presumably answered by somebody
3 else. We answered the phosgene part. We answered
4 whether or not --

5 Q I see.

6 A -- phosgene would be liberated or not by
7 decomposition.

8 Q So that letter is only a partial response?

9 A Presumably, yes.

10 Q Okay. And the way you responded was by
11 citing some tests that you had earlier done on some PCB
12 chemicals. Correct? -

13 A Yes, sir.

14 Q And so if the materials were not PCB
15 chemicals then the relevance of your response would be
16 limited, at best?

17 A That's correct.

18 Q Okay.

19 Do you have any thoughts about why someone
20 would be concerned about phosgene gas being liberated
21 from PCBs?

22 A There is no explanation for people's
23 concerns. It could be -- he might have heard it during
24 a golf game and somebody would say it, a competitor
25 might have said it. I don't know what the reasons for

1 his concerns are. But it seems like we dispelled it.

2 Q Okay.

3 Let me show you another set of correspondence
4 from Ford. And here we have the backup question and the
5 response, along with a form, 25338 through 25341.

6 A Yes, sir.

7 Q Apparently, even though you thought you had
8 dispelled the concerns, they come back for yet more
9 information on Pydraul 312.

10 A No, that is not correct at all, Mr. Lacey.

11 Q I see.

12 A What Ford Motor Company was doing in this
13 particular case is getting their own form questionnaire
14 on all the products that were supplied to them. So they
15 sent it to us to fill out the form for them. This, by
16 the way, is a phosphate ester-based fluid.

17 Q What other chemicals does it contain?

18 A Contains chlorinated hydrocarbon, but this --
19 the base product is phosphate ester. So it presumably
20 is not a PCB.

21 Q You don't think it has any PCBs in it?

22 A Well, they said it's phosphate based. I
23 think you would have to look up -- certainly the
24 catalogs would show 312. I can't tell you, but they say
25 it's phosphate based.

1 Q I see.

2 - A And this occurs all the time. People decide,
3 I am going to have my own clinical safety questionnaire
4 on all the products, and we send it to anybody that
5 sells us anything, and say: Fill it out. That's not a
6 question of saying we don't know the information, we
7 don't have the information, but we want it completed by
8 your people with particular attention to the
9 decomposition -- information on the decomposition
10 products.

11 Q That was the same question it asked earlier,
12 wasn't it?

13 A Well, somebody else asked, yes. Somebody
14 else at Ford asked.

15 Q Ford is still coming back with the same
16 question about decomposition products on the same
17 product, isn't it?

18 A No. They're coming back asking a
19 considerable amount of information. All sorts of -- of
20 information as far as the details of the toxicity, flash
21 point, specific gravity, the whole business. Does it
22 decompose violently? It asks any number of questions on
23 here. What are the products. In the event of fire, how
24 to put it out. Corrosive action. All sorts of
25 questions.

1 Q Okay.

2 - The Pydraul that was being discussed in this
3 exchange of correspondence with Ford was a hydraulic
4 fluid, was it not?

5 A Let me have it back.

6 VIDEO OPERATOR: Excuse me. While he's
7 looking at that I need to take a short pause.

8 MR. CRAWFORD: Why don't we go ahead and take
9 a break since it's just about 3:00. Okay?

10 MR. LACEY: Fine.

11 A It's a hydraulic, yes. -

12 MR. CRAWFORD: That answered that. -

13 VIDEO OPERATOR: We're going off the record.
14 The time is 2:56 p.m.

15 [Recess]

16 VIDEO OPERATOR: Okay. I'm ready.

17 MR. LACEY:

18 Q One of the reasons that people would be
19 concerned about the decomposition products of hydraulic
20 fluid is that in the die casting process those hydraulic
21 fluids would likely be heated under use circumstances.
22 Correct?

23 A Yes, sir.

24 Q And that's something that you had been aware
25 of since at least November of 1962. Isn't that correct?

1 A What was the question?

2 Q You had been aware at least from the date of
3 that memo of the fact that hydraulic fluids used in the
4 auto manufacturing business could be heated by the
5 dropping of molten metal into fluids that might
6 accumulate around the machines.

7 A In this particular case, yes.

8 Q Yes. And obviously the questions that Ford
9 was asking about decomposition products at high
10 temperatures would indicate that they anticipated the
11 same thing might occur in their facilities.

12 A That's correct.

13 Q Okay.

14 Now what decomposition products would you
15 expect from that type of event that was described in the
16 communication that you had with General Motors and the
17 circumstances that were questioned about by Ford?

18 A I'd have to check it. I'd have to check the
19 temperatures involved, I'd have to check which -- which
20 hydraulic fluid it was.

21 Q I see.

22 Now, the Tennessee Valley Authority also
23 looked to Monsanto for information about its products,
24 did it not?

25 A Do we have letters from them?

1 Q Yes.

2 A Just happen to have one?

3 Q Surely. We've already seen, have we not,
4 that there was substantial correspondence between
5 Westinghouse and Monsanto with Westinghouse inquiring
6 for information about Monsanto products? Correct?

7 A I was reading this. Sorry.

8 Q We've already seen substantial correspondence
9 back and forth between Monsanto and Westinghouse where
10 Westinghouse was inquiring about additional information
11 on Monsanto-supplied PCB products. Correct? -

12 A We -- I reviewed two letters from -
13 Westinghouse.

14 Q I see.

15 A I think it was two letters.

16 Q And we've seen correspondence back and forth
17 between Ford and Monsanto inquiring about information on
18 Monsanto products. Correct?

19 A We received correspondence from one
20 individual at Ford who was contemplating using a -- a
21 Pydraul -- a Monsanto product. So he's asking for
22 information about it.

23 Q We see the same thing here with regard to the
24 TVA, do we not?

25 A Well, I don't know if they were using this at

1 all. I mean are they contemplating it? I don't know.
2 They apparently asked what it was. And he asked,
3 really, for the composition of the material, which we
4 couldn't tell.

5 Q You could tell, but you wouldn't give out.

6 A Well, I think we legally weren't able to
7 because a second company was involved.

8 Q I see.

9 Then there's further correspondence with the
10 Tennessee Valley Authority with regard to this Pydraul
11 product. Let me hand you document 25350.

12 A Is that December the 9th? What number is -
13 that? What date is that? November the 14th. Is there
14 a question before me, sir?

15 Q Yes. They were writing again requesting
16 additional information, and that is the response that is
17 being given by Monsanto to the TVA. Correct?

18 A They wanted to find specific answers to
19 specific questions, yes, that were not -- presumably not
20 covered in the bulletin.

21 Q And again they looked not to any in-house
22 source of information or doing any in-house testing or
23 anything like that, but rather looked to Monsanto as the
24 manufacturer of the chemical?

25 A I don't know what they did as far as looking

1 in-house. I -- I certainly know they wrote us a letter.

2 - Q Yes. Looking for answers to their questions.
3 Correct?

4 A Specific questions, yes, sir.

5 Q Let me see if I can understand the outside
6 laboratories that were used by Monsanto to conduct
7 testing, in particular animal testing. At one point in
8 time you used the Younger Laboratories?

9 A Yes, sir.

10 Q And then at a later point in time you used
11 Industrial Biotest Laboratories? -

12 A Yes, sir. -

13 Q Why the change from Younger to Industrial
14 Biotest?

15 A Younger Laboratory was only efficient as far
16 as running acute testing. It was where we needed to get
17 information about the acute hazard of a product for --
18 for use in shipping or use in small quantities. For
19 example, we had a package deal that we used for all new
20 products that were going out to research people, to --
21 small amounts where we ran an acute LD 50, we dropped it
22 in their eyes to see the eye irritation, we put it on
23 the skin, we put it -- we had it breathed by animals at
24 ambient temperatures at saturated atmosphere. So it was
25 an acute testing laboratory. That's all they were able

1 to do. They were not sophisticated enough for long-term
2 feeding or pathology or anything else.

3 -- Industrial Biotest Laboratory was an
4 extremely sophisticated laboratory that was in high
5 repute by all the chemical companies including the --
6 also including the government, the FDA. Any number of
7 government agencies used Industrial Biotest Laboratory.
8 We used them for long-term feedings and for -- for
9 laboratory work where residual analysis of tissues had
10 to be done.

11 We also used other laboratories. We used --
12 Saranac Laboratory for chest things, we used Kettering-
13 Laboratory for inhalation and for other testing. We
14 used Hazelton Laboratories, we used Woodard
15 Laboratories, we used a lot of laboratories.

16 Q Were there other laboratories that could
17 perform the same types of tests that Industrial Biotest
18 Laboratories could?

19 A There were -- Hazelton Laboratory might have
20 been able to, Woodward might have been able to. They
21 were not as convenient to us as Biotest. Chicago is a
22 lot easier to get to than Washington.

23 Q Now, you told me yesterday, I believe, that
24 one Monsanto employee worked at Industrial Biotest for a
25 while, and that was -- who was that?

1 A Paul Wright.

2 Q Was Mr. Wright the only Monsanto employee who
3 went from Monsanto to Industrial Biotech and then came
4 back to Monsanto?

5 A That was the only one I know of. To the best
6 of my knowledge, that's correct.

7 Q Was Mr. Wright working --

8 A Dr. Wright, really.

9 Q Oh, Dr. Wright? Okay.

10 A Ph.D. He's a Ph.D.

11 Q Was Dr. Wright working in your department --
12 when he left Monsanto? --

13 A No. He was working in agricultural
14 department.

15 Q Okay. As a toxicologist?

16 A As a research chemist.

17 Q Is there a relationship between being a
18 toxicologist and a research chemist?

19 A Well, a research chemist in agriculture -- in
20 the agricultural field knows a great deal about
21 physiology, and a toxicologist knows a great deal about
22 physiology. So I think it was an excellent preparation
23 for him to go into toxicology, to become a toxicologist.

24 Q Did Mr. Wright work with your department
25 while he was at Industrial Biotech?

1 A I don't know what you mean by with my
2 department.

3 Q Well, you told me that Industrial Biotest did
4 work for many companies.

5 A That's right.

6 Q I guess I'm trying to find out whether Mr.
7 Wright was the person who was on the Monsanto account at
8 Industrial Biotest.

9 A I can't answer that. I -- they had probably
10 15 people in the same bracket as Mr. -- as Dr. Wright.
11 So I can't say whether he did -- and we had quite a --
12 number of compounds up there. So he may have worked at
13 some, he may not have worked at some.

14 Q Let me show you a couple of letters and ask
15 if they refresh your recollection any at all about
16 whether Mr. Wright worked on Monsanto products while he
17 was at Industrial Biotest.

18 A Well, he certainly worked on teratology
19 studies with three different aroclors in September of
20 1971.

21 It appeared he was going to work on -- do
22 some analytical work on urine specimens that we sent up
23 there from our workers in one of our operations.

24 Q Which operation?

25 A Decatur, Alabama. And he did some work -- he

1 presumably looked over the protocols on the Thermonol
2 and phosphate ester feeding studies.

3 MR. CRAWFORD: Doctor, do you know about this
4 personally or is this just something you are looking at
5 the correspondence and guessing about? I mean do you
6 know that or not?

7 THE WITNESS: Oh, yeah. I mean this occurred
8 while I was there.

9 MR. CRAWFORD: That's fine.

10 THE WITNESS: Sure.

11 MR. CRAWFORD: I just want to be sure --

12 THE WITNESS: I'm not guessing, no. I know
13 Paul -- I mean this refreshed what he was working on,
14 but I think you have to realize what a laboratory is.
15 They've got a lot of different section heads. And
16 products from Monsanto might be worked on by five
17 different section heads. He was not as an advertising
18 man doing a whole account for one company.

19 MR. LACEY:

20 Q What was the purpose of sending tests like
21 this out to independent laboratories?

22 A Several reasons:

23 1. Unless you had a large enough flow of
24 products coming, it was inefficient to have the variety
25 of specialists that you needed to carry out all the

1 very -- all the details that you needed to do.

2 = No. 2. You had an objective point of view
3 from an independent laboratory. That may or may not be
4 important. Sometimes it was thought to be important,
5 sometimes it wasn't.

6 But I would say the major point is, unless
7 you could keep your own laboratory busy all the time,
8 they would be sitting around the payroll without
9 compounds to test.

10 Q Did Monsanto have enough work to keep the
11 laboratory busy? -

12 A Which laboratory? A laboratory? -

13 Q Yeah.

14 A They did after about 1975 or '76, when they
15 built one after I left.

16 Q Prior to that time there had not been enough
17 work to keep a laboratory busy?

18 A That was one of the reasons. And we didn't
19 have the specialists that were needed in the various
20 fields.

21 Q Did you feel that having a former Monsanto
22 employee work at an independent laboratory on Monsanto
23 products compromised that objectivity you talked about
24 as being one of the reasons you would send things to an
25 independent lab?

1 A Not in the least.

2 Q Okay.

3 -- Now, if I understood correctly, Mr. Wright
4 came back to Monsanto from Industrial Biotest.

5 A That's correct.

6 Q And when he came back, he came back into your
7 department?

8 A That's correct.

9 Q And he came back into your department as the
10 manager of toxicology, did he not?

11 A I don't know if that was his title. He came
12 back there under -- I think Dr. Levinskass was there at
13 that time. And Dr. Levinskass was the head. So whether
14 he was a manager and Dr. Levinskass was a director
15 I don't know. But Levinskass was the top toxicologist
16 that we had.

17 Q Let me show you --

18 A But I don't know when he came.

19 Q Let me show you a couple of letters that
20 reference his title, just to refresh your recollection,
21 one written to him and one from him.

22 A Well, the first -- well, in 1975, when he was
23 manager of toxicology, Dr. Levinskass was a supervisor.
24 I don't know whether Dr. Levinskass was called director
25 of toxicology and Wright was a manager or not, but

1 Levinskis was the No. 1 and Wright was the No. 2.

2 = Q Okay. He had, at least at that time, the
3 title of manager, whatever that meant?

4 A Yes, that's correct.

5 Q Was that a responsible position that Mr.
6 Wright came back to?

7 A Yes.

8 Q Would the position he came back to at
9 Monsanto be a better position than the one he left, one
10 with more compensation and more -- higher in the
11 organization, so to speak? —

12 A I don't know what salary he was getting at -
13 Biotest. I don't know the reasons he wanted to come
14 back, whether it was family or whether he found --

15 Q I'm sorry. I don't mean at Biotest. I was
16 trying to compare what he was when he left Monsanto with
17 the position he came back to, whether that was a
18 promotion or an improvement in position.

19 A I think it was.

20 Q When Dr. Wright came back to Monsanto, he
21 continued to work then from the Monsanto side with
22 Industrial Biotest on its work with Monsanto products.
23 Correct?

24 A I can't be sure whether he continued to work
25 there or whether -- we had a Dr. Hunt at that time. He

1 died someplace along the way. I'm not sure of that. We
2 had a Fred Yohannsen who came at that time. I do not
3 remember whether Dr. Wright was the go-between, as it
4 were, between Monsanto and Industrial Biotest. I can't
5 answer that.

6 Q Those last two letters I showed you are
7 correspondence to and from Industrial Biotest with
8 Mr. Wright involved, are they not?

9 A Yes, that's correct. But we had -- one of
10 our toxicologists would go up there on monthly visits.
11 So I do not know if Paul did that. -

12 Q Okay. -

13 Who else might have been the toxicologist
14 from Monsanto that would have made monthly visits to
15 Industrial Biotest?

16 A Dr. Hunt before he died.

17 Q Okay.

18 A He died up there, by the way.

19 Q At Industrial Biotest?

20 A At the airport.

21 Q How old a man was Dr. Hunt?

22 A Younger than I.

23 Q Heart attack or something, I guess.

24 A Yes, a heart attack in the airport. And Fred
25 Yohannsen, who was a young toxicologist, I do not know

1 exactly when he came, he came before I left, obviously,
2 and he might very well have inherited the job of going
3 up and following the testing at Biotest. And Paul may
4 have done some, too.

5 Q Would it to you compromise the objectivity to
6 have a Monsanto person reviewing Industrial Biotest work
7 who had previously been involved in Industrial Biotest
8 work there?

9 A Not in the least. I had perfect confidence
10 in -- in Paul's scientific ability and intellectual
11 honesty. -

12 Q What was the -- the point of sending a person
13 from your department up to Industrial Biotest each
14 month?

15 A To see how our various projects were getting
16 along, to see if anything was happening that might
17 require some changing in the test procedures.

18 Q Did you yourself ever go to Industrial
19 Biotest?

20 A Yes, I was there about three or four times.

21 Q Was there actual -- I guess laboratory would
22 be the right thing to call it there in Chicago?

23 A Northbrook up north of Chicago.

24 Q Okay. Did you ever physically go and observe
25 their laboratory?

1 A Yes, certainly.

2 Q How did -- how did the sort of -- the sort of
3 studies that they were doing work? What was in the
4 laboratory or what happened?

5 A Well, it depends on what studies they were
6 doing. If they were doing feeding studies, two-year
7 feeding tests, they had a group of dogs and rodents in
8 different cages and fed them various levels of materials
9 and weighed them and did laboratory studies on them.
10 And then during the -- the span of the experiment would
11 sacrifice some of the animals, and sacrifice all of them
12 at the end of them. If it were inhalation, it would be
13 the same type of work, only using inhalation.

14 Q Did you ever observe any of the animals that
15 were actually being used in Monsanto studies to ensure
16 that they were being appropriately handled and all that
17 sort of thing?

18 A I observed them, but I didn't observe them
19 from the standpoint of telling them their business.
20 Because they were the most reputable laboratory in the
21 united -- commercial laboratory in the United States.

22 Q But I mean from your own perspective you were
23 looking to make sure things were being done correctly?

24 A Well, you cannot on an afternoon visit check
25 up on five or six products to be sure everything is done

1 correctly. Generally you have to take the -- you have
2 to have confidence in Dr. Calandra, who was the head of
3 the laboratory, and the other people that I knew up
4 there. But from what I saw, it looked fine to me.

5 Q I mean you kept your eyes open while you were
6 walking through to see if there were any problems,
7 didn't you?

8 A Well, yes. But I doubt if I would have
9 recognized them either.

10 Q What about your -- your own toxicology people
11 like Dr. Hunt? Were they in a position to better --
12 evaluate whether or not there might be any problems in-
13 the testing that was going on?

14 A Yes, I think so. They were toxicologists,
15 certainly.

16 Q And was one of the reasons they would go up
17 there on a monthly basis just to make sure that
18 everything was going well in the testing?

19 A That was one of the reasons. Whether that --
20 I don't know if that was the primary reason. I think
21 the primary reason was to see if there should be any
22 changing in the manner of testing, report back. Because
23 the people whose products we were investigating were
24 always saying, "How are things going with product X?"
25 So you couldn't get a report back until certain periods

1 so you could come back and say, "The animals are looking
2 fine, they're healthy, they're gaining weight," et
3 cetera, et cetera.

4 Q Giving sort of an oral report to your own
5 businesspeople about what the results looked like?

6 A That's correct.

7 Q Did you do that after you made your visits,
8 give some shorthand summaries of what you saw?

9 A No, I think I went up there primarily on
10 budget reasons. We were going to do this product. We
11 would talk it over and decide whether or not we would --
12 what it's liable to cost us and then come back and tell
13 them.

14 Q Did you have budget restraints with regard to
15 the extent of the research work you might do?

16 A Well, you always had a certain budgetary
17 allowance that you wanted -- that you had to do. You
18 couldn't spend a million dollars on a particular
19 agricultural chemical, you had to come back and say,
20 "We are going to recommend two-year feeding tests on
21 this products in two species and it's going to cost X
22 hundred thousand dollars."

23 Q Who made the decision about the depth with
24 which to study the products and therefore the expense
25 involved? Was that basically your decision?

1 A Well, I think it was a -- a decision on a
2 number of people's parts. It was a decision -- you have
3 to make a commercial decision, you have to make a
4 decision from the standpoint of the laboratory itself,
5 you have to make a decision along with members of the
6 FDA or the agricultural department who are going to ask
7 you for what studies they think they need on this
8 particular product.

9 Q And when you say studies that they're going
10 to need, for whom are the studies being done ultimately?

11 A For Monsanto.

12 Q And you're talking about people who are going
13 to decide what studies are needed. Is that a medical
14 department decision or are there other people who are
15 involved?

16 A Sure, other people made the decision. Let me
17 tell you about the people inside Monsanto. The people
18 who are coming out with a particular product and say,
19 "I am going to have a soybean herbicide and this looks
20 promising." So I go up there and find out from the
21 government what they want to be done and then I take
22 these things up to Calandra. And sometimes Calandra
23 would go to the government with me. And we would come
24 back and say to the man with the soybean herbicide,
25 "This is going to cost \$600,000." And he said, "Well, I

1 don't think this looks this promising."

2 Q Okay.

3 A And he may wash it out.

4 Q Okay.

5 A But if he said, "Well, that's all right, this
6 looks good, let's go right ahead with it," that's fine.

7 So decisions were made from a medical point
8 of view as to what was needed, that was made on -- in
9 confluence with the laboratory doing it, with our own
10 toxicologist and myself and the government authorities.

11 Q So representatives of IBT would go with --
12 representatives of Monsanto to Washington or wherever --
13 the government offices might be to even negotiation on
14 the extent of study required for a product?

15 A They did at times, yes.

16 Q Did people at Monsanto consult with people at
17 IBT about how to phrase and word their reports and what
18 to report and what not to report in their studies?

19 A Do you mean did they edit their reports?

20 Q Yes. That's a way of putting it.

21 A Well, we would get back their reports. They
22 may have suggested changes in phraseology, but they
23 certainly didn't suggest any changes in the data.

24 Q Don't you think that making changes in the
25 way the report is initially prepared by the outside

1 independent lab compromises the independence of their
2 work?

3 A No, I don't think so. I think it's just like
4 saying: Do you say a glass is half full or half empty?
5 You are just talking about the same thing and you are
6 using a different phrase to express the -- the same
7 physical characteristic of the glass.

8 Q So it was perfectly acceptable from your
9 perspective as the medical director to have personnel
10 working for you edit and rephrase reports prepared by
11 your independent testing labs? -

12 A I am not saying that they edited it. I am -
13 saying that at times there may have been some rephrasing
14 because they didn't appreciate the way the material was
15 going to be used or -- so that was the only rephrasing
16 that I can think of.

17 Q And you as the medical director would approve
18 of that type of work on the part of your subordinates to
19 assist in rephrasing reports?

20 A Well, I presume you have some -- some
21 correspondence there. I'll be happy to comment on it.
22 If you have some correspondence where we suggested some
23 changes in wording, I'll be happy to comment on it.

24 Q My question to you is whether or not that was
25 something that was acceptable for your employees who

1 reported to you to do or not acceptable.

2 A It was acceptable if our toxicologist decided
3 on stating, "I think these data should be presented in
4 this the way," yes, that was acceptable.

5 Q It would not be acceptable, I take it, to
6 change the substance of the report.

7 A It would be completely unacceptable.

8 Q Okay.

9 Do you recall yesterday when we discussed the
10 information on safe handling and toxicology of PCBs that
11 was put out in England by your English people? -

12 A Yes. -

13 Q The great detailed document?

14 A Yes.

15 Q And you discussed with me the fact that you
16 didn't think that much detail was required in the United
17 States?

18 A Yes. Or would be read.

19 Q Okay.

20 Let me show you three documents. And I
21 believe they're each versions of -- in different dates
22 of the same document, which is titled The Proper
23 Handling of Aroclors and Their Mixtures in the
24 Electrical Industry. One that was put out in 1954, a
25 1956 version, and a 1960 version, documents 1967 through

1 2051, 2052 through 2138, and 2139 through 2252. Each
2 one of those has a section at the end on toxicology,
3 dermatology, safe handling. You might want to take a
4 brief look at that.

5 A Yes, sir, I have read 12 -- December '54.

6 Q Was that information supplied by you in that
7 section?

8 A Yes, I think so.

9 Q Now, have you actually seen that entire
10 document, the type of document it is?

11 A I very probably have during my course of time
12 with Monsanto.

13 Q That is a very detailed technical document,
14 is it not?

15 A Yes, it is.

16 Q The section on dermatology and toxicology,
17 however, is not much more detailed than the sections
18 that you put in the ordinary technical bulletins or
19 product bulletins, is it?

20 A I don't know. I'll have to look.

21 Q Please do.

22 A Well, it describes that skin patch testing
23 that's not an irritant or a sensitizer, it says what to
24 do if it's spilled on the skin, the skin should be
25 washed of accidental burns, it states keeping the hands

1 out of the liquid and handling it in a well-ventilated
2 hood. It is considered to be more detailed as far as
3 what should be done when sampling. So it is somewhat
4 more detailed, yes, sir.

5 Q None of it is as detailed as the information
6 that was contained in that bulletin put out by the UK
7 for the UK, was it?

8 A No, it is not.

9 Q Now, the rest of that book is very detailed,
10 is it not?

11 A Yes, I think so.

12 Q Is there any reason why it would not have
13 been appropriate to put in the same sort of detail on
14 dermatology and toxicology in that type of detail book
15 that was used in the UK?

16 A It wasn't needed.

17 Q So your answer then, if I understand it, is
18 that there just wasn't any circumstance under which the
19 detailed information of the type put out by the British
20 Monsanto people on PCBs was necessary. Correct?

21 MR. FREEMAN: I object to the form of the
22 question. You're misinterpreting what the doctor's
23 answer to the prior question was.

24 MR. LACEY: Well, let me ask it again so I
25 won't misinterpret it.

1 Q Was there any circumstance in the United
2 States that would ever be appropriate to give as much
3 detail on the safe handling and toxicity of PCBs as was
4 given by the Monsanto group in the United Kingdom?

5 A I do not know if any of those circumstances
6 occurred, because I do not know of any histories of ill
7 effect in the electrical industry when they followed the
8 instructions we gave them.

9 Q Well, if you didn't have a history of ill
10 effect, you would not think then that there would ever
11 be the need in the United States for the same level of-
12 detail given in the United Kingdom. Correct? -

13 A That's correct.

14 Q Even in a very detailed document of the type
15 that Mr. Benignus wrote and that you have in front of
16 you now?

17 A Well, I don't know why it is detailed in
18 there. These details must be important from the
19 standpoint of -- of use. But the detail is not
20 important in the standpoint of protection, because we
21 protected people by that particular section.

22 Q Okay. And it was, in your mind, perfectly
23 adequate for that?

24 A Yes, sir.

25 Q Okay.

1 I want to hand you a group of documents. And
2 what I'm interested in doing is not discussing the
3 substance of the documents with you but rather to find
4 out from you whether this group of documents were all
5 documents that would have been available to Monsanto at
6 or about the time of the date of the documents. Some of
7 them are reports that appear to have been done
8 specifically for Monsanto by people like Scientific
9 Associates, Younger Laboratories and others. Others
10 appear to be studies that I cannot directly link to
11 Monsanto. But let me just give you the documents and -
12 I'll reference them.

13 The first one is 2593 through 2596. Is that
14 a document that would have been available to people at
15 Monsanto at or about the time of the date of the
16 document?

17 A I cannot answer that, because that is a 1934
18 and they deal with Swann Chemical Company. That was two
19 years before I came to work.

20 Q Okay.

21 A And it was also some time before Monsanto
22 took over Swann.

23 Q Would that document have been available to
24 you prior to 1940 at Monsanto?

25 A It might very well have been. I'm sure I saw

1 Flynn's report sometime in my time at Monsanto, yes,
2 sir.

3 -- Q Before your service in World War II?

4 A I don't know when I saw it.

5 Q I see.

6 Let me show you document 21745 through 21753
7 and ask if that would have been available to people at
8 Monsanto at or about the time of the document.

9 A Well, this has got two documents on it.

10 Q That's the way the document was provided to
11 me by Monsanto. -

12 A Well -- -

13 Q You may speak -- if you can't answer it as to
14 one and can as to the other, that's fine.

15 A This second one, 21750, is a report on the
16 chronic toxicity of three polychlorinated biphenyls in
17 albino rats. I do not see a date on it, but it was sent
18 to Dr. Levinskys. So that would be sometime in the
19 Seventies, either before or after I left the company.

20 Q Okay. What about the earlier document?

21 A The earlier document is the program of a
22 symposium on chlorinated hydrocarbons that was held by
23 Drinker in June 1930 -- 1937.

24 Q 1930 or 1937?

25 A June 30th, 1937. It was available to

1 Monsanto because I was at the symposium.

2 Q Okay.

3 -- A The third one is a truncated article with two
4 pages. I don't know how many pages are supposed to be
5 in the article.

6 Q I have no idea either. That's what was
7 provided to me by Monsanto.

8 A I don't know the date, but if they -- it
9 appears that it was 1936 in -- in the Archives of
10 Dermatology and Encephalology. And that would have been
11 available to Monsanto because of our interest in -
12 anything relating to chloracne. -

13 Q Okay.

14 A But that is not the complete document.

15 Q Okay. Again, that's what's been provided to
16 me. But the complete document would have been available
17 to Monsanto?

18 A Yes, sir.

19 Q At about the time it was published?

20 A Yes, sir.

21 Q Let me next show you a report to Monsanto
22 dated September 15th, 1938, by Cecil Drinker, document
23 2846 through 2856. Would that have been available to
24 Monsanto at about the time the document is dated?

25 A Oh, yes. It was a report to us.

1 Q Yes.

2 Let me show you another document, also a
3 report to the Monsanto Chemical Company by Cecil
4 Drinker, dated September 15th, 1938, document 2857
5 through 2870. Would that have been available to you at
6 about the time the document was dated?

7 A Yes.

8 Q Let me show you another document by Mr.
9 Drinker, which was printed in The Journal of Industrial
10 Hygiene and Toxicology in May of 1939, document 21622
11 through 21722, and ask whether that document would have
12 been available to you at about the time of the date it-
13 was published.

14 A You've -- you've given me several different
15 articles in this one batch.

16 Q Well, can you separate them out for us? I'm
17 just again grouping the document the way it was
18 presented to me. But if we've got a problem, let's take
19 them one by one and get them sorted out.

20 A We certainly have a problem.

21 Q Okay.

22 A Because it starts off with Drinker's article
23 for May of 1939.

24 Q Would that have been available to Monsanto at
25 or about the time it was published?

1 A Yes, it would have, yes.

2 Q Okay.

3 -- A In fact, this is the article -- it's an
4 important article, because this shows that --

5 Q Let me -- let me just suggest to you we're
6 trying to move as quickly as we can. I've got specific
7 questions.

8 A Okay. Fine. That's an important article.
9 Then there's a metabolism --

10 MR. LACEY: I'm going to object to the
11 responsiveness of that comment, but ---

12 A -- of chlorinated naphthalenes from The
13 Journal of Biological Chemistry. Whether or not that
14 would come to the medical department I don't know. In
15 those years we did not subscribe -- I did not review The
16 Journal of Biological Chemistry.

17 MR. LACEY: Okay.

18 Q What other documents do you have there?

19 A A report to Monsanto Company by Drinker on
20 September 15th, 1938. That obviously came to us.

21 Q Okay.

22 A An article by people, plus Drinker, from
23 The Journal of Industrial Hygiene and Toxicology. That
24 would -- dated 1938. That would have been available to
25 us.

1 Q Okay.

2 A Get back to the symposium on chlorinated
3 hydrocarbons. My answer to that is the same as the one
4 before.

5 Q Whatever happened there, it was available.
6 Correct?

7 A Yes.

8 Then we have a paper by Drinker again in June
9 of '37 that was available to us.

10 More discussion about the symposium in
11 September of '37. -

12 Q That would have been available? -

13 A That was available.

14 And then a report on a preliminary report of
15 the dermatological and systemic effects of exposure to
16 hexachloranaphthalene and chlorodiphenyl by the
17 Commonwealth of Pennsylvania. That might very well have
18 not been available to us. We don't follow all the state
19 publications.

20 Q Okay. Does that complete that group?

21 A Yes, it does.

22 Q Let me hand you another document, dated
23 December 22nd, 1949, addressed to you, document 4050 and
24 4051. That would have been available about the time of
25 the document, would it not?

1 A Yes. That was work we had done.

2 Q Okay.

3 -- Next a report of February 19th, 1951, by
4 Scientific Associates, documents 19337 and 338.

5 A Yes, sir.

6 Q The next document, another report by
7 Scientific Associates, April 17th, 1951, 19339, 340.
8 Would that have been available about the time of the
9 document?

10 A Yes, sir.

11 Q Let me hand you another document, dated July
12 14th, 1951, document 19341, 342. Would that have been
13 available about the time?

14 A Yes, it would.

15 Q Let me hand you another document, dated March
16 11th, 1953, document 4074 through 4155, and ask whether
17 that would have been available to you at about the time
18 it was dated.

19 A Yes. This was work carried out by Kettering
20 Laboratory for Monsanto.

21 Q Okay.

22 Let me hand you a January 13th, 1954,
23 Scientific Associates document, 19381 through 386, and
24 ask if that would have been available to Monsanto at
25 about the time of the document.

1 A That was available to Monsanto.

2 Q Another Scientific Associates document,
3 September 13th, 1954, 19279 through 284, and ask if that
4 would have been available to Monsanto at about the time
5 of the article.

6 A Yes, it would.

7 Q Another Scientific Associates document,
8 February 1st, 1955, 19343 through 19348. Would that
9 have been available to Monsanto at about the date of the
10 document?

11 A Yes, it would.

12 Q Another Scientific Associates, February 3rd,
13 1955, document 19447 through 19452. Would that have
14 been available about the date of the document?

15 A Yes, it would.

16 Q Another document, dated June 22nd, 1955, from
17 the Kettering Laboratory on the toxicity of the vapor of
18 aroclors 1252 and 1254, document 3778 through 3879.
19 Would that have been available to Monsanto at about the
20 date of the document?

21 A Yes, it would have.

22 Q Another document, entitled Toxicity of the
23 Vapor of Aroclor 1242 and 1254, dated June 28, 1955, by
24 the Kettering Laboratory, document 3704 through 3777.
25 Would that have been available to Monsanto at about the

1 date of the document?

2 A Yes, it would have.

3 -- Q Another document from the Kettering
4 Laboratory, dated July 5, 1955, entitled "The Toxicity
5 of a Mist Generated by the Aspiration of Pydraul,"
6 document 19238 through 19253, and ask: Would that have
7 been available at about the date of the document?

8 A Well, this one I can't be sure of, because
9 they are talking about two products, one that's not
10 Monsanto's and one is Monsanto's. It does not say that
11 they sent it to Monsanto. I know we used it, but I ---
12 I cannot be certain on this one.

13 Q You don't know how or when that would have
14 come into Monsanto's files?

15 A It might very well have come into Monsanto's
16 file if this came from Monsanto's file.

17 Q I will represent to you that Monsanto has
18 produced that document to me from their files, or
19 represented that it comes from their files.

20 A If Monsanto said that came from their files,
21 I would accept the fact that it -- it was available to
22 Monsanto.

23 Q And it would have come into Monsanto's files
24 at about the time the study was done. Correct?

25 MR. CRAWFORD: If you know.

1 A Presumably. I can't answer that definitely,
2 because I don't know.

3 -- MR. LACEY:

4 Q That work was done -- what chemical was it
5 that was a Monsanto chemical being evaluated in that
6 study?

7 A It was a Pydraul that was being evaluated
8 against a Potosaf 271, which is from a different
9 company, I don't know which company it is. And they
10 were testing both of them to see which -- which one
11 might be the more toxic or not. So I -- I can't be
12 positive on it.

13 Q Is that the sort of thing that you had done
14 from time to time, comparing your products to someone
15 else's products?

16 A Well, if someone else were using a product
17 and our marketing people said, "Look, we like your
18 product but we would like to know if it is the same
19 ballpark figure of toxicity," we would have gone ahead
20 and done it and compared it with the product. So I say
21 it could very well have been done work for Monsanto, but
22 I can't be positive, because it doesn't say it was sent
23 to Monsanto.

24 Q Well, did the other Kettering Laboratory
25 reports that you indicated were sent to Monsanto

1 actually say they had been sent there?

2 A No. But I remember these.

3 -- Q I see.

4 A And these are all Monsanto products, whereas
5 this has a product of a different company.

6 Q I see.

7 Was the Kettering Laboratory in the business
8 of doing work for a fee?

9 A The Kettering Laboratory, yes, of course.
10 They were not philanthropic.

11 Q So somebody paid them for that report and
12 that work?

13 A Certainly somebody did. Kettering Laboratory
14 is a department of University of Cincinnati Medical
15 School.

16 Q Let me show you another document, a
17 Scientific Associates documented dated July 13th, 1955,
18 document 19289 through 19294, and ask if that was
19 available to Monsanto --

20 A Yes.

21 Q -- at about the time of the document.

22 A Yes.

23 Q I'll show you another document, a Scientific
24 Associates document dated September 26, 1955, 19295
25 through 297, and ask if that was available to Monsanto

1 at about the time of the document.

2 A Yes, it was.

3 -- Q I'll show you another document, from Younger
4 Laboratory, dated August 3rd, 1956, Document No. 19453
5 through 19459, and ask if that was available to Monsanto
6 at about the time of the document.

7 A Yes.

8 Q I note that some of these documents have
9 things handwritten up in the left-hand corner with
10 letters and numbers and the like. What does that mean?
11 Do you know? I noted that on those Kettering reports --
12 and I see it again on that one.

13 A It must be the filing system that they use.
14 K for Kettering. I don't know what 54 means, whether
15 that is Aroclor 54 or the year '54. But it could be
16 because it's dated '55. Then 050, I don't know. It
17 must be the filing system that they used.

18 Q I see. And they would -- these reports would
19 come to the medical department, would they not?

20 A Yes.

21 Q The report there was some question about had
22 that same identification on it, did it not, the K for
23 Kettering indicating some type of filing system?

24 A May I see it? It looks like just -- it says
25 K 49. I can't answer that.

1 Q It has the same type of numbering these other
2 lettering reports do, doesn't it?

3 -- A The others are three numbers. K 54-050.
4 This is K just plain 49. I don't know.

5 Q I see.

6 Let me show you another Younger Laboratory
7 report, dated February 26th, 1957, document 19206
8 through 19215, and ask if that would have been available
9 to Monsanto at about the time of the document.

10 A Yes, it would.

11 Q Okay. —

12 Let me show you another document, a report of
13 the United States Department of the Interior on the
14 toxicity of certain chemicals, dated March 1957,
15 document 21547 through 21621, and ask if that would have
16 been available to Monsanto at about the time of the
17 document, date of the document.

18 A Well, here we have another half a dozen
19 reports in here.

20 Q I see. Okay. Well, do you want to sort
21 those out for us?

22 A The first one starts with toxicity of fish.
23 That is 021547. That could have been -- by the
24 Department of Interior. That could have been available
25 to Monsanto.

1 Then we have 21550, Toxicity of Vapors of
2 Aroclor 1242 and 1254 which was available to Monsanto
3 because that was a publication of work done for
4 Monsanto.

5 Then we get a photostat of Frank Patty's
6 book, Department of Toxicology. That would have been
7 available to Monsanto. We had the book.

8 MR. LACEY: Okay.

9 MR. CRAWFORD: What's the date on that,
10 Doctor?

11 THE WITNESS: It's hard to say. There's a —
12 handwritten second edition. It says approximately 1955.
13 But I don't know.

14 MR. CRAWFORD: Okay.

15 THE WITNESS: Then there's also in this same
16 one what appears to be a 1955 publication from the
17 National Institute of Health by von Oettingen.

18 MR. LACEY:

19 Q Would that have been available to Monsanto?

20 A It could have been in our library.

21 MR. FREEMAN: What's -- what's the
22 identifying number on that document, Dr. Kelly?

23 THE WITNESS: 21570.

24 Then we have a letter to me from Meigs. That
25 certainly was available.

1 A letter back from me to Meigs. Certainly
2 available.

3 -- And his paper, which was available.

4 And then a copy of a 1949 edition of
5 Industrial Toxicology, which was also present in our
6 library.

7 MR. LACEY:

8 Q And so it would have been available?

9 A Yes.

10 Then there is an article in here by Frederick
11 Flynn on industrial exposure to chlorinated hydrocarbons
12 that may have been available to us, I don't know. I -
13 find it hard to -- to get the date on it, because in the
14 front it's penciled in 1946, but the references are '44
15 and '41. But it would be easy enough to find out.

16 Q Can you tell where that article appeared?

17 A Yes. American Journal of Medicine.

18 Q That was out of a periodical that you
19 reviewed --

20 A Not the American Journal of Medicine. That
21 was not one of my common ones.

22 Q Okay.

23 A And then the other one was by Miller, public
24 health report dated 1944. That would have shown up when
25 I was in the service. I can't comment on when or where

1 that was available to Monsanto.

2 Q Would it have been available to Monsanto
3 after you came back from the service and tried to catch
4 up on the periodical literature relating to Monsanto
5 products?

6 A It would have been.

7 Q So by 1946 or '47 it would have been.
8 Correct?

9 A Correct.

10 Q Okay.

11 A Then there's the Schwartz paper in 1943. -

12 Q Would that have been available to Monsanto at
13 least by the time of your return from the service in
14 your review of literature?

15 A I would believe so.

16 Then Greenburg's paper in 1939. That would
17 have been available to Monsanto.

18 That's it.

19 Q Did you review the journal Industrial
20 Medicine in connection with your literature review at
21 Monsanto?

22 A Yes.

23 Q And did you catch up on any wartime issues of
24 that, when you came back to Monsanto, as it related to
25 Monsanto products?

1 A I can't remember. But we -- we were still
2 subscribing to it, so I'm sure I looked through the
3 index to see what was happening.

4 Q You actually had that as a periodical you
5 received on a regular basis in your library?

6 A That's correct.

7 Q And that receipt continued throughout the war
8 years?

9 A To the best of my recollection.

10 Q Okay.

11 Let me show you a document dated July 9th, -
12 1957, from Younger Laboratories, 19353 through 19355, -
13 and ask if that was available at about the date of the
14 document.

15 A Yes.

16 Q Another Younger Laboratories report, February
17 22nd, 1958, 19314 through 19320, and ask if that was
18 available at about the date of the document.

19 A Yes.

20 Q Another Younger Laboratories report, dated
21 September 29th, 1958, document 19298 through 19305, and
22 ask if that was available to Monsanto at about the date
23 of the document.

24 A Yes.

25 Q Another Younger Laboratories report, dated

1 October 20th, 1958, 19460 through 19463, and I'd ask if
2 that was available to Monsanto at about the date of the
3 document.

4 A Yes, it was.

5 Q Another Monsanto -- I'm sorry. Another
6 Younger Laboratories document, dated December 8th, 1958,
7 document 19321 through 19328. I'd ask if that was
8 available to Monsanto at about the date of the document.

9 A Yes.

10 Q Another Younger Laboratories report, dated
11 June 6, 1962, document 3974 through 3977, ask if that -
12 was available to Monsanto at about the date of the
13 document.

14 A Yes.

15 Q Another Younger Laboratories report, dated
16 June 13th, 1962, document 4156 through 4159, and ask if
17 that was available to Monsanto at about the date of the
18 document.

19 A Yes.

20 Q Another Younger Laboratory report, dated June
21 19th, 1962, document 4070 through 4073, and I'd ask if
22 that was available to Monsanto at about the date of the
23 document.

24 A Yes.

25 Q Another Younger Laboratory report, dated June

1 25th, 1962, document 2589 through 2592, and ask if that
2 was available to Monsanto at about the date of the
3 document.

4 A Yes.

5 Q Another Younger Laboratory report, dated July
6 9th, 1962, document 2601 through 2604, and ask if that
7 was available to Monsanto at about the date of the
8 document.

9 A Yes.

10 Q Another Younger Laboratory report, dated July
11 17th, 1962, document 19349 through 19352, and I'd ask if
12 that was available to Monsanto at about the date of the
13 document.

14 A Yes.

15 Q Let me ask you, there are a lot of Younger
16 Laboratory reports here bunched together, is there some
17 reason you had a big group of work done there in the
18 1962 time frame?

19 A I can't remember. I don't know why we did,
20 whether there were freight classifications had changed
21 at that time. These were all acute studies. So that I
22 don't know why we did it. But there would be reasons
23 similar. We may have had to reclassify them as far as
24 freight is concerned or something, I don't know.

25 Q Okay.

1 I have another Younger Laboratory report,
2 dated March 4th, 1963, document 2564 through 2571.
3 Would that have been available to Monsanto at about the
4 date of the document?

5 A Yes, it was.

6 Q Another Younger Laboratory report, March 4th,
7 1963, 19260 through 19267. Was that available to
8 Monsanto at about the date of the report?

9 A Yes.

10 Q Another report to Monsanto, dated March 28th,
11 1963, by Industrial Biotest, document 2892 through 2907,
12 and ask if that was available to Monsanto at about the
13 date of the document.

14 A Yes.

15 Q Another Industrial Biotest report, dated
16 March 29th, 1963, document 2875 through 2891, and ask if
17 that was available to Monsanto at about the date of the
18 report.

19 A Yes.

20 Q Another Industrial Biotest report, dated
21 March 27th, 1963, document 3928 through 3943. I'd ask
22 if that was available to Monsanto at about the date of
23 the report.

24 A Yes.

25 Q Another Industrial Biotest report, dated

1 June 13th, 1964, document 19140 through 19147, ask if
2 that was available to Monsanto at about the date of the
3 report.

4 A Yes.

5 Q Another Younger Laboratory report, dated July
6 20th, 1964, 19363 through 19380. I would ask if that
7 was available to Monsanto at about the date of the
8 report.

9 A Yes.

10 Q Another Younger Laboratory report, dated
11 August 11th, 1964, document 19216 through 19223. I'd -
12 ask if that was available to Monsanto at about the date
13 of the report.

14 A Yes.

15 Q Another Younger Laboratory report, dated
16 November 12th, 1964, document 19148 through 19155. I'd
17 ask if that was available to Monsanto at about the date
18 of the report.

19 A Yes.

20 Q Another Younger Laboratory report, dated
21 January 10th, 1966, document 19156 through 19164. I'd
22 ask if that was available to Monsanto at about the date
23 of the report.

24 A Yes.

25 Q Another Younger Laboratory report, dated

1 November 19th, 1966, document 19275 through 19278, ask
2 if that was available to Monsanto at about the date of
3 the report.

4 A Yes.

5 Q Another Younger Laboratory report, dated
6 November 9th, 1966, document 19310 through 19313, ask if
7 that was available to Monsanto at about the date of the
8 report.

9 A Yes.

10 Q Another Younger Laboratory report, dated
11 November 19th, 1966, document 19306 through 19309, ask-
12 if that was available to Monsanto at about the date of-
13 the report.

14 A Yes.

15 Q Another Younger Laboratory report, dated
16 November 9th, 1966, document 19165 through 19168. I'd
17 ask if that was available to Monsanto at about the date
18 of the report.

19 A Yes.

20 Q Another Younger Laboratory document, dated
21 November -- I'm sorry, dated October 13th, 1967,
22 document 19169 through 19176, ask if that was available
23 to Monsanto at about the date of the report.

24 A Yes.

25 Q Another Younger Laboratory report, dated

1 that book.

2 Q Okay.

3 -- A December '58. That was in there.

4 Q Okay. And what document number does that
5 begin at?

6 A 21538.

7 Q Through --

8 A Through 546. 21546.

9 MR. LACEY: Okay.

10 MR. CRAWFORD: David, we're going to need to
11 shut it down here pretty quick. I was thinking about -
12 some way to streamline this stuff you're doing right -
13 now. Maybe you could give me the other documents that
14 you want dated and maybe we could just write you a
15 letter and agree that we had them on that date. Would
16 that do it? That may streamline --

17 MR. LACEY: Well, if we can do that for these
18 reports, that will be fine. We've got quite a few that
19 we've got to get identified and established from this
20 man that they were available for Monsanto. So if the
21 information contained in them were part of the
22 information base that Monsanto had --

23 MR. CRAWFORD: Let me suggest that if you
24 could give us the numbers of the documents and tell us
25 what you want that we might be able to do that without

SIGNATURE OF WITNESS

I, R. Emmet Kelly, M.D., solemnly swear or affirm, under the pains and penalties of perjury, that the foregoing 489 pages contain a true and correct transcript of the testimony given by me at the time and place stated, with the corrections, if any, and the reasons therefor noted on a separate sheet of paper and attached hereto, and that I am signing this before a Notary Public.

R. Emmet Kelly, M.D.

THE STATE OF]

Subscribed and sworn to before me, the undersigned authority, by the said R. Emmet Kelly, M.D. on this the day of , 1987.

Notary Public in and for
the State of

1 THE STATE OF TEXAS]

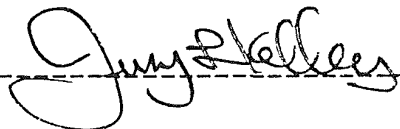
2 CERTIFICATE

3 -- I, Jerry Kelley, a Certified Shorthand
4 Reporter, hereby certify that the foregoing testimony
5 was given before me after the witness had been duly
6 sworn.

7 I further certify that the foregoing is a
8 true and correct copy of the transcript of the
9 proceedings.

10 I further certify that I am neither
11 attorney for, related to nor employed by any of the —
12 parties or any attorney of record in this cause, nor do
13 I have a financial interest in the matter.

14 Witness my hand in Houston, Texas, on May
15 1, 1987.

16
17
18
19 

20 Jerry Kelley, Texas CSR 2004*

21 2900 Smith, Suite 104

22 Houston, Texas 77006

23 713/523-3767

24 *My Certificate Expires

25 December 31, 1988