

COPY

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF TEXAS
3 BEAUMONT DIVISION

4 -----
5 CECIL SCOTT, ET AL :

6 V. :

C.A. NO. B-84-1103-CA

7 MONSANTO COMPANY :
8 -----

9
10 VIDEOTAPED DEPOSITION OF
11 PAUL GEORGE BENIGUS
12 VOLUME I
13
14
15
16
17

18 April 20, 1987
19 Gilpin, Pohl & Bennett
1300 Post Oak Boulevard, 24th Floor
Houston, Texas

20
21
22
23 Cheryll K. LeFevers
Texas CSR No. 1690/Notary Public
24 Nell McCallum & Associates
2900 Smith, Suite 104
25 Houston, Texas 77006

NELL MC CALLUM & ASSOCIATES, INC.

STLCOPCB4024207

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

APPEARANCES:

For the Plaintiffs:

DAVID M. LACEY
WILLIAM LITTLE
Gilpin, Pohl & Bennett
1300 Post Oak Boulevard, 24th Floor
Houston, Texas 77056

For the Defendant:

WALTER J. CRAWFORD, JR.
CHERYL D. OLESEN
Wells, Peyton, Beard, Greenberg,
Hunt & Crawford
Petroleum Building
P.O. Box 3708
Beaumont, Texas 77704

- and -

ROBERT A. JONES
Woodard, Hall & Primm
4700 Texas Commerce Tower
Houston, Texas 77002

The Videographer:

JOHNNA COALSON
Executive Services Group
P.O. Box 890306
Houston, Texas 77289-0306

- - - - -

1 Videotaped deposition of PAUL GEORGE
2 BENIGNUS, Volume I, a witness called by the
3 Plaintiffs, on April 20, 1987, at the offices of
4 Gilpin, Pohl & Bennett, 1300 Post Oak Boulevard,
5 24th Floor, Houston, Texas, commencing at 1:00 p.m.,
6 before Cheryll K. LeFevers, CSR No. 1690 and Notary
7 Public in and for the State of Texas, pursuant to
8 Notice and Subpoena and the Federal Rules of Civil
9 Procedure.

10 - - - - -
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

I N D E X

WITNESS: PAUL GEORGE BENIGNUS

EXAMINATION BY:PAGE

Mr. Lacey

7

EXHIBITSEXHIBIT NO.PAGE

1 - Diagram of a capacitor

52

2 - Diagram of PCB molecules

86

P R O C E E D I N G S

THE REPORTER: Do you-all want
signature?

MR. CRAWFORD: Let's let him look at
it and sign it.

MR. LACEY: We have the same
understanding we had before: If we don't have the
signature page back seven days before we start the
evidence, we can use a copy. And we'll do the same
thing on documents; which is, we'll refer to the
documents by the unique number identified by
Monsanto to the extent they're Monsanto documents
but we're going to drop off the SCM and any early
zeros that aren't part of an integer number.

MR. CRAWFORD: Okay.

MR. LACEY: That's the same thing we
did Friday and we did Thursday and I guess we did
with Dr. Emmet.

(Discussion off the Record)

THE REPORTER: What about objections?

MR. LACEY: Reserve what we can until
the courthouse, I'd say.

MR. CRAWFORD: Just, yeah, under the
Rules.

MR. LACEY: Yeah, that's it.

1 MR. CRAWFORD: Yeah.

2 THE VIDEOGRAPHER: This deposition is
3 being taken in Cause No. B-84-1103-CA; and it is
4 filed in the United States District Court for the
5 Eastern District of Texas, Beaumont Division. The
6 style of the case is Cecil Scott, et al versus
7 Monsanto Company.

8 For identification purposes, the video
9 technician is Johnna Coalson of the firm Executive
10 Services; and the certified court reporter present
11 today is Cher LeFevers of the firm Nell McCallum &
12 Associates. Today's date is April 20th, 1987; and
13 the time is approximately 1:26 p.m.

14 We are here today to take the oral and
15 video deposition of the witness, Mr. Paul Benignus,
16 we are located at 1300 Post Oak Boulevard, Houston,
17 Texas.

18 At this time, will counsel please
19 state their appearances for the record?

20 MR. LACEY: David Lacey representing
21 the plaintiffs.

22 MR. CRAWFORD: Walter Crawford
23 representing Monsanto.

24 THE VIDEOGRAPHER: Will the court
25 reporter please swear in the witness?

1 PAUL GEORGE BENIGNUS,
2 having been first duly sworn, testified as follows:

3
4 EXAMINATION BY MR. LACEY:

5 MR. LACEY: For the record, I
6 understand that Mr. Benignus is appearing pursuant
7 to our Rule 30(b)(6) notice for a corporate
8 representative as to the matters of advertising on
9 dielectrics, marketing on dielectrics, technical
10 data on dielectrics, and the uses of PCB's as
11 dielectrics; is that correct?

12 MR. CRAWFORD: He's -- yeah, he's a
13 person designated under Rule 30(b)(6) by Monsanto
14 with knowledge on those subjects.

15 MR. LACEY: Okay.

16 Q. (By Mr. Lacey) Will you state your full
17 name for the record, please, sir?

18 A. Paul George Benignus.

19 Q. And where do you live, Mr. Benignus?

20 A. Bellville, Illinois.

21 Q. Okay. You might slow down and let me
22 finish my question before you start your answer.
23 That will make a smoother record as we go along.
24 Okay?

25 A. Okay.

1 Q. Are you currently employed, Mr. Benignus?

2 A. No, sir.

3 Q. Tell me a little bit about your education
4 after your graduation from high school, if you
5 would.

6 A. I have a Bachelor of Arts from Illinois
7 College. My major there was chemistry and
8 education. I have a Master of Science from
9 Washington University in organic chemistry.

10 Q. That's "organic" chemistry?

11 A. Organic, O R -- you're right.

12 Q. I couldn't tell if it was "inorganic" or
13 "organic" chemistry?

14 A. That always happens.

15 Q. Okay. It is "organic"?

16 A. It is "organic."

17 Q. Do you have any subsequent formal education
18 following your Master's degree?

19 A. To some extent, but it's -- I didn't take a
20 Doctorate, if this is the question.

21 Q. Did you do additional course work after
22 your Master's?

23 A. I did some, yes.

24 Q. In what field?

25 A. Organic chemistry.

1 Q. And where was that?

2 A. Washington University.

3 Q. Did you complete all of the course work for
4 a Doctorate?

5 A. No, I didn't complete all of it.

6 Q. Okay. When did you get your BA degree?

7 A. 1933.

8 Q. And your MS?

9 A. '34.

10 Q. Tell me about your employment history after
11 obtaining your formal education.

12 A. In 1934, I was hired by Monsanto.

13 Q. And how long did you remain in Monsanto's
14 employment?

15 A. Till I retired in 1974.

16 Q. A period of 40 years?

17 A. Right.

18 Q. If you would, I'd like to have a very brief
19 summary of the different jobs you had at Monsanto
20 and what time frame you occupied those various
21 jobs.

22 A. I started in 1934 in the analytical lab,
23 which was standard practice. After a year and a
24 half or so, I was moved into a special analytical
25 laboratory, and I was there for about a year. Then

1 I went into some plant control laboratories.

2 And in 1939, I was moved into the
3 organic research area, more specifically application
4 research. I was there until 1941, going on '42; and
5 I was then put into the organic chemicals division,
6 development department. And several years later, I
7 was in the organic division's sales development
8 department.

9 Q. About when was that?

10 A. It was prior to 1947. I would say it was
11 '46.

12 Q. That's in the sales division of organics?

13 A. "Sales development," not the sales
14 department, "sales development department."

15 In 1947, I transferred -- was asked to
16 join the inorganic chemicals division, and I was
17 with that division until the end of 1951 or early
18 1952, when I went back to the organic chemicals
19 division. And I was with that division, then, until
20 the time I retired.

21 Q. And from 1952 to 1974 -- would that be the
22 time frame?

23 A. That's correct.

24 Q. -- what sort of positions did you hold in
25 the organic chemical division in the rough time

1 frame?

2 A. I specialized in the area of Aroclor, which
3 is Monsanto's trade name, or the generic name,
4 Askarel, which is a name that applies to dielectric
5 fluids that meet the underwriter's requirements on
6 fire resistance.

7 Q. So, from the entire period of '52 to '74,
8 you were working with Monsanto's Aroclors in the
9 dielectric area?

10 A. Yes.

11 Q. What positions or titles did you hold
12 within the company structure during that period?

13 A. I was essentially a -- a technologist --
14 technical specialist, technologist.

15 Q. Was that the title you held?

16 A. Yes.

17 Q. For that entire period?

18 A. Not for the entire period.

19 Q. Okay. Is that the beginning of the period
20 that you --

21 A. Right.

22 Q. Okay. From 1952 until about when were you
23 a technologist or technical specialist?

24 A. Oh, until -- I would say sometime in the
25 1960's.

1 Q. Then what position or title did you
2 acquire?

3 A. Then I was called a "marketing manager."

4 Q. And that would be from sometime in the
5 1960's until --

6 A. Retirement.

7 Q. Do you know whether that was a development
8 that took place in the early Sixties or the late
9 Sixties?

10 A. I would say sometime in the mid Sixties,
11 probably.

12 Q. Let me go back and try to understand a
13 little bit about the types of things you did in each
14 one of these jobs with Monsanto. When you started
15 with them in 1934 in the analytical lab, what sort
16 of jobs did you have?

17 A. That was working as an -- as an analytical
18 chemist.

19 Q. So, your first employment was in connection
20 with your specialty as a chemist?

21 A. Oh, yes.

22 Q. And what sort of things did an analytical
23 chemist do?

24 A. The analytical chemist analyzed the
25 products that were being manufactured. And this was

1 the organic chemicals division; so, it was the
2 analysis to determine the conformance with
3 specifications of whatever materials were being made
4 at the time, which was quite a number of different
5 things.

6 Q. So, you would get a sample of material that
7 was being produced; and it was your job to perform
8 the test to make sure it met the standard?

9 A. Correct.

10 Q. When you went to the special analytical
11 lab, what changes, if any, took place in your job?

12 A. It was somewhat more sophisticated. It was
13 a little bit more of researching as versus
14 standardized routine analysis.

15 Q. Requiring more training, experience, that
16 you had achieved on the job already?

17 A. Yes.

18 Q. When you moved to plant control labs in --
19 I have roughly 1937. Would that be about right?

20 A. Yes, this is about right.

21 Q. What did you do in plant control labs?

22 A. There, again, as a chemist, I monitored the
23 quality and the -- the materials through their
24 process of manufacture.

25 Q. So, you're still looking at Monsanto

1 products and making sure they meet the
2 specifications?

3 A. Right.

4 Q. What plants were you assigned to in your
5 job as a plant control laboratory person?

6 A. This was the Queeny plant.

7 Q. That's located in St. Louis?

8 A. In St. Louis on South Second Street.

9 Q. Did you work at any other plants as a --

10 A. No.

11 Q. Okay. Now, in 1939, you indicated you went
12 into the organic research area, working on
13 application research?

14 A. Yes.

15 Q. Now, when we talk about organic and
16 inorganic chemistry, when we say "organic," we mean
17 chemistry that involves molecules or compounds that
18 contain carbon, correct?

19 A. Yes.

20 Q. And "inorganic" would be ones that don't
21 contain carbon?

22 A. Yes.

23 Q. All right. What sort of things were you
24 doing application research on in the organic
25 research area?

1 A. Specifically I worked on the stabilization
2 of a tribetaclorethelphosphate ester.

3 Do I have --

4 Q. She'll get the spelling when we get
5 through.

6 A. Okay.

7 Q. Anything else?

8 A. Yes. I worked on things that dealt with
9 wood preservation chemicals; and I worked on things
10 that tied into plastics, plasticizers. It was in
11 those areas.

12 Q. Okay. Up to this point in your career, had
13 you worked on any of the chemicals that we refer to
14 as "PCB's" or "polychlorinated biphenyls"?

15 A. No.

16 Q. Okay. In 1941, you went, as I understand
17 it, from the application research to the development
18 department of the organic chemical division?

19 A. Yes.

20 Q. What were you doing there?

21 A. There, on behalf of the development
22 department, I was investigating matters of interest
23 to the people in the development department,
24 whatever.

25 Q. Can you give me some examples?

1 A. Yes. Probably the most significant
2 example -- this was the time of the war. I was
3 assigned on behalf of the military to research,
4 develop, and find an answer to a very serious
5 problem to the military. This deals with the fact
6 that military equipage -- which by and large is
7 cotton, also leather -- this material is susceptible
8 to fungal attack. And deterioration was very
9 pronounced and rapid when the military -- Air Force,
10 Navy -- had to deliver and transport military
11 equipment, equipage -- and I'm referring to
12 cotton -- into the war area, that now had spread to
13 the South Pacific, where fungus is quite a problem,
14 also, exposure to actinic rays, ultraviolet light
15 from the sun, and also to heavy rain exposure.

16 And these materials that were being
17 shipped down frequently were almost useless by the
18 time they got there. That was the assignment: Find
19 something to rectify this.

20 Q. Did you find something?

21 A. Yes, I did.

22 Q. What was it?

23 A. It's patented. Copper 8 Quinolinolate.

24 Q. What other matters did you work on besides
25 that one for the military while you were in the

1 development department?

2 A. This was rather a large undertaking for one
3 person. It occupied a great deal of my time. Other
4 matters, at this point in time, I did do some work
5 that did involve PCB's.

6 Q. What did you do with regard to PCB's?

7 A. On the PCB's, I did some analytical work,
8 helping to verify and/or establish or suggest
9 adjustments in various, mainly physical, constants;
10 such as, density, refractive index, various other
11 physical constants; not electrical measurements.

12 Q. When we talk about a "physical constant,"
13 what do we mean?

14 A. A "physical constant" is a physical
15 property that is characteristic of the given
16 substance. It is characteristic and constant of
17 this material.

18 If we are talking about one specific
19 substance, it is, indeed, rather well in conformance
20 with this word "constant." If we are speaking about
21 PCB's, we are not speaking about one specific
22 substance. We are speaking of a very complex
23 mixture of many items.

24 And although the word "constant" is
25 used, it gets involved with trying to keep this as

1 constant as possible. As the refractive index, for
2 example, the density -- not so much the viscosity,
3 but I can name other properties.

4 They need to conform with one another
5 in order to get an overall appraisal that this very
6 complex thing, mixture, that we have here is,
7 indeed, within the limits, the framework, of what we
8 want produced when we chlorinate their percentage by
9 weight.

10 Q. For example, are these physical constants
11 things that the analytical chemists back in lab
12 checking a product might look to to make sure the
13 particular production is what's sought?

14 A. Exactly.

15 Q. And in this case, you were actually helping
16 to either check or develop physical constants for
17 particular PCB's productions?

18 A. Yes, in essence.

19 Q. Anything else that you did that you haven't
20 told me about of any significant proportion with
21 regard to your work in the development department?

22 A. Oh, really not, no. I was there during
23 these particular years during the war.

24 Q. Was this work with PCB's in the development
25 department, the period from '41 to '46, the first

1 time you had worked with Monsanto's PCB production?

2 A. This is correct, yes.

3 Q. Did you work with the production from a
4 particular plant?

5 A. No.

6 Q. Do you know where PCB's were being produced
7 at that time by Monsanto?

8 A. Yes.

9 Q. Where?

10 A. They were produced at Anniston, Alabama,
11 and at Monsanto, Illinois.

12 Q. Okay. Is that also what's known as the
13 Krummrich plant?

14 A. Yes.

15 Q. And I've also seen the -- a notation of
16 Sauget, Illinois?

17 A. Yes.

18 Q. That's all one and the same place?

19 A. One and the same. It's in Illinois, across
20 the river.

21 Q. Then I guess it's also near East St. Louis;
22 is that correct?

23 A. Yes.

24 Q. We've got a lot of ways to identify that
25 particular plant?

1 A. Yes.

2 Q. Did you go to either of those two plants in
3 connection with your work in looking at the physical
4 constants for PCB's?

5 A. No.

6 Q. In 1946, I believe you indicated, you
7 started working with organic sales development?

8 A. Yes.

9 Q. Now, what did that involve?

10 A. That involved -- it was a carry-through of
11 this development of the preservation of military
12 equipage. By now, the war was over; and I pursued
13 sales development of this process.

14 Q. Finding somebody else who could use it?

15 A. Yes. Right.

16 Q. Were you successful?

17 A. Yes.

18 Q. What sort of products was it used in?

19 A. It was used in the preservation of cotton,
20 as with the military; for people that made tents and
21 things like that, awnings and so forth.

22 Q. Is that the main work that you did in that
23 development area?

24 A. Yes. I was there just about a year.

25 Q. Long enough to get that particular matter

1 taken care of?

2 A. Yes.

3 Q. Then you joined the inorganic division in
4 '47?

5 A. Right.

6 Q. What sort of things did you work on in the
7 inorganic division?

8 A. PCB's.

9 Q. Okay.

10 A. Organic material.

11 Q. I was going to say: PCB's are organic, are
12 they not?

13 A. They're half organic, half inorganic,
14 depending on what you're talking about.

15 Q. Well, each molecule of PCB has carbon atoms
16 in it, does it not?

17 A. Oh, yes.

18 Q. And, so, by defining a particular chemistry
19 as being either "organic" or "inorganic," concerning
20 whether there's carbon in the molecules, it would be
21 organic, correct?

22 A. Correct.

23 Q. And generally PCB's were produced in the
24 organic division of Monsanto, were they not?

25 A. No.

1 Q. They were produced in the inorganic
2 division?

3 A. They were produced in the inorganic
4 division. And -- originally by Swann Chemical,
5 which was inorganic, and later got to be the
6 inorganic division at Monsanto.

7 Q. Okay. What did you work on when you worked
8 with PCB's while you were in the inorganic division?

9 A. When I was in the inorganic division, my
10 specific assignment was to work on PCB's in the
11 nonelectrical areas.

12 Q. And what did that encompass, nonelectrical
13 areas?

14 A. Nonelectrical areas encompassed, as it --
15 as it's implied here, nonelectrical applications
16 that -- whatever was in that area of nonelectrical.

17 Q. Well, can you tell me what was in that area
18 of nonelectrical applications?

19 A. Initially, early on, PCB's, perhaps their
20 earliest use was as a plasticizer for nitrocellulose
21 lacquer.

22 Q. What else?

23 A. And for varnishes.

24 Q. What else?

25 A. They were used in adhesives.

1 Q. Anything else?

2 A. Sealing compounds.

3 Q. Anything else?

4 A. This is covered in -- in literature and

5 bulletins. I'll go on if --

6 Q. Well, if you could, just tell me what you

7 recall.

8 A. We could go on indefinitely.

9 Q. Oh, there are -- there's a long list of

10 uses?

11 A. Right.

12 Q. Okay.

13 A. Yes.

14 Q. Well, I -- I will have you look at some

15 literature and help me understand that later on --

16 A. Good.

17 Q. -- and maybe we can go back and pick that

18 up then. I didn't know if there were just a very

19 few uses --

20 A. I don't want to go on here indefinitely.

21 Q. Okay. There was a very long list, however?

22 A. There are many different, some

23 insignificants. I -- I've covered significant

24 things here.

25 Q. Okay. What is a "plasticizer"?

1 A. A "plasticizer" is usually a liquid. There
2 are also solid plasticizers. These materials act
3 as, in a sense, solvents for resinous materials,
4 which are solid. And to make these solid resinous
5 materials into the form one wants, such as a film or
6 a coating, like I said, a lacquer, nitrocellulose,
7 you must introduce a material that will soften this
8 solid and make it into a continuous film or coating
9 and so forth.

10 Q. In your work on PCB's in the inorganic
11 division, were you helping to improve the use of
12 PCB's for these types of products? Were you
13 developing new uses, or what were you doing with the
14 PCB's in these nonelectrical areas?

15 A. I would say both of what you mentioned.

16 Q. Okay. First, what new applications were
17 you working on for PCB's?

18 A. Really no new applications. I was pursuing
19 applications, some nebulous uses. But I didn't
20 invent new uses that I would say that I invented
21 something, like I told you I invented certain
22 things; but I didn't invent new uses for PCB's.

23 Q. Well, maybe you can just describe for me
24 what you physically did, then. Maybe that's the
25 best way to understand how your work progressed

1 during that period while you were in the inorganic
2 division.

3 A. I physically -- well, not "physically" --
4 mentally pursued applications for which PCB's were
5 used.

6 Q. Well, you told me you didn't develop new
7 applications. So, what did you do in pursuing
8 existing applications?

9 A. To try and get acquainted with them. I
10 didn't invent new uses, is what I am saying.

11 Q. Okay. Well, were you just assigned for
12 that period of time, from '47 to '52, to spend your
13 time learning how PCB's were used? Was that the --

14 A. Essentially.

15 Q. Now, what -- what was the purpose of
16 Monsanto having you spend four or five years just
17 learning about how their PCB's were used?

18 A. This is it.

19 Q. Just an educational process for you?

20 A. No, not just for me, but in -- in general.
21 This is a business.

22 Q. Well, were there PCB uses that Monsanto was
23 unaware of when you started your work in 1947?

24 A. (No response)

25 Q. And by that, I mean were there customers

1 who were putting PCB to uses that Monsanto did not
2 know about when you started your work in '47?

3 A. This could be, but not to a significant
4 extent. This is one of the reasons I told you I
5 pursued uses. This is, indeed, answering your
6 question.

7 Q. Yeah, I'm sure you are; and I'm just having
8 a hard time understanding exactly what it was you
9 did in pursuing those uses.

10 I mean, were you rewriting literature
11 to make sure it properly explained uses or
12 conditions for use? Were you finding ways in which
13 to mix PCB's with materials for their use?

14 A. No.

15 Q. What sort of things were you doing?

16 A. Essentially, to answer this question, what
17 I was doing was presenting physical constants,
18 physical properties, physical data of PCB's,
19 which -- that -- that was essentially it. We did
20 not use them. Others used them.

21 Q. So, you --

22 A. One example -- let -- let me try to be
23 specific more.

24 Q. Please.

25 A. One example, we spoke of nitrocellulose,

1 for instance, as one of the early uses. Now, one of
2 the things that I would have pursued and been
3 interested in and in helping with is the development
4 of compatibility data, when PCB's of various members
5 of the PCB's -- whether they be solids or liquid --
6 when these things are incorporated into the base
7 plastic nitrocellulose, what kind of compatability
8 parameters can one obtain and should one expect,
9 because whoever is going to use these needs to know
10 these parameters to know how he can -- to what
11 extent they can be incorporated. This kind of
12 things, viscosity data and physical properties, yes.

13 Q. So that, as you developed information on
14 physical properties about particular applications,
15 that information could then be made available to
16 people who might be thinking about one of those
17 applications --

18 A. Yes.

19 Q. -- or trying to improve it?

20 A. Yes.

21 Q. Okay. Did you do anything in the inorganic
22 division other than work with PCB's?

23 A. No.

24 Q. So, if I understand what you've told me
25 correctly, from 1947 through 1974, for all practical

1 purposes, your work at Monsanto was related to their
2 PCB products?

3 A. Yes.

4 Q. Monsanto was the sole United States
5 commercial manufacturer of PCB's during --

6 A. Yes.

7 Q. -- during that period of time; is that
8 correct?

9 A. Always.

10 Q. Always. Okay.

11 You mentioned something about this
12 Swann Chemical Company. What can you tell me about
13 Swann Chemical Company?

14 A. Swann Chemical was the Anniston, Alabama,
15 plant which was acquired by Monsanto in 1935.

16 Q. And was the Swann Chemical Company the
17 place where the commercial manufacturer of PCB's in
18 the United States began?

19 A. Yes.

20 Q. And did that begin before 1935?

21 A. Yes.

22 Q. So, they actually developed the process?

23 A. For making it, yes.

24 Q. Okay. And did they have a patent on the
25 process for making PCB's?

1 A. Yes.

2 Q. In the chemical business -- and I guess
3 maybe in other businesses, too -- but in the
4 chemical business in particular, what's the effect
5 of patenting a chemical process?

6 A. The effect is it is protected, restricted.
7 I think the period of effectiveness of the patent in
8 those days was 17 years, I think.

9 Q. And, so, that meant that other chemical
10 companies could not make PCB's for 17 years?

11 A. Not without approval from whoever owns the
12 patent.

13 Q. Oh, I mean you could get a license, in
14 other words, to do it.

15 A. Right.

16 Q. But absent getting that approval, nobody
17 else could make it?

18 A. Yes.

19 Q. Do you know when Swann acquired that
20 patent?

21 A. Not exactly.

22 MR. CRAWFORD: Well, just testify
23 about what you know, Mr. Benignus, if you --

24 THE WITNESS: Well --

25 MR. CRAWFORD: -- if you know.

1 THE WITNESS: I don't know exactly
2 when.

3 Q. (By Mr. Lacey) Had Swann acquired the
4 patent prior to Monsanto's acquisition of Swann?

5 A. Yes.

6 Q. Okay. Now, when Monsanto acquired Swann in
7 1935, it also acquired the patent rights that Swann
8 had --

9 A. Yes.

10 Q. -- to PCB's, correct?

11 A. (Witness nods head)

12 MR. CRAWFORD: If you know, Mr.
13 Benignus. Be sure you have personal knowledge of
14 what you're testifying about.

15 THE WITNESS: I said "yes."

16 MR. CRAWFORD: Okay.

17 Q. (By Mr. Lacey) Fine. And, so, then
18 Monsanto continued to manufacture the PCB's using
19 the patent it had acquired from Swann, correct?

20 A. Yes.

21 Q. Do you know whether or not Monsanto ever
22 licensed any other chemical company in the United
23 States to produce PCB's under its patents?

24 A. No.

25 Q. No, they did not?

1 A. They did not.

2 Q. When the Swann facility there in Anniston
3 Alabama was acquired, it became part of Monsanto?

4 A. Yes.

5 Q. And did that plant continue -- that
6 particular plant continue to manufacture PCB's after
7 it was acquired by Monsanto?

8 A. Yes.

9 Q. Now, you mentioned to me that there was
10 this plant in East St. Louis or Sauget, Illinois,
11 known as the "Krummrich plant," that also
12 manufactured PCB's?

13 A. Yes.

14 Q. When did that plant start manufacturing
15 PCB's?

16 A. I don't know the exact date. However --
17 this will answer your question -- that plant was put
18 there in response to demand from the United States
19 Government and the military to have two independent
20 sources of production.

21 Q. For PCB's?

22 A. For PCB.

23 So, that was, to answer your question,
24 pursuant to the war effort and the critical
25 application and use and need for PCB's.

1 Q. Okay. And we're talking about the World
2 War II effort?

3 A. Yes.

4 Q. Okay. And the further we get from World
5 War II, the more "war effort" could imply something
6 in addition to that.

7 So, at least by the end of World War
8 II, there's a second production facility?

9 A. Yes.

10 Q. Did Monsanto ever produce PCB's at any
11 other plant than those two plants?

12 A. That was it.

13 Q. Okay. And how long did Monsanto continue
14 to produce PCB's in Anniston, Alabama?

15 A. Until final termination, which was after I
16 retired. I would say 1977.

17 Q. Okay. And was the same thing also true for
18 the Krummrich plant?

19 A. Yes.

20 Q. What use was made of PCB's in the World War
21 II effort, if you know?

22 A. The critical use, which put the materials
23 on strict allocation exclusive for the Government
24 and military, was that all Navy vessels --
25 underwater, submarines; above water, destroyers,

1 battleships, what have you -- operated with Askeral
2 PCB transformers, as did all the docks, facilities,
3 so forth, many Government buildings, the shipyards,
4 military installations, and so forth. It was
5 allocated strictly for that.

6 Q. Do you know whether or not at any time
7 during Monsanto's production of PCB's they ever
8 offered anyone else the opportunity to license the
9 process for producing PCB's?

10 A. This patent that Swann had expired, my
11 guess was, after 17 years. Swann started -- call it
12 1930. After that -- after that patent expired,
13 anybody could make it --

14 Q. But nobody --

15 A. -- that wanted to. Nobody did.

16 Q. Okay.

17 A. There was no restriction. It was --
18 anybody that wanted to, could.

19 Q. You don't know if there was any effort to
20 renew that patent or update it or revise it to keep
21 it in effect?

22 A. Not by Monsanto, the process.

23 Q. Okay. Was the process of making PCB's
24 roughly the same from the 1930's through the 1970's?

25 A. Exactly.

1 Q. Let me go back and pick up your work
2 history. You worked with PCB's in the inorganic
3 division in nonelectrical uses from '47 to '52,
4 correct?

5 A. Essentially correct, yes.

6 Q. Well, in what way might I be incorrect at
7 all?

8 A. You said '47 till when?

9 Q. '52.

10 A. That's essentially correct. It may have
11 been towards the end of '51.

12 Q. Maybe it was late '51, then?

13 A. (Witness nods head)

14 Q. But, otherwise, it's correct --

15 A. Right.

16 Q. -- except for the exact date?

17 Then you switched back to the organic
18 division, correct?

19 A. Yes.

20 Q. And, here again, you still worked with
21 PCB's; but this time in electrical applications?

22 A. Yes.

23 Q. And, so, the division in Monsanto was that
24 nonelectrical applications were handled in the
25 inorganic division and electrical applications were

1 handled in the organic division?

2 A. Sorry. You got it wrong.

3 Q. I got it wrong?

4 A. I'll explain it.

5 Q. Okay. You explain it.

6 A. It's not your fault.

7 Q. Okay.

8 A. As we already said, PCB's were in the
9 inorganic division, although they're organic
10 materials.

11 Q. Right.

12 A. Now, there was a decision by, let's say,
13 the very top of the company. They decided that,
14 "The PCB's," as you've already almost decided, "are
15 organic; so, we'll move them to the organic
16 division." That's -- occasions this move. That's
17 why it was done, by directive.

18 Q. You stayed in the same place and one day
19 you were working for inorganic and the next day
20 you're working for organic because of the name
21 change and the change of responsibility?

22 A. Two floors different in an office building.

23 Q. Yeah, I understand.

24 Now, let me talk a little bit about
25 the various names and the chemistry of PCB's.

1 You've already mentioned the name "Aroclor"?

2 A. Yes.

3 Q. And that is a name that was used by
4 Monsanto to identify any product that contained any
5 chlorinated biphenyl; is that correct?

6 A. Correct.

7 Q. And in terms of nomenclature, a biphenyl
8 and a diphenyl are the same thing, are they not?

9 A. Correct.

10 Q. That's about the same type of confusion
11 between being organic or inorganic, isn't it?

12 A. Yes.

13 Q. And you also mentioned the name "Askeral."
14 That's another name for an Aroclor that has an
15 electrical application, is it not?

16 A. Yes.

17 Q. So, when we talk about "Aroclor," we're
18 talking about a mixture of PCB's, correct?

19 A. Yes.

20 Q. When we talk about "Askeral," we're talking
21 about a mixture of PCB's?

22 A. Yes.

23 Q. Okay. When we talk about "dielectric
24 fluids," we're talking about PCB's that are used in
25 electrical equipment, like transformers and

1 capacitors?

2 A. Yes.

3 Q. Now, can you explain for us briefly what a
4 "dielectric fluid" is?

5 A. A "dielectric fluid" is somewhat of a
6 sophisticated term used for an insulation, an
7 insulating material. Without getting into more
8 unnecessary detail, it is an insulating material.

9 Q. And when we talk about a "fluid," we're
10 talking about an insulating liquid?

11 A. Yes.

12 Q. And what sort of uses would you put this --
13 and it -- by the way, when we talk about
14 "insulation," we're talking about electrical
15 insulating properties?

16 A. Yes.

17 Q. We get insulation like keeping the cold or
18 heat out; but that's not what we're talking about,
19 is it?

20 A. No.

21 Q. And what is -- what do we mean by
22 "insulation" when we talk about "electrical
23 insulation"?

24 A. "Electrical insulation" -- now I will use
25 the word "dielectric."

1 Q. Okay.

2 A. This is a material that insulates the
3 system from passage of electric current.

4 Q. So, it can't --

5 A. It is not a conductor.

6 Q. Right. There are other dielectric
7 materials besides these fluids, correct?

8 A. Mineral oil.

9 Q. That's one. Air is a dielectric, is it
10 not?

11 A. Yes, it is.

12 Q. And that's why we have these power lines up
13 in the air. They're separated and insulated from
14 each other by air, right?

15 A. Yes.

16 Q. Okay. Now, what uses do dielectric fluids
17 have? Why is the electrical business interested in
18 dielectric fluids?

19 A. First, I'll talk about capacitors.

20 Q. Okay.

21 A. The dielectric PCB is the lifeblood liquid
22 of a capacitor. The other components of a capacitor
23 are simply a winding of kraft tissue, cellulose or,
24 in later years, polypropylene film, which is also an
25 insulating material. This is wound sandwiched

1 between the conductor, which is aluminum foil.
2 They're wound up into a roll. This is the coil of
3 the capacitor.

4 The coil is put into a container
5 because it's going to receive liquid. This is a
6 steel or, in some cases, can be an aluminum
7 container. And to hook it up, this coil, there are
8 two electrodes --

9 Q. Okay.

10 A. -- that come out of this thing.

11 Now, you gave me a lesson. Air is a
12 dielectric. You're right. Perhaps you know the
13 dielectric constant of air.

14 Q. I don't.

15 A. It's one.

16 Now, why are we interested in PCB
17 rather than air? PCB has a dielectric constant
18 of -- depending on which one -- $4\frac{1}{2}$, maybe 5,
19 versus one for air. The dielectric constant we
20 speak of as "capacitance" of this device. This is a
21 great economic advantage. This says essentially
22 that if, instead of using air, we will use PCB, our
23 capacitor needs be only one-fifth as large as with
24 air.

25 We need a can of metal, and with the

1 kraft paper, aluminum material, only one-fifth,
2 which is economically a big advantage, also a big
3 space saver. There, now, the liquid serves as a
4 dielectric and coolant, because to take advantage of
5 this system the fullest, the can will have only, as
6 designed for economic reasons, the least area
7 surface required to move the heat out of this
8 system, which is moved first through the liquid,
9 into the wall of the metal, into the air to keep
10 this thing from overheating.

11 Now, that is the purpose that PCB
12 liquid dielectric serves in a capacitor.

13 Q. Okay. Let me stop and ask you some
14 questions about that so I understand.

15 Are there other liquids that have
16 dielectric properties besides PCB's?

17 A. Oh, sure.

18 Q. When were PCB's first commercially produced
19 by Swann, approximately?

20 A. I would say 1930.

21 Q. Did we have capacitors before then?

22 A. Yes.

23 Q. Any of them have liquids in them or --

24 A. Yes.

25 Q. Okay. What sort of materials were used as

1 capacitor dielectric fluids before 1930, if you
2 know?

3 A. Yes. Mineral oil.

4 Q. Okay. And what is mineral oil?

5 A. Mineral oil is a hydrocarbon, and it's
6 petroleum derived. It's a petroleum-base oil, which
7 you're familiar -- off the record -- familiar in
8 Houston.

9 Q. Okay. Did -- what was the dielectric
10 constant of mineral oil, approximately?

11 A. Approximately half of PCB.

12 Q. Okay. So, if PCB is 4.5 to one, the
13 mineral oil --

14 A. 2.2.

15 Q. Okay. So, it was a better dielectric fluid
16 than air?

17 A. From that point of view, yes.

18 Q. I'm just trying to figure out how these
19 things fit together in terms of dielectric --

20 A. Yes.

21 Q. -- properties.

22 A. Air is one. Mineral oil is 2.2; and the
23 Askeral is, say, a 5. So, that dictates the size of
24 what we're talking about.

25 Now, there are other characteristics,

1 if you want to get into them.

2 Q. Let me try to understand the capacitor.
3 And I've got a sketch pad over here and I won't hold
4 you to being a great artist but I would love if you
5 could give us some sort of picture of what a
6 capacitor looks like. Is that something you could
7 do?

8 And I've got some markers here, and
9 you can feel free to draw us a capacitor, just so
10 we'll know what -- what one of those things look
11 like. And, so, you don't have to be a great artist
12 because anything you draw is going to be better than
13 what we know right now.

14 A. A capacitor, you look at it, is a can, a
15 metal container. Now, in this metal container is
16 placed this wrapping, this coil -- this coil, which
17 is a winding, like a roll of toilet paper.

18 Q. Just getting smaller all the way down or --

19 A. Yes. Now, the reason for this, if we
20 didn't wind it up, we would have a thing across the
21 room here, wouldn't we? We wind it up to get
22 maximum surface in the minimum space. It's as
23 simple as that.

24 Q. What's important about the surface of this
25 material inside the capacitor?

1 A. The importance of the paper, the kraft
2 paper, which is made under highly purified
3 conditions, is not -- it's kraft paper --

4 Q. You say "kraft" --

5 A. -- by the paper mills but with a very
6 special process. It does not use regular mill
7 water. It uses deionized water. It is specially
8 handled to avoid traces of metal-conducting
9 particles because we are making a nonconductor of
10 electricity.

11 Q. Uh-huh.

12 A. Let me say this: A capacitor stores
13 electric energy momentarily and releases it. It
14 acts like a sponge. It's an electrical sponge. It
15 absorbs electric energy for a very short period of
16 time, and then it releases this energy. And that is
17 how the thing is applied. It's a sponge. Or you
18 might -- some people say it's a pump kind of a
19 thing.

20 Now, this, then, is the winding. This
21 system is dehydrated very thoroughly --

22 Q. Taking all the water out?

23 A. -- taking all the water out. Water is a
24 conductor.

25 Q. Okay.

1 A. Now, PCB is a relatively polar dielectric.

2 Q. And what do you mean by that?

3 A. The dipoles rotate. More practical, what
4 I'm saying is this: A PCB dielectric, which has to
5 be made to an extremely high degree of purity for
6 use in this capacitor, is very sensitive to trace of
7 ionic impurities. The people that made this roll
8 are ladies that sit there at the winding machine in
9 white gowns. They have on white canvas gloves.
10 They have on hat hoods so no hair contaminant. The
11 skin is not to touch this because it's a
12 contaminant, the --

13 Q. The oils on the skin?

14 A. -- the oils on the skin, the ionic
15 materials in the skin, the moisture, the water.

16 Now, the final processing -- in
17 addition to being a liquid dielectric, you see, the
18 PCB is a means for evacuating the air -- we don't
19 want air because air is one, and here we're at 5.
20 We don't want air -- and drying this thing.

21 All right. Now, that's all there is
22 in a capacitor.

23 Q. So, we pour the PCB's in and it's heavier
24 than air and it forces air out the top as the liquid
25 goes in?

1 A. It's poured in with -- with pressure.
2 First, it's evacuated under very strong vacuum. The
3 vacuum is broken and the PCB enters it and then
4 there's soaking to completely dry and evacuate this
5 because air is not as strong a dielectric as is the
6 PCB.

7 Now we have a capacitor. And,
8 really -- then there's a lid on here and an
9 impregnating hole where there should be air where
10 the PCB went in.

11 Q. Right.

12 A. And that gets soldered shut, and there will
13 be an electrode from the foil in here. That's --
14 that's all there is to a capacitor.

15 Q. Okay.

16 A. It's an amazingly simple-looking thing.
17 The seventh wonder of the world is how much trouble
18 you can get with something like this.

19 Q. Well, what do you use one of these
20 capacitors for --

21 A. All right.

22 Q. -- that you've just shown us?

23 A. Now, the uses for the capacitors -- and
24 this is an important aspect of PCB use. PCB
25 dielectric replaced mineral oil because, as we

1 discussed, the dielectric constant. Before the
2 advent of PCB's, G.E., who were -- it was Steinmetz
3 that introduced capacitors to General Electric. The
4 great Steinmetz predicted a great future for this.

5 They had in those days mineral oil.
6 Mineral oil will oxidize. When mineral oil
7 oxidizes, it sludges, forms acidic materials that
8 get to be relatively conducting.

9 And when we say "develop a high power
10 factor," this means a high loss tangent or
11 dissipation factor. This means heat generation. We
12 already discussed what a capacitor is and, I
13 believe, to release --

14 I'll sit --

15 Q. That's okay. Point out what you're going
16 to show us.

17 A. -- release heat through the wall of this
18 can. Now, if we generate heat in this thing beyond
19 its ability to transfer that out, we've got a bomb.
20 That thing is going to overheat. It's going to
21 consume itself. Things are going to decompose,
22 generate gases. And, indeed, the early capacitors
23 with mineral oil were almost as much bombs as
24 anything else. Plus, mineral oil burns.

25 And at the high temperature where

1 these things would generate enough to consume
2 themselves, those things are hot. And that mineral
3 oil, when that let's go, you've got quite a fire on
4 your hand.

5 Now, this leads us to two things. We
6 talked about economics, small size. We will now,
7 with G.E. -- I'm saying what G.E. found. We're
8 going into what belongs to G.E. This is their
9 material. We merely make it.

10 Q. Okay. Let me stop you there for a second.
11 One thing I want to find out before we get into that
12 is: What do capacitors do? How do you use them?

13 I have one sitting here on the table,
14 and what do I do with it?

15 A. Well, excuse me. Let me finish. It's very
16 short.

17 Q. Okay.

18 A. Why was PCB of interest? Frank Clark, who
19 discovered this at G.E., he found, number one,
20 "Look, mister, it doesn't burn."

21 And the only ad I've ever seen on PCB
22 dielectric is a blowtorch into a pan. It doesn't
23 burn.

24 The other thing is it doesn't
25 oxidize. It's a stronger dielectric than mineral

1 oil. And that's the story.

2 Now, to answer your question, "What
3 are they used for," fluorescent lights, you have.
4 All fluorescent lights, indoor and outdoor, the
5 ballast operates with, till it's demise, PCB
6 capacitors. They're about this high, about so
7 thick, and about maybe so wide. They're small.

8 They are encased in a ballast --
9 called "ballast" -- with a transformer. The
10 capacitor is encased in a sealing material in there,
11 plastic tar.

12 Now, you ask, "What does it do?"

13 Q. Right.

14 A. We already said this is an electric
15 sponge. When you start, push that button there to
16 start these lights, unless you have the benefit of
17 this sponge to release momentarily additional power
18 needed to energize this thing, these tubes, they
19 don't do it. Now, that's one thing. It provides
20 this.

21 The other thing it does here, it
22 corrects power factor.

23 Q. What do you mean by that?

24 A. Power factor in a power line -- the utility
25 has generators. Okay. What they generate and can

1 transmit over these lines is 100 percent useful if
2 you have here an electric heater, a resistance. But
3 we really don't have that. And what we have, say,
4 for instance, more true in a motor system but --
5 okay. What we have here is the fact that, for these
6 kind of applications, the power that comes across
7 the line is only maybe 80 percent useful for this,
8 whereas it would be entirely useful for any electric
9 resistance system.

10 So, "power factor" is meant getting
11 this sponge to absorb this energy, to release it
12 momentarily. And by this action -- it sort of acts
13 as a pump, maybe I should say. That makes the
14 bottom line is -- instead of only getting 80 percent
15 value of what comes across the line, you will get 90
16 percent, this sort of thing. It's a pump.

17 Now, one use is -- a major use, you
18 see, one is this ballast, lighting ballast. The
19 other -- another major use is motor operation, like
20 air conditioners. Now, air conditioning got to be
21 very prevalent. And if everybody -- if many people
22 turned on air conditioning and you didn't have a
23 capacitor, you'd blow up the power company and
24 everything would go down.

25 By law, these things need to have a

1 capacitor; and the Aroclor, PCB, was the most
2 efficient. It replaced mineral oil long ago, and
3 there was nothing that competed with it.

4 The other prime use, number three, is
5 that you had said about the power lines -- if you
6 look up on power poles, you will see banks of power
7 line capacitors. These are doing the same thing we
8 already talked about. They are making what the
9 utility can produce more effective for the operation
10 of motors, lights, and -- and this is -- they
11 increase, enhance the utilization; and therefore
12 it's an economic measure. The utility doesn't have
13 to build as much generation.

14 You know, it sounds sort of nebulous
15 when we're talking here; but you spread this across
16 the whole country, it's a whopping big thing. This
17 is why the use of PCB, for which there was no
18 replacement or substitute, was quite a critical
19 thing.

20 Now, those are the main applications
21 for capacitors.

22 Q. Okay. Let me make sure I --

23 A. Wait a minute. There's another area --
24 since we're talking about it -- you may want to say,
25 in communication equipment, telephones, and this

1 sort of thing. It all ties back to the same thing.

2 Q. So, there -- as I understand it, there are
3 three major uses of capacitors. They're in lighting
4 and that sort of use, motors?

5 A. Yes.

6 Q. And in power factor correction?

7 A. Capacitors.

8 Q. Okay.

9 A. And in a sense, they're all power factor
10 correction.

11 Q. But --

12 A. I'm sorry we went through so long
13 explaining this. I don't know. Do you want all of
14 that?

15 Q. Yes. I wanted to find out about those
16 major categories of use.

17 Now, if -- in each one of those
18 categories we would have a capacitor that's designed
19 along the lines that you've drawn for us on this
20 sheet of paper over here?

21 A. Exactly.

22 Q. It might vary in size and it might vary in
23 outward appearance but it would have the same basic
24 internal structure and use?

25 A. Essentially.

1 Q. Okay.

2 MR. LACEY: Let me ask the court
3 reporter to mark that sheet of paper as Benignus No.
4 1.

5 (Benignus Exhibit No. 1 marked
6 for identification)

7 (Discussion off the Record)

8 Q. (By Mr. Lacey) Mr. Benignus, let me ask
9 you if what the court reporter has now marked as
10 Benignus Exhibit No. 1 is your rough drawing for us
11 of a capacitor.

12 A. Very rough.

13 Q. But that is your drawing of it?

14 A. It explains the simple configuration of
15 materials used.

16 Q. Okay. Now, I know that Monsanto did not
17 actually stop producing PCB's until after you left
18 them; but do you know whether or not the electrical
19 industry still makes and uses capacitors?

20 A. Oh, obviously. Otherwise the country would
21 shut down.

22 Q. Okay.

23 A. But not PCB.

24 Q. Okay. They make them with something else?

25 A. Yes.

1 Q. Okay. Now, let me ask you about an
2 entirely different use of dielectric fluid. I
3 understand we've got capacitors, and we've talked
4 generally about what a capacitor is and the main
5 uses of it and, to the extent that at least I can
6 understand, how it works. And I'm not sure I
7 understand, but I'm not going to try to understand
8 any more than I know.

9 But, now, I understand that there are
10 also things called "transformers"?

11 A. Yes.

12 Q. Can you explain for us, generally, what a
13 "transformer" is?

14 A. Well, in the area of PCB transformers, I
15 will call those "distribution-type transformers,"
16 rather than "power transformers."

17 Q. What's the difference between a power --

18 A. A power transformer -- when the utility
19 generates electricity, it has to pump this through
20 the utility lines. And that is the purpose of the
21 transformer, to build up this voltage so there are
22 lower line losses.

23 Now, I'm not talking about those kind
24 of transformers when we talk about PCB
25 transformers. Those kind of transformers will be

1 invariably insulated with mineral oil, not PCB.

2 Q. Is there any particular reason for that?

3 A. Yes. The reason is cost. That's one of
4 the reasons. And the other reason is -- is that a
5 utility power transformer isn't located in a
6 confined building. It's outdoors. And if there is
7 a fire, it's not -- well, it's unfortunate. It's
8 not a great risk. They're not in the middle of a
9 building in a populated area. So, that is the
10 reason mineral oil is used.

11 Q. Is it a lower cost? When you said "cost,"
12 is mineral oil a lower cost?

13 A. Oh, yes, considerably lower cost than --
14 than PCB. Maybe PCB's cost eight times as much as
15 mineral oil, just to give you a ballpark figure.

16 Q. What about these -- what you call
17 "distribution transformers"?

18 A. Yes. Now, in distribution transformers the
19 applications for which PCB was -- insulated
20 equipment was used, one of the main applications was
21 an industrial -- industrial, "load centers" they
22 called it. This would be in factories, steel mills,
23 flour mills, automotive manufacturing places, mining
24 operations, things like that.

25 Another use we already touched on was

1 in these military installations where resistance
2 from fire and approximation to water was a factor.

3 Now, another application for PCB
4 transformers was in commercial buildings, office
5 buildings, schools, hospitals, that sort of thing.
6 And another area of application was in utility
7 underground networks. So, those are the major
8 applications for Askeral transformers.

9 In other words, this is relatively
10 small transformer. I say "relative," to these very
11 large power -- where they generate electric power.
12 Those are very big transformers.

13 Q. Were all relatively small transformers made
14 with PCB's?

15 A. All right. In -- I'll explain it this
16 way: To begin with, the competition of Askeral
17 transformer was not mineral oil. We already covered
18 that.

19 What is the competition? The
20 competition is open dry-type transformer. Now, the
21 open dry-type transformer, being open, it's not very
22 applicable and sensible to put this in a flour mill
23 or a cement mill, where there is dust and generation
24 of dirt, because this interferes with the insulation
25 and can get into an open dry-type transformer.

1 Neither is it very sensible to put an
2 open dry-type transformer in an area where you
3 expect water flooding or, say, around the coastal
4 areas and so forth where any moisture -- any water
5 getting into an open dry-type transformer can cause
6 this thing to go.

7 So, that is really the -- the
8 competition; and this is what we're looking at in
9 the application of these transformers.

10 Q. I guess my question was whether, for
11 example, every transformer -- and I take it from
12 what you're saying it's not true -- but every
13 transformer built from 1930 to 1974 had Askeral in
14 it.

15 A. No. No.

16 Q. What other --

17 A. Only the ones where the judgment was made
18 that Askeral should be used for the purpose that I
19 told you: avoiding water and for the purpose of
20 avoiding fire hazard. The insurance people dictated
21 much of this.

22 Q. What -- what percentage of all the
23 distribution transformers that were made in the
24 Thirties, Forties, Fifties, Sixties, that period of
25 time, would have been Askeral transformers versus

1 some other type, approximately?

2 MR. CRAWFORD: That's a little broad,
3 David. Can you narrow it just a little bit?
4 Because you went --

5 MR. LACEY: Well, I'd like to --

6 A. I -- I'd like to help, if I can.

7 Q. (By Mr. Lacey) Surely. That's what I'm
8 asking for.

9 A. This is a difficult thing to answer because
10 now you said "distribution transformers."

11 Q. That was -- I'm trying to use the term you
12 used to explain it.

13 A. Yeah. Well, we're running into trouble
14 because a distribution-type transformer is also
15 these transformers that, indeed, have mineral oil in
16 them.

17 And there are many, many, many of
18 those that you see on utility poles to assist with
19 the distribution of power. Now, those are mineral
20 oil. So, if they catch on fire, you saw the top of
21 the pole off. It's not a fire hazard. So, let's
22 answer your question.

23 Askeral went into a specifically
24 selected place, see? Rather than the -- it's a
25 specialty, is the answer.

1 Q. Okay.

2 A. It is very much a minority. That is the
3 answer. And to quantify this in numbers, I don't
4 know.

5 Q. Okay. Well, that -- that's answering my
6 question.

7 A. Okay.

8 Q. They're basically a specialty product?

9 A. Specialty, yes, based on fire -- lack of
10 fire hazard. That's the answer to the question.

11 Q. Let me ask you to flip the page up there
12 and see if you can draw us what a transformer looks
13 like with Askeral in it, or a transformer
14 generally.

15 Can you do that for us us?

16 A. It's going to look the same.

17 Q. Oh, okay. So, a transformer and a
18 capacitor look -- look the same?

19 A. I'll draw a picture. It gets a little
20 bit -- you know, somebody is going to look at these
21 things, you know.

22 Q. Well --

23 A. You know what a transformer looks like.

24 Q. Well, I --

25 A. It's a -- excuse me.

1 Q. I mean, I hate to say it --

2 A. I'll go along with this.

3 Q. -- but I've never looked inside of one.

4 So --

5 A. I'll go along with this.

6 Q. -- if you can flip that page up there and
7 just turn to the next page --

8 A. Well, before we do that, let me say -- let
9 me approach it this way: A transformer is a metal
10 tank, right? In this metal tank, we have what they
11 call a "core" and a "coil." It doesn't have --
12 well, it has pressboard. There's some cellulosic
13 organic insulation in this core and coil.

14 It's a metal core, again. Here we had
15 aluminum and kraft paper. Now we're going to have
16 in the -- we're going to have transformer steel.
17 That will be the metal. And we will have what they
18 call "pressboard." That's a cellulosic material
19 commonly used as transformer insulation.

20 So, we have a tank. It's going to be
21 much larger than a capacitor, and it's going to be a
22 steel tank. And we have a core and a coil. You can
23 call this a "core" and a "coil" if you will, but
24 they call it a "winding."

25 Q. Okay.

1 A. Now, this thing -- in the transformer,
2 again, the core and the coil is immersed in PCB
3 dielectric, indeed, for the same purpose. You have
4 to take the heat out of the core and the coil. The
5 liquid is the first avenue for taking this out. It
6 goes into the sidewall of the metal container,
7 into -- if it has fins, that's the purpose, to add
8 surface. And that's a transformer.

9 They are also filled by evacuation
10 and --

11 Q. Put the oil in --

12 A. But this is a much -- well, it -- it's also
13 very similar. This is a very touchy thing here.

14 Q. What do you mean?

15 A. What I mean is this: In a capacitor,
16 dissipation factor or power factor is essential. It
17 is very important in a capacitor. In a transformer,
18 an Askeral transformer, it is not.

19 Now, what does this mean? Askeral
20 liquid, as we said already, it's relatively polar.
21 This means, as we've seen -- or said, that trace of
22 contamination will affect its electrical
23 characteristics. This is all-important in a
24 capacitor.

25 If I'm making a capacitor and you

1 stick your finger in this thing, I'm going to send
2 you away because you've ruined it.

3 Q. Okay.

4 A. If I'm testing Askeral for use in this and
5 I've gone to a lot of work to clean a cell,
6 dielectric cell, to test its power factor and
7 I'll -- there's a ritual to cleaning this cell -- if
8 you come along and you're in -- you're intrigued
9 with this, well, you want to pick it up and you do
10 touch it, I'm going to send you away. You've ruined
11 it. I've got to start all over with this thing.

12 In making this -- this is very
13 important in a capacitor -- that power factor must
14 be low.

15 I'm getting at something now in the
16 transformer that is quite different. There, the
17 power factor of Askeral is not important unless
18 something is causing this high power factor that
19 could be something we need to look into.

20 Here's the reason for this: A
21 transformer -- the heat generated in the core and
22 the coil of a transformer is so overwhelming beyond
23 any heat loss in the dielectric loss -- which is
24 heat -- but that is so nebulous compared to the
25 large amount of heat generated in a transformer,

1 forget it; forget it on this basis: that this does
2 not indicate instability of the PCB dielectric.

3 Now, we come, then, to an important
4 difference, which explains why I wrote on this
5 subject exactly as we're talking. In the case of
6 mineral oil -- and Askeral is a specialty, which
7 isn't -- well, it's -- well, transformer -- mineral
8 oil transformers are much more widely manufactured
9 and used. There is a marked difference in the
10 properties of Askeral versus mineral oil,
11 particularly on this item of power factor.

12 If any mineral oil transformer, the
13 power factor is 20 percent, 30 percent, something
14 like -- I don't want to be near it. I'm afraid it's
15 going to blow up. Something is very radically
16 wrong. In the case of an Askeral transformer, if
17 the dissipation factor is 20 percent, 50 percent, or
18 off the scale, it doesn't bother me.

19 The important thing in an Askeral
20 transformer is dielectric breakdown voltage,
21 dielectric strength. And when you analyze this
22 thing, you come down to what -- "Why is this an
23 important thing?"

24 We already said Askeral is entirely
25 stable, not affected by water. But you're reading

1 in a high -- in a low dielectric strength. A normal
2 spec would call for something like 30,000 volts.
3 Say, we're down to 5 or 10 thousand volts. Look for
4 moisture contamination.

5 This comes down to a very simple fact
6 in an Askeral transformer. What is the enemy of an
7 Askeral transformer? It's water; it's moisture.
8 And the dielectric strength test on an Askeral
9 transformer essentially is no more than a moisture
10 test.

11 Now, the literature I wrote, this is
12 the end point of it; but to explain it, you go
13 through all kinds of things about power factor,
14 volume resistivity, this or that or the other thing
15 that these technologists know about. You come down
16 to it: moisture.

17 Q. So I understand the -- the relative
18 positions of capacitors and transformers, in terms
19 of the external view of it, I'm going to have -- in
20 each one, I'm going to have a can drawn of the
21 capacitor smaller and the transformer larger, that's
22 got two wires or something that will transmit
23 electricity coming out of it?

24 A. Yeah.

25 Q. And inside, I've got these windings --

1 A. Yeah.

2 Q. -- soaked in my fluid?

3 A. Yes --

4 Q. And with --

5 A. -- that's it.

6 Q. -- with the capacitor, I am -- I've got

7 this sponge that's storing power?

8 A. Yes.

9 Q. And with the transformer, I've got this

10 thing that is changing the voltage?

11 A. Yes --

12 Q. That's --

13 A. -- exactly.

14 Q. -- the basic difference between the two?

15 A. That's right. This is right.

16 Q. And if I understand what you're saying

17 correctly, even when PCB's were being manufactured

18 and used in transformers, the vast majority of

19 distribution transformers in general use were not

20 PCB transformers?

21 A. Oh, that's right.

22 Q. We had them in special applications where

23 people chose them for particular characteristics or

24 uses, correct?

25 A. Yes. Compared to the overall transformer

1 usage, this is correct. Askeral transformers
2 weren't put on telephone pole -- on utility poles.

3 Q. And in general application, the majority of
4 transformers would have been mineral oil
5 transformers?

6 A. Yes.

7 Q. And, then, in specialty applications, you
8 might find PCB transformers or dry-type
9 transformers?

10 A. Yes.

11 Q. Okay. Were any mineral oil transformers
12 ever used in specialty applications in some way or
13 another?

14 A. They could be if you weren't concerned with
15 fire hazards.

16 Q. Okay. Now, in the capacitor area, were
17 basically all capacitors PCB capacitors when PCB's
18 were being made; or were there other capacitors?

19 A. No. Again, it's specialty.

20 Q. What else --

21 A. We came down to three types of capacitor --

22 Q. Okay. What other --

23 A. -- which was the motor run, the ballast,
24 and the -- the power correction capacitor.

25 Q. What other materials were used in

1 capacitors besides PCB's?

2 A. Oh, there was, in the D.C. areas, there was
3 castor oil; and there were capacitors made with
4 various -- I got to think for a minute -- various
5 other materials that would use -- these -- what I'm
6 saying is this: In the areas where Askeral was
7 selected by the judgment of the industry, no,
8 nothing else competed with it.

9 But in a wide variety of other kinds
10 of thing that you have to call "transformers," other
11 things were used.

12 Q. Okay.

13 MR. CRAWFORD: David, can we -- are we
14 at a stopping point?

15 MR. LACEY: Let me -- I've got just a
16 couple more questions I think will --

17 MR. CRAWFORD: Okay.

18 MR. LACEY: -- finish up this line.

19 Q. (By Mr. Lacey) And subsequent to the
20 cessation of use of PCB's, there are other products
21 that are being used in even these specialty
22 application capacitors and transformers serving in
23 the place of PCB's?

24 A. No.

25 Q. What's being --

1 A. I'm sorry. Maybe I misled you.

2 Q. No. I -- no. I'm asking that question to
3 you at this point.

4 What are we doing today? We're not
5 making PCB's anymore, correct?

6 A. So, what are we using today?

7 Q. Yes. Are there substitutes that are being
8 used in place of PCB's?

9 A. Yes, obviously; or else we wouldn't be
10 sitting here.

11 Q. Well, that's my point. I mean --

12 A. I'll answer that.

13 Q. Okay.

14 A. In the capacitor area, the thing that was
15 selected -- and there's only one -- Monsanto had
16 nothing to do with this selection whatsoever.
17 Really only one place this could be probed out.
18 This is not a simple undertaking. It involves a
19 great deal of responsibility and risk.

20 The Government didn't want PCB stopped
21 until there was assurance on this point. So, when
22 there was assurance that a substitute material could
23 be taken to the marketplace, this was an
24 announcement by the General Electric Company. And
25 what is being used is dioctyl phthalate. That is

1 the replacement.

2 Q. In capacitors?

3 A. Capacitors.

4 Q. Okay.

5 A. Now, there's an ester. It's -- I'm not
6 going to get into the difference between that and
7 PCB. Let it be.

8 In the transformer area, people could
9 use more dry-type than they had. That's one thing.
10 People could take risk with mineral oil if they
11 wanted to and overlook fire hazard.

12 To answer your question, more
13 specific, to my knowledge, silicone oil is the
14 predominant replacement for PCB in these transformer
15 applications we spoke of.

16 Then there is some effort at using a
17 high temperature higher-flash kind of oil than is
18 mineral oil. It's a hydrocarbon.

19 Q. Do you know what the name of that oil is?

20 A. Well, they call it "R-temp," I think.

21 Q. All right.

22 A. Now, to what extent this is used, I don't
23 know. This -- this has come about after my -- I'll
24 answer your question -- there's two answers to your
25 question: For capacitors, dioctyl phthalate; and,

1 for transformers, call it "silicone fluid." There
2 may be some fluorocarbon gas type.

3 That's the answer to your question.

4 Q. Do you know whether or not those materials
5 were developed after the problems with PCB's came to
6 the forefront?

7 A. Oh, yes. It's not that there was anything
8 new discovered that these things were dielectrics.
9 Dioctyl phthalate was published in Von Hippel's book
10 many, many years ago as a dielectric.

11 But who wants to use a phthalate ester
12 that will hydrolyze and is water sensitive and not as
13 stable? This took a lot of judgment in -- and
14 engineering that thing there differently so, if it
15 does start getting out of hand, there are mechanical
16 things that come into play to try and shut this
17 thing off.

18 Q. So, in terms --

19 A. This kind of thing that -- you know.

20 Q. In terms of the materials, they had been
21 there; there just wasn't any use being made of them
22 until PCB's were no longer --

23 A. Because nobody had the experience that they
24 could be used. They were forced into these things.
25 And for many years Monsanto tried to find other

1 dielectrics than Aroclors.

2 But at the properties one gets, the
3 good properties, dielectric properties, with
4 Askeral, PCB's, at the low cost, it completely
5 debouched the research opportunity to find a
6 replacement. And not until these things were
7 forced, due to objection from the environmentalists,
8 were these things considered or pursued.

9 MR. LACEY: That's a good stopping
10 place.

11 MR. CRAWFORD: Okay.

12 THE VIDEOGRAPHER: We are now going
13 off the record. The time is 2:58 p.m.

14 (Short Recess)

15 THE VIDEOGRAPHER: We are now back on
16 the record. The time is 3:16 p.m.

17 Q. (By Mr. Lacey) Mr. Benignus, let me make
18 sure, as we're discussing the sorts of things you
19 did in the electrical applications of PCB's after
20 you went to the organic group within Monsanto from
21 '52 forward --

22 A. Uh-huh.

23 Q. -- to get you to tell us briefly the sorts
24 of things that you actually did with regard to the
25 electrical applications of PCB's.

1 A. What I did was monitor and help with the
2 development of specifications with the people in the
3 industry, and particularly General Electric Company,
4 as these were the materials of the General Electric
5 Company.

6 Q. Anything else that you did in that period
7 from '52 to '74 besides monitoring and helping with
8 specifications, especially G.E.'s?

9 A. Well, tied in with this is the activity at
10 technical societies, ASTM.

11 Q. Anything else that you did, generally,
12 during that period from '52 to '74?

13 A. Oh, yeah. Very much my activity was
14 ex-USA.

15 Q. You mean outside the United States?

16 A. Outside the United States.

17 Q. And what were you doing there?

18 A. Again, it was in the same kind of activity
19 in various countries of the world where these
20 meetings were held.

21 Q. In connection with your role as marketing
22 manager from the mid Sixties or so on through '74,
23 were you responsible for trying to encourage as many
24 people as possible to use the PCB's in their
25 transformers and their capacitors?

1 A. Really, to -- to no significant extent. We
2 couldn't get people to use one more drop of PCB
3 dielectrics than they themselves decided to use. We
4 weren't out selling them from the standpoint that
5 you normally think of selling and so forth.

6 Q. Well, I guess what I'm getting at is
7 whether, from a technical standpoint, you might
8 attempt to convince technical people, who would be
9 in a position to specify a particular type of
10 transformer, the benefits --

11 A. No.

12 Q. -- of specifying PCB transformers versus
13 mineral oil transformers or dry transformers or
14 anything like that.

15 A. Well, as we already discussed, we weren't
16 in competition with mineral oil.

17 Q. So, basically, whoever used the PCB
18 products would just use them; and there wasn't any
19 real effort on the part of Monsanto as the
20 manufacturer of PCB's to tout the benefits of PCB
21 products?

22 A. That's correct.

23 Q. And am I correct in understanding the only
24 real applications for the PCB's in electrical uses
25 were the capacitors and the transformers?

1 A. Correct.

2 Well, that's not entirely correct.
3 There are minor other applications, like
4 electromagnets; but they were for the same sort of
5 thing. Those were minor -- you would say minor
6 applications.

7 Q. The significant applications were
8 capacitors and transformers?

9 A. Yeah. Well, in -- in a -- in a
10 electromagnet, it's a transformer, too.

11 Q. Just a different use?

12 A. It's a different use. It's an
13 electromagnet.

14 Q. Let me go back and talk a little bit about
15 the chemistry of PCB's if I could. You mentioned
16 early on that PCB's are a complex mixture?

17 A. Yes.

18 Q. And I -- I have talked already with
19 Dr. Richard. Do you know Dr. Richard?

20 A. Sure.

21 Q. And, also, I've talked with Dr. Munch.

22 A. Yes.

23 Q. Do you know Dr. Munch?

24 A. Yes.

25 Q. And I want to just summarize briefly what

1 my understanding was from talking with them. I
2 don't want to represent that I fully understand it,
3 but --

4 A. All right.

5 Q. -- see if I do have the correct
6 understanding as you would understand it --

7 A. Yes.

8 Q. -- as a chemist.

9 They've told me that the process of
10 manufacturing PCB's involved, first, taking benzene
11 and making biphenyl or diphenyl, whatever you call
12 it --

13 A. Yes.

14 Q. -- and that then, that process, after you
15 did that, involved removing some of the hydrogen
16 atoms that were a part of the biphenyl or diphenyl
17 molecule and replacing them with chlorine atoms,
18 correct?

19 A. Yes.

20 Q. And that creates what we call this
21 "polychlorinated" biphenyl or diphenyl?

22 A. Yes.

23 Q. Now, would you be able to draw me a simple
24 diagram of what a benzene molecule looks like the
25 way a chemist represents it?

1 A. A benzene molecule?

2 Q. Uh-huh. If you can, let me get you to do
3 that on our sketch pad over here.

4 A. All right.

5 I don't want to disconnect this.

6 That's the typical way one would draw
7 a benzene ring.

8 Q. Let me get you to step to one side or the
9 other so our camera can see that here.

10 A. (Witness complies)

11 Q. And in the benzene ring, it looks like
12 there's six sides to it. What do those represent?

13 A. Here, at each one of those places, is a
14 carbon.

15 Q. Let's see if we can get one of those red
16 markers that can just put a red "C" at each spot
17 there to represent those carbons.

18 I don't know if either one of those is
19 any good. I think we were guilty of leaving them
20 out one day.

21 A. This is a carbon.

22 Q. So, I've got a -- if we talk about a
23 "benzene molecule" or a "benzene ring," we're
24 talking about something a chemist would depict in
25 the fashion you've just drawn there on that sheet?

1 A. That's the -- in a simple form, yes.

2 Q. Now, if you were going to draw a biphenyl
3 or a diphenyl molecule, could you draw below that --
4 maybe you can label that top one there "benzene."
5 Just write that somewhere where we'll know that's
6 what that is, and then show us what a diphenyl or
7 biphenyl would look like.

8 A. That's supposed to be a "Z." That's
9 benzene.

10 Q. Okay.

11 A. Now, a -- a biphenyl is simply two of these
12 that are hooked together as a result, as I told you,
13 of pyrolysis.

14 Q. And what do we mean by the word
15 "pyrolysis"?

16 A. Heat. Heat, temperature.

17 Q. So, benzene, in the presence of heat, will
18 join those together to create a biphenyl molecule?

19 A. Yes. And that's a biphenyl, "bi" meaning
20 two of these.

21 Q. Okay. And do we have, then, 12 carbon
22 atoms with the --

23 A. Yes.

24 Q. -- the biphenyl?

25 A. Yeah.

1 Do you want to show those, too?

2 Q. Yes, if you could, that would be nice.

3 A. There's ten.

4 Q. Are there some there at the point they come
5 together, too?

6 A. Yeah.

7 Well, no, wait a minute.

8 Well, yes. They're -- they're hooked
9 together here.

10 Q. So, there are a couple of carbons in there?

11 A. But those are not available.

12 Q. Okay. But are there carbon atoms there,
13 actually, at that spot?

14 A. Yes, there would be carbon there.

15 Q. Okay. Why don't you go ahead and show
16 those there just for completeness?

17 A. The carbon here.

18 Q. Okay.

19 A. Would be one.

20 Q. Now, in going from benzene to diphenyl, is
21 that the process of manufacture: You start with
22 benzene; then you make the diphenyl?

23 A. Yes.

24 Q. You might label that one "biphenyl."

25 A. "Biphenyl."

1 Q. Then after I have biphenyl, what do I do to
2 get PCB's from biphenyl?

3 A. You chlorinate.

4 Q. And what do you mean when you say
5 "chlorinate"?

6 A. Chlorine gas.

7 Q. But what is that --

8 A. With a catalyst.

9 Q. What does that result in happening, though?

10 A. Well, what this results in --

11 Q. And why don't we draw another one of those
12 biphenyls down below, and then you can show how it
13 changes when it --

14 A. All right.

15 Q. -- when it's chlorinated.

16 A. Well, I'd rather just -- that's not drawn
17 too well, but here's a carbon. It is here.

18 Q. Okay.

19 A. Now, when you chlorinate, this is
20 actually --

21 Do you want me to show hydrogen?

22 Q. That's fine. You can show the hydrogen up
23 there. There is -- is there a hydrogen in each one
24 of those carbons?

25 A. Yeah.

1 Q. Okay.

2 A. Yeah. Then I don't need to show that.

3 All right. There's a hydrogen at each
4 one of those. Now, when you chlorinate, you remove
5 a hydrogen here and you substitute a chlorine there.

6 Q. Okay.

7 A. And you get off -- this is Cl₂. It's
8 hydrogen gas. You get off hydrogen chloride gas.

9 Q. Okay.

10 A. Now, this is monochlorobiphenyl.

11 Q. That means it has one chlorine?

12 A. One. And it can be on any of those
13 places. It doesn't matter with mono. But, now, if
14 you continue the chlorination, you can get two
15 chlorines.

16 Q. Okay. And what do I have when I do that?

17 A. Dichlorobiphenyl.

18 Q. And if I keep on going, what happens?

19 A. Trichlorobiphenyl.

20 Q. Can I keep on going further?

21 A. Tetrachlorobiphenyl.

22 Q. Can I go yet further?

23 A. Pentachlorobiphenyl.

24 Q. That's what? Five? Are we at five?

25 A. Five.

1 Q. Okay. Can I go to six?
2 A. Yeah.
3 Q. What do I get there?
4 A. Hexachlorobiphenyl.
5 Q. Can I keep on going above six?
6 A. Yeah.
7 Q. That would be seven. What do I get at
8 seven chlorines?
9 A. Septi-.
10 Q. Can I go to eight?
11 A. Octa-.
12 Q. Eight. Okay. Nine?
13 A. Nona-.
14 Q. Ten?
15 A. There you hit everything. Deca-.
16 Q. Okay. But there are --
17 A. But don't try it.
18 Q. Okay.
19 A. It's difficult to do.
20 Q. Okay.
21 A. And you have no use for it.
22 Q. If you get that, you haven't got anything
23 worthwhile?
24 A. You've got a white powder.
25 Q. What was the highest level that you would

1 actually go to in production to make something
2 useful?

3 A. The highest level this was useful in the
4 dielectric area, certainly, would be the hexa-, the
5 six.

6 Q. Six?

7 A. (Witness nods head)

8 Q. Now, I take it that as I go through the
9 process of adding chlorine to this biphenyl to make
10 my PCB that we've shown there on the bottom of that
11 page with the chlorine on it --

12 A. Uh-huh.

13 Q. -- I can have a lot of different things
14 that get made?

15 A. Oh, yes. Yeah.

16 Q. How many different possible combinations
17 could I come up with?

18 A. Well, why don't you rephrase that? If
19 we're trying to make -- let's say trichlorobiphenyl,
20 three chlorines in the ring --

21 Q. Okay?

22 A. -- you can have a small amount of
23 monochloro present. You can have a relatively small
24 amount of dichlor present. Predominantly you will
25 have three, which is trichlor, which is what we're

1 trying to make.

2 We're chlorinating actually 42 percent
3 by weight.

4 Q. That's three --

5 A. Three chlorines, yes.

6 Now, there will be some tetra- and
7 maybe some penta-.

8 Q. Okay.

9 A. And that's essentially it in trichlor. The
10 reason I say that, that was one of the main items
11 that were made, used both in capacitors and
12 transformers.

13 Q. Now, I've seen the term "isomer." What is
14 an "isomer"?

15 A. Well, these things -- the isomers -- for
16 instance, obviously there's no isomer here. Because
17 it doesn't matter where we have that thing --

18 Q. You've just got one?

19 A. -- you got one. But if you have dichloro
20 this can be -- this can -- say, it's -- I forget
21 just how the chlorination proceeds, but no matter.
22 Probably it wouldn't be here where I put it.

23 Say, put it here. This would be
24 directive. In accordance with what the good Lord
25 provided for us, a chlorine here, as I remember from

1 years ago, that would probably be directive to
2 placing a second chlorine here. But there could be
3 a chlorine going here, as this.

4 Q. Okay.

5 A. You're getting isomers.

6 Q. So, they both got --

7 A. And you could put one down here with a
8 dichloro.

9 In a trichloro, you got different
10 configurations on isomers.

11 Q. So, we have two biphenyl molecules with the
12 same amount of chlorine; but the chlorine --

13 A. In different positions.

14 Q. -- is located in different spots?

15 A. Yes.

16 Q. By the way, were PCB's a naturally
17 occurring chemical; or were those just man-made?

18 A. Those are man-made.

19 Q. Okay. Now, in terms of this mixture,
20 you've mentioned, for example, if we were making
21 trichloro, we'd have some with just one; some with
22 two; some with four; some with five; and, hopefully,
23 predominantly --

24 A. Yes, right.

25 Q. -- PCB's with three chlorines.

1 In the process of manufacture, would
2 there be anything else besides just PCB's made, any
3 impurities that were made along the line?

4 A. Not to my knowledge, no.

5 Q. Okay. You're not aware of any impurities
6 that would be manufactured at any point in time,
7 then, by Monsanto in making PCB's?

8 A. No. And this was made to a very high
9 degree of purity.

10 Q. When you say "a high degree of purity,"
11 what would there -- what impurities could there be?

12 I guess I'm -- I'm confused by that.

13 A. I would say, since we're trying to make a
14 chlorinated biphenyl, it's conceivable that there
15 could be remaining some molecules of biphenyl.

16 Q. So that it didn't get any chlorine?

17 A. It didn't get any chlorine.

18 Q. Okay.

19 A. I would say that.

20 Q. Did you ever work with any of the processes
21 where people were trying to actually purify these
22 PCB's for use -- actual uses?

23 A. The method of purification, the final
24 purification, was to treat them with attapulugus clay
25 or fuller's earth.

1 Q. How -- you filtered it through that?

2 A. You filtered it through that. Now, that
3 was the way it was purified, final purification.

4 Q. You mentioned to me that there was -- it
5 was very important this electrical PCB be very
6 pure. Did that get special treatment to make sure
7 it was especially pure versus PCB's that were used,
8 for example, as plasticizers, as you mentioned, or
9 used in adhesives or sealing compounds, things like
10 that?

11 A. I think it was all made the same.

12 Q. So, actually everything that was produced,
13 then, was electrical grade?

14 A. Yes.

15 Q. Okay. Dr. Munch and Dr. Richards talked
16 about a compound called a "furan." Do you know what
17 a "furan" is?

18 A. Yes, I know what a "furan" is from a
19 chemical standpoint. I don't know if I'd draw the
20 formula. That -- that was foreign to me.

21 Q. Okay. You're not very familiar with those?

22 A. I'm not familiar with -- with that. This
23 is correct.

24 Q. Okay. And not sure you could draw it for
25 us like you've drawn the sketches of benzene and

1 diphenyl and --

2 A. I'm not sure I could even draw it properly.

3 Q. Okay. I won't ask you to do that, then.

4 How's that?

5 A. Well, I couldn't. I -- I'd think I'd louse
6 it up.

7 Q. Okay. Well -- well, that's fair enough,
8 then.

9 Let me get the reporter to mark the
10 chart we've got up here as the second exhibit in
11 this deposition.

12 (Benignus Exhibit No. 2 marked
13 for identification)

14 Q. (By Mr. Lacey) Mr. Benignus, has our
15 reporter now marked as Benignus Exhibit No. 2 the
16 drawing you've done for us of benzene, diphenyl, and
17 how we would chlorinate diphenyl to make a PCB?

18 A. I'm sorry?

19 Q. Let me repeat. Has the reporter now marked
20 for us as Benignus Exhibit No. 2 the drawing you did
21 of benzene, diphenyl, and how we would chlorinate
22 diphenyl to make a PCB?

23 A. Yes.

24 Q. Okay. Let me turn your attention now to
25 the matter you mentioned to me earlier, about the

1 relationship between General Electric and Monsanto
2 as related to electrical uses of PCB's.

3 You mentioned to me that General
4 Electric had a lot to do with the use of PCB's in
5 electrical equipment. And you mentioned a -- was it
6 Frank Clark?

7 A. Frank M. Clark.

8 Q. Okay. Now, going back to what you told me
9 about history, PCB's were first commercially
10 produced by Swann Chemical Company?

11 A. Yes.

12 Q. What purpose were they produced for, if you
13 know?

14 A. The purpose, as I know, Swann had made
15 biphenyl as an indirect heat transfer medium. And
16 they built a plant to make this material without
17 knowing, really, what kind of a market there would
18 be for this. And this is history that I'm
19 repeating, that was told to me.

20 Mr. Swann went -- this arose at a oil
21 refiners' convention, who somehow or another had
22 knowledge that chlorinated -- that biphenyl is very
23 thermally stable for an organic material.

24 So, these people were talking about an
25 indirect heat transfer medium called "biphenyl."

1 Mr. Swann didn't know what this was, but he was the
2 kind of a person, "If you'll make this order big
3 enough, I'll take it." So, he goes back to Anniston
4 with an order for -- I forget. It's not
5 important -- a tank car or two tank cars. And they
6 made it.

7 Q. You're talking about biphenyl?

8 A. Biphenyl.

9 And they looked in Beilstein. There's
10 a little chapter in there. You pyrolyze benzene,
11 and then that causes this union of two benzene
12 rings. That's biphenyl.

13 Well, there was no more business. So,
14 here, he had a plant and no business. Well, what's
15 a logical thing to do?

16 Q. He went to look for a market.

17 A. You look for a market. And how do you do
18 this? You do it with the easiest, the cheapest
19 thing to do that gives you the greatest family of
20 different items. And this is a big family.

21 This is why it was done.

22 Q. Now, when you say -- what's a big family?
23 Chlorinating it?

24 A. No, no. The big family are -- are the --
25 all these things you're talking about. Mono-, di-,

1 tri-, penta-, tetra-. You get properties as thin as
2 water to viscous thick things to solid things.
3 You've got all kinds of properties.

4 Now, hopefully somebody would have an
5 interest in these. And, as I told you earlier, the
6 first use was probably a nitrocellulose lacquer as a
7 plasticizer.

8 Then, the unusual thing about this is
9 they didn't support combustion, which is very
10 unusual for an organic chemical, if you want to say
11 a half of it is organic and half is inorganic. I
12 don't know, you know, when we get to penta-, we're
13 half and half.

14 Q. You're talking about weight, of course, at
15 that point?

16 A. Weight, by weight of chlorine versus the
17 hydrogen, is really what I'm talking about. Now --
18 or the organic part of it, the chlorine inorganic
19 versus half of the carbon being the organic.

20 So, Mr. Clark was looking for a
21 badly-needed replacement for mineral oil for the
22 reasons that we discussed.

23 Q. Okay.

24 A. It's not stable and it caused fires and
25 these capacitors were virtual bombs.

1 He finds this of interest as a
2 dielectric. He studied it and he patented it and
3 this was, therefore, the property of the General
4 Electric Company.

5 Q. Now, what did Mr. Clark patent?

6 A. He patented the use of the PCB's. He
7 patented use versus what we patented, which was a
8 process manufacturing patent.

9 Q. Okay.

10 A. G.E. patented the use. And the uses, as
11 we've been talking about, was mainly capacitors and
12 transformers.

13 Q. So, Monsanto, then, had a patent on the
14 manufacture of PCB's and General Electric had a
15 patent on the use of PCB's manufactured by Monsanto
16 for electrical applications?

17 A. Correct.

18 Q. And then other people could buy PCB's from
19 Monsanto for uses, plasticizers and all these other
20 uses?

21 A. This is right.

22 Q. But they couldn't buy PCB's for the purpose
23 of dielectric uses?

24 A. Only -- in those days, only through General
25 Electric Company.

1 Q. Okay. So, essentially that gave General
2 Electric, then, a monopoly on the use of PCB's as a
3 dielectric fluid?

4 A. Yes. They licensed people.

5 Q. They allowed other people to use PCB's?

6 A. If they're licensed, yes.

7 Q. And did those people, then, buy their PCB's
8 from Monsanto, too?

9 A. In the early days -- now, this is just
10 going back before my time. In the early days they
11 probably placed all orders direct with G.E.
12 Monsanto's function in the early time and -- in
13 through to the end, really, it was to manufacture
14 and supply.

15 In the early days, probably people,
16 the licensees of G.E., may have gotten through
17 direct instructions from G.E. I don't know.

18 Q. Okay.

19 A. Monsanto supplied --

20 Q. The materials?

21 A. -- whoever was entitled to use them.
22 Monsanto's role was to make it and supply it,
23 regardless as to what --

24 Q. At any point in time while you were at
25 Monsanto, did Monsanto actually do any research

1 itself on formulations of PCB's for use as
2 dielectric fluid? Or did they leave all of that
3 entirely to G.E.?

4 A. That was G.E.'s specification, and the
5 electrical industry formulated what they felt was
6 needed. No, Monsanto didn't do that.

7 Q. So, you don't recall Monsanto at any point
8 in time ever doing its own research to try to come
9 up with a specific formulation of PCB's for any
10 particular electrical use?

11 A. No. No. No.

12 Q. That just wouldn't have been something that
13 was within the province of Monsanto Company under
14 its particular role in this arrangement?

15 MR. CRAWFORD: What do you mean by
16 "province"? I'm sorry.

17 MR. LACEY: Well, I -- he's defined, I
18 think, Monsanto as the manufacturer.

19 Q. (By Mr. Lacey) Correct?

20 A. Right.

21 Q. And General Electric as the designer of --

22 A. Right.

23 Q. -- what was to be manufactured?

24 A. Right.

25 Q. And it wouldn't be within the province of

1 Monsanto to try to reformulate what it manufactured
2 for a particular application in the electric field?

3 A. That's right. Because the electrical user
4 specified what he wanted. We didn't care what he
5 used.

6 Q. As long as it was PCB's?

7 A. Well, that's what we were making, yes. We
8 didn't care what -- whether he wanted trichloro,
9 tetrachloro, penta-. It was simple. We could make
10 anything that they wanted.

11 Q. The only interest of Monsanto was that they
12 be the person that they would buy the product from?

13 A. This is correct.

14 Q. Now, did General Electric from time to time
15 change the formulas that it wanted Monsanto to
16 produce?

17 A. Yes.

18 Q. And do you know what it was that caused
19 those changes in formulations, or was that something
20 that was entirely up to General Electric and you --

21 A. It was up to General Electric.

22 Q. What about other electrical manufacturers;
23 did they eventually get involved in specifying the
24 formulas of PCB's that they wanted for their use?

25 A. Yes. Everybody had the right to do this.

1 Q. And did others, in fact, do it?

2 A. Yes.

3 Q. And was Monsanto willing to work with
4 anybody who wanted to specify a particular formula
5 of PCB's for electrical application?

6 A. Yes.

7 Q. Was it Mr. Clark who first specified a
8 formula of PCB's for electrical use?

9 A. Yes.

10 Q. And was that back in the days of Swann
11 Chemical Company?

12 A. Yes.

13 Q. And, so, when Monsanto acquired Swann, it
14 continued doing the formulations according to
15 Mr. Clark's directions?

16 A. Yes.

17 Q. Did Monsanto make forms of PCB's other than
18 the electrical formulations provided by General
19 Electric?

20 A. (No response)

21 Q. In other words -- let me make myself
22 clear -- if General Electric specified three
23 chlorine atoms, for example, on a molecule, did
24 Monsanto also maybe make one with five chlorine
25 atoms for some other nonelectrical purpose?

1 A. This has happened, but by and large they
2 followed what was done by General Electric.
3 Everybody fell in line with that. There are some
4 exceptions to this.

5 Q. I guess my question --

6 A. But, again, it was no -- no doings of
7 Monsanto. We supplied what was asked for.

8 Q. Okay.

9 A. We didn't ask why and so forth.

10 Q. And my question is whether or not that was
11 true for nonelectrical uses as well as electrical
12 uses.

13 A. Well, I'm not in the nonelectrical end of
14 this thing.

15 Q. Okay. So, you don't know about that?

16 A. I wouldn't be in position to -- to comment
17 on that.

18 Q. Okay. That's fine.

19 Now, when you became involved in the
20 marketing program in the mid 1960's --

21 A. Uh-huh.

22 Q. -- what specifically did you have to do
23 with marketing in -- in the function of this title
24 that you had?

25 And have I got it right that you were

1 the marketing manager for these dielectric uses?

2 A. I don't know whether I had that title at
3 that point in time or not. It didn't matter.

4 Q. Okay.

5 A. That title arrived when I got traveling
6 around the world. You know, they call everybody
7 "doctor." When you go to South America and where
8 not, everybody's a doctor. You know how that is.

9 And this title is somewhat along that
10 line, to come right down to it.

11 Q. Okay.

12 A. I was never hung up on that title one way
13 or another.

14 Q. Well, when you started traveling, what sort
15 of people were you visiting with and what sort of
16 matters were you taking care of with them?

17 A. Again, primarily the purpose of my
18 traveling was along the lines of the activity in our
19 USA of the American Society for Testing and
20 Materials.

21 Q. That's ASTM?

22 A. ASTM, yes.

23 I'd taken that over as -- Frank Clark
24 originally was chairman of the subcommittee on
25 synthetic dielectrics. And I was active there.

1 And my travels overseas was along the
2 very same lines, where we would be invited -- the
3 electrical industry would be invited by various
4 governments to set up their specifications and
5 things on an international basis. It's essentially
6 the same thing, but worldwide. That was the main
7 reason why I traveled.

8 Q. Let me go back and see if I understand.
9 The ASTM had a subcommittee that dealt with
10 synthetic dielectrics?

11 A. Yes.

12 Q. And did that subcommittee have a name or
13 anything like that?

14 A. ASTM D-27. It's still in existence.

15 Q. Okay. And the first person who worked on
16 that was Mr. Clark?

17 A. Yeah. He was the inventor of it, yes.

18 Q. Okay. And how long did Mr. Clark have that
19 particular role?

20 A. Oh, I don't know. He was older, and I
21 don't know when Frank passed away.

22 Q. Well, I guess I was trying to find out if
23 you came directly after Mr. Clark or there were some
24 other people --

25 A. No, I didn't come directly after him. Some

1 of his assistants came after him.

2 Q. Were you the first non-G.E. person to hold
3 the position as the -- I guess, chairman, would it
4 be, of that --

5 A. Yeah, the chairman of that subcommittee.

6 I'm not sure of that, either. It
7 could have been a Westinghouse man.

8 Q. Okay. Now, do you recall about when you
9 became chairman of the D-27 section of the ASTM?

10 A. I don't know exactly. I would say sometime
11 in the mid 1960's, 1960.

12 Q. In your -- I guess it would be fair to say
13 "world travels"?

14 A. Yes.

15 Q. Your -- your world travels were primarily
16 in your role as chairman of that -- that D-27
17 subcommittee?

18 A. Well, this is how it turned out to be,
19 essentially. That would be what would be the
20 creation, the instigation, of my traveling, say, to
21 France or to Germany or wherever we were, Iran. I
22 almost got killed in Iran. I was invited by the
23 Government.

24 THE WITNESS: Don't write that in.

25 Q. (By Mr. Lacey) Did -- did you do this

1 traveling on your vacation time, or was this
2 considered part of your work or --

3 A. It was work.

4 Q. So, Monsanto was actually paying you --

5 A. Sure.

6 Q. -- for carrying out your duties as chairman
7 of that D-27 subcommittee?

8 A. (Witness nods head)

9 Q. Is that correct?

10 A. Yes. I was an employee of Monsanto.

11 Q. Why would Monsanto compensate you for being
12 on this subcommittee and traveling around the
13 world? Is there any relationship between your work
14 and what you were doing on the subcommittee or --

15 A. Well, it made sense. That's the only way I
16 can answer this.

17 Q. Well, I mean, was there some benefit for
18 Monsanto in your traveling around the world in
19 connection with this D-27 subcommittee chairmanship?

20 A. Along the same lines as there would be
21 benefit in this country, whatever that would be, a
22 benefit to the electrical industry, who have you,
23 G.E., Westinghouse, other members of the committee.
24 That committee is still in existence.

25 Q. I guess I'm trying to understand whether --

1 whether you had been told or appreciated that maybe
2 your work there would help Monsanto sell more of its
3 PCB's for that type of use.

4 A. No, not sell more. But -- I see now what
5 you're driving at.

6 I told you initially in our discussion
7 here that I was active, long before I got to ASTM,
8 in correlating, in setting up specification -- or
9 probing, verifying, probing -- I didn't establish
10 them -- physical constants.

11 And if you will look at the
12 specifications of these Askarels, you'll see what
13 these things are. Now, this is essentially a
14 continuation of that. And that's what ASTM did.

15 Their title is the American Society
16 for Testing. This is procedures and materials. So,
17 it's not only testing procedures, but it is setting
18 specifications for the materials.

19 Q. Would your work in this area have included
20 encouraging other countries to set specifications
21 for electrical equipment and particular applications
22 that would use, then, PCB transformers to meet them?

23 A. What the work was was to present exactly
24 the same specifications we had in the U.S.

25 Q. And attempt to get them adopted by some

1 group or -- or --

2 A. That was up to them. They invited us. We
3 didn't encourage them to invite us. The Russians
4 claimed they couldn't have carried on their
5 industrial revolution without capacitors, the PCB
6 capacitors. I didn't go to Russia to sell PCB's.

7 Q. Okay. Did you participate in any other
8 groups like the ASTM that were involved in
9 dielectric matters?

10 A. This was essentially it, ASTM.

11 Q. Did ASTM representatives get involved with
12 any particular trade associations or anything like
13 that that might be relevant to electricians?

14 A. At ASTM it was strictly technology. They
15 strictly did not use trade names. They were very
16 careful about anything that was proprietary or
17 patentable or that sort of thing.

18 Even if it dealt with some kind of a
19 piece of apparatus that we might use to analyze
20 something, if that was proprietary and restricted,
21 we didn't proceed with that for that reason. It was
22 a technical organization.

23 Q. Okay.

24 A. Not commercial in any way.

25 Q. Okay. In the 1960's, were you aware of

1 the -- the work that was coming to light about
2 potential problems with PCB's?

3 A. In the 1960's?

4 Q. Yes.

5 A. Well, specifically what are you asking me
6 about?

7 Q. Well, I know that Dr. Richard told me about
8 some work of some Swedish people --

9 A. Yes.

10 Q. -- on the PCB's.

11 A. Yes, I saw it. Yes, the answer is "yes."
12 I heard about it.

13 Q. Did that have any impact on your work at
14 all? Were you involved in any way in anything
15 related to that?

16 A. No. No, I wasn't. I heard about it.

17 Q. At any point in your career before your
18 retirement, did you ever have anything to do with
19 things related to environmental problems or any
20 other types of problems arising out of PCB's?

21 A. No.

22 Q. All the -- strike that.

23 Were there people at Monsanto, to your
24 knowledge, who had anything to do with those
25 environmental-type problems?

1 A. Yes.

2 Q. Who dealt with those matters?

3 A. I would say Dr. Richard.

4 Q. Anybody else?

5 A. Well, I think you ought to talk to the --
6 the people in -- in that area rather than that I
7 proceed along those lines.

8 I had nothing to do with that,
9 essentially. I had nothing to do with it. You're
10 talking about the EPA and all of this.

11 Q. Yeah, or anything that Monsanto did by way
12 of changing its procedures at all because of those
13 problems, anything that Monsanto did in changing the
14 way it dealt with customers at all because of those
15 problems, or anything like that. Did you have
16 anything to do with any of that?

17 A. Oh, yes.

18 Q. Well, that's what I'm trying to find out
19 about. Maybe I'm asking the question the wrong way,
20 but I'm --

21 A. Well, maybe you don't know what question to
22 ask.

23 Q. That -- that's probably true.

24 A. Well --

25 Q. Let me -- let me see if I can narrow down

1 what I'm trying to find out about.

2 I want to know about whatever you may
3 have done while you were employed by Monsanto that
4 in any way was a response to problems that came to
5 light in the 1960's with PCB's.

6 A. I will give you a specific answer --

7 Q. Okay.

8 A. -- to your question.

9 Q. Good.

10 A. Now, in response to this environmental
11 objection, which was the slow biodegrading character
12 of PCB's because of their great stability, Monsanto,
13 in response to this, spent a lot of money and made a
14 big effort to satisfy -- more satisfy what the
15 environmentalists wanted.

16 They were saying that the more highly
17 chlorinated isomers were the slow ones to
18 biodegrade. Monsanto responded. They went into
19 this molecule here and, in simple terms, pulled out
20 as much as they could -- trichlorobiphenyl was the
21 material I'm talking about -- they pulled out as
22 much as was feasible or they were able to pull
23 out -- even at considerable expense to do what they
24 were able to do --

25 MR. CRAWFORD: Mr. Benignus, let me --

1 I hate to interrupt the flow here; but Mr. Lacey
2 asked you a specific question about what you did.
3 And I think if you could narrow your focus on what
4 you did, we'll move along; and you'll answer his
5 question, which I think he wants you -- you to do,
6 if I'm --

7 A. Have you heard of Aroclor 1016?

8 Q. (By Mr. Lacey) I have.

9 A. All right.

10 Q. And I guess my question to you is: What
11 role did you have in --

12 A. With Aroclor 1016.

13 Q. Or any other response that Monsanto may
14 have had.

15 A. 1016.

16 Well, if I'd been asked that question
17 relative to Aroclor 1016, I would have said the
18 following -- and this is what I'm leading up to --
19 my role in this was to explain Aroclor 1016 to our
20 customers. This is a major change, now, for them.
21 A major question is: Do they have to redesign this
22 whole capacitor system they were producing?

23 I explained to them that, based on the
24 capacitance measurements, this would not cause any
25 significant problem whatsoever of converting to

1 Aroclor 1016. And they adopted it. That was my
2 role.

3 Q. So, you were -- you were given the charge
4 of convincing the customers to change over from
5 whatever they'd been previously been using to
6 Aroclor 1016?

7 A. That's the answer.

8 Q. What had previously been used, before
9 Aroclor 1016?

10 A. Aroclor 1242.

11 Q. Now, the Aroclor 1242, was that a product
12 that was specified by General Electric?

13 A. Yes.

14 Q. And was it General Electric who developed
15 and specified Aroclor 1016?

16 A. No.

17 Q. Well, who developed and specified Aroclor
18 1016?

19 A. Monsanto did that work.

20 Q. Okay.

21 A. And we had to introduce it. And obviously
22 it wasn't going to go anywhere unless G.E. and the
23 industry approved it.

24 Q. Well, why did Monsanto step in and start
25 developing dielectric fluids instead of just

1 manufacturing what had previously been specified by
2 people like General Electric and others?

3 A. Because -- this is why I was talking about
4 this thing before you interrupted it. I don't know
5 who interrupted me.

6 Q. I think Mr. Crawford interrupted. And if
7 you need to go ahead --

8 A. Well --

9 Q. -- and give us the answer, well, go ahead
10 and do that. I want to understand what happened.

11 A. Please repeat the question.

12 Q. Okay. My specific question is: Why did
13 Monsanto step in and develop Aroclor 1016 itself
14 instead of just continuing to make the PCB's
15 specified by General Electric and others for the
16 dielectric uses?

17 A. Let me go through this again.

18 Q. Okay.

19 A. The environmentalists objected, as I said,
20 to the slow biodegradability of Aroclor 1242. As I
21 already said, they found and believed -- and there
22 was concurrence -- that the more highly chlorinated
23 isomers are the components of 1242 that are the
24 slowest to biodegrade.

25 Now, there was interest on the part of

1 everybody to satisfy, if possible, what the
2 environmentalists were asking for. This was shared
3 by Monsanto, everybody.

4 Now, Monsanto is a place where Aroclor
5 1242 is being made. Monsanto was the location
6 where, if anything can be done, it must be done
7 there. Now, if somebody else wanted to do this,
8 they were welcome. Nobody is -- there's no
9 restrictions. Anybody could do this if they wished
10 to undertake it.

11 Monsanto rolled up its sleeves and did
12 what possible they could do to remove the most
13 objectionable, let's say, components of Aroclor
14 1242. This is then called "Aroclor 1016," which is
15 a research laboratory notebook number. It's not in
16 line with their nomenclature overall. It was a
17 special thing done by Monsanto.

18 If you could have gotten somebody else
19 to do it, proceed. This is -- this is -- is it.
20 And, then, when this was done, well, this is a
21 material that isn't precisely what had been used.
22 So, somebody had to run through the physical and
23 electrical constants on this. Then somebody had to
24 present this picture, this material, to whoever was
25 interested, which was, among others, G.E.; and they

1 would have to approve it.

2 We had nothing to do with the
3 approval. If they would have said "no," then the
4 answer was "no."

5 Q. Was Aroclor 1016 the very first time that
6 Monsanto had ever developed a product for dielectric
7 use and attempted to get the approval of General
8 Electric and others for it?

9 A. As far as I know.

10 Q. So, always before that point in time,
11 General Electric or some other electrical supplier
12 would develop the formulation for the product and
13 simply ask Monsanto to manufacture it?

14 A. Absolutely. And this was very much my work
15 through the years, to give assurance of the quality,
16 the continuity of the quality of this material, that
17 there shall be no change whatsoever.

18 And when we talk about 1016, obviously
19 everybody was aware a change had been made.

20 Q. Well, can you tell me -- and you may not
21 know the answer -- but can you tell me why, for the
22 first time ever, Monsanto decided to try to develop
23 a dielectric fluid and then sell it to people like
24 General Electric instead of simply making what they
25 wanted?

1 A. You got this -- I'm sorry. You've got this
2 all wrong.

3 Q. Well, explain it to me, then. I --

4 A. They -- they wanted something --

5 Q. I see.

6 A. -- if possible. They wanted something --

7 Q. Okay.

8 A. -- to satisfy the environmentalists.

9 Q. So, they directed what it was Monsanto was
10 to look for; and you went out and found it?

11 A. They certainly concurred with this. What
12 else could you do to enhance the biodegradability
13 but take out the slow biodegradable components? And
14 if this would satisfy the environmentalists,
15 hurray.

16 It didn't satisfy the
17 environmentalists.

18 Q. Well, let me stop and ask --

19 A. So, you -- I'm sorry. You were wrong in
20 saying that we were making something that -- that --
21 I forget what you -- what you said.

22 Q. Well, you -- as I understood it, you made
23 Aroclor 1016 --

24 A. Yes.

25 Q. -- and then went to convince people to

1 change over to it and use it?

2 A. They would have to try it to see if,
3 indeed, they wanted to use it. We couldn't force
4 them to use it.

5 Q. I understand.

6 A. But they sought this kind of a approach to
7 helping the -- the situation that we were in, which
8 was objection by the environmentalists.

9 Q. And one of your jobs was to go to these
10 people after you'd made Aroclor 1016 and attempt to
11 convince them to use it?

12 A. No.

13 Q. No?

14 A. This isn't really right, and I'm not trying
15 to change it. In a way, you're right; and in a way,
16 you're wrong.

17 I went out, lets say, as a messenger.
18 "After we have done this to try to enhance the
19 biodegradability, this is what we have."

20 Now, this is a change in a very
21 critical system. I can't dictate whether they would
22 or wouldn't use it.

23 I present you with this material.
24 "This is what we have." It is up to you to test it,
25 to probe it, and decide do you want this or don't

1 you want it. We had nothing to do with this.

2 Q. Okay. So --

3 A. To answer your question, I acted in the
4 role of a messenger.

5 Q. Okay. Let me make sure I understand. And
6 let's look at Aroclor 1242, which is what people had
7 been using?

8 A. Yes.

9 Q. And then Aroclor 1016, which Monsanto had
10 developed, correct?

11 A. Yes.

12 Q. And you're telling me that if a
13 manufacturer said, "I want to stay with Aroclor
14 1242. I don't want to buy 1016. I'm convinced with
15 what has always worked for me," you would continue
16 to sell them the 1242?

17 A. I can't answer that specifically, but there
18 was no ban on Aroclor 1242, that I know of, at that
19 point in time. Whoever wanted to buy it at that
20 point in time, they could, in their judgment,
21 continue. And there was no restriction at that
22 point in time.

23 Q. So --

24 A. It was up to them.

25 Q. Monsanto would continue to --

1 A. Now, wait a minute. I want to say
2 something. My role as a messenger primarily focused
3 on this: that the physical characteristics and the
4 electrical characteristics were essentially the
5 same.

6 But I come to you and say, "This is
7 this material." I say this to you. It is still up
8 to you to probe this, to test it, and satisfy
9 yourself that you will go to market with it. All
10 I'm saying is, "Look, this is not a significant
11 change as far as your capacitor design is
12 concerned."

13 Q. And my single question --

14 A. That is it.

15 Q. My single question is that: Monsanto was
16 ready, willing, and able to sell Aroclor 1242 to any
17 company that wanted to continue to use that in lieu
18 of changing over to 1016; is that correct?

19 A. I would say probably it's correct. I
20 really don't --

21 Q. You don't know?

22 A. I -- I don't know the -- the -- I don't --
23 I'm telling you, to my knowledge, there was no ban
24 on 1242 --

25 Q. No, that's not my question.

1 A. -- or restriction.

2 Q. And maybe I -- maybe I'm -- I don't want to
3 get involved in bans.

4 Monsanto could choose to sell or not
5 sell Aroclor to whomever it chose, could it not?

6 A. Never did.

7 Q. Well --

8 A. Anybody that wanted to buy it was welcome
9 to buy it.

10 Q. I'm sorry. I guess I've looked at some
11 Monsanto documents that have been produced that
12 suggest they started refusing to sell Aroclor for
13 many applications.

14 A. Well, you're absolutely right, in a period
15 of time that isn't relative to what I'm talking
16 about.

17 Q. Well, okay. I -- let's get our periods of
18 time clarified, then.

19 A. All right.

20 Q. I'm talking about from the time that
21 environmental concerns about PCB's arose until you
22 retired from Monsanto.

23 A. All right.

24 Q. And my question is: What role, if any, did
25 you have to do with the response by Monsanto to

1 those environmental concerns?

2 And what you've told me is you were
3 involved in Aroclor 1016.

4 A. In introducing it to them.

5 Q. Right. And --

6 A. Presenting it, yes.

7 Q. And the question I've got, specifically
8 about 1242, is whether Monsanto, to your knowledge,
9 ever introduced any restrictions on the sale of
10 Aroclor 1242 for dielectric uses while you were an
11 employee of Monsanto.

12 A. Not that I know of.

13 Q. Okay. During the period of time that you
14 were an employee for Monsanto, specifically in the
15 1970's, Monsanto did cease to sell Aroclor for some
16 nonelectrical applications?

17 A. Correct.

18 Q. And that was their right as the
19 manufacturer of the chemical, to sell or not sell?

20 A. They did. They got out of the business,
21 this is correct.

22 Q. Okay. And Monsanto, if it chose, could
23 have refused to sell Aroclor 1242 to someone and
24 say, "The only thing I'm going to sell you is 1016,"
25 correct?

1 A. I don't know that that ever happened or --

2 Q. No. I'm not asking whether it did. I'm
3 just asking whether that was a right that Monsanto
4 had.

5 A. I would have to say that -- I assume it's a
6 right. Then -- then, if Monsanto did that, then the
7 people who insisted on 1242 could get it elsewhere,
8 import it if need be.

9 Q. Or switch over to 1016?

10 A. Or switch to 1016 if this is what they
11 elected to do.

12 Here again, I think you need to keep
13 in mind a change like this would have been probed
14 and mainly decided by someone with the capability of
15 General Electric; and the others would tend to fall
16 in line with whatever went on at what point in time
17 they -- it made no difference to us what they
18 wanted, which one. It made no difference to us,
19 that I know of.

20 Q. All the way up until the time you retired?

21 A. Yeah. But -- it wasn't banned. You don't
22 want the word "banned." It wasn't discontinued at
23 the time I retired.

24 Q. Yeah, I guess -- I guess to separate this
25 ban, let me try to see if we can get that cleared

1 up.

2 You're aware of the fact that the
3 Federal Government eventually did -- United States
4 Federal Government eventually did ban the
5 manufacture and the sale of PCB's, correct?

6 A. Yes.

7 Q. Okay. And I'm not talking about that
8 because that happened after you retired.

9 A. After I retired.

10 Q. Monsanto also stopped selling PCB's for
11 certain uses before you retired.

12 A. Right, nonelectrical.

13 Q. Right. And I guess we can't call that a
14 ban. That wasn't --

15 A. Discontinuation.

16 Q. Yeah, discontinuation.

17 A. I don't -- yeah, that's -- a ban is a
18 discontinuation in --

19 Q. Yeah.

20 A. -- in my terms here.

21 Q. Fine. Well, let me use that term, then.

22 As far as you know, it would have been
23 possible for Monsanto to discontinue sales of any
24 particular Aroclor product for any electrical
25 application, just like they did in nonelectrical

1 applications, wouldn't it?

2 A. I suppose so.

3 Q. Were you involved at all in the decision by
4 Monsanto to modify the terms of the sales contracts
5 that it had with people for the sell -- the sale of
6 PCB's for electrical uses?

7 A. "To modify the contract." No. In fact, I
8 don't know what you're -- what contracts you're
9 talking about. I wasn't in that.

10 Q. Who -- who was responsible for the actual
11 sales of PCB's to Monsanto's electrical customers?

12 A. Who was -- please restate that.

13 Q. Yes.

14 A. Who was --

15 Q. Who at -- who at Monsanto was responsible
16 for the sales of PCB's to customers for electrical
17 application?

18 A. This would be the business director.

19 Q. Who would be whom?

20 A. Howard Bergen.

21 Q. Okay. The reason I'm asking you these
22 questions -- and it's important to me -- I have
23 noticed a deposition of Monsanto to provide me with
24 a person who's knowledgeable about its marketing of
25 PCB's for dielectric purposes. And they've

1 presented you today and designated you as the person
2 who's knowledgeable about that.

3 One of the things --

4 A. I gather.

5 Q. One of the things I'm interested in is that
6 I have seen documents which suggest that Monsanto
7 modified the contracts or the purchase orders or the
8 invoices, whatever you want to call them, by which
9 it sold PCB's to its electrical customers to provide
10 that it could stop selling them PCB's in the event
11 those customers didn't handle those chemicals
12 correctly.

13 A. This is right. You're correct.

14 Q. Now, I'm trying to find out what you know
15 about that and what your involvement in that was.

16 A. I wasn't involved in that, but this is
17 correct.

18 Q. Okay. What can you tell me about that?
19 You're the designated representative to speak on
20 that.

21 MR. CRAWFORD: I think that's a
22 separate area, David, in your deposition -- I mean,
23 your 30(b)(6) notice.

24 MR. LACEY: Well, have you got some --
25 I guess I -- maybe I misunderstood, Walter, that you

1 were designating him as responsible for advertising
2 on dielectrics, marketing on dielectrics, technical
3 data on dielectrics, and the use of PCB's as
4 dielectrics. And it would seem to me that the
5 restrictions on the sale of PCB's as dielectrics
6 would fall into that category.

7 MR. CRAWFORD: Yeah, they're -- I
8 think they're still looking for somebody on that
9 last category that you -- you talk about. That's
10 the unilateral cessation of sales at Monsanto at
11 their sole discretion. I don't think --

12 THE WITNESS: I am not the person
13 to --

14 MR. CRAWFORD: He apparently doesn't
15 know anything about that.

16 THE WITNESS: I think we owe you an
17 apology.

18 MR. CRAWFORD: On that --

19 THE WITNESS: We got you off on the
20 wrong --

21 MR. CRAWFORD: I think that -- so,
22 that's not his --

23 THE WITNESS: It's really not mine.

24 Q. (By Mr. Lacey) Okay. And the person that
25 you're aware of who would know about that is Howard

1 Bergen?

2 A. He was at that time. He was the business
3 director.

4 Q. Okay. Well, that's helpful to us.

5 From an informational standpoint, and
6 recognizing now that you're not going to be the
7 corporate representative on that issue, tell me what
8 you know about that area and what happened.

9 A. I would like to ask something here. May
10 I?

11 Q. Certainly.

12 MR. CRAWFORD: Well --

13 A. I think it's up to these people, if they
14 want me to pursue this or whether they're going to
15 come up with someone else to handle this with you.

16 Q. (By Mr. Lacey) Well, I --

17 A. I was not the business director.

18 Q. I understand that.

19 A. I wasn't in the business end. I will
20 honestly say I heard of, I knew some of these
21 things. I don't think I should be the one stating
22 this. I -- I don't think I'd be wrong; but I don't
23 think it's my area, really, to proceed in these
24 areas.

25 I know what you are asking about, yes.

1 Q. Well, let me -- let me explain more about
2 it, Mr. Benignus. You're here almost wearing two
3 hats today.

4 A. Or --

5 Q. One hat --

6 A. Or the rest of them.

7 Q. Well --

8 A. You got about four more?

9 Q. You've at least got two. One of them is as
10 an individual who's a retired employee of Monsanto
11 whose deposition I've asked for --

12 A. Yeah.

13 Q. -- in asking for your deposition. And I
14 want to inquire of you in areas I'm -- I'm
15 interested in knowing what you may know either
16 because you were directly involved or you may know
17 because others have told you.

18 A. Uh-huh.

19 Q. A second role of that hat is the corporate
20 representative of Monsanto to testify about certain
21 areas.

22 MR. CRAWFORD: Well, David, he --

23 Q. (By Mr. Lacey) And --

24 MR. CRAWFORD: Oh, go ahead.

25 Q. (By Mr. Lacey) And as I understand it,

1 I've now been told by Mr. Crawford that you're not
2 going to be the corporate representative to talk
3 on -- on Monsanto's behalf about the decision to
4 impose certain restrictions on -- or rights to
5 restrict the sale of PCB's for dielectric uses. And
6 we will let them designate an appropriate individual
7 to testify about that.

8 I am, however, interested, in your
9 individual capacity, in finding out what you know
10 about that. It may well be in your identification
11 of other people they may -- you may help us figure
12 out who could give us information on that.

13 A. Uh-huh.

14 Q. So, what I would like to know now is what
15 you do know about that, not because you were in
16 charge of it, because you were at Monsanto when it
17 took place.

18 A. I appreciate what you're saying.

19 Q. Okay.

20 A. I again want to ask -- I'm not in the legal
21 business. I again want to ask the Monsanto legal
22 people what I should do, what they want me to do.

23 MR. CRAWFORD: Well, let -- let me
24 just say this, David: He can talk about the sale of
25 PCB's in dielectric uses -- we've already talked

1 about that -- the implementation -- I'm reading from
2 your notice -- of Monsanto's decision to limit the
3 sales to certain uses.

4 But the other category that you've
5 really tried to get into with him and he -- he's not
6 designated and that's -- that's where he's having
7 the difficulty and that's the decision to modify
8 contracts that you had and that includes a provision
9 for unilateral cessation of sales at Monsanto's sole
10 discretion. That's your word and your --

11 MR. LACEY: And I'm not --

12 MR. CRAWFORD: Yeah.

13 MR. LACEY: Again, I have two notices
14 out: One is for this person individually --

15 MR. CRAWFORD: Right.

16 MR. LACEY: -- another is a corporate
17 notice.

18 You're now telling me you don't intend
19 to designate him on that issue --

20 MR. CRAWFORD: Not on that issue --

21 MR. LACEY: -- the corporate notice.

22 MR. CRAWFORD: -- right.

23 MR. LACEY: Now --

24 MR. CRAWFORD: We will designate a
25 person on that --

1 MR. LACEY: Fine.

2 MR. CRAWFORD: -- and he's designated
3 as a person for the other --

4 MR. LACEY: Fine.

5 MR. CRAWFORD: -- for the other areas.

6 MR. LACEY: Now, I want to ask him
7 what he knows about that area, recognizing his
8 testimony --

9 MR. CRAWFORD: Okay.

10 MR. LACEY: -- is not going to be
11 binding on the corporation.

12 I think he's asking you the question
13 whether you're going to let him answer the question
14 or not, and I guess you need to tell him the answer
15 to that.

16 MR. CRAWFORD: Well, the answer to
17 that is that you are not -- you have -- you have
18 been designated. And, as you told him, you are not
19 prepared to testify on that area.

20 So, you're not -- he's not designated
21 as a person --

22 MR. LACEY: Yeah. The question I
23 think --

24 MR. CRAWFORD: -- with knowledge.

25 MR. LACEY: -- he's asked is whether

1 he can tell me what he knows about it and answer my
2 questions.

3 MR. CRAWFORD: Well, I think that with
4 regard to that, he can testify about personal
5 knowledge; but I don't want him to get into an area
6 where he is not familiar with it. And I think
7 that's basically what he said.

8 MR. LACEY: Okay. Well, let's -- let
9 me just ask the questions, then.

10 Q. (By Mr. Lacey) Tell me what you heard
11 while you were an employee of Monsanto about the
12 reasons for the provisions that would allow Monsanto
13 to restrict the sale of PCB's for dielectric uses.

14 MR. CRAWFORD: Well, I don't -- if
15 you're going to ask him about what he heard, I would
16 rather you ask -- I would object to that on the
17 basis that you need to ask him what he was involved
18 in there and has personal knowledge of.

19 MR. LACEY: This is a discovery
20 deposition. I'm entitled to discover material that
21 may lead to the discovery of relevant information.
22 And one of the things I'm interested in doing is
23 finding out who was responsible for those decisions
24 and what I can about the basis for them, and I think
25 he's entitled to tell me.

1 MR. CRAWFORD: Well, if you know
2 anybody who was -- who was responsible for those
3 decisions, you can tell him that. But --

4 MR. LACEY: I'm -- I'm asking the
5 question what did he hear about it, period. He can
6 tell me the names and everything else he heard about
7 it. This is a discovery deposition.

8 If we have to take up with the Court,
9 I guess we can; but I don't see why we should. I'm
10 entitled to find out information that may lead to
11 the discovery of relevant, admissible evidence. And
12 I think what he tells me about what he heard may
13 well lead to the discovery of relevant, admissible
14 evidence.

15 MR. CRAWFORD: I think if you know any
16 names, you can give him those.

17 A. I named the business director was Howard
18 Bergen.

19 Q. (By Mr. Lacey) Okay. That's not my
20 question. Let me state my question again and you
21 either answer it or not answer it and we'll deal
22 with that from that point and --

23 A. All right.

24 Q. -- Mr. Crawford can object to it.

25 I want you to tell me what you heard

1 about the reasons for Monsanto's decision to place
2 potential restrictions on the sale of PCB's as
3 dielectric fluid while you were an employee at
4 Monsanto --

5 A. This is a --

6 Q. -- dealing with dielectric fluid.

7 A. This is a very easy question to answer,
8 actually.

9 Q. Good.

10 A. It is -- my answer is based on the fact the
11 environmentalists objected to PCB's being spilled in
12 the environment because it's slow to biodegrade. I
13 agree with the environmentalists on that point.

14 Now, if anyone receiving PCB's
15 violates handling PCB's in the best possible manner
16 to avoid spilling this stuff in the environment,
17 which is the thing the Government is objecting to,
18 then, I think what you're saying here is that
19 Monsanto, on knowing and hearing about that this guy
20 is spilling this stuff, they could refuse to sell
21 him more because he is violating what is sought to
22 prevent, spilling it into the environment. Now,
23 that's it.

24 Q. And was that the understanding that you
25 acquired of what was going on while you were an

1 employee at Monsanto?

2 A. If some -- yes. If somebody is going to
3 misuse it and this is known -- I -- I assume that
4 the wording here says they could have --

5 MR. JONES: Don't assume anything.

6 A. Yeah. Well, I said what I -- I said what I
7 know.

8 Q. (By Mr. Lacey) Okay. During your
9 employment with Monsanto, did you ever learn or hear
10 of any company to whom you sold PCB's as dielectrics
11 that, in fact, did misuse it?

12 MR. CRAWFORD: I would instruct you
13 to --

14 A. I don't know this --

15 MR. CRAWFORD: Okay. You -- you tell
16 him what you know about it, and that's it, if you
17 know anything. You can tell him that.

18 Go ahead.

19 A. At any time during my employment I heard --
20 you mean about environmental concerns?

21 Q. (By Mr. Lacey) About people misusing PCB's
22 and, as you've indicated, letting them get into the
23 environment.

24 A. I heard not -- my hang up here is -- was
25 while I was at -- you say while I was an employee or

1 was it after.

2 I heard about this, I think, after I
3 retired --

4 Q. Okay.

5 A. -- to answer your question.

6 Q. So, you don't believe you heard while you
7 were employed by anybody --

8 A. Not while I was employed.

9 Q. Okay.

10 A. And another part of my answer to you is
11 that, during my later years at Monsanto, I spent a
12 great deal of my time ex-USA; and other people were
13 handling and calling on these -- on this trade, the
14 electrical industry. We were still in the business,
15 and this was being handled by people other than
16 myself.

17 I was on my way to retirement at this
18 point in time. I was spending a great deal of my
19 time not even in this country.

20 And, so, you're asking me specific
21 things about while I was an employee. To the best
22 of my ability, I'm saying what I heard was really
23 after I retired.

24 Q. Okay. Who was calling on the U.S.
25 electrical industry with regard to the sale of

1 Monsanto's PCB's for dielectrics while you were
2 still at Monsanto?

3 A. While I was still at Monsanto, the sales --
4 the district salespeople would call on customers who
5 were buying PCB's.

6 Q. Did anybody in your group ever make calls
7 on customers or go to plants to assist them with any
8 problems?

9 A. Well, in my group -- I'm going to say I
10 didn't have a group; but I think, to my knowledge,
11 is -- I didn't have a group. Nobody reported to me.

12 Q. No one reported to you?

13 A. Nobody reported to me. At this point in
14 time, I want to clarify. I was out here as a -- you
15 say, "marketing manager." I want to be more
16 specific.

17 Q. Well, what was your title?

18 A. The title was really, to answer you, a
19 "technical specialist." What I am saying to you is
20 this: I was not in the line of the organization. I
21 was sort of a satellite out here and as much
22 international as I was -- if not more so than I was
23 local.

24 Others were doing this and handling
25 it. What -- years ago, long before the

1 environmentalists ever got upset, I did handle. But
2 my contacts were years in the past.

3 That's how the ball bounces. I'm
4 sorry.

5 Q. So, you really just didn't have very much
6 to do with the U.S. electrical industry at all in
7 the 1970's?

8 A. No, other than attending the meetings at
9 ASTM and the international meetings -- you say the
10 1970's. I was in Japan in 1970.

11 Q. I'm talking about in the 1970's, the year
12 1970, '71, '72, '73, and '74, up to your
13 retirement.

14 A. Yes.

15 Q. In those years, you had very little to do
16 with the U.S. electrical industry as related to
17 PCB's used as dielectric fluids; is that correct?

18 A. It's pretty much correct. Let's start it
19 with 1970.

20 Q. Let's do that.

21 A. I was in Japan in 1970's.

22 Q. What were you doing in Japan in the
23 Seventies?

24 A. Monsanto had built a plant in Japan.

25 Q. PCB plant?

1 A. A PCB plant.

2 And there, in Japan, the Japanese had
3 their own plant in operation, Kanagafuchi. The
4 product was called Kanacolor.

5 So, my assignment there was to try and
6 sell the output of this plant. It was not
7 successful, but that was my assignment.

8 Q. And how long were you in Japan to try to
9 sell the output of Monsanto's Japanese PCB plant?

10 A. Oh, this was a number of months.

11 Q. What did you do after you came back to the
12 States, and about when was it that you came back?

13 A. Well, I don't -- this was within the year
14 of 1970. It was in that framework.

15 Q. Okay. Did you come back to the U.S. after
16 your Japanese assignment?

17 A. Yes.

18 Q. And what did you do when you came back?

19 A. When I came back, I worked -- you're going
20 to think I never did anything.

21 Q. I'm sure you did something for Monsanto in
22 all this time.

23 A. When I came back, I again worked on the --
24 the meetings and so on and so forth in the technical
25 organization areas.

1 Q. The ASTM?

2 A. Primarily ASTM.

3 Q. Any other groups?

4 A. IEC, which is the International
5 Electrotechnical Commission, I was chairman of the
6 similar subcommittee.

7 Q. Of the what subcommittee?

8 A. International Electrotechnical Commission.

9 Q. And what subcommittee was it? Or was
10 there --

11 A. The subcommittee on synthetic dielectrics.

12 Q. And what did you do there?

13 A. Well, as I already said, did very much the
14 same work as was done in the USA, only on an
15 international basis on whatever countries were
16 interested.

17 Q. So, you were working in foreign countries?

18 A. In foreign countries.

19 Q. Okay.

20 A. And I spent a good deal of time in foreign
21 countries --

22 Q. Okay.

23 A. -- and was not in the details of what you
24 are looking at here, really.

25 Q. Well, I guess that's really what I'm trying

1 to get at.

2 Monsanto has designated you as their
3 corporate representative --

4 A. I'm sorry.

5 Q. Yeah.

6 A. I can't help this.

7 Q. -- and I'm trying to find out if we've got
8 the right person or if we've got the wrong person.

9 MR. CRAWFORD: Well -- well, David,
10 he's -- he is designated -- let's clear that up --
11 as a person with knowledge in this area. And that's
12 what we've designated him under 30(b)(6), which I
13 think we can do. He is a person with knowledge.

14 MR. LACEY: Well, I'm not sure there's
15 a whole lot of knowledge, Walter, if he's out of the
16 country during the 1970's.

17 MR. CRAWFORD: Well, he has knowledge
18 during the Fifties and Sixties, which you've gone
19 into --

20 MR. LACEY: Uh-huh.

21 MR. CRAWFORD: -- and the Forties.

22 And that's --

23 MR. LACEY: Uh-huh.

24 MR. CRAWFORD: -- that's, you know.

25 MR. LACEY: Yeah. Well, we'll -- we

1 can talk about that later.

2 Q. (By Mr. Lacey) Let me go ahead and find
3 out what else you did in the 1970's, and I'm
4 particularly interested in what you were doing in
5 the United States in the 1970's since --

6 A. Well, I'll tell you --

7 Q. -- our lawsuit involves the United States.

8 A. Well, do you want to know -- you don't want
9 to know the foreign countries I was spending my time
10 in: India, Brazil, Argentina, Australia, what have
11 you, Sweden --

12 Q. Yeah.

13 A. She's writing all this down.

14 Q. Yeah.

15 A. -- France, Belgium.

16 Q. Well, we'll have it all down.

17 I'm trying to find out what you were
18 doing in the good old USA --

19 A. I know you --

20 Q. -- in the 1970's.

21 A. I know you are. And, again, my correct
22 description -- description would be as a
23 technology -- technologist; and I was concerned with
24 the technology.

25 As I told you, I was the one that was

1 asked to take Aroclor 1016 and introduce it to G.E.
2 and other leaders in the electrical industry; to
3 describe our findings with this, our analysis of
4 this; and to say, "Now, we have done the best we can
5 to remove the higher chlorinated things, and I'm
6 here to tell you this is what we achieved without
7 significantly changing the basic material," which is
8 Aroclor 106 -- which is Aroclor 1242. "Now, it's up
9 to you to make a decision. We're ready to produce
10 this" -- and Monsanto did produce this, which has no
11 bearing, had nothing at all to do with whether
12 someone -- or whether Monsanto had the right to not
13 sell to somebody or not.

14 1016, in essence, on this part of it,
15 was really not significantly different. It wasn't
16 accepted by the EPA and the people in Washington on
17 this basis.

18 Q. What do you mean, "it wasn't accepted by
19 the EPA"?

20 A. It was --

21 Q. Oh, "was."

22 A. -- supposedly less -- it was supposedly
23 more biodegradable for the simple reason that the
24 more slow biodegradable components, to some degree,
25 had -- were removed. So, it had to be a step in the

1 right direction. It was this.

2 But it did not answer the objections
3 to chlorinated biphenyl by the environmentalists.
4 It just was not accepted.

5 Q. There were other problems?

6 A. They objected to it as well as anything
7 else.

8 Q. Okay.

9 A. They objected to even this. So, it didn't
10 fly, one might say.

11 Q. Did -- and what was your thought about
12 their objections to PCB's and -- did you think they
13 were legitimate objections or --

14 A. I agree with the EPA, their premise that
15 PCB's biodegrade relatively very slowly. I agree
16 with that. I have no quarrel with that.

17 Q. Uh-huh.

18 A. And on that basis, I agree with what the
19 environmentalists said and did by way of banning it
20 when they got ahold of a material that was more
21 biodegradable.

22 Q. Okay.

23 A. I agree with that entirely.

24 Q. Okay. Let me ask you this: Did you ever
25 hear from anybody that the environmentalists had

1 concerns about the health effects of being exposed
2 to PCB's?

3 A. No.

4 Q. Never heard that?

5 A. No.

6 Q. Okay.

7 A. Well, I think you're going to have to --
8 that's a simple way to put this thing. We talked
9 about the environmentalists objecting because it was
10 slow to biodegrade. They objected, therefore, on
11 basis and -- and that this might cause some
12 difficulty with a certain sea eagle and that sort of
13 thing.

14 There were those things. Of course, I
15 knew about that. That's what the professors finally
16 came about saying, that they attributed PCB's to
17 upsetting the metabolism of certain species of bird
18 and caused them to lay thin egg shells and the eggs
19 broke.

20 Well, I'm going to go on talking about
21 this since the question is raised. Hell, as a kid,
22 working in the grocery store, several times a year,
23 I think particularly in the spring, we sold a
24 product called -- oyster shells that were chopped
25 up. And this was fed to chickens for this very

1 reason, to give them more calcium to increase their
2 egg shell.

3 Now, this was long before PCB's ever
4 arrived. I had the unpleasant thing of having to
5 dig out of a gunny sack these darn broken-up oyster
6 shells, which were sharp as a razor. I'd have
7 bloody fingers. So, I remember that very well.

8 Q. My question to you was whether or not you
9 ever heard of concerns by environmentalists about
10 the possible adverse health consequences of people
11 being exposed to PCB's?

12 A. For people.

13 Q. Yes.

14 A. I'm sorry. I didn't get "people."

15 Q. Yeah. Maybe I didn't make that clear.

16 A. No. You said health --

17 Q. Let me make that clear.

18 A. You implied this without making it clear.

19 Q. I'm sorry.

20 A. And I told you about what I know about
21 their objections, their original objections, to this
22 in the -- as to exposure to birds and fish and so on
23 and so forth.

24 Q. Yeah.

25 A. Now, on the health part of this thing to

1 people, again, you're talking to the wrong person.
2 This is in the area -- even if our representatives
3 don't have this exactly right, this is not up to
4 me. It's up to our medical people.

5 Q. My question is: Did you ever hear about
6 those concerns in the 1970's, adverse health effects
7 on people?

8 A. Anyone who read the newspaper, let's say,
9 read -- and I think it was this period of time -- if
10 wrong, correct me -- PCB's, that they are hazardous
11 and deleterious and poisonous and cause cancer.
12 That was written in the newspaper.

13 I don't agree with this.

14 Q. I see. Okay. And what's the basis for
15 that disagreement? Your personal work or just your
16 belief?

17 A. It's both, and knowledge.

18 Q. Okay. Explain to me --

19 A. No one came to me with these words, nobody.

20 Q. Explain to me the knowledge that causes you
21 to believe that PCB's cannot have any adverse
22 consequences on people's health?

23 A. That they cannot?

24 Q. Yes, that they cannot.

25 A. This is in an area I'm not qualified to

1 answer one way or another.

2 Q. Well, that's what I'm trying to find out.

3 A. They haven't had an adverse effect on me,
4 that I know of.

5 Q. Okay. Is that --

6 A. Nobody came to me --

7 Q. Okay.

8 A. Nobody has ever come to me that, "Paul
9 Benignus, I have a health problem here." If they
10 had, I would have referred them to our medical
11 department; and they should have gone to their own
12 medical department.

13 Q. Okay. So, that's not an area in which you
14 feel qualified to offer an opinion at all?

15 A. This is correct.

16 Q. Fine. But you don't believe personally,
17 from your own belief, that they can cause adverse
18 health consequences -- correct? -- on humans?

19 A. I believe certain things myself, yes.

20 Q. I'm trying to find out what those are.

21 A. My own personal belief, "my own personal
22 belief," is this -- and I've said it; I'll say it
23 again any time this question is asked. This is
24 based on my own experience more than anything else.

25 Do not breathe the vapors and the

1 fumes emitted from PCB's, which come about
2 particularly at elevated temperatures. Do not
3 breathe those fumes and vapors. I believe that. I
4 wouldn't do this. Now, I would say that. I've said
5 that. I'll always say this.

6 Q. Anything else you'd say?

7 A. I would say do not have prolonged exposure
8 to the skin. I would say, if it is on the skin,
9 wash it off with soap and water. I would say that.

10 Q. Anything else?

11 A. This about covers anything I can think of.

12 Q. Okay. Now, having said all that, I want to
13 find out what your belief is about the possible
14 health consequences if one didn't follow what you
15 said you think they ought to.

16 A. On this, which is a logical thing for you
17 to ask, take this up with our medical director.

18 Q. Yeah. You don't have any opinion at all
19 about what health consequences could be?

20 A. I prefer that you ask these kind of
21 questions from a medical -- I'm not qualified to
22 answer this.

23 Q. My question is not what the health director
24 believes; it's what you believe.

25 A. What I believe? I told you what I

1 believe. Do not breathe the fumes and the vapors.
2 That's what I say.

3 Q. Yeah. My question to you is what you
4 believe about the consequences of breathing those
5 vapors.

6 A. The consequences --

7 Q. Yes.

8 A. -- of breathing --

9 Q. Yes.

10 A. -- these vapors?

11 Q. If you have an opinion. You may know
12 nothing about the consequences, period, at all; you
13 have no idea what they are. And if that's your
14 opinion, that's fine. I just want to know what your
15 opinion about that is.

16 A. The opinion I have about this, I have heard
17 that exposure to fumes and vapors can have an
18 adverse effect on the organs -- now, I'm referring
19 to what's published in the literature --

20 Q. Uh-huh.

21 A. -- the kidney and, I think, the liver.

22 Now if there's anything else, I don't
23 know. And, again, you should talk to the health
24 people.

25 Q. Okay. Now, let me go back to your 1970's,

1 from 1970 through 1974, work for Monsanto in the
2 United States, if I understand it correctly,
3 involved going to electrical companies with Aroclor
4 1016 and telling them about the properties?

5 A. Yes.

6 Q. And it involved serving as chairman of the
7 Subcommittee D-27 of the ASTM?

8 A. Yes.

9 Q. Were there any other duties you had for
10 Monsanto Company in the United States from 1970
11 through your retirement?

12 A. Not assigned -- not specifically assigned
13 duties. As I told you, I was a satellite out here;
14 and I was not in the organization.

15 Q. Okay.

16 A. I was not assigned specific duties, no.

17 Q. Were there any other tasks that you
18 undertook for Monsanto in the United States from
19 1970 until your retirement, other than your service
20 as chairman of the subcommittee of the ASTM
21 Subcommittee D-27 and going to electrical
22 manufacturers with Aroclor 1016?

23 A. I'm trying to think of specific assignments
24 and things. I can't think of any.

25 Q. Okay.

1 A. Sad to tell you.

2 Q. Okay. Did you have any role at all in the
3 effort of Monsanto to meet with Government agencies
4 and scientific agencies and others to express
5 Monsanto's views on PCB's?

6 A. No. No, I did not.

7 Q. Who was responsible for that at Monsanto?

8 A. Again, in this time period that you're
9 talking about --

10 THE WITNESS: Is it all right to
11 mention names?

12 MR. CRAWFORD: Well, if he asks you,
13 if you know.

14 THE WITNESS: Yeah.

15 A. I'm sorry. I --

16 Q. (By Mr. Lacey) You're under oath, and you
17 need to answer the questions truthfully.

18 A. Yeah. Truthfully? The way I -- I don't
19 say anything untruthfully.

20 Bill Pappageorge, do you know
21 Pappageorge?

22 I'm not supposed to ask a question.

23 Q. I've never met the man.

24 A. Do you know him?

25 Q. I've never met him. No, I don't know him.

1 I wouldn't recognize him if he walked into the room
2 today.

3 A. Well, I understand this.

4 Q. I've heard the name.

5 A. You've heard the name?

6 Q. I've heard the name.

7 A. Well --

8 THE WITNESS: Can you stop this for a
9 minute?

10 Q. (By Mr. Lacey) No. She needs to keep on
11 writing.

12 A. Well --

13 MR. JONES: Just let him ask the
14 questions, and he will --

15 A. Yeah, ask the question.

16 Q. (By Mr. Lacey) Did you ever work with
17 Mr. Pappageorge on anything?

18 A. No, I didn't.

19 Q. Okay.

20 A. No, I didn't.

21 Q. When did you first meet with the lawyers
22 from Monsanto about this case?

23 A. This particular case?

24 Q. Uh-huh.

25 A. Oh, they -- they would know. That was

1 confusing to me.

2 Thank you. Thank you.

3 Q. Let me see if we can clarify some of that
4 confusion.

5 THE WITNESS: Well, why don't you
6 answer this?

7 Q. (By Mr. Lacey) No. You're the witness.
8 These lawyers --

9 A. Hell, I'm so confused I might not know.
10 The first time I met Walter was when
11 he came to St. Louis to my house.

12 Q. When was that?

13 A. Well, Sherry would know. She was there.

14 THE WITNESS: What day was this? That
15 was -- what day was this?

16 MR. CRAWFORD: Well --

17 Q. (By Mr. Lacey) Was that this week or last
18 week or --

19 A. That was last -- last week.

20 Q. Last week?

21 A. Yeah. Very recent.

22 Q. Within the past week or so?

23 A. Oh, yes. You better believe, yes.

24 Q. We've completed the Easter weekend here as
25 we're taking your deposition. I don't know. I

1 guess you're retired. Maybe you've got a lot more
2 holidays than the rest of us; but were they there on
3 Friday, Good Friday?

4 A. I think they were.

5 Q. Is that the first time they met with you?

6 A. First time I met them, yes.

7 Q. Did you meet with any -- any people from
8 Monsanto, other than these lawyers, any other
9 lawyers, lawyers from St. Louis from Monsanto, prior
10 to meeting with these lawyers?

11 A. I didn't meet with them.

12 Q. Did you talk to them?

13 A. I talked to them.

14 Q. Okay. When -- when did you --

15 A. On the telephone, I talked to them.

16 Q. When did you talk to those lawyers?

17 MR. CRAWFORD: David, let me correct
18 one thing. It was Thursday when we went up there,
19 just so he's --

20 THE WITNESS: All right. Thursday.

21 MR. CRAWFORD: And I talked to him
22 Thursday at his house.

23 MR. LACEY: On Thursday?

24 MR. CRAWFORD: Yes.

25 MR. LACEY: I see.

1 MR. CRAWFORD: That's just -- because
2 he's still confused on that.

3 MR. LACEY: I see.

4 Q. (By Mr. Lacey) About what time did
5 Mr. Crawford come by and meet you last Thursday at
6 your house?

7 A. This was in the morning.

8 Q. Thursday morning?

9 A. (Witness nods head)

10 Q. And who was with Mr. Crawford?

11 A. Sherry.

12 Q. And how long did they spend with you
13 getting you ready, then, on Thursday?

14 A. They were with me until in the evening.

15 Q. Came in the morning and stayed all day?

16 A. Yes.

17 Q. Busy day for you?

18 A. Went to lunch. We went to lunch, too.

19 Q. And were you feeling pretty much up to
20 doing that work?

21 A. May I ask a question?

22 I know what you're driving at.

23 Lawyers were calling me. "How do you feel, Mr.
24 Benignus?"

25 Now, are you a doctor here or --

1 Q. No, I'm not a doctor. I'm just interested
2 in finding out.

3 A. I wasn't -- I wasn't feeling too good.

4 Q. But they came and stayed with you, anyway?

5 A. Well, I didn't get across myself; but they
6 came at a time where -- shortly after when I had
7 been in the hospital.

8 Q. Uh-huh.

9 A. And this is what you're driving at.
10 Right?

11 Q. Well, that's what I'm trying to find out
12 about.

13 A. I've just said, "right."

14 MR. CRAWFORD: Well, just -- just --
15 just try to answer his questions --

16 A. Yes.

17 MR. CRAWFORD: -- because it's getting
18 close. We need to shut down.

19 THE WITNESS: I know.

20 MR. CRAWFORD: It's almost 5:00.

21 A. Yes.

22 Q. (By Mr. Lacey) Now, what lawyers from
23 Monsanto had talked with you on the telephone before
24 Mr. Crawford and these other lawyers came to visit
25 you?

1 A. On the telephone? Tom Bistline.

2 Q. What's his name?

3 A. Bistline, B I S T L I N E, Bistline.

4 Q. Okay. And he's a lawyer for Monsanto?

5 A. He's a lawyer for Monsanto in St. Louis.

6 Q. Okay. When did he first talk with you?

7 A. Relative to this deposition?

8 Q. Yes.

9 A. Or subpoena?

10 Q. Yes.

11 A. I don't know when he first talked to me.

12 He indicated that I may be hearing about some law
13 firm relative to -- is it Scott, et al?

14 Q. Yes.

15 A. -- about wanting to know my time of
16 employment.

17 MR. JONES: Object to that as
18 attorney-client privilege.

19 Don't go into your conversations that
20 you may have had. The only thing that he can go
21 into is who you've talked to.

22 THE WITNESS: Tom Bistline. I
23 answered it.

24 MR. CRAWFORD: Well, Mr. --
25 Mr. Benignus, just try to answer the question that

1 he's asked. He's asked you --

2 A. Tom Bistline is the answer.

3 MR. CRAWFORD: -- who -- who you
4 talked to.

5 Q. (By Mr. Lacey) Yeah. And I want to know
6 what Mr. Bistline told you.

7 A. About the possible --

8 MR. CRAWFORD: We have the objection
9 that's been made.

10 Q. (By Mr. Lacey) Well, did you hire
11 Mr. Bistline to represent you?

12 A. I didn't.

13 Q. Does Mr. -- is Mr. Bistline your lawyer?

14 A. No.

15 Q. Okay. Well, let me ask you: What did
16 Mr. Bistline tell you, then?

17 A. That --

18 MR. CRAWFORD: He's a 30(b)(6).

19 You -- are you --

20 MR. LACEY: You can designate whoever
21 you want, but that doesn't establish an
22 attorney-client relationship.

23 He's just said on the record that
24 Mr. Bistline doesn't represent him and he didn't
25 hire Mr. Bistline.

1 THE WITNESS: That's right.

2 MR. CRAWFORD: Well, Mr. Bistline
3 tried to schedule the depositions and -- pursuant to
4 our agreement, where we were supposed to try to set
5 up some times. That's what you wanted us to do.

6 MR. LACEY: That's right. And we did
7 that.

8 MR. CRAWFORD: All right.

9 MR. LACEY: And I think we scheduled a
10 deposition at a time that was, according to
11 Mr. Shoebottom, convenient. And as I told John, we
12 would notice and subpoena to protect ourselves to --

13 MR. CRAWFORD: Right.

14 MR. LACEY: -- make sure witnesses
15 could appear --

16 MR. CRAWFORD: Right.

17 MR. LACEY: -- and then we have the
18 scenario that follows that. I'm not sure we need to
19 go into that on the record here now.

20 Q. (By Mr. Lacey) My real question is: What
21 did Mr. Bistline tell you?

22 A. He told me -- and I don't know the exact
23 time -- that I could expect at some time in the
24 future to be deposed on this case.

25 Q. Anything else?

1 A. There was a letter to that effect.

2 Q. From Mr. Bistline?

3 A. That's all it said. That's all it said.

4 Q. Did you have any other discussions with
5 Mr. Bistline at any time?

6 A. Yes, subsequent to this.

7 Q. Tell me about those discussions.

8 A. As I recall this thing, I was told that
9 there would be a deposition at the -- at the
10 Marriott across from the airport.

11 Q. In St. Louis?

12 A. No. I'll back -- this is wrong. Excuse
13 me. This is wrong. I'll correct this.

14 The first thing I was told was that I
15 was supposed to go to Houston at some point in time.

16 Q. By Mr. Bistline?

17 A. Yes.

18 Q. Okay. And what were you subsequently told
19 by Mr. Bistline?

20 A. Later it developed I was supposed to go to
21 the Marriott in St. Louis, as I recall.

22 Q. Okay. And then what else were you told by
23 Mr. Bistline?

24 A. I think that was it.

25 Q. That's all the conversations you can recall

1 with him?

2 A. I think this was it.

3 Q. Okay. Let me identify some documents here
4 for the record so that we can give you some
5 homework.

6 It's been a long time since you've had
7 homework, isn't it?

8 A. You're right.

9 Q. Well, what -- we're going to try to do
10 this, I hope, in order to speed us along tomorrow.
11 And let's see if I can -- where is Folder 3?

12 What we want to try to do here, I want
13 to ask you some questions tomorrow about some
14 documents that Monsanto has produced --

15 A. Okay.

16 Q. -- and, again, which I have the
17 understanding -- and maybe it's wrong -- that you're
18 going to be able to help us identify.

19 And I'm just going to have the
20 documents identified, for the purpose of the record,
21 with the beginning number of the sequence we're
22 using.

23 A. Okay.

24 Q. The first one is document 33 and
25 following -- and let me just hand that to you so you

1 can get an idea what -- you don't even need to
2 read -- look through it right now, but just --

3 A. Yeah.

4 Q. -- look and you can see the title page.

5 A. Okay.

6 Q. You've seen documents like that before?

7 A. Yeah.

8 Q. Okay. Document 55 --

9 MR. LACEY: Would you write this down?

10 A. I see them in colors, not in black and
11 white.

12 Q. (By Mr. Lacey) Well, I didn't get colors.
13 I just got the the black and whites.

14 A. Plastic -- oh, wait a minute. Is this
15 different?

16 This is same thing.

17 Q. Well, I don't know. They've given me all
18 these documents with all these numbers on them.
19 That's what I want you to --

20 A. That's what confused me. It's the same
21 thing.

22 Q. That's what I want you to kind of help us
23 determine tonight.

24 A. Now, this is "The Aerocloris." This doesn't
25 have the word "Aerocloris" -- "The."

1 Q. That's what I'm going to try to sort out.
2 Document 84.

3 A. "The Aroclors." Yeah.

4 Q. And I've got Document 132.

5 They should have copies of all these
6 documents that you can look at tonight and try to
7 help us sort them out.

8 A. Yeah. This one I can -- yeah, I can -- I
9 know this one.

10 Q. Okay. And Document 158.

11 A. It's the same thing, isn't it?

12 Q. Oh, well, I don't know. That's what we're
13 going to try to sort out, is when these were dated.

14 A. That's what you already told me.

15 Q. 180.

16 Unfortunately, these documents --

17 A. Yeah, I know this one.

18 Q. -- these documents don't, in many cases,
19 don't have publication dates on them; and you'll
20 find different little numbers at the end and that
21 sort of stuff. And, so, that's what I'm going to be
22 asking you to look at and see if you can help us.

23 A. A lot of these, I can't handle numbers any
24 better than -- well, this one, I can't hardly read.

25 Q. 212. That's Document 212; Document 241.

1 A. Yes. Yeah.

2 Q. Document 269.

3 A. Yeah.

4 Q. Document 325.

5 A. Yeah.

6 Q. Document 342.

7 A. Yeah.

8 Q. Document 357.

9 A. Yeah.

10 Q. Document 407.

11 A. Yeah.

12 Q. Document 422.

13 A. God, I can't make this out. Oh, there's

14 two of them in here.

15 Q. I'm sorry. What's the number of that?

16 A. "Pydraul Fact Finder."

17 Is this the number, 432?

18 Q. 432. And those --

19 MR. CRAWFORD: Wait. 432 instead of

20 22?

21 THE WITNESS: This is 422, then 432.

22 MR. LACEY: And then 432.

23 MR. CRAWFORD: Okay.

24 THE WITNESS: Then 432.

25 MR. LACEY: Okay. All these

1 documents, for the record, are in folder No. 3.

2 A. Some of these, I've never seen.

3 Q. (By Mr. Lacey) Okay. That's fine. Now,
4 let me go to the next folder.

5 A. Should we put those back in the same
6 folder?

7 Q. We'll do that; and if you'll just put them
8 in another pile, we'll get them back there, in that
9 folder, at a later date.

10 A. Oh, I thought you wanted us to take those.

11 Q. No. You'll have copies. I want to leave
12 those here. You should have copies of those back at
13 Monsanto's --

14 A. Oh.

15 Q. -- lawyers' offices.

16 A. Oh, I see.

17 Q. They've provided us with these copies.

18 A. All right.

19 Q. Okay. The next group is Document 1489.

20 MS. OLESEN: Excuse me. What was
21 that, again?

22 MR. LACEY: 1489.

23 THE WITNESS: 1489.

24 Q. (By Mr. Lacey) 1494.

25 A. All right.

1 Q. 1504.

2 Q. 1508, 1519.

3 A. That's the same thing.

4 Q. 1529.

5 A. Yeah, I know this.

6 Q. 1537.

7 A. Yeah.

8 Q. 1559.

9 Q. 1581, 1606, 1635?

10 THE VIDEOGRAPHER: We need to take a
11 short pause.

12 We're about to go off the record. The
13 time is 5:04 p.m.

14 (Discussion off the Record)

15 Q. (By Mr. Lacey) 1664, 1693, 1722, 1753,
16 1794, 1825, 1857, 1889.

17 We've got quite a few of them here
18 they've given us here. A lot of them look similar.

19 A. Yeah. You've sort of grouped the same
20 things, but you've got different numbers.

21 Q. Yeah, that will be very helpful if you can
22 group them together.

23 A. Yeah, well, you have done this.

24 Q. 1919 -- no. I'm just giving them to you in
25 the order the numbers came. Maybe tomorrow we

1 can --

2 A. Well, somebody grouped these.

3 Q. Good.

4 THE REPORTER: What was the last
5 number?

6 MR. CRAWFORD: 1919.

7 THE WITNESS: 1889. And this is 1919.

8 Q. (By Mr. Lacey) Okay. Go to another folder
9 here.

10 And 2050 -- no. Let's see. All
11 right. That -- that's got a date, and this has got
12 a date. Let's go to the next one that doesn't.

13 2253, 2265. There's a date on this
14 one; so, that's okay.

15 2299, 2332, 2347, 2378, 2411, 2426,
16 2438 --

17 A. Wait a minute. I just want to see -- okay.

18 Q. -- 2438, 2450, 2478, 2506 --

19 A. Uh-huh.

20 Q. -- and 2522.

21 A. Do you want these in a separate --

22 Q. We'll separate them when we get through
23 here. I think we can identify the numbers.

24 Then 17270, 17286, 17302, 17318,
25 17338, 17343, 17351, 17355, 17359, 17381. Let's

1 see. This has got a date on it there.

2 17405, 17408, 17411, 17414, 17417,
3 17421, 17429, 17440, 17452, 17468, 17492, 17507,
4 17519, 17552, 17566, 17589, 17599, 17623, 17627,
5 17635.

6 I've got another group here when
7 you're ready.

8 A. Boy, most of these, I've never seen.

9 Q. Well, if you can, take a look and help us
10 figure out how to date them. If you can't, you
11 can't. Whatever good you can do will be helpful to
12 us.

13 17651.

14 You might put those in another stack.

15 A. Oh, yeah, this finished this stack.

16 Q. Right.

17 A. Now, we're going to that.

18 Q. 17680, 17694, 17702 -- this has got a
19 date -- 17747 -- that's got a date -- 17777,
20 17781 -- that's got a date -- 17871, 17951, 17957,
21 17965, 18030, 18132, 18193, 18235.

22 58451 -- and this is yet another
23 stack.

24 A. Oh, that's another stack.

25 Why are these in different stacks?

1 Q. Well, they're in different folders, as they
2 were presented to us by Monsanto.

3 A. Oh, I see.

4 Q. That's how they had them organized.

5 18451 --

6 A. Am I on television here, yet?

7 Q. Yeah, you're still there.

8 18 --

9 A. Well, why -- what's the purpose of
10 having --

11 Q. Because we videotaped the entire
12 deposition --

13 A. Oh, I see.

14 Q. -- and we're still in the deposition.

15 A. All right.

16 Q. 18455, 18521, 18575, 18597, 18601, 18626,
17 18731, 18777, 18791, 18845, 18906, 18952, 19003,
18 19057, 19065, 19074.

19 We may not have gotten every technical
20 bulletin; but we've got, I think, the bulk of them
21 that were produced to us. And let me tell you what
22 I would like for you to do so we can move
23 expeditiously tomorrow.

24 One, is to look at each one of these
25 and -- after these lawyers pull them for you -- and

1 see if you can help us figure out the date or the
2 approximate date they were written. I note in many
3 cases that there will be references to certain
4 studies, certain literature, and the like. There
5 are sometimes code numbers on them that would seem
6 to indicate a date. And we would appreciate your
7 help in doing that.

8 Second, I'll be interested in talking
9 with you about any of these documents that you had a
10 hand in writing, reviewing, approving, or
11 distributing to other people.

12 MR. LACEY: And I guess, Walter, we
13 can stop right here. You indicated you wanted to
14 stop and start up tomorrow morning --

15 MR. CRAWFORD: Yeah.

16 MR. LACEY: -- at what?

17 MR. CRAWFORD: Let's make it 9:30.

18 MR. LACEY: 9:30?

19 MR. CRAWFORD: Yeah.

20 MR. LACEY: Okay.

21 THE VIDEOGRAPHER: We will now recess
22 the deposition. The time is 5:16 p.m.

23 * * * * *

24

25

SIGNATURE OF WITNESS

I, PAUL GEORGE BENIGNUS, solemnly swear or affirm, under the pains and penalties of perjury, that the foregoing 165 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.

PAUL GEORGE BENIGNUS

THE STATE OF _____:

SUBSCRIBED AND SWORN TO BEFORE ME, the undersigned authority, by the witness, PAUL GEORGE BENIGNUS, on this the ____ day of _____, 1987.

Notary Public in and for
The State of _____

My commission expires:

1 THE STATE OF TEXAS:

2 I, Cheryll K. LeFevers, a Certified
3 Shorthand Reporter, hereby certify that the
4 foregoing testimony was given before me after the
5 Witness had been first duly sworn.

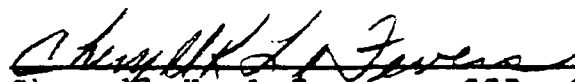
6 I further certify that I prepared this
7 transcript and that the foregoing pages constitute a
8 complete and correct copy of the transcript of the
9 proceedings.

10 I further certify that I am neither
11 attorney for, related to, nor employed by any of the
12 parties to the lawsuit in which this deposition was
13 taken; further, I am neither related to nor employed
14 by any attorney of record in this cause, nor do I
15 have a financial interest in the matter.

16
17 GIVEN UNDER MY HAND AND SEAL OF OFFICE
18 in Houston, Texas, on this the 27th day of April,
19 1987.

20

21


Cheryll K. LeFevers, CSR, CP, CM

22

23

Certification Number: 1690
Date of Expiration: December 31, 1988
Address: 2900 Smith Street, Suite 104
Houston, Texas 77006
Phone: 713/523-3767

24

25

Page Line

[illegible]