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

CECIL SCOTT, ET AL *
 *
 *
VS. * CIVIL ACTION
 * NO. B-84-1103-CA
 *
MONSANTO COMPANY *

September 4, 1987
Volume XVII

BEFORE THE HONORABLE JOE J. FISHER
UNITED STATES DISTRICT JUDGE, AND A JURY

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AFTERNOON SESSION

(1:34 p.m., Friday, September 4, 1987)

THE COURT: Please be seated. Who does the defendants have next?

MR. CRAWFORD: Your Honor, we will call Dr. Kelly to the stand.

THE COURT: If you will come forward, please. Stand there and raise your right hand, please.

ROBERT EMMET KELLY,

HAVING BEEN DULY CAUTIONED AND SWORN TO
TELL THE TRUTH, THE WHOLE TRUTH AND
NOTHING BUT THE TRUTH, TESTIFIED AS FOLLOWS:

THE COURT: Have a seat in the witness chair and speak into the microphone.

DIRECT EXAMINATION

BY MR. CRAWFORD:

Q Would you please state your full name for

1 the record, sir?

2 A Robert Emmet Kelly, K-e-l-l-y.

3 Q And you are a physician; is that correct?

4 A Yes, I am.

5 Q Doctor, where do you live and where were you
6 born?

7 A I was born in St. Louis and I lived there
8 now 665 South Skinker, S-k-i-n-k-e-r, St. Louis
9 63105.

10 Q All right. Are you married and have a
11 family?

12 A Yes, I do. I have six children.

13 Q All right. Now, you are presently retired
14 from Monsanto. You retired in 1974; is that
15 correct?

16 A Yes. December the 1st, 1974.

17 Q All right. And how long have you been a
18 doctor?

19 A Since 1932.

20 Q I want you to just tell me very briefly
21 about your educational background. Could you do
22 that? Did you go to school there in St. Louis?

23 A Yes. I received a B.S. Degree from St.
24 Louis University and an M.D. Degree in 1932. I
25 spent three years at City Hospital as a resident

1 and I have taken short courses in occupational
2 medicine and internal medicine since then.

3 Q Are you board certified in any specialty?

4 A Yes. I am board certified in occupational
5 medicine and in internal medicine and recertified
6 in internal medicine.

7 Q When were you recertified in internal
8 medicine?

9 A Beg your pardon?

10 Q When were you recertified?

11 A '74.

12 Q All right. What is occupational medicine?

13 A Its that branch of medicine that deals with
14 the worker in his environment.

15 Q What about internal medicine?

16 A It's that branch that deals with the
17 nonsurgical conditions of the body following
18 adolescence.

19 Q Doctor, I would like for you to just very
20 briefly if you could, summarize some of the
21 professional organizations that you belong to and
22 I also want you to tell us about teaching
23 positions.

24 A Well, I belong to the usual medical
25 societies: American Medical of Missouri Medical

1 Society. I'm a fellow of the American College of
2 Physicians. I'm a member of the American Academy
3 of Occupational Medicine and American Society for
4 Therapeutics and Pharmacology and some others.

5 Q What about your teaching? Tell us about
6 that.

7 A I hold two staff appointments at St. Louis
8 University and assistant professor in clinical
9 medicine and an assistant professor of community
10 medicine.

11 I'm on the staff of St. Mary's Health
12 Center, the university hospital, and St. John's
13 Health Center.

14 I have given lectures at Harvard, Washington
15 U, Baylor, University of Cincinnati and others.

16 Q How old a man are you, sir?

17 A 77.

18 Q Are you still active in the practice of
19 medicine?

20 A I see cases. I do not treat people. I
21 diagnose cases. I am called in on cases of
22 possible occupational connection.

23 Q All right. I want to ask you about
24 occupational medicine. Do you belong to any
25 national organizations in that?

1 A Well, outside of the societies that I have
2 mentioned, I have been the, on the medical
3 advisory committee of the Manufacturing Chemists
4 Association. I was chairman for two or three
5 years.

6 I have been the medical chairman of the
7 advisory committee of the National Agricultural
8 Chemical Association. I'm president of the
9 health committee of the Aluminum Association and
10 I have been a consultant for the Poison Control
11 Center in Washington.

12 Q What about, have you authored any articles,
13 any treatises on medical subjects?

14 A Well, they weren't treatises but I have
15 written articles in the New England Journal of
16 Medicine, the National Cancer Institute, the
17 American Public Health Journal and the Journal
18 of Urology.

19 Q All right. Now, Doctor, very briefly, I
20 want to talk about your employment with Monsanto.
21 When did you first go to work for Monsanto
22 Chemical Company?

23 A I started with Monsanto in January of 1936.
24 I was engaged as a part-time physician at the
25 plant, which at this time was called Plant A in

1 St. Louis, now referred to as Sequeety
2 (phonetically) plant.

3 Then after about two years, problems in
4 medical administration arose and I was the only
5 physician in the neighborhood because we were
6 right next to the corporate headquarters.

7 So, I was asked to check on these problems
8 so I became a medical director, sort of without
9 portfolio as it were.

10 Then in the service, I went into the service
11 in 1942, stayed there until 1946 and I came back
12 with Monsanto as full-time director of a newly
13 organized medical department.

14 Q All right. Now, when we you first started
15 with the medical department there in the 1930's,
16 had Monsanto at that time taken over the Swann
17 Company that produced PCBs?

18 A Yes, they had some time prior to my coming
19 with Monsanto.

20 Q All right. I want to ask you a little bit
21 about the Swann plant down there in Anniston.

22 You would go down there, would you not, to
23 check on the workers, to check the plant out and
24 check on their health?

25 A I went down there the first time some time

1 in either 1937 and 1938. At that particular
2 time, they were making some abrasives, they had
3 some phosphorus, one phosphorus furnace. They
4 had a PCB installation where they made the
5 diphenyl from benzene and then chlorinated it.

6 Q Let me ask you about the Swann Company. Was
7 there some literature -- you followed the
8 literature when you first went to work for
9 Monsanto, the medical literature; is that
10 correct?

11 A Yes, I did.

12 Q And what would that be? Just tell the jury
13 what that means reading the literature?

14 A Well, in those days, now we are talking
15 about 1937, there were probably two journals in
16 the English language that were directed to the
17 occupational physician.

18 There was one Journal of Toxicology. There
19 was a journal in England in industrial hygiene.
20 Then, of course, there were case reports, if any,
21 that occurred in the general medical journals,
22 like the Journal of the American Medical
23 Association or the New England Journal of
24 Medicine. Then there were government reports
25 that came out about various compounds, whether

1 Aniline or something like that.

2 Q Now, prior to the time that you came to
3 Monsanto, were there any health problems down
4 there with the Anniston plant?

5 A Did you say prior to when I came?

6 Q Yes, prior to when you came.

7 A Well, yes. Anecdotally I found out that
8 they had problems in about 1935.

9 Q How did you find that out?

10 A Well, first, I would talk to the people that
11 talked to me about it and also there was an
12 article written by a Dr. Jones in Atlanta to whom
13 these cases were sent.

14 They had about, oh, 10 or 15 cases of
15 chloracne. Chloracne is a condition somewhat
16 similar to teenage acne but with different
17 characteristics. They were sent to him and it
18 was found out by him as he wrote it up that this
19 condition was due to an off specification benzene
20 which was the company, Swann Company, had changed
21 suppliers and the PCB which they manufactured was
22 a dielectric. That is a compound. That's, I'm
23 sure you have heard about it here. But it's a
24 compound that prevents a passage of electrical
25 current.

1 Well, it was off spec as far as that was
2 concerned. It was off spec as far as the color
3 was concerned and as they were working around
4 with it, the people developed chloracne.

5 Q Let me see if I understand this. You are
6 saying that before you got to Monsanto and at a
7 time when Monsanto did not own the plant down
8 there, when Swann owned it, there was a problem
9 with off spec benzene? That's something that
10 they use in the manufacture of the diphenyl; is
11 that correct?

12 A Yes. You take benzene and put it into a pot
13 with molten lead, obviously it's enclosed. And
14 you hook up the two benzene rings and you get
15 diphenyl. And you chlorinate that and you get
16 PCB.

17 Q So, the problem down there was not with the
18 PCBs. That's not what caused the chloracne. It
19 was the off spec benzene; is that correct?

20 A Well, the product of the off spec benzene.

21 Q All right.

22 A Which was PCB. I don't know what else was
23 in the PCB at that time.

24 Q Now, you went down to the plant and when
25 Monsanto took it over, there were no problems; is

1 that correct, no chloracne when you were there?

2 A When I was there, no. The first time I went
3 to the plant, there was no residue chloracne in
4 the individuals, nor was there any other problem
5 in their health.

6 Q Okay. Now, in later years there was also
7 another plant at Krummrich; is that right?

8 A Krummrich, K-r-u-m-m-r-i-c-h. Yes, that is
9 at East St. Louis or Sauget, S-a-u-g-e-t,
10 Illinois, which is across the river from St.
11 Louis. That came on stream, I believe, some time
12 in the 40's.

13 Q Okay. So, you had two plants that
14 manufactured PCBs; is that correct?

15 A In the United States, yes, sir.

16 Q And you would visit those regularly each
17 year; is that correct?

18 A Yes, sir.

19 Q All right. Now, I want to talk to you a
20 little more about your review of the literature
21 prior to the time that you went into the service
22 and I want to ask you: Are you familiar with an
23 article by Drinker, Dr. Drinker from Harvard
24 called the "Problems of Possible Systemic Effects
25 from Certain Chlorinated Hydrocarbons"?

1 A Very familiar, yes, sir.

2 Q Okay. Well, let's talk about that a little
3 bit.

4 Are you familiar with the incident that Dr.
5 Drinker wrote about?

6 A I didn't hear the last word, sir.

7 Q Are you familiar with the incident that Dr.
8 Drinker was writing about?

9 A Well, yes. It was more than an incident.

10 Q Tell us about it.

11 A There was a company called the Halowax
12 Corporation which was a subsidiary of the
13 Bake-Lite Corporation, which was a subsidiary of
14 Union Carbide that Halowax Company manufactured a
15 number of waxes that were used for impregnating
16 cables, electrical cables.

17 These were not the usual toaster, family
18 toaster extension cord. It was a large cable
19 that would be used in ships and in other rather
20 massive manufacturing installations.

21 They had a covering at that time of either
22 cloth or asbestos that was impregnated with this
23 wax to prevent the passage of electric current.

24 So, the workers to do this, to impregnate
25 this, they would bring the copper cable out, wrap

1 it in the cloth of the asbestos, dip it into
2 molten hallowax and then the workers would put it
3 on spools, large spools like you see where the
4 telephone cables are. And, the workers developed
5 chloracne and some of the workers developed
6 severe liver damage and died.

7 Some of the hallowaxes were used in
8 capacitors similar to this. I don't know the
9 size; but anyway, they were capacitors. And they
10 also died. So --

11 Q Go ahead.

12 A So, hallowax -- we sold hallowax compound
13 called 4465, which was not a PCB. This is a
14 terphenyl, chlorinated terphenyl or a chlorinated
15 diphenyl benzene, whichever term you want to use.

16 Q Now, before we go any further, tell us what
17 is hallowax made out of mainly, this substance
18 that was killing people, that killed the six
19 workers?

20 A It's made of chlorinated naphthalene,
21 chlorinated to various percentages, whether it's
22 trichlor all the way up hexachlor or maybe
23 heptachloronaphthalene.

24 Q Now, why was Drinker hired by the Hallowax
25 Copmany?

1 A Well, I haven't finished yet.

2 Q All right.

3 A In two of the halowaxes out of many -- I
4 don't know how many halowaxes they had -- but in
5 two of those, a compound, 4465, was sold to them
6 by Monsanto and was used at 10 percent,
7 percentage in the halowax.

8 It was used in the the wire cabling. I do
9 not believe it was used in the capacitor type.

10 They got -- what was your question then?

11 Q Well, we were talking about the halowax and
12 the problem with Drinker.

13 Now, what happened with the Drinker article?
14 Did Halowax hire Drinker? That's what I
15 understood you to a say.

16 A Well, I guess hire isn't a term for a
17 scientist. They engaged him to look into the
18 problem. Monsanto was involved because Halowax
19 was a customer of ours; and inasmuch as 10
20 percent of our 4465, which again, I say was not a
21 PCB, was involved. We came in at the request of
22 Mr. Santher Brown, the president of Halowax.

23 Q All right. Now, what -- just tell us very
24 briefly the original studies, what were they that
25 Drinker -- the ones he ran and what were the

1 results of that? That was in 1937; is that
2 correct?

3 A 1937. He ran these chlorinated naphthalenes
4 by inhalation. He did some feeding tests on some
5 of them. He ran the halowax that had the 10
6 percent of the 4465, which as I said was a
7 chlorinated diphenyl benzene. And he ran what he
8 claimed to be, what he thought was a PCB, Aroclor
9 1268 -- 1265. That means it's got 65 percent
10 chlorine in the molecule.

11 So, when he came out with this result, he
12 found that this compound, that 1268 or 1265,
13 which he called chlorinated diphenyl was quite
14 poisonous. And so, I said, "Gee, this is news to
15 us."

16 Q Did you call Drinker up when you got that
17 report in '37 and talk to him?

18 A Yes. I went up there and you him.

19 Q All right. And what happened?

20 A Well, I said, "Look, you tested 1268. We
21 didn't send you any 1268. We don't sell Halowax
22 1268. Where did you get the 1268 that you
23 tested?"

24 He said, "Halowax sent it to me, and they
25 told me it was chlorinated diphenyl."

1 I said, "Well, I will go back to St. Louis
2 and send you some honest to goodness 1268." And
3 that is what I did. And he tested it; and in a
4 subsequent paper in 1939, he stated he was quite
5 surprised at the relative lack of toxicity of the
6 1268, which is the PCB.

7 So, obviously what he had tested before was
8 not. He stated in his article that he found out
9 what he called "PCB" was really chlorinated
10 terphenyl or chlorinated diphenyl benzene.

11 Q Were there any 1268 in the halowax?

12 A No, sir, there was not.

13 Q Did you all ever sell them any of that?

14 A No, we did not.

15 Q Okay. So, Drinker was claiming there was
16 PCB in not halowax -- I mean, not Drinker -- but
17 Halowax was claiming there was a PCB in the
18 halowax; is that correct?

19 A Well, I don't know if they claimed it or
20 they got mixed up with the nomenclature or
21 something. But anyway, they sent it up and said,
22 "Here, this is PCB when it wasn't PCB."

23 Q But there weren't any PCBs in the halowax,
24 correct?

25 A That's correct.

1 Q Now, Drinker came out with an article where
2 he found, I believe you said that the PCB
3 actually was practically nontoxic; is that
4 correct?

5 A Well, relatively nontoxic, yes.

6 Q And I believe we have a blowup of that
7 article here.

8
9 MR. CRAWFORD: Your Honor, this is
10 Exhibit 32 -- Defendant's Exhibit 3287-B,
11 that we will offer.

12

13 BY MR. CRAWFORD:

14 Q And let me just read this to you, Doctor,
15 since you are -- this is Drinker's second
16 article. And he says "the sixth compound that
17 had been listed previously as chlorinated
18 diphenyl, it contains 65 percent of chlorine and
19 proved to be very destructive to the liver, later
20 experiments with the compound 13, which is 68
21 percent chlorine and which was also labeled
22 chlorinated diphenyls were a surprise to us since
23 this second compound was almost nontoxic." Is
24 that what he found? Is that correct?

25 A Yes, that's correct.

1 Q And that was the 1268?

2 A That's right.

3 Q Now, Doctor, I want to -- this was before
4 World War II; is that correct?

5 A Yes, in 1937 to '39.

6 Q All right. Now, during that period of time,
7 Monsanto, of course, was selling PCBs for what
8 purpose?

9 A Dielectrics, for capacitors and for
10 transformers.

11 Q And that means it's going to be enclosed in
12 a can like that capacitor there; is that correct?

13 A Yes, sir.

14 Q And also transformers?

15 A Yes, transformers.

16 Q Now, what was the basic safe handling
17 instructions that Monsanto put out with the sale
18 of its dielectrics before the War?

19 A Well, it's pretty much the same as that we
20 always had: Avoid breathing of the material at
21 elevated temperatures or in confined spaces, do
22 not allow for prolonged or repeated skin contact.
23 If you get on the skin, wash it off with soap and
24 water.

25 Q And if people and the workers follow those

1 instructions, is it your opinion that the product
2 can be used without any ill effects?

3 A Yes, it's my opinion and it's fact.

4 Q All right. Now, other than these reports
5 about halowax, which was not a PCB, was there
6 anything in their literature that indicated that
7 PCBs or 1268, the dielectrics, that there were
8 any health effects with those products?

9 A At what time, Mr. Crawford?

10 Q I'm talking about prior to World War II?

11 A Well, the Jones article came out with the
12 Swann episode.

13 Q And that's the offspec benzene we have
14 talked about?

15 A That's correct, yes.

16 Q And then you had this article about the
17 halowax --

18 A That's correct.

19 Q -- which was not a PCB; is that correct?

20 A That's correct.

21 Q All right. I want to talk about your -- you
22 left Monsanto to go in -- we will pardon Mr.
23 Lacey, Doctor.

24 Let's talk about your service. You went
25 into the service of the Army; is that correct?

1 A That's correct.

2 Q All right. Tell me about the branch of the
3 service that you were in?

4 A Well, obviously I was in the medical corps.
5 I was a captain of the medical corps, and I was
6 attached to the chemical warfare arsenal at Pine
7 Bluff, Arkansas and at the Edgewood Chemical
8 Warfare Center later on at Edgewood, Maryland,
9 where they made war gases.

10 I retired -- I suppose you would call it
11 retired. I was disengaged from the Army some
12 time in 1946 as a lieutenant colonel.

13 Q All right. What did you do when you came
14 back from the War.

15 A I talked to Monsanto, or rather they talked
16 to me; and we decided that I would go full-time
17 with them and establish a medical department, a
18 corporate medical department, which we had not
19 had before.

20 Q All right. Now, when you came back and you
21 went to work for Monsanto in the medical
22 department, can you tell the jury what your
23 duties were?

24 A Yes. Well, we started out, obviously, with
25 nothing. I was the department myself and a

1 secretary. So, my duties were to see that we had
2 medical installations at all our plants and
3 laboratories, that we had doctors there; that we
4 had a condition situation where we could take
5 care -- first prevent occupational injuries, and
6 occupational conditions.

7 Second, that we could afford diagnosis of
8 them, early diagnosis and treatment. We also had
9 developed an industrial hygiene service which
10 industrial hygiene is the science that these
11 people are engineers or chemists rather than
12 physicians who are analyzing the working
13 environment. They analyze it for fumes, dust,
14 sound, noise, et cetera. We did that by engaging
15 an industrial hygienist in 1947.

16 I also had the duty of ascertaining the
17 toxicological characteristics of our raw
18 materials, our intermediaries -- intermediates
19 and finished products and disseminating and
20 affording this material, this information to the
21 marketing people to disseminate to our customers,
22 to potential customers.

23 Q And during that period of time, you
24 continued to go on a yearly basis down to the
25 Anniston Plant and the Krummrich Plant where they

1 were making PCBs and check on the health of the
2 workers; is that correct?

3 A That's correct.

4 Q Never had any problems; is that correct?

5 A That's correct.

6 Q During the entire time you were medical
7 director all the way up to 1974 when you retired,
8 did you ever have any health problem with any of
9 the people at those two plants, involving PCBs?

10 A In the -- you mean the departments, not the
11 whole plant? The PCB departments?

12 Q Yes. That's what I'm talking about.

13 A The PCB departments, no, I did not.

14 Q Okay. I want to talk a little bit about
15 safe handling and instructions for safe handling
16 of PCBs and your function in the medical
17 department.

18 What role did the medical department in
19 Monsanto have in putting out these instructions
20 involving safe handling?

21 A Well, the instructions in safe handlings in
22 the bulletins were a small section of various
23 bulletins. The medical department had the
24 responsibility for getting the material,
25 formulating the material, writing the safe

1 handling procedures and giving it on to the
2 marking department, who put it in with the rest
3 of the information in the bulletin.

4 Q So, you are supposed to basically check that
5 before it goes out; is that correct?

6 A That's correct.

7 Q All right. Now, I want to ask you --

8
9 MR. CRAWFORD: Your Honor, I have got a
10 number of documents here. I also want to
11 offer these are blowups.

12 If it's all right with the Court, what
13 I have done to try to make this a little bit
14 quicker is I have got my documents here and
15 Dr. Kelly has a copy of them and if I could
16 just go through them with him and then at
17 the end when I finish, offer them all into
18 evidence if that's all right.

19 THE COURT: All right.

20 MR. CRAWFORD: I think it will speed
21 things along.

22
23 BY MR. CRAWFORD:

24 Q First of all, will you pull out your folder
25 No. 1 that we have there and let's talk about a

document that's marked here as Plaintiffs' Exhibit No. 1861. It's entitled "Monsanto Chemical Company, A Salesman's Manual On Aroclor," and it's dated 10-1-44.

Have you got that document before you?

A Yes, I do.

Q Let me ask you: Up until just before we went to trial here, had you ever seen this document?

A No, I never had until the preparation of this trial, what, three weeks ago, four weeks ago. I never saw it.

Q Back when you came back from the Army and you took over as the medical director, did you ever see this document?

A I never saw it. I never talked to anybody that saw it. I never talked to anybody who even referred to this document.

Q As far as you know, was this document ever use by any salesmen of Monsanto?

A As far as I know, it never was. We didn't really have any sales force at the time this document was published. This was published -- not published -- written in 1944. All of the material, all of the PCBs were on allocation from

1 the government. And the people would write in,
2 show that this was -- I wasn't there, of course,
3 but I was told that they would write in and say,
4 "We have got allocation from the government of
5 40,000 pounds of this. Send it to our X plant."

6 This was not, as you can see, there is no --
7 on the back of this, most all Monsanto documents
8 have codes on the back. They have various
9 numbers that showed when they were -- how many
10 were printed, et cetera, who they were to be
11 billed to. There was some codes on it. There is
12 nothing on this. This looks like it was
13 typewritten by somebody. I don't know who.

14 Q Now, Doctor, if this document had been
15 presented to you back when you came back from the
16 service, would you have approved this for use by
17 your salesmen?

18 A No, I would not.

19 Q And would you just very briefly tell us why
20 not.

21 A Well, yes. They are -- there are
22 inaccuracies in it. It states here about yellow
23 atrophy of the liver, and that does not occur.
24 He has taken material out of context from the
25 literature. It is too involved. He talks about

1 feeding by stomach tubes, subcutaneous
2 injections.

3 I do not believe that he lists things in
4 here that have nothing to do with PCBs. He lists
5 all of these chlorinated diphenyls -- I mean,
6 chlorinated naphthalenes, the chlorinated
7 diphenyl oxides. He has got a number of things
8 in here, and I do not believe a salesman --
9

10 THE COURT: I don't know why you are
11 going into so much detail on this.

12 MR. CRAWFORD: Your Honor, I will try
13 to move it a long a little faster.

14 THE COURT: All right.
15

16 BY MR. CRAWFORD:

17 Q Doctor, let me ask you a few more
18 questions -- well, let's move on to another area.

19 Now, after the War when you came back, we
20 have talked about the salesman's manual, I want
21 to ask you generally how -- just very generally
22 how the medical department handled your safe
23 handling instructions and I want to, if we can do
24 this, I'm going to try to lump it all into one
25 question.

1 Tell me what Monsanto did if you had a new
2 chemical that you were getting ready to put on
3 the market, what you did as far as safe handling
4 instructions, if you had an old chemical that was
5 going to be used for some new purpose, what you
6 did, and then what you did about the safe
7 handling instructions regarding the old
8 chemicals?

9 Can you do that as quickly as possible?

10 A Yes, I will. I will do this fast.

11 If you have a new chemical, that is
12 something that hasn't existed before, you
13 invented it, then obviously you don't know much
14 about it.

15 The only experience you have has been with
16 the individuals who invented it themselves, have
17 been working with it at the bench in the
18 laboratory, who have been producing 10, hundred
19 pounds in a pilot plant. You get that
20 information.

21 Then you have to take this and have some
22 toxicological work done on it. You feed it to
23 rats to see how toxic it is from an acute point
24 of view. You put it up in a skidaramus
25 (phonetically) to see, if it's a liquid, to see

1 if it can be absorbed.

2 If it isn't a liquid, you mix it up and put
3 it on with mineral oil. You drop it in the eye
4 to see if it's dangerous to the eye. You have
5 the rats inhale a saturated solution, a saturated
6 atmosphere of the stuff to see if it is very
7 toxic.

8 Then you formulate your safe handling
9 procedures from the information that you gain
10 from that.

11 Q Okay. Now, with the older products, of
12 course, you continue to monitor the literature;
13 is that correct?

14 A Well, now then we take a product that is
15 old-new to Monsanto but old to the industry.

16 So, in other words, we are a me, too,
17 company. Somebody else has been making this for
18 five years and we are going to start making it
19 now. The patent has run out and we are going to
20 start making it.

21 Then I would look in the literature to see
22 if there is any toxicological information there.
23 I would look in the medical and government
24 publications to see if there has been any ill
25 effect from the workers and very, very frequently

1 I would call the medical director of the company
2 and say, hey, we are going to start manufacturing
3 products X, Y, Z. You have been making them for
4 a long time. Do you have any particular problems
5 with it? What do you know about them?

6 There is no particular competitiveness as
7 for as the safety interplay between the various
8 medical directors of the chemical industry. I've
9 done it and they have done it.

10 Q Okay. Now -

11 A And your last question was, suppose it's a
12 compound that's old to Monsanto. Okay. We are
13 making this PCB that goes into a closed system.
14 We are now going to make it in carbonless carbon
15 paper.

16 So, there is a great deal more potential
17 exposure in the carbonless carbon paper than it
18 is inside a metal container. So, we have to do
19 other testing on it.

20 Q All right.

21 A That testing may be skin testing, it maybe
22 testing to see if it causes sensitization like
23 poison ivy or a rash that you would get from
24 other things.

25 Q All right. Now, once you get that taken

1 care of and you find out the properties of it and
2 you formulate some sort of safe handling
3 instructions so that the product can be handled
4 safely, how do you get that information out to
5 the customers? Can you tell us very generally?

6 A Well, yes, sir. There are two ways you get
7 it out.

8 One is there are various types of bulletins.
9 There is an application bulletin, a development
10 bulletin when there is no great particular sales
11 market for this, any particular market. They
12 say, here we have got a new chemical. We think
13 it may be used in any of these dozen places.

14 Here is what we know about it. Here are the
15 safe handling procedures. It goes that way. If
16 it gets to be a standard item, then a product
17 bulletin is made. In other words, people start
18 buying it.

19 Then the marketing department makes a
20 product bulletin and we supply the safe handling
21 data to it as well as whatever is necessary from
22 the toxicological point of view.

23 Q All right.

24 A Then, and this is certainly not the least,
25 we have many, many, many communications from

1 companies, doctors, nurses, government agencies
2 asking about safe handling of various products.

3 Q All right. And you would personally respond
4 to this, your department?

5 A Our department would certainly, I would say,
6 our department started, as I said, with myself
7 and I got myself and a full time assistant and
8 two part-time people.

9 We got one industrial hygienist when I left.
10 We had four. We developed one toxicologist.
11 When I left, we had four.

12 So, the senior industrial hygienist, the
13 senior toxicologist and either associate or
14 myself would write these letters.

15 Q All right. Would you pull your Folder No. 2
16 out there and tell the jury what that is?

17 A Which one?

18 Q Folder No. 2. That's Defendant's Exhibit
19 No. 3300. Are those letters that you wrote?

20 A Oh, yes.

21 Q All right. Now, this is the last thing you
22 told me about. We people would write in, you
23 would write back and tell them specifically how
24 to use the product and this would be PCBs; is
25 that correct?

1 A These letters here are, yes, but this would
2 happen with any number of chemicals.

3 Q All right. And those are letters that were
4 written to people about PCBs, correct?

5 A Yes. These are ones that are all PCBs.

6 Q Now, let me ask you about those letters.
7 Are those all of the letters that you ever wrote
8 while you were a medical director?

9 A Oh, goodness, no. I mean, I wrote literally
10 thousands. These are 90.

11 Q You and the rest of your department?

12 A That's correct. That's 25 a year.

13 Q All right.

14 A That's not very many.

15

16 MR. CRAWFORD: Your Honor, as I said,
17 I'll offer all this at the end. We will
18 offer those letters.

19

20 BY MR. CRAWFORD:

21 Q Now let's go on. So, you have talked about
22 this, various technical bulletins that you have
23 sent out. You have talked about the letters that
24 you wrote and that would go to individual people.

25 How would those people get your name and

1 know to write you to ask about PCBs?

2 A Well, first of all, a salesman would talk to
3 them. If they asked, there was a directive that
4 the company had that any time a question of
5 toxicity was raised that could not be answered by
6 the information in the product bulletins or other
7 bulletins, that salesman would -- was instructed
8 to call St. Louis or have the people write to St.
9 Louis.

10 Now, this doesn't mean that everytime if a
11 person, salesman walked into Company X and said
12 here is what I have got and here is what I think
13 you should be using and the purchasing man would
14 say, well, how safe is it and if the --

15
16 THE COURT: Just a minute, Doctor.
17 Let's see if we can't make the answers a
18 little shorter, a little more direct.

19 THE WITNESS: Okay. Fine. Well, it
20 came from the salesman or it came --

21 THE COURT: It really doesn't make any
22 difference how they got his name and what
23 caused them to write to him. That doesn't
24 make any difference.

25 MR. CRAWFORD: Your Honor --

1 THE COURT: The fact that they wrote to
2 him and the information that he returned is
3 the only thing that would be important.

4 MR. CRAWFORD: Your Honor, our only
5 point is is to indicate that we did get
6 information out to people in many, many
7 different ways and we took great care to do
8 this and we --

9 THE COURT: Well, you can ask him a
10 question like that if you wish to.
11

12 BY MR. CRAWFORD:

13 Q Doctor, are these letters in a way kind of
14 handcrafted warnings and instructions that you
15 send out to people when they ask about specific
16 uses of PCBs?

17 A Yes. Because, Mr. Crawford, there may be
18 any number of potential users. There may be a
19 hundred applications and you couldn't get a
20 bulletin, take care of all of these.

21 Well, if this man had a unique problem of
22 his own, he would write in and there would be
23 much more detail there.

24 Q I want to ask you about some of the specific
25 literature that you put out and we'll try to go

1 through this as quickly as possible.

2 Let's pull out Folder No. 3 and I want you
3 to identify that. That is marked Defendant's
4 Exhibit No. 105. Could you identify that?

5 A Yes. This is a bullet put out in 1960, the
6 Proper Handling of Aroclors and Their Mixtures in
7 Electrical Industry.

8 Q All right. Now, this is just a part of a
9 larger document. Where would this document go?
10 Who would you send that to, Westinghouse?

11 A Well, yes, Westinghouse, any of the
12 transformer manufacturers, any of the
13 transformers -- the users of transformers.

14 Q TVA would get a copy of this, for instance?

15 A Yes. I can't say that, guarantee that every
16 large person, whatever salesman went out with
17 this and any questions came up about the proper
18 handling of Aroclor.

19 Q All right. Now, I'm looking at Chapter No.
20 12 there on dermatology and toxicology. I just
21 want to go over a few of these things.

22 It says when sampling tank cars, canvas
23 gloves, safety glasses, goggles should be worn
24 and it says, garments should be laundered at
25 least weekly if Aroclors or Askarels are spilled

1 on the clothes.

2 Is that your instructions?

3 A That was at that time because we said canvas
4 gloves. There were no Neoprene, rubber gloves,
5 synthetic rubber gloves would not stand up
6 against PCBs and later on there were different
7 types of gloves. But in '60, that was the best
8 we had.

9 Q All right. Now, the next page on exposure
10 to vapors you say there that Askarels have a
11 degree of toxicity and should not be inhaled over
12 a prolonged period of time and you also give the
13 amount that can be in the air. That's point 5 to
14 1 millograms per cubic meter of air; is that
15 correct?

16 A That's correct.

17 Q And where did you get those standards as far
18 as how much could be in the air?

19 A Well, the original work on it was done by
20 Dr. Treon at the University of Cincinnati, the
21 Kettering Institute there and then the government
22 industrial hygienists took this work and set the
23 standard.

24 Q All right. Then the last thing, you tell
25 them that exhaust ventilation should be applied

1 to the chamber to prevent Askarel vapors from
2 entering the work room; is that correct?

3 A That's correct.

4 Q And that would be up to the employer like
5 Westinghouse, correct?

6 A Well, yes, he knew the conditions of use.
7 He knew what was in his work room. We didn't.

8 Q All right. That would be up to
9 Westinghouse, correct?

10 A Yes, sir. A lot of times a customer won't
11 let us come in there.

12 Q All right.

13

14 MR. CRAWFORD: We would offer this,
15 Your Honor.

16

17 BY MR. CRAWFORD:

18 Q Let's move on to the next folder. Let's
19 look at Folder No. 3A, if we could. Would you
20 identify that very quickly? That's Defendant's
21 Exhibit No. 5.

22 A This is a technical bullet. Technical means
23 it's a pretty early in the application phase of
24 the product Aroclor polychlorinated polyphenals.

25 Q Well, let's look at the dermatology and

1 toxicology on that. That again gives the
2 concentrations of 1.5 to 1 millograms; is that
3 correct, in the air?

4 A That's correct. We are not talking about
5 electrical applications of this particular
6 bulletin.

7 Q And also it say, repeated skin contact
8 should be avoided because of a condition called
9 chloracne; is that correct?

10 A Yes, sir.

11 Q Okay. And then on the next page you saw
12 that at elevated temperatures it's not supposed
13 to be disbursed into the general work room
14 without engineering controls; is that correct?

15 A That's correct.

16 Q And it says if you get it on your skin, wash
17 it off with soap and water; is that correct?

18 A Yes.

19 Q And those were your instructions, right?

20 A Yes, sir.

21 Q Let's look at one more. Let's go to Folder
22 3B. And that's Defendant's Exhibit No. 9. That
23 last document was 66. This one is 1975.

24 Identify this document, if you would,
25 Doctor?

1 A We have the same one? This is transformer
2 Askarel inspection and maintenance.

3 Q Yes, that's correct.

4 A This is a document by Monsanto dated
5 presumably April of 1975 which talks about the
6 toxicity and safe handling data in inspecting and
7 maintenance maintaining transformers that have 5
8 percent -- that have Askarel in them. Askarel
9 being the generic name for dielectrics that are
10 PCBs.

11 Q All right. Now, it's got the same general
12 instructions about not breathing the fumes, to
13 ventilate and also that it can cause chloracne if
14 it gets on your skin, correct?

15 A Yes, pretty generally as it was before.

16 Q All right. Now, these last three exhibits
17 that we have talked about, if the instructions
18 are followed in those exhibits which would go to
19 places like Ford, Westinghouse and TVA, can the
20 products be used without any ill effects in your
21 estimation, your opinion?

22 A Oh, yes, no question about it.

23 Q Okay. Doctor, I want to next go to Folder
24 No. 4 and talk about that just a little bit.

25

1 MR. CRAWFORD: Your Honor, we have got
2 copies of this for the jury. If we could, I
3 will try to get through it.
4

5 BY MR. CRAWFORD:

6 Q Doctor, this is Defendant's Exhibit 3243.
7 Would you identify that document, please?

8 A Yes. This is a letter dated July the 25th,
9 1956 by Elmer Wheeler who was the assistant
10 director of the department. He was not a
11 physician. He was in charge of industrial
12 hygienists, hygiene and toxicology.

13 He was writing to Dr. Speicher who was an
14 administrator. That's the chief industrial
15 hygienist of the Westinghouse Electric Company at
16 their headquarters in East Pittsburgh.

17 It seems that he wanted, Mr. Speicher wanted
18 to know toxicity information on several of our
19 Aroclors, plus the sampling methods that we
20 recommended.

21 Q All right. Now, Doctor, this letter was
22 actually sent to Westinghouse in '56 before the
23 Bloomington plant was even started; isn't that
24 correct?

25 A That's correct.

1 Q And that describes how to use these Aroclor
2 mixtures safely, correct?

3 A Well, yes, it even describes the toxicity
4 that we had, the reports that we had sponsored at
5 the Kettering Institute of the University of
6 Cincinnati. So, we sent them copies of that.

7 We told them what the hygienic standards we
8 thought were and we gave them, we talked to them
9 about the toxicity information -- I mean,
10 atmospheric sampling methods which he had asked
11 about.

12 Q All right. The plaintiffs in this case have
13 claimed that Monsanto didn't send out their test
14 and work that they did testing the product; is
15 that true?

16 A No, it's not true.

17 Q Is this a case where we sent it to
18 Westinghouse?

19 A Oh, this is one of many that we have sent
20 out the reports to.

21 Q And they had those reports before they even
22 built the Bloomington plant, correct?

23 A That's correct.

24 Q This also warns about chloracne and what can
25 happen if you don't use the product safely,

1 correct?

2 A Yes.

3 Q All right. And if these instructions,
4 again, were followed by the people at
5 Westinghouse and their employees, could the
6 product be used without any ill effects in your
7 opinion?

8 A Yes, because at that particular time, we
9 said there has never any case of chloracne in the
10 electrical industry's use of these products as
11 far as we knew.

12 Q I want to go to one other folder. Let's go
13 to Folder No. 5.

14 Will you take a look at that.

15 Could you identify that, please, sir?

16 A There is another letter to -- from Mr.
17 Wheeler to the same Mr. Speicher.

18 Q What is date of this letter?

19 A October the 23rd, 1959.

20 Q All right. This is Defendant's Exhibit 856,
21 correct?

22 A Correct.

23 Q All right. Now, tell us generally what this
24 letter does to Mr. Speicher?

25 A Well, it seems like Westinghouse had -- was

1 going to go use a mixtures of two PCBs, one with
2 three atoms of chlorine in it, and the other with
3 trichlor -- with six atoms.

4 So, he was use trichlordiphenyl: 40 percent
5 trichlorbenzene, which is not a PCB, and 60
6 percent hexchlorodiphenyls.

7 And he asked for our advice as far as this
8 is concerned, and we told him everything we knew
9 about it.

10 Q Okay. Now, on the top of the second page,
11 isn't he telling them there that with sufficient
12 exposure by inhalation of the vapor or skin
13 contact, that it can result in chloracne and he
14 also says that that can be an indication of a
15 more serious systemic injury. What does that
16 mean? Is that talking about liver damage?

17 A Yes.

18 Q So, you are telling them about chloracne and
19 liver damage; correct?

20 A That's correct.

21 Q You are telling them how to use the product
22 safely, correct?

23 A Yes, sir. We gave them the figure -- the
24 temperatures that exhaust ventilation should be
25 used at and we gave them the references in the

1 literature towards --

2
3 MR. CRAWFORD: We would offer that,
4 Your Honor.

5
6 BY MR. CRAWFORD:

7 Q Let's see if we can move on. I want to go
8 to one other area. Let's take a look at Folder
9 No. 6 next.

10 Doctor, Folder No. 6 has Defendant's
11 Exhibits 3171, 3172, 3173, 2221, and 2222. Now,
12 would you tell the jury what those are?

13 A These are safe practice data sheets put out
14 by the Westinghouse Electrical Corporation from
15 their headquarters in East Pittsburgh,
16 Pennsylvania. They are dated, 8-21, 12-62,
17 12-70, 4-71 and 11- 72.

18 Q All right. Now, these are documents put out
19 by Westinghouse that are supposed to be used to
20 instruct their workers on how to handle PCBs
21 safely, correct?

22 A That's correct.

23 Q They have been putting them out since 1951,
24 correct?

25 A According to this, yes.

1 Q Now, we have got one up here, this Exhibit
2 No. 3272, which I believe has already been
3 offered. I just want to ask you a very few
4 questions about this.

5 This is, of course, a Westinghouse document
6 that they drew up, correct?

7 A That's correct.

8 Q And they take our very general instructions
9 and then they put it in specific words to
10 implement it; is that correct.

11

12 THE COURT: I think this has been
13 previously offered, hasn't it, Mr. Crawford.

14 MR. CRAWFORD: Yes, Your Honor. I was
15 offering the rest of them, but I will move
16 on.

17 THE COURT: All right.

18 I believe it had been gone over by some
19 witnesses in regard to the instructions or
20 warnings.

21 THE WITNESS: Oh, Your Honor, may I
22 make a comment, sir?

23 THE COURT: No need of going over them,
24 again.

25 THE WITNESS: Your Honor, may I make --

1 you said, Mr. Crawford, that that was gotten
2 together by Westinghouse from our
3 information.

4 That was only one bit of the
5 information. These people knew a great deal
6 themselves about it.

7 Speicher was a very well-known
8 industrial hygienist. Their medical
9 director, Hazalette, who was in the business
10 early. He was one of the pillars of
11 occupational medicine. They were no
12 "Johnnie-come-latelies" in this.

13

14 BY MR. CRAWFORD:

15 Q Okay. Now, if these instructions are
16 followed in these safety data sheets, can the
17 product be used safely without any ill effects?

18 A Yes, it can and was.

19 Q Okay. Now, Doctor, I want to move on to
20 another area, if we could.

21 First of all, back during this period of
22 time, did Westinghouse have a medical director?

23 A Yes. In the early days, they had Dr.
24 Hazalette. I do not know who succeeded him. I
25 knew Hazalette slightly. I do not know whether

13
13]
1 they -- but I knew Speicher very well, their
2 industrial hygienist. He and I and Elber and he
3 were on a first name basis and we saw each other
4 at meetings frequently.

5 Q What about Ford and TVA, do they also have
6 medical directors?

7 A Yes. I have been in contact with Ford quite
8 often. Their first medical director was Dr.
9 Butler. I don't know his first name, but he's
10 dead now and he was succeeded by Duane Block
11 about 10 years ago. I saw them about four times
12 a year and we discussed PCBs together frequently.

13 Q Okay. Now, these medical directors would do
14 the same thing that you would. They would be
15 looking into the chemicals and they would be
16 checking on their workers presumably; is that
17 correct?

18 A Yes, no question.

19 Q To be sure they could use whatever products
20 they were using safely, correct?

21 A Yes.

22 Q And that's their duties?

23 A That's their duties.

24 A I want to talk to you very briefly about
25 Ford just a minute. Let's go to Folder No. 7 and

1 take a quick look at that.

2 All right, Doctor. Let's look at Folder No.
3 7. That's Defendant's Exhibits 861, 864, and
4 865. I believe we have got 865 here on a blowup.
5 Let me identify that real quickly.

6 That is Defendant's Exhibit 865-A. What is
7 that document from Ford Motor Company? Could you
8 tell the jury what that is?

9 A Well, this is a safety data sheet along
10 about -- I'm not exactly sure. This was in 1969.
11 Some time in the late 60's, all the companies
12 decided all of a sudden -- one started it and
13 they were all doing it. They were asking for
14 safety data sheets.

15 That meant they sent all of their suppliers
16 that would get or ask their purchasing department
17 for a laundry list of all of their suppliers so
18 they would find X products, 10 products came from
19 Monsanto. So, they sent a letter to Monsanto and
20 say send us some information on -- fill out the
21 safety data sheet for us. So, that's what this
22 is. It's their form, and we answer the
23 questions.

24 Q All right, so what they do is they send in
25 and ask you about a product and you tell them

1 about the properties of it and how it can be used
2 safely; is that correct?

3 A That's correct.

4 Q If they follow that information, their
5 workers can use it safely with no ill effects,
6 correct?

7 A Yes, sir.

8 Q Now, what about Ford? Did you know that --
9 did you ever talk to their medical director about
10 PCB products?

11 A Oh, yes. I said talked to Bud Erwin and
12 Duane Block. That's Ford.

13 Q Now, sometimes with some of the products
14 that you manufacture there at Monsanto, is it
15 possible that you cannot give them all of the
16 chemical components of it?

17 A Yes, because there are some things that are
18 patented by two companies. And we would have --
19 we would give them the information but we
20 couldn't tell them what was in it. That happened
21 once in a while, not frequently. But if it were
22 a product that you just couldn't -- well, like
23 Coca-Cola wouldn't tell people what their formula
24 was.

25 We were in the same situation. I'm not

1 talking that we were a food product -- we had
2 food-grade products, but we would tell them
3 everything we knew about the product without
4 saying what the components were in there.

5 Q All right. But you would always give them
6 enough information about the chemicals that they
7 could handle them safely, correct?

8 A That's correct.

9 Q All right. Now, let's go on to Folder No. 8
10 now. This is some correspondence from the TVA.

11
12 MR. CRAWFORD: This is Defendant's
13 Exhibits 1410 and 1409.

14 We would offer those other exhibits,
15 Your Honor, that we just talked about.

16
17 BY MR. CRAWFORD:

18 Q Tell us what 1409 and 1410 are, if you could
19 could, sir?

20 A Well, 1409 is a letter from Dr. Bartholomew
21 who was the chief of the occupational health
22 branch of Wilson Dam, I suppose that's down in
23 Knoxville to a Dr. Hufstedter, who is the area
24 health officer at Wilson Dam. It's dated April
25 of '62, and he asking about exposure to Askarel

transformer insulating fluids.

Q All right. Now, Doctor, just to cut this down so we can save some time, do those two letters there indicate to you that the TVA had all of the information they needed on PCBs --

MR. HENDERSON: Objection, Your Honor. I think the leading questions relative to the customer's knowledge has been overextended and transcends all reasonable bounds. I object.

THE COURT: Objection sustained.

MR. CRAWFORD: Your Honor, I'm just trying to hurry. I'm sorry.

THE COURT: Well, it's all right. I don't mind a certain amount of leading, but you are asking him questions that pretty much answer themselves.

BY MR. CRAWFORD:

Q All right, Doctor. Tell us what is in those letters, would you, please?

A Yes. There are two letters. The earliest one is dated April the 4th, 1962. It seems that Hufstedter was asking Bartholomew who must have

1 been his chief prevention of skin irritation
2 caused by transformer --

3
4 THE COURT: Let's don't read them.
5 Just ask what was in them.

6
7 BY MR. CRAWFORD:

8 Q All right. Just generally, Doctor --

9 A He was worried about skin irritation.

10 Q All right.

11 A He said --

12
13 THE COURT: That's the way to answer
14 it.

15
16 BY MR. CRAWFORD:

17 Q Okay. Does those letters have anything
18 about safe handling for the Askarels and
19 transformer fluid?

20 A Yes. They said that they have a condition
21 where we had to get our hands in it, and they
22 were worrying how to take care of it.

23 Q If they followed the instructions in those
24 letters, could they handle the product safely?

25 A Yes. They would not have gotten -- as it

1 is, they ended up with skin irritation. They
2 didn't say they got anything else out of it.

3 Q Okay.

4 A They wouldn't have even got the skin
5 irritation if they had a different situation.

6
7 THE COURT: Doctor, we have been here
8 nine days listening to this same testimony
9 from other experts of Monsanto. Maybe it's
10 a little different from what you are saying,
11 but we need to cut it just as short as we
12 can.

13 THE WITNESS: I will do my best.

14 THE COURT: Thank you.

15 MR. CRAWFORD: Your Honor, I will try
16 to hurry as much as I can.

17 THE COURT: Well, I know you are, Mr.
18 Crawford, and the Court appreciates your
19 efforts and you are acting proper in every
20 respect. But there is no need of going over
21 information that seems that the Court has
22 heard all of this on the deposition
23 testimony and the various question and
24 answer depositions offered by both parties,
25 the plaintiffs and the defendant. It seems

1 to me like it's all repetitious.

2 MR. CRAWFORD: Judge, I'm running as
3 fast as I can.

4 THE COURT: Well, I understand that;
5 and you have a right to have your day in
6 court and to have this gentleman testify
7 since he was the medical director of
8 Monsanto.

9 But it's no need of spending a lot of
10 time and dwelling on testimony that has
11 already been given.

12 MR. CRAWFORD: Judge, I will tell you.
13 I'm just about finished with this. I can go
14 on -- I just want to show that Ford and TVA
15 and Westinghouse all had the information to
16 handle the product safely. I want to talk
17 about testing.

18 THE COURT: That's perfectly all right,
19 but he can't testify as to what Westinghouse
20 did or what Ford did or what TVA did and
21 you're asking him to reach a conclusion
22 about those.

23 MR. CRAWFORD: Yes, sir:

24 THE COURT: It hasn't been objected to
25 so the Court has let it in. But just move

1 it along. And the Court is taking up time
2 making that explanation.

3 MR. CRAWFORD: Yes, sir, I'm sorry.

4

5 BY MR. CRAWFORD:

6 Q Doctor, there is one other area I want to
7 cover and then we will be finished. I want to
8 talk about the testing that Monsanto did.

9 The plaintiffs here said we didn't do any
10 testing and I would like to go through it just as
11 rapidly as we can. I have got some boards here,
12 if we can just run real quickly through it.

13 First of all, just very generally, when
14 after the Second World War -- we know about the
15 Drinker test and some of those tests that were
16 run, after the Second World War, when did
17 Monsanto start testing?

18 A Probably in the late 40's and early 50's.

19 Q Okay. Now, just tell me very generally why
20 you started testing in the 40's.

21 A Testing the employees?

22 Q Yes. Started testing --

23 A Well, we tested the employees, we examined
24 the employees every year.

25 Q No. I'm talking about just testing the

1 products, the PCB products?

2 A Oh, okay. Why we did it?

3 Q Yes. Why did you start testing in the 40's?

4 A Because they were going to be used in
5 different applications.

6 Q That's PCBs?

7 A PCBs. Up through the first -- the Second
8 World War, they were used in presumably closed
9 operations. The majority of the time they were
10 as dielectrics in capacitors and transformers.

11 After the Second World War, starting around
12 the '50's, they were used in other applications,
13 plasticizers, carbonless carbon paper, adhesives,
14 paints and an awful lot of different applications
15 where there were more possibilities of exposure
16 than there were in the previous types of
17 operations -- of applications.

18 Q Okay. I have got just chart here. We will
19 go through it very rapidly. Let's see.

20 This is first of all, this is Defendant's
21 Exhibit 3292. First of all, before we start on
22 that one -- we have got 3292 is the first one.

23 This is the studies that were in the 30's
24 and 40's and up through the 50's; is that
25 correct?

1 A Yes, except that mine is 3300.

2 Q Okay. That's all right. Let's take a look
3 at this. The first study we talked about was
4 Drinker; is that correct?

5 A I can't see that from here. Wait a minute.

6 Q Well, take a look at your sheet. I believe
7 it will correspond, if you could?

8 A Well, okay. Yes. Okay. The first study.

9 Q Okay. That is prior to the War; we have
10 already talked about that, correct?

11 A Yes, that's correct.

12 Q All right. Now, let's go on to the next
13 one, which is the same exhibit and that's No. A,
14 I believe. These are studies in the 50's; is
15 that correct?

16 A Yes, sir.

17 Q All right. Now, you have already told us
18 about that. That's where you were going into new
19 applications with the product; is that correct?

20 A That's correct.

21 Q Okay. Let's take a look at the next one.

22 All right. This is 3292, the same exhibit.
23 This is 56 through 62. Now, were there any
24 changes in reason that you tested going into the
25 60's?

1 A Well, yes, there were expanded applications,
2 obviously, all along. And then secondly, there
3 were various state and government regulations as
4 far as freight was concerned and freight
5 classification. So, we had -- and also there
6 were more people sending in for these safety data
7 sheets and they didn't want us to say low level
8 of toxicity, moderate level of toxicity. They
9 wanted a figure. What's the LD50 of product X.

10 Q Now, we are going into the 60's. Again,
11 that's the same testing?

12 A Until end of the 60's.

13 Q What about the end of the 60's, was there
14 any different reason to test then?

15 A Yes. At the end of the '60's, two things
16 happened: One, there was contamination of fluids
17 and got into the food in Japan and in China in
18 Taiwan rather; and secondly, there was the
19 development of the problem with the environment.
20 The material was found to be nonbiodegradeable
21 which meant that it stayed in the environment and
22 we had to find out more information about it.

23 Q Okay. Now, we have got another one here
24 that goes from '60 up to '69 and that's -- you
25 have talked about the enviromental problems,

1 testing for that?

2 A Yes, I did. Yes, I did.

3 Q We have got, I guess one last couple of more
4 here.

5 Okay. We have got '69 through '70. '70
6 would be same thing, enviromental problem; is
7 that correct?

8 A Yes, plus the --

9 Q Yusho?

10 A -- Yusho incident.

11 Q Okay. And then we have got more tests that
12 run on up until '71. That is another 10 or so,
13 correct?

14 A Correct.

15 Q Same type of test and we have got another
16 four here. We are back to '72, '73, some in --
17 through '71; is that correct?

18 A Yes, sir.

19 Q Okay. We have got another board here and
20 that is through '72; is that correct?

21 A That's correct.

22 Q Okay. We have got one more that takes us up
23 through '74, correct?

24 A Yes, sir.

25 Q And that's about the time that you left?

1 A Yes, I left about that time.

2 Q Is that correct? And one more that goes on
3 up through '75, correct?

4 A Yes, sir.

5 Q So, those are the tests that Monsanto did on
6 the PCB products?

7 A Yes, sir.

8 Q Did any of those tests -- none of those
9 tests indicated to you that the product could not
10 be used safely if people followed the
11 instructions at Monsanto; is that correct?

12

13 MR. HENDERSON: Objection, Your Honor.

14 THE COURT: That's objectionable but
15 the Court will permit it. He's already
16 answered.

17

18 BY MR. CRAWFORD:

19 Q None of these tests that were run that I
20 have been through here indicated to you at
21 Monsanto, that the product, PCB products could
22 not be used safely if the instructions we've
23 talked about were followed?

24 A No, sir, none of them did.

25 Q Now, Doctor, in addition to what we have

1 talked about about these tests and the other
2 instructions that you have sent out, what about
3 any reports in to you about people having
4 problems using PCBs, any ill effects? Did you
5 get any of those?

6 A Yes, sir.

7 Q Would you tell us about those?

8 A Well, the reports in to me were probably
9 less than half a dozen. There were two instances
10 where individuals developed some liver
11 dysfunction. One in the East Coast and another
12 one in Brazil, Indiana. I don't know what the
13 exposure was on the East Coast, but the one in
14 Indiana -- I believe they both were the same,
15 though.

16 I know the one in Indiana was a leaking
17 juryrigged heat transfer agent apparatus which
18 the workers were exposed to hot PCB vapors for
19 something like three days in a row and developed
20 liver problems. When it was corrected, they got
21 better. They got well with no residue.

22 There were also a couple of cases of
23 chloracne. One again from a heat transfer
24 agency. I'm sure you have heard about that.
25 That's the Meggs article of Bannon (phonetically)

1 someplace in New Haven or someplace in New
2 England where these seven people developed a
3 relatively minor chloracne with no, no other
4 problems.

5
6 THE COURT: I don't think we need to go
7 into this, Mr. Crawford.

8 MR. CRAWFORD: All right.

9
10 BY MR. CRAWFORD:

11 Q Well, Doctor, in all of those reports that
12 you received, you say there were five or six of
13 them. Were any of those health effects from
14 people using the product, handling PCBs, were any
15 of them fatal?

16 A Any what?

17 Q Were there any fatal, anybody die?

18 A Oh, no, no. None at all.

19 Q Were there any permanent injuries where
20 people were injured for a long period of time?

21 A No, sir.

22 Q All short term? People got over them,
23 correct?

24 A That's correct.

25 Q And only four or five over a 30-year period;

1 is that correct?

2 A That's correct, problem half a dozen.

3 Q Now, Doctor, about your own plants, you say
4 you visited the Krummrich plant and the Anniston
5 plant, people were making PCBs. You had no
6 health problems, correct?

7 A That's correct.

8 Q I want you to go to Folder No. 9 and tell us
9 what that is if you would. That is Defendant's
10 Exhibit No. 1226.

11

12 THE COURT: How much more direct
13 testimony do you have, Mr. Crawford.

14 MR. CRAWFORD: Sir?

15 THE COURT: How much more direct
16 testimony do you have?

17 MR. CRAWFORD: Your Honor, I think I
18 can be finished in five minutes.

19 THE COURT: All right.

20 THE WITNESS: Yes, sir. I have No. 9.

21

22 BY MR. CRAWFORD:

23 Q Would you tell us what that is, Defendant's
24 Exhibit 1226?

25 A Yes. There was considerable interest after

1 the Yusho incident, episode rather, by the
2 government in trying to find out how their, how
3 the workers were fairing in places where they
4 were using PCBs.

5 So, they came to us and asked us what our
6 information was on our workers at our various
7 plants. So, we took the Krummrich plant which
8 was across the river from us. It was more
9 convenient. So, we examined 27 of these people
10 and ran very extensive tests on them, as
11 extensive as you could do in 1972, plus PCBs in
12 blood.

13 And the net result was, we didn't -- we
14 found that workers were as healthy as a cross
15 section of our plant workers of the same age.

16 Q Now, Doctor, based on everything that we
17 have talked about here today, all of these
18 factors, the absence of reports of ill effects in
19 literature, the results of Monsanto sponsored
20 studies and a lack of ill effects among your own
21 employees and these tests that you have ran and
22 the investigations that you have made and
23 Anniston and Krummrich and the rarity of any
24 complaints or ill effects in employees of
25 Monsanto or your customers, have you come to a

1 conclusion concerning whether PCBs could be used
2 safely if Monsanto's instructions on safe
3 handling were followed?

4 A Yes, sir.

5 Q And what is that opinion?

6 A They could be used safely.

7 Q Now, is there anybody else out there that's
8 an authority on this that supports your
9 conclusion?

10 A Yes, I think --

11 Q And who is that?

12 A Dr. Kimbrough.

13
14 MR. HENDERSON: Objection.

15 THE COURT: Objection overruled.

16 MR. CRAWFORD: One more question, Your
17 Honor.

18
19 BY MR. CRAWFORD:

20 Q Doctor, I want to show you what's already
21 been introduced.

22
23 THE COURT: We have seen that one so
24 many times, that it's --
25

1 BY MR. CRAWFORD:

2 Q Do you agree with that statement?

3 A Yes, I do.

4 Q Doctor, one last thing. Do you know who Dr.
5 Bohn is?

6 A Bohn, B-o-h-n?

7 Q Yes.

8 A I think it's who she was. I believe she is
9 deceased but she was a worker in New Jersey. She
10 wrote a paper talking about melanoma. I talked
11 to Dr. Bohn. There was a meeting. She was in
12 St. Louis --

13

14 THE COURT: We all know who she is.

15 THE WITNESS: Well, she wrote and at
16 that particular time, I talk to her about --
17 and that was in 19 --

18 THE COURT: Let's stop him, if you can.

19

20 BY MR. CRAWFORD:

21 Q Doctor, just let me ask you one question.

22 A All right.

23 Q The results that she arrived at in her
24 initial report, did you talk to her about those?

25 A Yes I did.

1 Q And what was her conclusion?

2 A We need more study. We are going to analyze
3 this further. We are not so sure about the
4 exposure to different things and we will come out
5 with a later paper, which she never did.

6

7 MR. CRAWFORD: Thank you very much.

8 Thank you, Your Honor.

9 THE COURT: All right. Ladies and
10 gentlemen, we are going to have a 15 minute
11 recess.

12

13 (WHEREUPON AT 2:40 P.M. COURT WAS IN RECESS
14 UNTIL 2:58 P.M. AT WHICH TIME THE FOLLOWING
15 PROCEEDINGS WERE HAD AND DONE.)

16

17 (In the presence of the jury)

18

19 THE COURT: Please be seated. Mr.
20 Henderson, I hope you will make the cross
21 examination as brief as you can.

22 MR. HENDERSON: Well, I'm going to find
23 that difficult, Your Honor, because I don't
24 want -- I don't want to go as fast as the
25 witness was going and I have a lot of areas

1 to cover, but I will make it as brief as
2 possible.

3 THE COURT: It might be justified in
4 taking more time if the witness was
5 testifying to something that we haven't
6 already heard.

7 MR. HENDERSON: I will do the best I
8 can.

9
10 CROSS EXAMINATION

11
12 BY MR. HENDERSON:

13 Q Dr. Kelly, if you would, I would like for
14 you to take out of your packet which I think you
15 have called Folder No. 1, which is Plaintiffs'
16 Exhibit 186.1

17 A Yes, sir.

18 Q Now, this is dated October 1, 1944. Do you
19 see that in the upper right-hand corner?

20 A Yes.

21 Q And it's Monsanto Chemical Company. Do you
22 see that?

23 A Yes, sir.

24 Q And it goes on and has the name of Monsanto
25 Chemical Company on what must be 30 pages or

1 more; is that right?

2 A Yes, sir.

3 Q And this at the bottom shows an SCM number
4 starting 032424?

5 A Yes, sir.

6 Q And it goes over to SCM 032464?

7 A Yes, sir.

8 Q And it has among other things the names of
9 various chemical compounds. It goes through the
10 stability of the product, the corrosion of the
11 product, the solubility, the surface tension, the
12 toxicity and so on, does it not?

13 A Yes, sir.

14 Q Do you understand that the plaintiffs'
15 lawyers, us, we, received this from Monsanto's
16 files?

17 A I do not know how you got it, sir.

18 Q Would you accept the fact that if I
19 represent to you that this came from the
20 Monsanto's files?

21 A Yes, sir.

22

23 THE COURT: I don't think there is any
24 question about that.

25

1 BY MR. HENDERSON:

2 Q Well, you intimated that somehow somebody
3 else typed this, didn't you, in your direct
4 examination?

5 A No, sir, I did not.

6

7 THE COURT: He just indicated he didn't
8 know anything about it.

9

10 BY MR. HENDERSON:

11 Q Dr. Kelly, this was prepared by Monsanto in
12 between the time that you left for the service
13 and returned? Well, it was 1944. Let's have
14 your answers as short as they can be.

15 A Yes. I know the date is correct, but you
16 said it's prepared by Monsanto. It was prepared
17 by someone at Monsanto. It was written by
18 somebody at Monsanto. I don't know what it was
19 prepared for.

20 Q I accept your correction. It was prepared
21 by somebody at Monsanto, and in or about October
22 1, 1944 or some time prior thereto?

23 A Yes, sir.

24 Q Now, if you would go to page -- well, it's
25 Document No. SCM 032430.

1 A Yes, sir.

2 Q I think that actually begins on the page
3 before which says, which is entitled Summary of
4 Gross Feeding Experiments.

5

6 THE COURT: Go ahead and ask him a
7 question, if you want to ask him a question
8 about it.

9

10 BY MR. HENDERSON:

11 Q Do you see those various hygienic measures
12 which says the following hygienic measures may be
13 considered good practice where these compounds
14 are handled? Do you see that?

15 A Yes, sir.

16 Q Okay. And that's A, B, C, D, E and F?

17 A Yes, sir.

18 Q It includes two lockers for each worker.

19 All work clothes above the underwear should be
20 provided and laundered at least twice a week by
21 the management. The workers should change to
22 clean underwear at the end of each shift, et
23 cetera. Do you see that?

24 A Yes, I do.

25 Q Are you familiar with the Greenberg article

1 in 1943?

2 A Yes, sir.

3 Q Would you take a look at that for me under
4 recommendations. This was an article published
5 by Dr. Leonard Greenberg, was it not? I
6 represent to you, Dr. Kelly, that that was
7 published in 1943 by Dr. Leonard Greenberg.

8 A Yes, sir.

9 Q Now, I want you to refer to the
10 recommendations on page -- on the first page of
11 Page 521 or 522 and tell me if that doesn't track
12 precisely the recommendations that were provided
13 in the Monsanto salesman's manual in October,
14 1944 to go out to their customers?

15 A Well, it appears that whoever wrote that
16 article used these recommendations, yes, sir.

17 Q Okay. In addition, it talks about acute
18 yellow atrophy of the liver in which the liver
19 cells show swelling et cetera which can result in
20 death, does it not?

21 A We are back on --

22 Q We are back on the --

23 A -- salesman manual.

24 Q We are back on the salesman's manual.

25 A Which is, yes, okay.

1. Yes, sir. What was your question.

2 Q My question was: It does say that in that
3 manual and that was a manual that, as I
4 understand it, that was intended to go to
5 customers of Monsanto?

6 A No, it was not intended to go to customers
7 of Monsanto, Mr. Henderson.

8 Q Were those the recommendations, did you
9 follow those recommendations at Anniston, Alabama
10 and at Sauget, Illinois for your workers?

11 A No, sir.

12 Q You didn't do that?

13 A No, sir.

14 Q Did you not provide them with barrier
15 creams?

16 A They may have had it. It was not a
17 recommendation of the medical department. We do
18 not believe barrier creams are effective.

19 Q Did you recommend to, did Sauget employees
20 have recommended to them the utilization of
21 rubber aprons, rubber gloves and rubber boots?

22 A Rubber gloves, presumably, probably not
23 rubber gloves because they were disintegrated by
24 PCBs, but not rubber aprons or rubber boots, no,
25 sir.

1 Q Were practices such as taking a shower
2 after, a supervised shower after each work and
3 two lockers being provided something that
4 occurred at Anniston or at Sauget?

5 A No, sir.

6 Q You were the medical director at Monsanto
7 from 1942 to 1974?

8 A No, sir, from 1942 to 1946 I was in the
9 service. I became medical director in 1946 to
10 '74.

11 Q Now, during that time, you did no scientific
12 work. You didn't write any articles or
13 polychlorinated biphenyls, did you?

14 A No, sir.

15 Q Now, have you known what epidemiology is
16 since you took your work or began your work at
17 Monsanto in the 1930's?

18 A I don't know what you mean by what --

19 Q Do you know what epidemiology is today?

20 A Yes, I do.

21 Q When did you first learn what epidemiology
22 was?

23 A It became -- well, I think I learned about
24 epidemiology in medical school.

25 Q Okay. And, so, that if I ask you as I did a

1 moment ago that you knew about it in 1932, you
2 would say yes?

3 A Yes, sir, I would.

4 Q Did you at -- were you aware that
5 epidemiology was utilized in describing cause and
6 effect relationships in chimney sweeps by Dr.
7 Pott as far back as 200 years ago?

8 A I do not know whether he used epidemiology
9 or whether he used case studies.

10 Q Are you aware that because of the techniques
11 that were available in the 1930's that Monsanto
12 could have conducted its own inhouse
13 epidemiological study sometime prior to 1974 when
14 you were last medical director, could it have?

15 A Could it have conducted epidemiological
16 studies on what?

17 Q On workers exposed to PCBs?

18 A Well, I do not believe it would be very
19 satisfactory --

20 Q Would you please answer my question, Dr.
21 Kelly?

22 A Yes. What was your question?

23 Q My question was: Could Monsanto have
24 conducted inhouse epidemiological studies any
25 time from 1946 to 1974 during the time that you

1 were medical director of Monsanto?

2 A Yes, they could.

3 Q Thank you. Did you ever suggest an
4 epidemiological study prior to when you were
5 terminated or when you resigned as medical
6 director in 1974?

7 A I did not and I was not terminated. I -- I
8 retired --

9 Q As a matter of fact --

10

11 THE COURT: Just a minute. Let him
12 finish his answer.

13 THE WITNESS: I mean, you had a
14 statement there that I was terminated or
15 resigned. I did not. I retired at the age
16 of 65.

17

18 BY MR. HENDERSON:

19 Q I accept your modification. Did you suggest
20 any epidemiological study?

21 A No, sir.

22 Q In fact, you were collecting -- I asked you
23 in your deposition and you told me that you were
24 collecting cancer deaths, information relative to
25 deaths from cancer at the Krummrich plant since

1 1944, were you not?

2 A Not only at the -- well, yes, but at all
3 plants.

4 Q You were collecting information from the
5 Krummrich plant from 1946 and from the Anniston,
6 Alabama plant where persons were exposed to PCBs
7 for 30 years.

8 A No. That is not correct. I did not say
9 that in my deposition. I said sometime postwar I
10 started this cancer index of ours. I do not know
11 when I started. I don't remember. I believe it
12 was in the '50's.

13 Q If I showed you the documents listing deaths
14 into the 1940's, you wouldn't have any problem
15 accepting that, would you?

16 A If you showed me what, sir?

17 Q Documents of the cancer index indicating
18 deaths in the 1940's?

19 A No, if you show it to me, fine. I will be
20 happy to see it.

21 Q Did you ever do anything with that cancer
22 index other than count the bodies that died as a
23 result of that?

24 A Yes. I looked it over for clustering of the
25 various plants.

1 Q And you are not an epidemiologist?

2 A No, sir. But you don't need to be an
3 epidemiologist to find clusters.

4 Q Okay. And at least from your
5 nonepidemiological view of that, those cancer
6 data, did you find any reason whatever to refer
7 that to an epidemiologist at St. Louis University
8 or at the University of Chicago or Baylor or at
9 any other medical facility to have a work-up
10 done?

11 A No, sir.

12 Q Did you know that later those very data were
13 used to and sent to the Epily Institute in 1976?

14 A I do not know if they were sent to the Epily
15 Institute. I know that there was an
16 epidemiological study of some sort at the
17 Krummrich plant following my retirement.

18 Q Were you advised by the attorneys for
19 Monsanto that that study has demonstrated a four
20 fold increase in lung cancer?

21 A No, sir. I was not, but I read the study.

22 Q You did read the study?

23 A Yes.

24 Q Isn't the purpose, touching on another
25 subject, Dr. Kelly, isn't the purpose of animal

1 toxicology all of those things that you did in
2 the 40's and in the 50's and in the 60's used to
3 predict what might occur to humans?

4 A That is one of the factors, yes, sir.

5 Q Okay. And weren't all of those studies up
6 until 1969, weren't those all acute toxicity
7 studies?

8 A No, sir. The studies on inhalation by Dr.
9 Treon were considered chronic in those days. It
10 was 90 days and in 1954.

11 Q There was no two-year study done prior to
12 when IBT or the Industrial Biotest Laboratory was
13 engaged to do the very first chronic testing
14 program for Monsanto in 1969; isn't that true?

15 A Yes, that's true.

16 Q And when one does acute toxicity studies on
17 animals, all they are determining is how many
18 animals, what the doseage is to kill half the
19 animals being tested; isn't that right? Isn't
20 that the LD50 that you were talking about?

21 A That's the LD50 and you use it to compare
22 this with other products whose toxicity is known.

23 Q Were you the one who gave the information to
24 Mr. Papageorge who testified in court yesterday
25 whom I don't see now? Were you the one that gave

1 him the information about chloracne and serious
2 liver damage being related to PCBs?

3 A Not that I recall.

4 Q Well, you were the head of the medical
5 department, right?

6 A Yes, I was.

7 Q Was Mr. Papageorge there in 1974 and earlier
8 while you were medical director?

9 A Yes, sir.

10 Q Whose -- your responsibility as a chemical
11 company -- well, let me ask you it this way:

12 If you are buying, if Monsanto were
13 purchasing a chemical from another company, the
14 other company is required, has a duty to provide
15 Monsanto with whatever information about
16 toxicology and safe handling that that other
17 chemical company would have; isn't that true?

18 A It would be true if the other chemical
19 company did not realize that Monsanto would have
20 that much information of their own.

21 Q Okay. Let's assume that Monsanto didn't
22 have the information then. Even Monsanto as a
23 chemical company would expect that information
24 back from that chemical company whose product
25 Monsanto was purchasing or were intended to

1 purchase; isn't that true?

2 A Yes, sir.

3 Q Westinghouse, Westinghouse is an electric
4 company, isn't it?

5 A Yes, sir.

6 Q It's not a chemical company, is it?

7 A No, sir.

8

9 THE COURT: This is argument.

10 MR. HENDERSON: Thank you, Your Honor.

11 THE COURT: Unnecessary.

12

13 BY MR. HENDERSON:

14 Q I'm sorry, Dr. Kelly. It was the
15 responsibility, was it not, of the medical
16 department to provide the necessary information
17 on toxicology and safe handling of all of the
18 chemicals that Monsanto produced, including PCBs,
19 was it not?

20 A If it were not in the, the general domain of
21 medical knowledge, yes.

22 Q Well, in 1975 -- there had been testimony --
23 have you ever seen the correspondence by and
24 between the W.B. Papageorge, Mr. Papageorge, and
25 persons at Westinghouse with respect to the

1 Inerteen product, certain questions and answer
2 that were asked and -- asked by Westinghouse and
3 answered by Monsanto relative to the potential
4 harmful effects of exposures to PCBs?

5 A If you show it to me, I will be able to tell
6 you if I saw it or not.

7
8 MR. HENDERSON: May I approach the
9 witness, Your Honor?

10 THE COURT: Yes. That's all right. It
11 seems to me like you are taking up
12 unnecessary time.

13 What question are you asking him?

14
15 BY MR. HENDERSON:

16 Q Have you seen this document?

17 A Frankly, I'm not sure if I have. I'm not
18 sure if I have.

19 Q In 1975, Mr. Papageorge responded to a
20 person at Westinghouse who asked, among other
21 things: "Does Inerteen have permanent effects on
22 the human body?"

23 And among other things, the answer came
24 back: "The polychlorinated biphenyls in Inerteen
25 can have permanent effects on the body. The

1 problem arises from repeated and prolonged
2 exposure to atmospheric concentrations in excess
3 of the accepted threshold limit levels or
4 repeated and prolonged skin contact.

5 "The potential toxic effects in humans from
6 excessive exposure to PCBs include injury to the
7 liver. Chloracne may be an external symptom or
8 overexposure preceding serious liver injury.

9 "Animal data and human experience indicate
10 that the toxic effects are similar" --

11
12 THE COURT: Just a minute,
13 Mr.Henderson.

14 MR. CRAWFORD: Your Honor, I believe
15 Mr. Papageorge has fully testified about
16 this document. I don't know why he needs
17 to --

18 THE COURT: I don't know why you are
19 asking him about it. What -- what
20 information do you hope to get from this
21 witness, in addition to what Mr. Papageorge
22 already testified?

23
24 BY MR. HENDERSON:

25 Q In making certain conclusory responses to

1 Mr. Crawford's questions on direct examination,
2 you indicated that a company like Westinghouse
3 knew all that it had to know about Inerteen in
4 the 1950's and 1960's. Did you not say that?

5 A Yes, sir, I did.

6 Q Is that an indication to you that
7 Westinghouse knew all that you thought it knew in
8 the 1950's and the 1960's?

9 A I told you I have not -- I'm not sure that I
10 saw this document. If you are going to ask me
11 for a conclusion of that sort, I would have to
12 read it a little more carefully.

13 Q If a diagnosis of chloracne is made and you
14 would agree with it, that suggests exposure to
15 one of the chlorinated hydrocarbons, does it not?

16 A Yes, sir.

17 Q These are some of the various chlorinated
18 hydrocarbons, are they not, Dr. Kelly?

19 A Yes, sir.

20 Q They are -- at the top of Plaintiffs'
21 Exhibit 3630, there are two PCBs at the top, are
22 there not?

23 A Yes, sir.

24 Q And then down in the lower right is one of
25 the dioxins, the 2378. Do you see that?

1 A Yes, sir.

2 Q And over here is the furan, the 2378 furan?

3 A Yes, sir.

4 Q Which has only one oxygen as opposed to the
5 dioxin which has two?

6 A Yes, sir.

7 Q The those four chlorinated hydrocarbons; is
8 that true?

9 A Those are four hydrocarbons, yes, sir.

10 Q Those are four chlorinated hydrocarbons.

11 A Those are four chlorinated hydrocarbons,
12 yes, sir.

13 Q Chlorinated naphthalene is also a
14 chlorinated hydrocarbon, is it not?

15 A Yes, it is.

16 Q Chlorinated naphthalene is also a PCB, is it
17 not?

18 A No, it is not.

19

20 MR. CRAWFORD: Your Honor, if he is
21 looking for the portion of the deposition, I
22 believe that's the errata sheet on the pile
23 where the doctor answered that question and
24 then made a correction. Just so he reads
25 the correction, too.

1 MR. HENDERSON: Well, before I read it,
2 then, Mr. Crawford, you tell me if these
3 are -- any other corrections that the doctor
4 made, other than the ones that were
5 contained on the lawyers' notes in the back

6 MR. CRAWFORD: Yes, I believe there
7 are. You can ask him.

8

9 BY MR. HENDERSON:

10 Q Dr. Kelly, are furans a contaminant of PCBs?

11 A They may be.

12 Q Indeed, the documents coming from Monsanto
13 indicate a level of up to 17 parts per million of
14 furans in PCBs. Were you aware of that?

15 A At the time -- I have heard that following
16 my retirement from Monsanto, there were -- furans
17 were found. I am not sure as to the level that
18 was found.

19 Q Okay. You have said -- your testimony has
20 been that the design or the -- the design of PCBs
21 did not provide for the contaminant furans to be
22 produced, did it not?

23 A That is a question I would like explained to
24 me.

25 Q Okay.

1 A You said the design --

2 Q Well, in the design and manufacture of PCBs,
3 dibenzofurans is an unwanted contaminant. Is it
4 not?

5 A Yes, sir. Yes, sir.

6 Q Now, you were principally responsible for
7 dealing with the so-called labeling of the
8 product, were you not?

9 A I was responsible for -- the medical
10 department was responsible for the safe handling
11 and precautionary statements on the labels, yes,
12 sir.

13 Q Included among that was the kind of language
14 that would be included on either a caution label
15 or a warning label or a danger label; is that
16 true?

17 A Yes, sir.

18 Q There is under the -- you remember the
19 Chemical Manufacturer's Association and I think
20 you testified, too, there is a different grade
21 for each of these different warnings, isn't that
22 true?

23 A I don't know what time frame you are
24 referring. I do not remember whether --

25 Q Let's talk about the time frame in the

1 1950's and the 1960's.

2 A Yes, sir.

3 Q Weren't there three different -- three
4 levels: caution, warning, and danger?

5 A There may be. I have no recollection of
6 that at the time present time, Mr. Henderson.

7 Q What was the label that was included on the
8 Aroclors and Askarels and Inerteen with respect
9 to PCBs? Was it a caution label, a warning
10 label, or a danger label?

11 A I think it was a caution label.

12 Q The caution label -- did you have any
13 training, any formal training about the way in
14 which caution labels are to be -- what kind of
15 language is to be put into caution labels?

16 A No, sir.

17 Q You relied on whatever -- whatever way you
18 thought that this was going to be communicated
19 best to the worker?

20 A And to the user, as well as what labels were
21 on other types of compounds that were relative to
22 this, comparable to this.

23 Q Well, don't you -- didn't you agree in the
24 1940's that PCBs was a highly toxic material?

25 A No, sir. I didn't consider it highly toxic.

1 Q That same article by Dr. Greenberg, do you
2 have that before you?

3 A Yes, sir, I do.

4 Q In the paragraph under "conclusions," would
5 you find that for me?

6 A Yes, sir.

7 Q It says under Paragraph 1, "Chlorinated
8 naphthalenes and diphenyls are in general highly
9 toxic compounds and must be used with extreme
10 care." Did you see that?

11 A Yes, sir.

12 Q You disagree with that?

13 A Yes, because --

14 Q You just disagree with it, right?

15 A I disagree with it, yes, sir.

16

17 THE WITNESS: May I give an
18 explanation, Your Honor?

19 THE COURT: If he wants you to.

20 MR. HENDERSON: I don't care for an
21 explanation, Dr. Kelly.

22 THE COURT: All right. If your
23 attorney wants you to explain it, you can
24 explain it for him.

25 THE WITNESS: Thank you.

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BY MR. HENDERSON:

Q On Page 261 of your deposition, going back to the area I asked you about earlier, it says "Are chlorodiphenyls the same as polychlorinated biphenyls or PCBs?"

"ANSWER: Yes, but all chlorinated, all PCBs are not chlorinated diphenyls.

"QUESTION: Isn't the -- what are chlorodiphenyls?

"ANSWER: There are two phenol rings attached to each other with chlorine. Chlorinated naphthalene is also two phenol rings attached to carbon atoms, chlorinated. So, chlorinated naphthalene is a PCB; chlorinated diphenyl benzene is also a PCB. So, the work that Dr. Drinker did was primarily with chlorinated naphthalene."

Were those the questions that were asked of you and you answered on April 30, 1987?

A May I see it?

Q I'm sorry. Did I say 261 --

MR. CRAWFORD Your Honor, there was an errata sheet with that and we sent it in,

1 that corrected that. But I think the doctor
2 can explain it.

3 MR. HENDERSON: I think Mr. Crawford
4 may want to have it explained on redirect.
5 I would like to move along, Your Honor.

6 THE COURT: All right.

7

8 BY MR. HENDERSON:

9 Q The purpose of the label itself, Dr. Kelly,
10 was to inform the user -- and when I say "the
11 user," I mean the customer's worker about the
12 possible harmful effects of exposure to any toxic
13 substance, such as PCBs; isn't that true?

14 A No. What the label is is to prevent any
15 harmful exposure. That is the purpose of a
16 cautionary statement on a label.

17 Q Well, perhaps it would be better if I just
18 read the question from the deposition rather than
19 to take the time to rephrase take one, because I
20 want to make it clear that what you have said in
21 your deposition. Okay.

22

23 THE COURT: Well, ask him what he said
24 in his deposition and then you can --

25 MR. HENDERSON: I will, Your Honor.

1 THE COURT: Well, without reading him
2 the answer that he made. Maybe it will be
3 the same --

4 MR. HENDERSON: All right.

5

6 BY MR. HENDERSON:

7 Q "QUESTION: What was the purpose of having a
8 label like that on the product that went out?

9 "ANSWER: Well, several. One, to tell
10 people what was in it.

11 "QUESTION: All right.

12 "ANSWER: Number two, to tell them about the
13 size, the amount in there. Number three, to give
14 them precautions as to safe handling of the
15 material. Four, to give -- well, that's really
16 three. That's about it. Those were some of the
17 reasons.

18 "QUESTION: To tell them what the product
19 was, to tell them how much was in it and to tell
20 them how to handle it safely.

21 "ANSWER: That there may be that there are
22 other things that marketing people had in their
23 mind when they put a label on; but as far as the
24 medical department was concerned, I can only say
25 that we -- we were responsible and the purpose of

1 the medical department was to put on safe
2 handling procedures and cautions to protect the
3 user against any ill effects."

4 Is that true?

5 A Yes, sir.

6 Q And "the user" is the customer's worker; is
7 that right?

8 A Yes, sir.

9 Q In your opinion, Dr. Kelly, aren't oral
10 instructions preferred to written instructions?

11 A When? I mean, you are --

12 Q When talking about PCBs?

13 A Oral instructions to whom? I mean, who is
14 going to --

15 Q Oral instructions -- let's say oral
16 instructions by a foreman. Wasn't that something
17 that Monsanto practiced at Sauget and Anniston --

18 A Yes, sir.

19 Q -- that they had -- let me finish.

20 A I'm sorry.

21 Q That they had foremen going around telling
22 the men how to use the product and how to use it
23 safely?

24 A Yes, sir.

25 Q And in your opinion, Monsanto workers were

1 adequately protected; is that true?

2 A Yes, sir.

3 Q This safety manual that was put out in 1944,
4 salesmen are usually the people that go into
5 plants, are they not, as representatives of
6 Monsanto?

7 A You have a double question there sir.

8 Q Aren't salesmen the most likely persons to
9 go into a plant, generally?

10 A No, sir. I don't believe salesmen go in a
11 plant at all. They go in and talk to the
12 engineers and a purchasing agent. I don't think
13 salesmen go into a plant.

14 Q Salesmen don't go in and see how a
15 product --

16

17 THE COURT: Let's don't argue about
18 that.

19 MR. HENDERSON: Okay.

20 THE COURT: Just a minute. Just a
21 minute. That is awkward question. It's not
22 important as to whether or not salesmen go
23 into a plant. It's what salesmen do.

24 So, cut out the unnecessary questions
25 and get to the real significant part of your

1 question.

2 MR. HENDERSON: Thank you, Your Honor.

3

4 BY MR. HENDERSON:

5 Q Who do you know visited, either
6 Westinghouse, Ford or TVA or Texaco or any of the
7 facilities that are involved in this litigation?

8 A I don't know.

9

10 THE COURT: Anything further.

11 MR. HENDERSON: Yes, sir, Your Honor, I
12 have the --

13 THE COURT: How much more cross
14 examination do you have?

15 MR. HENDERSON: 10 minutes.

16 THE COURT: Sir?

17 MR. HENDERSON: About 10 minutes.

18 THE COURT: All right. I'm going to
19 hold you to the time.

20 The court will make this comment: I
21 haven't heard any testimony given by this
22 witness as a result of the interrogation by
23 Mr. Crawford or by you that hadn't already
24 been offered in evidence.

25

1 BY MR. HENDERSON:

2 Q Dr. Kelly, referring now to Plaintiffs'
3 Exhibit 124, this -- to make it as brief as
4 possible, this is -- these are the -- this is the
5 toxicology and safe handling practices of
6 Monsanto Aroclor chlorinated diphenyl that was
7 prepared in Great Britain and submitted to
8 Monsanto's customers of the Monsanto UK; is that
9 true?

10 A Yes, sir.

11 Q Can you put a time frame on this?

12 A No, sir, I can't.

13 Q These are somewhat more a comprehensive --
14 this is somewhat more comprehensive information
15 given to the customers of the United Kingdom
16 Monsanto Company, than was given to those of the
17 United States; isn't that true?

18 A It's more comprehensive, yes, sir.

19 Q And I believe in your deposition you said
20 that that was more -- there was a higher
21 probability if that were used of alerting people
22 to danger of PCBs and the steps to avoid them,
23 did you not?

24 A I don't know whether I said that. Would you
25 read that part of the deposition, please?

1 Q Sure.

2 Line 5 at Page 214 of the deposition taken
3 on April 29, 1987:

4 "QUESTION: Can you agree with me that the
5 more detailed information supplied in UK had a
6 higher probability of alerting people to the
7 dangers and the steps that needed to be taken to
8 avoid them than the corresponding literature in
9 the United States?

10 "ANSWER: No. I do not agree with you
11 because I think the corresponding literature in
12 the United States says, do not breath the fumes,
13 avoid repeated or prolonged skin contact. If it
14 gets on your skin, wash it off. If it gets on
15 the clothes, launder them or discard them.

16 "That protects people in the United States
17 and England. If the United States were used to
18 that type of information, fine, but I don't know
19 if they are. I do not recall seeing information
20 like this on products in the United States. They
21 may have some, but I don't recall seeing them."

22 So, you are saying that that information is
23 at least as good as the information supplied in
24 the United States?

25 A Am I saying that that information in the,

1 supplied by the English company is at least as
2 good as that supplied by the United States? Is
3 that your question?

4 Q No. I'm saying -- I'm sorry. I said that,
5 I'm mistaken. Is the information supplied in the
6 United States at least as good as that which the
7 Monsanto UK supplied to its customers in England
8 and elsewhere?

9 A Yes, sir, if you go by the results, yes,
10 sir.

11 Q When you -- in the -- in the article --
12 Dr. Drinker wrote a couple of different
13 articles following his 1937 article, did he not,
14 Dr. Kelly?

15 A He wrote two articles, yes, sir, following
16 that original one in 1937.

17 Q Now, you made some reference in your direct
18 examination to what some changes, that because of
19 some conversation -- some changes in what Dr.
20 Drinker said because of some conversation that
21 you had with him; is that true?

22 A Some information received from me, yes, sir.

23 Q Now, going to Page 157 of the 1939 article,
24 May, 1939 in the Journal of Industrial Hygiene
25 and Toxicology, is that the same Dr. Drinker who

1 prepared the earlier article?

2 A Yet, it is.

3 Q And in the Table 1, it shows a list of 14
4 chlorinated hydrocarbons with various chlorine
5 contents and permissible limits. Do you see
6 that?

7 A Yes, sir.

8 Q Now, in the first article in 1937, Dr.
9 Drinker referred to only six separate compounds,
10 did he not?

11 A I believe that's correct.

12 Q Well, look down -- and the one that you
13 are -- the one that you said was used was No. 6
14 which was chlorinated diphenyl plus chlorinated
15 diphenyl benzene?

16 A Yes, sir.

17 Q That was the one that was used in the 1939
18 study that you wanted to correct Dr. Drinker
19 regarding?

20 A Yes, sir.

21 Q Okay. Just look down in No. 9. That's a
22 chlorinated diphenyl. That is a PCB, isn't it?

23 A Yes, sir.

24 Q Okay. And that was tested upon rats by
25 inhalation by Dr. Drinker was it not, according

1 to the chart?

2 A According to the chart --

3 Q Well, look. It says No. 9 chlorinated
4 diphenyls --

5 A Yes.

6 Q -- tested upon rat by inhalation.

7 A Yes, sir.

8 Q Do you see that?

9 A Yes, sir.

10 Q And then it -- you move over and you see
11 under chlorine content, it shows 50 dash 55 or 50
12 dash 56; is that right?

13 A Yes, sir.

14 Q Isn't that the Aroclor 1254 product that
15 Monsanto made?

16 A It may be. I do not know. We did not
17 send --

18 Q And --

19 A You asked me a question. I would like to
20 say, we did not send him any 1254. He did not
21 report in the two reports he sent to us that he
22 had tested 1254. In any of his three papers,
23 with the exception of this statement here, there
24 is no indication of how he tested, how long he
25 tested it or the details of experiment.

1 Q Look at the -- I can't -- the limit -- I
2 can't -- it's hard to make out what it says in
3 that second column, but I think it's referring to
4 the TLV or the threshold limit value, right?

5 A Or whatever the figure they use there, yes,
6 point 5 millograms. I don't know if the TLV or
7 the threshold of it was in force at this --

8 Q So, that I understand it, in 1939 Dr.
9 Drinker recommended a threshold limit value for
10 various chlorinated hydrocarbons, including the
11 14 that are listed on Table 1 of plaintiffs'
12 exhibit; is that true?

13 A Yes, sir.

14 Q And the TLV or the threshold limit value
15 that he recommended in 1939 was 0.5 millograms
16 per cubic meter?

17 A Yes, sir.

18 Q And that's the same as all of the others up
19 through and that would be six, at least six
20 through nine were all the same, were they not?

21 A Yes, sir.

22 Q The testing that you did on the
23 plaintiffs -- or excuse me, the testing that you
24 did on the Sauget employees back in the early
25 70's, do you recall that testimony on your direct

1 examination?

2 A Yes, sir.

3 Q Did you review the tests that were done on
4 these plaintiffs?

5 A No, sir, I did not.

6 Q I thought you had the information we talked
7 about in your deposition about the laboratory
8 studies and specifically the SMA 21 or the SMA 22
9 that were done of our people that are in court to
10 and are the plaintiffs in this litigation?

11 A I looked over the original records of Dr.
12 Teitelbaum. I was never given the laboratory
13 data. I was given his statements. I asked for
14 laboratory data and I was told that I was not
15 going to be the individual to decide -- to talk
16 about whether these plaintiffs had any --

17 Q I see.

18 A -- medical condition or not.

19 Q So, it was something you asked about and the
20 lawyers told you that's not part of what your
21 testimony is going to be, so we don't want you to
22 see that or we don't want to show it to you?

23 A No. I don't think that is the way they
24 expressed it. You know, I believe he said that
25 that is not going to be relevant to the work we

1 want you to do in this case.

2 Q When you did your -- when you did your work
3 on the Sauget people in 1972, you mentioned that
4 you took blood serum for the presence of PCBs?

5 A Yes, sir.

6 Q What did you find in that?

7 A I found that 16 had no detectable PCBs in
8 the blood, five in 1 ppm, two in point 2 ppm.
9 Three had point 3 ppm and four had point 4 and
10 one had point 5. You must understand --

11 Q Excuse me. When you say "ppm," that would
12 be --

13 A Parts per million.

14 Q Parts per million.

15 A Yes, sir.

16 Q How many of them had 2 parts per million?

17 A Two.

18 Q Two had 2 parts per million?

19 A Two-tenths of a part per million. None had
20 over point 5.

21 Q Okay. Well, point 5, that would be 500
22 parts per billion, right?

23 A Yes, sir.

24 Q And how many of them had any, of the 27
25 there would be 11 that had some levels of PCBs in

1 their blood?

2 A Yes, sir.

3 Q Did you make any studied as to how long the
4 people who were the 16 that didn't have any PCBs
5 where working at Sauget as posed to the 11 that
6 did have PCBs in their blood?

7 A Yes, sir. Now, remember, Mr. Henderson,
8 that when you are talking about 1972, our
9 analyses for PCBs in the blood were quite
10 primate, so --

11 Q You could do a better job today?

12 A No question about it. It's much more
13 sophisticated.

14 Q Okay. Well, let me ask you what you could
15 do today. Have those 11 people been followed up
16 on so far as you know, the 11 with PCB and PCBs
17 found in their blood serum in 1972?

18 A As they were certainly followed up until
19 1974 and they have -- the policy of yearly
20 examinations of Krummrich plant has gone on and
21 to the best of my knowledge, they were followed
22 up.

23 Whether they were followed up for with PCBs
24 in their blood or not, you would have to ask some
25 of the current medical staff.

1 Q You don't know anything about those 11
2 individuals after 1974?

3 A No, I do not.

4 Q Were there any fat biopsies taken of the
5 Krummrich people in 1972?

6 A No, sir. A fat biopsy is sort of a little
7 invasive procedure.

8 Q I know.

9 A There were not.

10 Q Did you know Dr. Paul Wright?

11 A Yes, sir.

12 Q Did you know him before he went to the
13 Industrial Biotest laboratory in 1971?

14 A I knew he worked at Monsanto. I do not know
15 whether I met him prior to his going to
16 Industrial Biotest.

17 Q Well, when he came back in November of 1972,
18 you were responsible for rehiring him, were you
19 not?

20 A Yes, I was.

21 Q And when he came back in November of 1972,
22 you were -- he was the manager of toxicology?

23 A He may have been called the manager. There
24 was a man over him, I guess, who was called
25 director of toxicology. There were three

1 toxicologists at that time.

2 One was a very recent graduate. Dr. Hunt, I
3 believe had died and there was Dr. Levinskis who
4 was in charge and who was Dr. Wright's superior.

5 Q And they were all in the medical department
6 with you?

7 A Yes, they were.

8 Q And Dr. Wright as of 1972 was the manager of
9 toxicology?

10 A That was his title, yes.

11 Q Have you learned as of the testimony that
12 has developed in this courtroom, that PCBs were
13 included in the fraud that was perpetrated on
14 these plaintiffs and the public by the IBT in
15 1970, 1971, 1972?

16

17 MR. CRAWFORD: Your Honor, this is
18 argument.

19 THE COURT: Objection sustained.

20 MR. HENDERSON: Pass the witness.

21 THE COURT: Anything further, Mr.
22 Crawford?

23 MR. CRAWFORD: Yes, sir, one other
24 question, Your Honor.

25

REDIRECT EXAMINATION

BY MR. CRAWFORD:

Q Dr. Kelly, you wanted to explain a couple of things. Mr. Henderson cut you off. You were talking about the Greenberg article about the change. Did you want to explain something about that, the change of clothes?

A Yes. It was the Greenberg article,

Q Just very briefly, if you could.

A He was dealing with the halowax cases.

Q All right. That's the substance --

A He was dealing with people that were cable pullers.

Q All right. And also in your deposition you changed that that was a misstatement, was it not?

A Oh, yes, chlorinated naphthalene is not a PCB.

MR. CRAWFORD: Okay. Thank you very much, Your Honor.

MR. HENDERSON: Thank you.

THE COURT: All right.

THE WITNESS: Did you want some of these --

1 THE COURT: Is there something else you
2 want to say, Doctor?

3 THE WITNESS: No, thank you, Your
4 Honor.

5 THE COURT: All right. This concludes
6 your testimony. You may be excused.

7 Ladies and gentlemen of the jury, we
8 are going to stand in recess until Tuesday
9 morning at 9:00 o'clock.

10 We hope that you have a nice weekend
11 and remember the instructions that the Court
12 has given you not to discuss the case with
13 each other and not to approach anyone and
14 discuss it with them.

15 We will see you Tuesday morning at 9:00
16 o'clock.

17

18

19 (WHEREUPON AT 3:45 P.M. COURT WAS IN RECESS UNTIL
20 TUESDAY, SEPTEMBER 8TH, 1987 AT 9:00 A.M. AT
21 WHICH TIME THE FOLLOWING PROCEEDINGS WERE HAD AND
22 DONE.)

23

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