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Superior Court of the State of California
For the County of Los Angeles

TRANSWESTERN PIPELINE	)	
COMPANY,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	Case No. BC 026959
	)	
MONSANTO COMPANY and	)	
DOES 1 through 200, inclusive,	)	
	)	
Defendant.	)	

Volume II

June 12, 1992

Deposition of **ROBERT ELLIS KELLER**, taken on
behalf of Plaintiff.

GORE REPORTING COMPANY

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1 Superior court of the State of California
2 For the County of Los Angeles
3

4 TRANSWESTERN PIPELINE)
5 COMPANY,)
6 Plaintiff,)
7)

8 v.) No. BC 026959
9)

10 MONSANTO COMPANY and)
11 DOES 1 through 200,)
12 inclusive,)
13 Defendants.)
14
15

16 Volume II
17

18 Continuation of the deposition of
19 ROBERT ELLIS KELLER, taken on behalf of
20 Plaintiff, at the offices of Bryan, Cave,
21 McPheeters & McRoberts, 500 North Broadway in
22 the City of St. Louis, State of Missouri, on
23 the 9th day of January, 1992, before J. Bryan
24 Jordan, certified shorthand reporter and
25 notary public.

GORE REPORTING COMPANY - ST. LOUIS, MISSOURI

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1 JUNE 12, 1992

2 (The deposition of Dr. Keller
3 was resumed beginning at 9:00
4 a.m., as follows:)

5 BY MR. TALLON:

6 Q. Doctor, do you have any knowledge
7 regarding the process that -- used by
8 Monsanto to manufacture aroclors in the 1200
9 series?

10 A. I had very little to do with the
11 processing, and I have -- don't recall the
12 process knowledge.

13 Q. Does it refresh your recollection
14 in any respect if I asked you whether the
15 manufacturing process involved running
16 chlorine gas over hot biphenyls for a set
17 period of time?

18 A. I just had no involvement with
19 that part of it. I have no, no remembrance
20 of that.

21 Q. So my asking you that question
22 does not refresh your recollection in any
23 respect?

24 A. No, it does not.

25 Q. Do you have any recollection,

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1 Doctor, of being involved in any analysis of
2 mud samples from a river near Newport in the
3 United Kingdom?

4 A. No, I do not.

5 MR. TALLON: Let me show you a
6 document that we'll mark as the next exhibit
7 in order, which is 298. That's a two-page
8 document bearing production numbers TRAN
9 023503 and 04.

10 (Plaintiff's Deposition
11 Exhibit 298 marked for
12 identification.)

13 BY MR. TALLON:

14 Q. Take a moment and review that,
15 please.

16 (Witness peruses said
17 document.)

18 BY MR. TALLON:

19 Q. Have you reviewed that document,
20 Doctor?

21 A. Yes.

22 Q. Does having reviewed it refresh
23 your recollection in any respect as to
24 whether or not you participated in any
25 analysis of estuary mud samples from the

1 Uskmouth area?

2 A. No, this doesn't help me a bit.

3 Q. Do you have any recollection
4 whether Mr. Tucker participated in such an
5 analysis?

6 A. Mr. Tucker?

7 Q. Right, E. S. Tucker.

8 A. What was the question again,
9 please?

10 Q. Yes, do you know if he
11 participated in an analysis -- do you
12 recollect whether he participated in an
13 analysis of estuary mud samples?

14 A. I recollect that he participated,
15 yes.

16 Q. E. S. Tucker is Scott Tucker?

17 A. Correct.

18 Q. Do you have any present
19 recollection of having communicated with Mr.
20 Tucker on the subject of his analysis?

21 A. I had no communication that I
22 recall.

23 Q. Are you able to state anything
24 other than that he participated in the
25 analysis?

1 A. I can't recall anything else.

2 Q. Do you know whether there was a
3 plant or other -- do you know if there was a
4 plant in Newport in the United Kingdom that
5 was -- that had PCB's in plant effluent of
6 any type?

7 MR. ZIMMER: Calls for
8 speculation, assumes facts not in evidence,
9 lacks foundation.

10 MR. TALLON: You can answer.

11 A. Well, I recall that there was an
12 Aroclor plant and that's all.

13 BY MR. TALLON:

14 Q. An Aroclor plant in Newport?

15 A. Newport.

16 Q. And was there also a plant in
17 Ruabon?

18 A. I'm not sure on that.

19 Q. Was there some Monsanto facility
20 in Ruabon?

21 A. Oh, yes.

22 Q. What? What that facility?

23 A. It was a manufacturing facility
24 for a variety of products for Monsanto.

25 Q. And where is Ruabon?

1 A. Ruabon is in North Wales.

2 Q. Doctor, just one point on that
3 Exhibit 298 which you have before you. You
4 appear to be a cc: of that memoranda --
5 memorandum; correct?

6 A. Correct.

7 Q. And following your name is a
8 designation that says "S. 2nd." Do you see
9 that?

10 A. Yes.

11 Q. Do you have any understanding as
12 to what this designation signifies?

13 A. Yes.

14 Q. What is your understanding?

15 A. Chief chemist at Newport at that
16 point in time.

17 Q. The "2nd" signifies chief chemist
18 at Newport at that time?

19 MR. ZIMMER: He means the
20 indication following your name, not that

21 A. F. --

22 A. I'm sorry, you are talking about
23 the South 2nd Street.

24 Q. Right. Is that what that means?

25 A. That means the location where I

1 was located in Monsanto.

2 Q. At that point, that is to say,
3 October 8th, 1969, you were in a facility at
4 South 2nd Street?

5 A. Correct.

6 Q. And Mr. Tucker was also there?

7 A. Correct.

8 Q. Where was his office in
9 relationship to your office?

10 A. His office was in a laboratory, in
11 the laboratory facility at that location and
12 would have been approximately two to three
13 hundred feet from my office; that range.

14 Q. Was the GC mass system at South
15 2nd Street in October 1969?

16 A. Yes.

17 Q. How long did you have an office at
18 South 2nd Street?

19 A. Until approximately 1972, when the
20 Organic -- or, when the research laboratories
21 moved from that location out to the Creve
22 Coeur site.

23 Q. Did you ever have an office in a
24 facility with the name Queeny?

25 A. The research laboratories were a

1 part of the Queeny plant location, yes.

2 Q. And where was the Queeny Plant
3 locationst?

4 A. That was at South 2nd Street.

5 Q. Doctor, do you recall ever,
6 without specific reference to the analysis of
7 estuary mud samples from the Uskmouth area
8 reflected in this exhibit, do you have a
9 recollection of Aroclor 1242 being found in
10 mud samples from any location?

11 A. No.

12 MR. ZIMMER: In which time frame?
13 Well, I guess it's moot.

14 A. (Continuing) I don't have any
15 recollection.

16 BY MR. TALLON:

17 Q. Doctor, are you familiar with the
18 term "electron capture fingerprints"?

19 A. I'm not a practicing gas
20 chromatograph person, and I've been away from
21 that too many years and never did do the
22 technical experimental work, so my answer is
23 going to be no.

24 Q. You have no familiarity with that
25 term?

1 A. I know what the term is. I know
2 it's a, a way of monitoring what comes out of
3 a gas chromatograph, but I'm not in a
4 technical position to explain more to you.

5 Q. Without -- that's a sufficient
6 response. I mean, I'm not going to question
7 you about the fine points of gas
8 chromatography. I was simply wanting to
9 establish a foundation for more general
10 questioning.

11 A. Okay.

12 Q. Do you know if there's any
13 information provided by electron capture
14 fingerprints which is indicative of or
15 relates to biodegradation?

16 MR. ZIMMER: Lacks foundation. He
17 just told you what he knew about it and
18 that's all he knew.

19 You can answer if you know.

20 THE WITNESS: Would you read the
21 question back, please?

22 THE COURT REPORTER:

23 "Q. Do you know if there's any
24 information provided by electron capture
25 fingerprints which is indicative of or

1 relates to biodegradation?"

2 A. I have no recollection of any
3 specifics on that.

4 MR. TALLON: Let me show you a
5 document, Doctor, which is a one-page
6 memorandum dated December 3rd, 1969, bearing
7 production number TRAN 022090, and after the
8 reporter marks that as Exhibit 299, we'll ask
9 you to take a moment and review that, please.

10 (Plaintiff's Deposition
11 Exhibit 299 marked for
12 identification.)

13 (Witness peruses said
14 document.)

15 BY MR. TALLON:

16 Q. Having reviewed that document, do
17 you have any enhanced recollection with
18 respect to the relationship, if any, between
19 electron capture fingerprints and
20 biodegradation?

21 A. No.

22 Q. Do you have any recollection,
23 Doctor, whether Mr. Tucker did any work on
24 samples with respect -- samples obtained from
25 National Cash Register?

1 A. I have no recollection of his
2 working on any samples from National Cash
3 Register.

4 Q. Do you know whether National Cash
5 Register, which I will refer to as NCR, used
6 a Monsanto product?

7 A. No, I have no recollection of
8 that.

9 Q. Does it refresh your recollection
10 if I ask you whether Monsanto -- NCR used an
11 Aroclor 1242 in the manufacture of its
12 carbonless carbon paper?

13 A. It is my recollection that they
14 did use an Aroclor 1242-type product.

15 Q. Do you know whether or not the
16 product, the Aroclor 1242 product was used in
17 connection with NCR's carbonless carbon
18 paper?

19 A. That was my understanding.

20 Q. Do you have any recollection as to
21 whether you met with officials or
22 representatives of NCR to discuss
23 biodegradability of Aroclor 1242?

24 A. I personally can remember no such
25 meetings or contact with them.

1 Q. Do you recollect whether you or
2 persons working for you did any work to
3 analyze the biodegradation characteristics of
4 Aroclor 1242 for the benefit of NCR?

5 A. I don't recall any such work.

6 MR. TALLON: Let me show you a
7 document, Doctor, that's a multipage document
8 bearing production number 0, what appear to
9 be 0001248 through 1255. I'll ask the court
10 reporter to mark it.

11 (Plaintiff's Deposition
12 Exhibit 300 marked for
13 identification.)

14 (Witness peruses said
15 document.)

16 BY MR. TALLON:

17 Q. Did you get a chance to review
18 that, Doctor?

19 A. Yes.

20 Q. Have you seen that document
21 before?

22 A. I have no recollection of seeing
23 it.

24 Q. Do you have any recollection as to
25 whether Mr. Tucker, in 1970, did an initial

1 biologically populated river water
2 degradation study?

3 A. I just don't recall that.

4 Q. Do you have any recollection of
5 learning in 1970 that Aroclor 1242 remains
6 stable in certain tests performed by your
7 group?

8 MR. ZIMMER: Lacks foundation.

9 A. I have no recall on that.

10 BY MR. TALLON:

11 Q. Doctor, do you have any
12 understanding as to whether or not biphenyl
13 is required in order to degrade PCB's?

14 A. No.

15 Q. You have no understanding?

16 A. No understanding.

17 Q. Do you know if biphenyl occurs
18 naturally in the environment?

19 A. No.

20 Q. You do not know?

21 A. I do not know.

22 Q. Doctor, do you have any
23 recollection with respect to discussions
24 having to do with use of bromines?
25 Brominated compounds to replace

1 polychlorinated biphenyls?

2 A. I recall no such discussions.

3 (Discussion off the record.)

4 MR. TALLON: We're back on the
5 record.

6 BY MR. TALLON:

7 Q. Doctor, do you have knowledge as
8 to whether or not in 1969 or 1970, Monsanto
9 performed any river die-away studies?

10 A. Yes, it is my recollection that
11 river die away tests were performed.

12 Q. And for the record, would you
13 define what you understand to be the meaning
14 of the term "river die-away study"?

15 A. As I recall it, it's simply taking
16 water, and in some cases, for example, river
17 water, and determining the rate at which
18 compounds in question or of interest are
19 being tested will degrade in that medium,
20 without adding purposely other materials or
21 chemicals.

22 Q. Did Monsanto conduct river
23 die-away studies with respect to
24 polychlorinated biphenyls?

25 A. Yes, it's my recollection that

1 this was done.

2 Q. Do you know who was in charge of
3 those studies?

4 A. Yes.

5 Q. Who?

6 A. Scott Tucker.

7 Q. And do you know over what period
8 of time those studies were conducted?

9 A. My best estimate would be 1970 to
10 '71.

11 Q. Did you have any role with respect
12 to those studies, Doctor?

13 A. No, and only as manager of that
14 area.

15 Q. Do you have any present
16 recollection as to the results of those
17 studies?

18 A. I have a few, I would call vague
19 recollections.

20 Q. Could you please tell me what your
21 vague recollections are?

22 A. That the river die-away test was
23 not a very good test because of the very slow
24 rate of degradation normally taking place
25 with chlorinated biphenyl-type products; slow

1 degradation.

2 Q. What is the relationship of the
3 slow degradation to the river die-away test
4 not being a very good test?

5 A. Well, there wouldn't be enough
6 degradation with a period of time where you
7 could actually see changes over a period of
8 time, perhaps days or longer, to compare
9 different species of chlorinated biphenyls.

10 Q. Were those tests indicative to you
11 of the rate of degradation in naturally-
12 occurring water systems?

13 A. Not to me, but I would not be the
14 right one to answer that question.

15 Q. Who would be; Mr. Tucker?

16 A. Mr. Scott Tucker.

17 Q. Do you recollect what, if any,
18 conclusion Mr. Tucker reached in his river
19 die-away studies with respect to the
20 degradation of Aroclor 1242 or higher?

21 A. At this point in time, I do not
22 recall that.

23 MR. TALLON: Let me show you a
24 document that will be marked as 301. It's a
25 three-page document bearing production

numbers TRAN 040011 through 13.

2 (Plaintiff's Deposition
3 Exhibit 301 marked for
4 identification.)
5 (Witness peruses said
6 document.)

7 THE WITNESS: Okay.

8 BY MR. TALLON:

9 Q. Doctor, does reviewing the exhibit
10 before you, and particularly the paragraph
11 which is numbered 1, "Monsanto-USA studies,"
12 refresh your recollection in any respect as
13 to the results of river die-away studies
14 conducted in 1970?

15 A. Yes, now I see this, it does help
16 me reflect on our earlier discussion.

17 Q. Do you recall having reviewed this
18 exhibit, the results of river die-away
19 studies with respect to Aroclor 1242?

20 A. No.

21 Q. In what respect has your
22 recollection been refreshed as a result of
23 reviewing this exhibit?

24 A. Well, you asked me if I knew what
25 the difference of degradation would be in the

1 river die away test, and I believe I
2 responded that I could not recall that.

3 Q. Mm-hmm.

4 A. Now that I read this, I recall it,
5 but that's, that's all.

6 Q. And now what do you recall?

7 A. Just what Scott Tucker --
8 presumably, this is out of his laboratory and
9 his work, and he participated in this meeting
10 with Papageorge for this document, concluded,
11 and I guess I can't go beyond that.

12 Q. You mean, are you referring to the
13 sentence that states, "River die-away studies
14 indicated Aroclor 1221 disappears, Aroclors
15 1242, 1248 and 1254 were undegraded"?

16 MR. ZIMMER: I don't think he
17 referred to a specific sentence. He
18 mentioned the document.

19 MR. TALLON: That's why I
20 mentioned it.

21 MR. ZIMMER: Okay, Doctor, let me
22 ask you again not to speculate about what Dr.
23 Tucker and others may have done to contribute
24 to this document, but please tell him your
25 recollection.

1 A. Right. Well, I think I have to
2 conclude with that that I really don't have a
3 recollection, and I'll restate the reason,
4 which its obvious, this came out of Dr. Flan
5 (Phonetic), he participated in this meeting,
6 put together this, and I really can't
7 contribute beyond that.

8 Q. So you have no recollection of the
9 conclusions of the river die-away studies --

10 A. No.

11 Q. And this document doesn't refresh
12 your recollection?

13 A. No.

14 Q. Okay, what meeting are you
15 referring to?

16 A. Well, I presume that it was --
17 this may have been an assumption on my part,
18 but the opening sentence of this says I
19 reviewed studies with these persons. Whether
20 there was a meeting or not, I don't know.

21 MR. TALLON: Okay, that's fine.

22 MR. ZIMMER: Mr. Tallon doesn't
23 want you to guess, presume or to speculate.

24 THE WITNESS: Okay.

25 MR. ZIMMER: He can interpret the

1 document, as well.

2 THE WITNESS: Okay.

3 BY MR. TALLON:

4 Q. Doctor, were you ever part of a
5 PCB task force?

6 A. I don't recall being ever so
7 identified.

8 Q. All right. In 1970, do you know
9 approximately how much of Mr. Tucker's time
10 was spent on degradation studies with reflect
11 to PCB's?

12 A. Relative to his total PCB efforts?

13 Q. Yes.

14 A. At least half would be my
15 estimate.

16 Q. Is that half of the total time he
17 worked, or half --

18 A. Half of the total time.

19 Q. And what percent of his total time
20 was directed to his PCB efforts, as you --

21 A. A hundred percent.

22 Q. A hundred percent? So that was,
23 basically, his job, is to work on the PCB
24 issues?

25 A. Right.

1 Q. And how does his time in 19 -- the
2 expenditure of his time that you've just
3 described compare with his, the expenditure
4 of his time in 1969? Was it different?

5 MR. ZIMMER: Calls for
6 speculation.

7 A. As I best recall, he was, in '69,
8 also full-time on PCB's.

9 BY MR. TALLON:

10 Q. And Mr. Tucker was hired in 1967
11 or --

12 A. '67.

13 Q. '67?

14 A. '67.

15 Q. Do you have any knowledge with
16 respect to how much time Mr. Tucker was
17 spending on PCB-related studies in 1968?

18 A. Essentially full-time, as I
19 recall.

20 Q. And what about the period or the
21 portion of 1967 that he was working for
22 Monsanto?

23 A. He was in the process of phasing
24 into that, with his entry into Monsanto, and
25 by the end of the year, he was essentially

1 full-time.

2 Q. After 1971, did Mr. Tucker
3 continue to work or continue to focus his
4 work on PCB studies?

5 MR. ZIMMER: Calls for
6 speculation.

7 A. Well, after '71, Scott continued,
8 to my best recollection, and I'm not sure for
9 how long, and other persons, perhaps, got
10 involved, also.

11 BY MR. TALLON:

12 Q. Were other persons who were
13 reporting to you or persons who were
14 reporting to persons who were reporting to
15 you, also involved in degradation work in the
16 late Sixties and early Seventies?

17 A. Yes.

18 Q. Could you identify any persons by
19 name?

20 A. The only person that comes to my
21 mind would be Saeger, S-a-e-g-e-r.

22 Q. Is that Mr. Saeger?

23 A. Dr. Saeger.

24 Q. Dr. Saeger? And what was his job,
25 as best you recall it?

1 A. He was a research chemist and he
2 was -- I'm not sure if he was assigned to
3 Scott at that point, but he was, to my best
4 recollection, involved with biodegradation
5 studies, work.

6 Q. Do you know if Mr., Dr. Saeger is
7 still working for Monsanto today?

8 A. As far as I know, he is.

9 Q. Other than Dr. Saeger and Mr.
10 Tucker, do you recollect whether there are
11 other persons in your group who were working
12 on degradation studies in the late Sixties or
13 early Seventies?

14 A. No.

15 Q. Are you --

16 MR. ZIMMER: It's Dr. Tucker, by
17 the way.

18 BY MR. TALLON:

19 Q. Is it Dr. Tucker??

20 A. It is Dr. Tucker.

21 Q. Are you familiar with the name
22 Dick Baxter?

23 A. Yes.

24 Q. And tell me what Mr. Baxter's
25 position was in 1971.

1 A. As I recall, he was a manager of
2 research located at either Ruabon or Newport;
3 I believe, Ruabon.

4 Q. Did Mr. Baxter have any
5 responsibility with respect to degradation
6 studies in Europe, so far as you know?

7 A. I don't know. I don't recall.

8 MR. TALLON: Let me show you a
9 document that's going to be marked as Exhibit
10 Number 302, a two-page document. One of the
11 two pages bears production number TRAN
12 063363, and the other does not appear to be
13 related, so we won't mark it.

14 (The page bearing production
15 number TRAN 063363 was marked
16 as Plaintiff's Deposition
17 Exhibit 302 marked for
18 identification.)

19 (Witness peruses said
20 document.)

21 THE WITNESS: Okay.

22 BY MR. TALLON:

23 Q. Does reviewing that exhibit,
24 Doctor, refresh your recollection in any
25 respect as to whether or not Mr. Baxter was

involved in degradation work in the early
2 Seventies?

3 A. No, it does not.

4 Q. Do you recognize the handwriting
5 that appears on the bottom of that one-page
6 exhibit?

7 A. No, I cannot identify that
8 writing.

9 Q. Is Dr. Saeger's first name Victor?

10 A. Yes, it is.

11 Q. Was he known as Vic?

12 A. Vic; correct.

13 Q. Doctor, do you know whether
14 biphenyl-adaptel organisms have any effect on
15 the degradation of PCB's?

16 A. No.

17 Q. Do you recall any work done by
18 Monsanto in the late Sixties or Seventies
19 having to do with the effect of bacterial
20 organisms on the degradation of PCB's?

21 A. We -- Comment further on bacterial
22 organisms.

23 MR. TALLON: Let me show you a
24 document that may or may not be of
25 assistance.

1 We'll mark this as 303. It's a
2 one-page document bearing production number
3 TRAN 060457.

4 (Plaintiff's Deposition
5 Exhibit 303 marked for
6 identification.)

7 (Witness peruses said
8 document.)

9 BY MR. TALLON:

10 Q. Have you read that document?

11 A. Yes.

12 Q. Have you ever seen that before?

13 A. I don't remember.

14 Q. Does reviewing that document
15 refresh your recollection in any respect as
16 to whether there is any relationship between
17 biphenyl-adaptel organisms and the
18 degradation of PCB's?

19 A. No.

20 Q. Are you familiar with the term
21 "Trigger substrate" as it relates to bio --
22 or, to degradation of PCB's?

23 A. No.

24 MR. TALLON: Let me show you a
25 document, Doctor, which we'll mark as Exhibit

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304, a multipage document bearing production
numbers BIR 007951 through 7962.

(Plaintiff's Deposition
Exhibit 304 marked for
identification.)

BY MR. TALLON:

Q. The question, Doctor, will
be whether you have seen this document
before.

(Witness peruses said
document.)

A. I don't recall seeing this.

Q. Could you look at Page 4 of that
document? I'm referring now to the numbers
which appear at the top of the memorandum
pages. There's a notation under the caption
"Research: Biodegradation Studies --
Ruabon," referring to a biphenyl degrading
culture C2," do you have any knowledge or
information as to what biphenyl degrading
culture C2 is referring to there?

A. No. None.

Q. Were biodegradation studies being
conducted by the European offices of Monsanto
contemporaneously with work going on in St.

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1 Louis in the late Sixties and early
2 Seventies?

3 A. It's my recollection that some
4 work was being done at the Ruabon facility,
5 with their biodegradation facility. That's
6 all I recall.

7 Q. Do you have any recollection as to
8 who was involved in such work?

9 A. I can't come up with a name, no.

10 Q. Do you have any recollection as to
11 whether that work was independent of or
12 coordinated with the work underway in St.
13 Louis?

14 A. I can't recall that.

15 Q. Do you recall or have any
16 recollection whether, in connection with
17 biodegradation studies being performed in the
18 United States, biodegradation field tests
19 were ever conducted? And by field tests, I
20 mean outside the laboratory.

21 A. I don't recall any field tests.

22 MR. TALLON: Let me show you a
23 document, Doctor, which we'll mark as the
24 next exhibit. This is a multipage document
25 bearing production numbers 0007267 through

1 0007302.

2 (Plaintiff's Deposition
3 Exhibit 305 marked for
4 identification.)
5 (Witness peruses said
6 document.)

7 BY MR. TALLON:

8 Q. Did you get a chance to review
9 that document?

10 A. Yes.

11 Q. Do you recollect ever having seen
12 that before?

13 A. I don't recall seeing this.

14 Q. Do you know whether there was an
15 R. A. Lidgett working for Monsanto in 1971?

16 A. Yes.

17 Q. And what was Mr. Lidgett's
18 position in 1971?

19 A. He was laboratory supervisor in
20 charge of, including analytical-type work at
21 Ruabon.

22 Q. Could you know if Mr. Lidgett is
23 still living today?

24 A. Yes, he is.

25 Q. Is he retired?

1 A. Yes.

2 Q. Do you know where he is?

3 A. Yes.

4 Q. Where?

5 A. It's near -- and don't ask me to
6 spell this -- Llangollen in North Wales,
7 which is, I would guess, fifteen, ten,
8 fifteen miles from the Ruabon plant.

9 Q. And do you know whether
10 H. A. Vodden, V-o-d-d-e-n, was working for
11 Monsanto in 1971?

12 A. Yes.

13 Q. And what was his position as you
14 best know it?

15 A. As I best recall, he was involved
16 with process researching of functional
17 fluid-type products, perhaps including Aro --
18 I'll strike that. Period.

19 Q. Do you know where he was
20 physically located in 1971 for his office?

21 A. Ruabon.

22 Q. Do you know if he is still living
23 today?

24 A. No, I don't.

25 Q. And where was he when you last

1 knew his whereabouts?

2 A. At Ruabon twenty years ago.

3 Q. And did you know a P. E. Gilbert

4 working for Monsanto in 1971?

5 A. I can't recall Mr. Gilbert.

6 Q. Without regard to your ability

7 recollecting ever having seen this particular

8 document, do you have any recollection of

9 work done by Lidgette and Vodden having to do

10 with the degradation of Aroclors 1242 and

11 1016?

12 A. No.

13 Q. Do you have any recollection of

14 work done by Lidgette and Vodden having to do

15 with biphenyl-degrading organisms C2 and C3?

16 A. No.

17 Q. Do you know what a

18 biphenyl-degrading organism C2 is?

19 A. No.

20 Q. And would it, therefore, follow

21 that you don't know what a biphenyl-degrading

22 organism C3 is?

23 A. Correct.

24 Q. As a chemist, do you know if C2

25 refers to a particular compound?

1 A. I can't answer that. When they
2 use this in connection with bio-information
3 studies, I'm not familiar with their
4 terminology.

5 Q. Okay. Doctor, do you recollect
6 ever having attended a meeting in 1970 with
7 representatives of General Electric?

8 A. No.

9 MR. TALLON: Let me show you a
10 document which we'll mark as the next exhibit
11 in order. That is a multipage document
12 bearing production numbers TRAN 023509
13 through 023518.

14 (Plaintiff's Deposition
15 Exhibit 306 marked for
16 identification.)

17 (Witness peruses said
18 document.)

19 BY MR. TALLON:

20 Q. Does reviewing Exhibit 306 refresh
21 your recollection in any respect, Doctor, as
22 to whether you attended a meeting with
23 representatives of General Electric in 1970?

24 A. I can't recall anything about such
25 a meeting.

1 Q. Do you have any recollection,
2 Doctor, of ever having met with any customers
3 of Monsanto to discuss the biodegradability
4 of Aroclor 1242?

5 A. I can't recall where I personally
6 participated with that.

7 Q. Does the term Aroclor 1242-B have
8 any meaning to you?

9 A. No.

10 Q. Does the term MCS 1016 have any
11 meaning to you?

12 A. I -- the name of the term is
13 familiar. I recall that name.

14 Q. Do you have anymore recollection
15 than simply of the name?

16 A. It's my best recollection that was
17 a, an experimental-type product as a
18 potential replacement for Aroclor 1242.

19 Q. Did you personally have any
20 responsibility for the testing of MCS 1016?

21 A. Not that I recall.

22 Q. Do you know whether MCS 1016 was
23 used as a replacement for Aroclor 1242 in any
24 respect?

25 A. No.

1 Q. You do not know?

2 A. I do not know.

3 Q. Do you know whether Mr. Tucker or
4 anyone working for you conducted tests with
5 respect to the biodegradability of MCS 1016?

6 A. I can't recall anything on that.

7 Q. Are you familiar with a man by the
8 name of J. H. Mainprize?

9 A. Yes.

10 (Discussion off the record)

11 BY MR. TALLON:

12 Q. You said you did know a Mr.
13 Mainprize?

14 A. I think I do. I think I can, I
15 recall who Mainprize was.

16 Q. What do you recall?

17 A. I couldn't have thought of the
18 name myself, but now that I hear it, it's my
19 best recollection he was involved with or
20 possibly supervised the biodegradability-type
21 functions at Ruabon.

22 Q. All right, let me ask you if you
23 can identify the document that we will mark
24 as the next exhibit, a multipage document
25 bearing two series of production numbers.

1 The first is 0001966, and that runs through
2 0002006, attached to pages TRAN 066313 and
3 066312.

4 (Plaintiff's Deposition
5 Exhibit 307 marked for
6 identification.)

7 (Witness peruses said
8 document.)

9 BY MR. TALLON:

10 Q. Have you seen that before, Doctor?

11 A. I have no recollection of this
12 report at all.

13 Q. Does reviewing that exhibit
14 refresh your recollection in any respect as
15 to work done on the biodegradation of Aroclor
16 1242 in comparison with potential substitute
17 products?

18 A. No.

19 Q. Do you know whether MCS 1016
20 replaced Aroclor 1242 in any product?

21 A. No.

22 Q. You do not know whether or not it
23 did?

24 A. I did not know that.

25 Q. Do you recollect ever having been

1 a participant in any discussion or
2 communication in which the use of MCS 1016 as
3 a replacement for Aroclor 1242 was a subject?

4 A. No.

5 MR. TALLON: Let me show you a
6 document bearing production numbers TRAN
7 042387 through 389, which we will mark as the
8 next exhibit.

9 (Plaintiff's Deposition
10 Exhibit 308 marked for
11 identification.)

12 (Witness peruses said
13 document.)

14 BY MR. TALLON:

15 Q. Did you review that, Doctor?

16 A. Yes.

17 Q. Does review of that document
18 refresh your recollection in any respect as
19 to whether you had any participation in
20 discussions or communications regarding the
21 substitution of MCS 1016 for Aroclor 1242?

22 A. No.

23 Q. In particular, does reference to
24 the paragraph numbered 2 on Page 1 under
25 "Biodegradation Studies" enhance your

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1 recollection in that regard?

2 A. No.

3 MR. TALLON: Let's mark as the
4 next exhibit a one-page document bearing
5 production number TRAN 009721.

6 (Plaintiff's Deposition
7 Exhibit 309 marked for
8 identification.)

9 MR. TALLON: Please review that.

10 (Witness peruses said
11 document.)

12 (Plaintiff's Deposition
13 Exhibit 310 marked for
14 identification.)

15 BY MR. TALLON:

16 Q. Did you ever see that document
17 before, Doctor?

18 A. No. I don't recall this document.

19 Q. Do you recall planning for a
20 meeting with representatives of NCR?

21 A. I have no recollection of that.

22 Q. Let me show you a document that
23 the court reporter has now marked as the next
24 exhibit, Exhibit 310, and ask you whether a
25 review of this document enhances your

1 recollection in any respect with regard to a
2 meeting or meetings conducted between
3 Monsanto and representatives of NCR.

4 A. No, I can't, I can't recall
5 anything out of this.

6 Q. Do you recollect, Doctor, ever
7 meeting with representatives of Westinghouse
8 in 1970 to discuss PCB's?

9 A. It's my recollection there was a
10 meeting with Westinghouse. I can't recall
11 participants, or time frame, or anything.

12 MR. TALLON: Let me show you a
13 document that bears production number 1154
14 and which we will mark as the next exhibit.

15 (Plaintiff's Deposition
16 Exhibit 311 marked for
17 identification.)

18 BY MR. TALLON:

19 Q. I ask you to take a look at that
20 and see if reviewing it refreshes your
21 recollection in any respect as to a meeting
22 with Westinghouse.

23 (Witness peruses said
24 document.)

25 BY MR. TALLON:

1 Q. Does review of that exhibit
2 refresh your recollection in any respect --

3 A. No.

4 Q. -- about the meeting with
5 Westinghouse?

6 A. (Witness shakes head in negative
7 manner.)

8 Q. Do you recall anything about any
9 meeting with Westinghouse other than that one
10 occurred?

11 A. No.

12 Q. Doctor, are you familiar with a
13 Monsanto product known as Aroclor 5460?

14 A. I recall the terminology, Aroclor
15 5460. That much I recall, as a Monsanto
16 product.

17 Q. Do you know if Aroclor 5460 was a
18 chlorinated terphenyl?

19 A. That's my recollection, a
20 chlorinated polyterphenyl, probably;
21 terphenyl.

22 Q. Do you have any understanding as
23 to whether Aroclor, or excuse me, yes,
24 whether Aroclor 5460 contained any
25 chlorinated biphenyls?

1 A. I don't recall.

2 MR. TALLON: Well, let me show you

3 a document, a two-page document bearing

4 production numbers TRAN 058001 and 002.

5 (Plaintiff's Deposition

6 Exhibit 312 marked for

7 identification.)

8 (Witness peruses said

9 document.)

10 BY MR. TALLON:

11 Q. Did you review that, Doctor?

12 A. Yes.

13 Q. Does your review of Exhibit 312

14 refresh your recollection in any respect as

15 to whether Aroclor 5460 was composed in part

16 of chlorinated biphenyls?

17 A. No.

18 Q. Doctor, do you recall ever

19 attempting to determine a test method for

20 determining chlorinated biphenyl content of

21 Aroclor 5460?

22 A. No.

23 Q. Do you recollect whether anyone in

24 your group did so?

25 A. I have no recollection of that.

1 Q. Just for the sake of clarity, do
2 you have an understanding one way or the
3 other as to whether Aroclor 5460 was composed
4 in part of polychlorinated biphenyls?

5 A. I don't know that.

6 MR. TALLON: Okay.

7 Why don't we take a two-minute
8 break.

9 (Recess)

10 BY MR. TALLON:

11 Q. Doctor, are you familiar with the
12 term "Semi-continuous activated sludge test?"

13 A. Yes.

14 Q. And can you state for the record
15 your understanding of that phrase?

16 A. It's a test that is designed to
17 simulate a secondary sewerage disposal plant
18 treatment where microorganisms in the test
19 are used along with certain nutrients to show
20 degradation of tested materials under
21 controlled conditions with that experimental
22 parameter.

23 Q. Did someone in your group perform
24 semi-continuous activated sludge tests with
25 respect to PCB degradation in the late

1 Sixties or early Seventies?

2 A. Yes.

3 Q. Who?

4 A. Well, this would have been Scott
5 Tucker, Victor Saeger, primarily.

6 MR. TALLON: Let me show you a
7 document, Doctor, that bears production
8 numbers 3485 and 3486, and we'll mark that as
9 Exhibit 313.

10 (PPlaintiff's Deposition
11 Exhibit 313 marked for
12 identification.)

13 BY MR. TALLON:

14 Q. Can you identify the document?

15 (Witness peruses said
16 document.)

17 A. Okay.

18 Q. Can you identify the document?

19 A. I don't recall this correspondence
20 or the document.

21 Q. Do you have any recollection as to
22 the results of semi-continuous activated
23 sludge tests and river water die-away tests
24 as of June 1970?

25 A. No.

1 Q. Do you have any recollection
2 whether early results from such tests
3 indicated that a major number of the two
4 chlorine and three chlorine isomers degrade
5 under certain conditions?

6 A. What I remember from the test is,
7 you could show more rapid biodegradability of
8 the lower-chlorinated isomers of PCB's
9 relative to the higher-chlorinated isomers.
10 I don't recall more than that, and I'm not
11 sure what time frame that work was done in.

12 Q. By lower chlorinated, are you
13 referring to two chlorine and three chlorine
14 isomers?

15 A. Yes, and also three and four.

16 Q. And is it your recollection that
17 the five, six and higher chlorine isomers did
18 not degrade to the same extent or at the same
19 rate as the lower chlorinated isomers?

20 A. Yes.

21 Q. Do you have any recollection as to
22 when you acquired that information?

23 A. No, I do not.

24 Q. Do you recall, Doctor, ever doing
25 any work to determine whether PCB's were

1 present in Monsanto food or medicine
2 products?

3 A. No.

4 MR. TALLON: Let me show you a
5 document which we'll mark as the next
6 exhibit, bearing production number TRAN
7 021409.

8 (Plaintiff's Deposition
9 Exhibit 314 marked for
10 identification.)

11 (Witness peruses said
12 document.)

13 A. Okay, I don't recall generating
14 this document, but --

15 BY MR. TALLON:

16 Q. Do you know what cresyldiphenyl
17 phosphate is?

18 A. I believe it's an additive used in
19 some Monsanto products.

20 Q. Do you know what the purpose of
21 the additive is?

22 MR. ZIMMER: In which product?

23 MR. TALLON: I don't know. I'll
24 find out from the doctor what it is.

25 A. No, I really don't know the

1 purpose of it as an additive.

2 BY MR. TALLON:

3 Q. Do you know what saccharin is?

4 A. Yes.

5 Q. It's a sweetener; correct?

6 A. Correct.

7 Q. And do you know what Santicizer
8 334F is?

9 A. No, I do not.

10 Q. Do you know what Santicizer 711
11 is?

12 A. No.

13 Q. Santicizer 160, do you know what
14 that is?

15 A. That's a plasticizer product. And
16 I would assume the other Santicizers are
17 plasticizer products.

18 Q. And do you know what Vanillin is?

19 A. Yes.

20 Q. What is it?

21 A. That's a synthetic vanilla product
22 produced by Monsanto.

23 Q. Do you know for what use that
24 product is put to?

25 A. Flavorings.

1 Q. Having reviewed this list, do you
2 have any enhanced recollection of testing for
3 PCB's in certain Monsanto products?

4 A. I have no recollection.

5 Q. Do you have any recollection,
6 Doctor of ever being told by Mr. -- Dr.
7 Tucker that he had found PCB's in dishwasher
8 detergents?

9 A. No.

10 Q. Do you have any specific
11 recollection, Doctor, of Dr. Tucker ever
12 telling you that he had found Aroclor 1242
13 present in dishwasher detergents?

14 A. No, I don't recall that.

15 MR. TALLON: Let me show you a
16 document that we'll mark as Exhibit 315,
17 bearing production number TRAN 023044, and
18 ask you to take a moment and review it.

19 (Plaintiff's Deposition
20 Exhibit 315 marked for
21 identification.)

22 (Witness peruses said
23 document.)

24 BY MR. TALLON:

25 Q. Have you reviewed it?

1 A. Yes.

2 Q. Does reviewing it, or has
3 reviewing it refreshed your recollection in
4 any respect about any work done by Dr. Tucker
5 in connection with identifying PCB's in
6 dishwasher detergents?

7 A. No.

8 Q. Do you recollect ever having had
9 discussions with Pap -- Dr. Tucker about the
10 presence of PCB's in household products of
11 any kind?

12 A. No.

13 Q. Do you recollect ever having had
14 any discussions with Mr. Papageorge about the
15 presence of PCB's in household products of
16 any type?

17 A. No.

18 Q. Doctor, does the handwritten
19 notation in the upper right-hand corner of
20 this exhibit that appears to say "Aroclor
21 SP," do you see that?

22 A. Yes.

23 Q. Can you identify that handwriting?

24 A. It looks like it could be mine.

25 Q. Did you have a file denominated

1 "Aroclor SP" in 1972?

2 A. If you are asking what "SP" means,
3 I think I would have had a file -- at that
4 time, I think the business unit was called,
5 perhaps, Specialty Products. That would be
6 Aroclor, perhaps, in the specialty products
7 file. That's about as far as I can go with
8 it.

9 Q. Did you keep files in your office
10 in 1972?

11 A. Mm-hmm, yes.

12 Q. Did you have any files that
13 related particularly to testing with respect
14 to PCB's?

15 A. No separate files apart from
16 products, et cetera; that I recall.

17 Q. Do you recollect whether, if you
18 received written reports of studies relating
19 to PCB's, where you filed such reports?

20 THE WITNESS: Would you read that
21 back, please?

22 THE COURT REPORTER:

23 "Q. Do you recollect whether, if
24 you received written reports of studies
25 relating to PCB's, where you filed such

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1 reports?"

2 A. No. I don't recall that.

3 MR. TALLON: All right, thank you.

4 MR. ZIMMER: Thank you, Doctor.

5 THE WITNESS: Thank you.

6 (Whereupon, at 10:45 a.m.,

7 the deposition was

8 concluded.)

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COMES NOW THE WITNESS, ROBERT
ELLIS KELLER, and having read the foregoing
transcript of the deposition taken on the
11th and 12th days of June, 1992,
acknowledges by signature hereto that it is a
true and accurate transcript of the testimony
given on the date hereinabove mentioned.

Robert Ellis Keller

ROBERT ELLIS KELLER

Subscribed and sworn to before me
this 15 day of July, 1992.

BROMA J. ROBINSON
NOTARY PUBLIC - STATE OF MISSOURI
ST. LOUIS COUNTY
MY COMMISSION EXPIRES AUG. 28, 1995

My Commission expires: _____

Broma J. Robinson

Notary Public

ORIGINAL

GORE REPORTING COMPANY - ST. LOUIS, MISSOURI

1 STATE OF MISSOURI)

2 SS:)

3 CITY OF ST. LOUIS)

4 I J. Bryan Jordan, notary public
5 in and for the State of Missouri, duly
6 commissioned, qualified and authorized to
7 administer oaths and to certify depositions,
8 do hereby certify that pursuant to agreement
9 in the civil cause now pending and
10 undetermined in the Supeiror Court of the
11 State of California, to be used in the trial
12 of said cause in said court, I was attended
13 at the offices of Bryan, Cave, McPheeters &
14 McRoberts, in the City of St. Louis, State of
15 Missouri, by the aforesaid witness and by the
16 aforesaid attorneys, on the 11th and 12th
17 days of June, 1992.

18 The said witness, being of sound
19 mind and being by me first carefully examined
20 and duly cautioned and sworn to testify the
21 truth, the whole truth, and nothing but the
22 truth in the case aforesaid, thereupon
23 testified as is shown in the foregoing
24 transcript, said testimony being by me
25 reported in shorthand and caused to be

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1 transcribed into typewriting, and that the
2 foregoing pages correctly set forth the
3 testimony of the aforementioned witness,
4 together with the questions propounded by
5 counsel and remarks and objections thereto,
6 and is in all respects a full, true, correct
7 and complete transcript of the questions
8 propounded to and the answers given by said
9 witness; that signature of the deponent was
10 not waived by agreement of counsel.

11 I further certify that I am not of
12 counsel or attorney for either of the parties
13 to said suit, not related to nor interested
14 in any of the parties or their attorneys.

15 Witness my hand and notarial seal
16 at St. Louis, Missouri, this 15th day of
17 June, 1992.

18 My commission expires July 20,
19 1994.

20
21 -----

22 J. Bryan Jordan

23 Notary Public in and for the
24 State of Missouri
25