

IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS
STATE OF MISSOURI
Judith Bechtold, wife of and
Stephen E. Bechtold, Elizabeth
Tamewitz, as Personal
Representative of her deceased
husband, Kenneth F. Tamewitz,
Kellie Lee Trisler, as Personal
Representative of her deceased
mother, Mina Trisler, Phyllis
Goodman, as Personal
Representative of her deceased
husband, Charles Goodman, Jr.,
vs.
Monsanto Company
and
Westinghouse Electric
Corporation.

Cause No. 922 00911

DEPOSITION OF DR. GEORGE ROUSH, JR.
Taken on behalf of the Plaintiffs
June 15, 1994
WALLER REPORTING, INC.
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St. Louis, MO 63101
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DEPOSITION OF DR. GEORGE ROUSH, JR.,
produced, sworn, and examined on behalf of the
Plaintiffs on June 15, 1994, between the hours of nine
o'clock in the forenoon and five o'clock in the
afternoon of that day, at the offices of Husch &
Eppenger, 100 North Broadway, St. Louis, Missouri
63101, before KATHLEEN A. WANN, a Registered
Professional Reporter and a Notary Public within and for
the State of Missouri.
A P P E A R A N C E S
The Plaintiffs were represented by Mr. C.
Joseph Murray of the Murray Law Firm, 909 Poydras
Street, Suite 2550, New Orleans, LA 70112.
The Defendant, Monsanto, was represented by
Ms. Carol Rutter of the law firm of Husch & Eppenger,
100 N. Broadway, St. Louis, MO 63102.
The Defendant, Westinghouse, was
represented by Mr. Thomas P. Berra, Jr. of the law firm
of Lewis, Rice & Fingersh, 8182 Maryland Avenue, Suite
400, Clayton, MO 63105-3786.
WALLER REPORTING, INC.

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1 IT IS HEREBY STIPULATED AND AGREED by and
2 between counsel for the plaintiffs and counsel for the
3 defendants, that this deposition may be taken in
4 shorthand by KATHLEEN A. WANN, a Registered Professional
5 Reporter and Notary Public, and afterwards transcribed
6 into typewriting, and the deposition of the witness is
7 to be read and signed by the witness by agreement of
8 Counsel and consent of the witness.

9 o O o

10 DR. GEORGE ROUSH, JR.,
11 of lawful age, being produced, sworn, and examined on
12 the part of the Plaintiffs, deposes and says:

13 DIRECT EXAMINATION

14 QUESTIONS BY MR. MURRAY:

15 Q. Good morning, Dr. Roush. We met earlier.
16 My name is Joe Murray, and I represent the plaintiffs in
17 this action. You've given depositions before; correct?

18 A. Yes.

19 Q. I have in my possession a June 11th, 1987
20 deposition that you gave in the Cecil Scott case, which
21 was a case filed down in Texas. Do you remember that
22 deposition?

23 A. I remember it, but I don't remember

24 Q. Sure. I don't expect you to remember
25 everything that was said. But the point I'm making is

1 that I'm not going to I'm going to try not to repeat
2 the things that were discussed in this deposition. But
3 if I do, if there are some questions that I ask that may
4 sound repetitive from that, please excuse me.

5 As you know, Dr. Roush, this lady is taking
6 down everything that's said, so it's necessary for you
7 to answer verbally to all of my questions rather than
8 nodding your head one way or the other.

9 A. Yes, sir.

10 Q. Let me first ask you, Dr. Roush, are you
11 still employed by Monsanto?

12 A. No.

13 Q. When did you leave their employ?

14 A. Eighty eight ('88).

15 Q. What was your position when you left?

16 A. Medical director.

17 Q. And did you retire or did you go to
18 somewhere else?

19 A. I retired.

20 Q. And you haven't been employed since that
21 time?

22 A. Only as a consultant.

23 Q. And by whom have you been employed as a
24 consultant?

25 A. Primarily by Monsanto.

1 Q. In what kinds of cases have you been
2 employed as a consultant by Monsanto?

3 A. Related to either toxicological studies or
4 related to the health of some worker.

5 Q. All right. Were there any particular
6 chemicals that you were dealing with in those instances?

7 A. No.

8 Q. All right. Let me ask you this. Have you
9 ever testified for Monday or have you ever been
10 employed as a consultant by Monsanto with regard to
11 PCBs?

12 A. Yes.

13 Q. And what case was that?

14 A. Well, there have been a number of cases.

15 Q. Okay. All right. And what issue was it
16 that you were helping Monsanto with in those cases?

17 A. That's a general question. Maybe you can
18 narrow it down and I can talk about something narrow.

19 Q. Were you consulted in your capacity as a
20 medical expert in those cases?

21 A. No, I was representing Monsanto.

22 Q. So it would have been on occasion where you
23 were mainly a factual witness?

24 A. Yes.

25 Q. And to your recollection you've never been

1 employed by them as an expert to talk about a specific
2 medical issue or something like that?

3 A. No.

4 MS. RUTTER: I would object to the form of
5 the question in that he's not a lawyer. I think you're
6 asking for a legal conclusion.

7 Q. (By Mr. Murray) Do you know what it means,
8 Dr. Roush, to be used as an expert in a legal case?

9 A. No.

10 Q. Okay. When you did your consulting work
11 for Monsanto, were you asked to express opinions
12 regarding the toxicity or adverse human health effects
13 related to PCB exposure?

14 A. That's a complicated question. Could you
15 ask it again?

16 Q. I didn't mean it to be. I'm sorry. When
17 you were employed by Monsanto as a consultant

18 A. As consultant.

19 Q. were you ever asked to express an
20 opinion with regard to the toxicological effects related
21 to PCB exposure?

22 MS. RUTTER: Object to the vague form of
23 the question. Asked by whom, or do you you don't
24 by anyone?

25 Q. (By Mr. Murray) Including by Monsanto,

1 yeah. I'm asking about what Monsanto asked you to do.

2 A. Usually it was related to a continuing
3 problem related to PCBs.

4 Q. That doesn't quite answer my question, but
5 I think it's my fault and not yours.

6 There are times when you testified either
7 in deposition or in court for Monsanto?

8 A. Yes.

9 Q. All right. Have you ever testified in
10 court for Monsanto?

11 A. No.

12 Q. All of your testimony at least thus far has
13 been in deposition form; correct?

14 A. Yes.

15 Q. All right. In those depositions were you
16 ever asked to express opinions regarding the
17 toxicological effects of PCB exposure? And let me limit
18 that to toxicological effects in humans.

19 MS. RUTTER: Object to the vague form of
20 the question. Are you asking him now if the lawyer
21 taking the deposition, regardless of whether that was a
22 plaintiff's lawyer

23 MR. MURRAY: Yes.

24 MS. RUTTER: or Monsanto? Okay.

25 Q. (By Mr. Murray) Yes, in a deposition have

1 you ever been asked that regarding your opinion on that?

2 A. I probably I think so, yes.

3 Q. This is a tough thing. Let me ask you
4 this. How many times have you testified in a
5 deposition?

6 A. A number of times.

7 Q. How many times?

8 A. I don't know. I don't remember.

9 Q. Can you give me a rough estimate?

10 A. Maybe 15.

11 Q. Okay.

12 A. That's just a guess.

13 Q. How many times have you testified since
14 1987 in a deposition?

15 A. For Monsanto?

16 Q. Yes.

17 A. Less than five.

18 Q. Do you remember the names of those cases?

19 A. No.

20 Q. Do you remember any of those cases?

21 A. No.

22 Q. You don't remember one of them? Answer out
23 loud, please.

24 A. No.

25 Q. Do you know whether or not those cases

1 related to alleged adverse health effects related to
2 PCBs exposure?

3 A. Yes.

4 Q. All of them?

5 A. I think so.

6 Q. Okay. On those five occasions do you
7 remember the name of the lawyer that was representing
8 Monsanto?

9 A. No.

10 Q. Do you remember the name of the lawyer that
11 was representing Monsanto in any of those cases?

12 A. No.

13 Q. Do you remember the name of the lawyer on
14 the other side who was questioning you?

15 A. No.

16 Q. How long ago was the last time you
17 testified?

18 A. I would say '88 again.

19 Q. Okay. So it's been roughly six years since
20 the last time you've given a deposition in a PCB case?

21 A. I think so.

22 Q. Okay. As I understand it, Dr. Roush, you
23 graduated from medical school in 1951; correct?

24 A. Yes.

25 Q. Tell me what you did after medical school.

1 A. Internship at Marquette in Milwaukee.

2 Q. All right.

3 A. One year. Then to the University of
4 Pittsburgh, master's of public health, occupational
5 medicine, research in metabolism of the heart, so that
6 takes it up to '54 I think.

7 Q. Let's stop right there for a minute. Tell
8 me about the field of public health. What does that
9 entail?

10 A. It can be either way. It can be either
11 working with individuals or it can be working with
12 health related problems, so most of public health is
13 related to a population rather than to one person.

14 Q. Okay. And does that field include adverse
15 health effects to humans relating from exposure to toxic
16 chemicals?

17 A. It can.

18 Q. And your master's was in public health and
19 occupational medicine?

20 A. Yes.

21 Q. Tell me about occupational medicine. What
22 is that field?

23 A. It's a means of looking at workers in a
24 plant or somehow within the industry, and we can either
25 get them to tell us about a problem, we take those, or

1 else we go out and look for the problems ourselves. So
2 it can be either them coming to us or we get them
3 outside. And once we do that, if we are interested in
4 that subject, then we look at that subject in some
5 depth.

6 Q. Okay. So if I understand you correctly,
7 somebody from XYZ manufacturing plant might come to you
8 as a specialist in occupational health and say, We have
9 this problem with the workers in our plant. Could you
10 come in and check it out for us?

11 A. Yes.

12 Q. Okay. And the other way that you might
13 become involved in a situation is if you just had an
14 academic interest in it and then you go out looking for
15 plants that might have a problem that related to your
16 academic interest?

17 A. Right. It's one that we think would be out
18 there already. We won't go out and look for it if we
19 don't think it's there.

20 Q. Okay. All right. And you received that
21 degree in '54?

22 A. Fifty four ('54).

23 Q. All right. Were you familiar, Dr. Roush,
24 back in that time period, when you were receiving your
25 training in public health and occupational medicine,

1 were you familiar with the types of studies that were
2 being conducted with regard to the toxicity of various
3 industrial chemicals?

4 A. Yes. We would somehow that man could
5 come to the school of public health, or else we could be
6 interested in it, and that can be the subject of a
7 presentation to the medical students' learning process,
8 working within the medical process itself, or else what
9 was so typical back at that time was worrying about coal
10 miners.

11 And so when do you have to take the man out
12 of the plant in order to keep them from developing lung
13 disease? Or what are we going to do that will protect
14 him so when he goes into his job that he won't have lung
15 disease? And it can happen with other diseases and
16 problems, but it's not a continuing one like you would
17 have with miners. There's a continuing versus
18 short term interest.

19 Q. Okay. Were you doing a lot of work back in
20 that time period with regard to coal miners?

21 A. No, but they were being brought in, and
22 industrial hygienists, as another way of looking at
23 medical problems. And so you go out and take a sample
24 of the air. And so an industrial hygienist was trying
25 to get a handle on this not medical; I mean And so

1 if it was a medical problem, then we would send it to
2 some other university that was doing that particular
3 study.

4 Q. During your course work leading to your
5 master's degree or even leading to your medical degree,
6 were you taught the procedures to be used in testing for
7 toxicological effects of various chemicals?

8 A. Yes.

9 Q. And when we talk about toxicological
10 effects, we really have to break that down, do we not,
11 into acute effects and chronic effects?

12 A. Yes, sir.

13 Q. Okay. That was true even back in the early
14 '50s; right?

15 A. Right, but the question is degree.

16 Q. But certainly a chronic effect of exposure
17 to a chemical was recognized even way back then?

18 A. Right, but I'm the only one that does the
19 acute.

20 Q. I'm sorry.

21 A. I'm the only one that does the acute,
22 because it depends on how long it is and how big the
23 problem is.

24 Q. There were people in the field however
25 during that time period doing chronic studies though;

1 were there not?

2 A. Yes, but most of them were not chronic.
3 Most of them were acute. Even today. It depends on

4 Q. Sure.

5 A. Lots of them are

6 Q. That's normally where you start to
7 determine the toxic effects with anything is an acute
8 study; correct?

9 A. Yes.

10 Q. If there's no acute study, there's not much
11 sense in going on to the chronic study

12 A. Well, that's a big decision, because it
13 takes a prolonged exposure in order to produce that
14 effect like coal miners though.

15 Q. Correct. And that was recognized way back
16 in the '50s also; is that correct?

17 A. Correct.

18 Q. Okay. How were people testing for chronic
19 results back in the '50s?

20 A. Use the same tools as is done in clinical
21 medicine. We don't reinvent the stethoscope to look for
22 lung disease related from being in the coal mines and
23 comparing that to the effect on the heart that produces
24 the same kind of pulmonary sounds.

25 So the tools for looking at a man with

1 occupational disease is X ray, stethoscope, blood tests.
2 What we add is silica from the coal mine or exposure to
3 a gas found in the plant. And so we take those tests
4 that I was taught and apply it.

5 Q. Okay. So what you're saying is that you as
6 an occupational medicine specialist would see somebody
7 who already had been chronically exposed

8 A. Yes.

9 Q. and take that individual, and then run
10 your various medical tests to determine the extent of
11 any illness that he suffered from that exposure?

12 A. Yes.

13 Q. Okay. Were there also animal studies being
14 run during that period of time?

15 A. Some.

16 Q. Okay. And those animal studies were both
17 acute and chronic?

18 A. Yes, but chronic was so expensive and they
19 took so much there were not as many done as now.

20 Q. I see. But they certainly were being done
21 back then?

22 A. Yes.

23 Q. And during that period of time was there
24 some type of definition used or a standard used to
25 determine whether a study was going to be was an

1 acute study or a chronic study? And I'm talking about
2 with regard to length of time on the study.

3 MS. RUTTER: By that period of time,
4 Mr. Murray, could you clarify?

5 Q. (By Mr. Murray) I'm still talking about
6 the early '50s, when you were leading up to your
7 degree in public health.

8 A. Ask the question again, please.

9 Q. Yeah. I'm talking about in terms of the
10 we know that there's acute studies that you can run on a
11 various on a certain type of chemical and there are
12 chronic studies that you can run.

13 A. Yes.

14 Q. And mostly those studies would differ both
15 in dosage, the amount of chemical being that the
16 animal would be exposed to, but also in length of time;
17 correct?

18 A. Yes, that's another way of getting to the
19 same dose.

20 Q. Right, okay.

21 A. The dose is also related to particle size,
22 whether it gets in the lungs at all.

23 Q. Okay.

24 A. If it's small it may. If it's big they may
25 just cough it back up.

1 Q. So what I'm trying to get at is, was there
2 some kind of a standard that was used in the field to
3 determine whether a study was an acute study or a
4 chronic study with regard to the length of time that
5 that study was being run?

6 MS. RUTTER: In the early 1950s?

7 Q. (By Mr. Murray) Yes, we're still until
8 I tell you otherwise, that's the time period we're
9 talking about.

10 A. Most studies back at that time were studies
11 on man acutely, because that is something the physician
12 can do by himself and doesn't need that industrial
13 hygienist to help him remove that

14 Q. I understand that, but we've already
15 established there were studies being done on animals
16 during that time period. And there were both acute and
17 some chronic studies on animal and man during that
18 period of time. And what I'm trying to understand is
19 how you differentiated during that period of time. What
20 was a chronic study and what was an acute study?

21 A. We have a history. Somebody tells us what
22 to look for, study someone exposed to coal dust, and
23 that can be an acute study. And if I say, Well, I don't
24 really see very much, let them go on and say they're
25 and we'll follow him carefully so he doesn't get any

1 really adverse effect.

2 Q. Right. I understand, Dr. Roush. But I
3 think that we're miscommunicating here. I'm talking
4 about animal studies

5 A. Yes.

6 Q. solely regarding animal studies right
7 now that were being done in the early '50s. And there
8 were acute animal studies and chronic animal studies;
9 correct?

10 A. Yes, but not many animal studies.

11 Q. I understand that. All I'm trying to do is
12 to determine how you as a scientist, if you're looking
13 at a published study that was related to exposure to
14 animals on a given chemical, how did you determine
15 whether that was an acute study or a chronic study?

16 A. They would tell me the man who has done
17 it would tell me in his write up.

18 Q. I write a paper saying I exposed these
19 animals for a period of one week to such and such a dose
20 of chemicals

21 A. Yes.

22 Q. and I consider this a chronic study.
23 Would you agree with that?

24 A. Not from what you just said.

25 Q. Okay. Well, that's the whole point I'm

1 trying to make. There was some time period involved
2 where you could tell by looking at the time period used
3 that it may be an acute study or a chronic study. Is
4 that a fair statement?

5 A. Yes.

6 Q. Okay. Was there a determination in your
7 own mind during the early '50s as to what would be
8 how long a chronic study would have to go before it
9 would be called a chronic study?

10 A. It would be determined partially or in a
11 major manner it would be mostly an observation as we
12 watch the man in his exposure.

13 Q. I'm talking about animals, Doctor.

14 A. I understand. We weren't doing many animal
15 studies, and it's hard to do it. That's the reason I
16 went to the coal. We have a coal mine a man that
17 goes in the coal mine

18 Q. Were you familiar with animal studies that
19 were being done during that time period?

20 A. A few.

21 Q. And I'm not limiting this to coal or to
22 anything else. I'm just talking about in general,
23 learning the toxicological effects of various chemicals,
24 there were animal studies being done during that period
25 of time; correct?

1 A. Yes, yes.

2 Q. All right. In your own mind did you have a
3 way to distinguish whether a study was chronic versus
4 acute given the length of time that it had gone?

5 A. No, you can't go by that way.

6 Q. Okay. All right. So did you say however
7 though that if it only ran a week, you couldn't consider
8 that a chronic study?

9 A. That's right.

10 Q. All right. How long would it have to run
11 before it would become a chronic study in your own mind?

12 A. We have a subacute in between.

13 Q. Let's talk about those categories, and you
14 give me your own idea in the '50s as to what the time
15 limits would be for acute, subacute and chronic.

16 A. It all depends on how irritating or how
17 much man can tolerate. If man can't tolerate an acute
18 one, we don't go any further. If we have a man exposed
19 to something, and we look at him and he may have a
20 little discomfort, we'll say, Let's go on. So we do a
21 subacute. And if the animal or man tolerates that, then
22 we go to a life time study possibly.

23 So it's going on a lot is responding to
24 what we see as well as how the animal appears to be
25 reacting or what we do in a study that would help to say

1 whether it's acute or not.

2 Q. I'm going to try again.

3 A. Okay. Sure. This is a big this is a
4 very difficult subject.

5 Q. And I know that there's no simple answer.

6 A. Yes.

7 Q. But what I'm trying to get in my own mind
8 is, if I look at a study that was done in the '50s and
9 this study ran for two months, 16 days, would I consider
10 that a chronic study or an acute study or a subacute?

11 MS. RUTTER: Objection. Calls for
12 speculation and conjecture.

13 A. Do a study. If the animal can't tolerate
14 that, that's an acute study. That means he can't
15 tolerate very much of that material. And if he does
16 tolerate it, either I had decided before we started that
17 that we're going to do a subacute study that means
18 we're going to do it for a couple of months

19 Q. (By Mr. Murray) Okay.

20 A. and if he tolerates that, well, then
21 we'll say, Let's go on. Let's do what we talked about.
22 Let's do a chronic

23 Q. Okay. That's what I'm talking about. If
24 you were establishing a protocol in the early '50s to
25 determine the chronic effects of a certain exposure on

1 an animal, how long would you make that study run?

2 A. You would I'm saying the same thing.

3 I'd do an acute. I would do a subacute, depending on

4 Q. But you're not listening to the question.

5 The question was I'm not interested in what comes

6 before the chronic study. You've already determined

7 that a chronic study is necessary. How long would you

8 make that study for?

9 A. Usually it's a routine two year study.

10 Q. Okay. That's all I want to know.

11 A. But really that's oversimplified, because

12 it can be in between there.

13 Q. Sure. I understand that. Basically

14 chronic studies are two year studies, but there can be

15 exceptions. You may want to run it for I assume it

16 also could depend on the animal being used?

17 A. Sure.

18 Q. Some animals don't have a two year life

19 span?

20 A. Sure. But it is extremely complicated, and

21 most people won't stay at it to make it work.

22 Q. Now, I notice in your educational and

23 employment history that you or at least in your early

24 years developed what I maybe would consider a

25 subspecialty in cardiology? Is that a fair statement?

1 A. I had advanced training in it.

2 Q. Okay. Is that training and the work you
3 did in cardiology related to toxicological effects on
4 the heart or just heart troubles in general?

5 A. In occupational medicine. I was in
6 occupational medicine. A man works in the plant. He
7 does some level of activity. And he starts having heart
8 effects, maybe or maybe not related to that excess work.

9 Q. Okay. So in my own mind basically your
10 interest and specialty in cardiology still was in some
11 way related to your overall specialty of occupational
12 medicine?

13 A. Sure, and it could well be that we'd say
14 that, well, I'm not sure they should go on working with
15 that material.

16 Q. Okay. Did you ever run any animal studies
17 yourself in your entire employment history and
18 education?

19 A. No.

20 Q. Normally that wouldn't be something an
21 occupational medicine doctor would do; would it?

22 A. No. I'm much more inclined to see what the
23 animals did and see what we can

24 Q. You're much more interested in seeing what
25 the studies others did with animals and applying that

1 experience to humans; correct?

2 A. It improves our understanding of what that
3 chemicals does.

4 Q. Now, you were with Ethyl Corporation prior
5 to coming to Monsanto?

6 A. That's correct.

7 Q. What did you do at Ethyl?

8 A. Concern for the health of workers who
9 handle tetra, t e t r a, ethyl, e t h y l, lead.
10 Tetraethyl lead. It was put in the gasoline to improve
11 the octane.

12 Q. I understand.

13 A. Every car that was used had tetraethyl lead
14 as part of the gasoline. That wasn't my problem. But
15 the people who put that tetraethyl lead into the
16 gasoline, when they were first starting that up in
17 Dayton, Ohio, they killed a number of people acutely
18 from trying to put those two together.

19 Q. Um hmm.

20 A. That's an acute study. I wasn't there at
21 that time. When I got to see them they were saying, how
22 are we going to monitor these people who do that to
23 insure that they don't have that repetition? And they
24 had an examination program. They went around and
25 visited every refinery that put tetraethyl lead in so

1 they don't have the effects

2 Q. Was that part of your duties to actually go
3 around to make those visits to the plants and examine
4 those people that had been dealing with it?

5 A. They had been doing that for a number of
6 years. I don't know when they started making tetraethyl
7 lead. But when I did that, I went around to see if it
8 was adequate. Are we missing something or are we
9 wasting time? So I worked both sides. But there the
10 animal data was very important to me so I could decide
11 what to do in looking at them.

12 Q. You started with Ethyl Corporation in what
13 year?

14 A. In '65.

15 Q. All right. Was that a full time position
16 when you first started with them?

17 A. Yes.

18 Q. Okay.

19 A. Well Yes.

20 Q. You were also doing teaching

21 A. I was teaching at Tulane I mean in
22 Cincinnati.

23 Q. And how long did you stay with Ethyl?

24 A. Until '73. We had problems with shipping
25 with tetraethyl lead getting out, people going in and

1 cleaning out gasoline towers, people dying in both of
2 these. And so my job there was, how can I handle this
3 so that that doesn't take place?

4 Q. Okay. Did you go directly from Monsanto
5 to Monsanto from Ethyl?

6 A. Yes.

7 Q. Did you teach after coming to work for
8 Monsanto? Did you continue teaching?

9 A. No.

10 Q. Are you presently doing any teaching?

11 A. No.

12 Q. After you left you told me that you did
13 some consulting work for Monsanto. Have you done any
14 consulting work for anyone else?

15 A. Consulting work has almost always been
16 possible poisoning or health effects related to
17 something that we're doing.

18 Q. I understand. But my question was whether
19 you've done it for anyone other than Monsanto.

20 A. Yeah.

21 Q. Who?

22 A. Small companies that would say someone
23 tried to handle a chemical, unusual chemicals, used in
24 paint that includes some solvent that might have some
25 effect, and my job was to say it did or did not. That's

1 the kind of problem. Or people working with lead, a
2 fair amount of them.

3 There's a big lead operation close to St.
4 Louis, and the doctor was saying, well, I think that may
5 be a lead poisoning, and asked me to look at them and
6 confirm whether

7 Q. All right. Your consulting work since
8 you've left Monsanto has been Who actually hires you?
9 Have you been hired by companies, or have you been hired
10 by lawyers, or both?

11 A. By companies.

12 Q. Okay. I need the names of those companies
13 if you can remember, the ones you can remember. I don't
14 expect you to remember everything.

15 A. Led. Usually I suppose 70 percent or
16 more has been me seeing people with a question about
17 lead poisoning. And that's this lead plant just south
18 of here. I can't think of it.

19 Q. You don't remember the name?

20 A. No. But it's one of the biggest in the
21 country. And when you're dealing with lead, lead gets
22 around and people are getting it. The question is, are
23 they getting too much.

24 Q. So somebody might be working at this plant,
25 gets sick, blames the lead, and your job is to come in

1 and examine that individual and make a determination as
2 to whether or not whatever he's got might have been
3 caused by the lead?

4 A. Or say it's not.

5 Q. Okay. All right. And you don't remember
6 the name of the company that you've been doing that for?

7 A. It isn't that much. I'm talking about I
8 suppose I've been doing this for eight years, once,
9 twice, three times a year, something like that, but
10 that's all.

11 Q. Has it all been from that one major
12 company?

13 A. Yes.

14 Q. Have you ever actually testified at trial?

15 A. No.

16 Q. Okay. You have given depositions though
17 with regard

18 MS. RUTTER: About lead?

19 Q. (By Mr. Murray) With regard to these led
20 cases, yes.

21 A. No.

22 Q. No?

23 A. No, I just help that manager of that plant
24 so that he wasn't doing harm or that he wasn't doing
25 something

1 Q. Okay. I understand. So those cases
2 weren't in litigation?

3 A. No.

4 Q. Or if they were, you weren't a part of the
5 litigation?

6 A. That's right.

7 Q. Have you ever testified or have you ever
8 been employed by a company other than Monsanto to give
9 advice or counsel with regard to PCBs?

10 A. No.

11 Q. I'm going to ask you some questions about
12 some documents, Dr. Roush. The first document, I'm
13 going to show you what is numbered Monsanto or I should
14 say MONS 030773, and it continues through to 030780.

15 And this document appears to me to be a
16 compilation of several different documents. I'd just
17 ask you to look at that and review it for a minute, and
18 then I'll ask some questions about it.

19 A. (Witness complies.)

20 Q. Okay. Are you finished reviewing the
21 document, Doctor?

22 A. Yes.

23 Q. Do you recognize this document?

24 A. Yes.

25 Q. Okay. And tell me

1 MS. RUTTER: I would object to the form of
2 the question in that it's a number of documents stapled
3 together.

4 MR. MURRAY: All right. I didn't do the
5 staplings. It came to me as one document.

6 So that's what I'm going to ask you about
7 first of all is, tell me in general what those documents
8 are.

9 A. Well, a question is raised whether working
10 in a plant can cause death. And the way you do that is
11 you count the dead, those who have died, and we say,
12 yeah, we have so many who have died from cancer. But
13 that's only a start. Because now that I've got that, is
14 that unusual to only have four? You say, well, did you
15 see everybody in the plant

16 Q. (By Mr. Murray) I understand what you're
17 saying, Doctor, and I'm not trying to cut you off, but
18 basically what I'm trying to understand is, what are
19 these to get a general description of these
20 documents. And basically you're telling me that this is
21 an epidemiological study done at Monsanto on Monsanto
22 workers?

23 A. Yes. And it is characteristic of such
24 things. We didn't have enough of them to study.

25 Q. I understand that. This was a study that

1 was done in the mid '70s?

2 A. Yes.

3 Q. And at whose request was the study
4 performed?

5 A. I don't recall.

6 Q. Who instigated the study, do you recall?

7 A. I can't recall.

8 Q. There was a name in here by Frederick
9 Johannsen?

10 A. He worked for me.

11 Q. Was he the person sort of in charge of
12 doing the study?

13 A. Yes, sort of.

14 Q. Sort of?

15 A. He's a toxicologist.

16 Q. Okay. And ultimately the study was taken
17 over by somebody else; correct?

18 A. Yes, someone more proficient.

19 Q. And that was Judy Zack?

20 A. Yes.

21 Q. Okay.

22 A. You can't do a toxicology study with four
23 deaths. You can't do a lifetime study with only four
24 deaths. And us getting into that computer was to
25 improve the number of them in the study.

1 MS. RUTTER: Let Mr. Murray ask you the
2 question.

3 Q. (By Mr. Murray) I don't want to get into
4 the merits of the study.

5 A. Yes.

6 Q. The things that I'm interested in is, there
7 were some problems that he ran into in running the
8 study

9 A. Yes.

10 Q. one of which was the small number of
11 people that was involved; right?

12 A. Yes.

13 Q. Okay. And part of the solution to that
14 problem was to send the data to an outside
15 epidemiologist; correct?

16 A. Yes.

17 Q. And that was a do you remember who that
18 was?

19 A. Mahboubi?

20 Q. Mahboubi. I don't think I could have
21 pronounced it either. He was with the Eppley Institute?

22 A. Yes.

23 Q. Let me just do this, Doctor. I'm going to
24 show you all of the documents that I've been able to
25 find with regard to Dr. Mahboubi, one of which begins

1 with Monsanto number 094559, runs through 094561, and
2 this is a letter dated October 7th, 1975. And then the
3 other document, again this document came to me stapled
4 together, and they're Bates numbered consecutively
5 beginning MONS 094652 and ending 094571. I'd just ask
6 you to Generally can you tell me, are these letters
7 from the epidemiologist you hired with regard to that
8 study?

9 A. Yes. Yes. I think that was using
10 Mahboubi.

11 (Whereupon, a discussion was held off the
12 record.)

13 Q. (By Mr. Murray) As I reviewed those
14 documents, Doctor, and I'm just going to ask you for
15 your recollection if this is the way you remember it
16 going down, Mr. Johannsen, or is it Dr. Johannsen

17 A. Doctor.

18 Q. Dr. Johannsen accumulated some data on the
19 people who worked in the Department 246 at the Krummrich
20 plant; right?

21 A. Yes.

22 Q. And that was basically where they
23 manufactured PCBs?

24 A. Yes.

25 Q. Okay. And then he submitted that data to

1 Dr. Mahboubi, and Dr. Mahboubi was going to take that
2 data and determine what, if anything, of significance he
3 could determine from it?

4 A. Right.

5 Q. Okay. And this basically was a mortality
6 study; correct?

7 A. Yes.

8 Q. He wanted to know whether or not there was
9 an excess of any types of specific deaths occurring in a
10 population of people occurring within that department;
11 correct?

12 A. Yes.

13 Q. Now, I wanted to direct your attention to
14 the last report of Dr. Mahboubi, and at least I'll say
15 it was the last one I could find, dated November 19th,
16 1975. If you could just review that document, and I'll
17 ask you some questions about it.

18 A. (Witness complies.)

19 Q. Okay. Am I reading that report correct,
20 Dr. Roush, that Dr. Mahboubi actually found a
21 statistically significant excess number of lung cancer
22 deaths?

23 A. Yes.

24 Q. And he recommended a certain follow up with
25 regard to determining whether or not those deaths may

1 have been related to some type of plant exposure; is
2 that correct?

3 A. Yes, but he hadn't gone that far. He was
4 still back at trying to say, was there an excess of
5 cancers in there. And then the conclusion was, there
6 are very few of them. Now, what are we going to do
7 about those few cancer cases?

8 Q. Right. And one of the things he wanted to
9 find out was the smoking habits of each of those
10 individuals?

11 A. Right. Right.

12 Q. And he indicates in his letter that you
13 might be able to go back to the hospitals where the
14 people died and get the smoking history from the
15 records; right?

16 A. Yes.

17 Q. Was that ever done?

18 A. I don't think so.

19 Q. Okay.

20 A. The other problem that you have to do is
21 you have to decide had they worked there long enough.

22 Q. I understand. I understand that. And in
23 fact, Dr. Johannsen actually did a follow up on that;
24 didn't he?

25 A. Yes.

1 Q. And he determined that the people who
2 worked there longer had an even higher statistically
3 significant lung cancer rate; right?

4 A. That's right.

5 Q. All right. And then I think you indicated
6 to me that Dr. Zack took all of that and then went
7 further with it?

8 A. Yes.

9 Q. I don't want to ask you something you don't
10 know, and I frankly don't have this document with me.
11 But I remember seeing a study done by Dr. Zack, and it
12 was actually the one I saw was something that you
13 would expect as a final draft of a study, a scientific
14 study. Was something like that actually done?

15 A. Yes.

16 Q. Was that ever published?

17 A. Yes.

18 Q. In what journal was that published?

19 A. I don't remember. I think it was
20 Epidemiology, but it might not

21 Q. All right. All right. Was Dr. Zack an
22 employee of Monsanto?

23 A. Yes.

24 Q. And that's Judy Zack; right?

25 A. Yes.

1 Q. Z a c k?

2 A. Yes.

3 Q. All right. As I remember your previous
4 testimony, this study was instituted in order to as a
5 result of a conversation you had with somebody from
6 Mobil

7 A. Yes.

8 Q. where they had indicated they had found
9 what they considered to be an excess of melanoma; is
10 that correct?

11 A. Yes.

12 Q. Okay. Do you know of any other studies,
13 epidemiological studies, that Monsanto either did
14 themselves in house or commissioned someone else to do
15 other than what we've just been talking about? And I'm
16 talking about with regard to PCBs.

17 A. I think that's all.

18 Q. Okay. And I'm going to show you a document
19 labeled SCM 019723 through 019728 and ask you if you
20 recognize that.

21 Are you finished, Dr. Roush?

22 A. Yes.

23 Q. Do you recognize it?

24 A. No.

25 Q. Okay. Do you recognize that first page as

1 a Monsanto memo? Were you the author of it?

2 A. It means a transfer. I was the one on this
3 that says where it goes next. I didn't do the study on
4 this.

5 Q. No, I understand. But that first page was
6 written by you?

7 A. Yes.

8 Q. Okay. And that was my next question, was
9 do you remember who did that drafted that release? I
10 say release. It's not a realease. It's a statement.

11 A. Yes. I don't recall.

12 Q. You don't recall. Your memo makes
13 reference to a toxicity section of the Monsanto
14 statement under Action No. 5 of the reference memo. Can
15 you give me any idea what that's talking about?

16 A. Action where is Action 5? I don't know
17 how to find Action 5. I understand quite well what this
18 is about.

19 Q. What is it?

20 A. It's the problem of interpretation of the
21 liver effects

22 Q. Oh, no, I understand that. But I'm trying
23 to understand what it was drafted for. What purpose was
24 it going to be used for?

25 A. I think is to get it to Washington

1 Q. Okay.

2 A. why it does or does not produce the
3 effect that they would say is worse than others or

4 Q. I would suggest a statement that was going
5 to be used as Monsanto's position in front of various
6 government agencies

7 A. Right.

8 Q. in regard to the toxicities of PCBs?

9 A. Right. And this is an early draft

10 Q. A first draft?

11 A. An early draft.

12 Q. Let me show you the next one, that SCM
13 number 019716 through 719, and ask you if you recognize
14 that.

15 Okay. Is that a subsequent version of that
16 first draft of the report that we just discussed?

17 A. Yes.

18 Q. Who is Wayne Withers?

19 A. A public relations type

20 Q. Okay. Do you know whether or not that
21 subsequent memo was adopted in that form, or were there
22 some other changes made to it?

23 A. I don't think changes were made.

24 Q. And was the memo subsequently used in the
25 manner in which you talked about earlier?

1 A. I don't know.

2 Q. Okay. I'll show you the next document
3 labeled SCM 076859 through 076860. First of all, do you
4 recognize the handwriting on that document?

5 A. No, I don't.

6 Q. Have you ever seen that document before to
7 your recollection?

8 A. Yes I've never seen this before.

9 Q. Okay. You notice these initials up at the
10 top right hand corner of the first page?

11 A. Yes.

12 Q. WS is that a T or a J? Or do you know?

13 A. I think that's a J.

14 Q. Do you recognize those initials?

15 A. No.

16 Q. Can you think of anybody at Monsanto during
17 the 1983 time period who would have the initials WSJ?

18 A. No, I don't.

19 Q. Okay. I thought I'd give it a shot.

20 A. Sure.

21 Q. After the two year chronic tests that were
22 run on the Aroclors in the mid '70s, do you know whether
23 or not Monsanto ever went back and ran any other chronic
24 studies? And specifically do you ever remember if they
25 ran an 18 month study on rats?

1 A. Well, they did a two year study on rats.

2 Q. I understand.

3 A. Yes.

4 Q. I understand. After that two year study
5 did they ever go back and run an 18 month study on them?

6 A. I don't know.

7 Q. During the time period you were there did
8 they ever do that?

9 A. I don't think so.

10 Q. Okay. I'll show you another document which
11 has no it has several different numbers on it. I
12 think the most obvious number is the S number 000008 and
13 000009. I'd just ask you to look at that and tell me if
14 you've ever seen that before.

15 MS. RUTTER: Joe, I'm going to want copies
16 of all these documents. I assume you won't object to
17 that.

18 MR. MURRAY: You've got copies of them.

19 MS. RUTTER: Some of these are from SCM.

20 MR. MURRAY: We got them from you though.

21 MS. RUTTER: Well, that doesn't mean I've
22 got them easily accessible at my finger tips.

23 MR. MURRAY: You can take a copy. I don't
24 have any objection to that.

25 MS. RUTTER: Okay.

1 Q. (By Mr. Murray) Do you recognize the
2 document, Doctor?

3 A. Never saw it.

4 Q. Let me just say that for future reference
5 if you look at a document and you can tell right away
6 that you've never seen it before, just tell me that and
7 we won't go into it any further; okay? Do you
8 understand what I'm saying?

9 A. Yes.

10 MS. RUTTER: What he's saying is, if you
11 don't recognize it, just say so and he's not going to
12 ask you questions about it.

13 A. I thought you wanted me to

14 Q. (By Mr. Murray) I wanted you to see it and
15 make sure that you had recognized it or not, but if you
16 look at a document and know that you haven't seen it
17 before and don't recognize it, just say so and we can
18 skip it and just go to the next one; okay?

19 A. Sure.

20 Q. Tell me, what is the Monsanto Biohazards
21 Committee I guess? And to the time period of August of
22 '81 what was that and what was its purpose?

23 A. I forgot the time when this goes back, but
24 it's at least ten years. I brought together a group of
25 outside consultants. And then we talked about if we

1 had liver damage, we'd have a pathologist to help us to
2 get an interpretation of that for Monsanto's benefit.

3 So we had a pathologist, a biochemist not only are
4 they these are the chairmen of the departments

5 Q. Of medical in medical institutions

6 A. at the top drawer medical schools

7 Q. Okay.

8 A. and biochemists and more.

9 Q. So it's a group of scientists, outside
10 independent scientists that you brought together to
11 discuss particular issues relating to I assume all kinds
12 of different chemicals, not just PCBs?

13 A. Oh, yeah, that's right.

14 Q. Okay. And how often would that group meet?

15 A. Once a month.

16 Q. And were the scientists who were members of
17 that group paid by Monsanto for their time?

18 A. Yes.

19 Q. Were they on like a retainer, or were they
20 paid on an hourly basis, or do you know?

21 A. Hourly or daily basis.

22 Q. Okay. Now, I want to direct your attention
23 to a copy of the minutes of the meeting of the
24 Biohazards Committee dated August 25th, '81. And I want
25 to specifically ask you about a sentence in here that

1 says, The most satisfactory formulation is that the PCB,
2 in company with many other chlorinated hydrocarbons, is
3 a promoter in the carcinogenic process. Was that a
4 conclusion that the committee reached, or was that your
5 own opinion, or was that Monsanto's position?

6 MS. RUTTER: I would urge you to take a
7 look at the document before answering his question since
8 it dates back apparently to 19

9 MR. MURRAY: I'm not asking him about the
10 document. I'm asking him about

11 Well, can you look at the document, Doctor?
12 I don't care. I'd like to get out of here before
13 tomorrow.

14 MS. RUTTER: If this doesn't have anything
15 to do with PCBs, I doubt if he's going to ask you
16 questions on that.

17 Q. (By Mr. Murray) Do you remember my
18 question, Dr. Roush?

19 A. I'm sorry.

20 MR. MURRAY: Would you read back the
21 question, please?

22 (Whereupon, the question was read back by
23 the reporter as follows:

24 Q. "Okay. Now, I want to direct your
25 attention to a copy of the minutes of the meeting

1 of the Biohazards Committee dated August 25th,
2 '81. And I want to specifically ask you about a
3 sentence in here that says, The most satisfactory
4 formulation is that the PCB, in company with many
5 other chlorinated hydrocarbons, is a promoter in
6 the carcinogenic process. Was that a conclusion
7 that the committee reached, or was that your own
8 opinion, or was that Monsanto's position?")

9 A. This was a statement by the Hazards
10 Biohazards Committee giving an opinion on how PCBs are
11 formulated

12 Q. (By Mr. Murray) All right.

13 A. and the action of them.

14 Q. That is based that is the Committee's
15 opinion as opposed to your own personal opinion

16 A. Yes, yes.

17 Q. or a position of Monsanto or anything
18 like that?

19 A. That would be testimony that would have
20 been as valuable as mine.

21 Q. Let me ask you, do you share that opinion?

22 A. This was some time ago, so I have some
23 advantage. I think that it can be a promoter in the
24 carcinogenic process, but that doesn't mean that it is.

25 Q. Okay. Let me go back to Judy Zack for a

1 minute, because I've forgotten to ask you some things.

2 When was that article published?

3 A. I don't know.

4 Q. Was it before you left Monsanto?

5 A. Yes.

6 Q. What month in '88 did you leave?

7 A. I'm not sure. I think it was November.

8 Q. Okay. So that would have been

9 A. No, that was a mis must have been
10 that was probably April.

11 Q. So this last if this deposition was in
12 the Cecil Scott case, that would have been roughly 10
13 months, 11 months before you left?

14 A. Yes.

15 Q. Okay. In discussing that epidemiological
16 study, in your previous testimony you indicate that you
17 were in the process of writing up a case control study,
18 and this was in June of '87. Would that be the Dr. Zack
19 study that you were talking about there?

20 A. No, I don't think so.

21 Q. Okay. Let me then let you look at that
22 part of your testimony and ask you to tell me what you
23 were talking about. This is the specific part, and then
24 you can look at either side of that to get the context
25 of it.

1 Have you read enough to understand the
2 connection in what you were trying to say at the time?

3 A. What was the question again?

4 Q. My question was, what case control study
5 were you talking about there that you were in the
6 process of doing in June of 1987?

7 A. I don't remember the context.

8 Q. Well, let me see if I can help you with it
9 then. This part of your testimony was dealing with the
10 Johannsen epidemiological study of the workers in the
11 Krummrich plant. And you were talking about how it
12 probably wasn't meaningful because of the size of the
13 group that you were using and that type of thing.

14 A. Right.

15 Q. And the specific testimony was, We found
16 lung cancers there, meaning in the Krummrich plant, and
17 whether that was related was another question. I assume
18 that what you're talking about there was whether that
19 was related to the PCB exposure?

20 A. Right.

21 Q. And the next question was the question
22 which you can't answer for us to this day?

23 And the answer, Well, yes, we've done
24 follow up studies on that population and we have an
25 excess of lung cancer in that whole plant.

1 Question: I see.

2 So it's not PCBs.

3 Question: What is it?

4 Then you go on to that answer where you
5 talk about the next thing we did is compare this. That
6 was with the national population. Then we compared it
7 with the local population. And we're in the process of
8 writing up a case control study to look at this.

9 You still can't tell me what that case
10 control study is?

11 A. No.

12 Q. Okay. Other than Judy Zack's report
13 though, you don't know of any other epidemiological
14 study done by Monsanto on PCBs; right?

15 A. I think Gaffey has one.

16 Q. Was that done by Monsanto?

17 A. Yes.

18 Q. Was that the control study that you were
19 talking about?

20 A. I can't answer that.

21 Q. What population was Gaffey looking at?

22 A. All of the exposures to PCBs. This was an
23 attempt to get around that problem of definition of
24 population.

25 Q. The exposure of whom?

1 A. Of the workers at Krum

2 Q. At Krummrich?

3 A. at Krummrich.

4 Q. Okay. Gaffey was a Monsanto employee?

5 A. Yes, he's a level above Zack.

6 Q. Is Zack still working at Monsanto?

7 A. No.

8 Q. Do you know where she's working then?

9 A. No, I cannot.

10 Q. Okay. What about Gaffey?

11 A. Gaffey is retired, but right he's in St.

12 Louis.

13 MR. MURRAY: I can't think of anything

14 else, Doctor Roush. I appreciate your time, sir.

15 CROSS EXAMINATION

16 QUESTIONS BY MS. RUTTER:

17 Q. I've got just a couple. Dr. Roush, you
18 testified that you thought the Zack study had been
19 published. Is it possible that you're wrong on that?

20 A. I don't think so.

21 Q. Okay. Mr. Murray asked you a question
22 about had you ever testified in court for Monsanto. You
23 have testified in trials in which Monsanto was a
24 defendant; is that correct?

25 A. I was trying to think of them, but I can't

1 think of one.

2 Q. There was a trial across the river; was
3 there not? It had nothing to do with PCBs?

4 A. Yes.

5 Q. But you testified in that?

6 A. Right, that was not with PCBs.

7 Q. All right. I just wanted to make sure that
8 wasn't a source of confusion. And you're uncertain of
9 the dates of the last time you gave a deposition
10 involving a PCB case?

11 A. Yes.

12 Q. Back in the 1950s was it common practice to
13 do long term chronic animal studies on industrial
14 chemicals that were not regulated by the FDA or the
15 Department of Agriculture?

16 A. It was less common then than now.

17 Q. And I'm a little bit confused about the
18 last line of testimony about Dr. Gaffey. I've
19 personally never heard of an epidemiological study by
20 Dr. Gaffey. Are you sure that he did one?

21 A. I think so.

22 Q. But you're not 100 percent certain?

23 A. No. No.

24 MS. RUTTER: That's all I have.

25 MR. BERRA: I don't have any questions.

[illegible]

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Roush, George M.D. (fmr Mons Medical Director) in BECHTOLD

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[add - charge]

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