

COPY

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

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

6 V. :

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

7 MONSANTO COMPANY :
 8 -----

9
 10 VIDEOTAPED DEPOSITION OF
 11 DR. GEORGE ROUSH, JR.
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 16

17 June 11, 1987
 18 Gilpin, Pohl & Bennett
 1300 Post Oak Boulevard
 Houston, Texas

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

APPEARANCES:

For the Plaintiffs:

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For the Defendant:

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The Videographer:

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Videotaped deposition of DR. GEORGE
ROUSH, JR., a witness called by the Plaintiffs, on
June 11, 1987, at the offices of Gilpin, Pohl &
Bennett, 1300 Post Oak Boulevard, Houston, Texas,
commencing at 9:15 a.m., before Cheryll K. DeFevers,
CSR No. 1690 and Notary Public in and for the State
of Texas, pursuant to Notice and Subpoena and the
Federal Rules of Civil Procedure.

I N D E X

WITNESS: DR. GEORGE ROUSH, JR.

EXAMINATION BY:

PAGE

Mr. Lacey

5

1 P R O C E E D I N G S

2 THE REPORTER: Do you'all want
3 signature?

4 MR. FRUEHWALD: I don't know what the
5 practice has been.

6 MR. LACEY: What we've been doing, is
7 we've had a stipulation where they're given the
8 opportunity to sign it; but if it's not been signed
9 and the signature and changes made available to us
10 before trial, then a copy can be used in lieu of the
11 original.

12 We've been reserving all objections
13 that we can reserve, and we've been referring to
14 exhibits, to the extent they're not marked as trial
15 exhibits already, by their last digits of their SCM
16 document numbers.

17 Is that acceptable?

18 MR. FRUEHWALD: Yeah.

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1 DR. GEORGE ROUSH, JR.,
2 having been first duly sworn, testified as follows:

3
4 EXAMINATION BY MR. LACEY:

5 Q. Will you state your full name for the
6 record, sir?

7 A. George Roush, Jr.

8 Q. Where do you live?

9 A. St. Louis.

10 Q. The address?

11 A. 10 Beverly, St. Louis, 63124.

12 Q. How are you employed?

13 A. I'm full-time employed by Monsanto.

14 Q. And what position do you hold there?

15 A. I am the director of medicine and health
16 sciences.

17 Q. Give me a very brief description of your
18 educational background following high school, if you
19 would, please.

20 A. I have a Bachelor's -- a Bachelor of
21 philosophy from the University of Wisconsin and an
22 M.D. from Washington University in St. Louis, a
23 Master in public health from the University of
24 Pittsburgh, and occupational health.

25 I have training in internal medicine

1 from the National Cancer Institute, from the Public
2 Health Service in Staten Island, and from the
3 University of Pittsburgh. And I have a fellowship
4 in heart -- in cardiology at the University of
5 Louisville.

6 Q. When did you obtain your Bachelor's degree?

7 A. In 1951.

8 Q. And your M.D.?

9 A. 1951.

10 Q. So, you obtained both your undergraduate
11 and medical degree in the same year?

12 A. Yes. I just hadn't gone back to ask for
13 it.

14 Q. When did you complete the course work for
15 your undergraduate degree?

16 A. 1946.

17 Q. And all that remained to be do -- to be
18 done was the granting of the degree?

19 A. Right. There was -- I was interrupted by
20 the war. And, so, I took the other course and went
21 back and asked for the degree.

22 Q. When did you receive your Master of public
23 health?

24 A. 1953.

25 Q. Did you do a routine internship following

1 the completion of your medical degree?

2 A. Yes, I did.

3 Q. And ---

4 A. At Milwaukee County Hospital. That's the
5 Marquette teaching hospital in Milwaukee.

6 Q. And did you do a standard residency
7 following your medical work?

8 A. I had described it when I says I was at the
9 Cancer Institute at the Staten Island Marine
10 Hospital and University of Pittsburgh.

11 Q. Okay. Was that residency done immediately
12 following your internship?

13 A. Yes.

14 Q. And how long did that residency last?

15 A. I finished in 1956.

16 Q. Okay. So, the Master's of public health
17 degree was taken during the time you were doing your
18 residency?

19 A. Yes.

20 Q. You mentioned that you have a fellowship in
21 health and cardiology. Is that a Board
22 certification type of fellowship or --

23 A. No. That's just a way of getting a
24 specialty in it.

25 Q. I see. Are you Board certified in any area

1 of medicine?

2 A. In occupational medicine.

3 Q. Okay. And when did you become Board
4 certified?

5 A. 1965.

6 Q. By way of test?

7 A. Yes.

8 Q. Tell me about your employment history. And
9 by this, I mean the companies or the entities with
10 whom you were employed and the dates of employment
11 following completion of your education.

12 A. In 1956 I became a part-time faculty at the
13 University of Pittsburgh and was also the medical
14 director of Calorie Chemical Company, a small
15 company in -- in Pittsburgh.

16 Q. Was that a part-time job, as well?

17 A. Yes.

18 Q. How long did you hold those positions?

19 A. Until 1962.

20 Q. And what did you do in 1962?

21 A. Then I took a leave of absence from the
22 University of Pittsburgh to take that fellowship at
23 University of Louisville, in cardiology.

24 Q. And how long were you at Louisville?

25 A. One year.

1 Q. And from 1963, what did you do?

2 A. I went to the University of Cincinnati at
3 the Kettering Laboratory, and I was associate
4 professor of occupational medicine. And I was there
5 until 1968.

6 Q. And where did you go in 1968?

7 A. During that time, from 1973 on, I was also
8 medical director of the Ethel Corporation.

9 Q. You said "1973." Did you mean ---

10 A. 1963.

11 Q. 1963.

12 A. (Witness nods head)

13 Q. Okay. And that was a part-time job with
14 Ethel?

15 A. Yes.

16 Q. And in 1968 did you leave the University of
17 Cincinnati?

18 A. Yes.

19 Q. And what did you do?

20 A. And went to Tulane University medical
21 school.

22 Q. And what did you do there?

23 A. And I was there in the department of
24 medicine, and I was professor of medicine.

25 Q. What particular area were you teaching in?

1 A. Environmental medicine.

2 Q. And how long did you remain at Tulane?

3 A. Until 1973.

4 Q. Were you also still a part-time medical --

5 A. I was still medical director of Ethel

6 Corporation until 1973.

7 Q. Okay. And in 1973 where did you go?

8 A. Went to -- came to Monsanto.

9 Q. And what position did you come into?

10 A. As associate medical director working with
11 Dr. Kelly, and it was preparatory for his
12 retirement. And, so, I was associate director until
13 1974, when he retired; and then I became medical
14 director.

15 Q. And when you came, you understood that
16 Dr. Kelly was nearing retirement and upon his
17 retirement you would become the medical director?

18 A. Yes.

19 Q. And from 1974 forward have you been the
20 medical director of Monsanto?

21 A. Yes.

22 Q. Is that a position that has administrative
23 responsibilities associated with it?

24 A. Yes.

25 Q. What size department do you administer --

1 or group do you administer?

2 A. About 20, 25.

3 Q. And has that been the approximate size of
4 the department throughout the time you've been
5 there?

6 A. No.

7 Q. How large was the medical department that
8 you came to administer when you became medical
9 director in 1974?

10 A. About ten.

11 Q. And from '74, then, until '87, it's grown
12 from approximately ten people to approximately 20 to
13 25?

14 A. No. It went up to 150.

15 Q. Okay. Went up to 150 and then back down --

16 A. Yes.

17 Q. -- to 20, 25?

18 A. (Witness nods head)

19 Q. When did it reach 100 to --

20 A. About two years ago.

21 Q. And the maximum was about 100 to 150?

22 A. Yes.

23 Q. And you administered all those people?

24 A. Yes.

25 Q. And then it dropped back down to 20 to 25?

1 A. Yes.

2 Q. What was the cause of that decrease?

3 A. Reorganization.

4 Q. And your administrative responsibilities,
5 then, were reduced?

6 A. Yes.

7 Q. Who became responsible for the
8 administration of this large number of people that
9 were moved from your responsibility?

10 A. There was about a -- I had a toxicology
11 laboratory that we had put together about ten years
12 ago. And with the reorganization of Monsanto, like
13 many companies, the toxicology laboratory became a
14 part of the agricultural division. And that's where
15 most of it was.

16 And the other thing we dropped out and
17 the reason why I have the trouble with the numbers
18 is that industrial hygiene had been my
19 responsibility, too. And that was taken away from
20 me and -- and put into an administrative function
21 rather than technical.

22 Q. What were you left with after the
23 toxicology lab was moved and the industrial hygiene
24 was moved?

25 A. Occupational medicine, toxicology, and

1 epidemiology.

2 Q. Until this reorganization that occurred
3 in -- what was it; 1985 or so?

4 A. In that time frame.

5 Q. Until the reorganization had occurred in
6 about 1985, did you administer all of the industrial
7 hygiene as well as occupational medicine,
8 toxicology, and epidemiology?

9 A. Yes.

10 Q. Did you also administer the toxicology
11 laboratory employees?

12 A. Yes.

13 Q. What functions as the medical director did
14 you carry out in administering this group of
15 employees?

16 A. Well, I was responsible for the
17 administration in terms of hiring and firing as well
18 as the assigning of responsibility to each one of
19 that group. But in addition, a major function was
20 in technical direction of the administering of our
21 health program.

22 Q. So, you were responsible for hiring the
23 people that worked for you?

24 A. Yes.

25 Q. Correct?

1 A. (Witness nods head)

2 Q. Is that correct?

3 A. Yes.

4 Q. You were responsible for firing the people,
5 if necessary, that worked for you?

6 A. Yes.

7 Q. You were responsible for assigning them
8 their particular job duties?

9 A. Yes.

10 Q. And you were responsible for directing
11 their technical work?

12 A. Yes.

13 Q. Were you responsible for budgeting the
14 department in the work that it did?

15 And by that, I would mean employee's
16 salaries; I would also mean outside consultants that
17 you hired.

18 A. Yes.

19 Q. Was -- were these functions of hiring,
20 firing, assigning responsibilities, giving technical
21 direction, and budgeting both salaries and outside
22 consultants something that was associated with the
23 job of medical director from the time you started
24 with that job?

25 A. Yes.

1 Q. Did you have any procedures, guidelines, or
2 policies that you established with regard to the
3 circumstances that would lead to any type of
4 discipline for an employee who worked for you?

5 A. No. That was personnel function. We --
6 the discipline would -- would be related and -- and
7 prescribed by the personnel function.

8 And we had -- the personnel function
9 in the organization in which I functioned was called
10 "environmental policy staff."

11 Q. And there were some personnel people there?

12 A. Yes. And they administered that function
13 within our department.

14 Q. If there were an employee whose performance
15 you felt justified some sort of discipline, would
16 you simply make your wishes known to the
17 environmental policy personnel staff; and they would
18 then decide how to carry that out?

19 A. We would do it together.

20 Q. If you thought an employee were appropriate
21 for termination, how would that be done? Would you
22 make that recommendation to that group, and they
23 would then decide whether or not to terminate?

24 A. I'm trying to think if that ever happened.
25 We only had one -- no. There are -- we had some

1 terminations, but they were incidental in the
2 staffing function. So, we -- we would do it -- we
3 would do it together, personnel --

4 Q. So, you were involved jointly with the
5 personnel people in --

6 A. Right. Their procedure for hiring and
7 firing was -- was followed by our -- our section, by
8 our department.

9 Q. Am I correct in understanding that these
10 people were -- the particular group that you worked
11 with in the environmental policy group were
12 knowledgeable about the laws that related to what
13 you were supposed to do when you hired somebody; the
14 benefits that you were supposed to provide them;
15 what due process rights, if any, you would provide
16 to them when you were going to discipline them; and
17 making sure that if they were terminated it was done
18 in a correct fashion?

19 A. Yes.

20 Q. And --

21 A. And that would include -- when that
22 happens, my boss would be a part of that, as well.

23 Q. And the decision about whether or not
24 somebody ought to be terminated or not was primarily
25 your decision as the administrator, and then you

1 would consult with this other group on how to go
2 about carrying out the decision; is that correct?

3 A. Yes.

4 Q. Who was your boss?

5 A. Mr. Throdahl at that time.

6 Q. Well, let -- let me -- when we say "at that
7 time," I want to be sure I --

8 A. Well, that goes back in -- into when I --
9 when I had this larger function, Mr. Throdahl was
10 involved. And after he retired, then that
11 reorganization took place after that. And, so, then
12 my reporting function changed, as well.

13 Q. Okay. Was Mr. Throdahl your boss from 1974
14 until 1985?

15 A. About then, yes.

16 Q. Okay. And in the termination of employees,
17 you would consult not only with the personnel
18 people, who would help you decide how to physically
19 do it, but also with Mr. Throdahl about whether to
20 do it?

21 A. Yes. And it would depend on what level
22 that person was. If it was an hourly person who
23 wasn't working regularly, we probably would do it at
24 the personnel level and only inform Mr. Throdahl
25 what had taken place.

1 Q. If you had a salaried person, would
2 Mr. Throdahl be involved in the decision-making
3 process?

4 A. Much more so.

5 Q. About how many people did you terminate
6 from the period 1974 through 1985?

7 A. Rarely did we terminate anyone.

8 Q. Do you have any idea of about how many
9 people actually were terminated during that period?

10 A. I would say less than ten. Maybe five.
11 If -- if that high. So, there's a rare occurrence.

12 Q. What sort of conduct would give rise to a
13 recommendation or a decision by you to terminate an
14 employee who you administered?

15 A. Usually it would be for missing work, poor
16 performance at work; and usually it would be in the
17 hourly people. And I'm -- I'm speaking in
18 generality because I really can't recall any in
19 which I had -- a problem came up that we had to fire
20 someone. It's that rare.

21 Q. Do you recall terminating any salaried
22 professional employee?

23 A. We did have one who was terminated, and
24 that was done without my participation.

25 Q. Who was that?

1 A. Paul Wright.

2 Q. When was Mr. Wright terminated?

3 A. I can't answer that. I don't remember the
4 date.

5 Q. Do you remember approximately when he was
6 terminated?

7 A. It was such a long procedure. It's
8 difficult to say. I would expect it was four years
9 ago, something like that.

10 Q. How was it that Mr. Wright's termination
11 occurred without your involvement?

12 A. There was a -- I don't know the legal
13 term. There was a -- an investigation of the
14 operations of the Industrial Biotech Laboratories in
15 Chicago concerning the conduct of experiments
16 there. And it was -- the investigation was by the
17 Government.

18 And I'm not sure what phase of it, but
19 it was started by -- the investigation, I think, was
20 by the FDA. And Paul Wright had worked at
21 Industrial Biotech before he came to Monsanto. And
22 that was before I joined Monsanto. So, I -- I'm --
23 I can't speak from -- as I recall, Paul had been
24 working for -- for IBT for several years and then
25 came back to join our toxicology division. And then

1 when this lawsuit began --

2 Q. You're talking about the investigation --

3 A. Yes.

4 Q. -- by the Government?

5 A. No. When the lawsuit began.

6 Q. What lawsuit?

7 A. The lawsuit against IBT.

8 Q. Okay.

9 A. And Paul became one of the defendants. I
10 think that's the correct term. And the reason I
11 have to say "I think" is because we were not a part
12 of it and I was not knowledgeable what was taking
13 thing or anything. It was complete beyond my
14 understanding.

15 When that lawsuit began and he was now
16 being on trial, we put him on leave of absence. Not
17 my say so. That was the way legal or someone --
18 personnel had decided. That was beyond me because
19 it wasn't anything to do with his function with us.

20 Q. Uh-huh.

21 A. And they put him on leave of absence. And
22 from then on, I don't know anything about --
23 anything about the trial or anything that took place
24 or why or anything substantive about that because
25 that was nothing to do with me.

1 And when the trial was over and he was
2 convicted -- if that's the right term -- then he was
3 separated from Monsanto.

4 Q. Let me see if I understand correctly the
5 situation with Mr. Wright.

6 By the way, was it "Mr. Wright,"
7 "Dr. Wright"; what was his --

8 A. "Dr. Wright."

9 Q. Did Dr. Paul Wright hold a responsible
10 position at Monsanto?

11 A. Yes, he sure did.

12 Q. What was his position?

13 A. He was one of our toxicologists.

14 Q. What title did he hold?

15 A. I think he was called a manager.

16 Q. And did he have an appropriate Ph.D. degree
17 to be a toxicologist?

18 A. Yes, he did. He was -- had a degree in
19 nutrition from the University of Wisconsin.

20 Q. And was that an appropriate degree, in your
21 opinion, to hold the position of toxicologist?

22 A. He was part of Monsanto before I came, and
23 I found him to be very capable in what he did as
24 well as his knowledge about what toxicology is and
25 how to administer it.

1 Q. Well, my question is: Was, in your
2 opinion, the degree that he held, along with his
3 experience, appropriate to hold the position of
4 toxicologist?

5 A. Yes.

6 Q. Now, were you responsible for administering
7 Mr. Wright's employment with Monsanto after you
8 became medical director of Monsanto?

9 A. Yes, sir.

10 Q. And, so, from 1974 up until whatever time
11 that this investigation began, you administered
12 Mr. Wright's employment, correct?

13 A. Yes, sir.

14 Q. That would mean you evaluated his work,
15 correct?

16 A. He didn't report directly to me. He
17 reported to George Livinscus, the head of
18 toxicology. But I was intimately involved in --
19 it's a small enough department, I worked with Paul
20 regularly. So --

21 But the -- any recommendations would
22 be coming from George Livinscus in terms of what his
23 performance was or anything else.

24 Q. You, however, were responsible ultimately
25 for assigning the responsibilities that were

1 assigned to Dr. Wright while you were head of the
2 medical department, correct?

3 A. I'm not sure I understand what you mean,
4 "assign."

5 Q. Well, you told me that your duties as
6 medical director consisted of hiring, firing,
7 assigning responsibility, technical direction, and
8 budgeting of salaries and outside consultants'
9 expenses?

10 A. Yes.

11 Q. One of the things that you were responsible
12 for as medical director of Monsanto from 1974 until
13 Dr. Wright left your area of responsibility was
14 assigning responsibilities to him; is that correct?

15 A. Yes. And I did that by -- through George
16 Livinscus. He administered directly -- we talked
17 about what their assignments would be.

18 Q. And ultimately you had the say-so in what
19 assignments were given to Paul Wright, did you not?

20 A. Yes.

21 Q. You also were responsible for the technical
22 direction of his work, were you not?

23 A. Yes.

24 Q. And among the responsibilities that you had
25 for assigning him work and directing his technical

1 work -- or in addition to that, you were responsible
2 for making or approving recommendations for salary,
3 were you not?

4 A. Yes.

5 Q. And any bonuses or awards he got, correct?

6 A. Yes.

7 Q. Did Monsanto have a system whereby there
8 was a periodic review of salaries?

9 A. Yes, sir.

10 Q. Did employees at the level of Mr. Wright
11 have to have your approval before a salary
12 recommendation was passed on for implementation?

13 A. Yes, sir.

14 Q. So, any salary increases that Dr. Wright
15 got at Monsanto would have had to have been approved
16 by you, correct?

17 A. Yes, sir.

18 Q. And you would have had to evaluate the work
19 to determine whether or not you thought it merited
20 the proposed increase, correct?

21 A. Yes, sir.

22 Q. What sort of bonuses or incentives did
23 Monsanto have in addition to a routine salary?

24 A. We have a bonus program that's based on the
25 level that he has in the company. And then we have

1 an incentive program that -- for those of lesser
2 degree that are not a part of the bonus program.

3 Q. Was Dr. Wright at the level to be part of
4 the bonus program?

5 A. No, he was not.

6 Q. So, he was covered, with regard to
7 supplements to his salary, by the incentive program?

8 A. Yes.

9 Q. By the way, the bonus program, was that
10 based on the financial performance of Monsanto?

11 A. Yes.

12 Q. So, if Monsanto had a good year, executives
13 who were at the level to participate in the bonus
14 program would be rewarded with additional
15 compensation, correct?

16 A. Yes.

17 Q. If Monsanto had a bad year, executives at
18 the level to participate in the bonus program would
19 not get as large of or bonuses at all, correct?

20 A. That's right.

21 Q. Were you at the level as medical director
22 where you participated in the bonus program?

23 A. Yes.

24 Q. Were people at the level of Mr. Throdahl
25 and above in the level to participate in the bonus

1 program?

2 A. Yes.

3 Q. So, the salary or the total compensation of
4 the medical director and the people to whom he
5 reported would be dependent upon the financial
6 performance of Monsanto, correct?

7 A. Yes.

8 Q. What about Dr. Livinscus, was he in a level
9 where he participated in the bonus program?

10 A. Yes.

11 Q. And, so, Dr. Livinscus' compensation would
12 depend upon the financial performance of Monsanto?

13 A. Yes.

14 Q. Explain to me the incentive program.

15 A. Each year we would be told how much money
16 there was available for distribution for those who
17 had done outstanding work.

18 Q. Was that allocated to you; as a department,
19 you had X-number of dollars to distribute?

20 A. Yes.

21 Q. Was it customary that each employee in the
22 department who was not a part of the bonus program
23 got to participate in the incentive program?

24 A. No. There wasn't that much of a fund. It
25 was by special recommendation that those Monsanto

1 awards were passed out.

2 Q. Was that -- were you given a specific
3 amount of money each year that you could then
4 allocate among your employees as you saw fit in the
5 incentive program?

6 A. We would write up a statement describing
7 his work for the year, and that would go to
8 personnel. But we recognized how many dollars had
9 been allocated to our department for that year. And
10 somehow, we would then put them in the ranking and
11 give it out in that form.

12 Q. Well, let me see if I understand and just
13 take a hypothetical. If, for example, you were told
14 that you had \$25,000 to pass out in 1976, you would
15 look at the employees who reported to you and decide
16 which employees to recommend to participate in the
17 incentive program?

18 A. Yes.

19 Q. And you would pick out enough employees and
20 the size of the incentives so that you would use up
21 the \$25,000 you had available?

22 A. Yes.

23 Q. And you would not recommend more than
24 \$25,000 for incentives since you knew you did not
25 have it, correct?

1 A. That's right.

2 Q. And was it a recommendation that you
3 specifically reviewed in each case?

4 A. Yes.

5 Q. And specifically approved?

6 A. Yes. And then it would be a -- go to
7 Mr. Throdahl for his agreement.

8 Q. And was that a perfunctory step, for
9 Mr. Throdahl to agree?

10 A. He knew well enough what was going on so
11 that he would -- when he approved it, he knew why he
12 was approving it.

13 Q. Okay. So, the approval process, then,
14 would include not only you as the medical director
15 of Monsanto but also Mr. Throdahl; is that correct?

16 A. Yes.

17 Q. And Mr. Throdahl had the power to reject a
18 proposed incentive program participation; is that
19 correct?

20 A. Yes.

21 Q. And he knew enough about the basis for the
22 recommendation to know the reason the recommendation
23 was being made and evaluate whether or not it should
24 be rewarded, correct?

25 A. With the description that we would furnish

1 him, that would lead to a discussion if he'd had
2 some question.

3 Q. Did Mr. Throdahl get the description that
4 was provided on whatever form you used to make a
5 recommendation?

6 A. I think so. Whether that was done all the
7 time, I can't -- I can't say. It could have been
8 done just by personnel working with him.

9 Q. But whether it was the specific form or
10 whether it was personnel describing to him the
11 information in the form, Mr. Throdahl was aware of
12 the reasons an incentive program participation was
13 recommended by you?

14 A. Yes.

15 Q. And he would be the final decisionmaker on
16 whether or not to award an incentive program
17 participation based on the work of that employee
18 that you recommended?

19 A. Yes.

20 Q. Mr. Throdahl was a member of the board of
21 directors of Monsanto, was he not?

22 A. Yes.

23 Q. He was also a member of the Management
24 Committee -- and I think it goes by different
25 names: the Corporate Development Committee, the

1 Corporate Administrative Committee, the Corporate
2 Management Committee -- was he not?

3 A. I'm not sure all of the positions that this
4 was called.

5 Q. I'm not so concerned about what it was
6 called.

7 A. Yes.

8 Q. He was a member of that committee that
9 worked directly with the president of the company,
10 was he not?

11 A. There was an executive committee, and he
12 was not a member of that.

13 Q. I understand. But he was a member of the
14 committee that was known from time to time as the
15 "Corporate Administrative Committee" --

16 A. Oh, yes.

17 Q. -- and the "Corporate Management
18 Committee," correct?

19 A. I don't -- there is a title in there that I
20 have difficulty with. They did change and got to a
21 smaller committee that was above this in -- that
22 advisory committee. And he wasn't a part of that.

23 Q. I see. But he was a part of the
24 president's advisory committee, correct?

25 A. Yes.

1 Q. Okay. And he held that position throughout
2 the time that you reported to him, did he not?

3 A. Yes.

4 Q. Did you ever make any incentive program
5 participation recommendations that were rejected by
6 Mr. Throdahl?

7 A. I can't recall one that he rejected.

8 Q. You cannot recall one?

9 A. I cannot recall one he rejected.

10 Q. Did you make any incentive program
11 participation recommendations for Dr. Wright?

12 A. Yes.

13 Q. On how many occasions did you recommend
14 Dr. Wright for incentive program participation?

15 A. We've talked about that recently, and I --
16 there are two of them that come to mind.

17 Q. Who have you talked about that with
18 recently?

19 A. With -- with Mike.

20 Q. Are you talking about Monsanto's lawyer
21 here?

22 A. Yes.

23 Q. Has he shown you those recommendations?

24 A. Yes.

25 Q. And have you reviewed them?

1 A. Yes.

2 Q. Tell me about the first one, then, that you
3 reviewed with Mr. Fruehwald?

4 A. I -- I don't recall them. I'd have to look
5 at them again to --

6 Q. I see. Let me show you a document 58799
7 that I believe is -- and it actually carries on to
8 58800 -- that I believe is the first recommendation
9 that you made and ask you if that is one of the two
10 recommendations you reviewed with Mr. Fruehwald.

11 MR. FRUEHWALD: Is that an exhibit in
12 the Livinscus deposition?

13 MR. LACEY: It is also an exhibit in
14 the Livinscus deposition.

15 MR. FRUEHWALD: That is, then, where
16 he has seen it. He has seen the Livinscus exhibits.

17 Q. (BY Mr. Lacey) Is that one of the
18 documents --

19 A. Yes, sir.

20 Q. -- that you reviewed?

21 A. Yes, sir.

22 Q. That is a recommendation for Dr. Wright's
23 participation in the incentive program based on
24 certain actions taken with regard to convincing Dow
25 not to report problems of a human health nature with

1 a chemical that Monsanto sold to Dow; is that
2 correct?

3 A. No, sir, I don't think that's it at all.

4 Q. I see. May I see the document, please?

5 A. (Witness complies)

6 Q. The language in this document, is that
7 language that you approved?

8 A. Yes.

9 Q. And you approved and agree with the fact
10 that Dr. Wright's conduct forestalled action by the
11 FDA?

12 A. Yes.

13 MR. FRUEHWALD: Is that a direct
14 quote?

15 Nobody else can see the document.
16 Does it -- is that -- is that -- are you purporting
17 to be -- that's a direct quote.

18 Q. (By Mr. Lacey) "Forestalled action against
19 the product by the FDA." That's what was -- that's
20 what was it -- it was all about, wasn't it?

21 A. Yes.

22 Q. And that's why he got the incentive --

23 A. Yes.

24 Q. -- wasn't it?

25 A. (Witness nods head)

1 Q. And the circumstances were that Monsanto
2 sold a chemical to Dow, did it not?

3 A. I didn't -- I don't recall that.

4 Q. I see. You don't recall why it was that
5 Dr. Wright was interested in keeping a Dow report on
6 malic anhydride from being presented to the FDA?

7 A. Yes, I -- I remember that.

8 Q. You just don't recall why --

9 A. The details of it, right.

10 Q. I see. You don't recall that Monsanto sold
11 the malic anhydride to Dow?

12 A. No.

13 Q. I see. Do you recall that Dr. Wright
14 accompanied Dow people to meet with the FDA about
15 problems with malic anhydride?

16 A. Yes, but I heard it from George. I wasn't
17 directly involved in it.

18 Q. I see. That was a part of the basis for
19 your recommendation to Mr. Throdahl that Dr. Wright
20 get to participate in this incentive program, was it
21 not?

22 A. Yes, sir.

23 Q. Do you recall how big the -- how much money
24 you had available in the incentive program at the
25 time this particular incentive award was made?

1 A. No, sir.

2 Q. What was the largest amount of money ever
3 available to you to distribute in the incentive
4 award program?

5 A. Something the order of ten to twelve
6 thousand dollars for total.

7 Q. And that was per year?

8 A. It varied from year to year.

9 Q. Okay. But --

10 A. It was something of that order.

11 Q. What I'm saying: You wouldn't have \$10,000
12 per month?

13 A. No, no. No. Per year.

14 Q. This incentive award -- and let me hand you
15 the document again, Document 58799, 58800 -- was
16 made for 1975 and was \$2,500 --

17 A. Yes.

18 Q. -- was it not?

19 A. Yes.

20 Q. Now, that would be a very substantial
21 portion of the total amount of the money available
22 for the incentive award program in 1975, would it
23 not?

24 A. Yes, sir. And -- and the reason, that is
25 somewhat related to his -- his salary at \$28,000.

1 It's about 10 percent, and that's -- when we gave it
2 out, it would be something of that order if it was
3 going to be worthwhile at all.

4 Q. Okay. May I have the document back,
5 please?

6 A. (Witness complies)

7 Q. Now, you mentioned that you recalled making
8 a second incentive award recommendation with regard
9 to Dr. Wright. What do you recall that relating to?

10 A. I don't recall the details of that one,
11 either.

12 Q. I see. Let me hand you another document,
13 Document 58893, and ask if that is the second
14 document you reviewed with Mr. Fruehwald about
15 incentive awards to Dr. Wright.

16 A. I remember the -- I -- I signed it, yes.

17 Q. Is that the one that you reviewed?

18 A. Yes, sir.

19 Q. This is the very next year following the
20 award on the malic anhydride work, correct?

21 A. Yes.

22 Q. And, once again, the recommendation is
23 made. Is it approved by you?

24 A. Yes, sir.

25 Q. Was it approved by Mr. Throdahl?

1 A. Yes.

2 Q. The award was paid?

3 A. Yes, sir.

4 Q. So, Dr. Wright got to participate in the
5 incentive award program two years in a row?

6 A. Yes, sir.

7 Q. Was that customary?

8 A. There was a real recognition that certain
9 members of the group were the outstanding
10 performers, and he was one of them.

11 Q. Between the first award and the second
12 award do you recall whether or not Dr. Wright had
13 gotten a salary increase?

14 A. Obviously. The last one I looked at was
15 28,000. This one is listed at 31,000 or something
16 of that order.

17 Q. I believe the first one was 28,980.

18 A. Right.

19 Q. And the -- this -- the current salary is
20 31,800.

21 A. Right.

22 Q. That's a raise of just under \$3,000?

23 A. Yes.

24 Q. Was that a very good raise?

25 A. It would be in keeping with our salary

1 schedule in Monsanto. And at that time it was
2 running something like 9 percent. And these --
3 we're very organized. On the yearly date when it's
4 reviewed and depending where he was in his salary
5 schedule, his raise would be proportionate based on
6 how much was available.

7 Q. Were the raises, the annual raises at
8 Monsanto based in part on the meritorious work of
9 employees?

10 A. Salary, not apparently. The bonus
11 incentives was.

12 Q. So that the raise that Dr. Wright got in
13 his annual salary reviews at Monsanto would not have
14 differed from the raise provided to any other
15 employee?

16 A. Only related to where he was in his
17 position within his salary scale.

18 Q. I see. Other people in salary Grade 19
19 would have gotten the same raise, then, in 1976 that
20 Dr. Wright got?

21 A. Based on whether he was -- if he was at the
22 top of his scale, he wouldn't get as much and it
23 wouldn't be as frequent. It would be scattered out
24 to 18 months or more.

25 Q. Now, let me ask you to look at this second

1 recommendation, the 1976 recommendation, for the
2 incentive program participation. The award category
3 is stated on the document to be, "Technical
4 accomplishment of significant results." What does
5 that mean?

6 A. We could look at those who we were
7 recommending for incentive award that had done
8 something that was more than we expected out of most
9 the people, who were clearly above what the rest of
10 the people in -- in the department were getting.

11 Q. Well, I guess what I'm trying to find out
12 is whether that's a specific category for the
13 award. It says "Award Category"; and it says
14 "Technical accomplishment of significant results."

15 And the reason I'm asking, in that
16 same blank on the preceding award in 1975, the award
17 category was, quote, "Solution to product toxicity
18 problem which permitted Monsanto to continue product
19 manufacturing and sale."

20 Is that a different category from this
21 category?

22 A. No, sir. No, sir. I -- I think it was
23 just the way George Livinscus had -- had decided to
24 fill it in.

25 Q. Okay. There weren't specific categories?

1 A. No -- no, sir.

2 Q. Just a description of what's going on?

3 A. Yes, sir.

4 Q. Let me show you the preceding year. And
5 one of the things about the preceding year was you
6 couldn't get the description that Dr. Livinscus used
7 in this box on the form designed for it, could you?

8 A. Just about.

9 Q. Well, the one on the preceding year, he
10 actually had to drop down a line to finish it,
11 didn't he?

12 Will you look at that award category?

13 A. (Witness complies) The next sentence
14 certainly isn't a part of that.

15 Q. Well, if you'll look immediately below --
16 why don't you just read what you understand to be
17 the description of the award category on that
18 document?

19 A. (Witness complies) Oh, yes, you're right.
20 I was reading the next line where it says, "Dr. Paul
21 Wright."

22 Q. Yeah. It -- it was hard to even read that
23 form because the description of the award category
24 in 1975 exceeded the size of the box for it?

25 A. Yes. Right.

1 Q. What was the award category description in
2 19 -- I'm sorry. Strike that.

3 What was the award category
4 description in the 1975 award that was given to
5 Dr. Wright?

6 A. This is an incentive award, as far as our
7 department is concerned. This award category refers
8 more general to Monsanto. And it was -- was not
9 within our department award category.

10 Q. Well, what -- what was filled in on the
11 1975 form that you signed in furtherance of seeking
12 the award for Dr. Wright? What did it say?

13 A. "Solution to product toxicity program" --
14 "problem which permitted Monsanto to continue
15 product manufacturing and sale."

16 Q. Okay. And that was what that award was all
17 about?

18 A. That was the title for it, really.

19 Q. And the 1976 award was not substantially
20 different in terms of the type of conduct -- let me
21 change documents with you.

22 A. (Witness complies)

23 Q. The 19 -- the 1976 award was not
24 substantially different in the type of conduct that
25 led to its award than was the 1975 award, was it?

1 A. No, it was not.

2 Q. One could have described the 1976 award
3 exactly the same way the 1975 award was described,
4 couldn't it?

5 A. Yes.

6 Q. Because, in fact, the 1976 award was also
7 given for "Solution to product toxicity problem
8 which permitted Monsanto to continue product
9 manufacturing and sale"?

10 A. Yes, sir.

11 Q. Now, the situation with regard -- strike
12 that.

13 The 1976 award didn't relate to malic
14 anhydride, did it?

15 A. No, sir.

16 Q. It related to PCB's?

17 A. Yes, sir. That's part of it.

18 Q. The -- there was one other product in
19 addition to the PCB's that was also included, was it
20 not?

21 A. Yes, sir.

22 Q. I want to ask you some questions about the
23 situation that existed with regard to PCB's when you
24 came to Monsanto in 1973.

25 Had you had any dealings with PCB's

1 prior to joining Monsanto as the assistant medical
2 director in grooming for becoming medical director?

3 A. No, sir.

4 Q. What knowledge did you have at all with
5 regard to what PCB's were when you began your first
6 day on the job at Monsanto?

7 A. Only thing I knew about them at that time
8 was that there was an environmental concern about
9 PCB's.

10 Q. Did you -- did you even know what the
11 letters PCB stood for your first day on the job?

12 A. I think I did. I'm not a chemist, but I
13 probably did.

14 Q. Okay. Was one of your jobs as the
15 associate medical director -- or assistant medical
16 director and then medical director of Monsanto to
17 become involved in the PCB problem?

18 A. No.

19 Q. Did you have any dealings at all with the
20 PCB problem?

21 MR. FRUEHWALD: Let me -- you've used
22 the term "PCB problem" there. Can you define
23 what -- what you mean by that, your --?

24 Q. (By Mr. Lacey) Well, the problem I
25 would -- the word -- language I would use is the

1 "product toxicity problem," the same terminology
2 that we've previously agreed would describe this
3 problem. That's what the PCB problem was, wasn't
4 it?

5 MR. FRUEHWALD: Well, Mr. -- Dr. Roush
6 has also described an environmental concern when he
7 came on board, and he may be confusing toxicity with
8 environmental concerns that --

9 MR. LACEY: Well, let -- let me get
10 that clarified then.

11 MR. FRUEHWALD: Please do.

12 Q. (By Mr. Lacey) One of the problems with
13 PCB's was a product toxicity problem, wasn't it?

14 A. Not that I was aware of.

15 Q. Well, let me see if I can clarify that,
16 then. When we talk about toxicity --

17 A. Yes.

18 Q. -- we're talking about an adverse effect of
19 a chemical. And, in particular, we can talk about
20 an adverse effect on humans, can we not?

21 A. In toxicity, yes.

22 Q. And is it your testimony that you know of
23 no questions ever raised about the toxicity of PCB's
24 regarding humans?

25 A. When?

1 Q. During the time that you were medical
2 director for Monsanto and what you dealt with.

3 A. That's a different -- that isn't the
4 question I think you asked me before.

5 Q. Well, I'm sorry. Let me make it very
6 clear, because I was intending to ask you that
7 question.

8 MR. FRUEHWALD: Well, you asked us
9 about the problems instead of toxicity.

10 MR. LACEY: Well, no. I -- I intend
11 to.

12 Q. (By Mr. Lacey) Let's -- let's make it
13 clear. We're talking about problems.

14 A. Yes.

15 Q. Any time a chemical is toxic to human
16 beings, it's a problem, isn't it?

17 A. It all depends on whether the -- the
18 problem is handled -- whether the toxicity is
19 producing an effect and man or not. If it is not,
20 then it isn't.

21 Q. Well, the question -- and, again, if the
22 chemical is toxic to humans, then it can produce an
23 effect in man, can it not, by definition?

24 A. If it can get into man. It has -- that's
25 related to something else. That's a hazard of it.

1 That's a different subject.

2 But you --

3 Q. If --

4 A. I have problems where we are as -- when we
5 started this conversation, we were talking about
6 when I came to Monsanto. And from the time we got
7 to Monsanto to where we are now, it can be a
8 different subject.

9 Q. Well, let me try to make it very clear.
10 One of the things that you have dealt with in your
11 tenure with Monsanto is a product toxicity problem
12 related to PCB's, is it not?

13 A. Yes.

14 Q. And we're talking about a toxicity problem
15 vis-a-vis, man are we not?

16 A. Yes.

17 Q. Okay. Now, because there was a product
18 toxicity problem with PCB's as related to man, did
19 you become involved in that problem in any way?

20 A. Yes.

21 Q. Okay. And what did you do to familiarize
22 yourself as the medical director of Monsanto with
23 the issues in the PCB product toxicity problem?

24 A. There was only one issue that I really
25 became involved in. And that was the

1 carcinogenicity as reported to us by Dr. Kimbrough,
2 and I think she was at that time with the EPA.

3 Q. Well, let me -- let me stop.

4 All right. Is it your testimony that
5 the only product toxicity problem with PCB's was
6 whether it caused cancer or that that's the only one
7 you became involved in?

8 A. That's the only one I became involved in.

9 Q. There were other product toxicity problems
10 with PCB's besides cancer, were there not?

11 A. You'll have to go again and talk about
12 "toxicity problems."

13 Q. Well, let's -- let's see if we can make it
14 very clear.

15 A chemical that will cause chloracne
16 exhibits a toxicity problem, does it not?

17 A. It has a potential for -- to being a
18 toxicity problem.

19 Q. Well, if a chemical causes chloracne in
20 that person -- let's just take an individual, a
21 person who's been exposed to a chemical and has
22 developed chloracne. He has a toxicity problem
23 caused by that chemical --

24 A. Yes.

25 Q. -- does he not?

1 A. Yes.

2 Q. And chloracne is not something that results
3 from application of the chemical to the skin at one
4 point and the chloracne developing at one point, is
5 it?

6 A. (No response)

7 Q. Chloracne is a systemic problem?

8 A. Not -- not to my mind.

9 Q. I see. Is it your testimony that chloracne
10 will only develop at the point where the chemical
11 has come into contact with the skin?

12 A. For practical purposes, that's correct.

13 Q. I see. So, you do not as a doctor who is
14 board certified in occupational medicine hold the
15 opinion that chloracne is evidence of a systemic
16 effect; is that correct?

17 A. Yes.

18 Q. Now, if a chemical will cause liver damage,
19 is that evidence of a toxicity problem with the
20 chemical?

21 A. It has potential of being a toxicity
22 problem, yes. It doesn't mean it is.

23 Q. If it causes liver damage, then it is a
24 toxicity problem?

25 A. When it does, then it is a problem.

1 Q. Now, I'll talk to you later about all the
2 types of toxicity problems that PCB's can cause.
3 But PCB's can cause chloracne, can they not?

4 A. I'm not sure.

5 Q. I see. PCB's can cause liver damage, can't
6 they?

7 A. Yes.

8 Q. Okay. With regard to liver damage, if
9 PCB's cause liver damage, then you have a toxicity
10 problem with PCB's, do you not?

11 A. If it does cause liver effects, then that's
12 a problem, yes.

13 Q. And that is something that PCB's can cause,
14 correct?

15 A. Yes.

16 Q. Now, to make my question very clear, the
17 only toxicity problem of PCB's that you dealt with
18 as medical director was the one of cancer, correct?

19 A. Yes.

20 Q. You didn't get involved in the liver
21 toxicity problems that PCB's could cause, correct?

22 A. That's right.

23 Q. Or any other toxicity problems that PCB's
24 could cause, correct?

25 A. I was more than peripherally involved in

1 the environmental issues and the implication of what
2 that kind of exposure could be in the way of -- of
3 creating a problem.

4 Q. Well, let me ask you about that. The
5 reason that there was concern about PCB's in the
6 environment was, in part, concern about what
7 toxicity problems that would cause to people who
8 came into contact with PCB's through the
9 environment; isn't that correct?

10 A. The -- the potential for it causing the
11 problems, whether they had been observed or not. It
12 really is, "Can it, at that level, cause a
13 problem?"

14 Q. And that was one of the reasons for the
15 environmental concern about PCB's, was it not?

16 A. Yes.

17 Q. Okay. And you also became involved, then,
18 I take it, in PCB toxicity problems other than
19 cancer for people who were exposed environmentally;
20 is that correct?

21 A. Yes, but it was a peripheral involvement
22 because it really was out of our hands. When you
23 talk about "environment," that's beyond Monsanto's
24 direct control.

25 Q. Well, let me --

1 A. What I did is I tried -- I kept up on the
2 literature of what was taking place on the
3 environmental issue.

4 Q. Let me ask you a little bit about that.
5 Now, people can be exposed to a chemical in a number
6 of different ways; is that correct?

7 A. Yes.

8 Q. And one way we can classify the different
9 ways in which people are exposed is by classifying
10 whether they come into contact with it at work, by
11 which we'd talk about occupational exposure --

12 A. Yes.

13 Q. -- or whether they come into contact with
14 it outside of the work context, which is what we
15 usually talk about as environmental exposure,
16 correct?

17 A. Yes, sir.

18 Q. And the aspect of the PCB toxicity problem
19 that you kept up with, other than their ability to
20 cause cancer, dealt with environmental exposure,
21 correct?

22 A. Yes.

23 Q. You did not keep up with or do any review
24 of the ability of PCB's to cause toxicity problems,
25 other than cancer, in people who were occupational

1 exposed; is that correct?

2 A. It really has to do with: When I came to
3 Monsanto, was there -- did we have a problem in our
4 plants related to this? And we did not.

5 Q. So, you resolved any problems of
6 occupational exposure just by concluding there were
7 no problems in your own plant?

8 A. And there was no evidence that problems
9 were being -- if a problem had arisen related to
10 some toxicity problem, then I would have been
11 involved. But the operation was already going, had
12 been going for many years, and was working
13 smoothly. And that wasn't one of my high-priority
14 problems.

15 Q. You just assumed, since nobody came to you
16 with a problem of occupational toxicity of PCB's at
17 Monsanto, there was no need for you to put that on
18 the list of things to worry about?

19 A. And we had industrial hygienists who were
20 investigating and we had a physician who would visit
21 the plant regularly and nothing had come to my
22 attention as something that required attention.

23 Q. Now, let me go back, then, and, with that
24 background, ask you a little bit about the -- no,
25 you may need to hold that. I want to ask you some

1 questions that relate to that. Let me ask you about
2 the toxicity problem with PCB's.

3 Dr. Wright got the 1976 award based in
4 part on his work with the PCB toxicity problem;
5 isn't that correct?

6 A. Yes.

7 Q. And --

8 A. I'm not sure that was related to toxicity
9 problems.

10 Q. I see. What do you think it was related
11 to?

12 A. It was related to the presence and amount
13 of it in discharges.

14 Q. I see. Well, what --

15 A. It was a quantitative problem rather than a
16 toxicity problem.

17 Q. Well, now, what was Dr. Wright's title at
18 Monsanto?

19 A. Toxicology manager.

20 Q. And his job dealt with the toxicology of
21 chemicals, did it not?

22 A. But everything we do is related to a dose.
23 And, so, no matter what -- whether it's in the
24 environment or whether it's in occupational or in
25 our products, it is related to the dose.

1 Q. And ---

2 A. And this -- in the environment, it was how
3 much is there.

4 Q. Dr. Wright got this award because he helped
5 to convince the EPA that the doses that were present
6 in the environment would not cause ---

7 A. Concentrations, not doses.

8 Q. Okay. Well, doesn't -- when we talk about
9 "dose," we're talking about the size or
10 concentration of the amount, aren't we?

11 A. Yes, but dose for whom when we talking
12 about being in the environment?

13 Q. The person who is exposed to it in the
14 environment.

15 A. Well, if we're talking about discharge --
16 and this one, I think it was related to discharge --
17 if we discharge PCB's into the river or into the
18 environment someplace, now, whether that gets to be
19 a dose to man is the -- is the question.

20 Q. Well, Dr. Roush, isn't it a fact that one
21 of the big problems in the overall PCB toxicity
22 problem was that PCB's were getting discharged into
23 the environment, they were getting into the food
24 chain, and people were eating them?

25 A. Yes.

1 Q. And that was a dose?

2 A. Yes.

3 Q. And what Dr. Wright got his award for, in
4 part, was convincing the Federal Government that the
5 amount or dose of PCB's that people were getting in
6 the environment wouldn't hurt the people?

7 A. No, that's not it at all.

8 Q. I see. Well, why don't you explain to me
9 what it was, then, that you believe Dr. Wright got
10 his award for?

11 A. Being environmental toxicologists, we
12 understand what is the sources of the chemical in
13 the environment; and that's one of our concerns.
14 And, so, what he was, is -- is to explain to them
15 and help them to understand what levels of PCB's are
16 found and being discharged in the environment as
17 compared to the -- how much there is in the
18 environment.

19 So, this really was talking, not
20 toxicology, but is the size of the dose or the
21 amount that's being discharged into the environment
22 and was it a realistic amount and was -- when they
23 say, "We're going to say we want to go to zero," he
24 would explain to them that you can't go to zero.

25 Q. And still make it?

1 A. Well, you can't go to zero. No, no. Is
2 it -- there's that -- that contamination is the --
3 the influx of PCB's into our plant from water would
4 be higher than we're permitted to put out. So,
5 there's a -- what he brought was realism in terms of
6 the -- of the levels of discharge.

7 Q. Well, let -- let me see if we can't
8 understand this problem. The Government was
9 proposing discharge criteria that would have
10 required Monsanto and the customers to whom it sold
11 PCB's to stop using them; isn't that correct?

12 MR. FRUEHWALD: I -- I'll object to
13 the question. I don't know there's any evidence
14 that that was, in fact, what was going on. And I --

15 Q. (BY Mr. Lacey) Well, let's read the
16 document, then, if there's a problem. If you'll go
17 to the middle of the second paragraph and read with
18 me, doesn't it say, "In the former instance" -- and
19 that's talking about the PCB's, isn't it?

20 A. Yes.

21 Q. "In the former instance his excellent
22 analysis and synthesis of widely scattered
23 observations played a prominent role in forestalling
24 EPA's promulgation of EPA's proposed regulations
25 would have precluded the use of these materials by

1 Monsanto's customers."

2 Isn't that what the award was all
3 about?

4 A. Yes.

5 Q. The EPA proposed to put into place
6 regulations limiting the amount of PCB's that could
7 be discharged, which Monsanto and its customers
8 could not have met, correct?

9 A. I don't think so.

10 Q. Well, let --

11 A. I think it would have been -- what he's
12 saying -- I think the regulations were so
13 unrealistic that we would have had to shut down the
14 United States because we couldn't have gotten to
15 that place.

16 Q. Well, let me -- let me stop for just a
17 moment. The real issue that Monsanto was concerned
18 about was whether or not the discharge limits would
19 keep Monsanto from continuing to operate its plant
20 to produce PCB's and whether the discharge limits
21 would prohibit customers of Monsanto from continuing
22 to buy PCB's to use in their plants; isn't that
23 correct?

24 A. That's a -- that's an afterthought, an
25 aftermath in terms of what this subject is.

1 Q. Well, the only -- the only thing that's
2 mentioned in this memo with regard to the concern
3 that Monsanto had was that the proposed regulations
4 would preclude the use of these materials by
5 Monsanto's customers; isn't that correct?

6 A. No. The -- one is the unrealistic
7 regulations. The secondary effect is it would have
8 done that, but that wasn't what was -- what the
9 subject was.

10 Q. I see. The -- the fact that these
11 unrealistic regulations would have caused Monsanto
12 to lose this market was just an afterthought?

13 A. We were going out of the business in 1976.
14 We weren't going to make them anymore. We already
15 had decided we weren't going to make them in 1976.

16 Q. I see.

17 A. It had no bearing on it.

18 Q. I see. And there -- and, so, there wasn't
19 any interest on Monsanto's part in continuing to
20 make the sales until you actually stopped production
21 in 1976?

22 A. It wasn't -- we were doing it for the
23 convenience of our customers because they didn't
24 have a substitute.

25 Q. I see. And, so, this award basically was

1 because Dr. Wright went to the E -- the EPA on
2 behalf of your customers for their convenience --

3 A. No.

4 Q. -- is that correct?

5 A. No. It is -- it's -- we were -- we were
6 environmentally -- we had an environmental problem
7 with PCB's. And our knowledge and understanding of
8 it was brought to the EPA. That influenced their
9 putting out unrealistic regulations for themselves.

10 And this sentence that goes following
11 that, that it would limit our customers, was really
12 an -- it was correct, but it really wasn't of great
13 consequence because we were going out of the
14 business in '76.

15 Q. Well, in fact, it's all in one sentence,
16 isn't it?

17 A. Yes. Yes.

18 Q. It's not a sentence that follows; it's all
19 in one sentence?

20 A. Well, but it's a -- it's a -- it's a --
21 it's all -- it's another thought.

22 Q. Another thought that has to do with
23 Monsanto's customers and selling the product?

24 A. I'm -- all I'm saying is: We already had
25 decided to go out of the business, and it really had

1 no bearing on what we did.

2 Q. Had the Government regulations not been
3 forestalled by Dr. Wright, Monsanto would have had
4 to stop producing and selling PCB's earlier than it
5 did, wouldn't it?

6 A. If, in fact, they had put that regulation
7 through before we stopped selling them.

8 Q. And the reason that Dr. Wright's work is
9 praised is because his work played a prominent role
10 in forestalling the EPA's promulgation of those
11 regulations; isn't that correct?

12 A. We forestalled the promulgation of
13 unrealistic regulations.

14 Q. Now, the term "unrealistic" is what
15 Monsanto's view of the regulations was, wasn't it?

16 A. I think if we got that information out you
17 would find that they were unrealistic in terms of
18 whether man could live with those kind of levels.
19 That's what it really was.

20 Q. I see. The reason that Monsanto thought
21 they were unrealistic is because Monsanto thought
22 that PCB's at the levels it proposed for discharge
23 wouldn't cause any human health problems?

24 A. No, sir. Not at all.

25 Q. I see. Did you agree with the EPA that

1 discharges of PCB's above their proposed regulations
2 would be harmful to human health?

3 A. No, sir.

4 Q. You thought you could safely discharge
5 PCB's at a level higher than the EPA regulations
6 without harming human health, didn't you?

7 A. No, sir.

8 Q. What did you believe about --

9 A. I believe --

10 Q. -- the levels that would harm human health?

11 A. There was no evidence that the levels that
12 were being -- putting into the rivers was creating a
13 health problem.

14 Q. That's exactly the point. Maybe I didn't
15 ask my question very well. The reason that Monsanto
16 wanted to forestall the stricter regulations
17 proposed by the EPA was because it would shut down
18 their production and because Monsanto believed that
19 the current levels of discharge that were then
20 permitted didn't hurt human health; isn't that
21 correct?

22 A. No, sir. This had nothing to do with our
23 business venture in PCB's.

24 Q. Just a gratuitous comment that these
25 regulations would have precluded the use of the

1 materials by Monsanto's customers?

2 A. That was -- that was an afterthought in
3 George Livinscus' writing of what took place in
4 Washington when he came back and said what would
5 happen. That would influence our customers, but it
6 wouldn't influence our sales at that time.

7 Q. You were still selling them in 1976,
8 weren't you?

9 A. Yes, but it -- it was -- our business was
10 for practical purposes was being closed down.
11 Really this -- Monsanto doesn't think in six months
12 business. We're talking about something of greater
13 consequence than that. If it closed down, it would
14 have -- it wouldn't have been a great importance to
15 us.

16 Q. Well, apparently it was of sufficient
17 importance to Dr. Livinscus that he wrote this when
18 he prepared it; isn't that correct?

19 A. I think what he said is still correct.

20 Q. And you didn't take that portion of the
21 recommendation out before you sent it to
22 Mr. Throdahl for his approval, did you?

23 A. No, sir. I didn't think it was too
24 important at that time.

25 Q. I see. Now, when was it that Dr. Wright's

1 supervision was taken out from under your
2 administrative charge?

3 A. When he got involved in this -- the
4 lawsuits in Chicago.

5 Q. Are when you're talking about the
6 "lawsuit," you're talking about being --

7 A. IBT.

8 Q. -- indicted?

9 A. The IBT.

10 Q. That -- that was a criminal indictment,
11 wasn't it?

12 A. Yes.

13 Q. Okay.

14 A. And that's the reason he was terminated.
15 Because -- again, that had nothing to do with me.
16 That's -- when someone is convicted at some level --
17 and I think it was a felon, and I'm not even sure of
18 that -- is we don't -- we can't have a felon working
19 for us -- a previous felon.

20 Q. And he was convicted as a felon, was he
21 not?

22 A. I -- I only tell you as I think.

23 Q. Okay. Did you have any interest in
24 following this IBT matter?

25 A. I liked Paul, and I was interested from a

1 personal viewpoint.

2 Q. Did you have any professional interest in
3 it?

4 A. I didn't even know what the subject was to
5 be able to have a professional interest.

6 Q. Well, did you -- did you know that Monsanto
7 had had a long, extensive relationship with IBT?

8 A. Yes, they sure did.

9 Q. They'd tested a lot of chemicals?

10 A. Yes, it did.

11 Q. And did you understand that the charges
12 that were being made against Paul Wright and other
13 IBT employees were that they had falsified studies?

14 A. Yes.

15 Q. Including studies done for Monsanto?

16 A. Yes.

17 Q. Didn't that cause you to have a
18 professional interest on behalf of Monsanto about
19 whether or not the studies that IBT had done for
20 Monsanto were accurate or inaccurate?

21 A. Yes.

22 Q. And among the studies that IBT had done for
23 Monsanto were studies of PCB's?

24 A. Yes.

25 Q. These products where there was a question

1 or a problem with their toxicity to humans, correct?

2 A. Yes.

3 Q. Didn't the indictments and the progress of
4 the prosecution of that criminal case cause you to
5 have a professional interest with regard to the
6 validity of the studies done by IBT for Monsanto
7 about PCB's?

8 A. Yes, but I didn't relate them as when you
9 say "professional."

10 Q. I see. You are aware, are you not, of the
11 fact that the only chronic toxicity studies done for
12 Monsanto with regard to PCB's were all done by IBT,
13 aren't you?

14 A. Yes.

15 Q. So that the only source of data that
16 Monsanto had ever developed with regard to the
17 chronic toxicity of PCB's related to the validity of
18 the work done for it by IBT?

19 A. Yes.

20 Q. Given that fact, wasn't it a matter of
21 concern to you about whether IBT ran a lab that was
22 accurate or whether it was a lab that falsified its
23 data?

24 A. Yes.

25 Q. And as a result of the criminal

1 convictions, did you reach the conclusion that IBT
2 had been shown to be a lab that falsified data?

3 A. Again, I didn't know what the results of
4 that trial was.

5 Q. You never knew that Paul Wright was
6 convicted?

7 A. Oh, yes, I knew he was convicted; but I
8 wasn't sure of the substance of what -- what that --
9 what they had really found.

10 Q. You didn't follow it closely enough to know
11 what the allegations against IBT were?

12 A. Yes, but I wasn't sure what that meant in
13 terms of what was taking place.

14 Q. Well, did you understand it meant that they
15 hadn't been running tests correctly?

16 A. I knew that was the allegation, but I'm not
17 sure what the substance of that meant -- was.

18 Q. Well, was it sufficient or of interest to
19 you that there was an allegation that the tests
20 hadn't been run correctly and a jury convicted
21 Mr. Wright of being involved in that scheme?

22 A. Yes.

23 Q. And knowing that, and no more than that,
24 didn't that cause you to have some serious doubts
25 about the validity of any study that IBT did for

1 Monsanto?

2 A. Yes.

3 Q. Including the PCB studies?

4 A. Yes.

5 Q. Would you agree with Dr. Munch that the
6 type of conduct that IBT was convicted of was
7 deliberate fraud?

8 A. Dr. Munch?

9 Q. Yes, Dr. Munch. Do you know Dr. Ralph
10 Munch?

11 A. I know he worked for us a very short time.

12 Q. Dr. Munch worked for you a very short time?

13 A. The only Dr. Munch I know is a man who
14 worked for us one summer. I don't know any other
15 Dr. Munch.

16 Q. You're talking about Dr. Musch, aren't you?

17 A. Yes, I think so. That's right.

18 Q. I'm asking about distinguished scientist
19 for Monsanto Dr. Ralph Munch.

20 A. No, I don't know anything about --

21 Q. You don't know Dr. Munch?

22 A. No.

23 Q. I see. Well, would you agree with his
24 characterization of IBT's conduct as deliberate
25 fraud?

1 MR. FRUEHWALD: Look, I'm going to
2 object to the question right now and because --
3 unless you've got the transcript here, I -- your
4 characterizations of what he may have said and --
5 why don't you just ask the question whether he
6 thinks it's true or false, rather than whether he
7 agrees with somebody else's characterization?

8 But I -- I've not not seen the
9 deposition. He's not. Your characterizations
10 sometimes have a little bit of advocacy in them, and
11 I -- we can avoid that, I think, by just asking the
12 question straight.

13 MR. LACEY: Why don't we just take a
14 recess and let me go get Dr. Munch's transcript and
15 we'll --

16 MR. FRUEHWALD: Well, what does
17 difference does it make what Dr. Munch said? This
18 witness is going to give his opinions whether he --
19 Dr. Munch said it or not. So, why don't you ask him
20 that rather than fooling around with what somebody
21 else said?

22 Q. (By Mr. Lacey) Well, let me ask you
23 point-blank. Would you agree that IBT's conduct
24 with regard to its studies was deliberate fraud?

25 A. I don't know enough to answer that

1 question.

2 Q. I see.

3 A. I do know -- I know what toxicology
4 laboratories do and I know what quality is and I
5 know what different laboratories do. And, so, the
6 substance of their difference from other
7 laboratories, no one will know, because it isn't as
8 clear-cut. And to go further is: The studies that
9 we tried to follow up and we had redone have
10 confirmed what they told us was correct.

11 So, the details and how they did their
12 study, I haven't the slightest idea. All I'm saying
13 is we redid some of the studies that IBT did. And
14 for practical purposes, we came to the same position
15 as IBT had done.

16 Q. Did you ever redo -- redo a single study
17 relating to PCB?

18 A. This was after we were out of the business.

19 Q. That's not my question.

20 A. I understand. No, sir.

21 Q. Make it -- let me make you a very clear
22 question. Did you ever redo a single study on
23 PCB's?

24 A. No, sir.

25 Q. So, you have no way of knowing whether the

1 conduct of IRT with regard to the handling of PCB
2 studies resulted in accurate or inaccurate data and
3 accurate or inaccurate conclusions --

4 A. No, sir.

5 Q. -- is that correct?

6 A. No, sir.

7 Q. How do you know that their data was
8 accurate if you never redid a study?

9 A. We had -- other studies have been done on
10 PCB's. I mean, we didn't. Other studies were
11 done. And the finding that we had in our animals
12 that were put on tests were substantially the same
13 as others had found, which said that the studies
14 were being done adequately enough so we can compare
15 them in saying they were quite similar.

16 Q. Well, let me ask you about that. Isn't it
17 a fact that Dr. Kimbrough's studies with the effect
18 of Aroclor 1260 on rats showed they caused liver
19 cancer and IRT's test of a -- the same batch of
20 Aroclor 1260 on rats concluded they did not cause
21 liver cancer?

22 A. What -- what is the question? Will you
23 repeat that question?

24 Q. Isn't it a fact --

25 A. Yes, sir.

1 Q. -- that Dr. Kimbrough performed chronic
2 toxicity studies using Aroclor 1260 from Monsanto
3 and found that it caused liver cancer in rats?

4 A. That's what she said.

5 Q. And isn't it a fact that IBT used Aroclor
6 1260 from the same batch as Dr. Kimbrough --

7 A. Yes, sir.

8 Q. -- and concluded it did not cause liver
9 cancer in rats?

10 A. That was their conclusion.

11 Q. And from that, you say those two studies,
12 laid side by side, confirm that IBT's work was
13 accurate?

14 A. Yes.

15 Q. I see. Would you like to explain how you
16 think using the same chemical in the same type of
17 chronic toxicity study with different results
18 confirms that IBT did their work correctly?

19 A. Am I going to give you a narrative? Or how
20 are we going to do this?

21 Q. I want to you answer that question. I want
22 you to explain how it is that you believe that the
23 fact that Dr. Kimbrough using Aroclor 1260 with rats
24 found cancer and IBT using Aroclor 1260 with rats
25 found no cancer confirms that IBT's work was

1 accurate.

2 MR. FROMEHWALD: You're limiting to
3 just those two studies instead of all the other
4 studies in the world about cancer; is that --

5 MR. LACEY: I'm trying to ask -- that
6 is -- that is exactly what I'm trying to find out
7 right now very clearly.

8 MR. FROMEHWALD: All right. You're
9 picking out one particular test. All right.

10 MR. LACEY: I certainly am, using the
11 same lot of chemical.

12 A. Sure. I can -- I have to give it to you in
13 a narrative.

14 Q. (By Mr. Lacey) Fine.

15 A. When -- I have just been with Monsanto a
16 short time when Kimbrough's data came in and said
17 PCB's cause cancer. I called Dr. Calandra, and I
18 said --

19 Q. Who was Dr. Calandra?

20 A. He was the head of IRT.

21 Q. Okay.

22 A. He wasn't involved in the litigation.

23 Q. Oh, that's not correct, is it?

24 A. Yes.

25 Q. Dr. Calandra was indicted, was he not?

1 A. Yes, but then he was dropped out of it.

2 Q. Because of a claimed health problem; isn't
3 that correct?

4 A. I think so. Again, that's all beyond my
5 thinking.

6 Anyway --

7 Q. Well, let's just make it very clear.

8 A. Yes.

9 Q. You say he wasn't involved. He was
10 indicted, and he did not go through the trial
11 because of a health problem; isn't that correct?

12 A. I know that he did not go through the
13 trial. And it wasn't clear to me why he didn't.

14 Q. He was not exonerated by a jury verdict,
15 was he?

16 A. That's right.

17 Q. Okay.

18 A. That's right. I know that much.

19 Q. Okay.

20 A. I called Calandra. I had -- this was
21 before the IRT lawsuit. And I said, "Why did
22 Kimbrough find cancers and you didn't?"

23 And he said, "We will go back and cut
24 some more slides." And he did that, and I went up
25 and looked at them. And there was severe damage to

1 the livers of these rats.

2 Q. Let me stop right there. You looked at
3 slides taken from the rats that were studied by IRT
4 with Aroclor 1260?

5 A. Yes.

6 Q. And those slides showed severe liver damage
7 as a result of chronic exposure?

8 A. Yes.

9 Q. Okay. Go ahead.

10 A. And, now, in a severely damaged liver, the
11 liver has a tendency to try and recover in spite of
12 the damage. It's one of the few organs in which
13 this can take place. And, so, in repair, just the
14 same as if you cut out half the liver, the liver
15 will go back on its own. It's the one organ that
16 will do that.

17 So, the same place was taking place
18 with the damage from the PCB's, like every other
19 chlorinated hydrocarbon; there was a tendency for
20 that to regenerate. And that regeneration, we call
21 hyperplastic nodules.

22 And I said, "Are those hyperplastic
23 nodules cancers?"

24 And he said they were not.

25 Q. Were they precancerous?

1 A. That's a quarrel that's going on in the
2 United States without an answer to it.

3 Q. What you're telling me is that medical
4 science doesn't have a consensus yet on whether
5 these hyperplastic nodules are precancerous or not?

6 A. They're -- in our understanding, you can't
7 call anything "precancerous" until you get a cancer.

8 Q. And the reason these animals were cut off
9 at the point of only having the hyperplastic nodules
10 is because they were killed at that point?

11 A. Yes. They were -- they were followed to
12 the end of the experiment and then killed.

13 Q. And you don't know, had they been left to
14 live for another three months, sacrificed or killed,
15 and then their livers looked at, whether they would
16 have progressed to the stage of cancer; is that
17 correct?

18 A. I can't go beyond the end of experiment.

19 Q. And it is certainly possible, is it not,
20 and there are scientists who believe that these
21 hyperplastic nodules are precancerous and that,
22 given time, they will develop into cancer; isn't
23 that correct?

24 A. There are -- there are those who say --
25 let's take -- the fact is -- is that hyperplastic

1 nodules is a part of regenerating liver. And if you
2 take these people -- rats -- these rats and if you
3 stop them before the end of the experiment, those
4 hyperplastic nodules will regress and go away.

5 So, there's not a problem of, "If you
6 got this, will go on to do that." If you stop it,
7 the lesion will regress, which is not a
8 characteristic of cancer. Whether hyperplasia can
9 go on to cause cancer is the subject, and it can't
10 be answered with the information we've got today.
11 And, as a matter of fact, when you say it regresses,
12 it's hard to say what that means.

13 Now, so, here I have a -- Calandra and
14 his pathologist said they didn't have cancer.

15 Q. The IBT rats?

16 A. IBT rats. And, so, I came back to
17 St. Louis and -- and decided I would call Phil
18 Shoebick, who is the head of the National Cancer
19 Advisory Board. He was the chief of the advisory
20 board for the Cancer Institute.

21 And I called him, and I told him what
22 my problem was. And he said, "You need to have them
23 reviewed by an outside pathologist." And he
24 recommended Dr. Poor from the Eppley Institute.

25 And, so, what -- the next thing I did

1 is I said, "Would you go and look at the TBT
2 slides?" And he agreed that there was not cancer
3 there. And that's a part of saying, "Yes, we've got
4 hyperplastic nodules. We don't have cancer."

5 Q. And he -- did he offer an opinion about
6 whether or not, in his opinion, those were
7 precancerous and they would develop into cancer?

8 A. He said -- I don't recall the substance of
9 his statement; but, in fact, he said there is no
10 cancer in these slides.

11 Q. But did he believe that those hyperplastic
12 nodules were a precursor to cancer?

13 A. I don't recall.

14 Q. I see.

15 A. I don't recall what his words were.

16 Q. I see.

17 A. So, the -- so, the next thing I said,
18 "Well, that's very interesting. Now that you've
19 looked at Calandra's, could you look at Kimbrough's
20 slides?"

21 And he did. And he looked at those
22 and said, "Those are not cancer. There's no cancer
23 in them either."

24 And, so, we're now back to a
25 terminology among pathologists in terms of whether

1 you've got a hyperplastic nodule, a neoplastic
2 nodule, a hipato -- hepatoma, or a cancer.

3 Q. Did Dr. Kimbrough's slides, according to
4 Dr. Poor, show severe changes in the liver as a
5 result of the toxicity --

6 A. Yes.

7 Q. -- of PCB's?

8 A. Just like -- just like IBT's did.

9 Q. Now --

10 A. And, so, my point is, is -- my conclusion
11 is there is not a substantial difference between
12 Kimbrough's and IBT's.

13 Q. Let me ask you about a step I think you may
14 have overlooked or forgotten about. Before you
15 hired Dr. Poor, you asked Dr. Calandra to have
16 pathologist from IBT go review Dr. Kimbrough's
17 slides?

18 A. That was before I came to Monsanto.

19 Q. Before you came to Monsanto?

20 A. Yes.

21 Q. I see. Were you made aware of that work?

22 A. They talked about it, but we never got any
23 more than the talk. I never saw a report that
24 described it.

25 Q. I see. What they told you was that the

1 very same pathologist at IBT that read the IBT
2 studies as noncancerous read Dr. Kimbrough's studies
3 as cancerous; isn't that correct?

4 A. Yes.

5 Q. So, the IBT pathologists themselves saw
6 differences between the livers of the rats that
7 Dr. Kimbrough studied in chronic tests and the
8 livers of the rats that IBT studied in chronic
9 tests?

10 A. That's what I was told.

11 Q. So, that really doesn't unravel the mystery
12 of the difference, does it?

13 A. No. All it -- all I'm saying is the
14 interpretation between pathologists is a subjective
15 thing that's hard to say what the lesions really
16 are.

17 Q. My point, however, is that Dr. Kimbrough's
18 studies and IBT's studies of rats' livers don't show
19 the same effects as a result of the same chronic
20 feeding, do they?

21 A. I don't know that.

22 Q. Well, IBT's pathologists didn't think they
23 were the same, did they?

24 A. That's -- that's true.

25 Q. Okay. And, yet, knowing that IBT's own

1 pathologists said the livers in the IBT studies were
2 different from the livers in Dr. Kimbrough's studies
3 led you to conclude that the IBT studies were done
4 correctly?

5 A. Yes.

6 Q. I see. And your explanation for that is
7 that the IBT pathologists didn't know what they were
8 doing?

9 A. No. No.

10 Q. Well, how is it that you explain, then,
11 that the IBT pathologists saw differences between
12 Kimbrough's studies and IBT's studies?

13 A. There were not substantial differences.

14 Q. Substantial differences in the eyes of the
15 IBT pathologists, weren't they?

16 A. The fact that they said that there were
17 cancer there doesn't make them substantially
18 different.

19 Q. I see. I take it you'd agree, then, that
20 whether a tumor or a lesion is considered cancerous
21 or noncancerous doesn't really change the substance
22 of what's there very much, correct?

23 A. Say that again.

24 Q. I take it, then, you would agree that
25 whether a lesion or a tumor that's found in a liver

1 is classified as cancerous or not doesn't really
2 affect the significance of the lesion very much?

3 A. You can't generalize that far.

4 Q. I see. Did the results that Dr. Poor
5 characterized as noncancerous cause you significant
6 concern about the toxicology of PCB's?

7 A. No, sir.

8 Q. The damage that Dr. Poor found in the IRT
9 livers were characterized as severe, was it not?

10 A. Yes, sir.

11 Q. But that didn't cause you any concern about
12 the toxicology of PCB's?

13 A. I don't understand what you mean about "the
14 toxicology of PCB's."

15 Q. The the hazards, the dangers.

16 A. Certainly it's important. That's important
17 information.

18 Q. And the readings that Dr. Poor made of the
19 of the livers from Kimbrough's studies also showed
20 severe lesions --

21 A. Yes, sir.

22 Q. -- did they not?

23 A. Yes, sir.

24 Q. And that caused you concern about the
25 toxicology of PCB's, didn't it?

1 A. It was not surprising to me. I expected
2 that.

3 Q. I see.

4 A. It was quite consistent with what I had
5 expected before they did the study.

6 Q. You --

7 A. It's exactly the same thing we get -- the
8 best way I can describe this is an alcoholic
9 cirrhosis. Alcohol in high concentrations will
10 produce damage to the liver not dissimilar to what
11 PCB's do. And in the hyperplastic -- in -- in a man
12 with alcoholic cirrhosis, he will develop
13 hyperplastic nodules, as well. And it's subsequent
14 to the severe damage to the liver.

15 That hyperplastic nodule and all those
16 things that are taking place are as a result of the
17 damage to the liver by huge doses -- relatively huge
18 doses of PCB's.

19 Q. And what you observed and what Dr. Poor
20 observed was severe liver damage in all the rats fed
21 those PCB's?

22 A. Yes, sir.

23 Q. And what we have is a disagreement between
24 IHT's pathologists over whether the Kimbrough
25 studies showed cancer with Dr. Poor?

1 A. Yes. And it's more detailed, because the
2 definition of a cancer is: You look at first the
3 cells that are involved and are those cells
4 hyperplastic or are those cancerous. And that's a
5 subject -- if you look at one cell, you can't tell
6 them apart -- and when it's a cancer, does it act
7 like a cancer?

8 And these didn't -- these that we are
9 describing do not act like cancers. Now --

10 Q. Now --

11 A. What -- why -- what that means is not
12 understood. Whether they would go on under some
13 circumstances and become cancerous is where the
14 quarrel would be.

15 Q. Nobody can answer that question?

16 A. Nobody can answer that question.

17 Q. And that's a matter about which reasonable
18 scientists can disagree?

19 A. Yes.

20 Q. And there is a current debate in the
21 scientific community --

22 A. Yes.

23 Q. -- about that very fact?

24 A. Yes.

25 Q. And can't characterize the people who

1 believe one thing as being unreasonable versus the
2 other who believe the other as being reasonable?

3 A. Yes. And more example of that is the NCI
4 study on 1254 did not cause cancer. And it caused
5 severe liver damage and it caused regeneration and
6 it caused hyperplastic things and it caused exactly
7 the same thing that was seen with 1260.

8 Q. Now, let me ask you about PCB's and
9 cancer. Are the only studies that were done the
10 Kimbrough study and IRT studies and this study with
11 the National Cancer Institute on 1254?

12 A. No. There were others done.

13 Q. Okay.

14 A. The Japanese have done their own studies on
15 Kanactols.

16 Q. The Japanese studies, do they have
17 qualified researchers to study cancer in Japan?

18 A. They would say so.

19 Q. Well, do you say so?

20 A. Yes.

21 Q. In fact, some of the foremost cancer
22 researchers in the world are in Japan, are they not?

23 A. Yes.

24 Q. Well, one of the fellows who did some of
25 the studies on PCB's in Japan is recognized as a

1 world expert on cancer, is he not?

2 A. I'm not a world expert on cancer, and I
3 can't answer that.

4 Q. I see. Well, are you a sufficient expert
5 on toxicological studies to recognize that the
6 Japanese people who were doing the studies on PCB's
7 and their carcinogenic characteristics were
8 recognized leaders in their field?

9 MR. FRUEHWALD: Let me object to the
10 question. Can you give us a name there? There may
11 be several Japanese, and it's hard to say which one
12 you're referring to.

13 MR. LACEY: My question now is not
14 about one particular Japanese, but the Japanese
15 people doing studies.

16 MR. FRUEHWALD: As a race the Japanese
17 are better? Or is there some --

18 MR. LACEY: No. The question has to
19 do with the Japanese researchers who studied the
20 toxic effect of PCB's and in particular their
21 carcinogenicity.

22 MR. FRUEHWALD: There may be -- may be
23 dozens of those. Do you have ones in -- that you're
24 talking about?

25 Q. (By Mr. Lacey) Let me -- let me go at it

1 another way so we can clarify your lawyer's
2 confusion with the question.

3 Did you as medical director of
4 Monsanto take any interest in studies done of the
5 cancer causing properties of PCB's other than those
6 done in the United States?

7 A. We looked at them, yes.

8 Q. And they're relevant and material to the
9 question whether PCB's cause cancer, aren't they?

10 A. Yes.

11 Q. You can't write them off just because they
12 were done by Japanese?

13 A. No, sir.

14 Q. Or whether they were done by Germans --

15 A. No, sir.

16 Q. -- or Soviets or anybody else, can you?

17 A. No, sir.

18 MR. PRUEHWALD: That does not go to my
19 objection. My objection goes to "dozens of Japanese
20 who are working" and your reference to any one of
21 them as being a world-renowned expert. One of them
22 may be. One may not be.

23 If you can give a name, the man can
24 respond. But just saying "a Japanese doing
25 research," he's -- very difficult to say that that

1 particular one, by being a Japanese, is therefore a
2 world-renowned expert.

3 I'm just requesting names to be fair
4 to the witness to ask about "world renowned."

5 Q. (By Mr. Lacey) Did you review or have
6 someone in your department review the Japanese
7 studies on whether PCB's cause cancer?

8 A. Yes.

9 Q. Did you give any consideration to the
10 qualifications of the people conducting those
11 studies in trying to determine whether or not to
12 rely on them?

13 A. Yes.

14 Q. Did you find the people doing the studies
15 to be reliable researchers that you could rely on?

16 A. I -- I only have the report. I can't do
17 any more than look at their report.

18 Q. Well, that's my question. What I'm trying
19 to find out is whether you made any effort to
20 determine whether or not those reports came from
21 people who should be considered reliable or not.

22 A. I had no question about the reliability.

23 Q. That's my question. Now, those Japanese
24 studies confirmed the carcinogenic potential of
25 PCB's, did they not?

1 A. They said there was cancer, yes.

2 Q. And that, also, would call into question
3 the studies done by IRT, would it not?

4 A. And NCI.

5 Q. Yes.

6 A. And I am saying is the -- it still goes
7 back to the characterization. Are those
8 hyperplastic nodules, or are they cancers? That's
9 the only thing we're talking about, and they're all
10 the same thing.

11 Q. Have you looked at any of the slides from
12 the Japanese studies?

13 A. I have -- no, I have not.

14 Q. Did Dr. Poor look at the slides from any of
15 the Japanese studies?

16 A. He did not.

17 Q. Did Dr. Calandra look at any of the slides
18 from the Japanese studies?

19 A. I don't know.

20 Q. Did anybody working for or on behalf of
21 Monsanto's consultant ever look at a single slide
22 from one of those Japanese studies?

23 A. No, sir.

24 MR. FRUEHWALD: We're talking about
25 Japanese studies done in -- when? -- in the

1 Rights? Or can you give us a date on when those
2 were done?

3 MR. LACEY: Well, let me ask him that.

4 MR. FROEWALD: You're implying that
5 they were available at that time, and we all know
6 they weren't. So, why don't you clarify the -- the
7 dates?

8 Q. (By Mr. Lacey) Well, let me ask about
9 that. When did the Japanese develop an interest in
10 the toxicity of PCB's?

11 A. I can't answer that. I don't know.

12 Q. Do you know enough about the history of
13 PCB's to know that the -- there was a very severe
14 issue or case of poisoning of people with PCB's in
15 Yusho --

16 A. Yes.

17 Q. -- in 1968?

18 A. I participated in that 1975 meeting in
19 Chicago when they presented their data.

20 Q. Which data are you talking about?

21 A. Their Yusho --

22 Q. Yeah.

23 A. -- incident.

24 Q. And, as a result of that 1968 incident, the
25 Japanese became very concerned in the toxicity of

1 the PCB's, did they not?

2 A. They sure did.

3 Q. So, concerned the their Government banned
4 the manufacture and use of PCB's several years
5 before the United States did, didn't they?

6 A. I didn't know that.

7 Q. You did not know that?

8 A. No.

9 Q. I see. Do you understand that the Japanese
10 have banned the use of PCB's?

11 A. I didn't know it, but you're telling me.

12 I --

13 Q. You're not even aware of that?

14 A. No, sir.

15 Q. Are you aware of the action taken by any
16 other country with regard to the manufacture and use
17 of PCB's?

18 A. No, sir.

19 Q. Did you have any responsibility whatsoever
20 for the Monsanto plant in Japan that made PCB's?

21 A. No, sir.

22 Q. Were you even aware that Monsanto made
23 PCB's --

24 A. No, sir.

25 Q. -- in Japan?

1 I see. Nobody ever brought that to
2 your attention?

3 A. No, sir.

4 Q. In any of the time that you were a head of
5 the medical department in Monsanto?

6 A. No, sir.

7 Q. Were you aware of the fact that Monsanto
8 made PCB's in England or --

9 A. Yes.

10 Q. -- in the United Kingdom?

11 A. Yes.

12 Q. You were aware of that?

13 A. Yes.

14 Q. Were you aware of what action the United
15 Kingdom took with regard to the use of PCB's?

16 A. No, sir.

17 Q. I see. When did you first become aware of
18 and have presented to you studies by the Japanese
19 with regard to the cancer-causing potential of
20 PCB's?

21 A. It was part of our review after -- when
22 George Livinscus informed me.

23 Q. And when was that?

24 A. About 1980, something of that order.

25 Q. And what did you determine from that review

1 about the availability of those studies, when they
2 became available?

3 A. I didn't look at the dates when those were
4 done.

5 Q. I see. Did you ever request that anyone go
6 to Japan and look at those slides to determine how
7 you would read them?

8 A. No, sir.

9 Q. What is the Monsanto position today, June
10 11th, 1987, with regard to whether PCB's cause
11 cancer?

12 A. It hasn't been demonstrated that PCB's
13 cause cancer.

14 Q. And that's the Monsanto position?

15 A. Yes.

16 Q. And, yet, Monsanto to this very date, June
17 11th, 1987, has never taken the trouble to go to
18 Japan and look at the slides of those Japanese
19 research projects to see whether they agree or
20 disagreed they show cancer; is that correct?

21 A. That's right.

22 Q. But Monsanto continues to and has
23 consistently taken the position that PCB's have not
24 been demonstrated to cause cancer?

25 A. Yes.

1 Q. One cannot discredit or rule out a study
2 which says that "We found cancer by an animal study"
3 without looking at the slides, can they?

4 A. By knowing the manner in which PCB's affect
5 the liver and understanding it and they do another
6 study that's exactly like ours and they get the same
7 degree of liver damage as ours and they see the same
8 repairative, regenerative things that took place in
9 their -- in their animals, the same as in ours,
10 is -- we didn't feel as though we needed to look at
11 them to decide.

12 Q. The only way you know what those liver
13 slides show is to put them under the microscope and
14 look at them, isn't it?

15 A. To be absolutely sure, that would be
16 correct.

17 Q. That's the reason that you paid IBT to send
18 its pathologist to go look at Dr. Kimbrough's
19 slides, isn't it?

20 A. I'm not sure exactly how that took place.

21 Q. That's the reason you paid Dr. Poor to go
22 look at Dr. Kimbrough's slides, isn't it?

23 A. That's the reason I paid him to do it, yes.

24 Q. Dr. Poor wasn't willing to say that
25 Dr. Kimbrough didn't find cancer without first

1 looking at her slides, was he?

2 A. Well, that's what I asked him to do.

3 Q. Dr. Poor wasn't willing to say that
4 Dr. Kimbrough's study did not cause cancer without
5 first looking at the slides, was he?

6 MR. FRUEHWALD: He was never asked to
7 do that. That's what the witness just said. So, we
8 don't know whether he was willing or not.

9 MR. LACEY: Well, I'd like to have the
10 answer to the question.

11 A. Say it again, please.

12 Q. (By Mr. Lacey) Dr. Poor wasn't willing to
13 say that Dr. Kimbrough's study didn't show that
14 PCB's caused cancer without first looking at the
15 slides, was he?

16 A. That's right.

17 Q. It is not possible for a person to reach a
18 conclusion that any particular study doesn't show
19 cancer without at least having looked at the slides,
20 is it?

21 A. If you've done it ten times, you don't have
22 to do it the 11th time to say it doesn't. Now, you
23 can predict what's going to take place from -- any
24 single study is sufficient to tell about all the
25 other studies after you are convinced what's taking

1 place and understanding the pathology that takes
2 place in these livers from PCH's is well understood,
3 the fact that there's damage to the tissue. The
4 Japanese found exactly the same thing we did. When
5 they --

6 Q. How do you know that?

7 A. Because that's what happens when you take a
8 chlorinated hydrocarbon and dose a liver with -- and
9 the response will be exactly what we found.

10 Q. You know that intuitively, without ever
11 having looked at a single one of their slides; is
12 that your testimony?

13 A. My -- that's my impression of what will
14 take place, yes.

15 Q. I see. And that impression is based
16 primarily on looking at IBT work for Monsanto, isn't
17 it?

18 A. And the NCI study, which was done with the
19 equal approach, in exactly the same form, which says
20 the same thing.

21 Q. And, so, it is your interpretation, then,
22 that the difference between the Japanese studies and
23 the differences of opinion in America is that the
24 Japanese believe that what they see is, in fact,
25 cancer?

1 A. Yes.

2 Q. And some people in America think it's not
3 cancer, and others think it is?

4 A. Yes.

5 Q. Are you aware of any Japanese studies which
6 found that PCB's did not cause cancer?

7 A. I think some of their studies said they
8 didn't cause cancer.

9 Q. I see. Which ones?

10 A. I don't remember.

11 Q. When was the last time you reviewed those
12 studies?

13 A. I've gone over them in preparation for
14 this, but I only had one day to get ready for this.

15 Q. I see.

16 A. So, I really haven't reviewed them.

17 Q. Well --

18 A. I feel -- I've looked -- I've turned it;
19 but to say I've reviewed them, I have not.

20 Q. Were the studies that you recall from Japan
21 saying that PCB's did not cause cause cancer those
22 were those where very low doses were used?

23 A. I know that's part of it. Whether that's
24 the substance of it -- and that's exactly what PCB's
25 will do. At low doses, no damage. Little bit of

1 damage, no regeneration, no progression to the
2 proliferative lesions, which we have a quarrel on
3 what that means.

4 Q. Well, let's talk about doses for a minute.
5 When we talk about a "dose," we're talking about the
6 amount of chemical that gets into a body that can
7 have an effect on it, aren't we?

8 A. It has potential for having effect.

9 Q. Okay. "Dose" is the amount of chemical
10 that gets into the body?

11 A. Yes, sir.

12 Q. And the higher the dose, the more severe
13 the potential effects?

14 A. More likely that there will be effect,
15 first.

16 Q. And the more severe the effect if there is
17 one?

18 A. At the higher dose, the more likely it will
19 be more severe.

20 Q. That's known as a "dose-response
21 relationship," is it not?

22 A. Yes, sir.

23 Q. And PCB's have a dose-response
24 relationship, do they not?

25 A. Yes.

1 Q. And, therefore, the more severe the
2 exposure, the more severe the effects that one might
3 expect to see if there are any manifested?

4 A. The bigger the dose, the more likely
5 there's going to be an effect, yes.

6 Q. And, also, the bigger the dose, the more
7 likely the effect will be a severe one?

8 A. Yes.

9 Q. Okay. And what you recall from looking at
10 the Japanese studies is that the low dose studies
11 didn't find cancer, whereas the higher dose studies
12 did; is that correct?

13 A. Yes.

14 Q. And that's --

15 A. Well, now -- and, again, they didn't all
16 call cancer. Sometimes they had the same kind of
17 problems we have, and they called them other
18 things. Sometimes they called them hepatomas. And
19 there is confusion in that whole classification.

20 Q. With regard to whether it's a cancer or a
21 hepatoma or whatever it may be called, is there any
22 doubt the animal had a severe problem?

23 A. No doubt about it.

24 Q. Okay. Are you aware of any studies that
25 let the animals full -- run a full life cycle and

1 then performed an autopsy after death from whatever
2 the natural cause was?

3 A. On PCB's?

4 Q. Yes.

5 A. No, I don't recall.

6 Q. That would be one way to determine whether
7 or not these hepatomas, or whatever else we may call
8 the changes, are precursors for cancer, would it
9 not?

10 A. It would give them more adequate time for
11 that response to take place, yes.

12 Q. But Monsanto never performed any studies of
13 that type, did it?

14 A. No, sir. There -- there isn't generally
15 agreed that you have to do that. The -- the NCI and
16 the NTP presently are doing two-year studies without
17 doing that for their studies. So, what we did was
18 consistent with the practice in the United States.

19 Q. My point is: With this question about
20 whether or not what was observed was or was not
21 cancer, Monsanto never followed up to determine
22 whether or not if the animal was let live beyond the
23 two-year date to kill it, that would go on and be
24 indisputably cancer; is that correct?

25 A. If that was possible.

1 Q. Is it your testimony that you don't know of
2 anybody who's ever done that?

3 A. No. I don't know whether it's been done.

4 Q. I see. Is there any question in your mind
5 that the effects of PCB's on the rats studied by IRT
6 were severe?

7 A. No question.

8 Q. Whatever we call it, they're severe?

9 A. Yes, sir.

10 Q. Why don't we go ahead and take a break at
11 this point and change tape before I go into my next
12 line of examination?

13 THE VIDEOGRAPHER: We are now going
14 off the record. The time is 10:59 a.m.

15 (Short Recess)

16 THE VIDEOGRAPHER: We are now back on
17 the record. The time is 11:08 a.m.

18 Q. (By Mr. Lacey) The effects of PCB's on the
19 livers of the rats that you reviewed, the IRT,
20 included tumors in the livers, did it not?

21 A. Again, you have a problem on what you mean
22 by a "tumor." A "tumor" means a growth. And, so,
23 you can have a hyperplastic nodule that can be
24 called a "tumor" and then you get a neoplastic
25 nodule and you can go through the whole process.

1 Q. But the hyperplastic nodules are commonly
2 referred to as "tumors," are they not?

3 A. Yes, they can be. They're only a tumor if
4 they get large enough to be a tumor. If they're
5 present only in in situ, then you don't call them a
6 "tumor."

7 Q. You saw evidence of those hyperplastic
8 nodules in the rat livers that were large enough to
9 be called "tumors," did you not?

10 A. Yes.

11 Q. And you wouldn't character --

12 A. In the high dose.

13 Q. Yes.

14 A. I didn't look at the others.

15 Q. I see. And when you say "high dose,"
16 you're talking about the 100 parts per million?

17 A. Yes.

18 Q. And --

19 A. I think that's what it was.

20 Q. And in those cases where you looked at the
21 livers and saw the tumors caused by the high dose of
22 PCN's at 100 parts per million, you wouldn't
23 characterize those tumors as "slight," would you?

24 A. I don't know what we mean by "slight."

25 Q. Well, would --

1 A. They were -- they were tumors.

2 Q. Would you describe them as "slight tumors"?

3 A. If they were small, they would be slight
4 tumors. If they were big, they were not slight.

5 Q. Well, I'm asking about what you saw, what
6 you --

7 A. I saw some real ones that I call "tumors."
8 I wouldn't call them "slight tumors."

9 Q. Okay. And you wouldn't characterize the
10 effect of those PCB's on the rat livers that you
11 reviewed as only "slightly tumorigenic," would you?

12 A. I would call them "tumorigenic."

13 Q. Okay. And you would not modify that with
14 the term "slight," would you?

15 A. No.

16 Q. I'm sorry?

17 A. No.

18 Q. You would not; is that correct?

19 A. No.

20 Q. No, you would, or --

21 A. No, I would not.

22 Q. Okay. Fine. I just want to get that
23 clear.

24 Now, you have told me that there is a
25 dose-response relationship in PCB's, correct?

1 A. Yes, sir.

2 Q. I want you to tell me about the effects of
3 a high dose of PCB's on man.

4 A. I don't know that I can. I don't know that
5 I've seen a case of a high-dose exposure to PCB's in
6 man.

7 Q. Would you be able to describe what you have
8 determined from the literature is caused by a high
9 dose of PCB's in man?

10 A. The classic high dose would be the Yusho
11 PCB exposure.

12 Q. And what effects resulted in those humans
13 as a result of their high-dose exposure to PCB's?

14 A. In the period of -- not in a direct short
15 time, there was a gradual onset of skin changes in
16 these people with exposure. It was not classic
17 chloracne.

18 I saw the -- the photographs in
19 Chicago, and that was a long time ago. But these
20 people had papules on their face. They had a
21 swollen face. They had puffiness about the eyes.
22 And I didn't see any discharge from the eyes, but I
23 remember they talked about there being discharge
24 from the eyes. They had symptoms, but they couldn't
25 really relate them to anything.

1 And there were -- and as I recall,
2 there was some liver effect; but it wasn't a
3 substantial liver effect.

4 Q. Do you recall and agree that a high dose of
5 PCB's can result in digestive disturbances?

6 A. If you give the PCB's by mouth, then I
7 think you can get digestive disturbances. I think
8 it's quite consistent with it, but the -- I don't
9 really have a a good understanding of whether PCB's
10 do it any more than what Yusho. And beyond that, I
11 don't know of a human experience that I can cite to
12 say that you get GI disturbance.

13 Q. Do you believe that --

14 A. If -- if you have liver damage -- now I'm
15 talking about logic -- if you have sufficient liver
16 damage, you can have symptoms that we would call
17 "nausea anorexia" that may or may -- in other words,
18 it's not a specific effect. It's a secondary
19 effect.

20 Q. You certainly agree that PCB's can cause
21 liver damage?

22 A. Yes, but not -- not that I know of that it
23 would cause severe liver damage.

24 Q. You're not aware of PCB's possibly causing
25 severe liver damage?

1 A. I know the early studies, they talked about
2 it causing liver damage, severe liver damage. But
3 the problem of -- of the contamination and presence
4 of naphthalene -- and naphthalene -- the chlorinated
5 naphthalenes have a real serious adverse effect on
6 the liver, and it causes acute liver atrophy and
7 will cause death. And that's not clear to me that
8 it happens with PCB's.

9 Q. I see. So, you think PCB's cause liver
10 damage; but you're not sure that they can cause
11 severe enough liver damage to cause death?

12 A. I don't think the exposures have been high
13 enough -- the dose has been high enough to make that
14 take place -- at least to my knowledge, that it has
15 taken place.

16 Q. Well, my question to you is whether you
17 believe that a sufficiently high exposure to PCB's
18 can cause severe liver damage and death?

19 A. No.

20 Q. You do believe that exposure to PCB's can
21 cause chloracne, do you not?

22 A. I don't know. I know that -- Monsanto had
23 an episode in which many -- long before my time,
24 down in Anniston, in which they had chloracne in a
25 population that was making PCB's. And after that,

1 Monsanto didn't have any further chloracne.

2 And whether that was due to a
3 contaminant of the PCB's or something else, that, I
4 don't understand. But there was something unique
5 about that one that made it so that it never
6 happened again.

7 And if you look at man's exposure to
8 PCB's, there has been a -- they talk about
9 dibenzofurans as being a causative agent for
10 chloracne and not the PCB's. And I can't separate
11 those out because whether dibenzofurans have been
12 present in all PCB's or not, I can't answer that.

13 Q. You just don't know whether all of
14 Monsanto's PCB's have dibenzofurans in them or not;
15 is that correct?

16 A. That's right.

17 Q. By the way, one of the things that happened
18 in response to this problem of chloracne that you
19 described in Alabama in the early years was that
20 Monsanto engaged in a rigorous program to try and
21 prevent its workmen from coming into contact with
22 PCB's, didn't it?

23 A. I don't know.

24 Q. You're not aware of that?

25 A. No, sir, never talked about it.

1 Q. I see. What about pain in the abdominal
2 area? Do you agree that exposure to PCB's at high
3 levels can cause pain in the region of the liver, in
4 the abdominal area?

5 A. If you have damage to the liver, you can
6 cause pain. If it's acute enough -- if it's an
7 acute effect on the liver, you can have pain in the
8 abdominal cavity.

9 But I don't understand how it would be
10 due otherwise unless it was by taking the PCB's by
11 mouth.

12 Q. Do you understand that exposure to PCB's
13 could result in weight loss?

14 A. Any intoxication that's severe enough has
15 potential for causing weight loss. Anything that
16 will cause anorexia, can cause weight loss.

17 But to say that PCB's in themselves
18 cause weight loss, I don't believe that happens.
19 It's a secondary effect.

20 Q. They cause something else in the body which
21 then, in turn, causes the weight loss?

22 A. I don't know whether it happens or not, but
23 that's the way I would have to explain it.

24 Q. The weight loss is symptomatic of another
25 problem?

1 A. Yes. And if -- again, if you have
2 sufficient liver damage, that would take place. But
3 without liver damage, then I have difficulty saying
4 what would causing it.

5 Q. I see.

6 A. I don't think it happens without liver
7 damage, unless it's by mouth and continuing high
8 exposures so that it interferes and causes
9 sufficient irritation of the GI tract so it would
10 happen. Outside of that, I don't believe it
11 happens.

12 Q. Do you have an opinion as to the situs of
13 cancer if PCB's, in fact, will cause cancer?

14 A. Pardon?

15 Q. Do you have an opinion as to the situs --

16 A. You mean, where --

17 Q. Yes.

18 A. -- the location of it?

19 Q. Yes. If PCB's cause cancer.

20 A. It will only cause it one place. That's
21 the liver.

22 Q. And how do you know that?

23 A. Because it's not an initiator.

24 Q. What is it, then?

25 A. It's -- the only -- well, you can't go very

1 far. The knowledge would suggest and the people
2 talk about it being a promoter.

3 Q. What is a "promoter"?

4 A. A "promoter" is an agent that acts on an
5 initiated cell to cause a cancer. And if I -- the
6 reason we're saying this is if it only happens --
7 and all the things we've been describing is you
8 don't see cancer until you get severe liver damage.
9 Without the liver damage, it's not a carcinogen, by
10 no stretch of the imagination.

11 And the only place you're going to see
12 the cancer is going to be in the liver.

13 Q. You're very certain about that?

14 A. I wouldn't equivocate on that.

15 Q. You would equivocate on whether or not it
16 would cause the liver cancer?

17 A. I -- we've gone through that in terms of
18 the interpretation of that and whether it -- if it
19 does under some circumstances that we haven't been
20 able to describe, we're talking about it being
21 second to the liver damage. And I couldn't say I
22 would be surprised, but the data to date doesn't say
23 that it does to me.

24 Q. Did you ever give any consideration to the
25 early 1970 studies by Dr. Kimbrough on PCB's?

1 A. I don't know what you mean by
2 "consideration."

3 Q. Well, the studies that Dr. Kimbrough did on
4 PCB's in which she concluded they caused liver
5 cancer were not her first chronic toxicity studies
6 on PCB's, were they?

7 A. I have to go -- I'm doing this by memory
8 because I haven't reviewed all this.

9 My impression is that she had done
10 something before, and there was a discussion
11 about -- something about bladder tumors that she was
12 worried about. And the other thing is that there is
13 a -- she talked about there being hyperplasia in the
14 bladder as associated with it, and I don't know
15 what -- and, so, if I've got hyperplasia in the
16 tumor, entirely possible those were a similar
17 reaction.

18 But I can't -- I can't go beyond what
19 I've said because all this is -- is recall.

20 Q. Well, that's a location. My only point is
21 the bladder is not the liver, is it?

22 A. No, sir.

23 Q. And her early work dealt with problems
24 caused by PCB's in the bladder, didn't it?

25 A. But she didn't confirm that in the second

1 study, which says -- in every cancer study that's
2 done -- I was on the clearing house for carcinogens
3 of the Cancer Institute.

4 When you find a tumor and you're
5 trying to decide is it dose related or related to
6 that, you've got a problem of deciding whether that
7 animal would get those tumors in the first place.
8 And if it gets it in the first place, now you've got
9 to say is what more than would be expected. And
10 you've got the problem of deciding whether it was
11 related to that control group, and then you've got
12 the problem of all the historical group to worry
13 about.

14 And then, after that, then you've got
15 to decide whether it was elevated statistically.
16 And then, if you find it was statistically, then
17 you've got to go to the next dose level and decide
18 whether that's statistically related. And then you
19 say it's -- we would say it's consistent with being
20 a carcinogen.

21 And that still doesn't establish
22 whether it is or not.

23 Q. It's that complex chain of analysis that
24 leads people to have reasonable disagreements about
25 whether PCB's cause cancer, isn't it?

1 A. That is a different story than talking
2 about the progression from the hyperplastic nodules
3 to cancer; but there is no question about the only
4 reason that you get cancer in the rat is because
5 we've got severe damage to the liver, and which
6 we've seen so much in alcohol and other chlorinated
7 hydrocarbons that do exactly the same thing.

8 So, the substance of what we're saying
9 is not these PCB's studies. It's consistent with
10 what we know about liver damage and what causes it.

11 Q. My question is: This line of logic --

12 A. Yes, sir.

13 Q. -- that you just announced, about all the
14 things one has to do before you'd be satisfied on
15 what caused it, is not a line of logic that all
16 other scientists agree on, is it?

17 A. Everything I said or -- or how -- what part
18 of this are we questioning?

19 Q. You had an extended discussion why you did
20 not believe Kimbrough's work on bladder cancer
21 confirmed anything.

22 A. Yes.

23 Q. And what I'm asking you is: Isn't it true
24 that not all scientists agree with your conclusion
25 about why one has to discount studies of that type?

1 A. If they disagree with that, then I don't
2 think they're scientists.

3 Q. Okay. Anybody who disagrees with that,
4 just really --

5 A. That's not -- that's not quarreling with
6 me. I'm talking about the procedure by the Cancer
7 Institute and national toxicological program.

8 Q. I see. With regard to PCB's causing skin
9 eruptions, you agree with that?

10 A. I think it's -- I haven't seen any; but my
11 impression is, yes, it does cause dermatitis.

12 Q. Swelling of the eyelids?

13 A. I don't think so -- well, I don't think
14 that's a part of chloracne. It's -- if you get any
15 chemical around the eyes, it can cause swelling of
16 the eyelids. But I don't believe it happens from
17 systemic exposure.

18 Q. Distortion of the skin surface?

19 A. Distortion of the --

20 Q. Yes.

21 A. I don't know what that means.

22 Q. Fingernail distortion?

23 A. I don't know what that means.

24 Q. I see. Blackening of the fingernails?

25 A. The closest thing that I would think that

1 would be related to this would be Yusho, in which
2 there was pigmentation. And pigmentation is part of
3 the chloracne syndrome. And without the
4 pigmentation -- without the chloracne, without the
5 sufficient skin reaction, I don't think there's
6 pigmentation. I don't think the pigmentation of --
7 is related to PCB's in the absence of chloracne,
8 which, again, talks about a local effect, continuing
9 effect. And I still got the problem whether it
10 happened without the dibenzofurans.

11 Q. Fingernails that turn inward?

12 A. No.

13 Q. Loss of facial hair?

14 A. No.

15 Q. Loss of head hair?

16 A. No.

17 Q. Loss of body hair?

18 A. No. As a matter of fact, the
19 characteristic of chloracne is hyper --
20 hypertrichosis. It's just the opposite. And, plus,
21 there's -- there's no chemical that I know of that
22 will produce loss of hair. There's -- the gland,
23 the sebaceous gland, that's involved in chloracne,
24 you can have occlusion of that sebaceous gland by
25 anything, by oil.

1 The people who do milling operations
2 and the oil is used to cool that down, if they get
3 it on their skin and they get it, they will get an
4 acne lesion that is not chloracne. And if you have
5 sufficient acne, you can cause atrophy of the hair
6 as well. But it's secondary to the involvement of
7 the pilosebaceous gland.

8 Q. Generalized skin rash?

9 A. I think that with gross exposure to a
10 viscous material like PCB's can cause a dermatitis.

11 Q. Difficulty in breathing because of swelling
12 of the nasal tissues?

13 A. If a man has exposure to sufficient PCB's
14 by inhalation, it can result in swelling of the
15 nasal mucosa because it's an irritant. And if it
16 did -- I'm telling you what I think could happen --
17 rather -- what I'm telling you now is based on my
18 understanding of PCB's because I haven't seen any of
19 this, nor -- nor has most people in Monsanto, in
20 spite our having made this material for 30 years.

21 But our dose levels is what we're
22 talking about.

23 Q. Pigmentation, you'd agree that PCB's can
24 cause a change in pigmentation?

25 A. If there's chloracne.

1 Q. Darkening of the skin?

2 A. Yes.

3 Q. And if there is no chloracne, do you think
4 there would be a generalized skin rash?

5 A. If there is -- if there is skin exposure to
6 PCB's in sufficient amounts, you can have a
7 dermatitis.

8 Q. If there's no chloracne, would there be
9 swelling of the eyelids?

10 A. If there was -- if there was PCB's in
11 contact with the eyelid; but it's going to be
12 temporary, not permanent.

13 Q. If there were no chloracne, would there be
14 difficulty in breathing?

15 A. PCB's are irritants. And one of the things
16 that keep people from having excessive exposure so
17 that occupational exposure isn't more than it is is
18 because it's irritating. And a man will walk away
19 from it when it gets out. But if he stayed around,
20 it could cause swelling of the eyelids, can cause
21 swelling of the nose.

22 Q. Without any chloracne?

23 A. Without any chloracne.

24 Q. What about changes in pigmentation without
25 chloracne?

1 A. I don't think so.

2 Q. What about darkening of the skin without
3 chloracne?

4 A. I don't think so.

5 Q. Is it your opinion that PCB's could promote
6 any type of cancer other than liver cancer?

7 A. No, sir.

8 Q. And is that opinion based on any work done
9 to determine what type of cancers are promoted by
10 PCB's?

11 A. You see, the -- there had to be -- when we
12 talk about alcohol causing liver damage and causing
13 these secondary things, it's the same thing. The
14 place where -- in occupational exposure, as well as
15 in the PCB studies at NCI or at IBT -- I'm leaving
16 out IBT because of the question -- is that the liver
17 damage is the thing that makes PCB's a carcinogen.

18 And we talk about it being in another
19 place, is there's nothing suggest we've got it in
20 other places.

21 Q. Well, studies of PCB's in rats have shown
22 rats that develop tumors in other locations, have
23 they not?

24 A. When they're exposed to PCB's?

25 Q. Yes.

1 A. Of course, because they've got those
2 historically.

3 Q. But you don't think there's any significant
4 relationship between the tumors developed in places
5 other than the liver and PCB's?

6 A. I haven't seen anyplace where it's
7 suggested that there was a relationship.

8 Q. Including Dr. Kimbrough's work on the
9 bladder?

10 A. Yes.

11 Q. That suggested it, didn't it?

12 A. Well, but that wasn't done statistically.
13 So, you can't tell whether that was in excess of
14 what could be expected; or if we did a thousand
15 studies, would that happen by chance.

16 Q. Do you recall that Dr. Poor specifically
17 commented on finding other tumors besides liver
18 tumors in the review he did for you of PCB studies?

19 A. No, I don't recall.

20 Q. I see. How severe a weight loss can be
21 caused by problems resulting from PCB exposure?

22 A. I have said I don't think that weight loss
23 is a part of PCB intoxication. I've said if there
24 is sufficient damage to the liver that there may be
25 a subsequent or a secondary weight loss, but I don't

1 think it's other than that.

2 Q. And how severe can that weight loss be?

3 A. If there is severe liver damage, there can
4 be loss of appetite; and it can result in severe
5 weight loss, if there is severe liver damage.
6 Without severe liver damage, I don't think that will
7 occur.

8 Q. I want to show you a photograph of an
9 individual and ask whether you believe -- you might
10 hold that up where the camera can see what you're
11 looking at there --

12 A. Sure.

13 Q. -- whether you believe that weight loss
14 that severe could result secondarily from exposure
15 to PCB's and the results of it.

16 A. I think -- this is a clinical
17 interpretation based on one's photograph. This
18 man's seriously ill.

19 Q. No question about that.

20 A. He's got some other -- he's got a disease
21 that's gone going on him. And the weight loss
22 wouldn't be from PCB's. It's from the disease he's
23 got. And whether that disease he's got -- and I
24 don't know what it is. This man is chronically ill,
25 and he's not -- it isn't -- and he's got a chronic

1 disease. And chronic diseases I don't think are
2 related to PCB's unless it's on liver damage that
3 becomes permanent.

4 Q. So, if the result or the primary cause of
5 the weight loss is something that's related to
6 PCB's, then the PCB's would have an effect on the
7 weight loss -- is that what you're saying? -- and if
8 it's not, then there would be no relationship?

9 A. If it was related to the liver damage, then
10 it could be the cause of his -- if, in fact, his
11 liver damage -- one of the common things that
12 happens in man is a man can have cirrhosis and look
13 like this.

14 And the question, then, is what caused
15 this cirrhosis. And the question whether cirrhosis
16 could be caused by PCB is one of the questions.
17 And, to my knowledge, it hasn't happened to date.

18 Q. I see. Let me ask you about --

19 A. Are we through with this?

20 Q. Yes. You might want to just set that right
21 over there.

22 A. (Witness complies)

23 Q. Let me ask you about --

24 A. I came apart.

25 Q. Oh, I'm sorry. Well, let's get you back

1 together here. You're not the first who ever --
2 who's ever had that problem. Just press on it, and
3 it will snap in.

4 A. (Witness complies)

5 Q. One of the ways to document exposure to
6 PCB's would be by sampling body tissues to determine
7 the concentrations in them; isn't that correct?

8 A. My problem is "tissues" because the first
9 tissue that we've sampled, that's one tissue, is the
10 blood.

11 Q. Okay. Is that -- is sampling the blood one
12 way --

13 A. Yes.

14 Q. -- to document exposure to PCB's?

15 A. Well, yes. And there's a problem on this,
16 that there is a half-life of the PCB's in the body
17 so that the true relationship of PCB's in the blood
18 to the level of exposure isn't clear.

19 Q. Let me see if I understand what you're
20 saying there. It is possible, if we sample the
21 blood a long enough distance away from the exposure,
22 we may find very little there because of the
23 half-life over which it disappears from the body?

24 A. There's a lot we don't know about this.
25 PCB's in the blood are related to exposure to

1 PCB's. The absolute level is dependent on other
2 factors than just exposure. And it has something to
3 do with whether the tissue holds it and puts it off
4 in the fat and -- and, so, it acts like a sump,
5 where it can be put in there and not do anything.
6 And whether that is a result of exposure -- exposure
7 but the exposure putting it there, if it truly
8 accumulates with age, which some people say, it's
9 more than just exposure that determines that.

10 Q. My question to you is: If we find PCB's in
11 the blood, we have -- we know we have exposure to
12 PCB's, do we not?

13 A. Yes, sir.

14 Q. That's proof that it's gotten into the
15 body, by whatever route, correct?

16 A. Yes, sir.

17 Q. And because of this half-life problem you
18 describe, the level -- and other considerations, the
19 level that you find in the blood may not be truly
20 reflective of the extent of exposure, correct?

21 A. I don't know. I --

22 Q. You're just not sure?

23 A. I don't think the data is there. The --
24 the higher the exposure -- we know what the level is
25 in the general environment. And in that normal

1 range, if yours is twice as high as mine in that
2 normal range, whether that reflects your exposure
3 being twice as high as mine, hasn't been
4 established.

5 Now -- but at the same time, the man
6 who has occupational exposure, his will be higher,
7 substantially higher, and will reflect his increased
8 exposure. So, the variability within each one of
9 those ranges is part of it we -- we don't -- I don't
10 think we understand.

11 Q. What is the normal range?

12 A. I am not an expert on this, but it's --
13 it's -- my general rule is something below 10 parts
14 per billion will take care of most people with
15 nonoccupational exposure.

16 Q. You're talking about in the blood?

17 A. In the blood.

18 Q. And would you anticipate that each one of
19 us in this room has some percentage of PCB's in his
20 blood?

21 A. He's got not percentage of. He's -- well,
22 you can call percentages, but we all have it in our
23 blood.

24 Q. And you would expect that people who have
25 substantially higher than this background percentage

1 would be indicative of occupational exposure?

2 A. Abnormal exposure, whatever that is.

3 Q. Okay. Whether occupational or otherwise?

4 A. That's right. He could be -- he could be
5 cluttering up in his basement and doing something
6 if, in fact, he had some PCB's. All we're saying is
7 for some reason it's abnormally high and it could --
8 and in most cases we wouldn't recognize the cause of
9 it.

10 Q. Also, if I understand what you've told us
11 correctly, over time the level may fall.

12 A. I think that if we take a man out of
13 exposure his level will fall.

14 Q. Okay. That's my point.

15 A. And the -- the fact, when it doesn't show
16 it, is they haven't waited long enough.

17 Q. So, a person who has had this abnormal
18 exposure you talk about and then a sample is taken
19 several years after may not show a level in his
20 blood as high as it would have been had it been
21 tested at the time of the the abnormal exposure,
22 correct?

23 A. And I don't know how much that would have
24 fallen.

25 Q. Right.

1 A. That's the other part we don't know.

2 Q. But we would expect it to fall by some
3 amount?

4 A. By some amount.

5 Q. Okay. And how far it would fall and how
6 fast it would fall, you do not know; is that
7 correct?

8 A. That's right. I do not know.

9 Q. Now --

10 A. The data may be there, but I haven't done a
11 review, to answer the question. But my impression
12 is that we can't tell how quickly it will fall. I
13 can give you a general rule. The higher it is, the
14 faster it falls.

15 Q. So, the higher the level of exposure, the
16 more likely it is to fall off rapidly?

17 A. The higher it is, the faster it's going to
18 fall.

19 Q. Okay.

20 A. Now, there may be other factors related.

21 Q. What would you consider to be an abnormally
22 high level of PCB's in the blood?

23 A. I told you I haven't followed this because
24 we've been out of the PCB business. And all I -- I
25 have read it because of my interest. And I think

1 that I've said the normal range is 10, but there are
2 people without occupational exposure that are higher
3 than that. At least that's what the literature
4 says.

5 And whether that just reflects that
6 normal range or something was abnormal if we
7 intensely studied him is I don't know. So, there is
8 a range of normal.

9 Q. I'm trying to find out about where the --
10 where the potential range of the abnormal exposure
11 is.

12 A. Anything above that normal range, whatever
13 that's defined.

14 Q. Well, you certainly can't have pure PCB's
15 running around in your blood, can you?

16 A. No, sir.

17 Q. Is there some upper limit to which one
18 could go in having a percentage of PCB's in his
19 blood?

20 A. Depends on the level of exposure.

21 Q. So, you don't know if it could get to one
22 part per thousand, for example?

23 A. No, I do not.

24 Q. Would you anticipate it would?

25 A. I don't know how to answer the question.

1 I've said that, to me, we call anything above 10 as
2 being abnormal. And that's quite common in
3 occupation. And in the things I've looked at in
4 the -- the last two days, the levels of PCB's have
5 been substantially higher than I thought about.

6 Q. What have you looked at in the last couple
7 of days?

8 A. I've seen something -- some things.

9 THE WITNESS: Didn't I?

10 MR. LACEY: Mr. Fruehwald, can you
11 help the witness with what you've shown him in the
12 last day or two?

13 MR. FRUEHWALD: Do not -- do not know
14 what he's referring to.

15 MR. LACEY: I see.

16 A. Well, then, I'm -- I've read Patty, the
17 only thing I've done in addition to this. And I've
18 seen some places where we're talking about 300, 500
19 as being not unusual. And I think I'm saying
20 correctly, and the source I've got that is, I -- I
21 can't answer that because I haven't had much time to
22 get ready for this.

23 Q. (By Mr. Lacey) I see. Do you think you've
24 been looking at information regarding specific
25 plaintiffs in this case and those are the numbers

1 you're talking about or just people who have been --
2 who have had substantial occupational exposure?

3 A. Just substantial occupational exposure.

4 Q. I see. And were those people at Monsanto?

5 A. No, sir. We didn't -- we didn't do PCB's
6 in blood.

7 Q. I see. So, you don't know what level of
8 exposure your people had by at least evaluating on a
9 parts per million basis for blood concentrations?

10 A. No, sir.

11 Q. Did you do any PCB's in fat?

12 A. No. This was -- we were out of the PCB
13 business before this all -- the other -- what the
14 fact is is that our air levels were low, and we had
15 them -- made sure that they washed off their skin.

16 And when NIOSH came to Monsanto and
17 looked at whether they wanted to do a PCB study on
18 our group, as they said, they didn't think it would
19 be worthwhile to do -- study our population.

20 Q. Because Monsanto had worked so hard to
21 limit the exposure of its workmen to PCB's, correct?

22 A. That is the way we do everything. We do
23 all of our business that way. All of our exposures
24 are low.

25 Q. And in particular with regard to the

1 operating procedures for PCB's, they were so
2 designed for those operations to have very low
3 exposures, were they not?

4 A. I think so, but I don't know. I wasn't --
5 didn't get out there, I've told you, because it
6 wasn't a problem. And I didn't get involved in
7 PCB's.

8 Q. Well, you're telling me about what NIOSH
9 said?

10 A. Yes.

11 Q. And you understood that was related to the
12 level of precautions --

13 A. Yes.

14 Q. -- that Monsanto took?

15 A. Right.

16 Q. Another way to evaluate PCB's in body
17 tissue would be to look at fat, would it not?

18 A. Yes, sir. All of these materials are fat
19 soluble. And anyplace there's fat, that's where
20 you'll find it most.

21 Q. What levels of PCB's would be normal in the
22 nonoccupational exposed worker in fat?

23 A. I don't know.

24 Q. Would levels outside whatever the normal
25 range for fat concentrations of PCB's indicate

1 high levels of exposure?

2 A. I would think so, but I don't see why we
3 have to go -- I don't understand why we can't just
4 use PCB's in blood.

5 Q. Well, my question to you is not whether you
6 can use that or not. My question is: Fat is
7 another thing that one could do?

8 A. Yes. Absolutely.

9 Q. And there would be a normal range in fat,
10 correct?

11 A. Yes.

12 Q. And levels above that would indicate more
13 substantial than environmental exposure, some type
14 of abnormal exposure, correct?

15 A. I would think so.

16 Q. Including high occupational exposure,
17 correct?

18 A. I would think so. I'm -- I have no basis
19 of what I'm talking of. I'm just giving you what --
20 my thoughts.

21 Q. Well, is that the way things work?

22 A. Absolutely.

23 Q. As a medical man, you can tell us how they
24 work?

25 A. Yes, but I'm generalizing. And, so,

1 whether there are some things that out of line and
2 that I don't understand -- but I wouldn't expect
3 them to be so.

4 Q. That's my question to you.

5 Now, PCB's, of course, have a
6 dose-response relationship, do they not?

7 A. Yes, sir.

8 Q. And, so, the higher the dose that a person
9 receives, the more likely we're going to see an
10 effect on the body, correct?

11 A. Yes, sir.

12 Q. And the more likely the effect that we see,
13 if any, is going to be severe, correct?

14 A. Then you've got a problem when you say
15 this, whether we're talking about acute or chronic.
16 If you're talking about acute, that's one thing. If
17 you're talking about chronic, it's a different one.

18 Q. Well, there are two types of exposures or
19 two terminologies that are used for exposures, are
20 there not: acute and chronic?

21 A. Yes, sir.

22 Q. And to symbolize acute exposures, if I took
23 one of these Styrofoam cups we're all drinking out
24 of today and filled it up with PCB's and drank it
25 all at once, I'd have an acute exposure, wouldn't I?

1 A. Yes.

2 Q. And if instead every day when I went to get
3 a cup of coffee somehow one drop of PCB's fell into
4 that cup each day and I drank that cup of coffee
5 with one drop of PCB in it every day for two, three,
6 four, five, ten, twenty, years, that -- then I'd
7 have a chronic exposure?

8 A. And that could be a part of what you're
9 getting now without that, may not be large as
10 compared to that.

11 Q. My question to you is I'm trying to define
12 what chronic exposure is.

13 A. Yes. Yes. And each one of those are dose
14 related and quite separate, is my point.

15 Q. All right.

16 A. I was trying to get back to your acute dose
17 is -- by mouth, that is only slightly toxic. The
18 fact that it takes 10 grams per kilogram to kill the
19 animal and 10 grams times 60 or 70 kilos is 70 grams
20 and that is 2 ounces, 3 ounces, a cupful.

21 Q. Will kill you?

22 A. If it was equally -- if we're as equally
23 susceptible as the rat.

24 Q. Okay.

25 A. But it gives you a ballpark.

1 Q. Okay.

2 A. But we're still talking it is only slightly
3 toxic acutely.

4 Q. Yeah. Now, let me ask you about that, by
5 the way. The different routes of exposure that one
6 can have normally for a human being would be oral
7 exposure; skin exposure, where there would be
8 absorption; or through inspiration or respiration,
9 correct?

10 A. Yes, but in occupational we usually don't
11 talk about it being orally. It can be.

12 Q. But those are the three routes of exposure?

13 A. That's the three -- or else you can get it
14 by injection.

15 Q. Somebody could just take it and put it in a
16 syringe --

17 A. Right.

18 Q. -- and direct inject it into your veins?

19 A. That's right.

20 Q. That problem is not -- the injection into
21 the veins is not an occupational-type exposure you'd
22 worry about?

23 A. That's right.

24 Q. The other three all can have occupational
25 components, can they not?

1 A. Yes.

2 Q. Now, you told me that you don't think PCB's
3 are particularly toxic from the oral ingestion
4 route, correct?

5 A. I don't think I said that.

6 Q. Well, let me make it very clear. Are PCB's
7 very toxic from the oral ingestion route?

8 A. It's a source of exposure if you do it by
9 intent.

10 Q. Well, let me ask it another way. Are PCB's
11 more toxic by skin absorption or by oral ingestion?

12 A. What was the question?

13 Q. Are PCB's more toxic by skin absorption or
14 oral ingestion?

15 A. I think you're talking hazard rather than
16 toxic. The only thing that counts is whether it
17 gets into the body. And, you know, it's a different
18 question.

19 Q. Well, let me ask it the way you'd like me
20 to ask it, then.

21 Are PCB's more likely to get into my
22 body through oral ingestion or skin absorption?

23 A. If I -- if I -- am I working with exposure
24 to this? Or am I -- where am I getting it now?
25 What's the circumstances?

1 Q. You can be a test rat and test the rat two
2 different ways. I don't care how you do it. I'm
3 just trying to find out if PCB's are more readily
4 brought into the body, as you say, through skin
5 contact or oral ingestion.

6 A. In the occupational situation, if the -- if
7 the PCB's is not heated, then the primary exposure
8 is going to be by skin. And PCB's can penetrate the
9 skin.

10 Q. I'm sorry. I wasn't even talking about
11 being heated. I'm talking about oral ingestion
12 versus skin contact.

13 Which one is more likely to be more
14 toxic -- that is, get more into your body -- skin
15 contact or oral ingestion?

16 A. If the man is -- is doing -- washing his
17 hands as he should and doesn't put it in his mouth,
18 then the primary source is going to be by skin
19 exposure.

20 Q. I don't think I'm asking my question very
21 well. Let's take a worker out of it entirely.
22 Let's consider just testing a chemical, like PCB's,
23 to see whether skin contact is more likely to get
24 more into the body than oral ingestion and determine
25 whether PCB's cross the barrier in the digestive

1 tract better or worse than they cross the barrier in
2 the skin, the external skin.

3 Do you understand my question?

4 A. Yes.

5 Q. My question is: Which barrier is more
6 readily crossed?

7 A. Now, if we're talking about the ability to
8 get into the body, that's different than the
9 amount -- the other one has to do with how much we
10 put there, whether the dose is there.

11 The best way to compare it that I know
12 is to compare the LD-50's. The LD-50, by ingestion,
13 is something, as I said, from 5 to 10 grams per
14 kilogram and for skin exposure is something of the
15 order of one gram per kilogram, which it says that
16 it has a -- in all likelihood, in a large dose --
17 and that's different than a small dose. You give a
18 large dose, you overwhelm the ability of the animal
19 to absorb it; and, so, it passes out. You give --
20 and what happens is that PCB's act like mineral oil
21 and will almost cause a catharsis.

22 If you give a small dose by mouth that
23 won't take place; and the absorption is probably
24 better. So, it all depends.

25 Q. If I understand your testimony, in a large

1 dose it's going to be better absorbed through the
2 skin than the digestive tract, correct?

3 A. That's what the LD-50 studies would
4 indicate.

5 Q. That's based on actual animal studies?

6 A. Yes, on acute studies.

7 Q. And you speculate that on small doses PCB's
8 would better be absorbed through oral ingestion?

9 A. No. I don't know -- we haven't -- I don't
10 know how to evaluate that. All I'm saying, it's
11 different.

12 Q. My point is that you don't know, and no
13 studies have been done, whether there is still a
14 better likelihood of absorption through the skin
15 than the digestive tract in smaller doses; isn't
16 that correct?

17 A. I don't know.

18 Q. Okay. Now, what about inhalation as
19 compared to skin absorption; how does that route of
20 exposure compare?

21 A. I don't have information into my -- in my
22 hands that tell me what the LD-50's is for PCB's.
23 The early studies were done, as I recall, from the
24 ATHA report we had, was it was done with a subacute
25 study without having done the acute. And that talks

1 about how they did toxicology back in that time.

2 My impression is that inhalation is
3 more important than skin because the PCB is finally
4 divided and there's a large surface. But I have no
5 data on which to talk about this. This is a general
6 rather than a specific related to PCB's.

7 Q. And, so, you don't know if that
8 generalization holds true for PCB's or not; is that
9 correct?

10 A. Yes, sir.

11 Q. And it may or it may not if one did a test?

12 A. I would -- I would presume; and I would
13 probably be right, but I'm not -- I can't say.

14 Q. Now, let me ask you a little bit about what
15 happened to Paul Wright after this criminal
16 indictment came down. Up until that time, was
17 Mr. Wright working regularly in the medical
18 department of Monsanto?

19 A. Yes, sir.

20 Q. Did you ever have any problems at all with
21 his work until the time of his indictment?

22 A. Paul had an excellent intellect. And if --
23 we went back to Wisconsin and find that he was
24 outstanding. He was very good.

25 We put him in charge of the laboratory

1 as head of -- head of toxicology. And --

2 Q. You can go ahead.

3 A. And we took him out of that position
4 because we didn't think he was functioning
5 adequately there. Now, that could be management --
6 a whole flock of things could make that decision.
7 But he came back to our headquarters group and
8 functioned as a book toxicologist, and he did an
9 outstanding job. And that's part of what Livinscus
10 thought of him.

11 Q. Did you have any problems with any theft of
12 materials from Monsanto?

13 A. I never did understand that, but -- I'm not
14 sure that was a clear theft.

15 Q. Well, there was some question about --

16 A. There was something about it, but I never
17 did hear that. But a part of him taking out was --
18 that was sort of the straw that broke the camel's
19 back in our taking him out of that position.

20 Q. Let's -- let's explore that for just a
21 moment. Dr. Wright was in charge of this new
22 testing laboratory --

23 A. Yes.

24 Q. -- that you had set up?

25 A. Yes, sir.

1 Q. Your testing laboratory did a lot of work
2 with rats, did it not?

3 A. Yes, sir.

4 Q. That was Dr. Wright's forte, was it not?

5 A. It was part of his forte.

6 Q. That's what he had done at IBT, was run the
7 rat test, wasn't it?

8 A. Yes, but his forte was in nutrition and
9 biochemistry, not the other.

10 Q. And in running this laboratory, some
11 questions arose about whether Dr. Wright was
12 stealing materials from Monsanto, didn't it?

13 A. Yes. Or -- we're never clear -- there was
14 one piece of equipment that he took home.

15 Q. What was that?

16 A. I think it was an oven.

17 Q. Okay.

18 A. And it wasn't being used, and the question
19 was -- he had it home and was going to bring it back
20 and that kind of stuff. It was never clear; but we
21 didn't think it was a good idea for him to take it
22 home anyway, whatever the reason.

23 Q. Wasn't customary for company employees to
24 take company property to their house, was it?

25 A. That's right.

1 Q. And he had it there for a substantial
2 period of time when it came to light, didn't he?

3 A. I don't know.

4 Q. Was the oven the only thing that he was
5 found taking from the company?

6 A. I think so.

7 Q. And that was the straw that broke the
8 camel's back and took him out of the position over
9 that laboratory?

10 A. Yes.

11 Q. There were other straws that had been
12 leading up to that problem?

13 A. Well, there were -- it was more of
14 management, on how to manage a laboratory and make
15 it work well. He -- he wasn't a manager.

16 Q. He had problems managing a toxicology
17 laboratory, didn't he?

18 A. Yes.

19 Q. And that's no surprise to anybody in
20 Monsanto who watched his efforts to try to manage
21 their toxicology laboratory, is it?

22 A. I don't understand that question.

23 Q. Well, it was obvious to everybody at
24 Monsanto who watched him attempt to manage
25 Monsanto's toxicology laboratory he couldn't manage

1 a laboratory well.

2 A. Yes.

3 Q. Now, did Monsanto take any action against
4 Mr. Wright as a result of this taking of this
5 microwave oven home?

6 A. Yes. He had a lower position when he came
7 back to us.

8 Q. And was that part of your responsibility as
9 the person who could hire and fire employees?

10 A. Yes.

11 Q. How far did you demote him?

12 A. I don't recall.

13 Q. Did that type of conduct raise in your mind
14 any doubts about how honest an individual this
15 person was?

16 A. Yes.

17 Q. But not enough doubts to terminate him?

18 A. No. That was thoroughly reviewed.

19 Q. By you and Mr. Throdahl?

20 A. Yes.

21 Q. Did you discuss with Dr. Wright the
22 possibility that he might be terminated?

23 A. I don't recall.

24 Q. Did you discuss with him the severity of
25 his situation?

1 A. Yes.

2 Q. And the jeopardy that his conduct had
3 placed his career in?

4 A. Yes.

5 Q. What explanations or justifications did
6 Dr. Wright offer to you?

7 A. Not a good one.

8 Q. What was it?

9 A. He was just having it home. He was going
10 to bring it back.

11 Q. Was part of the consideration in your
12 decision not to terminate Dr. Wright the prominent
13 role he had played in forestalling the EPA's
14 promulgation of unrealistic regulations to limit
15 discharges of polychlorinated biphenyls that would
16 have precluded use of those materials by Monsanto's
17 customers?

18 A. No, sir.

19 Q. His great service that he had honored for
20 previously didn't play anything in the decision not
21 to terminate him?

22 A. No, sir. No, sir. He was very -- thought
23 very highly by Mr. Throdahl.

24 Q. When did Monsanto first become aware of an
25 investigation being conducted by the Federal

1 Government into the conduct of EBT?

2 A. I don't recall when.

3 Q. It was before the indictment, was it not?

4 A. Oh, yes.

5 Q. In fact, the Federal Government came to
6 Monsanto, seeking information about what had
7 happened in the studies it was investigating, did it
8 not?

9 A. Even before that. The question of which
10 studies that FDA was going to have a right to look
11 at was open to some -- I don't -- that was a legal
12 decision, which ones they could look at. So, we
13 knew that was taking place before.

14 Q. Were you involved at all in dealing with
15 the Government people who were investigating that?

16 A. No, sir.

17 Q. Even though they dealt with studies done
18 for the medical department or under your direction?

19 A. No, sir.

20 Q. You had nothing to do with it?

21 A. Not a thing.

22 Q. When was it that Dr. Wright's work was
23 taken out from under your supervision? Only at the
24 point he was indicted?

25 A. Yes.

1 Q. From the time of his indictment forward,
2 did he perform any work for Monsanto?

3 A. No, sir.

4 Q. Did he remain on your payroll?

5 A. He was on leave of absence; so, he was
6 paid.

7 Q. But on your payroll?

8 A. I'm sure it was.

9 Q. Under your budget?

10 A. Under my budget.

11 Q. Did he receive any increases in salary
12 while he was under indictment?

13 A. No, sir.

14 Q. Was he asked to perform any work?

15 A. No, sir.

16 Q. Was your budget charged with the legal fees
17 that Monsanto paid for Dr. Wright?

18 A. No, sir.

19 Q. Was that matter discussed?

20 A. No, sir.

21 Q. Whose budget was charged with the legal
22 fees that Monsanto paid for Dr. Wright?

23 A. I don't know.

24 Q. You are aware of the fact that Dr. Wright's
25 legal fees were paid for by Monsanto?

1 A. I was told that it was.

2 Q. Did you have any opinion to offer about
3 that?

4 A. No, sir.

5 Q. If you had been asked, would you have
6 recommended that Monsanto pay his legal fees?

7 A. I would ask for a precedent of what other
8 people -- how that had been done if there ever had
9 been any other circumstances. But I wasn't asked.

10 Q. Are you aware of any other circumstances at
11 Monsanto where it's ever paid legal fees for
12 somebody accused of a felony?

13 A. No, but I'm not very high in the
14 organization to know about such things.

15 Q. I see. Did you work with the lawyers
16 retained by Monsanto to represent Monsanto itself in
17 the investigations?

18 A. No, sir.

19 Q. Who did they coordinate with in your
20 department?

21 A. They -- they didn't work with our
22 department at all. George Livinscus was a part of
23 the investigation. Whether that was IBT or whether
24 it was -- involved George, I haven't the
25 slightest -- or Paul, I don't have any knowledge. I

1 wasn't told, and I wasn't -- I was told not to get
2 involved.

3 Q. They tried to keep all this from you?

4 A. They told us not to get involved.

5 Q. But Dr. Livinscus was involved?

6 A. Only because he was -- because they had
7 asked for his --

8 Q. "They" who?

9 A. Whoever was doing the investigation in
10 Chicago.

11 Q. The lawyers retained by Monsanto or the
12 Government?

13 A. I -- I don't know.

14 Q. I see. Were you aware of the fact that
15 Kirkland & Ellis in Chicago represented Monsanto in
16 connection with these investigations?

17 A. I know that name was involved.

18 Q. And are you aware of the fact that Wilmer,
19 Cutler & Pickering in Washington, D.C., was retained
20 to represent Dr. Wright and paid for by Monsanto?

21 A. I know that his was paid for, and I didn't
22 know it was paid for. I might have heard it
23 sometime, but it didn't mean anything to me.

24 Q. Did you know it was Wilmer, Cutler &
25 Pickering in Washington?

1 A. No. I say I may have been told; and since
2 it didn't mean anything to me, I -- it wasn't
3 something I would -- I would recall.

4 Q. Who was it that directed you not to get
5 involved in this investigation?

6 A. Personnel.

7 Q. Who?

8 A. I don't recall. I would -- my guess would
9 be, if I had to say, would be Bob Shirley.

10 Q. Who is Bob Shirley?

11 A. He's our personnel man that was within our
12 environmental policy staff.

13 Q. Didn't it seem to you important for you, as
14 the medical director of Monsanto, to know what was
15 going on and to get to the bottom of this problem?

16 A. I was told not to get involved.

17 Q. Well, didn't it seem important to you that,
18 given your position as medical director, you needed
19 to be involved and you needed to know what was going
20 on?

21 A. I can't -- I don't know how to answer that
22 question.

23 Q. Well, did you raise any objection --

24 A. No.

25 Q. -- to the suggestion or directive that you

1 not be involved and you not find out what was going
2 on?

3 A. No, I did not.

4 Q. Did you ever talk with Dr. Livinscus about
5 his role in the investigation and what he found out?

6 A. I did not.

7 Q. Was Dr. Livinscus essentially given a leave
8 of absence to help with this investigation --

9 A. No, sir.

10 Q. -- while it was ongoing?

11 A. No. He was -- he would go up there and do
12 whatever they did and -- I suppose testimony or
13 something or discuss it -- and he would come back
14 the next day, and that would be it.

15 Q. To your knowledge, your budget wasn't
16 charged with any of these expenses connected with
17 this investigation?

18 A. It was not.

19 Q. Was that a matter that you were involved
20 in, making sure that did not happen?

21 A. No, sir. All I would just know is I didn't
22 have any money in there to do that, nor did I know
23 how much was -- all that is, I didn't know.

24 Q. Did anybody from the medical department
25 monitor the trial that took place?

1 A. We were not permitted to.

2 Q. Who prohibited you from observing the trial
3 and learning the evidence with regard to Monsanto's
4 and IBT's conduct in these studies?

5 A. It was out of -- I had no authority since I
6 didn't pay for it. If I had been using that --
7 Monsanto -- out of my budget, I might have had some
8 authority; but it was not in my province. It was
9 not in my authority or responsibility, and I was
10 told I wasn't to be involved in it.

11 Q. Who told you that nobody from the medical
12 department could monitor the trial to see what the
13 problems were?

14 A. Personnel.

15 Q. Who?

16 A. Bob Shirley.

17 Q. So, nobody in Monsanto's medical department
18 was allowed to have firsthand information about the
19 evidence that came out in the IBT trial; is that
20 correct?

21 A. Yes.

22 Q. Were you ever permitted to review the
23 evidence that came out by reading transcripts or
24 anything like that after it took place?

25 A. No, sir.

1 Q. So, the only source of information you were
2 ever permitted to have about the evidence that came
3 out in that trial was what you could read in the
4 public press?

5 A. Yes.

6 Q. Were you instructed not to read the public
7 press documents on it?

8 A. No, sir. No, sir.

9 Q. Did you have enough interest in it to read
10 those documents?

11 A. Yes.

12 Q. Did you read the articles that came out in
13 the scientific literature? And I'm not talking
14 about the newspapers now; I'm talking about in the
15 scientific literatures, like "Science" magazine?

16 A. No.

17 Q. Why not?

18 A. I don't read "Science."

19 Q. Were you aware of the fact that articles
20 came out in "Science" on the IBT matter?

21 A. I would suspect that someone gave me from
22 one time or another something to read on them, but I
23 don't recall them.

24 Q. Were you interested enough in the problem
25 and what impact it might have on the studies that

1 had been done by Monsanto at IBT to want to know
2 what the evidence was?

3 A. I would liked to have known.

4 Q. Did you ever request permission to find out
5 what the evidence was?

6 A. No, sir.

7 Q. You just took your orders?

8 A. Yes, sir.

9 Q. Did Mr. Shirley or anybody else ever
10 provide you with a summary of what the evidence was
11 so you could evaluate the effect of the evidence
12 that came out on the validity of work done by IBT
13 for Monsanto?

14 A. No, sir.

15 MR. LACEY: Why don't we go ahead and
16 take a lunch break?

17 MR. FRUEHWALD: All right.

18 THE VIDEOGRAPHER: We are now going
19 off the record. The time is 12:09 p.m.

20 (Noon Recess)

21 THE VIDEOGRAPHER: We are now back on
22 the record. The time is 1:02 p.m.

23 Q. (By Mr. Lacey) Dr. Roush, when the first
24 investigations regarding IBT began, did you know who
25 was being investigated, what individuals?

1 A. No, sir.

2 Q. Did you ever understand prior to the
3 indictment that the investigation focused on a
4 former employee of IBT who was working at Monsanto?

5 A. I can't tell you just when I became aware
6 of that.

7 Q. So, you're not sure if you became aware of
8 that before the indictment or not?

9 A. No.

10 Q. You're not sure?

11 A. I'm not sure.

12 Q. When the investigation about IBT began, you
13 were aware of the fact that Dr. Wright was a former
14 IBT employee who was working for Monsanto?

15 A. Yes, sir.

16 Q. And you recognized that he would be a
17 source of information about what the situation at
18 Monsanto was, did you not?

19 A. I wasn't sure just where Paul Wright fit
20 into that.

21 Q. Well, prior to being instructed by people
22 at Monsanto not to talk with anybody about the IBT
23 matter, did you ask Dr. Wright any questions about
24 what happened at IBT or what might be going on that
25 would lead to the investigation?

1 A. No, sir.

2 Q. Is that because you just never thought
3 about asking that question, or were you instructed
4 almost immediately not to talk with anyone?

5 A. I had no idea what was taking place there
6 at IRT and what was the -- early in the phase of
7 this, what the problem was. The investigation had
8 been going on on IRT by FDA, and I had known about
9 the name Adrian Gross as being one of the primary
10 people about -- and I had known him previously.

11 Q. How had you known Mr. Gross?

12 A. Oh, I knew he was involved in some other
13 studies that I -- I knew he was -- worked for FDA
14 and had some responsibility in supervising similar
15 things -- laboratories like IRT.

16 Q. What type of matters had you previously
17 worked with Mr. Gross on?

18 A. I hadn't worked with him at all. I had no
19 contact with him.

20 Q. I see.

21 A. I had just known the name, Adrian Gross.

22 Q. How had you previously known the name?

23 A. I have read it someplace, and I can't
24 recall where I had read it.

25 Q. Did you --

1 A. But I -- when he was there, I recall the
2 name; and I still recall the name, Adrian Gross.
3 And that's all.

4 Q. Did you recognize that, in addition to
5 Dr. Wright, you had other employees working for you
6 in the medical department who were former IBT
7 employees?

8 A. No, sir.

9 Q. You were not aware of the fact that
10 Mr. Reyna was a former IBT employee?

11 A. No, sir.

12 Q. Is this the first time you've ever heard
13 that?

14 A. Yes.

15 Q. And I guess I'm a little unclear about
16 whether at any point in time before the indictment
17 you contemplated talking with someone who knew about
18 IBT or whether you were instructed before that time
19 would have arisen not to talk about it.

20 A. I did not talk to anyone about it. We did
21 talk about the fact that IBT was under
22 investigation, but we weren't sure what it was all
23 about and why it was taking place.

24 Q. Who did you talk with about that?

25 A. People in our department, and that's all.

1 Q. Did you talk with Paul Wright about that?

2 A. No.

3 Q. All right.

4 A. Not that I recall.

5 Q. Why not?

6 A. I can't answer that.

7 Q. I mean, he would certainly seem to be a
8 logical person to talk to about investigations of
9 IBT, wouldn't he?

10 A. You see, I didn't think of Paul as being a
11 part of IBT since he came to us before.

12 Q. I see. When the decision was made to
13 terminate Paul Wright, were you aware of the
14 decision before it was announced to him?

15 A. Yes.

16 Q. Were you aware of the --

17 A. I don't know. I don't know when he was
18 told. I don't know how -- I didn't tell him that he
19 was terminated.

20 Q. I understand. What I'm trying to find out
21 is whether or not you knew that was going to take
22 place prior to the time that he was told.

23 A. I don't know when he was told; so, I really
24 can't answer that question.

25 Q. Okay. Do you know why he was terminated?

1 A. I was told that he was terminated because
2 he was convicted of a felony, and we wouldn't want a
3 man with a felony working at Monsanto.

4 Q. Did you ever see any documentation for
5 purposes of your files regarding that termination?

6 A. I don't recall anything in my file. The
7 personnel files are kept by personnel. And
8 personnel, in our function, is bigger than my
9 department. So, he has other responsibilities, as
10 well.

11 Q. Do you recall what Mr. Wright's salary was
12 at the time he left Monsanto?

13 A. No, I would not. The only thing I've got
14 is what we were talking about this morning. That
15 gave me some idea. And when I looked at that in
16 preparation for this, I didn't even look to see what
17 the salary was. I didn't think that way.

18 Q. Do you know whether or not Mr. Wright
19 received any severance pay from Monsanto?

20 A. My impression, he did not.

21 Q. Do you know what Mr. Wright is doing since
22 he left Monsanto?

23 A. He asked me for a letter of recommendation
24 a couple of weeks ago.

25 Q. To whom?

1 A. To whom it concerned.

2 Q. I see.

3 A. And he -- my impression, that he's
4 teaching -- and I'm not sure what he's teaching --
5 at one of the city colleges in St. Louis.

6 Q. Did you give him a letter of
7 recommendation?

8 A. Yes.

9 Q. A good letter?

10 A. Yes.

11 Q. Did you mention in the letter anything
12 about his prior problems?

13 A. No, I didn't mention that. I was talking
14 about his technical capability. That's what I
15 addressed.

16 Q. I see.

17 A. It was a very short letter, too, I might
18 add.

19 Q. I understand.

20 A. And it was approved by Monsanto.

21 Q. Who approved it?

22 A. I don't know.

23 Q. Well, who did you send it to to get
24 approval?

25 A. It went to personnel.

1 Q. Is that Mr. Shirley?

2 A. No. Went through Mr. Pete Morrow.

3 Q. Is that Mr. Shirley's replacement?

4 A. He works for Mr. Shirley.

5 Q. I see. Had you ever been asked for a
6 letter of recommendation by Mr. Wright until the
7 last couple of weeks?

8 A. No, sir.

9 Q. This is the first request?

10 A. (Witness nods head)

11 Q. Did you talk to Mr. Wright -- or
12 Dr. Wright?

13 A. On the phone.

14 Q. What did he tell you?

15 A. He just said, "I'm looking for a job. I
16 need a letter of recommendation."

17 Q. Did he mention how he happened to call you
18 for a letter of recommendation?

19 A. No, sir.

20 Q. Had you been advised that he would be
21 calling, and were you expecting his call when it
22 came?

23 A. No, sir.

24 Q. When you talked to Mr. Morrow, was he
25 surprised that Dr. Wright had called for a letter of

1 recommendation?

2 A. He didn't appear to be.

3 Q. Let me show you Document 58742, which is a
4 form that was filled out. I assume that this is
5 Mr. Shirely's signature at the bottom. I want to
6 make sure if that, in fact, is Mr. Shirley's
7 signature.

8 A. That's Mr. Shirley's signature.

9 Q. This is the person who was responsible for
10 handling the personnel matters associated with the
11 medical department?

12 A. Yes.

13 Q. Is this the same Mr. Shirely who had
14 indicated to you you should not attempt to find out
15 what was going on with the IRT matter?

16 A. Either he or Pete Morrow was the one that
17 told me about it.

18 Q. Is that Mr. Shirely's handwriting on the
19 form?

20 A. Yes.

21 Q. What does that form indicate
22 Mr. Wright's -- Dr. Wright's salary was at the time
23 he left Monsanto?

24 A. Fifty-five thousand.

25 Q. And is that consistent with what you recall

1 being the last recommendations you made for his
2 salary?

3 A. I don't recall.

4 Q. What does Mr. Shirely indicate were the
5 reasons that Dr. Wright was terminated by Monsanto?

6 A. He states, "Engaging activities detrimental
7 to Monsanto's interest."

8 Q. What activities are you aware of that
9 Dr. Wright had engaged in detrimental to Monsanto's
10 interest?

11 A. Felony.

12 Q. Well, if someone had been convicted of
13 failing to file a tax return, that was a felony.
14 Would that be adverse to Monsanto's interest?

15 A. I can't answer that kind of question.

16 Q. You don't know what it was about
17 Dr. Wright's activities that were adverse to the
18 interest of Monsanto?

19 A. He was terminated for the felony, as far as
20 I was told.

21 Q. Okay. You don't know whether the fact that
22 the matters he was convicted on had to do with
23 studies performed on Monsanto products had anything
24 to do with that?

25 A. No, sir.

1 Q. Thank you.

2 Before we started up after the lunch
3 break, I handed you three magazines that have
4 articles in them relating to IRT and asked you to
5 take a look at them to see if that refreshed your
6 recollection about having seen the articles.

7 Let me ask you first about the article
8 that appeared in the "Amicus Journal" in the spring
9 of 1983, beginning at Page 14 of that journal,
10 entitled "Faking it: The Case Against Industrial
11 Biotech Laboratories."

12 Had you seen that article before?

13 A. No. I don't recall having seen it.

14 Q. Let me ask you next about the -- no. I'm
15 sorry -- the June 10th, 1983, issue of "Science"
16 magazine, the article appearing at Page 1130 and
17 following, entitled "The Murky World of Toxicity
18 Testing. Four scientists are on trial for fraud in
19 a case that has cast doubt on the safety of 200
20 pesticides on EPA's monitoring procedures."

21 Had you read that article before?

22 A. Not that. It could have been xeroxed, and
23 I might have read it that way. That's the way I
24 would have read it if I had at all.

25 Q. Okay. I understand. I really wasn't so

1 concerned about whether you had the original
2 magazine in your hand versus a xerox ---

3 A. I'm also not sure I read that because
4 the -- similar things were published other places.
5 So, I may not -- I don't think I read that. I think
6 I read an abridged version of that someplace.

7 Q. An abridged version?

8 A. Yes. It was a shortened form of -- it was
9 something less than a page, as I recall having read
10 something about that.

11 Q. But containing the same type of
12 information --

13 A. Yes.

14 Q. -- that is in the article that appeared in
15 the June 10th, 1983 --

16 A. Yes.

17 Q. -- volume of "Science"?

18 A. Yes.

19 Q. From your review of the article that does
20 appear in the June 10th, 1983, volume of "Science,"
21 do you believe the abridgement was done by taking
22 out sections?

23 A. I suspect so. That's what we would abridge
24 it.

25 Q. Okay. Did the abridgement contain the

1 paragraph that began, "A particularly sensitive
2 question is the degree which Monsanto was aware of
3 what was happening"? Do you know if that paragraph
4 that begins -- the first full paragraph at Column 2
5 on Page 1131 was in the abridgement that you
6 received?

7 A. That's starting, "While TCC has in
8 Monsanto" --

9 Q. No. The second column on that page --

10 A. Okay.

11 Q. -- first full paragraph at the top --

12 A. Yes.

13 Q. -- it begins right above the picture of
14 Dr. Calandra.

15 Was that paragraph in the abridged
16 version that you got?

17 A. I don't recall.

18 Q. I see. Did you read in the abridged
19 version that you got the next paragraph in the
20 middle column on Page 1131, which talks about
21 Monsanto having IBT changing the wording on some
22 studies regarding PCB's?

23 A. No, that -- I didn't see that. I know
24 that. I don't recall seeing that part of that.

25 Q. When did you first become aware of the fact

1 that Monsanto asked IOT to change the wording on
2 some of its reports --

3 MR. FRUEHWALD: I'm going to object --

4 Q. (By Mr. Lacey) -- regarding PCB's?

5 MR. FRUEHWALD: I'm going to object to
6 the form of the question. I don't think there's
7 evidence that that has been done.

8 MR. LACEY: I see.

9 MR. FRUEHWALD: Your characterization
10 of what the situation is is not acceptable to -- at
11 least to me, from what I know about the situation.

12 MR. LACEY: I see. Well, maybe you
13 don't know enough about the case. Were you present
14 or did you read Dr. Livinscus' testimony?

15 MR. FRUEHWALD: Yes, I read the
16 deposition.

17 Just -- this is argument that you're
18 making here, Dave. And I disagree with the
19 argument.

20 You can go ahead and ask some factual
21 questions; but your characterization of other
22 testimony and things of that nature, I object to.
23 This witness is here, sworn to tell the truth on
24 facts, not on -- responding to your arguments.

25 Q. (By Mr. Lacey) Did Monsanto personnel

1 reporting to you in the medical department ask IBT
2 to change the wording on some of its studies
3 regarding PCB's?

4 A. Our general rule is that when a report is
5 written, we contact each one of the contracting
6 agencies and ask them if that's what they meant to
7 say. And we will bring up things where we think are
8 inconsistent. We'll bring up things where we think
9 that their -- their conclusions or their premises on
10 which they did the study can be wrong. There's a
11 whole host of things that we deal with, every one of
12 of our studies. But we don't -- we don't attempt to
13 change the facts that printed. All we do is to make
14 sure that they have what information they need to
15 write a correct report.

16 Q. I don't think that was responsive to my
17 question. My question is: Did someone in the
18 medical department of Monsanto, reporting to you,
19 ask IBT to change the wording on one or more of its
20 studies relating to PCB's?

21 A. I have reviewed what the documents were --
22 that Livinscus had -- but I did that on Saturday --
23 all of what's from Livinscus. And the
24 interpretation of making it consistent across all of
25 the studies that were done was one thing I recall

1 as -- as saying, "Shouldn't they be all the same?"

2 Q. Are you saying that you did ask -- your
3 employees did ask IBT to change the wording?

4 A. No. To -- asked them to be consistent.
5 And if they wanted to be consistent, that was their
6 decision.

7 Q. I see. So, it's your testimony, if I
8 understand correctly, that nobody ever asked anybody
9 to change the wording; all you asked was, "Be
10 consistent"?

11 A. We also will make -- and I can't answer on
12 this one. Our general rule is -- is we will put
13 down what we think is a suggested writing that we
14 think better addresses what they have said to be the
15 case.

16 Q. Let me stop and ask you about that for a
17 moment. What Monsanto originally received from IBT
18 said that the PCH's were slightly tumorigenic?

19 A. Yes.

20 Q. Now, the fact of the matter is a review of
21 the slides of the livers of the rats in question
22 showed more than just slight tumorigenesis, didn't
23 it?

24 A. I would have to refresh my memory on what
25 they said. I don't recall specifically. I know it

1 did refer to them being slightly tumorigenic.

2 Q. No. I know. I'm sorry. That's not my
3 question. My question is not what their report
4 said.

5 A. Yes.

6 Q. My question is what the facts were.

7 You went to IBT and looked at slides
8 of those rat livers, didn't you?

9 A. Yes, sir.

10 Q. And they showed more than just slight
11 tumorigenesis, didn't they?

12 A. The definition what "slight" means.

13 Q. Well, didn't you tell me before the lunch
14 break that you wouldn't characterize it as just
15 "slight"?

16 A. If --

17 Q. You did, didn't you?

18 A. Yes.

19 Q. Okay. Now --

20 A. But there's still the problem what I mean
21 by "slightly," and I had problems in saying what I
22 meant by "slight."

23 Q. Well, let's put it this way: The words
24 that you used in answering my question before we
25 took lunch -- and I asked you specifically about

1 whether you would say "slight" --

2 A. You did.

3 Q. -- and you said, no, you would not,
4 correct?

5 A. That's right.

6 Q. Now, what EBT initially suggested to
7 Monsanto they would say about those very same livers
8 was "slight tumorigenesis" --

9 A. Yes.

10 Q. -- isn't that correct?

11 A. Yes.

12 Q. Which is a less strong statement than you
13 felt was warranted by looking at the livers
14 yourself, correct?

15 A. Yes.

16 Q. And in view of that, nevertheless,
17 Dr. Livinscus suggested that the language of the
18 report should be changed to delete the reference to
19 "slight tumorigenesis" and replace it with "no
20 evidence of carcinogenesis," correct?

21 MR. FRUEHWALD: Let me object to the
22 question as being assuming a fact not in evidence.
23 The letter speaks for itself as to what it said, and
24 it didn't say that. No matter how many times you
25 say it, the letter doesn't say it.

1 MR. LACEY: I see.

2 Q. (By Mr. Lacey) Do you want to answer the
3 question on what happened?

4 A. When we talk about "tumorigenic" and
5 "carcinogenic," they're two different subjects. And
6 to say that they're not carcinogenic is saying that
7 they're slightly tumorigenic. It's two different --
8 it's a different interpretation completely.

9 Q. Let's set that one aside for a second.
10 What I'm trying to find out is: Dr. Livinscus
11 suggested to IHT they delete the reference to
12 "slightly tumorigenic"?

13 A. In one of them.

14 Q. Isn't that correct?

15 A. The other ones had already said, "We're not
16 carcinogenic."

17 Q. Doctor, the proposed report from IHT was
18 that PCB's are slightly tumorigenic, correct?

19 A. In one of those tumors. In one of them.

20 Q. Let's talk about that report that was
21 changed. I want to focus on that report --

22 A. All right.

23 Q. -- that you and I both agree was changed.
24 Okay?

25 A. Yes, sir.

1 Q. The report proposed by IRT was that the
2 PCH's were slightly tumorigenic --

3 A. Yes.

4 Q. -- correct?

5 A. Yes.

6 Q. It said nothing about there being no
7 carcinogenesis, correct?

8 A. Yes.

9 Q. And your own review, had you reviewed the
10 slides, would not have been "slight tumorigenesis,"
11 but rather "tumorigenesis" --

12 A. Yes.

13 Q. -- correct?

14 Now, when Dr. Livinscus, who worked
15 directly for you --

16 A. Yes.

17 Q. -- got that report, he wrote back to IRT
18 and suggested they delete any reference to "slight
19 tumorigenesis," correct?

20 MR. FRUEHWALD: The letter -- I'm
21 going to object. The letter speaks for itself. If
22 you want to show the witness the letter so he can --
23 rather than recall, let's do that.

24 The letter speaks for itself. No
25 matter how many times you have witnesses try to

1 recall it, the letter is going to speak for itself,
2 Dave.

3 Q. (By Mr. Lacey) I want to know the
4 substance of what happened. And if you don't know,
5 you can just say you don't know. Feel free to say
6 you don't know; but if you know, I want you to tell
7 me, in your own words, exactly what happened.

8 A. I wasn't involved in the actual writing of
9 that letter or the -- why the letter was written.
10 That was Livinscus who wrote it.

11 But if I had done it, I would have
12 done the same thing.

13 Q. And what he asked them to do was to delete
14 any reference to "tumorigenesis," correct?

15 A. No, sir.

16 Q. Didn't you just tell me that -- strike
17 that.

18 MR. FRUEHWALD: Why don't you show him
19 the letter, David, rather than asking for recall?
20 I mean --

21 MR. LACEY: No. I'm trying to --

22 MR. FRUEHWALD: This is getting to be
23 absurd to -- what he -- what the letter said when
24 you've got it in front of you. Why don't you show
25 it to him?

1 MR. LACEY: It's not absurd at all.
2 I'll conduct the examination the way I want to.

3 MR. FROEHWALD: Well, it's unfair.

4 MR. LACEY: It's not unfair.

5 Q. (By Mr. Lacey) Didn't you just tell me
6 that "tumorigenesis" and "carcinogenicity" are two
7 different things?

8 A. They're a continuum.

9 Q. You can have a tumor that's carcinogenic or
10 noncarcinogenic, can't you?

11 A. That's right.

12 Q. All right. And to say that you have a
13 tumor, you're partway down that continuum toward
14 cancer, aren't you?

15 A. Yes. Maybe.

16 Q. Now, the report that IBT proposed to put
17 out said that there was some tumors there, didn't
18 it?

19 A. Yes.

20 Q. That's partway down the road to cancer?

21 A. Yes. Maybe.

22 Q. What Dr. Livinscus recommended was that
23 that reference to tumors, or being partway down the
24 road to cancer, be deleted, wasn't it?

25 A. No, sir.

1 MR. FRUEHWALD: Now, you've got your
2 answer, David.

3 MR. LACEY: Fine.

4 MR. FRUEHWALD: All right. You don't
5 like it, but you've got it.

6 MR. LACEY: That's fine. That's
7 fine. I'll deal with that in a minute.

8 Q. (By Mr. Lacey) Dr. Livinscus suggested
9 that they put in that there was no evidence of
10 carcinogenicity, correct?

11 A. Yes, sir.

12 Q. Okay. And it's your understanding that it
13 was his intention to leave in the reference to the
14 tumors, the reference that would be -- indicate you
15 were potentially partway down the road to cancer,
16 correct?

17 A. Ask that question again.

18 Q. It's your understanding that Dr. Livinscus
19 suggested to IIT they leave in the reference to
20 tumors but just add a reference, "no cancer"?

21 A. Yes.

22 Q. Okay. Okay. Do you know who at Monsanto
23 took the lead in dealing with Dr. Kimbrough's
24 observations, the relationship between PCB's and
25 bladder cancer?

1 A. Livinscus was there when that subject was
2 discussed.

3 Q. Do you know if he's the person who was
4 responsible for that?

5 A. (No response)

6 Q. For those discussions on behalf of
7 Monsanto.

8 A. Yes.

9 Q. When you got to Monsanto, you became
10 familiar with the PCB problem, did you not?

11 A. What PCB problem?

12 Q. The problem of PCB toxicity and what
13 effects it might cause.

14 A. There's a whole range of things we're
15 talking about. Are you talking about environmental;
16 are you talking about occupational exposures; are
17 you talking about toxicology, experimental
18 toxicology? Which one?

19 Q. Did you make yourself familiar with the
20 experimental toxicology on PCB's after you came to
21 Monsanto?

22 A. I went over the IRT studies. I was a part
23 of that.

24 Q. Did you -- did you go into the Kimbrough
25 studies on bladder cancer?

1 A. No.

2 Q. Okay. You never reviewed that matter?

3 A. No.

4 Q. Okay. So, you know nothing about any
5 explanation or anything that would suggest why those
6 studies are incorrect; is that right?

7 A. I -- when you say -- it has something to do
8 with the depth of involvement. I knew about her
9 having some concerns about the bladder cancers.

10 Q. You learned about that after you came to
11 Monsanto?

12 A. Yes.

13 Q. How did you learn about that?

14 A. From Livinscus.

15 Q. He told you about that problem?

16 A. Yes.

17 Q. Did he tell you he'd gotten it handled?

18 A. No. It wasn't handled.

19 Q. Did anybody ever do anything to counteract
20 that?

21 A. No.

22 Q. Did you ever make an effort to determine
23 whether or not there was any evidence of exposure of
24 Monsanto workers to PCB's in their occupation?

25 A. The program was ongoing, and I didn't get

1 involved with what the industrial hygienists were
2 doing.

3 Q. Did Monsanto conduct blood studies of its
4 employees?

5 A. Yes.

6 Q. Did you ever determine what those studies
7 showed?

8 A. No.

9 Q. So, you do not know whether or not the
10 studies suggested there were any occupational-type
11 exposure levels in Monsanto employees?

12 A. That would be done by industrial hygiene.

13 Q. And you don't know what the results were?

14 A. No.

15 Q. Let me ask you to look at a Document 15 --
16 I'm sorry. Let me ask you to look at a Document
17 53021, which is also Plaintiff's Exhibit 1431 in
18 this case.

19 A. (Witness complies)

20 Q. I believe that's a document that reports on
21 blood sample levels.

22 A. Yes.

23 Q. As a medical doctor, are you able to tell
24 that's what it has, is information on blood sample
25 levels?

1 A. Yes.

2 Q. Do those levels there shown reflect any
3 occupational exposure?

4 A. No, they do not.

5 Q. Are those blood samples that, according to
6 that document, were taken from Monsanto employees?

7 A. Yes. But this was done in 1972, and I
8 probably wouldn't accept their methodology as being
9 accepted. Today that wouldn't be accepted.

10 Q. I see.

11 A. So, the level of sensitivity wasn't very
12 good. You see, what we need is to have the
13 sensitivity in the method; and that's not here.

14 Q. I see. So, that's not a very meaningful
15 report?

16 A. Doesn't mean anything.

17 Q. Okay. Do you know whether or not any
18 studies were ever conducted that had the appropriate
19 level of sensitivity in order to determine whether
20 Monsanto employees who had worked with PCB's showed
21 occupational-type exposures?

22 A. We did not because we got out of the
23 business in '76. And that's about the time when
24 methods just began to start to improve.

25 Q. Did you ever conduct any studies on

1 employees who had worked in the process before you
2 got out of it to see what their levels showed?

3 A. No, sir, we did not.

4 Q. So, Monsanto has no evidence of a
5 scientific nature to show whether or not any of
6 their employees ever experienced levels of exposure
7 to PCB's above what they might get in the
8 environment; is that correct?

9 A. We -- we took industrial hygiene
10 measurements and measured their exposure; but that's
11 all, the industrial hygiene studies.

12 Q. And that doesn't answer the question of
13 what got into their bodies, if anything, does it?

14 A. Well, they're measuring the same thing.
15 One is a better measure than the other.

16 Q. Which is the better measure; what's in
17 their body?

18 A. What's in their body.

19 Q. Let me show you a Document 58445,
20 Plaintiff's Exhibit 1455, a memo from Paul Wright to
21 you, dated October 15th, 1973.

22 A. Yes, sir.

23 Q. Was that memo written to you shortly after
24 you came on board at Monsanto?

25 A. I joined them in March. This was October.

1 Q. Was that part of -- memo written to you as
2 part of the process on bringing you up to speed on
3 the PCB problem?

4 A. Yes. I'm a little bit surprised why I was
5 on the addressee alone.

6 Q. Well --

7 A. And I'm not sure why it was addressed to me
8 in that way.

9 Q. In the ordinary course of business, you
10 wouldn't be receiving routine memos from Paul Wright
11 addressed directly to you; is that correct?

12 A. Yes, I would. Oh, yes. I would get -- I
13 get -- I would be getting frequent memos from --
14 from Paul on things that he thought I was interested
15 in.

16 Q. Maybe I didn't ask my question well. The
17 normal reporting chain for Paul would be to report
18 to Dr. Livinscus, who, in turn, would report to you;
19 and you might receive cc's of his memos?

20 A. At that time, you see, Livinscus, I think,
21 was reporting to Wheeler. So, it was --

22 Q. And Paul Wright was reporting directly to
23 you?

24 A. No, no. He was reporting to Livinscus, who
25 was reporting to Wheeler.

1 Q. Who was, then, reporting to who?

2 A. To Kelly. And I was kind of a bystander.

3 Q. I see.

4 A. I was trying to learn what was going on,
5 and it could well be that I was talking to him about
6 this study and this was a way of -- of bringing me
7 up to date.

8 Q. Did you understand from the memo that
9 Dr. Wright wrote to you that he had been involved in
10 the -- at IRT in the testing program that he
11 describes in the memo?

12 A. I didn't draw that conclusion from that.

13 Q. No, no. My -- that's not my question.

14 Were you aware of the fact that Paul
15 Wright --

16 A. Had worked on the Aroclors?

17 Q. -- had worked on those studies at IRT?

18 A. I didn't know that. And I hadn't known it.

19 Q. I see. When did you first learn that?

20 A. I didn't ever know it.

21 Q. You never know that? First time you've
22 ever --

23 A. The one that I know he was working on was
24 on TCC.

25 Q. I see.

1 A. And that's all.

2 Q. Did you ever inquire of Paul Wright what
3 studies he had worked on at ERT for Monsanto?

4 A. No, sir.

5 Q. Would you agree that abnormal liver
6 function tests would be a possible indicator of
7 exposures to PCB's?

8 A. If they were related. If it was related
9 to -- if there was obvious exposure to PCB's. And
10 all I mean is -- "obvious" means that there was
11 PCB's there. And --

12 Q. Well --

13 A. -- if there were abnormalities in liver
14 function tests is -- I would have difficulty saying
15 they weren't, but they could well be that the man
16 was drinking or had all kinds of things.

17 Q. Well, would there have to be PCB's in the
18 blood as well as abnormal liver function tests
19 before they could be indicative of exposure to
20 PCB's?

21 A. Well, the PCB's would -- level would tell
22 me whether he was exposed to PCB's.

23 Q. Well, that's my question.

24 If there are no detectable PCB's in
25 the blood but abnormal liver function tests, could

1 those abnormal liver function tests be indicative of
2 exposure to PCB's?

3 A. No.

4 Q. Let me show you a memo dated November 6th,
5 1974, by Dr. R. D. Orsland, O R S L A N D, to
6 P. E. Heisler with copies to Dr. Kelly and others.
7 Who was Dr. Orsland?

8 A. I don't know.

9 Oh, "Osland."

10 Q. "Osland." I'm sorry.

11 A. O S L A N D.

12 Q. Yes. Who is Dr. Osland?

13 A. He was our contract doctor, who came in
14 part time and monitored the health of the workers at
15 Krummrich.

16 Q. This memo is 53023, Plaintiff's Exhibit
17 1489. Take a moment and review that memo, please.

18 MR. FRUEHWALD: While he's reviewing
19 that, could I see the last one he looked at,
20 please? These are documents that I have not seen.
21 If you're -- when you're done with them, if I can
22 take a look at them, I'd appreciate it.

23 Stack them right here for you.

24 A. (Witness complies) Well written.

25 Q. (By Mr. Lacey) Dr. Osland was concerned --

1 A. He's a practicing physician who -- who came
2 in and monitored these workers.

3 Q. Dr. Osland was concerned in the case of two
4 workers, whose names have been deleted from that
5 document. The abnormal liver function test could be
6 indicative of exposure to PCB's even though there
7 was no blood levels of PCB's detected; isn't that
8 correct?

9 A. Yes.

10 Q. You would disagree with Dr. Osland's
11 conclusion?

12 A. Well, you see, the problem is the
13 sensitivity of that PCB method -- it goes back to
14 the other one -- is that that was incorrect. And,
15 therefore, he was placing undue reliance on that
16 test that wasn't valid. That's all -- that's all
17 that really says.

18 Q. Well, do you agree or disagree with his
19 conclusions that those elevated liver functions may
20 be indicative of PCB exposure?

21 A. They may be, that's right.

22 Q. And you would agree with that conclusion
23 even though the blood testing done at that time
24 failed to show the presence of any PCB's in the
25 blood, correct?

1 A. Yes. And based on the premises, I didn't
2 think they were adequate.

3 Q. Do you recall accompanying anyone on a
4 walk-through inspection of the Krummrich plant PCB
5 facilities during your tenure as medical director?

6 A. No, I did not.

7 Q. Do you recall any walk-through reviews of
8 the Krummrich facility for manufacturing of PCB's
9 being done by governmental officials during your
10 tenure as medical director?

11 A. Yes.

12 Q. On how many occasions were those done?

13 A. They don't communicate all -- what takes
14 place in the plant is not communicated to us.

15 Q. How many are you aware of?

16 A. One.

17 Q. Let me show you a letter dated February
18 24th, 1975, from the Department of Health,
19 Education, and Welfare, Public Health Service,
20 addressed to you, along with an attachment, Document
21 20877 through 20881, Plaintiff's Exhibit 513, and
22 ask if that is the --

23 A. I pulled it off again.

24 Q. -- ask if that is the report that you
25 received of that walk-through inspection that you

1 recall.

2 A. Yes, this is one in which I knew the
3 walk-through had taken place when they were trying
4 to decide whether they wanted to do an epidemiologic
5 study on our work force.

6 Q. What was the question that caused that
7 to -- or why was it that became a question?

8 A. This is the question of whether PCB is a
9 carcinogen.

10 Q. And what was the purpose of conducting a
11 walk-through inspection with regard to that?

12 A. The purpose was to determine if a
13 population exists from which it could be feasible to
14 conduct a retrospect mortality study.

15 Q. Do you know what the conclusion was?

16 A. That wasn't worthwhile doing there.
17 I didn't finish it.

18 Q. Was a study done?

19 A. Not by -- not by NIOSH.

20 Q. Was a study ever done?

21 A. Yes.

22 Q. By whom was it done?

23 A. Judy Zach and the summer students.

24 Q. And at whose request was it done?

25 A. It was a follow-up -- it was my

1 recommendation.

2 Q. And why did you conclude that it would be
3 worthwhile to do?

4 A. Well, this came -- the reason we did it was
5 because of the Mobil study -- not a study --
6 impression that they had melanomas in the workplace
7 associated with -- possibly exposed -- result of an
8 exposure to PCB's.

9 Q. Melanoma is a type of skin cancer?

10 A. Yes. It's -- it's a pigmented cancer. The
11 brown pigment in the skin is melanin. So, it's a
12 tumor of the melanin-producing cells.

13 Q. Mobil had performed a study of its workmen
14 in a plant in New Jersey?

15 A. It was a laboratory.

16 Q. At a -- at a plant in New Jersey?

17 A. Yes.

18 Q. Where PCB's had been used?

19 A. In -- just how, I don't know; but there --
20 there was -- there was exposure to PCB's in that
21 work force.

22 Q. Do you know whether or not that's the same
23 plant that Elmer Wheeler visited and found PCB's
24 being used at improperly?

25 A. No, I haven't the slightest idea.

1 Q. Mobil reported that they found a
2 relationship between exposure to PCB's and skin
3 cancer, did they not?

4 A. They thought it was possible. They
5 called -- they called me and asked me whether I
6 thought that that was reasonable.

7 Q. You told them "no"?

8 A. I said I didn't know.

9 Q. Okay. And as a result of that, you decided
10 it would be appropriate to go ahead and conduct a
11 study of Monsanto's work force?

12 A. To see if we had any melanomas.

13 Q. One of the reasons that the center for
14 disease control concluded that it would not be
15 profitable to conduct a study of Monsanto's work
16 force was because of the very low levels of exposure
17 resulting from the procedures followed by Monsanto?

18 A. Yes.

19 Q. And obviously if you conduct a study on a
20 population that has no meaningful exposures, you're
21 not going to find any meaningful results from
22 exposure?

23 A. We had some exposure, but it wasn't a --
24 high enough to say that if we came out negative that
25 would mean there's no problem. At least that was

1 our impression.

2 Q. And that was the reason that no study was
3 conducted on Monsanto's work force by the CDC,
4 correct?

5 A. Yes.

6 Q. But later, after the Mobil study came out,
7 you thought it would be best to go ahead and conduct
8 your own study?

9 A. Yes.

10 Q. Did that study find any problems?

11 A. It -- there was some excess of cancer
12 and -- but the group was so small, it was hard to
13 draw much -- I don't think it was a significant
14 increase, but there was an excess.

15 Q. So, after you actually performed a study --

16 A. We had --

17 Q. -- there were some excess cancers?

18 A. Yes. But every epidemiologic study that's
19 done will have some excesses. Because when you have
20 deficits -- if you're going to have cancer at all,
21 they can't all be right on the line of what's
22 expected.

23 Q. And after you did the study, you concluded
24 it probably wasn't meaningful because of the size of
25 the group and the like?

1 A. Well, that's part of it. But at the same
2 time -- you never know -- we might have found some
3 melanomas. I can't say there's no melanomas -- no
4 melanomas until we look. And that's what we did it
5 for.

6 Q. You you did it to look for melanomas; you
7 didn't find that, but you found other cancers
8 instead?

9 A. Well, we found lung cancers there. And
10 whether that was related was another question.

11 Q. A question which you can't answer for us to
12 this day?

13 A. Well, yes. We've done follow-up studies on
14 that population. And we have an excess of lung
15 cancer in that whole Krummrich plant.

16 Q. I see.

17 A. So, it's not PCB's.

18 Q. What is it?

19 A. Well, the next thing we did is we compared
20 them. That was with the national population. And
21 then we compared it with the local population in
22 that area, and they have an excess. So, it's --
23 it's related to that; but we still had some excess.
24 And we're in the process of writing up a case
25 control study to look at this.

1 Q. Do you know whether the PCB's that were
2 discharged from that plant contributed to the
3 general geographic increase in lung cancer in the
4 area?

5 A. I would have no reason to think that it
6 did.

7 Q. You aren't able to rule that out either,
8 though, are you?

9 A. It never even made me think of the
10 possibility that PCB's was the cause of that. It
11 would have to be something that's airborne, and
12 PCB's weren't airborne.

13 Q. I see. The reason you say it would have to
14 be airborne is because you think the way lung cancer
15 would result is not from a systemic effect, but
16 rather --

17 A. Yes.

18 Q. -- From an inhalation?

19 A. (No response)

20 Q. Is that correct?

21 A. Yes.

22 Q. Let me show you a letter dated April 18th,
23 1975, from Dr. Calandra to you, Document 22745, with
24 the Attachment 22746 through 22750, and ask if that
25 is a letter that you, in fact, received from

1 Dr. Calandra.

2 A. Yes.

3 Q. It references, the letter, a meeting that
4 took place on April 18th, 1975; is that correct?

5 A. Yes, sir.

6 Q. Were you present at that meeting?

7 A. Yes.

8 Q. Where did that meeting take place?

9 A. At IBT.

10 Q. And what was the purpose of the meeting?

11 A. To have them explain to me why he didn't
12 find cancers and Kimbrough had found them.

13 Q. And that was a nagging question for you,
14 was it not?

15 A. That was my nagging question. I wanted an
16 answer to that.

17 Q. And Dr. Calandra thought that the answers
18 were not completely satisfactory; was that correct?

19 A. That's right.

20 Q. Did you agree?

21 A. Yes.

22 Q. And, then, the attachment is the summary of
23 Dr. Calandra's views on that matter; is that
24 correct?

25 A. It was to review what we discussed.

1 Q. It's a summary of his views, or what was
2 said, correct?

3 A. Of what was said, yes, sir.

4 Q. And is that an accurate representation of
5 what was discussed at the meeting?

6 A. I can't remember all of the things that
7 were here was a part of that discussion. But it
8 would be pertinent for that to be because one of the
9 first things is it related to the Kimbrough study.

10 Q. He also references in his letter a
11 willingness to be of help in any way that Monsanto
12 wishes. Do you see that in the second paragraph?

13 A. Yes, sir.

14 Q. And you did further call on IRT to help try
15 and clear up that problem, did you not?

16 A. Yes.

17 Q. For example, you called upon them to have
18 Drs. Gordon and Richter go to Atlanta and review the
19 Kimbrough slides, did you not?

20 A. I don't think I did.

21 Q. Did Monsanto?

22 A. It might have.

23 Q. Monsanto was paying for the work done by
24 IRT, were they not?

25 A. Yes.

1 Q. Including the review of slides and the
2 like?

3 A. Yes.

4 Q. Was it your custom to ensure that they only
5 did work and you only paid for work that you asked
6 them to do?

7 A. I would hope so.

8 Q. Do you mind if I come over and look over
9 your shoulder with you at the attachment to that
10 memo while we talk about it?

11 A. Sure.

12 Q. See if I can do that without pulling my
13 microphone off.

14 Let's see if we can look at this
15 together for a minute.

16 It indicates that the central issue is
17 whether or not PCB's are carcinogens or not?

18 A. Yes.

19 Q. You agree with that, do you not?

20 A. Yes.

21 Q. And he points out that several people
22 shared the view that the Industrial Biotech studies
23 indicate that PCB's do not cause cancer, correct?

24 A. Yes.

25 Q. And he points out, on the other hand, that

1 there's the study by Renata Kimbrough which suggests
2 that cancer was found?

3 A. Yes.

4 Q. In the last sentence in the second
5 paragraph on Page 22746 he says, "It should be noted
6 that the earlier allegations by Kimbrough that
7 bladder cancers developed in female rats fed PCB's
8 was successfully counteracted by Biotest and
9 Monsanto personnel."

10 A. Yes.

11 Q. Do you know what he's referring to there?

12 A. No, I don't.

13 Q. You don't know anything about how Biotest
14 and Monsanto personnel successfully counteracted
15 Kimbrough --

16 A. I don't know what he means by "successfully
17 counteracted," either.

18 Q. I see. You don't have any idea?

19 A. No.

20 Q. That wasn't something you-all discussed in
21 the meeting, how they had helped counteract
22 Kimbrough's previous work suggesting PCB's --

23 A. I'm not sure that's what we said; but if it
24 was, it wasn't a major portion of our discussion.
25 That wasn't the substance of our -- of our meeting.

1 Q. Okay. In the next paragraph he talks about
2 Kamura. Kamura is one of the Japanese scientists,
3 is he not?

4 A. Yes, sir.

5 Q. And he did studies on a PCB product,
6 correct?

7 A. Yes.

8 Q. Using rats?

9 A. Yes.

10 Q. And found that there were certain benign
11 neoplastic changes, correct?

12 A. Yes.

13 Q. And Dr. Calandra points out that Kamura
14 expressed concern that the benign nodules in the
15 liver may progress to carcinoma if specific or
16 nonspecific stimuli are introduced into the animal.
17 Was that something that you discussed with
18 Dr. Calandra on that visit, the Japanese study by
19 Kamura?

20 A. I don't recall. But it could well be,
21 because that was a subject, of whether it was
22 carcinogenic.

23 Q. Yeah.

24 A. It would have been logical if we had.

25 Q. Certainly. And in Kamura's study -- let me

1 Flip over here to the footnotes. There's a footnote
2 on Kamura's study. And if we flip to the -- to the
3 reference page, we can see that Kamura's study was
4 published in 1973 --

5 A. Yes.

6 Q. -- correct?

7 A. Yes.

8 Q. On the next page, there's a reference to
9 Itow --

10 A. Yes.

11 Q. -- correct?

12 A. Yes.

13 Q. Mr. Itow is another Japanese cancer
14 researcher, is he not?

15 A. Yes.

16 Q. Mr. Itow is one of the foremost cancer
17 researchers in the world, is he not?

18 A. I think he's a cancer specialist; and
19 whether he's -- I don't know how to answer the
20 question. He's well recognized.

21 Q. And well regarded?

22 A. I'm not enough an expert to answer that
23 question.

24 Q. I see. There's a reference to the Itow
25 study; and, again, if we flip to the reference, we

1 can see that Mr. Itow's study was also published in
2 1973, correct?

3 A. Yes, sir.

4 Q. And Mr. Itow's study was published in 1973
5 in the journal of the National Cancer Institute,
6 correct?

7 A. Well, the Japan National Cancer Institute.

8 Q. I see. Okay. Are you sure it's the
9 Japan --

10 A. Well, I -- it says -- well, it could
11 well -- you're right. It could be the journal of
12 National Cancer Institute.

13 Q. Yeah.

14 A. Sure. The only reason I -- I know they do
15 publish in their own cancer list and -- but you
16 could well be right.

17 Q. In any event, Dr. Itow's study is available
18 by 1973, is it not?

19 A. Yes.

20 Q. And Dr. Itow studied mice and found
21 hyperplastic nodules and well-differentiated
22 hepatocellular carcinoma at a dose level of 500
23 parts per million of Kanacolor 500?

24 A. Yeah.

25 Q. Kanacolor 500 is another PCB, is it not?

1 A. Yes, sir.

2 Q. And Mr. Itow -- I guess, maybe it's

3 Dr. Itow, whatever it is --

4 A. Yes.

5 Q. Would it be Dr. Itow?

6 A. I would suspect so.

7 Q. Dr. Itow found that PCB's did cause
8 hepatocellular carcinomas. And that's liver cancer,
9 is it not?

10 A. Yes.

11 Q. Okay.

12 A. But it also is well differentiated, which
13 makes it a question whether it's carcinogenic.

14 Q. I see. So --

15 A. The more well differentiated a cell is, the
16 less likely it is to be a cancer. This is exactly
17 the point we make in saying, "How can you have a
18 well-differentiated cancer?" The cancer -- "well
19 differentiated" means it looks more like our own
20 cells. The more anaplastic it is, that makes it
21 more -- more of a cancer. So -- which goes back to
22 the same quarrel on what is a cancer.

23 Q. I see. Based on a one-line quotation from
24 Mr. Itow's study, you're able to conclude that you
25 probably wouldn't agree with his reading of the

1 slides?

2 A. All I'm saying is: There's a problem with
3 that. He may well be still saying if -- someone
4 else could agree with him. But all I'm saying is:
5 I have difficulty in my reading of it when you say
6 "well differentiated."

7 Q. I see.

8 MR. LACEY: How much time do we have
9 left?

10 THE VIDEOGRAPHER: That's it.

11 We're going off the record for a short
12 pause. The time is 2:00 o'clock p.m.

13 (Short Recess)

14 THE VIDEOGRAPHER: We're now back on
15 the record. The time is 2:01 p.m.

16 Q. (By Mr. Lacey) Let me direct your
17 attention to the page of the document No. 22748 and
18 the paragraph starting -- Dr. Squires has stated in
19 a letter to Dr. Kimbrough, dated November 12th,
20 1974, that, quote, "I define discrete nodules and
21 trabecular basophilic hyperplasia as a precancerous
22 lesion and thus indicative of carcinogenic
23 response." Dr. Calandra goes on to state, "This
24 reflects a viewpoint which is not shared by all
25 pathologists, and there is nothing that Biotech can

1 do to change this definition except for its
2 pathologist to accept or reject the view.
3 Dr. Richter and" -- "Drs. Richter and Gordon do not
4 accept Dr. Squires' definition."

5 Is this the dispute that you've
6 described between pathologists about what is and
7 what is not cancerous?

8 A. That's part of it.

9 Q. And that's what Dr. Calandra is talking
10 about here?

11 A. He's talking about the same thing.

12 Q. Okay. On the next page, Document
13 No. 22749, Dr. Calandra references "an excellent
14 paper which describes, quote, 'the highlights of
15 some newer developments in our understanding of
16 liver carcinogenesis,' " close quote, "which has been
17 published by Farber. If the concepts presented in
18 this paper, as well as those of Squires, Safetti,
19 and others, are accepted, a number of substances
20 would have to be reclassified as liver
21 carcinogens."

22 Do you agree with that statement by
23 Dr. Calandra?

24 A. I'm not even -- I don't even know what he
25 was referring to, no.

1 Q. I see. You're not aware of the paper
2 published by Farber and his criteria for identifying
3 cancer?

4 A. No.

5 Q. I see. Let me show you the conclusion
6 page -- or I guess maybe it's not the conclusion
7 page -- but where Dr. Calandra on the last page,
8 Page 22750, says, "It's important to note" -- "point
9 out the following." And one of the things he points
10 out is that Biostat has no means at its disposal to
11 dispute the findings of Kimbrough that, "Aeroclor
12 1260 in Female Sherman rats is a liver carcinogen
13 except on the basis of experimental design."

14 A. Yes, sir.

15 Q. What does -- what does it mean to dispute
16 something on the "basis of experimental design"?

17 A. That the -- that goes back to the things I
18 was discussing about having adequate data available
19 to talk about historical controls of the size of the
20 exposed population of rats, the findings and
21 statistical study of relating them to excess.
22 That's -- that's the experimental design.

23 Q. And Dr. Calandra is saying that's the only
24 basis to attack Dr. Kimbrough's work, correct?

25 A. Yes.

1 Q. And he also notes that Biotest is not in
2 agreement with the classification by Squires at all
3 that considers hyperplastic liver nodules to be
4 precancerous?

5 A. Yes.

6 Q. That's -- that's a position you also
7 accept, is it not?

8 A. Yes, and I've explained why.

9 Q. Yes. And finally he indicates that,
10 "Biotest is prepared to assist Monsanto in any
11 adversary situation, in or out of Government." Do
12 you know what he means by that?

13 A. I didn't ask him what he meant by it.

14 Q. Did you ever -- that concludes our review
15 of this. Did you ever ask Dr. Calandra or Biotest
16 to assist Monsanto in any adversary situation, in or
17 out of Government?

18 A. We did go to the Government after that.

19 Q. And took Dr. Calandra with you?

20 A. Yes, because he knew his data and we did
21 not. He had to speak for his own data.

22 Q. And the purpose of that visit to the
23 Government was to present the view that PCB's don't
24 cause cancer?

25 A. No. We took the Poor report and gave that

1 to each one of the agencies we visited, only to
2 again talk about that -- getting involved in that
3 discussion of what is a cancer -- a cancerous lesion
4 and how do you define them.

5 Q. The visit that was made to the Government
6 is the one that is referred to in the memo that
7 Mr. Pappageorge wrote to Dr. Calandra, you, and
8 Mr. Weber on November 10th -- I'm sorry -- November
9 10th, 1975, Document 1487, 1488, Plaintiff's Exhibit
10 1516, is it not?

11 A. Wasn't written by -- oh, it was from
12 Pappageorge. Yes.

13 Q. That is the visit where you took
14 Dr. Calandra to present the positions on the
15 noncarcinogenicity of PCB's?

16 A. As well as to present them with the Poor
17 paper.

18 Q. Yes. Let me ask you a little bit about
19 that visit. Did you advise the Government of the
20 Itow study concluding that PCB's caused cancer?

21 A. Well, they already had -- that's published.

22 Q. That's not my question.

23 A. No, we did not.

24 Q. You did not call that study to anyone's
25 attention in that visit, did you?

1 A. No, sir.

2 MR. FROEDHWALD: Let me object to
3 characterization of the Itow study as showing causing
4 cancer. I'm not sure that's what the Itow study
5 said, and I'm not necessarily going to accept that
6 as being the conclusion of that study on your
7 representation because I think there's grounds for
8 disagreement.

9 Q. (By Mr. Lacey) Well, let me ask my
10 question differently since the Monsanto Lawyer
11 disagrees.

12 On this visit, what agencies did you
13 go see?

14 A. Went to NIOSH and went to CEQ.

15 Q. That's the Council for Environmental
16 Quality?

17 A. Yes.

18 And -- and NCI.

19 Q. National Cancer Institute?

20 A. And apparently NIEHS was there -- came
21 there, as well. And then we visited the EPA and the
22 FDA.

23 Q. And wasn't there a visit to a Congressional
24 group, as well?

25 A. I don't think so.

1 Q. Okay. Did you advise any of those people
2 that Itow's study in mice found, quote,
3 "hyperplastic nodules and well-differentiated
4 hepatocellular carcinomas," close quote, at a dose
5 level of 500 parts per million of Kanacolor 500?

6 A. No, sir.

7 Q. At the time that you made that visit,
8 Drs. Gordon and Dr. Richter had gone and reviewed
9 the Kimbrough slides, had they not?

10 A. I don't know.

11 Q. You do not know?

12 A. I don't know when they did with respect to
13 this.

14 Q. I see. Well, let me ask you this, then:
15 At that meeting, did you advise anybody, any of
16 those groups, that Dr. Gordon or Dr. Richter had
17 reviewed the Kimbrough slides and found or agreed
18 with the findings of cancer?

19 A. No, sir.

20 Q. The only reports that you made to any of
21 those groups were that the IRT study did not show
22 cancer and that Dr. Poor concluded that the
23 Kimbrough study did not show cancer?

24 A. That's right. And Kimbrough was there when
25 we did that. We gave to it Kimbrough, as well.

1 Q. I understand. But the only -- only
2 information you gave to any of these groups was
3 that -- really that Dr. Poor had reviewed the IRT
4 studies and said "no cancer" and Dr. Poor had
5 reviewed the Kimbrough studies --

6 A. Yes.

7 Q. -- and said "no cancer"?

8 Nothing else?

9 A. That's right.

10 Q. The reason for that visit was because there
11 was very significant concern in these various
12 governmental agencies about PCB's causing cancer;
13 isn't that correct?

14 A. I don't know.

15 Q. I see. Do you recall that in 1975 a number
16 of governmental agencies and people within those
17 agencies were making a serious effort to get
18 legislation passed to ban the manufacture and sale
19 of PCB's?

20 MR. FRUEHWALD: Are you representing
21 that was a fact? I --

22 MR. LACEY: No. I'm asking the
23 question.

24 MR. FRUEHWALD: Yeah. Okay. You're
25 asking if that was true rather than whether he

1 recalls it?

2 MR. LACEY: I'm asking if he recalls
3 that situation being the case or not.

4 A. No, I don't.

5 Q. (By Mr. Lacey) Let me show you a memo
6 dated September 17th, 1975, written by you to the
7 Corporate Administrative Committee, Document 19722,
8 Plaintiff's Exhibit 710.

9 A. Yes, sir.

10 Q. Do you recall writing that memo?

11 A. Yes, sir. I signed it.

12 Q. That is your signature, is it not?

13 A. Yes.

14 Q. You were making monthly reports to the
15 Corporate Administrative Committee, were you not?

16 A. Yes.

17 Q. Did you go personally to present those
18 reports?

19 A. No, sir.

20 Q. They were just submitted in writing?

21 A. Yes.

22 Q. One of the things that was of concern to
23 the Corporate Administrative Committee in 1975 was
24 what potential Government action was taking place
25 with regard to PCB's, was it not?

1 A. Yes.

2 Q. In fact, this whole monthly report dealt
3 with nothing but the PCB issue, correct?

4 A. The second paragraph deals with
5 epidemiologic study, and it was broader than just
6 PCB's.

7 Q. It was inspired by questions about whether
8 or not PCB's were causing cancer among workers,
9 wasn't it?

10 A. The -- the interest of the Government was
11 not related to cancer. It was the presence of PCB's
12 in the environment.

13 Q. I see. The two plants that are referred to
14 in that second paragraph were the Krummrich plant
15 and the Anniston, Alabama, plant, were they not?

16 A. We weren't making PCB's in Anniston.

17 Q. Oh, I understand. The two plants referred
18 to in the memo are the Krummrich plant and the
19 Anniston, Alabama, plant, are they not?

20 A. No.

21 Q. What plants were they?

22 A. Well, it says, "of chemicals." And I'm not
23 sure what two plants I was talking about at that
24 time.

25 Q. You just don't recall?

1 A. No.

2 Q. How many plants at Monsanto manufactured
3 PCB's?

4 A. Two.

5 Q. In the United States?

6 A. Yes.

7 Q. The one -- the Krummrich plant in Illinois
8 and the Anniston, Alabama, plant?

9 A. Yes. But I never think of Anniston as
10 being a PCB because that was so long before my
11 appearance.

12 Q. I see. The first sentence of this letter
13 you say that, "State and Federal agency activities
14 related to PCB's continued to require medical
15 department attention to support business group
16 efforts."

17 What did you mean when you said
18 "business group efforts"?

19 A. PCB's were an important issue to Monsanto,
20 in general.

21 Q. What was the "business group effort"?

22 A. I -- I can't answer that. It's a generic
23 business group. Because I -- I never knew who was
24 involved at that time or how I should talk about
25 what the "business group's effort" means.

1 Q. Didn't you know that the "business group
2 effort" was to keep on making and selling PCB's?

3 A. No, sir. We were -- there was already
4 plans to get out of PCB's in 1975.

5 Q. Is it your testimony that the date this
6 memo was written the company already had plans to
7 get out of the PCB business?

8 A. I think it was.

9 Q. Where did you hear and from whom did you
10 hear that by September 17th, 1975, the company had
11 already had plans or intentions to get out of the
12 PCB business?

13 A. I couldn't possibly answer that question.

14 Q. Are you just guessing that you had heard
15 that before that date, or do you know?

16 A. It's my impression.

17 Q. What gave you that impression?

18 A. Because of the presence of PCB's in the
19 environment and the problem that we couldn't
20 control.

21 Q. What problem you couldn't control?

22 A. The fact that PCB's were out in the
23 environment and found in foods, in general. Between
24 now and the end of the year we'll be dealing with
25 FDA, EPA, and NIOSH, probably, in various hearings

1 related to PCB's in food. And they didn't want it
2 in foods.

3 Q. Shouldn't be in food, should it?

4 A. That's right. That's right.

5 Q. Shouldn't be anywhere it can come into
6 contact or get into humans, should it?

7 A. It would be better if it weren't there.

8 Q. Had you already formed the impression by
9 September 17th, 1975, that Monsanto needed to get
10 out of the PCB business?

11 A. I'm not sure I went that far. That really
12 wasn't my decision kind of thing, and I had no
13 contact with business people making such decisions.

14 Q. Whose decision was it?

15 A. I don't know.

16 Q. Well, didn't the medical department have
17 the -- the right or the authority to advise the
18 company that it should stop making certain chemicals
19 because of problems with health or the environment?

20 A. It would certainly have a right to make a
21 recommendation.

22 Q. Did you ever make that recommendation on
23 behalf of the medical department of Monsanto?

24 A. No, sir.

25 Q. The decision that was made by Monsanto to

1 get out of the PCB business was made by somebody
2 outside the medical department, without any
3 recommendation from the medical department?

4 A. Yes.

5 Q. At the time you wrote this memo, Monsanto
6 had never conducted a single epidemiological study
7 of workers at any of its plants, had it?

8 A. I'm sure that's right.

9 Q. And without conducting an epidemiological
10 study, one is not in a position to say whether the
11 chemicals that workers have been exposed to in the
12 workplace have or have not caused chronic health
13 effects in them, are they?

14 A. We can tell on our workers exposed, from
15 our examination, whether there was evidence that
16 there was any abnormality in them.

17 Q. That's not my question. If there is a
18 problem that arises with the workmen -- let's say
19 he's got liver cancer -- without having conducted an
20 epidemiological study, you're not in a position to
21 say whether exposure to chemicals in the workplace
22 caused that liver cancer or not, are you?

23 A. If we had liver cancer, I would -- would
24 have to wrestle with what I thought was the cause of
25 his liver cancer.

1 Q. And one of the things you would need to
2 wrestle with that would be an epidemiological study?

3 A. Be one way of doing it, yes.

4 Q. And it would be very difficult to represent
5 to anyone else that you had had no health problems
6 caused by any particular chemical your people were
7 exposed to without having done epidemiological
8 studies, wouldn't it?

9 A. We can use our medical data under our
10 surveillance examinations; but it won't take the
11 place of an epidemiologic study, that's right.

12 Q. The first time you conducted an
13 epidemiological study with regard to PCB's was after
14 you had learned of the Mobil study suggesting a
15 relationship between exposure to PCB's and melanoma;
16 isn't that correct?

17 A. Yes, sir.

18 Q. And what you found in that study was a
19 relationship suggested between PCB's and lung
20 cancer, wasn't it?

21 A. No, it doesn't -- all it says, there is a
22 possible association. Doesn't say there is.

23 Q. I see. One of the problems with
24 epidemiology is that it's almost impossible to get
25 clear-cut conclusions, isn't it?

1 A. Not if you have -- if you repeat a study in
2 a number of different locations and they all come up
3 with the same finding, then you've got a
4 cause-and-effect relationship. But if it's not
5 repeated in another location or if the evidence
6 isn't clear-cut, then you have a problem.

7 Q. Would you read the last sentence of your
8 memo into the record, please?

9 A. "We will have to do much more epidemiology
10 in the future, although clear-cut conclusions are
11 almost impossible."

12 MR. FRUEHWALD: Can I see that one,
13 too, Dave?

14 MR. LACEY: Sure.

15 Why don't we take about a five-minute
16 break. Let me sort through this.

17 THE VIDEOGRAPHER: We're now going off
18 the record. The time is 2:22 p.m.

19 (Short Recess)

20 THE VIDEOGRAPHER: We are now back on
21 the record. The time is 2:39 p.m.

22 Q. (By Mr. Lacey) Dr. Roush, let me show you
23 a document dated August 22nd, 1975, from Dr.
24 Johansen to you, Document 68353 through 68356.
25 First let me ask you who Dr. Johansen was.

1 A. Dr. Johansen is a toxicologist who has
2 taken over as head of the toxicology section at
3 Monsanto and George Livinscus has become a
4 consultant in toxicology. So, the direct
5 responsibility for all toxicology is Johansen.

6 Q. That memo is about a review that
7 Dr. Johansen did on a very cursory basis, the
8 possibility of doing an epidemiological study of
9 people who worked in Department 246 at the Krummrich
10 plant, is it not?

11 A. Yes, sir.

12 Q. Department 246 was the PCB department at
13 that plant?

14 A. Yes, sir.

15 Q. And Dr. Johansen's work was the work which
16 suggested that there was an excess of liver -- I'm
17 sorry -- an excess of lung cancers --

18 A. Yes, sir.

19 Q. -- among people who worked in the Aroclor
20 department at the Krummrich plant?

21 A. Yes, sir.

22 Q. And it is that preliminary work that
23 Dr. Johansen did in 1975 which you did not have
24 followed up until after the Mobil study, correct?

25 A. This is in response to the Mobil study.

1 Q. Oh, that is in response to the Mobil study?

2 A. Yes.

3 Q. I see. Well, when did you have an actual
4 formal epidemiological study done?

5 A. Johansen was a toxicologist. And I
6 explained to him that his toxicology studies are
7 epidemiology studies on rats and he ought to be able
8 to help me to do a preliminary look at this. And
9 that's what this was, a preliminary look.

10 Q. Okay.

11 A. It did not include anything related to
12 correction for age, which is a part of any
13 epidemiologic study. It had no life-table
14 evaluation. It was my look to see if we had
15 melanomas.

16 Q. And, of course, the study was comforting in
17 the fact you found no melanomas?

18 A. Yes.

19 Q. But discomfoting in the excess of lung
20 cancers?

21 A. Yes, sir.

22 Q. And it was Drs. -- was it Dr. Zach?

23 A. No. She -- she was trained as an
24 epidemiologist. She had a Master's degree from -- I
25 think it was Michigan.

1 Q. It was Ms. Zach, and was it Dr. Musch?

2 A. He was a medical student, I think, but not
3 "Dr."

4 Q. Okay.

5 A. He is now.

6 Q. Okay. Now, Dr. Musch, who actually did the
7 epidemiological study?

8 A. Yes. Because their's did -- they had
9 life-table analysis as opposed to what this is.

10 We did not stop with this. We got
11 Dr. Meboobee from Eppley to look at what data we
12 had, and he did a modified life-table analysis and
13 looked at the lung cancers and said that the lung
14 cancers were not related to work in PCB's because
15 more than half of them had very -- very short-term
16 time in this exposure.

17 Q. So that, in fact --

18 A. We were followed up -- what I am saying is
19 we followed up on that; and then we followed up
20 again with the Judy Zach, which is all a part of the
21 same approach.

22 Q. I see. So, the only epidemiological
23 studies Monsanto ever did were fouled up, short, and
24 summary?

25 A. Yes.

1 Q. Did you ever attempt to straighten out
2 those foul ups to get to the real results?

3 A. Well, that's what the Zach study was. The
4 Zach study was a correction of this one.

5 Q. But didn't you tell me it was also fouled
6 up?

7 A. No.

8 Q. Oh, I'm sorry.

9 A. No, no.

10 Q. It was -- it was correct?

11 MR. FRUEHWALD: He said it was
12 "followed up."

13 MR. LACEY: "Foul up."

14 MR. FRUEHWALD: It was a follow-up.

15 MR. LACEY: I see. Okay.

16 Q. (By Mr. Lacey) There was a press release
17 that was proposed to be released in connection with
18 the Chicago meeting on PCB's in 1975, was there not?

19 A. You mean the -- the big study -- you mean
20 that -- that week-long thing on PCB's?

21 Q. I believe that's correct, yes.

22 A. I'm not sure it was. But public relations
23 decided they wanted to put out a press release as --
24 as was possible. I -- I don't remember.

25 Q. Well, I -- wasn't there a proposed press

1 release with regard to Dr. Poor's work?

2 A. That was different.

3 Q. It was different?

4 A. The public relations wanted to get
5 something out on the Poor report, and Poor did not
6 want to be a part of the Chicago -- I don't know
7 what to call that -- the conference on PCB's.

8 Q. Why was he interested in distanceing
9 himself from that conference?

10 A. He didn't want to get involved in
11 controversial discussions. He's quite -- he was
12 quite satisfied to have us take it to the Government
13 agencies, but didn't want to get involved in a --
14 any controversy.

15 Q. He wasn't interested in having his work
16 published so that other scientists in the general
17 domain could look at it, comment on it, criticize
18 it, and review it; is that the bottom line?

19 A. No, I don't -- I don't think that's the
20 same. He just didn't want to be involved in a
21 controversial discussion in a Congress or a seminar
22 on PCB's.

23 Q. Well, the people at the seminar were
24 scientific-type people, were they not?

25 A. Yes.

1 Q. And he had some concern about his
2 conclusions being ---

3 A. No. No. He just said -- he said, "I'm
4 quite willing to have you let -- let the data stand
5 for themselves with the Government agencies and be
6 quite willing to defend them." But he didn't want
7 to get into a discussion of PCB's in that public
8 form.

9 Q. Are you familiar with a concept of a "peer
10 review journal"?

11 A. Sure.

12 Q. What is a "peer review journal"?

13 A. A "peer review journal" is one in which the
14 papers that are published are reviewed by a panel of
15 experts who have the knowledge that they can say,
16 "Yes, I think this paper should be published."

17 In other words, every single paper is
18 reviewed in that form.

19 Q. There are -- there are people of scientific
20 credentials and merit who review proposed
21 publications and determine whether they are worthy
22 of publication and whether the work that's done is
23 of good quality?

24 A. That's right.

25 Q. Putting out an opinion like Dr. Poor's

1 opinion at that Chicago symposium would have been
2 the equivalent of putting it out in a peer review
3 journal, wouldn't it? It would have put it out for
4 review and comment and criticism by other
5 scientists, correct?

6 A. It would be one form of doing it, but it
7 isn't exactly the same as publishing it someplace.

8 Q. Did he ever publish his study in a peer
9 review journal?

10 A. I don't know. I don't think so.

11 Q. And he was unwilling to put it out for
12 public comment to other scientists at the Chicago
13 symposium; is that correct?

14 A. He didn't want to get -- he didn't want to
15 do that.

16 Q. Didn't authorize you to do that?

17 A. That's right.

18 Q. And you didn't do it, did you?

19 A. No, sir.

20 Q. The only place you ever put out his opinion
21 was in one-on-one conversations with governmental
22 agencies?

23 A. Well, it wasn't one-on-one. There was lots
24 of people involved in those meetings.

25 Q. Well, maybe I should make it clear. You

1 went to a meeting with OSHA, and there were OSHA
2 people there?

3 A. Yes. And they were people who were his
4 equal so that there was a peer review taking place,
5 too.

6 Q. But not of the scientific community,
7 generally?

8 A. Not in general, but it's --

9 Q. Did Monsanto ever engage in PCB studies in
10 higher animals than rats and dogs and chickens?

11 A. Yes.

12 Q. What animals were used?

13 A. We used monkeys on a reproductive study.

14 Q. What was the purpose of using higher
15 animals?

16 A. Well, the general concept that you have
17 problems in relevance of an animal study to man,
18 especially if you use a rat. That's hardly a good
19 surrogate for man. We use monkeys -- or use rats
20 because we know them quite well and because we can
21 do more animals. But if it were possible, we would
22 do all of our toxicology in monkeys. And, so,
23 Dr. Allen had done a study of monkeys; and we wanted
24 to learn firsthand what reproductive hazard --
25 problems are in monkeys.

1 Q. Dr. Allen's studies showed that higher
2 primates, like monkeys, were more susceptible to
3 problems from PCB's than were animals like rats, did
4 they not?

5 A. Yes.

6 Q. So that one would expect toxic effects to
7 be greater in more highly developed primates than in
8 rats, correct?

9 A. Yes. Well, "greater" is not -- what was
10 learned is that at low concentrations, we saw an
11 effect, rather than necessarily that there was more.

12 Q. Well, what was learned in Dr. Allen's
13 studies were that at concentrations that did not
14 produce substantial toxic effects in rats, there
15 were substantial toxic effects --

16 A. That's right.

17 Q. -- in primates?

18 A. That's -- that's, right.

19 Q. And, of course, Dr. Allen's work could,
20 therefore, be interpreted to mean that any PCB
21 exposure would result in the same response in
22 humans, correct?

23 A. It would be more likely to be correct.

24 Q. Did you undertake studies in primates
25 yourself?

1 A. Yes.

2 Q. Who did those studies?

3 A. Litton Bionetics. Litton, L I T T O N;
4 Bionetics, B I O N E T I C S.

5 Q. And what was the conclusion?

6 A. That, in fact, there were effects on
7 monkeys. And it was about as he suggested; but his
8 dose level was off by about 20, twentyfold. In
9 other words, we didn't see that same effect until we
10 got to about 25 ppm, as opposed to what he had
11 found.

12 Q. But your own --

13 A. Substantially the same finding.

14 Q. Your own studies in primates confirmed that
15 higher animals, like monkeys, were more susceptible
16 to PCB effects at lower doses than rats?

17 A. I think that's correct.

18 Q. And would those studies --

19 A. The only difference was that the dose level
20 wasn't as low as he said it was. And the problem is
21 it's hard to do it at that low a concentration.

22 Q. And the reasonable conclusion of your
23 primate studies is that you would anticipate humans
24 would also be more susceptible to PCB-induced
25 problems at lower doses than rodents, correct?

1 A. That is a reasonable interpretation of
2 that, yes.

3 Q. Do you know of any reason to reject that
4 interpretation?

5 A. Well, the only problem you've got is being
6 as sure of the dose and the fact that there are so
7 few animals involved and this -- that makes it
8 difficult. So, it's not as reliable as it would be
9 if we had done 50 rats.

10 Q. Well, Monsanto set up the protocol for that
11 monkey experiment --

12 A. Yes, it did.

13 Q. -- did it not?

14 A. Yes, it did.

15 Q. You decided how many monkeys to use?

16 A. That's right.

17 Q. And you used enough to feel that you were
18 going to get a meaningful result?

19 A. Yes.

20 Q. And the meaningful result confirmed the
21 result of Dr. Allen?

22 A. Yes.

23 Q. Suggesting that higher primates, like
24 monkeys, were more susceptible than lower animals,
25 like rats?

1 A. Yes.

2 Q. And leading to the reasonable conclusion
3 that man, therefore, would be more susceptible to
4 problems with PCB's at lower doses than rats,
5 correct?

6 A. Yes.

7 Q. Okay. Did you have any direct contact with
8 Mobil personnel about their epidemiological study?

9 A. The only contact I had was when the medical
10 director called me and told me that there was a
11 question of this -- of this melanoma problem. But I
12 had no further contact with them.

13 Q. That would be sometime in 1973 or early
14 '74?

15 A. I don't recall what the time was.

16 Q. Well, when you say "the medical director
17 called you," obviously that's before you were the
18 medical director?

19 A. Well, it was -- that helps -- '74, '75,
20 sometime along in there.

21 Q. Well, you became the medical director in
22 '74, didn't you?

23 A. Yes. It was shortly thereafter.

24 Q. That you had the contact?

25 A. Yes.

1 Q. You weren't having any contact with Mobil
2 about its PCB epidemiological study after 1976, were
3 you?

4 A. I don't recall.

5 Q. Do you recall ever attempting to convince
6 them to revise their study and reject their
7 conclusions?

8 A. I don't think I would have asked them to
9 reject their study.

10 Q. Wouldn't have been appropriate to if you
11 had, would it?

12 A. No. Unless if I had the report and I
13 thought there was something wrong technically in why
14 they did it, I would have no reason for questioning
15 their -- what they did.

16 Q. Did you ever conclude their report was
17 technically wrong?

18 A. Their -- their paper was withdrawn and
19 hasn't been resubmitted.

20 Q. Did you review the paper that was
21 withdrawn?

22 A. No, I did not, personally.

23 Q. Okay. So, you're not able to offer any
24 opinions about its accuracy or not?

25 A. No.

1 Q. No, you're not?

2 A. All I know is what -- NIOSH has withdrawn
3 it. And the one who did it died, Bahn. So, it
4 makes it very complicated concerning what would be
5 done.

6 Q. Difficult to redo it after --

7 A. Oh, yes.

8 Q. -- the author --

9 A. Oh, yeah. And -- and they've changed the
10 work force at -- at that laboratory. It makes a --

11 Q. Was it Mr. Bond, did you say?

12 A. Anita Bahn.

13 Q. Anita Bond?

14 A. B A H N, I think her last name was.

15 Q. When did Ms. Bahn die?

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

17 Q. Do you know whether her death was one of
18 the reasons that the report was withdrawn?

19 A. No, I don't know.

20 Q. Do you know if that's one of the reasons it
21 was never reworked and resubmitted?

22 A. I can't answer.

23 Q. What sort of problems do you recall being
24 observed in the monkeys that Monsanto had tested?

25 A. The problem was -- the only one I recall of

1 any consequence was the fertility in a small
2 population is most difficult to control. And a lack
3 of sufficient -- one or two makes a gross difference
4 when you only have six animals in a group.

5 Q. Why did Monsanto not use Industrial Biotech
6 to conduct the monkey experiment?

7 A. I can't answer that directly but my opinion
8 is that this Litton Bionetics had been doing monkey
9 studies and that was the reason we went there.

10 As a matter of fact, before IBT became
11 a problem, we were starting to use other
12 laboratories.

13 Q. Why?

14 A. We just thought it was wise to have more
15 laboratories working with us than one. And that --
16 the other one was Dr. Kelly felt very comfortable
17 with Dr. Calandra.

18 Q. Dr. Kelly and Dr. Calandra were very close
19 personal friends, were they not?

20 A. I don't know that.

21 Q. You never learned that fact?

22 A. No.

23 Q. I take it you didn't feel as comfortable
24 with Dr. Calandra as Dr. Kelly did; is that correct?

25 A. Well, not really. I -- when I was with the

1 Ethel Corporation, I was defending lead in
2 gasoline. And Dr. Calandra was medical director of
3 Nalco, who was also in the lead antiknock business.
4 And, so, we had had an association in the
5 environmental -- so, I had known him personally but
6 only at a professional level and the issues, not on
7 a -- on a social manner.

8 Q. Nalco is National Lead Company -- or was
9 National Lead Company?

10 A. No. No. Nalco, that wasn't National Lead.

11 Q. I see. They just made a lead compound --

12 A. Made organic lead, the tetraethyl lead that
13 goes in gasoline.

14 Q. And that's, of course, one of the things
15 that Ethel Corporation also made?

16 A. Yes. They were the starter of the
17 business.

18 Q. And you and Dr. Calandra were trying to
19 convince the EPA that there should be no
20 restrictions on lead in gasoline?

21 A. We were trying -- we talked about what we
22 thought the health effects were of lead in gasoline.

23 Q. And you concluded that was no basis for
24 reducing or eliminating lead content in gasoline,
25 collect -- correct?

1 A. No. What we did is we were able to tell
2 them whether we thought the level of lead in
3 gasoline resulted in increasing your body burden of
4 lead.

5 Q. And the conclusion of your work was that
6 there was no need to eliminate lead in gasoline?

7 A. We said that there was a measurable
8 increase but it was not substantial.

9 Q. Wouldn't make any real difference?

10 A. Well, if you measured lead in blood, there
11 would be a difference; but it would be very small.

12 Q. I see.

13 A. We quantitated that magnitude, that
14 increase.

15 Q. I see. As I understand it, when Dr. Kelly
16 came to Monsanto as the medical director following
17 World War II, a policy was implemented at his
18 request whereby the company required that all
19 information on the toxicology and safe handling of
20 chemicals come from the medical department. Are you
21 familiar with that policy?

22 A. I read his deposition, and I read the same
23 thing.

24 Q. Whose depositions have you read in this
25 case before coming here to testify?

1 A. I read Dr. Kelly's. That's the only one.

2 Q. I see.

3 A. And I didn't read the whole thing. I read
4 two days.

5 Q. I see. Do you agree with Dr. Kelly's
6 understanding of what the Monsanto policy is with
7 regard to information on toxicology and safe
8 handling of chemicals?

9 A. Yes.

10 Q. Is that still the policy of Monsanto?

11 A. Practically it is.

12 Q. So, then, information --

13 A. But there is no -- the company is not one
14 person. And there are lots of things that go on,
15 and we always bring them back short and get it back
16 into the stated policy. It doesn't -- it works
17 well, but not 100 percent.

18 Q. But the policy is not changed?

19 A. Yes.

20 Q. The company policy is --

21 A. Yes.

22 Q. -- that information on safe handling and
23 toxicology comes from the medical department?

24 A. Yes.

25 Q. And that's the group that you've been

1 responsible for supervising and heading up ever
2 since Dr. Kelly's retirement?

3 A. Yes, sir.

4 Q. In 1979 Monsanto made a submission to the
5 Subcommittee on Oversight in Investigations of the
6 Committee on Interstate and Foreign Commerce of the
7 House of U.S. Representatives. And just to identify
8 that submission, I want to hand you Document 887
9 through 931, Plaintiff's Exhibit 564.

10 Do you recall that submission?

11 A. I don't even know what it's about, from
12 this title page.

13 Q. There's a section in that document, if you
14 want to review it, that talks about the toxicology
15 of PCB's. And I would assume, given the company's
16 policy, that that statement on toxicology must have
17 come from your medical department. Is that a
18 correct assumption?

19 A. They wouldn't have to do it if it would
20 follow what had been done before, if it had been --
21 if they had took it from some other document.

22 MR. FRUEHWALD: Can you direct his
23 attention to the -- right where it is, rather than
24 having him --

25 MR. LACEY: Surely.

1 MR. FROEHWALD: He may find it
2 difficult to find.

3 MR. LACEY: I think -- I think I may
4 be able to do that.

5 In fact, you're right there right
6 now. "Information on Health Effects," 901 and
7 following.

8 MR. FROEHWALD: Is there a question
9 pending? What's -- what is the question?

10 MR. LACEY: Well, I'm trying to find
11 out if the medical department was responsible for
12 that section of that submission on health effects.

13 A. I don't think so.

14 Q. (By Mr. Lacey) Do you know what that
15 submission related to or what it was that Congress
16 was investigating in 1979 about PCB's?

17 A. No. I don't -- I don't think so.

18 Q. You don't recall you or anyone in the
19 medical department being asked to contribute to that
20 presentation that was going to be made or even
21 knowing of the presentation; is that correct?

22 A. That's right.

23 Q. Would you take a brief look at the
24 information on health effects that's contained in
25 that submission, and tell me whether that submission

1 is consistent with the position of the medical
2 department on the toxicology of PCB's?

3 A. It's hard for me to do that in screening
4 because there's quite a bit here. It will take me
5 longer than just a few minutes to go over all this.

6 Q. I see. It's too -- too much information --

7 A. Yes.

8 Q. -- to --

9 A. To do -- to do it by glancing at it.

10 Q. I see. Let me see the document. Maybe I
11 can very quickly identify a couple of things of
12 interest. Maybe I can't. It's a long section.

13 In the section that begins at Page 910
14 headed "Potential Carcinogenicity, Animal Studies,"
15 there is a discussion -- let me just ask you to
16 review this page and the following page, first.
17 That will be a much shorter section to look at.

18 A. (Witness complies) Yes, sir.

19 Q. Have you had a chance to review that and
20 the following page?

21 A. No.

22 Yes, sir.

23 Q. Let me -- do you agree with the statements
24 contained in that section? Is that consistent with
25 what the medical department position on the

1 carcinogenicity of PCB's is?

2 A. It's a kind of a narrative in terms of what
3 had taken place. So, all of these things that were
4 said here is what did take place. And there's no
5 place where -- where any discussion -- it's -- it's
6 more of a narrative than anything else, and it's
7 correct as a narrative.

8 Q. That narrative leads the impression -- or
9 leaves the impression, does it not, that PCB's don't
10 cause cancer?

11 A. It doesn't draw that conclusion.

12 Q. May I see the paper just a moment?

13 A. Sure.

14 Q. The first reference in the section is to
15 Renata Kimbrough's 1975 --

16 A. Yes.

17 Q. -- study on liver cancer, is it not?

18 A. Yes.

19 Q. There's, then, a paragraph that discusses
20 that study and the Monsanto study and --

21 A. It just describes them. It doesn't any
22 more than just describe what took place.

23 Q. The -- the description includes the
24 discussion of Dr. Poor reviewing Dr. Kimbrough's
25 slides --

1 A. Yes.

2 Q. -- and concluding that there is no --

3 A. That's right.

4 Q. -- evidence of cancer?

5 And there is then a reference to the
6 1977 National Cancer Institute study on Aroclor
7 1254?

8 A. Yes, sir.

9 Q. In the discussion of potential
10 carcinogenicity animal studies, there is no
11 reference to Dr. Kimbrough's study in the early
12 Seventies on bladder cancer, is there?

13 A. No, sir.

14 Q. There is no reference to the Japanese
15 studies by Itow and others on PCB's causing cancer,
16 is there?

17 A. No, sir.

18 Q. And if one read this information and this
19 submission to Congress, and this only, one would be
20 left with the impression that there was only one
21 study that ever found cancer from PCB's and that, on
22 further examination, that study wasn't valid; isn't
23 that correct?

24 A. I'm not sure that what -- what conclusion
25 you can draw from that because it doesn't draw any

1 conclusion.

2 Q. Isn't it designed to leave that impression?

3 A. The conclusion is left to the reader of
4 what that means.

5 Q. And the information that's presented to the
6 reader to use in drawing its conclusion doesn't
7 present all the information on the animal studies
8 about the cancer-causing potential of PCB's, does
9 it?

10 A. It doesn't include all of that; that's
11 right.

12 Q. Okay. It has been and remained up until
13 the time of this document in November of 1979
14 Monsanto's position that there was no valid evidence
15 linking PCB's to cancer, correct?

16 A. That -- that's -- that's correct.

17 Q. And that remains Monsanto's position right
18 up till today, doesn't it?

19 A. Yes.

20 Q. In fact, it was Monsanto's position at the
21 time of this submission to Congress in 1979 that
22 there were no significant adverse human health
23 effects associated with occupational exposure to
24 PCB's; isn't that correct?

25 A. Yes.

1 Q. And it remains Monsanto's position up until
2 today that there are no significant adverse human
3 health effects associated with occupational exposure
4 to PCB's; isn't that correct?

5 A. If it is used according to the instructions
6 that are given.

7 Q. Even without regard to how it's used,
8 Monsanto's position is that there has simply been no
9 significant adverse human health effects from
10 occupational exposure to PCB's; isn't that correct?

11 A. That's -- that's a -- that's, right.

12 Q. And Monsanto has continued to take an
13 interest in what information is put out and
14 continued to put out its view on the hazards of
15 PCB's right up till now, hasn't it?

16 A. I don't know that.

17 Q. Let me show you a memo written by Bill
18 Gaffy to George Livinscus, dated December 18th,
19 1986, Document 68409?

20 A. Yes, sir.

21 Q. That's Mr. Gaffy's handwriting, is it not?

22 A. Yes, sir.

23 Q. And that document is talking about
24 continued review, right up to the present, of new
25 information on PCB's, is it not?

1 A. He's referring to some specific papers.

2 Q. And also making recommendations about what
3 to do or not do about responding to them, correct?

4 A. All he says -- the only thing he says here
5 is he thinks the melanoma issue has been -- is not
6 important. He doesn't draw any further conclusions
7 than that.

8 Q. Well, in fact, the last paragraph talks
9 about a recent paper by somebody named Emmett that
10 he thinks can be ignored, doesn't it?

11 A. No. He says, "Emmett found assorted and
12 variable correlations with various biochemical
13 measures but no health effects."

14 Q. What does he next say?

15 A. "I think we can ignore the melanoma issue
16 because the paper was withdrawn."

17 Q. And that's not talking about -- what's that
18 talking about? About the Bahn work?

19 A. The Bahn work.

20 Q. I see. That memo --

21 A. That's all.

22 Q. That memo is written with regard to the
23 question of whether Monsanto needs to make further
24 public statements or presentations on the issue of
25 melanoma, is it not?

1 A. It was a -- it was what Dr. Gaffy wrote to
2 George Livinscus, and that's all.

3 Q. And it deals with the issue of whether or
4 not Monsanto is going to continue or needs to make
5 any further statements about the elements discussed
6 in that memo; is that correct?

7 A. He is just giving, again, a statement what
8 he thought about these things are, with no further
9 than that. He doesn't draw any conclusions except
10 he thinks the melanoma issue is not going to come up
11 again.

12 Q. What is Monsanto doing now to make its
13 position on PCB's known?

14 A. I don't think it's doing anything to make
15 position on PCB's.

16 Q. When did Monsanto last publish papers on
17 PCB's and their adverse health effects?

18 A. I can't answer that question. I don't know
19 that it has.

20 Q. I see. Well, are you telling me, then,
21 that the only time that the people working for you
22 in the medical department put out their opinions on
23 PCB's is not in peer review journals, but rather in
24 lawsuits where Monsanto is being sued over health
25 effects?

1 A. We haven't -- we're -- since we're not in
2 the PCB business, we have done no studies on PCB's
3 since the Bionetic study.

4 Q. And when was that done? At the time you
5 were still in the PCB business?

6 A. We were out of the PCB business at that
7 time.

8 Q. And you, nevertheless, did that study?

9 A. Pardon?

10 Q. You, nevertheless, did that study?

11 A. Never listed it?

12 Q. No. You, nevertheless, did that study --

13 A. Yes.

14 Q. -- even though you're out of the PCB's?

15 A. And, again, it was based on the fact that
16 the Allen study had been done and we didn't
17 understand it. And, so, we repeated it just to have
18 conclusions whether -- was that right or not.

19 Q. What work has Mr. Gaffy done in reviewing
20 and publishing his thoughts on epidemiological
21 studies that have been done?

22 A. He has presented his interpretation of the
23 health effects of PCB's by reviewing what is
24 written.

25 Q. Where has he presented that?

1 A. He gave it once at a CMA meeting, and he
2 presented it some other place that I can't recall.

3 Q. Let me hand you for reference purposes a
4 document 68412 through 68434 and ask if the
5 reference on the top refreshes your recollection
6 about the publication of that paper in 1983.

7 A. That -- all that is is a repeat of the
8 paper that he had presented. And this was just a
9 part -- I think this entire proceedings of that
10 meeting he attended, and this was a part of
11 something that was just a part of those proceedings.

12 Q. And that was published in 1983, was it not?

13 A. Yes, sir.

14 Q. And his work suggested that there was no
15 epidemiological data --

16 A. Yes, sir.

17 Q. -- linking PCB's with cancer, correct?

18 A. Yes.

19 Q. Okay. What about Dr. Livinscus? What sort
20 of work has he done reviewing literature and putting
21 out opinions on whether or not PCB's cause adverse
22 health effects?

23 A. He reviewed the issue of cancer as related
24 to PCB's in depth.

25 Q. And how did he get his opinion out?

1 A. He submitted it to one of the toxicology
2 journals, and they said it was too long to publish.

3 Q. When was that?

4 A. Several years ago. It was just too long.
5 It's a big -- it's a thick document; and you can't
6 hardly put that in a journal, to have an article
7 that long.

8 Q. I see. Are there still researchers who are
9 doing research and publishing in the area of PCB's?

10 A. Yes. The Emmett paper was one of the
11 recent ones that's been published in the last couple
12 of years. There are those who are looking at
13 occupational exposures. There are those who are
14 looking at PCB levels in man, trying to understand
15 the difference between one group or another, as well
16 as the pharmacologic handling and the half-life.
17 All of these things are going on.

18 Animal studies, there are short-term
19 animal studies that are going on related to things
20 like enzyme induction; but it's really little
21 piecemeal things that are going on now.

22 Q. There still is an academic interest in PCB
23 research, is there not?

24 A. Yes, because it's an interesting chemical.

25 Q. There's also an interest because of trying

1 to further knowledge about the effects of PCB's on
2 those who have been exposed to them; isn't that
3 correct?

4 A. They would be related, certainly. But they
5 usually start out with an answer to a specific
6 question, and then the application is made.

7 Q. Who is Emmett? You referred to some Emmett
8 paper?

9 A. He's professor of occupational medicine in
10 the School of Public Health at Johns Hopkins.

11 Q. Do you know him?

12 A. I've met him. He's a dermatologist trained
13 at the University of Cincinnati. And, so, I say
14 hello to him; but that's about as much contact as we
15 have.

16 Q. Do you know specifically what his position
17 at the Johns Hopkins is?

18 A. I -- I think he's professor of occupational
19 medicine in the School of Public Health.

20 Q. Have you had occasion to meet him at
21 professional meetings?

22 A. No.

23 Q. Have you had occasion to review his work on
24 PCB's?

25 A. I read that -- the paper that he has done

1 on the biologic effects, yes.

2 Q. You are Board certified in occupational
3 medicine; is that correct?

4 A. Yes, sir.

5 Q. Can you identify for me the five or six
6 leading institutions in the country in the area of
7 occupational medicine?

8 A. Start out by -- with Kettering Laboratory
9 in Cincinnati. The occupational health group up at
10 Michigan, the group at Johns Hopkins, the group at
11 San Francisco --

12 Q. What institution in San Francisco?

13 A. The University of California in San
14 Francisco, I think.

15 -- and the group at Salt Lake City.

16 Q. What institution?

17 A. University of Utah.

18 Those are about the -- to me, are the
19 highest ranking.

20 Q. So, that's University of Cincinnati, Johns
21 Hopkins, Michigan, University of California San
22 Francisco, University of Utah at Salt Lake City?

23 A. Yes.

24 Q. I would like to direct your attention to
25 the correspondence and studies with regard to the

1 change in the IBT reports where the IBT language of
2 "slightly tumorigenic" was changed to "does not
3 appear to be carcinogenic." And let me start off by
4 asking you if you have reviewed the exhibits to
5 Dr. Livinscus' deposition?

6 A. Yes.

7 Q. Did you review Dr. Livinscus' deposition?

8 A. No.

9 Q. You did, however, go through the exhibits?

10 A. Yes, but quickly.

11 Q. I understand. Let me --

12 A. It was on a weekend. I did that while I
13 was getting ready for another meeting.

14 Q. I see. Let me come over and look with you
15 at some of these exhibits to see if we can
16 understand the changes that took place.

17 I first want to direct your attention
18 to the Exhibit 21 to Dr. Livinscus' deposition, a
19 letter dated July 18th, 1975, from Dr. Livinscus to
20 Dr. Calandra. In that letter, Dr. Livinscus
21 requested that the Aroclor 1254 report be amended to
22 say "does not appear to be carcinogenic"; is that
23 correct?

24 A. Yes.

25 Q. The report had previously stated that the

1 Aroclor 1254 was slightly tumorigenic?

2 A. Yes, sir.

3 Q. Now, is there any question in your mind
4 that IBT made the change suggested by Dr. Livinscus?

5 A. Is there any question that they did; is
6 that --

7 Q. Yes. Is there any question in your mind
8 but that IBT made the change requested by
9 Dr. Livinscus?

10 A. My impression that they did, yes.

11 Q. Okay. And that change consisted taking out
12 the language "slightly tumorigenic" and replacing it
13 with the language "does not appear to be
14 carcinogenic"?

15 A. Yes, sir.

16 Q. Okay. I thought earlier we had some
17 confusion about what happened.

18 A. No, sir.

19 Q. Now, in that regard, a product that is
20 tumorigenic is on that continuum of products from a
21 product that has no effect to a product that causes
22 cancer ---

23 A. Yes, sir.

24 Q. -- isn't that correct?

25 And it would be significant, then, to

1 note -- or to know whether a product created tumors,
2 wouldn't it?

3 A. Yes.

4 Q. It would also be significant to know
5 whether the product created only slight tumors or
6 more than slight tumors, wouldn't it?

7 A. Yes. But that's a qualitative decision.

8 Q. I understand.

9 A. Yes.

10 Q. But it -- but the degree would be important
11 and significant, correct?

12 A. Yes.

13 Q. If a report concludes that a product is
14 tumorigenic, that's a significant matter, is it not?

15 A. Yes.

16 Q. And it would indicate that the product in
17 question is somewhere along that continuum of
18 products that can cause cancer?

19 A. That may cause cancer.

20 Q. If the report merely says the product is
21 not carcinogenic, that in and of itself provides no
22 information about whether the product is anywhere
23 along that continuum of products that may cause
24 cancer, does it?

25 A. If that's the only thing it says. But that

1 isn't the only thing it said.

2 Q. Well, let me ask you a little bit about the
3 way these reports are written. The way these
4 reports are written is it's got a narrative summary
5 of the report followed by a lot of detailed
6 information that a scientist can understand; is that
7 correct?

8 A. Yes.

9 Q. And to the extent a layman, like me or any
10 other nonscientific-trained person, were to pick up
11 one of these reports and try to make sense out of
12 it, about all you could make sense out of would be
13 the summary, isn't it?

14 A. Not to a scientist.

15 Q. I didn't say "a scientist."

16 A. Yes.

17 Q. I said "a layman."

18 Isn't that correct?

19 A. That's probably right.

20 Q. And the most important thing out of the
21 whole report is going to be the conclusion, what's
22 the bottom line; isn't that correct?

23 A. It depends on whose it's for -- who that is
24 written for.

25 Q. If a layman is trying to read and

1 understand the report to the extent he can, the most
2 important thing is the conclusion, isn't it?

3 A. To a layman, yes.

4 Q. And when you change the conclusion from
5 saying "the product can cause tumors" to saying "it
6 can't cause cancer," that's a significant change,
7 isn't it?

8 MR. FRUEHWALD: Let me interpose
9 here. You're talking about the conclusion being
10 that one sentence or the entire first page, which
11 talks about the tumors?

12 MR. LACEY: Well, that's the same
13 thing --

14 MR. FRUEHWALD: You're focusing on
15 only one paragraph out of the page; is that what you
16 are saying?

17 MR. LACEY: No. I'm -- I'm going to
18 the part of the report that says, "In conclusion."

19 A. Yes.

20 MR. FRUEHWALD: All right. Ignoring
21 the first paragraph above that?

22 MR. LACEY: No. I think I'm not
23 ignoring anything.

24 Q. (By Mr. Lacey) Let me ask you: Where is
25 the -- let me direct your attention to the report

1 dated March 24th, 1975 --

2 A. Yes.

3 Q. -- "Two-Year Chronic Oral Toxicity Study
4 with Aeroclor 1254 in Albino Rats." It's got a nice
5 thing right here of -- above "Respectfully
6 submitted," "In conclusion,"

7 MR. FRUEHWALD: Underneath where it
8 says "Summary," you're talking about, up here at the
9 top --

10 MR. LACEY: Yes.

11 MR. FRUEHWALD: -- of the page, says,
12 "Summary," you're referring to --

13 THE WITNESS: That's part of the
14 summary.

15 MR. LACEY: I'm referring to the thing
16 that says "Conclusion."

17 MR. FRUEHWALD: Okay.

18 MR. LACEY: That's what I'm talking
19 about.

20 MR. FRUEHWALD: Okay. You're
21 ignoring --

22 MR. LACEY: If there's a problem
23 understanding "conclusion," it's
24 C O N C L U S I O N.

25 MR. FRUEHWALD: Correct. And you're

1 ignoring "Summary," S U M M A R Y?

2 MR. LACEY: No, I'm not ignoring it.

3 MR. FREEHWARD: Okay. Go ahead.

4 Q. (By Mr. Lacey) My question to you is: In
5 the conclusion section, it is significant, is it
6 not, to say the product is "noncarcinogenic" rather
7 than to say "it causes tumors"?

8 A. I think I have to include the whole summary
9 when I say the interpretations that could be drawn
10 from it. You can't -- to talk to someone -- a
11 layman and say "does not appear to be carcinogenic,"
12 he really doesn't understand that. And to not -- to
13 take it by itself is not appropriate.

14 Q. I see. Well, isn't that what the layman is
15 going to look at in looking for the bottom line,
16 "Does it cause cancer or not?"

17 A. This is written for toxicologists, this
18 report.

19 Q. You know, the issue that you were concerned
20 about when you met with Dr. Calandra on April 18th,
21 1975, was the bottom line question, does it cause
22 cancer or not; isn't that right?

23 A. (No response)

24 Q. Let me show you the letter --

25 A. I -- yes.

Q. ... and the memo just to refresh your

recollection. Page 22746, Dr. Calandra says, "The

central question is whether PCB's are carcinogenic

or not."

A. That's right.

Q. And the conclusion in one short sentence

says PCB's don't cause cancer.

A. Well, that's what he had said before.

Q. Now, that report came to that conclusion

only after Dr. Livinus asked JRT to change what it

proposed to put in the conclusion, didn't it?

MR. FRUHWALD: Well, were you

referring to the 1254 report and not the 1242 and

1260 reports in your question?

MR. LACY: I'm referring specifically

right now to the report open --

MR. FRUHWALD: All right. That's the

1254 report.

MR. LACY: -- in Dr. Roush's hands.

I think the same changes were made in

all the reports.

MR. FRUHWALD: But not pursuant to

Dr. Livinus' letter.

MR. LACY: Oh, no. I think they were

made not pursuant to that letter. That letter asked

about 1254, but I think all the changes were made at Dr. Livinscus' request.

MR. FROEHWALD: Well, you may think that. There's no evidence of it.

MR. LACEY: We'll see. We'll see.

MR. FROEHWALD: All right. I know of no evidence of it.

A. What's the date of this PCB meeting?

Q. (By Mr. Lacey) I'm sorry?

A. What was the date of this meeting?

Q. If you'll turn to immediately preceding -- I think it's March 19 --

A. It's April.

Q. I see. Okay.

THE VIDEOGRAPHER: Excuse me. I need to take a short pause.

MR. LACEY: Okay.

THE VIDEOGRAPHER: We're going off the record. The time is 3:32 p.m.

(Short Recess)

THE VIDEOGRAPHER: We're now back on the record. The time is 3:32 p.m.

MR. FROEHWALD: Would you repeat the question? I have forgotten it in the exchange.

MR. LACEY: Yes.

1 Q. (By Mr. Lacey) The conclusion to the study
2 was changed at Dr. Livinscus' request, was it not?

3 A. I don't think so.

4 Q. You don't think so?

5 A. No, sir.

6 Q. Why not?

7 A. Because when I was up with Dr. Calandra and
8 going through all the slides, he told me at that
9 time it was not carcinogenic.

10 Q. Well, why, then, did Dr. Livinscus write a
11 letter asking for a change in the conclusion?

12 A. Because the papers were written without
13 recognizing what had been said at that meeting.

14 Q. What IBT wrote and submitted to Monsanto
15 wasn't what Monsanto wanted, was it?

16 A. It was what Calandra told me when I went up
17 there and reviewed those slides with him, that they
18 said they were not carcinogenic.

19 Q. The report that was submitted -- by the
20 way, it wasn't Dr. Calandra who signed the report,
21 was it?

22 A. No, sir.

23 Q. It was the researchers who did it?

24 A. Yes, sir.

25 Q. The researchers who did the report said,

1 "We want to say it's tumorigenic," didn't they?

2 A. They -- they didn't when they -- when we
3 had the review.

4 Q. After Monsanto asked the change to be made,
5 then they said something else, didn't they?

6 A. They said the central issue is whether this
7 is cancer or not. And he said, "The long-term study
8 conducted by Biotest indicates the answer is, no, it
9 is not carcinogenic."

10 Q. And it was Dr. Livingscus who asked that the
11 report be changed from saying that PCB's are
12 tumorigenic to instead say they are noncarcinogenic,
13 isn't it?

14 A. Yes, because of this.

15 Q. Dr. Roush, there is a lot of difference
16 between being able to trumpet in the press that a
17 report from IBT says that PCB's were noncarcinogenic
18 and being able to trumpet in the press that a report
19 from IBT says PCB's were only slightly tumorigenic,
20 isn't it?

21 MR. FRUEHWALD: Let me interpose
22 there. There's no foundation for trumpeting any of
23 this stuff in the press. And what's that all
24 about? That's a purely hypothetical question that
25 nobody has done.

1 I object to the question as being
2 purely hypothetical. Nobody trumped this in the
3 press.

4 Q. (By Mr. Lacey) What representations did
5 you make to all the governmental agencies when you
6 went to them in November of 1975? That IRT studies
7 had shown that they were noncarcinogenic; isn't that
8 correct?

9 A. Plus the poor interpretation, something on
10 the same subject.

11 Q. And when the Monsanto went to the Senate,
12 who was investigating the issue of PCB's, for
13 whatever reason, it reported that the IRT studies
14 had found PCB's to be noncarcinogenic, didn't it?

15 A. Yes.

16 Q. It wouldn't be nearly so pleasant to have
17 to report that the IRT study had concluded that
18 PCB's were tumorigenic, would it?

19 A. I don't think so. I don't think there's
20 much difference between the two.

21 Q. You can't see much difference --

22 A. No.

23 Q. -- between the two?

24 If there wasn't much difference
25 between the two, why in the world did Dr. Livinscus

1 bother to have it changed, then?

2 A. To be -- to try and get them to say what
3 they had said.

4 Q. Well, if the two mean the same thing, there
5 really doesn't matter if you say one way or the
6 other, does it?

7 A. It's more important to say something is not
8 carcinogenic than it is to say that it's
9 tumorigenic.

10 Q. And that's why Monsanto wanted the way it
11 was said changed, wasn't it?

12 A. We wanted to say what they said it should
13 say.

14 Q. You wanted it said the way that was most
15 favorable, didn't you?

16 A. No, sir.

17 Q. The product was definitely tumorigenic,
18 wasn't it?

19 A. Yes.

20 Q. And there wouldn't be any reason in the
21 world the conclusion shouldn't read, "PCB's are
22 tumorigenic." That would, in fact, be a very proper
23 conclusion, wouldn't it?

24 MR. FRUEHWALD: You mean a conclusion
25 sentence, again, are you --

1 MR. LACEY: Yes.

2 MR. FRUEHWALD: The summary says it's
3 tumorigenic, but the conclusion sentence does not.
4 Is that what you are referring to?

5 MR. LACEY: Yes, that's exactly what
6 I'm referring to.

7 MR. FRUEHWALD: Okay.

8 A. I don't really see a great deal of
9 difference. If it's all part of this -- it's in the
10 same paragraph.

11 Q. (By Mr. Lacey) Well, let's go back and
12 take a look at what Monsanto told the U.S. Congress
13 in 1979.

14 MR. FRUEHWALD: Doesn't the document
15 speak for itself, Mr. Lacey, I mean, as to what --
16 as to what that document says? Is there any --
17 anything to be gained by asking this witness about
18 it again or reading it into the record again?

19 It says what it says. This is just
20 argument.

21 MR. LACEY: No, it's not argument.

22 MR. FRUEHWALD: This is not
23 questioning and answering.

24 Q. (By Mr. Lacey) Let me ask you: In the
25 presentation that Monsanto made to Congress in 1979,

1 it only referred to the conclusory sentence of the
2 IBT reports, did it not?

3 MR. FRUEHWALD: Do you want him to
4 review the entire document to see if it's mentioned
5 otherwise than where you pointed out to him?

6 MR. LACEY: Feel free.

7 MR. FRUEHWALD: Okay.

8 A. The only thing that said, "produced liver
9 injury."

10 Q. (By Mr. Lacey) Doesn't say anything about
11 tumors, does it?

12 A. No, it does not.

13 Q. But it sure does say "noncarcinogenic,"
14 doesn't it?

15 A. Yes.

16 Q. And Monsanto wouldn't have been free to
17 make those representations about the conclusions of
18 those studies in 1979 in that fashion had they not
19 gotten IBT to change the conclusion in the studies,
20 would they?

21 A. No. It would have been -- we still could
22 have been -- Poor's report would still have been the
23 same.

24 Q. But the IBT studies sure wouldn't say that,
25 would it?

1 A. And the Cancer Institute would still be the
2 same.

3 Q. But the IBT studies that Monsanto had done
4 wouldn't be the same, would they?

5 MR. FRUEHWALD: Just a minute.

6 A. Not necessarily.

7 Q. (By Mr. Lacey) Let me ask you to take a
8 look at that 1254 study and all the sentences in the
9 summary but for the conclusion sentence and tell me
10 where in any other sentence it says that PCB's are
11 noncarcinogenic.

12 A. If there's anyplace except that last
13 sentence?

14 Q. Yes.

15 A. It does not.

16 Q. And, so, but for the change requested by
17 Dr. Livinscus and made by IBT at Dr. Livinscus'
18 request, there would be nothing in the summary of
19 that study which would say that PCB's were
20 noncarcinogenic, would there?

21 A. This only says it on this one study.

22 Let's see.

23 MR. FRUEHWALD: By the way, while
24 Dr. Roush is looking, I'm referring back to the
25 exhibit you previously mentioned. Having more time

1 to look through it, there are tumors mentioned on
2 other pages than the one you presented to him. So,
3 his testimony is limited to the one page that you
4 showed him rather than the rest of the report.
5 There's -- tumors are mentioned throughout this
6 section.

7 MR. LACEY: Not in the section that
8 talks about cancer, is it?

9 MR. FRUEHWALD: That's right, because
10 that's not the issue. It's in the tumor section,
11 different from the cancer section, a distinction
12 that we -- I think we all know, but that's being
13 argued about.

14 MR. LACEY: Well, I think it's very
15 clear; and let me make it very clear.

16 Q. (By Mr. Lacey) Again, but for
17 Dr. Livinscus having gotten IBT to change the
18 results of the study, Monsanto would not have been
19 able to cite the IBT studies as proof that PCB's
20 were noncarcinogenic when they went to Congress in
21 response to an investigation in 1979, would they?

22 MR. FRUEHWALD: You mean without --
23 you've also already identified a document where
24 Dr. Calandra said that's what the studies meant, not
25 carcinogenic. So, even without that -- you're

1 saying without that change, he couldn't have used
2 this paper?

3 Q. (By Mr. Lacey) Dr. Calandra didn't write
4 the studies, did he? The studies were done by other
5 people?

6 A. He said that was included, both Dr. Richter
7 and Gordon who did do the studies.

8 Q. So, they both reached that conclusion, and
9 it was just a mistake in the way the language was
10 drafted; is that correct?

11 A. It wasn't the first draft of it.

12 Q. And that was a mistake on their part in the
13 way the language was drafted?

14 A. On the others -- I understand that the
15 other two, they said themselves without correction
16 that it wasn't -- there was no hepatocellular
17 carcinoma.

18 Q. So, it's -- you understand it was their
19 choice of words to say "noncarcinogenic"?

20 A. They --

21 Q. Is that correct?

22 A. On the other two?

23 Q. Yes.

24 A. Yes.

25 Q. No doubt about that?

1 A. That's my impression.

2 Q. And have you ever talked to anybody about
3 that?

4 A. I've talked to Livinscus about that.

5 Q. Did you ever talked to Dr. Livinscus about
6 how those other studies came to a different
7 conclusion before he suggested a change, than the
8 1254 study?

9 A. My impression was -- is that they had a --
10 they had said that 1242 and 1260 were not
11 carcinogenic and hadn't changed this one here and
12 had made a change on the other two.

13 Q. Well, is it your understanding that IBT
14 initially said, on 1242 and 1260, noncarcinogenic --

15 A. Yes.

16 Q. -- or that that was the conclusion after
17 Dr. Livinscus had suggested a change?

18 A. My impression was those two were changed
19 before he talked to them.

20 Q. Without any input from Dr. Livinscus?

21 A. Yes.

22 Q. Have you talked to Dr. Livinscus about
23 that?

24 A. Not in those words.

25 Q. Let me let you take another look at this

1 letter about the change on 1254. In the letter from
2 Dr. Livinscus to Dr. Calandra, dated July 18th,
3 1975, he attaches a table --

4 A. Yes.

5 Q. -- comparing the three revised Aroclor
6 reports --

7 A. Yes.

8 Q. 1242, 1254, and 1260.

9 A. Right.

10 Q. He says, "In two instances, the previous
11 conclusion of 'slightly tumorigenic' was changed to
12 'does not appear to be carcinogenic.'"

13 A. Yes.

14 Q. And he's talking about 1242 and 1260?

15 A. Yes, sir.

16 Q. And then he says, "The latter phase" --
17 "praise is preferable," talking about
18 "noncarcinogenic," correct?

19 A. Yes.

20 Q. And then he requests that the 1254 be
21 amended to say "does not appear to be
22 carcinogenic" --

23 A. Yes.

24 Q. Correct?

25 A. Exactly right.

1 Q. Now, he then has a table of the reports and
2 the changes, correct?

3 A. Yes.

4 Q. When IBT did a report, they did a draft and
5 mailed it to Monsanto for Monsanto's review, did
6 they not?

7 A. They always do.

8 Q. Yes. And after the first review by
9 Monsanto, the first supplemental report came out,
10 correct?

11 A. I don't know that.

12 Q. Well, if IBT followed its customary course,
13 the initial draft report would have been sent -- for
14 each of those studies -- would have been sent to
15 Monsanto for its review, would it not?

16 A. Yes.

17 Q. And then the supplemental report, the first
18 supplement, would come out incorporating the changes
19 suggested by Monsanto, would it not?

20 A. The supplementary report is the one that
21 was in addition to the original report that was
22 given to us. The supplemental report was that those
23 additional slides that I had requested of them to
24 tell me whether they were saying ours was
25 carcinogenic or not. So, the supplemental report is

1 separate from the other report and would be dealt
2 with separately.

3 Q. What -- what was said about cancer-causing
4 prospects in the initial reports?

5 A. I don't recall. I didn't read them.

6 Q. Well, doesn't the chart show us?

7 MR. FRUEHWALD: No.

8 A. Well, that's -- this is -- this is the
9 supplement reports. And it -- this is --

10 Q. (By Mr. Lacey) "Conclusion" --

11 MR. FRUEHWALD: The original --

12 Q. (By Mr. Lacey) -- "hepatotomas."

13 "Conclusion: Hepatomas." "Conclusion:
14 Hepatomas."

15 A. Yes. I --

16 Q. Then in --

17 A. I can't tell if -- if this is the
18 original -- I think this is the original report.

19 Q. And then there's a supplement.

20 A. And I think there's the first supplement,
21 that's right.

22 Q. And the first supplement on each of those
23 reports said "tumorigenic," didn't it?

24 A. "Slightly tumorigenic," yes.

25 Q. And it was only on the second supplement

1 that it was changed to "noncarcinogenic," correct?

2 A. This is -- I think this is a revision of
3 the first, the second -- Supplement Report No. 2.
4 This is a redraft -- rewrite of that.

5 Q. And on -- and it was on all three reports
6 on the second draft that it was changed to
7 "noncarcinogenic," wasn't it?

8 A. When the second supplement came out, it
9 said 1260 and 1242 do not appear to be carcinogenic
10 and they hadn't changed 1254.

11 Q. And that second supplement came out in
12 response to comments by Monsanto on the first
13 supplement, didn't it?

14 A. I can't answer the question between those
15 two.

16 Q. You don't know?

17 A. No.

18 Q. Okay. Did you ever talk with Paul Wright
19 about what those rat studies showed and what
20 appropriate summary language would be?

21 A. I don't recall talking to him about them.

22 Q. By the time these changes were being made
23 in 1975, were you aware of the fact that Paul Wright
24 was responsible for the rat studies at IBT?

25 A. No, I was not.

1 Q. I see. What did you understand Paul Wright
2 had done at INT?

3 A. I really -- I hadn't known that he was
4 there. Why would I even think to ask him if he had
5 been at INT?

6 Q. I see. You didn't review anything about
7 the qualifications, the credentials, and the
8 experience of the people that worked for you when
9 you became the medical director?

10 A. He already was a part of our employ. We
11 don't go back and look at the credentials of those
12 that are working for you.

13 Q. In trying to find out about the people that
14 worked for you, you didn't check into what their
15 experience was, what their criteria was, what their
16 credentials were?

17 A. No, sir.

18 Q. You just made him head of Monsanto's toxic
19 testing laboratory without ever checking out if he
20 had any experience even doing that; is that your
21 testimony?

22 A. I knew he hadn't done anything like that.

23 Q. I see.

24 A. We reviewed a number of people for that
25 job, in addition to Paul. And of those we

1 interviewed, he was the best of those that were
2 presented to us.

3 Q. And wasn't that because of his experience
4 running the rat laboratory at IBT?

5 A. No, sir.

6 Q. Well, what was it in his experience that
7 made him so well-qualified to head up the Monsanto
8 toxicological laboratory, then, if it wasn't the
9 experience he got at IBT?

10 A. He was a very sound biologist.

11 Q. When did Dr. Wright assume the duties of
12 starting up and running Monsanto's toxicological
13 laboratory?

14 A. I think it started about 1979, and he was
15 the first director.

16 Q. And up to and through that time you had no
17 idea about his experience running laboratories; is
18 that correct?

19 A. That's right. There were lots of people in
20 Monsanto who -- who voted for him beside me.

21 Q. You were head of the medical department
22 responsible for setting that up, were you not?

23 A. Yes, sir.

24 Q. Have you ever personally done any studies
25 on PCB's?

1 A. No, sir.

2 Q. At Monsanto have your duties been primarily
3 administrative since becoming medical director, as
4 opposed to practicing in any fields that you're
5 trained in?

6 A. Both. Almost equal.

7 Q. What type of duties have you carried out at
8 Monsanto practicing occupational medicine?

9 A. I put together our epidemiologic section
10 administratively. I sponsored the doing of
11 epidemiologic studies on a number of our products.
12 I supervised and started the -- a Nitro study on the
13 health effects of those people exposed to dioxins
14 and had contracted to have Dr. Suskind from the
15 University of Cincinnati come down and do an
16 in-depth study of that population.

17 I investigated the problem of
18 hypersensitive pneumonitis down at our Pensacola
19 plant and was able to identify the cause of -- of
20 the hypersensitive pneumonitis when the rest of the
21 world was unable to find the cause for it. I have
22 instituted a study by Northwestern on our workers at
23 Krummrich exposed to chlorophenols and the question
24 whether these are dioxin related.

25 Those are major things, but there's a

1 lot of daily issues related to health of workers in
2 which I'm involved.

3 Q. I guess -- and I want to try to separate
4 it -- and you say when you "instituted," in those
5 cases it sounds like that's an administrative
6 function of electing to have a study?

7 A. No. It's technical. I set up and work
8 with them. I decide what needs to be done and --
9 and participate in setting up the test protocol
10 that's going to be done.

11 Q. Now, in the Pensacola case, did you
12 actually go out yourself into the field, look for,
13 find, and identify the problem?

14 A. Yes. And I've done the same thing on
15 PCB's, and I've done the same thing on -- on the
16 dioxins. And at Nitro it was a big issue.

17 Q. Okay. So, the places you've actually gone
18 out in the field -- and I know it's not the right
19 terminology -- but gotten your hands dirty, so to
20 speak, in the occupational medicine field was in
21 Pensacola and in Nitro, West Virginia?

22 A. As major issues, yes.

23 Q. And in --

24 A. And in Krummrich, now.

25 Q. Okay. And what is it at Krummrich that

1 you've done?

2 A. We're looking at the health effects of
3 those people exposed to chlorophenols with the same
4 kind of problem with the furans as the dioxin
5 content -- or there is a dioxin that's produced in
6 the production of chlorophenols.

7 Q. Let me try to understand that. Monsanto is
8 making chlorophenols at Krummrich?

9 A. They were.

10 Q. Were?

11 A. (Witness nods head)

12 Q. When did that stop?

13 A. In the last year or two.

14 Q. And there has been concern because in the
15 process of making those chlorophenols there were
16 also dioxins being manufactured?

17 A. There -- it's a byproduct just as furans
18 are byproducts, possibly, in the production of
19 PCB's.

20 Q. Well, did you find that dioxins were
21 byproducts in the manufacture of chlorophenols?

22 A. Yes, but they're -- they were not of the
23 2378 that are the most toxic.

24 And we did have people that have
25 chloracne, well-identified chloracne, and the

1 question whether there is an adverse health effect
2 in the lifetime of work with that material is we've
3 got this large study going.

4 Q. And that's an epidemiological study?

5 A. Well, it's a -- it's not a mortality
6 study. It's a study of the workers themselves.

7 Q. But an epidemiological-based study?

8 A. Yes. And an -- this is a clinical
9 epidemiologic study rather than a mortality
10 epidemiologic study.

11 Q. Where doctors periodically examine live
12 patients to determine what symptomologies, if any,
13 they present?

14 A. "Effects," any effects that we -- could be
15 observed in them.

16 Q. And you liken that to the issue of furans
17 as a byproduct in PCB's, correct?

18 A. Yes.

19 Q. Did you conclude that furans were a
20 byproduct in the PCB's manufactured by
21 Monsanto?

22 A. No. We haven't done any analyses for me to
23 be able to tell whether that's the case or not. I
24 don't know that -- that furans are regularly a part
25 of the production of PCB's like the dioxins are a

1 regular byproduct in the production of
2 chlorophenols.

3 Q. Where did this issue of furans as a
4 byproduct in PCB's come from if no analysis has been
5 done?

6 A. I learned about it from the -- Yusho.

7 Q. Okay. And you understood that in the PCB's
8 involved there, there were furans that had been part
9 of byproduct manufacture?

10 A. No. All I know is that they do find furans
11 in -- in those PCB's.

12 Q. Okay. Did you ever ask that anyone
13 undertake a study to determine whether furans were
14 to be found in Monsanto's PCB's?

15 A. No, sir.

16 Q. Do you know whether any such study has ever
17 been conducted?

18 A. No, sir.

19 Q. Would that be a matter of interest to the
20 medical department?

21 A. Yes, but I'm not sure I would do about it
22 after we're out of the business.

23 There's a big difference in something
24 that's ongoing as opposed to something that's been
25 terminated.

1 Q. Well, certainly, in trying to assess what
2 the toxicology of PCB's are, it would make a
3 difference if you knew that those PCB's had in
4 them furans produced as a byproduct, would it
5 not?

6 A. It might. That's something you
7 shouldn't -- it would -- you should -- it would be
8 nice to know. But we'd do it after we got it, it
9 would be something else.

10 Q. You recognize, do you not, that furans may
11 be even more toxic than PCB's?

12 A. Yes.

13 Q. And, so, the presence of furans in PCB's
14 produced by Monsanto would be likely to increase the
15 toxic effect of exposure to those PCB's?

16 A. If they were present in sufficient
17 quantity.

18 Q. Okay. What is a sufficient quantity, in
19 your opinion?

20 A. I don't know.

21 Q. You've never study --

22 A. I haven't studied it.

23 Q. I see. Have you had somebody on your staff
24 study that?

25 A. No, sir.

1 Q. Do you have any information on that?

2 A. No, sir.

3 Q. So, trying to assess at what level furan
4 contamination in PCB's would be significant, you
5 don't have any information on that?

6 A. That's right.

7 Q. And is that why you say you don't know what
8 you would do with it if you found out there were
9 furans in the PCB's?

10 A. I don't know what would -- should be done
11 if we knew it. It's a --

12 Q. Would you give some thought to a program
13 you might now undertake if you discovered that to be
14 the fact, even though you no longer manufacture
15 PCB's?

16 A. That would take a great deal of
17 thought.

18 Q. But you've never taken the time to give it
19 that thought, correct?

20 A. I haven't done that.

21 Q. And the reason you haven't is because you
22 have no information to suggest that Monsanto's PCB's
23 had furans in them, correct?

24 A. I don't know that.

25 Q. You just don't know one way or the

1 other?

2 A. That's right.

3 Q. Did you ever inquire about that of

4 anybody?

5 A. No.

6 Q. Do you know if anybody in your department

7 ever inquired of anyone concerning whether

8 Monsanto's PCB's had furans in them?

9 A. No, sir.

10 Q. How many times have you previously given

11 testimony by deposition or in trial?

12 A. I think four times.

13 Q. Tell me what those cases were and what it

14 involved.

15 A. Dioxins.

16 Q. What was the case?

17 A. The Sturgeon spill.

18 Q. Where is that -- where did that take

19 place?

20 A. In Sturgeon, Missouri.

21 Q. Is that the case that's been on trial now

22 for two, three years?

23 A. Three-plus years.

24 Q. Three-plus years. All right. Did you

25 testify by deposition or at trial?

1 A. By trial.

2 Q. And what was the substance of your
3 testimony about?

4 A. The entire subject of dioxins and its
5 biologic effects.

6 Q. All right. What other times have you
7 testified by trial?

8 A. I've testified twice -- there are two
9 trials that have taken place on Sturgeon.

10 Q. Okay.

11 A. I testified in both of them.

12 And I have given deposition on a
13 benzene case.

14 Q. What case was that?

15 A. That's the benzene case that took place
16 here in Texas, related to our Chocolate Bayou plant.

17 Q. The Skeen case?

18 A. Yes.

19 Q. And what was the substance of your
20 testimony in that case?

21 A. The effect of benzene on man.

22 Q. Were you of the opinion that benzene could
23 cause cancer?

24 A. It causes leukemia.

25 Q. And was that what your testimony was about?

1 A. Well, it was -- that's part of it. It was

2 all related to benzene and its health effects.

3 Q. Okay. And the primary health effect was

4 leukemia?

5 A. Yes, but everything about the dose

6 relationship, environmental problems, how you

7 measure it, what's --

8 Q. And what other testimony have you given?

9 A. Maybe that's it.

10 This one.

11 Q. Today you can add one more to your list?

12 A. Yes.

13 Q. Is this the first PCN case you've testified

14 in?

15 A. Yes.

16 Q. Are you able to give us information on dose

17 relationships and the like for PCB's as you did on

18 benzene in the screen case?

19 A. I'd have to spend some time reviewing it to

20 put together what I think a position would be.

21 Q. That's not something you've already done to

22 date?

23 A. No.

24 Q. You would have to prepare yourself to do

25 that?

1 A. Right.

2 Q. And you've not been asked to do that?

3 A. That's right.

4 Q. In the dioxin cases, did you testify
5 concerning a dose relationship?

6 A. Yes.

7 Q. Were you designated as an expert witness in
8 the dioxin cases in Missouri?

9 A. No.

10 Q. By whom were you called to testify?

11 A. By the plaintiff's attorney.

12 Q. In both cases?

13 A. Yes.

14 Q. By whom were you called in the Skeen case?

15 A. By the plaintiff's attorney.

16 Q. Were you designated as an expert in that
17 case?

18 A. No.

19 Q. Have you been asked by Monsanto to offer
20 any opinions, advice, or consultation in connection
21 with this case?

22 A. No, sir.

23 Q. Your only goal and purpose here was to
24 appear as a fact witness pursuant to our request for
25 your deposition; is that correct?

1 A. Yes, sir.

2 Q. Is there anything about your testimony that
3 you've given today that's incorrect or incomplete
4 that you need to add to or change at this point?

5 A. I don't think so.

6 MR. LACEY: Pass the witness.

7 MR. FROEDWALD: I have no questions.

8 THE VIDEOGRAPHER: This concludes the
9 deposition. The time is 4:06 p.m.

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SIGNATURE OF WITNESS

I, DR. GEORGE ROUSH, JR., solemnly swear or affirm, under the pains and penalties of perjury, that the foregoing 284 pages contain a true and correct transcript of the testimony given by me at the time and place stated, with the corrections, if any, and the reasons therefor noted on a separate sheet of paper and attached hereto; and that I am signing this before a Notary Public.

DR. GEORGE ROUSH, JR.

THE STATE OF TEXAS:

SUBSCRIBED AND SWORN TO BEFORE ME, the undersigned authority, by the witness, DR. GEORGE ROUSH, JR., on this the _____ day of _____, 1987.

Notary Public in and for
The State of Texas

My commission expires:

1 THE STATE OF TEXAS:

2 I, Cheryll K. LeFevers, a Certified
3 Shorthand Reporter, heroby certify that the
4 foregoing testimony was given before me after the
5 Witness had been first duly sworn.

6 I further certify that I prepared this
7 transcript and that the foregoing pages constitute a
8 complete and correct copy of the transcript of the
9 proceedings.

10 I further certify that I am neither
11 attorney for, related to, nor employed by any of the
12 parties to the lawsuit in which this deposition was
13 taken; further, I am neither related to nor employed
14 by any attorney of record in this cause, nor do I
15 have a financial interest in the matter.

16
17 GIVEN UNDER MY HAND AND SEAL OF OFFICE
18 in Houston, Texas, on this the 19th day of June,
19 1987.

20
21 _____
22 Cheryll K. LeFevers, CSR, CP, CM

23 Certification Number: 1690
24 Date of Expiration: December 31, 1988
25 Address: 2900 Smith Street, Suite 104
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Phone: 713/523-3767

LAWYER'S NOTES

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