STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF WAYNE

HOWARD HENDERSON and
MATTIE HENDERSON,

Plaintiffs, No. 83-330644 NP

JOSEPH WRIGHT and
MATTIE RUTH WRIGHT,

Plaintiffs, No. 84-424230 NP
(By Consolidation)

CHARLES D. WISE and
ANN ELIZABETH WISE,

Plaintiffs, No. 84-424231 NP
(By Consolidation)

IRA DAVIS and BERTHA DAVIS,

Plaintiffs, No. 84-424232 NP
(By Consolidation)

ROBERT NICHOLS and
CAROLYN NICHOLS,

Plaintiffs, No. 84-427471 NP
(By Consolidation)

-v-

MONSANTO COMPANY, a corporation,
DETROIT EDISON COMPANY, a
corporation, TRANSFORMER INSPECTION
RETROFILL CORPORATION, and GENERAL
ELECTRIC COMPANY, jointly and
severally,

Defendants.
_____/

THE DEPOSITION OF R. EMMET KELLY, M.D.

reported on Wednesday, May 27, 1987, at 216 North Meramec, Clayton, Missouri, at or about 5:08 p.m.

WATER_PCB-SD0000047802

A P P E A R A N C E S

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REPORTED BY: LORI B. RESNICK, CSMR-3236

* * * * * *

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Clayton, Missouri

Wednesday, May 27, 1987

(At about 5:08 p.m.)

R. EMMET KELLY, M.D.

having been sworn to tell the truth, the whole truth and nothing but the truth, was examined and testified upon his oath as follows:

MR. LEDBETTER: Dr. Kelly, my name is J.D. Ledbetter. I introduced myself a moment ago.

I'm going to be asking you some questions today regarding your knowledge of the facts and circumstances surrounding some cases that are presently pending against Monsanto Company where there's allegation of adverse effects due to alleged exposure to PCBs.

If there's any questions that you don't understand, just ask me to repeat them and I'll do it, okay?

THE WITNESS: Yes, sir.

MR. LEDBETTER: Have you given depositions before?

THE WITNESS: Yes, sir.

MR. LEDBETTER: You know the

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procedure?

THE WITNESS: Yes, sir.

MR. LEDBETTER: We should also indicate for the record that this deposition will be used for any purposes applicable under the Michigan Court Rules.

EXAMINATION

BY MR. LEDBETTER:

Q Dr. Kelly, what is your current occupation?

A Physician.

Q And are you still in practice?

A I am consulting in occupational and environmental health.

Q Is that your specialty?

A Yes, sir.

Q And for whom do you do consulting work?

A At present, I have done work for Consolidated Aluminum; I've done work for Barnes-Sutter Health Services; I've done work for the Monsanto Company.

I'm available for anybody who will call.

Q Dr. Kelly, I've received a copy of your curriculum vitae and I've reviewed it just

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briefly.

Do you have a copy in front of you?

A Yes, I do.

Q Are there any changes to this CV that you'd like to add?

A No, sir. I think the term "Medical Director, Consolidated Aluminum" is sort of anomalous.

I'm really a medical consultant for them. They have no medical director, so I suppose I could be considered the medical director.

I am not an employee.

Q All right. My understanding is that for a period of time, you were employed by the Monsanto Company?

A Yes, from 1936 to 1974, with four years in the service.

Q And that's indicated in the U.S. Army, where you were Captain up through Lieutenant Colonel from '42 through '46?

A That's correct.

Q And I assume that you were a medical officer?

A Yes.

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Q Did you have any involvement with a chemical called PCBs while you were in the Army?
A No, sir.
Q Okay. At the time that you were at Monsanto from '36 through '42, was that a full-time position with them?
A No, it was part-time.
Q How much did you work with Monsanto in that period?
A From four to six hours a day.
Q And did you have an ongoing practice of something else at that time?
A Yes, I did.
Q General M.D. type work?
A Yes, internal medicine.
Q When did you first hear the term "PCB," Doctor?
A Probably 1937.
Q Do you recall how it came to your attention at that time?
A No, I don't recall how it came.
Q Back when you began with Monsanto in '36, was there a specific department that you were a part of?
A When I started in 1936, I was engaged as a plant

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physician at their St. Louis plant; at that time, called Plant A.

We had no PCBs at Plant A.

Later on, I received some inquiries from the general office, which was across the street, inasmuch as I was the only physician associated with Monsanto in St. Louis.

So, sometime between 1936 and 1938, the words PCB came to my attention.

Q Do you recall reading any literature in that time period about PCBs or potential adverse effects of PCB?

A Yes, I read the Drinker article.

Q The Drinker article, I think in fact, we've marked that somewhere here.

Let me show you what's been marked previously in Mr. Papageorge's deposition, I think as Number 3.

Is that the article or a similar one?

A Yes, it is.

There were other articles that were articles in the files at Monsanto that were made available to me - I do not recall the time

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frame - where there were reports of testing of PCB by Dr. Flinn.

Q The Flinn and Jarvik study?

A I don't know about Jarvik. I recognize the name Flinn.

Q Okay. Do you remember a study done by Louis Schwartz pertaining to resins and waxes?

A Raisins and waxes?

Q Yes.

A Raisins or resins?

Q Resins, I'm sorry.

Not raisins; not regular raisins.

A Well, I recall several articles by various people.

I recall articles by Schwartz. I don't recall this one. If you show it to me, I can tell you if I recognize it.

Q Okay. I don't know if that one's still out here somewhere or not.

Do you recall where those evaluations or those studies took place of those folks that were allegedly medically involved with PCBs?

A The only studies in the '30's that I know of on

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workers with PCBs, was done at the Anniston Plant, which was owned at that time by the Swann Chemical Company, which was eventually acquired by the Monsanto Company.

That was done before I came in 1936.

I do not know when Monsanto acquired Swann. But Schwartz' work, if Schwartz was the one that saw these people, that would be before 1936.

It was before Monsanto took over Swann, to the best of my knowledge.

Q Okay. Do you recall any specific kind of warning literature or literature pertaining to potential hazards of PCB at the time that you started at Monsanto in '36 up through your part-time involvement through '42?

A Yes.

Q Such as?

A Such as warnings that were incorporated in technical bulletins; warnings that were incorporated in marketing bulletins; warnings that were incorporated from letters from myself when I was asked about what were potential ill-

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effects of PCBs.

Q You were providing warnings of potential hazards of PCBs in that time period; '36 to '42?

A Well, not in '36 and '37. Sometime between 1938 and '42.

Q Okay. Do you recall the nature of the warnings that you provided?

A Certainly. Don't take it internally; don't get it on your skin; don't -- avoid repeated or prolonged skin contact; avoid breathing vapors at elevated temperature or in confined spaces.

Q And if you were asked to provide those warnings, would you do it in an oral form, orally to people that asked you, or would you put it in writing?

A Probably both.

If it were a telephone call, it could be oral.

And if it were attached to a letter, it would be a letter.

Q Do you have any specific recollection here today as to whether you actually developed some sort of written warnings in that '38 to '42 period?

A I have no specific recollection of it.

Q You don't recall reviewing such a document at a

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later time or some such thing?

A You mean any time from 1942 to 1986?

Q Well, what I'm getting to is: I'm trying to confine it to the period of '38 through '42 - involvement in that period - but maybe you may have refreshed your recollection by seeing the document at a later date.

In the '70's, you might have seen something relating to 1938, for example?

A Well, I may. If you show me a document, I will be happy to tell you if I recollect.

Q If I had such a document, Dr. Cragg, I would be glad to show it to you, but I don't.

In the time that you were at Monsanto part-time in '38 through '42, was that all time at the St. Louis plant, at the plant I think you called Plant Number 2?

A Plant Number A.

Q A, I'm sorry.

A I was engaged to be the plant physician at Plant A of St. Louis.

At that particular time, the company was relatively small. It had five plants, something like that, and sales of 70

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million dollars or something like that.

As the scope of their operations widened, they became involved in various other chemicals such as phosphorus and potential problems occurred that may have had some medical involvement.

So, they would ask me, even though I was the plant physician at Plant A, to provide advice on this. And as the years went by from '37 to '42, I was almost a medical director without a portfolio.

I would go to these other plants on various problems.

Q You got to be kind of accepted as a senior man and knowledgeable?

A Yes.

Q And, so, you would provide services as a plant physician to other plants, even though you weren't --

A Yes. At first I started out on an on-call basis.

In other words, if they had a problem, they would call me. But then afterwards, it got to be sort of a routine. I would visit the plants once a year trying to forestall these particular questions or problems.

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Q In that time period from '37 to '42, was Anniston the only plant manufacturing PCBs?

A I do not know if Ruabon in Wales manufactured at that time. I did not go to any of the United Kingdom plants before I returned from the service.

So, I didn't go in that time frame.

Q Is it fair to say that from '36 to '42, Anniston was the only plant in the US manufacturing PCBs?

A The only Monsanto plant.

Q Okay. Did you have occasion to provide information to the Anniston plant or do consultations and visits to the Anniston plant regarding PCBs in '36 to '42 again?

A I did go to the Anniston plant. I don't know when my first time was.

But after 1937 or 1938, I went there on annual visits. I visited the plant and I gave whatever recommendations were needed.

At that particular time, Anniston had no problems with their PCB workers. Their only problems had occurred, as I said, sometime before 1936. And it was either a combination of

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off-spec benzene because the product had the wrong color, or in addition, it was very poor housekeeping, that was taken care of by simple matters of ventilation and plant cleanliness.

So, in all my visits there -- subsequent to all my visits, there was no PCB problem with their workers. They didn't have any chloracne.

Q Do you recall any type of complaints, other than chloracne, that may have been allegedly related to PCB exposure?

A No, none.

Q Were you in that time period requested to write any regulations or recommendations for PCBs?

A For the plant?

Q Yes.

A No, I agreed with what they were doing. They were handling it perfectly well.

Q Okay. And during that time period, they were following the precautions that you just gave to us?

For example: Don't take internally; avoid skin contact --

A Avoid prolonged or repeated skin contact.

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Q Okay. Did you have any definition for "prolonged"; for what time period? Minimum or maximum?

A Well, it wasn't laid out.

But, in other words, if you put a bung on a drum, you might get some PCB on your hands. You didn't have to remove this immediately.

I mean, it was left open to the interpretation of "prolonged," - ten minutes, fifteen minutes; something like that. But I can't be sure of the time frame that somebody decided what was prolonged and what was not prolonged.

Q Do you recall any guidelines of how much or what area of the skin, for example, that may cover?

A No, there was no geographical area of the skin listed as to how many square inches of the skin you could be allowed to have PCBs on, and if it exceeded that, it was too much.

I think it was left to common use of what is prolonged and what is extensive.

Q Okay. And then also the last part of that, I think, was repeated.

Any guidelines as to how many times in a certain period of time one could be

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in contact with it?

A No, the connotation was that any operation which involved having your hands in it repeatedly during the course of the day, that would be repeated skin contact.

Q So that I don't misunderstand you, that would not be a suggested use - for somebody to dip their hands in it - would it?

A No, absolutely not.

That would be considered repeated skin contact and it should be avoided.

Q And perhaps prolonged, if you got enough of it, right?

A Well, that would be extensive, if you got enough prolonged; if you left it on for a half hour or something like that.

We would advise against that.

Q Okay. And then we also had avoid inhaling fumes under --

A Elevated temperature.

Q -- elevated temperature. Higher than room temperature?

A Yes, sir.

Q And that was the recommendation as long as you

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were the medical director from '36 to -- I mean, medical advisor of the plant from '36 to '42?

A Yes, sir.

Q And do you recall who it was that was in charge of the Anniston plant when you were first there in '36 or '42; plant manager?

A (Nodding negatively.)

Q You don't recall who you may have communicated with regarding the medical effects?

A I communicated with whoever the plant manager was, but that was --

Q Fifty years ago?

A -- fifty years ago.

I don't believe he's living.

And they would have a safety man, they would have a plant physician; part-time plant physician.

I remember his name because it was a Dr. Martin, who's deceased.

Those would be the people I communicated with.

Q I learned that there's a standard operating practices manual as to the care and safety in handling PCBs, and there's been such a thing since

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Mr. Topmeorge thought, the mid-50's.

Do you recall such a manual back in this time period?

MR. SCOTT: Counsel, if you recall, the manual was not only PCBs; it was the care and handling of all chemicals manufactured, including PCBs.

MR. LEDBETTER: That's right. That's true.

THE WITNESS: I would say that it was standard procedure for all Monsanto plants to have operating procedures for each department.

Those would contain safety rules; they would contain warnings; and they would also contain operating procedures, temperature ranges and anything else that comes into manufacturing chemicals.

But I don't -- I don't recall whether I did or whether I did not see such manuals before -- 1955, did you say?

BY MR. LEDBETTER:

Q Yes, mid-50's.

A That doesn't mean that they didn't exist at all.

That doesn't mean they didn't

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exist in '72 either, because as I said, we did not have any problems with our workers and PCBs.

So when I would visit the plant and go through the department, I would see that they were observing the rules we laid down.

Q You described two types of bulletins.

One, I think, was a marketing bulletin and one was a technical bulletin.

A Maybe marketing is a bad term. It's a development bulletin, I believe.

A technical bulletin is one that is usually written when a product, new product, is introduced to the customers.

It is a bulletin that is more or less written by research-type people. And from there, it suggests applications for a particular product.

If the product then goes into wider distribution and a usage has been set for it, that would be the development bulletin or sales bulletin. And that would --

In other words, at that particular time, the material was sold country-wide, we would hope.

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Q Okay. You mentioned that the technical bulletins are for new products that are being developed?

A New applications for it.

Q Okay. And I understand that over a time, there were -- for example, in the Aroclor, there were new applications for a number of years, even after the original purchase from Swann, which I believe was in 1935?

A Yes, sir.

Q So, if there was a new use for Aroclor 1260, for example, you could end up with a new technical bulletin for that application?

A That's correct.

Q And then the development bulletins, I kind of missed you on the subject there.

How were those distinguished from the technical bulletin?

A Well, I think the development bulletins would reflect the information that had been obtained on a limited scope on the use of the product.

In other words, I think I can explain it this way: The technical bulletins were sent out to people who were interested and were using 1500 pounds of the material in a

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particular application and found out it worked. Then the company would suggest this use to other people who would be buying the material in ten car lots.

There would be a marketing bulletin for that -- or application bulletin. I don't exactly know the correct term they used.

Q Okay. So just so that I don't misunderstand, could it be as many as three bulletins in that time period; technical, development and maybe a marketing or application?

A I can't answer that.

There may have been and there may have not.

Q Okay. Fair enough.

But, anyway, however many bulletins there were, you mentioned that a number of things would be covered.

One of the areas that could have been covered on bulletins was safety and use in handling; is that true?

A That's correct.

Q Do you recall specifically if there were such bulletins on Aroclor 1260 in that time period?

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A I don't know at that time period. I don't know.

Q Okay. So, with the qualification of '36 to '42, you're not sure.

How about since 1942?

A Well, I'm sure that they were included in general Aroclor bulletins.

In other words, whether it was a bulletin on Aroclor 1260, or whether it was a bulletin that included Aroclors 1242, 1254, 1260, 1268, I don't know.

But there may very well have been one on just 1260.

Q Okay. I believe Mr. Papageorge also indicated that there was a separate bulletin called the dielectric; I don't know if it was dielectric fluids or dielectrics or something of that sort.

Would that have contained similar sort of information on those Aroclors used in dielectric applications?

A It may or it may not.

Remember, if this were a bulletin that was just used to give specific information, like the use in a dielectric, it would be

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talking about the current involved, the gasket you use, the type of core of the transformer; completely technical. It may have nothing about handling.

If it were a general bulletin that were not devoted to a special narrow limit, then it would have safe handling data and what toxicity information we had.

Q Was that information contained in the bulletin distributed to customers?

Is that the primary purpose of the bulletin?

A Yes.

Q So, Monsanto made an effort to inform customers as early as 1936, of recommended safe handling procedures and that sort of thing for PCBs?

A I can't answer about '36, but I can tell you about '33.

Yes, they were.

Q All right. Do you remember specifically if there was such a thing provided to dielectric customers?

A I don't know.

Q Okay. After you got out of the service in 1946,

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did you return to work at Monsanto?

A Yes.

Q And what was your title at that time?

A At that time, I was medical director.

Q And did you remain medical director up through the time of your retirement?

A Yes.

Q And you retired in '74?

A November the 30th.

Q Since November 30th, 1974, have you returned to employment at Monsanto?

A I have not returned to employment.

I was engaged as a consultant on a retainer for a year. Then following that, I've been a consultant on various programs; not any specific time or not any specific hours per year; just on a case-by-case basis.

Q Just as they needed you for whatever?

A That's correct.

Q In the one year that you were retained -- what year was that, first?

A '74 to '75.

Q 1974 through '75?

A From -- I think I retired on November the 30th.

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I started January the 1st; that was '75. I was a consultant for a year thereafter.

Q Any primary involvement in your time in that one-year retainer period?

A I would say the primary problem was at one of our textile plants where we had a problem, not with PCBs, or some work at Nitro, West Virginia, where we had some problems, not with PCBs.

Q Did you have an involvement in that '75 to '76 period with PCBs?

A Not that I can recall. I don't think so.

Q When you returned to Monsanto in 1946, did you start at headquarters or did you go to a plant?

A Started with headquarters.

Q Did you remain at headquarters the remainder of your time with Monsanto; '46 through '74?

A I was geographically there, but I visited all the plants.

I spent about 25 or 30 percent of my time visiting the various plants.

Q Okay. So, when you were medical director, you'd be on the road 25 to 30 percent of the time, but your office, your home, so to speak, would be at

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headquarters in St. Louis?

A Correct.

Q It was my understanding that at another subsequent date after the Anniston plant, Monsanto began manufacturing PCBs in another plant?

A That's correct.

Q Do you recall when that was?

A I don't recall when.

Q And that one was at the -- I forget the name of it, but it was in Sauget, Illinois, I believe?

A Krummrich, K-r-u-m-m-r-i-c-h.

Q Do you recall if there was some sort of split in authority as to who manufactured what PCBs in which plant?

A No, they were both plants of, I believe -- I don't know whether it was organic division or inorganic division, but they were both under the same manufacturing superintendent in St. Louis.

Q Do you recall when the Anniston plant closed down the production of PCB?

A No, I don't.

Q Do you recall when the Krummrich plant closed down its production of PCB?

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A It was after I left. I left in '74.

Q Okay. Did Anniston close before Krummrich?

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

MR. SCOTT: This is the medical director; not the person that was in charge of manufacturing operations.

BY MR. LEDBETTER:

Q Do you recall if you were still visiting both plants when you left in 1974; Anniston and Krummrich?

A I was visiting the plants every year. Whether I saw Anniston and Krummrich in that last year, I can't answer.

But I certainly saw them either in 1973 or 1974.

Q In that '46 through '74 period, did you ever experience any PCB problems, employee complaints of PCB problems; that sort of thing?

A No, sir, I did not.

Q Were you ever called upon to provide updated information or guidance in standard operating procedures or bulletins in regards to PCB, in '46 through '74?

A Would you repeat that?

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Q Yes. Were you ever called upon to provide new updated information in regard to the safety and handling of PCBs in the period of 1946 through 1974, as they relate to the SOPs or the bulletins?

A The only change that we made was when we devoted some information concerning the ecological aspects of PCBs.

Q And it is my understanding that occurred sometime during the late '60's, early '70's?

A Yes, probably in that time time; around 1970, '71.

Q Okay. And those would be primarily with regard to: Don't let the stuff get in the environment? Was that the idea?

A That's correct.

Q And the disposal and that kind of thing?

A Yes, sir.

Q When you returned to Monsanto in 1946, did you assume the same office that you held before going in the service?

At that time, as I recall, you were like plant physician, but you were like the head plant physician, you said, without a title,

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so to speak?

MR. SCOTT: Why don't you repeat the question.

MR. LEDBETTER: If he assumed the same office.

MR. SCOTT: After the war?

MR. LEDBETTER: Yes.

MR. SCOTT: He's answered the question. He became medical director of the company.

THE WITNESS: I was the plant physician at Queeny plant primarily before the war, and I went around to the other plants as sort of a man without a commission.

Afterwards, I came with the medical department, with direct responsibility for the medical operations in the various plants.

BY MR. LEDBETTER:

Q Okay. Did you have a staff to assist you at that time?

A Well, I started with a secretary. Later, we acquired an industrial hygienist. Later, we acquired toxicologists and more industrial hygienists, so that when I left, we had four industrial hygienists, an assistant medical

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director, and four toxicologists.

Q Now, the period that we're talking of is 1946, where you first had a secretary, then you hired your first industrial hygienist and then toxicologists?

A I think we may have hired a second industrial hygienist before we hired a toxicologist.

Q Okay. And they assisted you in performing your functions as plant medical director?

MR. SCOTT: No, no. Corporate medical director, please.

BY MR. LEDBETTER:

Q Okay; corporate medical director.

A Well, an industrial hygienist is a person who surveys the environment of a plant; the working environment of a plant. They're experts in that, so it was -- I was not an expert in that, so it was an extension, if you will, of medical department expertise. It brought something to the medical department we hadn't possessed before.

Q All right. Do you recall who the first people were that you picked up at Monsanto?

A Elmer P. Wheeler was the first one.

Q Albert?

A Elmer, E-l-m-e-r.

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And the second was Jack T. Garrett, G-a-r-r-e-t-t.

Q And the first toxicologist?

A William Hunt.

Q Did any of those fellows or yourself assume primary responsibility for PCBs in that time period?

A I don't know what you mean by "primary responsibility for PCBs".

Q Well, did anyone anywhere along the way, anybody at the corporate medical director's office, assume primary responsibility as they relate to PCBs?

A Well, that's a broad, general question, Mr. Ledbetter.

I mean, the manufacture of PCBs? Pricing of PCBs?

Q Well, no, no.

Certainly, I understand what your involvement is as a medical director, and you don't get involved in manufacture, do you?

A No.

Q You don't get involved in the sale?

A No.

Q You primarily get involved with PCBs as it

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relates to medical advice and precautions and that sort of thing --

A Yes.

Q -- is that fair to say?

A That's correct.

Q Is there anybody in that 1946 period and thereafter, after you hired Mr. Wheeler and Mr. Garrett and Mr. Hunt, that may have assumed primary responsibility as it relates to information of PCBs?

MR. SCOTT: By "thereafter," do you mean up until the time the doctor retired?

MR. LEDBETTER: Let's try to limit it to, say a five-year period. I don't know when all these guys were hired, but --

THE WITNESS: Well, I was. I had the primary responsibility for the medical aspects of PCBs.

BY MR. LEDBETTER:

Q Okay. Did that remain the same all the time that you were the medical director?

A Well, yes, the responsibility was mine.

However, there were some areas in which Mr. Garrett and Mr. Wheeler assumed

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responsibility for it, but I had administrative control over them. So the ultimate responsibility was mine, and the day-to-day responsibility was theirs.

Q Was anyone charged with researching literature, clinical literature, if there was any, about PCBs and its potential adverse effects?

A Well, we all did.

We subscribed to the literature in English.

In Great Britain and the United States, there were very few journals in those days. They were the ones related to toxicology, to industrial hygiene, to medical matters.

So we all read them all and we all passed them around to each other. Eventually, we acquired a librarian whose job was to also call information on various products; not only PCBs, but the various other products that Monsanto manufactured.

Q Who is that librarian that was called upon to categorize that type of literature?

A I forget her name.

Q How long did she work with you at Monsanto?

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A She was there when I left, but I believe she came probably ten years before.

Q 1964, thereabouts, to '74?

A Something like that, yes.

Q You're not sure how long thereafter she remained with the company?

A Well, no, because I think she retired and then they engaged another librarian that they have now.

They now have a much larger library.

Q Prior to the librarian beginning to categorize and gather the things, was the PCB literature kept in a specific place while you were the medical director?

A We had what we considered -- the way we filed things was we had a product file nad a plant file. In the plant file would be any reports of real or alleged untoward effects of any of our products.

The plant may have manufactured aspirin and people may have had an allergic reaction to aspirin, and that would be put in the plant file because that's where aspirin was made.

Also, a copy of that would be put

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in the aspirin file.

If there was some article on aspirin that would relate to health, it would go into the aspirin file; the product file.

So, that was the same thing with PCB. We didn't have any plant incidents that we put in the plant file.

But there were reports, a few scattered reports of occurrences with PCBs in individuals, that went in the PCB product file.

Q Okay. And the way that it would be filed would be just under PCB, as opposed to a specific Aroclor and that sort of thing?

A That's right.

Q Okay. So all the PCB products, regardless what they were, would be under the PCB product name?

A It may have been under the Aroclor file. I don't know which.

It probably would be Aroclor.

Q Did that method of filing hold up even after the librarian showed up? You still used the same filing system?

A Yes.

Q The last you knew, that was what was being used

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in 1974?

A Yes, that's correct.

I mean, we had some Card-dex indices with summaries of the toxicity.

When somebody were to call up and ask about product Y,we wouldn't have to go to a file and pull something out. We would get the Card-dex, and that would have the salient features of the toxicity of the material.

Q Were the Card-dexes used for any other purposes? I mean, distributiion within the company or the branches of the company?

A No.

Q Just at the medical director's office?

A That's correct.

Q And, again, the information that would be contained is just the summary of potential toxic effects?

A Well, yes, and also actual toxicity results that were derived from the work of our consulting laboratories.

And, if we saw something important done by someone else, we'd probably put it on there, too.

Q And I assume by the studies, important studies

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done by others, those were private or educational studies that may have been done on PCBs or toxicity of them or potential toxicity of them?

A Well, it would be anything in the published literature that we came across that referred to a Monsanto product.

We put a reprint in our product file, and if it were any information that we didn't have, we were to add that to the Card-dex.

Q Do you know if there was any sort of cross-indexing as to the systems, the human systems that could be affected by the given product?

A I don't understand that question.

Q For example, we spoke to Mr. Papageorge a while back, and he indicated that there's several potential toxic things about PCBs that had been reported in the literature. Some of that is the dermatological effect. Some of it is the potential affect upon the liver, and some of that refers to the studies defining the relationship between peripheral neuropathies and that sort of thing.

Was there a cross-reference somehow of what product causes what kind of

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problems or potentially causes what kind of problems?

A No. If any case reports - and I presume that's what you're referring to when you talk about some of these things - if any case reports or some doctor made a connection between a person's exposure and his medical condition, even though this was not accepted medical truth, we would put that report in our product file. It would not go in a Card-dex.

Q Was there some way that Monsanto went about determining or evaluating what was accepted medical truth as it relates to potential toxicity of PCB?

A Yes, I think certainly.

If there were somebody who said, "I have a man with a brain tumor and he worked 15 years ago with PCB and I believe there is a connection between this work of 15 years with PCB and this brain tumor today," one would say, "Well, this is one doctor's opinion."

If, however, there was a study where one individual saw six brain tumors in one particular plant and there were no other features

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that might account for it, that might be medical accepted truth.

A case report without validation is not accepted medical evidence, I should say.

Q Accepted medical evidence would include such things as the length of the study, the number of potential subjects evaluated, the connection between the findings and the exposure; that sort of thing?

All of that would go into the equation, would it not?

A Well, there's several things that go into an equation.

First of all, you have to have a definite history of exposure; that means a documented history.

Second, you have to have a condition that occurs that cannot be explained by other factors.

For example, smoking. If you are dealing with a high incidence of lung cancer, and there's an alleged relationship between lung cancer and the occupational exposure, we'd have to evaluate any other factors that might be causing it.

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It has to be a condition that can be repeated. In other words, it had to occur in other groups of individuals.

There are a couple of other factors that enter in.

Q Are there any of those studies that you accept medically as determining potential toxic effects of PCBs?

A That all depends on what you mean. Toxic effects on humans?

Q Yes; on human beings.

A No. I believe that the studies, the epidemiological studies, have not shown any effect of -- a deleterious ffect of PCBs on the working force.

In fact, the last study by Dr. Kimbrough in April of this year - and she's a government individual who has done quite a lot of work with PCBs - if I remember correctly, she said there has been no unusual occurrence of illness in PCB workers.

Q Do you recall what that study dealt with?

I mean, what was exactly evaluated?

A Yes.

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Q What was that?
A It's a review of the literature and the human experience with PCBs up to the date of her article, which was in April of '87.
Q Was it primarily looking toward cancers and malignancies?
A Towards everything.
Q All of the potential toxic effects of PCB?
A That's correct.
Q You were saying that Dr. Kimbrough says that PCBs are not potentially toxic to humans?
A No, that isn't what she said, and that isn't what I said that she said. What I quoted her as saying is that the use of PCBs in the work force has not occasioned any unusual illness. Those aren't the exact words, but I'm sure you can find it in the report.
Q Does that conflict with you, as far as the studies that you referred to earlier in the 1930's, for example?
A No, not at all, because if PCBs are handled correctly and the warnings given to people are followed, the workers will have no ill-effect.
Q Okay. So, the question then becomes: If you

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follow all the precautions that you've outlined for us, if they're followed in the working environment, then the workers will not have any adverse effects dealing with it?

A That's correct.

MR. SCOTT: Assuming there's going to be exposure at all.

BY MR. LEDBETTER:

Q That means all of the things that may result in exposure, if all of those could be eliminated somehow, then the workers aren't going to have problems, right?

MR. DINON: I'm sorry. I'm confused, J.D.

Are you asking him to interpret Dr. Kimbrough's results, or are you asking him for his own opinion?

MR. LEDBETTER: I'm asking him as a medical doctor himself, of his own knowledge.

MR. DINON: Okay. So you're not interpreting the Kimbrough study?

MR. LEDBETTER: No, no, no. I don't know what the Kimbrough study says.

MR. SCOTT: Why don't you rephrase it?

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BY MR. LEDBETTER:

Q Your opinion early on, as I recall, from 1938 to '42, with the precautions that you recommended and the observations that you observed from 1938 forward, is that if the safeguards were followed, the workers experienced no ill-effects.

Isn't that true?

A That's correct.

Q And so, Dr. Kimbrough's findings here in April of '87, or whatever it was, doesn't surprise you in that regard?

A No, it doesn't.

Q Okay. Because you had already concluded that 40 years ago?

A Well, not 40 years ago, but there has been 40 years of experience that has bored out our thinking and our own experience. Because as far as Monsanto is concerned, since I've been there, we have had our three plants where we manufactured PCBs, and we have not had any ill-effects in our workers.

And, also, we have had extremely few reports of PCB untoward results in our customers.

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This does not say that it's not an innocuous compound - of course it isn't - but it's something that could be handled very easily with a relatively small amount of precautionary means.

Q Is there a method or was there a method at Monsanto of passing those same safeguards used by Monsanto to its customers, in the '38 through, I don't know, let's say 1955 or thereabouts?

A All information was passed by several means.

Monsanto had a strict policy that all inquiries concerning the safe handling of products, all inquiries concerning any possible untoward effects of a Monsanto product on our customers or workers, would be referred to the medical department.

That answer might be either by telephone call or by letter. And in addition to the telephone call or letter, I would attach a safety or a toxicological data sheet to my letter.

In addition, there was safe handling data in our bulletins, and there were recommendations as to personal protection in our

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bulletins. That's the way the information was passed on to the customers.

Q Do you know if the same information that was contained in standard operating practices manuals were passed on to customers?

A I don't know, because I think it's somewhat different. Standard operating procedures in a plant, we knew exactly what the person was doing.

When we're writing to a customer, we don't know exactly what use the customer was making of it, so it had to be more general rather than as specific as it might have been in the plant.

Q Dr. Kelly, you indicated a moment ago that the medical department expanded under your leadership from '46 to the time you left in '74; that when you left, there were considerably more employees.

Is that correct?

A That's right.

Q About how many people did you have working for you when you left; professionals as opposed to secretaries?

And I shouldn't say that. It doesn't sound good.

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(Off the record)

THE WITNESS: There was an assistant medical director; there were two part-time physicians who had very little to do with the general corporate medical work; there were four toxicologists; there were four or five industrial hygienists; there was the librarian, who was not a certified librarian, but she functioned as a librarian.

I think that was it.

BY MR. LEDBETTER:

Q Was Mr. Wheeler still there when you left in '74?

A Yes.

Q Was Mr. Garrett still there in '74?

A Yes.

Q Was Mr. Hunt still there in '74?

A No, he died in the early '70's, I believe.

Q Who was the assistant medical director when you left?

A Dr. George Roush, R-o-u-s-h.

Q I understand Dr. Roush is still the medical director there?

A Dr. Roush, yes.

Q Who were the toxicologists when you left?

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A Dr. John Levinsksas, L-e-v-i-n-s-k-s-a-s; Dr. Paul Johannsen, J-o-h-a-n-n-s-e-n; Dr. Paul Wright, W-r-i-g-h-t.

I don't know if we replaced Dr. Hunt at that time or not.

Q Okay. And who were the industrial hygienists?

A Mr. Elmer Wheeler and Mr. Jack T. Garrett, Dr. Carl Bohl, B-o-h-l, and Mr. Bruce Eley, E-l-e-y.

Q Doctor, did you ever -- during your time at Monsanto, as medical director, did you ever arrive at any -- do you know what I mean by dose response relationshp between PCBs and toxic effects?

A I know what dose response is, yes.

Q Okay. Have you ever arrived at any conclusions as to what a dose response relationship was on PCBs to humans?

MR. DINON: A dose response to what?

MR. LEDBETTER: PCBs; as to how much you need to cause whatever problem.

MR. SCOTT: Are you talking about a threshold value of some kind?

MR. LEDBETTER: No. I don't think

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a threshold value would be right.

THE WITNESS: Well, let me get this straight.

You're asking me how much PCBs does a human have to take before he gets an ill-effect?

BY MR. LEDBETTER:

Q That's right.

A I don't know.

Q Do you know anybody who knows?

A I don't believe anybody knows, because I don't believe anybody doses people with that in mind.

Q Are you aware of such things being done with animals?

A Oh, yes.

Q And from the animal studies, have you read of anyone who's been able to conclude that a certain dosage to a human being for a certain period of time of a certain PCB would cause a certain adverse effect?

A I don't know whether anybody did that or not, or whether I read it or not, but to take an analogy from an animal to a human and equate that to doses is hard to be accurate, because the

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metabolism of animals and humans are different; the weights are different; the absorption might be different.

Certainly, the government has picked safe levels of PCBs in food. They generally try to look at a safety factor of 100 to 1,000.

That's as close as I know of any attempt to figure out a dose response. It's really a safe level that they're worried about.

Q Okay. As I recall, the levels being set on various foods relate to the maximum PCB content to be found in that particular kind of food.

Is that fair to say?

A Yes.

Q Fish, for example, is different than grains or that sort of thing?

A Yes.

Q Okay. Do you recall any study that concludes that if you have more than whatever the governmental level is, that that means that you're going to have a certain ill-effect?

A I don't know of any such study.

Q Okay. Are you aware of any classification of PCB

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as a potential human carcinogen?

A Classification by whom?

Q By any governmental agency, for example.

A They have classified it as a suspected carcinogen.

Q Do you know on what PCB being labeled as a suspected carcinogen was based?

A It was based on a study by the same Dr. Kimbrough that I quoted before. And there was considerable discussion as to whether her studies were completely -- whether the pathology that she described was accepted by all pathologists.

We took her slides to the University of Nebraska Cancer Institute and to Northwestern University Department of Pathology, and they disagreed with Dr. Kimbrough.

Dr. Kimbrough took her slides to the National Cancer Institute, and they agreed with her.

But then the National Cancer Institute came out with a two-year study on animals, and decided that -- I think it was 1254 -- was not a carcinogen.

So, there was considerable confusion, even among the government. But

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nevertheless, they still classified it as a suspected carcinogen.

Q And that, as I recall, was in the Federal regulation that was ultimately passed, I think in 1977 or thereabouts?

A That was after I left Monsanto, so I'm not sure about that. But it was certainly that PCB was listed as a suspected carcinogen among other compounds that were definite human carcinogens.

Q Are you aware of the section of the regulations called sometimes TSCA or Toxic Substances Control Act?

A Generally, I know the term.

I'm not sure if I can give you details about the sections of the regulations.

Q Just generally, do you recall if PCB was specifically addressed in that Toxic Substance Control Act?

A I don't know whether it was or not.

Q And I would presume by that, you wouldn't know if there was specific adverse effects or potential adverse effects addressed in that act?

A I have no recollection, but I may very well have seen it. If you show it to me, I'd be happy to discuss it.

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Q Okay. Unfortunately, I don't have that either. But if I did, I'd show it to you.

I've got a lot of books, but some things I don't have.

MR. SCOTT: All the things favorable to us.

MR. LEDBETTER: Assuming that there are such things.

BY MR. LEDBETTER:

Q Doctor, do you know from your experience as a medical director and part-time plant physician with Monsanto, if any particular PCB compound is any more potentially toxic than another?

A When you use the words "potentially toxic," you have to consider first the exposure.

So, if you have a low-chlorinated compound that is more volatile than a highly-chlorinated compound, the exposure level is higher.

Secondly, you have to consider how the toxicity is to be established.

If you're talking about toxicity from the oral point of view, the higher-chlorinated one are not absorbed by the gut

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as much as the lower ones.

However, if you are talking about inhalation, the studies we did found that 1254, which is 54 percent chlorinated, was more toxic than 1242.

So, that from the inhalation point of view, the higher chlorinated may be more toxic.

Q How about the skin contact?

A Well, I think that would go with the lower ones, because the higher ones are more viscous.

If you get up to 1268 or something, you get a resin.

Some of the other ones go down through a molassses-type thing - a pretty viscous thing where they're not easily absorbed through the skin - down to the more liquid ones, which are the 1242's, that are more easily absorbed.

So, I would think that you have to take all those three factors into consideration; absorbability, exposure, and whether you're talking about oral or skin inhalation.

Q As to potential respiratory effects, meaning inhalation, are the higher-chlorinated compounds more of a problem than are the lower-chlorinated

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compounds?

A No, because their volatility is enormously less.

That all depends on how they're being used.

And the government has accepted -- a government industrial hygienist group has accepted a threshold limit of .5 milligrams per cubic meter for chlorinated diphenyls under 50 percent.

They've accepted 1.1 milligram for those with less than 50 percent, and .5 milligrams per cubic meter for those with higher than 50 percent chlorination.

So, from that point of view, on the inhalation, those two are -- the toxicity would increase with the chlorination. Whether it goes up to 60 or 68, I don't believe has been established.

Q I don't know where that answer took me.

Let me see if I can just understand what my question was and what the answer was.

In terms of the threshold limit values set, the higher chlorinated compounds have a lower amount allowed to be in the 1 cubic

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meter of air than does the PCB compounds below 50 percent chlorination?

A That's correct.

Q And that would suggest to one that the accepted level of exposure would be less for the higher-chlorinated compounds than it would be for the lower?

A Yes.

Q And back to the first part of the question: Would you expect, then, that the higher-chlorinated compounds exceeding .5 milligrams per cubic meter of air would potentially cause more severe respiratory problems?

A No, because this was not a question of respiratory problems. I think they were -- I don't believe they based their figures on respiratory difficulties.

Q Do you recall on what they were based?

A I think the general toxicity, the systemic toxicity in the material.

Q Meaning that the systemic toxicity is gathered through the system through inhalation?

A That's correct.

Q I think you indicated a few minutes ago in

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passing, and I just want to follow up on this, that the higher-chlorinated compounds were not as readily absorbed through the skin as was the lower-chlorinated compounds?

A That's correct; or through the gut.

Q Is chlorine itself a potential dermatitis problem?

A You mean gaseous chlorine?

Q Yes; or condensed chlorine.

A Well, it will burn you if it's condensed. You've got hydrochloric acid, sure.

Q In adding chlorine to the biphenyl, would not the compound tend to make biphenyl more toxic to skin contact?

A Well, no, because you add chlorine to sodium and get sodium chloride; you get salt.

Q Doctor, you'd agree that salt is toxic, given the correct amount, wouldn't you?

A Yes. If you get enough salt, you will die.

Q But the exposure level -- or potential exposure levels vary a little bit, don't they, as to how much salt it takes to cause toxicity as opposed to PCB?

A Say that over.

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Q Does the level of exposure -- comparing salt to PCB, would the levels be considerably different in the amount of each to be toxic to humans?

A Well, there again, you can't answer that yes or no.

If you're talking about acute studies, some PCBs are relatively non-toxic from an acute oral point of view. It might be 10 grams per kilogram.

Now, if you equated that to salt, if you took 10 grams per kilogram - that's two teaspoonfuls of salt - if you were a 70 kilogram man, 150 pounds, that would be 140 teaspoonfuls of salt at one dose.

Q That would be quite a bit of salt, wouldn't it?

A That would be quite a bit of salt.

You really can't equate apples and horses - that's what you're really talking about - rather than apples and oranges.

Q And I just wanted to explore that, since we've talked about salt a little bit.

You're not suggesting, Doctor, that one should use PCB like they use salt?

A No. If I were selling salt, I would not say wash it off if you get it on you, avoid repeated

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skin contact, no.

Q Okay. Do you recall a specific record-retention policy relating to Monsanto documents while you were there as medical director?

A Yes.

Q And what was that policy?

A Well, it really was a record-destruction policy, which meant after five years, the originating department would look through their files and see what material should be retained, and discard everything else.

Q So, that was left to the individual judgment of the department heads to make those decisions?

A Well, not the department heads. He wouldn't go through all those files.

For example, I would talk to Wheeler, "You go through your files; Garrett, go through your files." The toxicologists would go through their files.

Q Did you throw out stuff from your product files, for example, or your product indexes?

A Not as a rule; not as a rule.

There may be products that we stopped manufacturing that we threw out.

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Q How about the plant files; the real or perceived problems reported?

A Well, we may have. The real and perceived problems would also be in the product file.

Q Yes. It was cross-indexed; right.

A Well, they weren't cross-indexed from product file to plant file. But any happenings in the plant would be in the product file.

Q I thought any happenings in the plant would go in the plant file and then a copy would go to the product file?

A Yes, but the vice-versa didn't occur.

Anything that -- say we found a reprint about PCBs, we would put it in the product file, but we would not put it in the plant file.

Q Because it doesn't specifically relate to what goes on in the plant?

A Yes.

Q Okay.

A What happened at the plant, we put it in the plant as well as the product file.

Q Okay. Doctor, who was it in the period that you were medical director, that you would report to,

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or what group or division; or however that might have been done?

A It varied with the size of the company.

Earlier, I reported directly to the Executive Committee.

Q That was in the early part-time employment?

A No, early part of '46, '47, '48.

Then as the company got bigger, I reported at one time to the director of administration and the next time the vice-president in charge of -- I forget his title. But there were several people I reported to.

There were vice-presidents, Board of Directors; they varied from -- I think one time it was research, one was administration, one might have been personnel. I'm not sure.

Q What was it when you left the company in '74?

A Director of Research and Environmental something. His name was Throdahl, T-h-r-o-d-a-h-l.

T-h-r-o-d-a-h-l.

Q Spell it again, please.

A T-h-r-o-d-a-h-l. Monte Throdahl, M-o-n-t-e.

I might have missed a consonant on that last name.

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Q Do you recall a Dr. Johnson who was employed in the medical department?

A Oh, sure.

Q Who was Dr. Johnson?

A He was our associate medical director from 1956, '57, to about 1971.

Q He was assistant medical director?

A Yes.

Q He was in the position prior to Dr. Roush?

A That's correct.

Q Did Dr. Johnson leave the company?

A Yes. He went to be the director of Environmental Health at B.F. Goodrich.

Q And in the time that he occupied that position, he worked directly for you?

A That's correct.

Q Do you recall a Dr. - let me spell it rather than pronounce it - A-n-a-g-n-o-s-t-o-p-o-l-u-s?

A Anagnostopolus.

Q I can't even say it now, but do you recall him?

A He was a Ph.D. He was not in the medical department. He was a chemist, a development man, and an individual who was in charge of our rubber chemicals.

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Q Do you recall if he had some involvement in the '60's with PCBs?

A I didn't think so. I don't recall it.

Q And Scott Tucker, he was Dr. Tucker that you indicated to us a while ago?

A I didn't -- Tucker hasn't been mentioned up here so far. I didn't mention Tucker.

Q Okay. Maybe I have my notes confused.

A Scott Tucker was a research analytical chemist, not in the medical department, but in the central research department.

He did analytical work on PCBs.

Q Did you have any direct contact with the research analytical department as to what was done with PCBs at the time you were the medical director?

A We knew what they were doing. They were doing analytical work on people -- not on people -- on tissues that were obtained from animals that we were having outside laboratories administer PCBs to.

Mr. Wheeler had considerable contact with them, but I didn't see them at meetings, I didn't talk to them, and I didn't see their correspondence, but they had very little to do with PCBs in the work place.

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I thought it was mostly environment.

Q Okay. Did you have involvement with the environmental questions pertaining to PCBs, as opposed to the work place?

A Well, it came first under the medical department, but Mr. Wheeler was really primarily responsible for that. But he reported to me, so I guess the ultimate responsibility was mine.

Q And that's kind of what we talked about before; the ultimate responsibility was yours, but maybe somebody had some primary responsibilities in PCBs?

A Yes. We divided the environment into water and air, and Mr. Garrett took water and Mr. Wheeler took air.

Both Mr. Wheeler and Mr. Garrett worked closer to the environmental impact of PCB than I was, although I was cognizant of what they were doing and what was happening.

They had more expertise in those things than I did.

Q Are you aware of any particular study that was carried out on behalf of the medical department by the analytical chemist group relating to PCBs

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in the environment?

A I don't recall any --

For the medical department, or for the company?

Q Assuming that it's through the medical department, I assumed that it's on behalf of the company.

A They don't come to mind at present. I don't recall.

Q Okay. Do you recall a fellow by the name of Orville Hicks?

A I think he was somebody in marketing. I don't know much more about him.

Q Earlier when we talked about Scott Tucker, you said that he was in research and now an analytical type?

A Chemist.

Q He was not an M.D.?

A No, he's a Ph.D.

Q Ph.D.

Are you familiar with Dr. Tillman?

A Yes.

Q Who is Dr. Tillman?

A Dr. Tillman was a doctor that came -- an M.D. who

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came to work at Monsanto after I left. And he left Monsanto about a year ago to go to work in Owens, Illinois, or some place like that.

I met him when I was doing consulting work for Monsanto. I knew him, but I didn't know what his duties were at Monsanto. He came after I left.

Q How about Dr. Spraul?

A Same thing with Spraul. He came after I left, and is still with Monsanto.

Q And Dr. Barnes?

A Maurice came after I left, and he also left Monsanto.

Q And how about Dr. Bonifo?

A He came about three or four years ago. So that was considerably after I left that he came with Monsanto.

He's still there.

Q Did you know Cole Weber -- Coleman Weber?

A Yes, he was in what they called at that time the inorganic division. Monsanto Chemical Company changed the department structure pretty frequently.

I think he was in the

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environmental aspect of that particular division or company.

Q Do you know a Kenneth Easley?

A Easley?

Q Yes.

A Yes. I knew him when he was associated with the Washington office. And when he came back, I don't recall what he was doing there.

He was not with the medical department.

Q How about Randy Graham (phonetic)? Do you know Randy Graham?

A No.

Q How about Lawrence Helpren; Dr. Lawrence Helpren?

A Yes, he was a physician, a dermatologist, who did some considerable skin testing work for us to determine whether various products were sensitizers, skin irritant, at the Barnard Skin and Cancer Hospital.

He is now dead.

Q Do you know who it was that commissioned the tests through Dr. Helpren?

A Yes. Emmet Kelly; me.

Q And for what reason were those commissioned, if

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you recall?

A They were thinking of using it as a plasticizer, and the question arose whether or not when incorporated in a vinyl film, whether it possessed any irritating or sensitizer qualities.

Q And do you recall what the conclusions were at that time?

A I did not. I don't know the conditions of the test.

Q And you came to learn sometime before you left Monsanto that the plasticizer operation was ceased --

A Yes.

Q -- at a later date?

A Yes.

Q Do you recall why it was ceased?

A Well, one, I take it because of environmental reasons. And the other question was whether or not PCBs could be leached out of a plasticizer and get into the environment.

And maybe it wasn't a very good plasticizer, too.

Q How about the dielectrics?

You became aware, I assume

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sometime, that the production of those were ceased in about 1977?

A Yes, sir.

Q Do you know why that was done?

A Well, yes. That was done because they wanted to keep it out of the environment. And they found that people were re-using PCBs -- using dielectrics from discarded transformers, and they stopped manufacturing them.

Q Do you know if Monsanto recommended against using the fluid out of other transformers and other existing transformers?

A I don't know.

Q Do you know if the medical department ever did any involvement in what may be an old dielectric fluid that had been out there in the market place for years?

A Up to 1974, I don't believe it was a very prominent thing; up to '74.

I think it occurred after '74.

Q Did you have any direct contact with a Dr. Treon and his studies - I think we talked about them a moment ago - about the 1242 and 1254?

A Yes, quite a lot.

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When we first started doing toxicology work, we'd do it at the University of Cincinnati, Kettering Institute.

Dr. Treon was probably the number two fellow there, so I knew him quite well.

Q Did you have any input as a medical director of the department from '46 to '74, in the development of instructional warning labels to be placed on PCB containers or equipment to be provided with PCB fluids?

A We had -- the medical department had the responsibility for putting on the warning recommendations -- well, the precautionary information as well as warnings, on labels and in bulletins.

Q Now, when you say "responsibility for putting on," I assume that's in drafting the content, but not physically slapping it on?

A Yes. We did not slap it on.

Q Okay. Do you recall when you were first involved in altering the content or the wording of instructions on warning labels?

A I would think as early as 1938.

Q As to the specifics contained in the warning

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labels as early as 1938, were the precautions that you laid out for us earlier about inhalation and skin contact, avoid that sort of thing, was that what was put on the labels in 1938?

A I don't recall exactly what was on the labels. We may have had information on the labels that was different from '38 to '58, depending on what information was developed, either as far as the absence of untoward conditions or the occurrence of untoward conditions.

So, without seeing the labels, I can't say what they were in '38 versus '58.

Is that the question?

Q Yes; if you can recall what the content was in '38.

A No, I can't.

Q How about specific sort of warnings as to a specific toxic effect?

Was that put on labels at all in the 1938 period?

A As a rule, specific toxic effects are not put on a label. You can only put so much in a label.

If you have something in a label

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that says "This is poison," you don't really write on it "This is a poison because it will stop your heart," or "This is a poison because it will poison your liver."

You just put on it "This is a poison, here's how to avoid it."

The same thing with a product that may have toxic effects. You're saying don't do this, don't do that.

You don't say don't do this because if you do, this will happen to you. There's not that much room in a label and people won't read it. You're just supposed to read what you shouldn't do with the product.

Q And it's your recollection that these specific what-not-to-dos were on there in '38?

A I can't answer that. I don't know unless I see it.

I don't remember what it was in '38.

Q Okay.

A I know that the medical department -- if they were on the labels in '38, the medical department had responsibilities for putting them on.

Q Okay. And subsequent changes to it, that would

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also go through the medical department?

A That's correct.

Q Do you recall the specific involvement of putting -- or seeing that the appropriate labels were put on PCB transformers, for example?

A No, we didn't sell transformers.

Q I'm aware of that.

But suggesting to customers what kind of labeling they could put on their transformers?

A No. We told the people what to do with the product.

Remember these transformer companies, General Electric, had a patent on Askarel or Pyranol.

Westinghouse had a patent on Inerteen.

These were their own patented products. They manufactured the products.

So, they certainly knew everything we knew about toxic properties in material, so we left it up to them to decide how they would label their transformers.

MR. DINON: I would just object as

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to foundation.

BY MR. LEDBETTER:

Q Let me just do some followup on that.

How are you aware of what GE or Westinghouse knew as to the potential toxicity of PCBs?

A Because I have talked with their medical director off and on during the years in the early days - he is now dead - Dr. Bosbourg, B-o-s-b-o-u-r-g.

Our industrial hygienists often communicated with, personally and by letter, to the people at Westinghouse.

The people at GE were at meetings that I was, where the toxicity of PCBs were concerned or discussed.

So, I was convinced that they knew as much as we did about it.

Q Did you ever happen to read any studies or that sort of thing conducted by or on behalf of GE on PCBs?

A Not that I recall.

I may have. I don't know.

Q Were you aware of any time period in the '70's before you left Monsanto, that Monsanto made any

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efforts with its customers to ensure that PCB transformers were identified as PCB transformers?

A I don't recall whether they did or not.

Q Do you recall any discussions about that kind of topic; as to whether there should be some sort of retroactive action taken by customers in their labeling?

A I don't recall that.

Q Okay. Do you recall a study being done by Mobil Chemical Company regarding employees with suspected cancers?

A It wasn't a study done by Mobil Chemical. It was done by somebody by the name of Dr. Bahn, B-a-h-n.

She went to a refinery, and said that she found a high incidence of melanoma.

Well, in the refinery there, there were about 500 different chemicals that people were exposed to, so she picked PCB as one of them.

This has never been validated. She said she was going to do some extra work on that, but she never repeated the study.

So, I think her work is completely invalid.

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Q Did anyone else do any followups on the suspected melanomas?

A Yes. There were several epidemiological studies that were carried out by much larger groups than she had, and there were no melanomas.

Q And, again, that's throughout the body, not just limited to the liver?

A That's melanoma, skin.

Q Any cancer studies that you recall that related specifically to other parts of the body?

A Well, there are always various factors of epidemiological studies that are not clear cut.

None of the epidemiological studies showed any predominance of the same cancer in any of the studies. Some showed none at all.

Some showed cancer of the rectum in females at one plant; no cancer of the rectum in females or males in three other plants with the same company.

Some have shown cancer, predominance with some cancer of the lung, but they were not defined. Smoking or not smoking was not taken into effect.

So, I think the statement can be

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made, but there have been no -- there's no epidemiological evidence that PCB has been indicted as a causative agent of cancer in workers.

I again quote Dr. Kimbrough's latest work, where she agrees with that.

Q And, again, that's if all the proper safeguards are followed in the work environment?

A No. Because you take all these people, you don't know if they followed all the safeguards.

I mean, you take the workers and they haven't got cancers, and you don't know whether they followed all of them, we'd have no workers with cancer.

So that would include workers who followed safeguards and the workers that didn't follow the safeguards.

Q You're saying that some of the workers at Monsanto didn't follow it?

A I don't know whether all of them followed the instructions.

But I do know that all the workers that they surveyed didn't show any higher incidence of cancer.

So, you can't divide workers who

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followed instructions into who didn't follow instructions. We are taking the workers as they come.

Q Okay. Could you divide them into people who received instructions and who did not receive instructions?

A No. We didn't divide anybody. They took all the workers. There was no division at all; anybody with a particular group of factors.

Q Do you recall a fellow by the name of Bern Severson (phonetic) at the Anniston plant?

A No.

Q How about Hill Williams?

A Who?

Q Hill Williams.

A No, I don't.

Q What about William Richard?

A At Anniston?

Q No, no. William Richard was at the research center, I think.

A Richards?

Q Richard.

A Is it Bill Richards?

Q Yes.

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Richard is what I have.

A I don't know whether it's Richard or Richards, but there was a Ph.D., a Dr. Richard or Richards, at the St. Louis general office, research department.

Q Do you recall a fellow named Gene Jessee, J-e-s-s-e-e?

A No, I don't.

Q How about Tom Gossage?

A I recall the name. I don't recall where he was.

Q Okay. And Donald Olson?

A Yes, I thought he was in the St. Louis general office.

I vaguely remember the name, but I don't exactly know what he did or what his relationship was with PCB; if he had one at all.

Q Doctor, have you published any papers or given any presentations specifically regarding the subject of PCBs?

A No, I have not -- well, just a moment.

Presentations? I made a few remarks at the Drinker symposium in 1938, I believe.

That was just a couple of sentences. It was no presentation.

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Q Do you recall providing any sort of corporate memorandums or that sort of thing regarding reporting potential toxic effects of PCBs?

A I don't know what you mean by "corporate memorandums" and reporting it to whom?

Q To other authorities in charge of PCB within the corporation or products to be manufactured within the corporation.

A When we had toxicological data developed at our outside laboratories, we sent it to the responsible individuals in the corporation.

If they were in the development department and they were thinking of using this for a particular purpose, we sent that with our interpretation to them.

If they were in marketing, we sent it to them.

If they were in the environmental area, we sent it to the environmental people.

Is that what you mean?

Q That sort of thing, but let me try to get a little bit more specific, too.

Do you recall being asked to provide any opinions on PCB products, and

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suggesting that the problems should be reported to the users or customers with those products?

A Say that over.

Q Do you recall providing input to whoever requested data on the production of PCBs and the distribution of PCBs to its customers, relating to potential adverse effects?

MR. SCOTT: I don't understand your question.

He has testified repeatedly that they from time to time provided information to customers, either from inquiries or through data and so forth.

You're circling around --

MR. LEDBETTER: We're talking internally.

MR. SCOTT: But your question isn't phrased that way.

MR. LEDBETTER: Well, the first one wasn't.

I'm trying to do a followup so that he can understand that.

MR. SCOTT: Your question was whether or not he ever wrote a memo, internal

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memo, to corporate officials regarding PCBs?

MR. LEDBETTER: Yes.

MR. SCOTT: Okay.

BY MR. LEDBETTER:

Q Yes. Do you recall if any of those memorandums dealt with your suggestion to provide specific information to customers or users of PCB products that had not yet been provided?

A That might very well have been if it were a new use.

If somebody in the development department or somebody in the corporation was thinking of a new use for it and they would ask me about it, or if someone would ask me, I would write them back and say, this use should not be carried out because exposure would be too great.

Or I would write back and say, this can be carried out if this precaution is used, if this type of operation is used.

So, that occurred, yes. I don't recall specifically, but that occurred all the time with many chemicals outside of PCB.

Q We had a warning -- type of warning letter or advisory letter to customers, circulating around here as

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one of the exhibits a moment ago, which occurred sometime I think in 1970, where there was a general mailing to customers about certain PCB products and applications.

Did the medical department have any input into those warning letters?

A Let me see it.

Q Okay. Let's see if we can find it. I think we had it out here a moment ago.

MR. DINON: Just for the record, I don't think there's been any testimony established about some massive mailing to potential customers.

But be that as it may --

MR. SCOTT: Do you want 69 and 70?

MR. LEDBETTER: I think it was -- both, if you've got them.

MR. SCOTT: Here's 70 (indicating). Let's give him both of them.

(Whereupon witness peruses document)

MR. SCOTT: And let's, for the record, indicate that I just handed Dr. Kelly Deposition Exhibit Number 7 and 6.

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THE WITNESS: This has to do with -- Deposition Exhibit Number 6 is a memorandum of March the 3rd, 1969, by Elmer P. Wheeler of the medical department.

He is giving the history -- relating the history of the finding of PCBs in the environment.

And at that particular time, a newspaper in the west coast was stating a number of things that were not proven. So I don't know to whom this memorandum was written, and it certainly reflected the medical department's best information on it.

And if that went out to people - obviously, it must have gone out to somebody, because otherwise he wouldn't have written it - I think it was fine. It was an excellent article. It stated Monsanto's position.

This next one is by Olson, who was the director of sales for the functional fluid group. That's February 18th, 1970.

How long after this one (indicating)?

MR. SCOTT: This one's March 3rd, '69, Doctor.

THE WITNESS: That's 11 months later.

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This also seems to be a pretty responsible letter that says that some compounds are found in the environment, and some of lower chlorination haven't been found, and we're testing new formulations to replace them.

Again, this is all as far as the environment is concerned.

BY MR. LEDBETTER:

Q Were those kind of -- this particular last letter here, did you have any input in the content of that letter to customers?

A I'm sure Mr. Wheeler did, yes.

Q Do you recall if you had any communications with either Mr. Olson or others in a similar position regarding sending this sort of letter sooner?

A Not that I recall.

MR. LEDBETTER: Let's mark this as 11.

(Whereupon Deposition Exhibit Number 11 marked by reporter)

BY MR. LEDBETTER:

Q Doctor, I would just ask if you can identify that particular letter?

A This is a letter from me to Dr. Herbert

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Blumenthal in the U.S. Food and Drug Administration.

Q And do you recall if that was a letter that was actually authored by you, or one of your folks there at --

A No, I think this was authored by me.

Q Okay.

A Because I see my secretary's name is on it. I recognize her initials.

Is there a question besides that?

Q No, only first if you can identify the document.

A Yes.

Q And you've indicated to Mr. Blumenthal that Monsanto is studying the environmental problems with PCBs?

A That's correct.

MR. SCOTT: The document is the best evidence of its own content.

BY MR. LEDBETTER:

Q Do you recall any involvement with the medical department prior to sending that particular document?

A Involvement with whom?

Q In the development of that document, prior to it.

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MR. SCOTT: It's written by the doctor.

MR. LEDBETTER: I know.

BY MR. LEDBETTER:

Q But it's written, I assume on the day that you signed it, the date that it's dated, correct?

A Um-hum (affirmative).

Q Do you recall any involvement in developing a similar document to that, or ultimate development of that document at a prior time, but holding off in sending it to that date?

A I may or may not.

I don't recall.

Q Do you recall any reason why you may have delayed in sending that letter?

A I don't know if I delayed.

Q Okay.

A I don't know what occasioned it, but I don't know whether I delayed it or not.

It may very well have been that Blumenthal called me or something.

Q Doctor, do you recall any involvement, or studies that you read from the Harvard Medical School, regarding PCBs?

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A Well, Drinker is at Harvard Medical School, and that was the work that was done back in '36 or '37.

Q That's the first article that we circulated around here a moment ago?

A Yes.

Q Any others besides the work that Drinker did at Harvard Medical School?

A I don't recall any.

Q There is one other area.

Doctor, have you appeared in trials before regarding PCB issues?

A Yes, sir.

Q How many times?

A I recall two definitely.

Q What were those?

A One was a Ward Transformer Company in Raleigh Durham, North Carolina.

The other was a case in Bad Axe.

Q Any other trials that you recall other than those two?

A Referring to PCBs?

Q In PCB cases, yes.

A I don't think so. I may have. I just don't know.

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Q How about depositions?

I assume that you gave depositions in those two cases?

A Yes. I've given another one in the Outboard Marine case.

I've given a deposition in a case in Houston.

Q What did that case involve?

A Exposure -- alleged exposure and alleged ill-effects of PCB to workers.

I've given one or two more, but I don't recall the details.

Q Did the Outboard Marine case -- what did that involve?

A Environmental presence of PCB in Lake Michigan.

Q Do you recall if any of those involved multiple cases of alleged exposure?

A The Houston case --

Multiple people, you mean?

Q Multiple people, yes.

A The Houston case did.

Q I know what time period the Bad Axe thing was, as I recall, '83, '84, something like that.

How about the Warren transformer

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case? What time period are we talking about?

A Ward transformer, W-a-r-d.

Q Okay.

A I think that was a little before '83.

I thought it was '81 or '82.

Q Okay. And the Outboard Marine case, what time period was that?

A I think that was before that. It might be 1980.

Q Okay. And the Houston, Texas cases?

A Going on right now.

Q Any others that you're presently involved in?

A No. But I'm still involved in the Houston case and this one.

Q Okay. Anything else?

A Let me look in my book. I don't think so.

I think these two are the only ones -- I mean, Monsanto has talked on and off about various things, but I've never given a deposition in anything yet.

I don't know if they're PCBs or other products.

I've given depositions on other things outside of PCBs.

Q Okay. Currently, you are retired from Monsanto?

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A Well, there again, I'd have to qualify it.

In my own name, about 200 shares.

In the name of a trust, about 1,400 or 1,500.

Q Do you have any sort of reviving profit sharing plan with Monsanto existing now?

A Nothing outside the pension.

MR. LEDBETTER: Okay. No other questions.

MR. SCOTT: No questions, Dr. Kelly. Thank you.

(At about 7:15 p.m. - whereupon deposition concluded)

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STATE OF MICHIGAN)

COUNTY OF ST. LOUIS)

I, Lori B. Resnick, Notary Public in and for the County of Wayne, State of Michigan, do hereby certify that the foregoing deposition of R. EMMET KELLY, M.D., was taken before me at the time and place hereinbefore set forth, and that said witness was duly sworn by me to tell the truth, the whole truth and nothing but the truth, and thereupon was examined and testified as in the foregoing deposition appears;

That this deposition was taken and thereafter transcribed by me and that it is a true and full report of my original stenomask notes.

IN WITNESS WHEREOF, I have hereunto set my hand this 18th day of June, 1987.

Lori B. Resnick

LORI B. RESNICK, CSMR 3236
Notary Public, Wayne County, MI
Acting in
My Commission expires: 12/29/87

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