IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

STATE OF MISSOURI

GLENN BROWN, et al.,

Plaintiffs,

-vs- # 862-00694

MONSANTO COMPANY,

Defendant.

VOLUME VI

DEPOSITION OF DR. R. EMMET KELLY

On the part of the Defendant

June 16, 1990

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IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

STATE OF MISSOURI

GLENN BROWN, et al.,

Plaintiffs,

vs. Cause # 862-00694

MONSANTO COMPANY,

Defendant.

DEPOSITION OF WITNESS, produced, sworn and examined on June 15, 1990, between 8:00 a.m. and 6:00 p.m. of that day, at the offices of Communitronics Corporation, 1907 South Kingshighway, St. Louis, Missouri, before Sheila C. Irvin, a Notary Public within and for the State of Missouri, in a certain cause now pending in the Circuit Court of the City of St. Louis, State of Missouri, wherein GLENN BROWN, et al. are the Plaintiffs, and MONSANTO COMPANY is the Defendant; on behalf of the Plaintiffs.

A P P E A R A N C E S

The Plaintiffs were represented by Mr. David S. McCrea of the law firm of McCrea & McCrea, 119 South Walnut Street, Bloomington, Indiana 47402.

The Defendant was represented by Mr. Thomas M. Carney of the law firm of Husch, Eppenberger, Donohue, Cornfeld & Jenkins, 100 North Broadway, St. Louis, Missouri 63102.

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CONTINUED CROSS EXAMINATION

QUESTIONS BY MR. McCREA:

Q Good morning, Dr. Kelly.

A Good morning, Mr. McCrea.

Q Dr. Kelly, when we finished yesterday, we were looking at Plaintiff's Exhibit Six, and I'll try and locate the page. I believe that we were, we had identified a document on page 222, if you could locate that, please.

A Do you have 222? I have a 22, but I don't know --

MS. RUTTER: I'm not sure. All the numbers on these are kind of --

A What is the title of the document?

Q (By Mr. McCrea) The title is -- It's a letter from the Department of Health, Education and Welfare from Harvey P. Stein, PH.D. to Mr. W. B. Papageorge dated November 4, 1975.

A Yes, sir, I have it.

Q And attached to that cover letter is what Dr. Stein refers to as a current intelligence bulletin on polychlorinated biphenyls?

A Yes, sir.

Q And thought document begins at page 224 with the heading "Background information on Polychlorinated Biphenyls" dated November 3, 1975. Do you see that?

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A Yes, I have it. Yes, sir.

Q With reference to the document, will you turn to page 229?

A Yes, sir.

Q There is a heading there titled "Human" in the middle of the page and two paragraphs following that heading.

A Yes, sir.

Q The first paragraph states, "The known toxic effects of PCBs in humans include an acne like skin eruption, chloracne, pigmentation of the skin and nails, excessive eye discharge, swelling of the eyelids and distinctive hair follicles."

A Yes, sir.

Q It makes a reference on that to 19?

A Yes, sir.

Q Which was a study done in Japan by four authors, as I interpret that looking at the bibliography.

A That is correct.

Q Those symptoms then, in this authors's opinion, would be what was known as a result of the Japanese Yusho ingestion of PCBs?

A Of Japanese PCBs contaminated with. dibenzofurans and quaterphenyls, yes, sir.

Q The second paragraph states, "For a number of

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years, chloracne of the face and neck had been reported among workers exposed to chlorinated hydrocarbons. Workers exposed to PCBs in the possess of insulating cables," with a bibliography reference 20, "in the production of condensers," bibliography reference 21, "and in the manufacture of chlorodiphenyls," with a bibliography reference 22, "have reported these skin lesions along with systemic effects such as digestive disturbances, edema of the face and hands, burning of the eyes, impotence and hematuria," bibliography references 16 and 22. Would you refer to bibliography reference 20?

A Yes, I would.

Q Are you -- were you familiar with that bibliography reference when you worked at Monsanto Company?

A Yes, I was.

Q Would you refer to bibliography reference 21?

A Yes. Do you want me to explain these? Do you have them with you? Do you have these?

Q I have them, but I don't have them with me.

A Well, I have them and I've read them, and in no case does this refer to diphenyls alone. It has always been in connection with chlorinated naphthalene. In fact, the Mayers case, these three cases of people in New York, two of whom worked exclusively with chlorinated naphthalene and one with chlorinated naphthalene with what she said was

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ten percent of the chlorinated diphenyl, yes, I'm familiar with them.

Q All right. Are you familiar with bibliography reference 22?

A That is a review by Schwartz in which he talks about no cases. He just refers -- I think there's one line in there where he says chlorinated diphenyls and chlorinated naphthalene. He does not refer to any cases. He's talking there about dermatitis of a large amount of different chemicals. Yes, I'm very familiar with that.

Q Are you familiar with bibliography reference 16?

A Yes.

Q And that was written by Renate Kimbrough?

A Yes, that's true, and there again, she is referring to the Japanese work.

Q And is it a fact that impotence was a reported symptom of workers exposed to chlorinated hydrocarbons as determined by bibliography reference 16, Renate Kimbrough, and bibliography reference 22, Dr. Louis Schwartz?

A Well, I'll have to read that. I mean, I can't attest to what these people have stated. I don't know. In fact, I don't know if Schwartz mentioned it at all, but I'd have to see those two things. I can't just take a reference and say this was a prominent symptom, this was a

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symptom of one man, this was a symptom of a hundred percent of the people. I can't make a statement like that. I'd be happy to read the article. Show me the article and I'll be happy to answer the question.

Q And the Schwartz article was 1936; correct?

A That's correct, but . . .

Q Isn't it a fact that the worker at Swann Chemical who had the very severe case of chloracne reported loss of libido?

A Yes, sir.

Q To Dr. Jones?

A Yes. You were talking about impotence before.

Q All right, sir.

A That's two different things.

Q All right. And what is the difference between the report by the worker at Swann of loss of libido and impotence?

A Quite a bit. The first one, loss of libido is loss of desire for sexual activity. Impotence is a loss of power, of the ability to have sexual intercourse.

Q Doctor, were you concerned in 1936 after the report of the worker at Swann and in 1936 after reading the article of Louis Schwartz as to these two symptoms, loss of libido which is loss of desire and impotence which is loss of ability, as that could affect workers exposed to PCBs?

WATER_PCB-SD0000011284

A No, I wasn't concerned because these were -- The Schwartz was just a review. He reviewed dermatitis. He may have mentioned impotence or loss of libido in, among a basketful of various complaints or symptoms that he had, that he had elicited from various articles, and as far as the one man that Dr. Jones saw, well, when I ever talked to any of the workers at Monsanto in the 38 years, they never mentioned loss of libido, so I really wasn't concerned.

Q Did you ever ask them?

A No, I didn't ask them, but they -- Let me tell you, people, if they have that will, in the worker environment will tell the doctor. You don't have to ask them.

Q What is hematuria?

A Blood in the urine.

Q Dr. Kelly, would you turn to page 241?

A Yes, sir.

Q Other than cursory review in preparing for this deposition, have you as an expert witness for Monsanto, an expert fact witness for Monsanto ever been asked to review this document with attachments in detail?

MR. CARNEY: Let me object to the characterization of the witness as an expert fact witness. Those are technical terms. I don't know that Dr. Kelly knows those terms other than that he's a witness answering

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questions that are posed to him.

Q (By Mr. McCrea) Are you familiar with the fact --

A What about that other question?

Q All right. Are you -- have you reviewed this document in detail as a --

A No, sir, I have not.

Q Are you familiar with the fact that the United States Environmental Protection Agency pursuant to Section 308 of the Clean Water Act sent a series of questions to manufacturers and users of PCBs regarding the disposal, health effects and so forth?

A I don't know any of the details, but I anecdotally have been told that the EPA sends out or the, sends out questionnaires about all sorts of chemicals. So I'm not particularly familiar with this questionnaire.

Q All right. With you turn to page 246?

MR. CARNEY: Just let the record reflect that this questionnaire came in or the letter attached to the questionnaire is dated December 11, 1975, about a year after Dr. Kelly retired from Monsanto.

Q (By Mr. McCrea) Stipulated. Dr. Kelly, would you focus your attention on page 246 which at the top has the heading "F. J. Fitzgerald, Vice President, Monsanto Chemical Company," and the date January 14, 1976?

WATER_PCB-SD0000011286

A Yes, sir.

Q In the third paragraph -- do you know what this document is?

A It sounds like an address from Jack Fitzgerald, vice president of Monsanto to somebody. I don't know where.

Q In 1971 there was a commitment by Monsanto to remain in the PCB business, was there not?

A I don't know what you mean by commitment. Commitment to whom?

Q Commitment to the manufacturers of the transformers, capacitors and heat transfer fluids.

A There was a commitment by Monsanto to continue the manufacture of PCBs and the sale of PCBs in areas where they considered it unlikely that it would get into the, the material would get into the environment. That was our commitment.

Q On January --

A The commitment also -- May I finish? The commitment, also, was that they would try to minimize all possible escape of the material by advising our customers how to handle the problem, even going so far as to make arrangements to have the material shipped back to Monsanto to be incinerated.

Q On January 14, 1976 Monsanto abandoned that

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commitment and made the public statement in paragraph three by F. J. Fitzgerald, quote, "Let me state at the outset that Monsanto agrees wholeheartedly with EPA's desire to work toward the goal of eventually eliminating all uses of PCBs." Is that correct?

A Yes. I believe Mr. Fitzgerald, being a vice president of Monsanto, was stating Monsanto's policy.

Q The bottom of that page, the first sentence of the last paragraph Mr. Fitzgerald states, "Let me emphasize that we have no desire to remain in the PCB manufacturing business any longer than is necessary." Is that what that states?

A You're reading what he said, yes. I mean, if this is, this is what this states. Jack said this, sure. I believe Jack said, meant it.

MR. CARNEY: Let me just object for the record, you know. I certainly agree you've read those statements accurately, and the only question I have is we have a witness here, Dr. Kelly, that had retired over a year before those statements were made, and I'm not sure that he's the witness that would be knowledgeable. I don't think he attended this speech, so I've no problem in having Mr. Fitzgerald testify to it. I just think at this point --

A Well, you would have one big problem. Jack is

WATER_PCB-SD0000011288

dead.

MR. CARNEY: Well, then -- But I think there are other people that are knowledgeable like Mr. Papageorge about the policies of Monsanto at this time period. I just would want to state for the record that Dr. Kelly had been retired and may not be the witness that has the knowledge about this, so I just note that for the record.

Q (By Mr. McCrea) Dr. Kelly, based upon your participation on the various committees and you endorsements of the various action plans as we have described earlier and you work as the medical director at Monsanto until your retirement in 1970 --

A '74.

Q '74, and based on your numerous involvement in cases in which Monsanto had been sued as a defendant, do you know the reasons for this decision announced by Mr. Fitzgerald?

A Yes. The reason was they found out that the material was still getting into the environment, that there were disposal problems of capacitors. There were disposal problems of the transformer oil, and they were getting out of it for environmental reasons and it, as soon as the industry was satisfied with a substitute, whether that was from Monsanto or anybody else, we'd be happy to get out. Monsanto is a company and I'm sure their workers as

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individuals feel just as strongly about a safe environment as anybody else.

Q Was there any change in data from the time in 1971 in which there was a commitment to remain in the PCB business and supply PCB fluids for transformers, capacitors and heat transfer fluids in 1976?

MR. CARNEY: By change of data, do you include in that question alternative materials that would allow for transformers to be made with a material that wouldn't be flammable?

Q (By Mr. McCrea) No. I include in that question a change of data as far as environmental contamination is concerned. Was there any new information that you obtained between the year 1971 and 1976?

A I think that's a question that you should ask Mr. Papageorge, but it is my impression that the disposal problem was the main factor. You mentioned also, Mr. McCrea, about my involvement in these various committees, and I'll have to say what Ed Bock, the president of Monsanto, said at one of the meetings that I was there. He said if this problem can't be contained, we'll walk away from the business regardless of any profit we will lose. That came from the president of the company when you I was there.

Q When did he say that?

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A 1971 or '72, one of those meetings with the corporate or the executive committee.

Q And you found out it could not be solved?

A Beg your pardon?

Q And Monsanto found out it could not be solved and did walk away?

A That's it.

Q Will you turn to page 256?

A Yes, sir, I have it.

Q Ask does this show the amount of pounds of PCBs sold by Monsanto to Westinghouse for the years 1954 through 1977?

MR. CARNEY: I'm going to object to the question unless there's a foundation this witness can identify this document and knows, either identify it or knows in his own mind what the amounts were in these years. I'm not saying those are incorrect numbers. All I'm saying it I'm not sure that Dr. Kelly has any basis for being able to answer that question.

Q (By Mr. McCrea) Dr. Kelly, I'll ask you to assume that these numbers are correct; all right, sir?

A Yes, sir. I mean, I'm assuming that what is written down here, all these figures are correct.

Q Monsanto recognized in 1969 that PCBs were a potential environmental problem. Is that correct?

WATER_PCB-SD0000011291

A Yes, sir.

Q In 1969 Monsanto sold eight million pounds of PCBs to Westinghouse. Is that correct, by this number?

A Yes, sir.

MR. CARNEY: Wait a minutes. Oh, I didn't hear you say assume that these are the amounts of pounds of PCBs going to Westinghouse.

MR. McCREA: It says to Westinghouse.

MR. CARNEY: Yeah, but I don't think the jury had access to it. I think we need to clarify that we're not talking about pounds to Westinghouse.

MR. McCREA: We are talking about.

MR. CARNEY: Okay. Again, I'm just clarifying it for the jury. They don't see this document.

Q (By Mr. McCrea) All right. This is the amount of PCBs manufactured by Monsanto and sold to Westinghouse Electric Corporation, all locations, according to the caption on page 256?

A Yes, sir.

Q Ask this document shows that in 1969 when Monsanto acknowledged the environmental problems -- Did Monsanto recognize there were environmental problems before 1969?

A No, sir.

Q In 1969 Westinghouse sold eight million pounds

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to Westinghouse. Is that correct?

A Well, Monsanto sold --

MR. CARNEY: Are you asking -- I thought you asked him to assume that.

A I'm assuming --

Q (By Mr. McCrea) Yeah, this indicates that 8,038,072 pounds.

A Yes.

Q The next year it increased to nine million?

MR. CARNEY: I think you ought to ask, Mr. McCrea, if Dr. Kelly has any knowledge as to the amount of PCBs going to Westinghouse. If not, I'm not sure he's the witness that would contribute anything to the amount of pounds. I mean, this is a piece of paper that hasn't been authenticated by Dr. Kelly. I don't think he was in marketing and knew how many pounds of PCBs were shipped in any year.

MR. McCREA: This is a document we got from you.

MR. CARNEY: I'm not disputing the -- All I'm saying is we have a witness here that I don't think has any knowledge about the amount of pounds.

MR. McCREA: Well, I'm asking him to assume that these numbers are correct, and the basis for the question is that these numbers will be established as being

correct as soon as you authenticate this document. This document came from you.

MR. CARNEY: You know, we've given you a lot of documents. I'm not disputing what you're saying. All I'm saying is I don't think Dr. Kelly has the knowledge of what the pounds were in any year. You can ask him to assume it, but he doesn't know it for a fact, so I don't know why we're wasting everybody's time. There are witnesses that do know what the pounds are, and they can testify to this and say it's accurate or it isn't accurate. I'm not disputing that, but Dr. Kelly is not the person.

Q (By Mr. McCrea) Dr. Kelly, this chart shows that five years after Westinghouse recognized that PCBs were a potential environmental contaminant -- Did I say Westinghouse?

A Yes, sir.

Q Five years after Monsanto recognized that PCBs were an environmental contaminant, you were selling a million more pounds to Westinghouse in 1974 than you were in 1969?

A Yes, but in 1976 they were selling 1,000,600 pounds less.

Q And in 1977 it goes down to only 693,000 pounds and then it stopped?

A Yes, and also you have neglected to mention

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that those years, '71 to '77 they are selling a product 1016 which they thought was biodegradable.

Q Was it?

A It was more biodegradable than the others, but I'd have to ask Papageorge on that.

Q And is that because it contained 16 percent chlorine?

A I don't know. You'll have to asked Papageorge on that. Pardon me.

Q To make a long story short, there wasn't any dramatic cutoff to Westinghouse and, in fact, there was increases in certain years after '69?

A Well, that is making the story a little too short, I believe, because there were decreases in some of the years and they were changing the formulation that they were selling. They were you selling them an Aroclor that they thought was biodegradable.

Q Dr. Kelly, no furthers questions on Plaintiff's Exhibit Six. Did Monsanto, you say, recognized that PCBs were environmental, a potential environmental problem. Is that correct, in 1969?

A Sometime in 1969, I believe, or the first part of '70.

Q Did you also recognize that dioxins were an environmental problem?

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A When?

Q In 1969?

A No.

Q When you did you recognize that dioxins were an environmental problem?

A Sometime in the '70s.

Q How many pounds of dioxins did Monsanto dump into the Mississippi River in the 1970s?

MR. CARNEY: I'm going to object to that. Obviously, there's been lots of questions that are totally irrelevant. I'll object to the relevancy.

Q (By Mr. McCrea) Do you know?

A No, I don't know at all.

Q Did you dump dioxins into the Mississippi River after you recognized dioxins were an environmental contaminant?

A You mean you're equating me with Monsanto? Did Monsanto?

Q Not you, Monsanto. I know you didn't dump dioxins in the Mississippi River.

A I don't know that they dumped any, so I don't know.

Q All right.

A If you, there may be -- I believe you're phrasing it, you're phrasing it as though you were saying

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that Monsanto had this tankful of dioxin and dumped it in the river.

Q No.

A Well, that is what you're saying, dumped dioxin in the river. There may have been dioxin in some of the affluents in parts per million or parts per billon. I don't know, but that's a lot different than saying did dioxin, how many pounds of dioxin did they dump into the river.

Q Did you have any information they were dumping 30 to 40 pounds of dioxins on a daily basis into the river?

A No, I do not.

Q Dr. Kelly, did Monsanto secretly test fat samples from several deceased St. Louis area residents who had died in accident and not as a result of illness and the test results showed that every such cadaver contained 2378 dioxin in the fat tissue?

A I know nothing of the details. If they tested it, it was after I left.

Q Did anybody at Monsanto inform you that they secretly tested for dioxin in cadavers?

A First of all --

Q Of St. Louis residents?

A First of all, it was no secret when they did it. They took -- They had a pathologist give them samples

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of fat of individuals who were not at all exposed to PCBs. They were not transformer workers, capacitor workers, Monsanto workers. They were the average citizen who died, and the tissue was furnished by the city pathologist or the city medical examiner and they found levels which were in accord with, not -- I'm not sure whether they tested for dioxins or not.

Q Did they test for PCBs?

A They may very well have tested for PCBs, but I don't know if they tested for dioxins. You'll have to ask somebody else.

Q Why did you do this?

MR. CARNEY: Well, again let me object.

Q (By Mr. McCrea) Why did Monsanto test?

MR. CARNEY: Do you have a time period?

MR. McCREA: 1970s.

MR. CARNEY: Was it before Mr., Dr. Kelly retired or after? I mean, if --

Q (By Mr. McCrea) When did they test the cadavers for PCBs?

A I do not know, but it was not before December the 1st, 1974.

Q When did they test the cadavers for dioxin?

A I don't know. I said I do not know if they tested them for dioxin.

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Q Why did they test the cadavers for PCBs?

A I do not know.

Q Did Monsanto report the results of this testing to the public?

A I do not know. I do not know. I was not associated with them at all. I only heard about it goodness knows when. I don't know.

Q Who told you?

A I believe Dr. George Roush told me.

Q What did he tell you?

A Well, he said we had some samples tested and it didn't show anything unusual, but I don't know if he -- I don't recall him saying we tested for dioxin.

Q When did he tell you?

A Sometime after 1974.

Q Did they determine that the -- Did anybody, from Monsanto tell you that they had tested for dioxin and that it could have come from the Krummrich plant?

A No, sir, nobody ever told me that.

Q This is the first time 55 information has been brought to your attention?

MR. CARNEY: Well, I'm assuming --

A That that statement has been brought. I don't know if that's information.

Q (By Mr. McCrea) Did Monsanto --

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A And anyway, we manufactured agriculture chemicals at the Krummrich plant, so much more in -- We were not manufacturing. I don't know when they tested, but we were manufacturing -- Well, we had manufactured agricultural chemicals, but I believe it was stopped by, after '74.

Q That is Santophen, S-a-n-t-o-p-h-e-n?

A That's an antiseptic or a germicide.

Q Was it contaminated with dioxin?

A I don't know.

Q Do you have any information that Monsanto knew that Santophen was contaminated with dioxin and sold it to a company for use in Lysol?

A No, sir. That's a double question, isn't it?

Q Yes.

A First of all, I don't know --

MR. CARNEY: I'm going to object to the form.

A Oh, sorry. If they ever sold it for use in Lysol, and secondly, I don't know if they ever knew it was contaminated with dioxin and sold it.

Q (By Mr. McCrea) Did anybody from Monsanto inform you that they knew Santophen was contaminated with dioxin and continued to sell it for use in Lysol?

A No, sir. I believe your word contaminant, contaminated can be viewed differently by other people, by

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other individuals. If you have trace amount of a product in there, whether that's called contamination or not, I believe, depends on who's talking. I would not think that's a contamination.

Q When did Monsanto first know that dioxin was in 245T?

A I'm not sure. They -- I don't know if they knew it was in 245T. They knew it was in 24 -- Did you say 245T or 24D?

Q 245T.

A Oh, 245T.

Q T, T as in Tom?

A Gee, I think sometime in the '60s. I'm not sure, though. I'd have to look that up.

Q Did anybody from Monsanto discuss a spill at the Krummrich plant which contaminated the plant with dioxin?

A When?

Q 1979, February 1979?

A No, sir. How big was the spill?

Q It was in department 237 at the Krummrich plant. OSHA ran tests on the walls and found dioxin. Monsanto conducted tests and found dioxin and nevertheless did not, lifted the protective measures and work proceeded as normal.

WATER_PCB-SD0000011301

MR. CARNEY: I'm going to object to your reading a bunch of information into the record. You're not testifying. You're not under oath.

MR. McCREA: Stipulated. I'm not testifying, but I'm just trying to supply the doctor the information.

THE WITNESS: Will you also supply me the relevance that this has to PCBs?

MR. CARNEY: Doctor, I don't want to get a speech. We're trying to finish this thing.

THE WITNESS: Oh, okay. I'm sorry, but . . .

MR. CARNEY: I can tell you there is no relevance, but Mr. McCrea will disagree and we'll have a big argument and it may take an hour.

Q (By Mr. McCrea) Do you know if OSHA issued formal charges against Monsanto for not reporting what it found?

A No, sir. I do not.

Q Did anyone inform you that Monsanto's attorney, Phosha Park, lied to the workers in the Krummrich plant about the presence of dioxin in department 237?

A No, and if they did, I wouldn't have believed it. Phosha Park does not lie.

MR. CARNEY: Let me just object to --

Q (By Mr. McCrea) Did Monsanto --

MR. CARNEY: Let me just object for the record

WATER_PCB-SD0000011302

to the form of these questions where you're reading statements and I guess in an attempt to try to inflame the jury, reading statements that you are contending are fact when there's no, nothing in the record to support these things and trying to get, in effect testify yourself when most of these things that you're claiming occurred were in, were after Dr. Kelly retired.

So you know that he doesn't have the knowledge. He wasn't with the company to be able to refute them, but if you had the right witness here who, like Phosha Park or somebody that has the knowledge, they can refute these charges you're making within these questions. So could I have a standing objection to this type of questioning?

MR. McCREA: Yes.

MR. CARNEY: Where you're reading these statements where you're, that are after Dr. Kelly retired from Monsanto. Okay.

Q (By Mr. McCrea) Did Monsanto ever test dioxin in its laboratories?

A I'm sure they did, but I can't give you any dates. You mean --

Q Do you have any information from Monsanto that Monsanto considered dioxin too toxic to test in its laboratories?

A No, I don't think so. I never had any

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information of that.

Q Did you test dioxin while you were medical director in the laboratories?

A No, sir.

Q Did you do any analytical work with respect to dioxin before 1970 at Monsanto in which it was brought into laboratories?

MR. CARNEY: Let me object. When you say did you --

MR. McCREA: Monsanto.

MR. CARNEY: Again Dr. Kelly, if you're saying -- You're mixing up you, he as the medical director, he as an individual versus Monsanto when you say did -- I think you ought to clarify that in the last couple of questions. Otherwise, I think there's confusion.

Q (By Mr. McCrea) That's a fair statement, Dr. Kelly, and sometimes it's interchanged, you meaning Dr. Kelly, you meaning Monsanto. I'll try to clarify that.

A Fine.

Q And when I refer to Monsanto, I'll say Monsanto because that is misleading and your can't answer the questions if it's not understood, you, Dr. Kelly, or Monsanto. Did Monsanto test dioxin in its laboratories before 1970 to determine contamination of products, levels in its products or any other thing? If you know.

WATER_PCB-SD0000011304

A I'm not certain.

Q Are you familiar with the study done by Dr. Raymond Suskine called the Suskine-Hertzburg study?

A Where was it published?

Q "Journal of the American Medical Association".

A When?

Q About 1985.

MR. CARNEY: Do you have the article so he could look at it? It might refresh his recollection.

MR. McCREA: No, I do not have the article.

A I may have seen it. I'm not certain.

Q (By Mr. McCrea) Was it fraudulent?

A Beg your pardon.

Q Was it fraudulent?

A Was it what?

Q Fraudulent, fraudulent?

MR. CARNEY: I'm going to object.

A I don't understand. I can't hear.

Q (By Mr. McCrea) Was it fraudulent?

A Fraudulent?

Q Yes, the Suskine-Hertzburg study?

MR. CARNEY: How can he answer that when he says he's not even sure he's saw it?

A I know Dr. Suskine. He's a tremendous, reputable individual. He was head of the Kettering

WATER_PCB-SD0000011305

Laboratory, a professor at the Cincinnati Medical School. He would not do anything fraudulent. I can't understand the basis of your questions.

Q (By Mr. McCrea) In 1955 did Dr. John Nestmann examine workers at the Nitro plant?

A John who?

Q Nestmann, N-e-s-t-m-a-n-n. Do you know Dr. John Nestmann?

A We had doctors examine the Nitro workers. The name does not ring a bell with me, but I could be mistaken. We did have quite a number of workers examined by a number of doctors. We had doctors from the University of West Virginia Medical School examine a number of workers.

Q Are you familiar with a study of the Nitro, West Virginia workers done in 1955 by Dr. John Nestmann, N-e-s-t-m-a-n-n which related to the 1949 explosion where the Nitro workers suffered chloracne.

MR. CARNEY: This didn't have to do with PCBs, did it?

MR. McCREA: No.

A I may have. He maybe one of the authors of the study. I don't remember. Where was that study published?

Q (By Mr. McCrea) I don't think it was ever published.

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A Well, is there a reference in whatever you're reading from to it?

Q No.

A Well, my answer is I don't know.

Q Did anyone report to you that Dr. John Nestmann six years after the explosion examined many of the exposed Nitro workers and found that most of them had severe psychoneurosis?

A No, sir, nobody ever did because we also had individuals who were psychiatrists examine the workers and they didn't find any such illnesses.

Q Did anyone inform you that in November 1955 Dr. Raymond Suskine met with McClain and Wagar of Monsanto and at that meeting Suskine, McC.ain and Wagar decided that Monsanto and its medical witness, Dr. Suskine, would delete any reference to Nestmann's findings of psychoneurosis?

MR. CARNEY: Objection to the form.

A Are you asking me do I know of a meeting?

Q (By Mr. McCrea) Yes, sir.

A I do not know of such a meeting.

Q Dr. Kelly, are you familiar with a study -- I'm having trouble with my glasses -- by Zack and Gaffey, a mortality study of the cancer death rate of the Nitro workers who were exposed to dioxin in 1949 as a result of the explosion?

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A No, sir, I'm not. I may have seen it, but I don't -- When was this done?

Q I do not know?

A Well, I don't know, either.

MR. CARNEY: Just again for the record, when we're talking about Nitro, we're not talking about a plant that manufactured PCBs.

Q (By Mr. McCrea) That's been described on the record. It manufactured a herbicide in farming?

A Yes, or railroad right-of-ways, a weed killer.

Q Which was later found out to contain dioxin?

A That's correct. You're also quoting studies. You're not quoting any of the material that was found by other doctors concerning these workers, and when all the evidence was set before the jury, they decided that these workers had not suffered any injury outside of chloracne.

Q Do you know if the evidence of Dr. Nestmann was presented to that jury, Nestmann?

A Well, I don't know. I was on the trial there for seven days and --

Q You testified for --

A I don't recall bringing it up.

Q You testified for seven days?

A Yes.

Q Did anyone during that seven day period ask

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you about the Nestmann evaluation of the workers in 1955?

A They may very well have. I do not know.

Q Dr. Kelly, there have been a number of occasions when Monsanto has supplied PCB for scientists to conduct tests including Renate Kimbrough. Is that a fair statement?

MR. CARNEY: Objection to the form as to what you mean by number.

A Yes. I don't know how many. I know she got it from Monsanto, certainly.

Q (By Mr. McCrea) How was that PCB selected to be sent to Dr. Kimbrough and others and who were the people responsible for preparing the PCB and sending it out?

A Well, I can't answer that. It was my impression that these were regular run of the mill production types. They certainly were not laboratory specimens. They would call up Anniston and say send a quarter of 1242 to Kimbrough or 1260.

Q Were you ever involved in the process of selecting the chemical and sending it out to various scientists who were interested in doing tests?

A I was involved with Drinker, but I would, I said to Dr. Drinker, "We'll send you some regular 1262 or 1268," whatever it was. So I called up Anniston and said, "Send some out to them." There may have been other people

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that called me up and said, "Send me a quart of 1260, 1254," and I'd call up Anniston and say, "Send them some."

Q Did Monsanto keep a portion of that sample that was sent out to Drinker?

A I can't answer that.

Q Do you know if Monsanto in sending PCBs to Kimbrough years later kept a portion of the sample and did any analytical work to determine the chemical content, chlorine content, various isomers of PCB, etc.?

A Well, there's two questions there.

Q Yes, sir.

A First of all, I don't know whether they kept a sample or not, and if I don't know whether they kept a sample or not, I don't know whether they did any analytical work. I don't know if they did any analytical work.

Q All right. Dr. Kelly, in direct examination you made reference to Exhibit K-9 through K-18, and I'll ask your counsel to provide you with those copies.

A I have them.

Q All right, sir. Will you refer to K-9?

A Yes, sir.

Q What colors where the letters on that warning?

A What colors?

Q Yes, sir.

A I don't know.

WATER_PCB-SD0000011310

MR. CARNEY: Just for the record, what we have in K-9 is a xerox copy which wouldn't, I don't think, pick up the colors if there were any.

Q (By Mr. McCrea) That's my point. Do you know if the colors of the letter were other than black?

A I don't know. This is a letter -- No, I don't know.

Q All right. Does this label contain the word warning?

A No, sir.

Q Does this label contain a skull and crossbones?

A No, sir.

Q Does this label tell you what can happen to you?

A No, sir.

Q Does this label tell you when to stop exposure?

A No, sir.

Q Does this label tell you it's a systemic poison?

A No, sir. Are you -- I'm answering your question yes or no, but you are, you want all this on a label?

Q Just if you could answer the questions.

WATER_PCB-SD0000011311

A The answer is no.

Q Yes, I do. I definitely want all that on a label.

MR. CARNEY: How big a label are you going to have?

Q (By Mr. McCrea) Not very big. Does this label give you the early warning signs of systemic poisoning?

A No, sir.

Q Does this label tell you the routes of entry into the body?

A No, sir.

Q Does this label tell you that PCBs can cause death?

A No, sir, it does not. That is never put on labels. As I said earlier in my testimony, we don't put that label on aspirin, but aspirin can cause death. We don't put -- People don't put that on iron pills. That could cause death.

Q Will you go to Exhibit K-10? do you know the color of the letters on this exhibit?

A No, sir.

Q Does this exhibit have a warning sign?

A No, it has a caution sign.

Q Does this have a skull and crossbones?

WATER_PCB-SD0000011312

A No, sir.

Q Does this exhibit tell you when to stop using the product?

A No, sir, it doesn't.

Q Does it tell you that the product is a systemic poison?

A No, sir, it doesn't.

Q Does --

A It's not -- the problem --

Q Just a second.

MR. CARNEY: Let him finish.

A I've got to explain. You were asking me questions that have no relevance to what should be on a label. What should be on a label is how to avoid any injury. As I said, if you have a gasoline truck you say don't smoke around here. You don't say don't smoke around here or you'll blow the truck and yourself up. You say what should be avoided. You say don't smoke there. We say avoid prolonged or repeated contact with the skin and none of these dire things you're talking about would have ever happened.

Q (By Mr. McCrea) Does this label give you the early warning signs of systemic poisoning?

A No, it does not.

Q Does this label tell you the route of entry of

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the chemical into the body?

A Well, I think it does because it says avoid prolonged breathing of vapor or fumes and avoid prolonged or repeated contact with skin. Of course, it doesn't say don't swallow it, but I think industrial workers are quite intelligent enough to know that you don't go around swallowing industrial chemicals.

Q Does this tell you that if you breathe it, it can contaminate your body?

A This shows you how to avoid any contamination. It doesn't tell you that if you breathe it. They say don't breathe it.

Q Does this tell you that if you get it on your skin it can go through the skin and poison your body?

A No, it tells you how to avoid it.

Q Will you turn to Exhibit K-11?

A Yes, sir.

Q Do you know what color the letters were on this exhibit?

A No, sir.

Q Does this contain the word warning?

A No, sir, it contains caution.

Q Does this contain skull and crossbones?

A No, it does not. There's no need for it.

Q Does this tell you when to stop using the

WATER_PCB-SD0000011314

product?

A When to stop using it?

Q Right.

A No, it doesn't tell you when to stop using it. It tells you how to use it safely.

Q You knew if there was irritation of the eyes and throat, 55 was a sign of overexposure?

A We tell them to avoid breathing of the vapors and if you avoid breathing the vapors, you'll avoid irritation of the eyes and throat.

Q Do you tell them that if you experience irritation of the eyes and throat, you must stop using this product because that is a sign of overexposure?

A No. You tell them to avoid breathing it so you don't even get irritation of the eyes.

Q Does this tell a person it's a systemic poison?

A No, sir, it doesn't because it is not a systemic poison. It is a -- You have no effects if you avoid breathing the vapors, if you avoid contact with the skin.

Q Does this give the person the early warning signs that he is being poisoned?

A First of all, I am not sure if what you are talking about, early warning signs, is correct. Tell me

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what you mean by early warning signs.

Q Well, blackheads as was discussed in the report where the individual got blackheads which the author acknowledged could not be detected by a family physician, but were found by an industrial physician. That's what I mean.

A The author -- First of all, you're misquoting that.

Q Well --

A The author did not say -- He said the worker did not know it. He did not say that a family physician had examined the man and had ignored it or had misdiagnosed him.

Q Correct. He did not say that a family physician had examined him.

A That's correct.

Q But he did state that this is a symptom that would probably by missed by a family physician.

A I don't think he said that.

Q All right. We'll check the record.

A Well, let's do it now.

Q We'll check it later. Does this state that the routes of entry of the chemical into the body?

A It states it by saying obviously if you avoid breathing of the vapors, that means to a worker that if

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you're breathing something, that's a route of entry and if it's on the skin, that's a route of entry.

Q Where does it say that if it gets on the skin it can get in your body?

A It doesn't say that, but I'm sure that a worker is intelligent enough to look at this and say avoid prolonged contact with the skin. Why are you putting that on there? You're putting it on there to tell them the material can be harmful if allowed to remain on the skin.

Q To the inside of your body?

A Well --

MR. CARNEY: I'm going to object. I object to the form. You're asking him to speculate on what an unnamed worker might or might not think when reading this.

Q (By Mr. McCrea) You may answer. To the inside of your body?

A Well, I think if the worker sees a statement saying avoid prolonged contact with the skin, he will figure out that if I do have prolonged contact with the skin, something bad is liable to happen to me.

Q To his body?

A Well, to him anyway.

Q To the inside of his body?

A Well, he may think that and he may not.

Q Does this explain that death can result?

WATER_PCB-SD0000011317

A No, sir, it does not.

MR. CARNEY: I'm going to object to that last question, no evidence that death has ever resulted from PCB intake, and the doctor has testified to that on several occasions.

A Well, I've testified to that on the previous label.

Q (By Mr. McCrea) Dr. Kelly, would you turn to the Zack-Musch study? Do you have that, Counsel?

MS. RUTTER: Was it one of your exhibits?

MR. McCREA: It was, I believe. I think it was number two.

MS. RUTTER: Five.

Q (By Mr. McCrea) Number five. Dr. Kelly, will you turn to table three of the study?

A Yes, sir.

Q What is dose response?

A Dose response is the effect or the result of varying quantities of the material. In other words, if you give twice as much of the product, you ought to have an increase in the effect.

Q What if you are exposed twice as long?

A That's the same. If you were exposed and under conditions where you would absorb it, yes.

MR. McCREA: We ready for a break? Let's take

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one.

(Thereupon, a short recess was taken. The reporter marked Plaintiff's Deposition Exhibit Seven, for identification.)

Q (By Mr. McCrea) Dr. Kelly, during the break did you have a discussion with your attorneys about your testimony?

A No, sir, just about the exhibit.

Q All right. What did your attorneys say to you and what did you say to them?

A I said I have quite a few faults to find with this particular exhibit.

Q All right, sir. What faults do you find?

A First of all, it is not statistically significant. The size, if you notice that she -- Well, first of all, I might say this is by Zack and Musch and I mean, I guess it should be as adapted by McCrea because this really isn't her table.

MR. CARNEY: I'm going to object just for the record to using Exhibit Seven which has the caption that it's by Zack and Musch and I believe has a different, an additional column on it that wasn't a part of their exhibit and also some additional information on the bottom half of it that wasn't on the exhibit of Zack and Musch, so it's, I would object to the use of it because of that.

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Q (By Mr. McCrea) What other faults did you find?

A Well, let me repeat. First, the numbers are not significant because if you go through the body of a report, she has only found one statistically significant figure in the mortality studies. That was for non-arteriosclerotic heart disease.

Number two, she has not, this particular table has not made any mention of compounding factors, age of these, different age groups is not in there. In other words, people who worked there less than one year, one would presume they are younger than people who worked there more than five years and if you don't pay, take that into account, that is a very large confounding factor, but the main point is it is not statistically significant and that's the fallacy in these small studies or picking one table.

If I went to Parkview High School and had 100 teachers, I might very well come out with an expected death of 25 as observed 37, but then if I went up to Lindbergh High School, I could come out with the same figures reversed. So you have to have a significantly, statistically significant excess of whatever you're looking for and that she has not said, but she's admitted that the only figures that she has that are statistically

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significant in her entire paper is that due to arteriosclerotic, non-arteriosclerotic heart disease.

Q Dr. Kelly, what numbers does it take from a epidemiological point of view to establish an association between chemicals and death on the basis of probability more likely than not?

A It depends on the thing you're looking for. If you had a hemangiosarcoma of the liver from vinyl chloride, if you had three or four of those in 100 people and it only occurs once in 2,000 someplace else, that might very well be statistically significant, but if you're talking about plain mortality, you need more than 89 because that's what Zack said. She said they were not statistically significant.

Q Doctor, my question was unclear.

A Was what?

Q My question was unclear. Let me clarify it. In doing on epidemiological survey, a study, what numbers are required to prove it's statistically significant? What numbers are required? Can you explain that to the jury?

A I just did. It depends on the rarity.

Q No, the actual numbers.

A No, I don't know how many.

Q What numbers are required from an epidemiological point of view to prove not that it's

WATER_PCB-SD0000011321

statistically significant, but that it's more likely than not, i.e., probable? Do you know?

A No, I don't, but that is not, probable it not the term used by epidemiologists.

Q But probable is the term used in a courtroom.

MR. CARNEY: Well, I'm going to object to that.

MR. McCREA: I'll withdraw the statement.

A Well, I also --

MR. CARNEY: I think you're trying to tell the jury what the law is and I think the judge is the person who will tell the judge what the law is.

MR. McCREA: Stipulated, and I withdraw the comment.

A And I also will say I have never seen the term probable used in an epidemiological statement, study.

Q (By Mr. McCrea) All right. But there is a difference between the standard to establish that something is statistically significant. That's a very high standard, is it not?

MR. CARNEY: Well, I'm going to object to that, object to the form of the question. I don't know what you mean by very high.

Q (By Mr. McCrea) It requires a 95 percent confidence interval. Is that correct?

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A Yes, that's correct.

Q On a bell-shaped curve?

A Yes, sir.

Q Dr. Kelly, will you refer to Plaintiff's Exhibit Seven?

A Yes, sir.

Q I have added two columns to the information on table three. I have added ratio of living to dead, column four, and percent deceased, column five?

A Yes, sir.

Q Do you agree that --

MR. CARNEY: Let me object. You've added more than that.

Q (By Mr. McCrea) Please, would you let me finish my question? Would you agree that the column one is exactly the same as table three, years of exposure to PCBs?

MR. CARNEY: I'm going to object to that. I'm looking at the tables and, you know, it's not exactly the same.

MR. McCREA: Well, what's different?

MR. CARNEY: Well, there's, it says less than, the words less than appear. There's a -- rather than a symbol.

MR. McCREA: Does the symbol in front --

MR. CARNEY: That's several other changes, so

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I object. I think the documents speak for themselves, but when you say exactly the same, there are three or four differences in the column in Exhibit Seven and table three when you're asking exactly.

Q (By Mr. McCrea) Dr. Kelly, will you look at table three?

A Which one?

Q In the Zack-Musch draft study or final report. It doesn't matter because they're both the same.

A Yes, sir.

Q Your attorney suggests that the first three columns in Plaintiff's Exhibit Seven are different from the first, from the first three columns in table three. Do you see any differences?

MR. CARNEY: Well, let me -- First of all, I'm going to object to asking this witness to compare these two but, you know, the headings are different if you want to read the headings. The words are different. I'm not saying there's any material difference. I'll just saying when you ask if it's the same thing, it's not the same, and I think the documents will speak for themselves.

Q (By Mr. McCrea) Doctor, do you see any differences in the first three columns of Plaintiff's Exhibits Seven and the first three columns of table three?

A Yes, because in table three it says "Average

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Length of Exposure." You don't seem to have that on yours.

Q What was it referring to?

A It was referring to years of exposure.

Q To what?

A To polychlorinated byphenyl.

Q All right. So should we put on the first column average years of exposure to PCBs or how would you change that?

A Well, I didn't mean, what do you want to change? What are you trying to prove with this?

Q Well, your attorney says that my chart and table three aren't same.

A Well, they aren't. Here they are. You can look at them. It says different.

Q What's different?

A This has average length of exposure for the living people, 3.2 years; for the deceased, 3.7. That does not seem to appear on yours.

Q Dr. Kelly, we're not talking about that. We're talking about column one, two and three.

MR. CARNEY: Well, he's looking at column one. I also notice that it's, the heading, the column one says "Years of Exposure to PCBs" on yours and it says "Years of Exposure" with an asterisk, so they're different words. I mean, the columns, they're not the same. That's all.

They're different words used. The second column, the heading ask "Living Workers" on Exhibit Seven and it says "Living (N equals 58)" on the top of the second column. Do you agree that those deferences occur.

MR. McCREA: No, those are exactly the same. Living workers on column two are the same as the living workers in column two on my chart. Add these up. 20 and 20 is 40 and 6 is 46 and 12 is 58.

MR. CARNEY: I didn't say the numbers were different. I said the caption of the column has different words. You asked if the columns are the same, and again I repeat, the documents speak for themselves, but they aren't the same.

MR. McCREA: Is there any substantial difference?

THE WITNESS: You asking me?

MR. McCREA: No. I'm asking your attorney if he has any objection to my --

MR. CARNEY: I do have an objection to it because there are substantial differences in Exhibit Seven and table three of the Zack and Musch. You've got extra columns. You've got -- You've got four lines at the bottom that are not at all contained, that I see, in table three. There's additional information. There's changed information. There are some -- There are things that are

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the same. Some of the numbers are the same, but some of them, the captions are different and you have additional columns. I don't see the 20 percent I don't see the 37.that percent. I don't see the 40 percent. I don't see the 42.8 percent.

MR. McCREA: That's because it's not on it.

MR. CARNEY: I agree. They're not the same documents and that's why I object to it. You're trying -- you've got a caption here that this is a Zack and Musch table, and I disagree with you. It isn't a table. I don't see that table, Exhibit Seven, in the Zack and Musch document, so I'm objecting to it. I think it's misleading.

Q (By Mr. McCrea) And we agree. Dr. Kelly, would you turn to table three?

A Yes, sir.

Q Let me have the exhibit. We'll do this the hard way. In table three of the Zack and Musch study, what does column one indicate?

A Years of exposure.

Q To what?

A To PCBs.

MR. CARNEY: Which column? Are you asking him to read the caption of table three?

A Table three.

MR. McCREA: Right.

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MR. CARNEY: In Zack and Musch?

MR. McCREA: Right.

A Yes.

MR. CARNEY: Okay. And you're asking him to read the top?

MR. McCREA: Right.

MR. CARNEY: Okay. Read the top.

MR. McCREA: He just did.

A Duration of exposure to polychlorinated byphenyl by vital status.

Q (By Mr. McCrea) Right. And then column one is what?

A Years of exposure.

Q To what?

MR. CARNEY: Are you asking him to read it, or are you asking --

A Polychlorinated byphenyls.

Q (By Mr. McCrea) What does the first --

MR. CARNEY: I object. Well, I'm going to object. Again these documents speak for themselves. They're -- you can -- I don't know why having this witness read what's in these documents is germane.

MR. McCREA: Any more objections?

MR. CARNEY: No, not at the --

Q (By Mr. McCrea) What does the sign in front

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of the one mean?

A Less than one.

Q And is that what is on Plaintiff's Exhibit Seven?

A Yes, sir.

Q What does one to three mean below?

A One to three years of exposure.

Q Is that the same as Plaintiff's Exhibit seven?

A Yes.

Q What does three to five mean?

A Three to five years of exposure.

Q Is that the same as Plaintiff's Exhibit Seven?

A Yes, sir.

Q What does the indicator in front of five mean?

A It means greater than five years.

Q Would that be the same as more than five?

A Yes, sir.

Q And is that the same as Plaintiff's Exhibit Seven?

A Yes, sir.

Q Column two?

A Well, just a moment before we run off column one. You have neglected to say what the average length of exposure is and that's pretty important because it's 3.2 years for the individuals who are living. You don't have

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that on your adaptation of the chart.

Q I'd be happy to include that. This study --

A Fine. I think that's very important.

Q This study shows that the workers who were living had 3.2 years of exposure, that the workers who were dead had 3.7 years of exposure, that the workers who were dead had 5/10 of a year more exposure than the living?

A That doesn't mean a thing, absolutely nothing. It --

Q I didn't say it did.

MR. CARNEY: Just a minute. Let him finish.

A You certainly are implying that it means something.

Q (By Mr. McCrea) What? I didn't --

A That's why you're bringing it up.

Q Did I include it on my chart?

A For the reason that it doesn't mean anything, yes, you didn't want it on your chart, I believe.

Q I'd be happy to put it on the chart. You're the one that said it doesn't mean anything.

A Why didn't you put it on before? It doesn't mean anything in support of your position and your position -- Let's hear what your position is first while you're bringing this out.

Q My position is --

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MR. CARNEY: Well, let me, Dr. Kelly --

MR. McCREA: I'd be happy to explain my position.

MR. CARNEY: I don't -- This is a deposition of Dr. Kelly and you can testify. If you want to go under oath and be deposed, that's fine.

Q (By Mr. McCrea) Dr. Kelly --

MR. CARNEY: But if you're not, I think you ought to limit yourself to questions of Dr. Kelly.

Q (By Mr. McCrea) Dr. Kelly, the living workers in column two on table three of Zack and Musch?

A Yes, sir.

Q Is there any difference between that column and my column? Is there any difference?

A Above the line there isn't any. You have omitted the 3.2 below the line.

Q That's true. I omitted that. I omitted that; all right?

A Yes, sir.

Q I didn't think it meant anything. Does it mean something?

A Yes, it means quite a bit to me.

Q What's it mean?

A It means that there is no significant difference in the amount of exposure to the living and the

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dead people.

Q Overall?

A Yes, overall.

Q Right. Except that the deceased had another half year of exposure?

A That still doesn't mean anything.

Q Okay. I agree with that.

A All right. Fine. Let's get on.

Q All right. Now, is there any difference in column two between Zack and Musch's chart and my chart?

MR. CARNEY: Other than what he said already?

A We're on two? I thought we went over two.

Q (By Mr. McCrea) No, living workers. Is there any difference there?

MR. CARNEY: Other than what he's already covered or do you want him to repeat himself?

Q (By Mr. McCrea) No, no. And other than what you've already covered which is that on my chart, I do not inform this jury that these workers had 3.2 and 3.7 years of exposure.

A Okay. Fine.

Q I'd be happy to put that on there if I thought it meant anything.

A It's not my chart.

Q All right. Do you think I should put it on

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there?

A It's up to you. It's not --

MR. CARNEY: Well, I don't know that it's a matter of what --

A I think so, yes, you should.

MR. CARNEY: All I'm saying is if you're trying to replicate the Zack and Musch chart, my only point is you should have put it there exactly. That's my only point. You've put -- A lot of the numbers there are exact.

MR. McCREA: Thank you.

MR. CARNEY: But there are some changes in the chart and that's my only quarrel is to give the wrong impression that this is a Zack and Musch chart.

MR. McCREA: That's why we have redirect examination, isn't it?

MR. CARNEY: But I have a right to object. You're using an exhibit that I think is misleading.

Q (By Mr. McCrea) Okay. All right. Now, Doctor, we're spending an awfully lot of time on this. Doctor, in column two, are there any differences in the figures other than I don't have (N = 58)? You don't see that on my chart, do you?

A No, sir.

Q But my numbers are exactly the same?

A Yes, sir.

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Q And they don't have the word workers on theirs, do they?

A No, sir.

Q And I added the word workers?

A Yes, sir.

Q Other than that, are the numbers exactly the same?

A The numbers are the same.

Q Thank you. Now, on the next column it says "Vital Status deceased." Is that correct?

A I think vital status refers to all the columns. It doesn't refer just to the deceased. A person living is a vital statistic.

Q Doesn't that mean the number of dead workers?

A It also means the number of living. The vital status of these workers, 20 are living and five are dead.

Q And this column, "Vital Status deceased," vital status deceased I say means dead workers. Is that what it means?

A No, that isn't what it means.that -- The vital status of this group is 89 shows 558 are living, 30 are dead, one is unknown. The vital status refers both to living, deceased and unknown. It does not just refer to deceased.

Q Well, when the number five appears, what does

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that mean? That's the number of living and deceased?

A No. Look, it does not, but what I'm saying it that this vital status means, refers to all three of these groups, the living, the dead and the unknown. It does not just refer to the dead people. Living people are still a vital statistic.

Q Dr. Kelly, I stand corrected. You're exactly right.

A Okay. All right. Good. Let's get on.

Q Okay. Under this column then, the only word that specifically applies to that column is the word deceased?

A That's correct.

Q All right, sir. And on my column, instead of the word deceased, I put dead workers. Is that the same?

A Well, it refers to the people who are dead or deceased, right.

Q And under that column we have the number five, five dead workers who worked there less than a year?

A Yes, sir.

Q Correct? 12, 12 dead workers who worked there one to three years?

A Yes, sir.

Q Four dead workers, three to five, and nine dead workers, greater than five?

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A Yes, sir.

Q My numbers are the same as Zack and Musch?

A Yes, sir, with the exception of the 3.7 below the line.

Q Stipulated.

A All right. Fine.

Q Now, they have a column "Unknown"; correct?

A Yes, sir.

Q And I did not include that on my chart, did I?

A No, sir.

Q All right, sir. Now, they have a total on the right-hand side; correct?

A Yes, sir.

Q Ask I did not include that on my chart, did I?

A No, sir.

Q All right, sir. Now, on my chart I added two columns which do not appear on the Zack-Musch chart, fair, "Ratio Living to Dead"?

A I don't know what you mean by fair. It's on here. I don't know if it's fair or not.

Q It doesn't appear on Zack and Musch?

A That's correct.

Q And I added a column, "Ratio Living to Dead." That doesn't appear anywhere on Zack and Musch?

A No, sir.

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Q And under that for less than one year, I said that the ratio of living to dead was four living to one dead. That's the ratio.

A Yes, sir.

Q Is that accurate?

MR. CARNEY: Well --

Q (By Mr. McCrea) Is 20 to five a ratio of four to one?

MR. CARNEY: I don't know what you mean by accurate you know. It's -- Four to one is the same as 20 to five, but again I think you've got a chart with columns that Zack and Musch didn't have which you've agreed to now, and I think the fact is I don't see anything about the age of these people, for example, and That's just one thing to -- I think if the people that worked less than one year were 25 years older or 25 year younger, the percentages would be different. So I don't see any relevance to your ratios. They mean nothing without more information. They mean absolutely nothing, so I object to even using them.

A Is there a question? I lost the question someplace along the line.

Q (By Mr. McCrea) Doctor, is, in column four, are those ratios correct?

A They're mathematically correct, yes, sir.

Q All right, sir. Then column five, "Percent

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Deceased," is that an accurate percentage of the deceased workers? If there were 25 total workers and you have five that are deceased, is that the 20 percent?

A Yes, sir.

Q If there were 32 total workers and 12 are deceased, is that 37.that percent?

A Yes, sir.

Q If there were ten total workers and four are deseased, is that the 40 percent?

A Yes, sir.

Q If there were 21 total workers and nine are deceased, is that 42.8 percent?

A Yes, sir.

Q Now, doctor, I make this statement on Plaintiff's Exhibit Seven, "Percentage of deceased workers compared to living workers increased with years of PCB exposure (dose response)." Is that a fair statement based on this chart?

A No, it isn't at all.

MR. CARNEY: Objection to form.

A It's absolutely ridiculous.

Q (By Mr. McCrea) All right. Below that we have "Expected Deaths," 22.88 of 89 is 25.6 percent?

A Yes, sir.

Q Is that math correct?

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A Well, it looks pretty close. I mean, you want me to divide it? I'll take your word for it that this is mathematically correct.

Q And if it shows up it's not mathematically correct, That's easily determined; correct?

A Yes.

Q And "Observed Deaths," 33.7 percent?

A Yes, sir.

Q All right, sir. Now, I'd like to at this time show this chart to the jury in the videotape which I prepared which is marked as Plaintiff's Exhibit Seven and I'll ask the, if that is, you can raise your hand when you That's in focus.

MR. CARNEY: While we're focussing, I just want to object again for the record. Now you're showing this chart to the jury and I think again it's misleading to characterize it as a Zack and Musch chart which is the way you've labeled it, a "Monsanto PCBs Mortality Study of Monsanto Workers by Zack and Musch" when, in fact, this is a David McCrea chart where some of the information on Zack and Musch chart is in there and most of the information is additions that Mr. McCrea has put on it. I think if you had labeled it the McCrea table, it would be more accurate.

Q (By Mr. McCrea) So stipulated. McCrea table. Dr. Kelly, are these figures accurate?

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MR. CARNEY: I don't know what you mean by accurate.

Q (By Mr. McCrea) Are these the same as Zack and Musch is all I want?

A Yes.

Q "Living Workers," are those the same as Zack and Musch?

A Yes, sir.

Q "Dead Workers"?

A Yes, sir.

Q Are those the same as Zack and Musch?

A Yes, sir.

Q "Ratio," are those mathematically correct?

A Yes, sir.

Q "Percent deceased," is that correct?

A Yes, sir.

Q "Expected Deaths," is that correct?

A Yes, sir.

Q "Observed Deaths," is that correct?

A Yes, sir, but -- Those are all correct, but you have left out a very important set of figures, average length of exposure, 3.2 years for living and 3.7 years for the deceased.

Q All right, sir. 3.2 for the living and 3.7 for the deceased?

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A That's correct.

Q Now, would you explain that to the jury?

A Explain what?

Q 3.2 years and 3.7?

A Explain what, the figures?

Q What those mean?

A They represent that the individuals who were living had worked three, on average of 3.2 years. Those individuals who are deceased had worked an average of 3.7 years, but the figures themselves are meaningless because it does not -- First of all, it is such a small difference in such a small group that any epidemiologist would laugh at it because it is not at all significantly, statistically significant.

Q These numbers?

A That is correct. Number two, it does not account at all for the age of the individual groups, and if you don't account for the age of people, I don't see how you can say, how you can even think of correlating a work exposure when you don't know whether the people who worked less in one year were different in age than the people who worked over five years because advancing age is certainly a very important thing in deaths.

MR. CARNEY: And I'll stipulate, Mr. McCrea, that people that are in their 70s, you're going to have a

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higher incidence of death in that group than people in their 30s or 40s. Would you agree with that?

MR. McCREA: I would agree with that and I would think it would also be likely that if a person was in his 70s, he would be less likely, he would be more apt to work fewer years than somebody in his 20s. Would you stipulate to that?

MR. CARNEY: If somebody was in their 70s, they would have worked?

MR. McCREA: They would be more likely to work less years than somebody who was in their 20s. Would you stipulate to that?

MR. CARNEY: No, I wouldn't because I'd say the older person probably, if anything -- We don't know. We're all guessing, and that's why this chart is meaningless, but my opinion would be an older man or woman would probably have worked more years because they're older. That would be my guess, but again since we don't know the ages of these people, showing them a chart and having a difference of six deaths when you don't know what the ages were of the people is irrelevant and misleading and doesn't prove anything.

Q (By Mr. McCrea) Okay. Dr. Kelly, this information was never published; correct?

A Yours?

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Q No, Zack and Musch?

MR. CARNEY: Yeah. Well, you've asked him this and I think we agreed this is the McCrea table.

MR. McCREA: Well, I'd be happy to make it available to the workers through the United States because I think they deserve to know it, but the fact of the matter is the Zack-Musch study was never published.

A No, it was not.

MR. CARNEY: Objection. You've covered that in length, Mr. McCrea. This is very repetitive.

Q (By Mr. McCrea) Do you know why it was not published?

A No, sir, but it was certainly made available to an awful lot of people because I've seen it referred to in numerous articles.

Q Dr. Kelly, I'm going to hand you one more exhibit that I've prepared. We'll this the McCrea chart; all right? I didn't know I would receive so much notoriety.

MR. CARNEY: Can I take a look at the McCrea chart? Do you have an extra copy? This is Exhibit --

(Thereupon, the reporter marked Plaintif's Deposition Exhibit Eight, for identification.)

Q (By Mr. McCrea) Dr. Kelly, I hand you what the court reporter has marked Plaintiff's Exhibit Eight

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which we have indicated is the McCrea chart hopefully to avoid a lot of objections. Now, what I did was go through the Zack-Musch draft study which is part of the Plaintiff's Exhibits, what number?

MS. RUTTER: five.

Q (By Mr. McCrea) Five, and I listed what I call the sign, symptom or condition that they referenced in the study which was reported in the literature. Then I went through the final study and I added symptoms in the final report which were not in the draft study. What I would like for you to do very simply is look at the Zack-Musch draft study and see if Zack and Musch reference on page three, paragraph two, chloracne as having been reported in studies to which they rely. If you would, sir, go to the draft study.

A This is a draft study of a study that has never been published. Is that what you're saying?

Q Correct.

A Oh. Now, you want me to look on page three?

Q Page three, paragraph two, and I want you to see if on page three, paragraph two on the draft study Zack and Musch reference chloracne as having been a reported condition.

MR. CARNEY: Okay.

Q (By Mr. McCrea) As a result of exposure to

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PCB.

MR. CARNEY: Let me object here. You've got now a three page questionnaire with three main columns and I would say we're talking about somewhere in the order of 50 to 60 questions, and as I see it, what you're asking him to do on each of these 50 or 60 questions is to identify whether something is referenced in an article.

Now, we have the article. It's Exhibit Five -- or the report. It's in evidence, and if it says, if it has the word chloracne on page three, paragraph two, it has it. If it doesn't have it, it doesn't have it. I don't know that we'd want to waste the jury's time going through and asking Dr. Kelly to confirm that a certain word appears at a certain page in a multipage report. I don't think that helps the jury at all.

MR. McCREA: Well, I think it helps.

MR. CARNEY: The document we have and we can, if you want to ask a quiz -- Are you giving a quiz to the doctor as to whether he can find the word and how long it takes him? You know, the word is either in there or it isn't in there, and so I object to going through and wasting more time in having this Dr. decide whether a word appears in the page, in the paragraph that you say or not.

MR. McCREA: Will you sit down with me, Mr.

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Carney, and confirm if these what I call signs, symptoms or conditions are referenced by Judith Zack and David Musch in the draft study, and if so, will you agree to that so that I can present this chart to the jury at trial?

MR. CARNEY: I will agree to respond to the fact that you've asked interrogatories in request for admissions. I've answered on, or not -- I haven't answered it, but my client, Monsanto, has answered extensive questions. If you want to ask this particular question, we'll respond to it so that we can save the time. That way we can get it down and we won't take up the jury's time in going through this because this is something that's either there or it isn't.

MR. McCREA: This simplifies matters for the jury because this places in front of them all the signs, symptoms or conditions referenced in 1979 by Judith Zack and David Musch which said signs, symptoms or conditions were reported in the literature which they reviewed. It's a simplification for the jury.

MR. CARNEY: Well, I'd be glad --

MR. McCREA: I simply want Dr. Kelly -- It's not a quiz of Dr. Kelly.

THE WITNESS: You talking to me now?

MR. McCREA: Yeah, I'm talking to you. I just simply want him to confirm the accuracy, and if acne

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like lesions aren't in the article at page three, paragraph three, then we'll correct it.

MR. CARNEY: And you know, this is the first time -- Just two minutes ago when you just handed this to me is the first time I've seen it, but I think to save the time of the jury, we can handle something like this and I will agree that if chloracne appears on page three, paragraph two, I will agree to it. In fact, we have the article. We can show the jury the article if necessary, but I think the taking the time to do this now would, I see no purpose in it other than to spend a lot of time.

MR. McCREA: I will stipulate to that, and at some future date you and I can sit down and compare this chart to the article. Dr. Kelly, it won't be necessary to address those questions. Could we locate Plaintiff's Exhibit Two which was a one page article, I believe? No, that's not it. It was -- Correct. Could you hand that to Dr. Kelly?

MR. CARNEY: Sorry. What exhibit now?

MR. McCREA: Plaintiff's Exhibit Two.

MS. RUTTER: One.

MR. McCREA: That's number one?

MS. RUTTER: Yes.

Q (By Mr. McCrea) All right. What's the caption on that at the top for identification purposes, Dr.

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Kelly?

A "Section IV, Health Effects of PCBs and PCDF Mixtures." Where'd it come from?

Q It came from -- I've been through that and I will try and track that down and if and when, Dr. Kelly, I do, I will send you the entire article.

A Fine.

Q But I think it's indicated it's an EPA publication?

A I don't see any indication right here that it is.

Q Well, I don't, either; all right? So I honestly don't know.

A Okay.

Q All right, sir?

MR. CARNEY: Why don't we just call it a one page document because I'm not sure it's an article.

MR. McCREA: I'm not either.

A Well, it's section four out of something. I don't know what section three or what the rest, how many other pages are there, but go ahead.

Q (By Mr. McCrea) Yes, and -- All right. Dr. Kelly, at the bottom of that --

MR. CARNEY: Before you ask the questions, I don't want to have to interrupt. I think I had an

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objection to the use of this document because we don't have the pages before it or after it or know what it is or the date, and if I could have that as a standing objection on this document.

MR. McCREA: I will stipulate all objections which were made earlier carry over to any questions asked at this point in time.

MR. CARNEY: Okay.

Q (By Mr. McCrea) All right, sir. Dr. Kelly, down at the bottom of the page there is a footnote reference, and would you read that footnote reference?

A "A recent analysis of Yusho patient data put this figure" -- let's see what the figure is -- "at .6 milligrams (26 p. 291)."

Q All right, sir.

A I don't exactly know what that means.

Q And nor do I. Dr. Kelly, .6 milligrams, would you multiply that number by 10,000 tell me what that equals?

MR. CARNEY: Let me object while the math is being done. We've got a .6 milligrams number out of a document that we haven't, we don't know where it came from or what it is and we do have, though, we've had introduced in evidence and the doctor's discussed the article about Yusho which I think would be, since they've been

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authenticated as published articles, would be more authoritative to get the one number that you put up there.

A By the way --

MR. CARNEY: So I object to the building on a number that we haven't been able to authenticate.

Q (By Mr. McCrea) Dr. Kelly, what does that equal?

A 6,000 milligrams.

Q And how much of an ounce is 6,000 milligrams?

A Fifth of an ounce.

Q O-u-n-c-e?

A Or O-z if you want it.

Q O-u-n-c-e is correct?

A Yes.

Q O-u-n-c-e?

A That's correct.

Q That is document what, one?

A Yes, which I don't know the date. I don't know where it came from. I don't know anything about it, but I'm just attesting to the mathematics.

Q All right. It's understood. Dr. Kelly, are those mathematics correct? .6 milligrams multiplied by 10,000 equals 6,000 milligrams and that's the same as one fifth of an ounce?

A That's right.

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Q Does the camera have that? Thank you. Dr. Kelly, are you familiar with a book called "Harrison's Principles of Internal Medicine".

A Yes. I mean, familiar -- You mean I can quote things out of it?

Q No, no.

A I know the book certainly.

Q Is it reputable?

A Yes.

Q Authoritative?

A Yes.

Q Did you use it when you were in the practice of medicine?

A Yes.

(Thereupon, the reporter marked Plaintiff's Deposition Exhibit Nine, for identification.)

Q (By Mr. McCrea) Dr. Kelly, I do not have the book with me, but I've an excerpt from the book which I will represent to you is accurate and it can be cross checked to the book itself. I would like to hand you Plaintiff's Exhibit -- What number is that?

MR. CARNEY: Nine.

Q (By Mr. McCrea) Nine which I represent to you is a verbatim quotation from "Harrison's Principles on Internal Medicine," 1980 edition, and then I would like to

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ask you to read that and if you a agree with the statement.

MR. CARNEY: Let me object here before we hand the document to the doctor. Exhibit Nine is two sentences purportedly out of a medical book. I assume it's a two inch or a one inch or maybe a three or four inch book.

THE WITNESS: At least three inches.

MR. CARNEY: A three inch book. We've got two sentences here on a page, and number one, we have no way of verifying that these sentences appear in there, but I'm not saying they don't. I would assume --

MR. McCREA: That's stipulated.

MR. CARNEY: -- if you say they do, they do, but what we do know is we don't know what comes after it or before it and we've seen -- We're pulling out a sentence in a long 15 page document. Sometimes the sentence after it changes the sentence.

An example I give, he talked about tumors of the liver. He doesn't say whether it was in humans, rats, rabbits or what, but it's possible, and again I don't know, that the that next sentence would say that there have been no tumors found in humans, but in female rats there have been, and that would be just an example of what might be in there. So I would object to using it and asking the doctor questions about it because of that.

Q (By Mr. McCrea) I agree with all of your

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statement. Dr. Kelly, I'll just, I'll hand you that exhibit and ask you if you would read it, and I guess my first questions to you is: Have you read that before this date?

A I may have.

Q Dr. Kelly, is that information that you as a doctor in internal medicine would rely upon?

A Not necessarily at all because, first of all, he is talking about several instances of benign or malignant primary tumors of the liver have been associated with PCT. Now, that's not PCB. That's not even a chemical.

Q That's porphyria cutanea tarda, isn't it?

A That's right, completely different.

Q All right.

A So right off the bat I don't know why, how I would connect that with any industrial exposures to PCB. Then he says "Toxic acquired PCT has occurred in the individuals accidentally exposed to hexachlorobenzene, polychlorinated biphenyls, tetrachlorodibenzodioxin and other polychlorinated hydrocarbons." I would like very much to see his data on that because he might just at well be repeating the errors that often creep into medicine.

So I consider "Harrison" an excellent text book of internal medicine. I think his knowledge on toxicology --

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Harrison isn't doing it any more, I don't think. I mean, Isselbacher, Adams, Braunwald, etc. are the authors of "Harrison's". I don't think Harrison is alive, but I'd have to see their references before I accept this as gospel.

Q All right. Fair enough.

A Okay.

Q Dr. Kelly, will your attorneys please provide you with Exhibit K-19?

A Yes, sir.

Q Will you turn -- What's the title of that document?

A Well, first of all, this is a title, a copy of some paper written by some salesman. It's not an official Monsanto Chemical Company document. It has never seen the light of day, as far as I'm concerned, in any publication I've ever seen at Monsanto. I myself have never saw this. This was written by some salesman sitting at his desk during World War II, and it is not an official Monsanto publication at all.

Q All right. Do you know the salesman who wrote it?

A No, I don't.

Q Will you turn to page 2018? Do you see what I guess is a Bates number?

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A Yes, I see it.

Q All right, sir.

A Yes, sir.

Q And there is the word toxicity at the bottom of the page 2018. Is that correct?

A Yes, sir.

Q Then will you turn to page 2019, and there's a chart there?

A Wait. Let's not go so fast.

Q All right.

A First of all, what is that first letter, pore acne, or on the bottom of number one?

Q It says, it says -- It looks to me like it says p-o-r-e. Is that the way you read that?

A That's the way I read it.

Q Brake, a-c-n-e?

A Uh-huh.

Q (Chlor, C-h-l-o-r - acne)?

A This shows whoever wrote this had no medical background at all. I don't think anybody ever used the term pore, p-o-r-e, acne, but go ahead. On page 19 now?

Q Yes, sir. On page 2019 it has a number of the chemicals listed?

A Yes, sir.

Q And are PCBs included in that list?

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A Yes, but he's absolutely wrong.

Q I appreciate your thoughts on this document, but are PCBs listed in that list?

A Yes, they are listed by this unknown salesman.

Q All right, sir. Then at the bottom there's reference to summary of gross feeding experiments. Is that correct?

A Yes, sir.

Q Turn to the next page. Do you know see at two-thirds of the way down on the page of 2020, it says, "The following hygienic measures may be considered good practice where these compounds are handled." Do you see that, sir?

A Yes, sir.

Q "A, two lockers for each workers exposed to chlorinated waxes, one for working and one for street clothes." Do you see that?

A Yes, sir.

Q Do you believe that would, that is a good practice when working with PCBs?

A We're talk now about chlorinated waxes.

Q Yes. Do you believe that is a good practice for PCBs?

A No.

MR. CARNEY: You're not asking about

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chlorinated waxes?

Q (By Mr. McCrea) I'm asking him is there any -- Do you believe 55 would be a good practice when working with PCBs?

A No, sir, you don't need to do that.

Q "B, all work clothes above the underwear should be provided and laundered at least twice a week by management." Do you agree 55 would be a good practice for workers exposed to PCBs?

MR. CARNEY: Let me object. I'm not sure. If I could look over your shoulder a minute, we're talking about various compounds here. We're just not talking about PCBs. This unknown salesman who, or whoever wrote this document, that isn't a document that Monsanto ever published.

MR. McCREA: Stipulated. Well, I'm not stipulating you didn't publish it. I'm stipulating --

A Monsanto didn't publish it.

Q (By Mr. McCrea) What?

A It was never published.

Q Or you didn't write it? I presume it was written --

A I was in the service in 1944.

Q What?

A If I had seen this, I'd have thrown it in the

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wastebasket.

Q Okay. Do you agree with the hygienic measure that workers working with PCB, that workers working with PCBs, the practice should be instituted that all work clothes above the underwear should be provided and laundered at least twice a week by the management?

MR. CARNEY: Just so -- The jury might get the impression you're reading from the document that all workers who work with PCBs. This refers to these compounds. There are a number of different compounds, not -- It doesn't say PCBs. It says "These compounds."

MR. McCREA: Stipulated.

MR. CARNEY: Okay. Well, I think the way you read it, it might appear to the jury that you're reading it that this is what PCB workers are supposed to do as opposed to any other type of worker.

MR. McCREA: No, that's not correct.

MR. CARNEY: Okay. Just so we clarify it, that's all.

Q (By Mr. McCrea) Dr. Kelly, the unknown salesman who wrote this for Monsanto Chemical Company --

A He did not write it for Monsanto Chemical. He wrote it for himself.

Q How do you know that?

A Because it was never in any Monsanto

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publications. It was never in any files that I ever had when I came back from the service.

Q All right.

A I never saw it until it was dredged up in one of these depositions.

Q All right. Now, what -- With that understanding; all right, sir?

A Well, there's a little bit more understanding.

Q All right.

A Because this man has gone back to the Halowax studies where he's talking about chlorinated naphthalenes. He has gone back to the cable pullers where they were getting the waxes all over their clothes, all over their hands, all over their underwear, and these hygienic things were certainly important for those people at that kind of exposure to those solid Halowaxes.

Q All right, sir. I don't dispute that.

A All right. Fine. Well, I mean, the inference I'm getting is that you are tying in the industrial use of PCBs with the Halowax problems of chlorinated naphthalene, and that is not correct.

Q All right, sir. Now, with all that said, what I would like to ask you is if the hygienic measures listed, A, B, C, D, E and F on pages 2020 and 2021 should be instituted for workers exposed to PCB in industrial

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setting?

A No, sir, it should not.

Q All right, sir. And that is true for A?

A Yes.

Q That is true for B?

A It depends on the contamination.

Q That is true for C?

A And again it depends on the amount of spills they have, whether they are -- If it's an organization that's not following the recommended procedures, yes, they should, but if they followed the cautions and the safe handling procedures put out by Monsanto, they do not need to change to clean underwear every day.

Q Are you stating that D does not apply?

A Well, certainly it doesn't apply. You don't have to have a worker scrub his hands and face under supervision.

Q Are you stating that E does not apply?

MR. CARNEY: Objection to the form.

A Yes, I do not believe in skin creams, protective clothing, and it isn't -- I think clothing should be used that can be changed if it's contaminated.

Q (By Mr. McCrea) Are you stating that F does not apply?

A Yes, that's correct. The directions he is

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talking about, chlorinated synthetic waxes, does not apply to PCBs. First of all, they should be not slopped around obviously, but these, these recommendations which were, which this man has ascribed to the Halowax situation do not need to be applied to PCBs, certainly do not need to be applied when the people follow the safe handling procedures.

Q Do you agree --

A Listed on our PCB literature.

Q All right. So you're saying that F doesn't apply?

A That's correct.

Q The paragraph following F, does that apply to PCBs, to establish --

A Yes.

Q All right. That does apply?

A Yes, sir.

Q The next paragraph, does that apply to PCBs?

A I think it depends on the exposure. If there's no exposure or no particular exposure, you don't need to.

Q Do you agree that a history of liver disease, jaundice or antisyphilitic treatment should automatically exclude a worker from jobs involving a possible PCB exposure?

A That depends on the exposure and that depends on the state of the liver disease. Antisyphilitic treatment, certainly if a man had the course of two weeks of penicillin ten years before, it doesn't make any difference. They can go to work there.

Q What if it was one week before?

A I still think he could. This man is talking about syphilis in the 1900s.

Q So it is your position that a history of liver disease wouldn't exclude a worker?

A Automatically it said. I think it has to be evaluated on the man -- He says automatically. I believe that you've got to decide when the extent of the liver disease was, was the recovery was.

Q And then you would make a decision as to whether or not to employ him?

A That's correct.

Q What about jaundice, if he gave you a history of jaundice?

A Well, That's also liver disease, but if he gave jaundice when he was ten years old and you were examining a 25 year old worker, I don't think that would automatically exclude him.

Q What if he gave you a history of jaundice five years earlier?

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A I don't think that would exclude him.

Q Antisyphilitic treatment, if he gave you a history of three years of antisyphilitic treatment with penicillin, would you exclude him?

A Well, first of all, I don't know of anybody that only gets three years of penicillin treatment. It's a matter of weeks.

Q All right. What if he gave a history of antisyphilitic treatments with penicillin on four occasions within the last five years?

A They may exclude him on other grounds.

Q Well, Doctor, we don't need to be --

A Well, no, but I mean, you were giving me these fanciful conjectures. If a man's got that much trouble, he's probably got, he may not, should not be in an industrial setting at all.

Q Doctor, on a -- So you would not employ somebody who had had gonorrhea or syphilis?

A We're not talking about gonorrhea. We're talking about syphilis. Certainly I have hired lots of people with gonorrhea. I've hired lots of people who have been treated for syphilis.

Q And put them in positions where they're exposed to PCBs?

A I can't answer that, whether they've gone

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there, but I've examined them and put them in the chemical operation where if they rotated in the PCB department, it would be all right.

Q Would you hire an individual who had been treated for antisyphilitic conditions to work in PCBs?

A Ever?

Q Yes.

A Yes, I would.

Q All right. "Pregnant woman should not be employed where there's a possible exposure to PCB." Do you agree with that?

MR. CARNEY: I think we're out of tape.

Q (By Mr. McCrea) Are we out of tape? Do you agree with that, Doctor?

A Well, that's a hard questions to --

MR. CARNEY: Why don't we pick it up. I don't want to get in the middle of an answer.

MR. McCREA: Break.

(Thereupon, a short recess was taken.)

Q (By Mr. McCrea) Dr. Kelly, we're back on the record.

A Yes, sir.

Q Do you recall where you were in the last answer before the break?

A Yes. You had asked me about would I employ

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pregnant woman.

Q Yes, sir?

A And I said that was a tough questions because it would depend on the state of her health, the state of her exposure, if I could be assured that she would be under the maximum allowable concentration. I would not hesitate to be hesitant to employ her if she was exposed to repeated or continuous skin contact. That is a very hard decision to make about hiring pregnant women in any industry where there's any exposure.

Q Dr. Kelly, during the break I asked you if you would diagram for the jury a PCB, a polychlorinated dibenzofuran and a polychlorinated dibenzo --

A Dioxin.

Q Dioxin.

A Yes, sir.

Q And you have drawn those for us?

A I'm not so proud of my drawing, but that's --

Q All right, sir. Now, could I address a couple of questions to the chart?

A Yes, yes.

Q On your drawing at the top you have PCB?

A That's right.

Q Ask this is a PCB?

A That's correct, with four chlorine atoms.

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Q All right. Then next on your chart is a PCDF, polychlorinated dibenzofuran.

A That's correct.

Q And here is the PCDF showing --

A One oxygen between the two benzene rings.

Q All right, sir. And then you have CL here and CL here just to show --

A Well, they could be anyplace, yes.

Q All right. Then at the bottom you have a dioxin which would be PCDD?

A That's correct.

Q Poly means more than one?

A Chlorinated.

Q Chlorinated speaks for itself. Dibenzo refers to the oxygen?

A No, that's the benzene ring.

Q All right.

A And dioxin is the two oxygens. In other words, we have two benzene rings. Up at PCBs they're connected together. There's no oxygen. PCDF, there's one oxygen connected on two benzene rings. The dioxin, there's two oxygens connected?

Q All right sir.

A I didn't put the chlorines down there.

Q All right, sir. Now, when you start in the

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manufacture of a PCB, and we discussed in this earlier, you start with benzene?

A Yes, sir.

Q Is that correct?

A Correct.

Q And benzene is simply one, is half of that PCB?

A That's correct.

Q Which contains hydrogen and carbon?

A That's correct, no chlorines at all.

Q And in the process of chlorinating the benzene, these rings fit together and the chlorine replaces what, the --

A No, you skipped a --

Q All right.

A First you have to hook up two benzene rings to get diphenyl which is an entirely different thing.

Q All right, sir.

A You get two benzene rings. Benzene is a liquid. Diphenyl is a solid.

Q All right, sir. And the diphenyl would look exactly like the PCB without the chlorine.

A That is correct.

Q What does the chlorine replace? Does it replace --

A Hydrogen.

Q It replaces hydrogen?

A That's correct.

Q So in this molecule you have three chemical elements, hydrogen, carbon and chlorine?

A Correct.

Q In this molecule you have those three same elements plus oxygen?

A Yes, sir.

Q And these molecules no longer touch?

A They're adjoined by oxygen in one place, yes.

Q All right, sir. And dioxin is exactly the same as a furan except that in between these two rings --

A Benzene rings you have --

Q You have two oxygen atoms?

A That's correct.

Q All right, sir. And these as a family can be called chlorinated hydrocarbons?

A Yes, but you, the usual chlorinated hydrocarbon like carbon tetrachloride or trichlorbenzene is not quite as complicated as these molecules.

Q All right. So --

A Technically you could call it a chlorinated hydrocarbon, but with the oxygen in there, I don't know if a chemist would call it that.

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Q All right, sir. PCBs were known to exist in what year?

A Oh, they're probably known to exist as a laboratory curiosity back in the 1900s or something. I'm not sure, but industrially I think it was around 19, late '20s or '30s.

Q 1900 known, give or take?

A Give or take, yes, I think so.

Q When were furans first known?

A I don't know that.

Q When were they first known by you?

A Oh, sometime in the '70s, I believe. Kelly didn't know about PCBs -- I mean, the first I ever heard of PCBs was in 1936, if you want, if you're writing down Kelly.

Q All right. And when did you first know about dioxin?

A That's hard to say. '50s, '60s. I'm not sure. Put a question mark there.

Q All right, sir. Dr. Kelly, you mentioned that you had never talked or visited workers at the Westinghouse plant during the time you were with Monsanto. Is that correct?

A Yes, before or since. I never have, period.

MR. McCREA: I would like it extend a sincere

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invitation to you to come and talk to workers at the Bloomington Westinghouse plant and the Muncie plant without any attorneys present, if you would like to do that, arrangements could be made. Dr. Kelly, I wish you good health. Thank you.

THE WITNESS: Thank you very much for your invitation which I'll take under advisement, and I hope you have a pleasant trip back to Bloomington.

MR. McCREA: Thank you, sir.

REDIRECT EXAMINATION

QUESTIONS BY MR. CARNEY:

Q Dr. Kelly, I just have a few questions that I'd like to ask. You've heard that before, I'm sure. So, but I don't think they're more than about ten questions. During the 38 years that you worked at Monsanto, did you ever receive any reports or complaints of PCB related health problems in any Monsanto PCB worker?

A No, sir. I did not.

Q During the 38 years at Monsanto, did you ever receive any customer reports or complaints of deaths or serious long-term injuries due to PCBs?

A No, sir.

Q The handful of complaints or less than five complaints or reports that you did receive regarding short-term problems with PCBs during your 30 years, 38

WATER_PCB-SD0000011370

years at Monsanto, were any of those reports regarding capacitor or transformer workers?

A No, sir, not that I can recall.

Q Are there any reports in the published medical literature of deaths or series long-term health effects due to industrial exposure of PCBs?

A No, sir.

Q What about Yusho?

A That's not industrial workers. Yusho is entirely different. This is an ingestion taken by mouth of the Japanese PCB contaminated with dibenzofurans.

Q Do the Monsanto PCBs contain large quantities of furans?

A I mean, they're parts per million. I mean, I don't know what you mean by large. Ten parts per million?

Q How do they compare with the Japanese, the amounts in the Japanese PCBs?

A Well, it was less than the Japanese Kanechlor and much, much less than the dibenzofurans in the rice oil after the material had been heat and the heat as a heat transfer medium and then cooked in a Japanese skillet or Japanese wok or wherever they cook it in.

Q Do PCBs contain dioxin?

A No, sir, they do not.

Q Mr. McCrea showed you a diagram or actually

WATER_PCB-SD0000011371

you prepared a little diagram of a molecule, of PCB and a dioxin and a furan. Does the fact that they have some similarities mean that they're similar in their toxic effects?

A Oh, no. I mean, I could, if you want me to draw some more, if you have, if you take bichloride of mercury, that is a very serious poison. It's a kidney poison. If you swallow it, your kidneys shut down, period. It's calls corrosive sublimate. It's a very serious poison. It's got one molecule of mercury, two molecules of chlorine.

If you take coumarin which has been used as a folk medicine in the south for years and years, it's the same compound with one less chlorine, and so just the addition of this one atom of chlorine.

If you take alpha-phenethylamine which is, that's a thing, I can draw a couple of benzene rings with an amine group, an NH group on one position. If you move it over another position it's a bladder carcinogen. If it's the alpha position it's not. Move it down one on this ring, it's a bladder carcinogen. So structure is an extremely frail reed to base any toxicological conclusion on.

Q You said that the PCBs do not contain dioxin. Can the combustion or burning of PCBs produce dioxin as a by-product?

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A Not PCB by itself.

Q Does the government agree with you?

A Oh, yes, the EPA has written that.

Q Is there any evidence in the literature of people getting sick like in Japan in the Yusho incident from Monsanto PCB?

A Not that I've ever seen.

Q Any evidence that Monsanto PCBs cause immune deficiency and which, by that I mean make a person more susceptible to colds or other illnesses?

A Well, it certainly was not in our workers and I haven't seen any report of it in the United States literature.

Q Mr. McCrea showed you some labels or asked you about why certain information wasn't on the labels, and he mentioned things like does the label contain the fact that it would cause death or lots of other details. Can you tell me why you didn't include all the information that Mr. McCrea mentioned in your labels?

A Well, certainly. I think it, it's certainly been my experience and experience of people in the label business that what you need to put on a label is what you have to do to protect the worker. If you have a label that's three pages in extent, the average person won't read it. I'm sorry to say they just -- I don't believe I would,

WATER_PCB-SD0000011373

either, if I saw a cautionary statement that was half a dozen paragraphs long on a label. I wouldn't. You just get to where you just don't pay any attention to it. So we have our labels short, concise, filled with the information that's needed, how to protect yourself against any ill effect, whether that ill effect was fire, explosion or danger to your health.

Q Doctor, you mentioned in your cross examination testimony when Mr. McCrea was asking you questions that you walked away from, that Monsanto walked away from a product, a profitable product. Did Monsanto walk away from the environmental problem?

A No, I didn't say I walked away. That was Ed Bock, the president. What he meant, they were talking about the sales and they were talking about the profit and he said, "I don't care about the sales or the profit. If we can't contain this from the environment, we're going to walk away from it," and that didn't mean he was going to sweep the problem under the rug. He meant we're going to walk away from manufacturing and selling the product.

Q Did Monsanto sweep the environmental problem under the rug?

A They certainly did not.

Q When -- To your knowledge, did Westinghouse have a medical director and an industrial hygienist who

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were knowledgeable about PCBs?

A When I came to work for Monsanto, the first medical department or industrial medical meeting I went to, one of the pillars of industrial medicine was a Dr. T. Lyle, L-y-l-e, Haslett, H-a-s-l-e-t-t, who was, as I say, one of the pioneers of industrial medicine, and their medical department continued all through the years.

I know they had an active industrial hygiene department. Dr. Spiker -- whether it's Dr. or Mr. Spiker -- wrote to us, wrote to Wheeler quite frequently. They had a very active medical department, a very active industrial hygiene department, and as I said also, they had contracted out work for PCB with Vinotigan, a consultant who was in those early days probably the rating toxicologist in the country.

Q And did you believe when you were employed by Monsanto that Westinghouse was a responsible company?

A Oh, no question about it.

MR. CARNEY: I have no further questions.

MR. McCREA: I have no additional questions and would ask that the deposition be signed by Dr. Kelly.

MR. CARNEY: I would agree to that.

THE WITNESS: After reading it.

MR. CARNEY: I hate to make you read it again, but we would, I think, both appreciate that.

WATER_PCB-SD0000011375

STATE OF MISSOURI)
)
COUNTY OF JEFFERSON)

I, Sheila C. Irvin, a Notary Public within and for the State of Missouri, do certify that pursuant to agreement there came before me at the offices of Communitronics Corporation, 1907 South Kingshighway, in the City of St. Louis, State of Missouri, DR. R. EMMET KELLY, a witness of lawful age, who was by me first duly sworn to testify the whole truth of his knowledge touching the matters in controversy herein; that thereafter, the witness was examined and said examination was reduced to shorthand by me on the day, between the hours, at the place and in that behalf first aforesaid, and later transcribed into typewriting, and was subscribed to by the witness this _____ day of _____, A.D., 1990; and said deposition is now herewith returned to and filed in this Court.

IN WITNESS WHEREOF, I have hereunto set my hand and Seal this 24th day of July, A.D., 1990.

MY COMMISSION EXPIRES SEPTEMBER 26, 1992.

_____

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COURT MEMO

IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

STATE OF MISSOURI

Glenn Brown, et al. vs. Monsanto Company

862-00694

CERTIFICATE OF OFFICER AND

STATEMENT OF DEPOSITION CHARGES

DEPOSITION OF DR. R. EMMET KELLY

TAKEN ON BEHALF OF THE DEFENDANT

6/16/1990

Name and address of person or firm having custody of the original transcript:

Amanda Russo

Husch & Eppenberger

190 Carondelet Plaza, Suite 600

St. Louis, MO 63105

WATER_PCB-SD0000011377

ORIGINAL TRANSCRIPT TAXED IN FAVOR OF:

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St. Louis, Missouri 63101

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this _____ day of _____

Commission expires

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Notary Public

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