IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF ILLINOIS
ALTON DIVISION

ROBERT GALLATIN,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	Civil Action No.
	)	C-86-5182
ILLINOIS CENTRAL GULF RAILROAD COMPANY, A CORPORATION,	)	
	)	
	)	
Defendant.	)	

DEPOSITION OF DR. ROBERT EMMET KELLY

On Behalf of the Plaintiff

May 20, 1988

Concannon & Jaeger
General Court Reporters
411 North Seventh Street
St. Louis, Missouri 63101
(314) 421-1000

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Plaintiff,

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	)	
Defendant.	)	

DEPOSITION OF ROBERT EMMET KELLY, produced, sworn and examined on May 20, 1988, between 8:00 a.m. and 6:00 p.m. of that day, at the Radisson Hotel, Ninth Street at Convention Plaza, St. Louis, Missouri, 63101, before Brenda S. Orsborn, a Notary Public within and for the State of Illinois, in a certain cause now pending in the United States District Court, Southern District of Illinois, Alton, Illinois, wherein ROBERT GALLATIN, is the Plaintiff, and ILLINOIS CENTRAL GULF RAILROAD COMPANY, A CORPORATION, are the Defendants, on behalf of the Plaintiff.

A P P E A R A N C E S

Jones and Granger
Watterson Towers, Suite 402
1930 Bishop Lane
Louisville, Kentucky 40218
By: John Roven, Esq.
and Michael L. Kaplan, Esq.....For the Plaintiff

Oppenheimer, Wolff & Donnelly
First Bank Building, Suite 1700
St. Paul, Minnesota 55101
By: Bethany Kelly Culp, Esq.
and John M. Stoxen, Esq.....For the Defendant

(Thereupon, the Reporter marked Plaintiff's Deposition Exhibit No. 1 for identification.)

ROBERT EMMET KELLY, M.D.,

produced, sworn, and examined on behalf of the Plaintiff, testified and deposed as follows:

MR. ROVEN: This is a deposition being taken pursuant to agreement under the Federal Rules of Civil Procedure.

DIRECT EXAMINATION

QUESTIONS BY MR. ROVEN:

Q Doctor, would you please state your name?

A Robert Emmet Kelly, M.D., E-m-m-e-t, K-e-l-l-y.

Q Doctor, what is your home address?

A 665 South Skinker, S-k-i-n-k-e-r, St. Louis, 63105.

Q And do you have a business address?

A 819 -- The Barnes Sutter Health Service, 819 Locust, 63101.

Q Sir, you have been kind enough to provide us with a copy of your curriculum vitae today, which we have marked as Plaintiff's Deposition Exhibit No. 1, and I'll just ask you if this is, in fact, your current curriculum vitae?

A Yes, it is.

Q Sir, what is your current age?

A Seventy-eight.

Q Could you tell me, sir, what is your current relationship with the Barnes Sutter Health Care facility?

A I am on a retainer, and I am a consultant for occupational diseases and for some internal medical cases.

Q Does the organization, itself, have you on a retainer?

A Yes.

Q In other words, they call you when they want to consult on a certain --

A That's correct -- toxicological matter.

Q Are you a partner in that organization?

A No. It's owned by Barnes Hospital.

Q At the present time how many hours a week do you think you spend there at the center?

A One or two.

Q You don't maintain an office at the center, yourself?

A No.

Q Aside from your work at the center, do you maintain a private practice of your own now, or are you, basically, retired?

A Well, the answer to that is no, I do not, and I am probably semi-retired. I am a medical consultant for Consolidated Aluminum. That is one or two days a month, and I am see cases for various lawyers.

Q I guess my question would -- right now, let's set aside the private consultant work you do in medical-legal circles. Aside from actual medical practice, that doesn't involve legal issues and doesn't involve Barnes Sutter, do you maintain an office for yourself now to treat patients?

A No.

Q When was the last time that you, yourself, engaged in active private practice that had nothing to do with medical-legal issues?

A Well, that's open to considerable interpretation. It depends. If you mean by an active practice, that I opened an internal medical office and awaited people to come in, I did not do that. If you mean by that, did I do consulting work for other physicians on matters of either internal medicine or occupational medicine, that has kept up until the last year or so.

Q Can you give me a couple of examples where you would have been brought in as a consultant in a case?

A Yes. Does this man have lead poisoning? Does this man have any illness from drinking out of galvanized containers? That sort of the thing.

Q Is there is a certain group of physicians in St. Louis that have consulted with you for that purpose, or has it just been various people around town that you developed a professional relationship with?

A I think it's various people, but then Barnes Sutter has been known for quite awhile as an industrial occupational medicine clinic. It was the Sutter Clinic before it was taken over by Barnes, and I was associated with Sutter Clinic since '75, and so I have gotten quite a few cases in that -- from that direction.

Q Are the majority of the people that are referred to the Barnes Sutter Clinic referred as a result of their retainers by various industries in the St. Louis area?

A Or they just just come in; either one. I would say the majority would be sent in by industry, although some are sent in by unions. We operate as the neutral examiner or the impartial examiner for Chrysler and General Motors, so I think they come in, both from, by labor and management volition.

Q How are you currently compensated for your time at Barnes Sutter?

A I am on a token retainer of $3000.00 year and I am fee for service on examinations.

Q And, of course, I assume you don't have any equity interest in that organization?

A Unfortunately not.

Q Do they bill the accounts for you?

A Yes.

Q Let me ask you this, sir: I know that you

evaluated Mr. Kracht and Mr. Gallatin for Ms. Culp's firm: that is correct, sir?

A Yes.

Q Tell me, for example, how the billing for those examinations would have worked. Did you bill the railroad directly, or was it billed through Barnes Sutter?

A I really can't remember.

Q I guess what I am asking you is in terms of private rferrals, when you have a medical-legal referral from a case that you're working on that doesn't directly involve the Barnes Sutter Clinic, do they just allow you to you use the office for your private work, as well?

A Well, if it's a case that Barnes Sutter never heard about, and somebody calls me from Herculaneum, Missouri, or something like that, and I say, "Send the person down to Barnes Sutter." And I will examine them, and Barnes Sutter will send them a bill for the laboratory fees, and the nurse's care, and stuff like that, and I will send them a bill for the medical diagnostic work.

Q So you're granted privileges there, so to speak?

A What?

Q You're kind of granted clinic privileges?

A I suppose so, but then there are some cases that Barnes Sutter -- come into Barnes Sutter, and so I don't know whether this case came to me, or it came to Barnes

Sutter and came to me.

Q In Mr. Gallatin's case, you do know that you saw him as a result of a request from the railroad attorney; is that not true?

A That's correct. But I do not know whether that request was directed through Barnes Sutter to me or direct to me. That was is a year ago, so I don't remember it.

Q Can you recall how soon before you saw Mr. Gallatin, you first were contacted by the attorneys for the I.C.G. Railroad?

A Two or three weeks at the most.

Q Were you you contacted directly by phone, or did you get a letter?

A I don't remember. I mean I don't remember if somebody from Barnes called -- Barnes Sutter called me.

Q Sir, let me ask you this: Are you still granted office privileges at Monsanto World Headquarters, here in town?

A No. I never was granted office privileges after I retired, with the exception of two occasions. One, for the year after I retired, I was a consultant there, and I had an office there; and then at the time when we had a very large involvement with the Agent Orange problem, as well as a very important problem at Nitro, West Virginia, I was there almost full time for a year, and I had an office then,

but for the past three years I have not had an office.

Q And, of course, as far as being a full time employee for Monsanto, you retired, I think, in the mid seventies?

A December the 1st, '74.

Q So anything after that, any time that you spent at the world headquarters after that, would have involved and been in involved in your position as a consultant for purposes of litigation and case analysis?

A Yes, and case analysis was important, also.

Q So for a while in the mid seventies, for instance, when the Nitro, West Virginia cases were going on, Monsanto was requesting you to review medical records of various claimants?

A That's correct.

Q Sir, do you still receive your pension from Monsanto?

A Yes.

Q Do you know, currently, what that is or how much it is?

A Thirty-five thousand a year, or something of that magnitude.

Q Are you still a stockholder in Monsanto?

A Yes.

Q Do you know to what extent your holdings are?

A Well, it's minor considering they've got 400 billion shares, or something. I think I have 15 or 1600 shares.

Q Are there any other benefits at the present time that you received from them, aside from any outside consulting work that you do for them?

A Well, I have a medical -- they have a medical plan that allows a retiree up to, I think, $50,000.00 a year, and I get invited to the old folks' dinner. That makes the sum of it.

Q Is there any way that you can estimate for us, and I realize that I have to give you some leeway on this, but is there any way that you can estimate what your annual income is now just from private legal consulting for various attorneys?

A Oh, gosh, it varies. I mean last year it might have been 30 or 40,000. The year before that it might have been 60; this year, not so good.

Q Business is slow?

A It's picking up.

Q Can you recall, just to give me an example, like last year in 1987, approximately how much did you receive in direct payments from Monsanto for your role as a consultant and an expert witness?

A When you say, "direct payment from Monsanto,"

some come from insurance companies. They're Monsanto cases, but the money may come from Texas, well insurance companies; is that what you mean?

Q Yes, with respect to Monsanto cases.

A Probably in the neighborhood of $20,000.00.

Q Do you remember that you went through a rather lengthy deposition in Houston about a year ago? Do you recall that?

A Well, I've been in several depositions in Texas. Which is the one --

Q This the one taken by Mr. Lacey and Mr. Henderson. It was a videotape.

A Yes.

Q And I think it was finished here in St. Louis, ultimately?

A Yes.

Q Since then, have you given any depositions since that time?

A Yes. But I am -- I gave one in Chicago on a pentachlorophenol case. I don't know if that was before or after that. I gave one in St. Louis on a One Market Plaza fire in San Fransico. There's probably been one or 2 more, that I just don't recall off the top of my head.

Q Can you recall, on the pentachlorophenol case, who you were testifying at the request of, whether be it a

company, or claimant, or whatever it was?

A It was a company. It was Monsanto.

Q Has that case now been resolved, or are you still in the midst of that?

A I think it's been resolved.

Q How about the One Market Plaza fire case?

A I gave a deposition and I heard nothing more about it, and I understand that some elements of it have been settled, but I don't know whether --

Q Was that at the the request of the Southern Pacific, by any chance?

A I don't know who. I was there at the request of Monsanto, but I don't know who the plaintiff was.

Q Because I know that -- I think it occurred on their property, the Southern Pacific Railroad, so I thought maybe you were there at their request. Are there other cases that you're currently consulting on that are in active litigation, besides this one, of course?

A Yes. There's a -- just for Monsanto?

Q For anyone, really.

A Well, there's a creosote case that is occurring.

Q Where's is that one going on, sir?

A Benton, Illinois.

Q Can you just briefly, without divulging that many details of the case, tell me what it's about?

A A man is alleging problems from creosote on poles.

Q Okay. And who has retained you in that case?

A I don't remember the legal firm, but it's Illinois Central.

Q Any others?

A Yes. There's two others. I am trying to remember what they are. I think there's one or two others, but I am not sure. I don't remember the details of it.

Q Those are currently pending, though?

A You know how legal things are. They might have started eight months ago, and you don't hear anything from them until they say, "Be ready next week"

Q Sir, can you tell me, generally, in preparation, either for your deposition today or prior to the time that you saw Mr. Gallatin, what materials or medical records you reviewed at the request of either Ms. Culp or somebody else from the railroad?

A When you say prior to seeing Mr. Gallatin, do you mean in the 40 years that I have been associated with PCB's?

Q No, sir. I mean records that you have reviewed with respect to this case, either given to you by Ms. Culp or someone else from the railroad?

A I have reviewed the records, part of the records of Dr. Tietelbaum and his report. I reviewed the hospital

records of Mr. Gallatin. I reviewed medical records of Mr. -- Dr. DeCastro, and subsequently to my examination, I have reviewed the records of St. Mary's Hospital and Barnes Hospital of early 1988.

Q The first group of records, the Titelbaum report, the hospital records, and Dr. DeCastro's records, did you have an opportunity to see those before you evaluated Mr. Gallatin?

A I can't remember.

Q Aside from the specific clinical records on Mr. Gallatin, have you been given any specific articles, journal articles or any other type of technical material to review, to be reviewed by the railroad by Ms. Culp or anybody else with her firm?

A No. I think I was pretty much up on the articles, myself.

Q Aside from medical articles, has the I.C.G. provided you with any type of, technical type of articles concerning the events surrounding the fire in Centralia in May of 1985?

A No.

Q Let me ask you this: Doctor, in terms of evaluating the potential exposure that Mr. Gallatin reported having as a result of his cleanup work in the fire, as far as your opinions are concerned today, do you consider any

technical document which might have been generated, which showed levels of the PCB's existing on the plant to be relevant or important?

A Well, I think they're are always relevant, yes. They have to be taken in consideration of any possible exposure to these compounds.

Q Well, is that something that you would want to review before trial, or given the opinions that you have in this case, is it unimportant?

A I would like to see them before the trial, yes, sir.

Q Sir, let me ask you this: When was the last time that you clinically evaluated any individual whom you diagnosed or believed to have an injury related to PCB exposure?

A Will you repeat the question?

Q Yes, sir. When was the last time that you evaluated an individual whom you believed to have an injury that was resultant from his PCB exposure?

A Sometime in the 50's, that I knew we had an injury from PCB exposure.

Q Would that have been is a Monsanto employee?

A No. It was an employee. There were two employees of a transformer company who were dipping their hands in filling up Bellows thermometers, which is a small

thing, about the size of an egg, built something like a fireplace bellows, and that was part of the thermometer. And they would dip this down into this liquid Arochlor, which is a PCB, and they developed chloracne, and the company -- I forgot customer's name -- asked me to come up and see them, and I saw these two ladies, and I said, "Use an instrument, something like a fork and dip that in," and the chloracne went away.

Q Aside from the chloracne, did those two ladies have any other systemic manifestations of disease that you attributed to their exposure?

A They had none.

Q Since the 1950's and this particular episode with the two ladies, how many more individuals have you clinically evaluated or have you evaluated at the request of a lawyer who claimed exposure and injury from PCB, but whom you determined did not, in fact, have an injury as a result of their exposure?

A Well, shall we go backwards starting with May of 1987? There were two then. And, now, do you mean did I clinically examine them myself, or did I consult with the physicians who sent me records?

Q Either way. I guess my question might be better phrased, since that time, how many cases have you been involved in, either as an examing physician or the

consultant, that you have seen, and where you have reached the conclusion that there was, in fact, no injury as a result of exposure to PCB's, although the persons were claiming that?

A Probably less than half a dozen.

Q So this half dozen would certainly include all of the individuals whose cases you reviewed for Monsanto since 1974, correct?

A Yes. Well, when I say individuals, I really meant cases, because there may be four or five individuals in one case, so I think the answer is probably half a dozen cases.

Q Well, I realize that it would be unfair to hold you to a strict number of individuals, but if you had to give me your best estimate, would the total number of individuals be, say, more than 20?

A Conceivably, yes. It certainly would be less that 40, I think.

Q So somewhere between 20 and 40; is that fair?

A I think so.

Q Can you tell me, sir, with respect, considering your work with the Barnes Sutter Clinic, when was the last time you performed a clinical examination on anyone concerning PCB's or related hydrocarbon compounds, which was not done at the request of Monsanto or some other defendant

in litigation?

A You mean that was not done at the request of a company or Monsanto, a defendant in litigation?

Q Yes, sir?

A Somebody walked in off the street and said, "I think I have PCB poisoning"?

Q Right.

A I have never seen one.

Q Sir, when did you start working for Monsanto?

A January the 1st, 1936.

Q And I understand that you served in a part-time capacity for a while?

A Until March of '42, when I went in the service.

Q And what exactly did you do in the service?

A I was associated with the Chemical Warfare Service at Pine Bluff Arsenel and Edgewood Chemical and Warfare Center.

Q Were you serving in a research capacity with regard to the toxicology of chemicals, or were you treating workers who were handling various chemicals?

A I would say both. The majority of my work was overseeing the care of the workers of these two arsenels that were manufacturing chemical warfare agents, but I was also in liason with the research center at the Edgewood Chemical Warfare Center.

Q Would it be fair to say that that was your first introduction to toxicology, per se?

A Oh, no, because, well, I was three years resident at City Hospital, and we had quite a number of people that were exposed to various chemicals. I was at Monsanto, where we had this a very large organic chemical manufacturing plant from 1936 to 1942. That's six years. And about three years of those latter years from, say, '38 or '39 to '42, I was sort of a medical director without portfolio. I went out through all our medical installations in the United States and Canada. So I think by the time I went in the Chemical Warfare Service, I brought more to them than they brought to me.

Q Prior to to the time you went into the Chemical Warfare Service with the United States Army, can you remember some of the specific toxicological agents that you would have evaluated people for; for instance, asbestos, PCB's?

A Asbestos wasn't very popular in those days. There were phenols. There was phthalic anhydrides. There was benzene, and toluene, pentachlorophenal, a host of the amine compounds, and we had phosphorus compounds at are two phosphorus burning plants. I would say it was a pretty wide gambit of chemicals agents.

Q Now, when you went back to work for Monsanto, was

there any gap in your career move between the army and your return to Monsanto as the medical director?

A Oh, three or four weeks, or something like that, while we were discussing what I would be doing and what the details of the position were.

Q I guess my question should have been did you work for anyone else?

A No.

Q I could have made it simpler. Sir, prior to the time that you went into the army, was Monsanto engaged in the production of the PCB's?

A Yes.

Q Were they manufactured under the trade name Arochlor at that time?

A Well, they were, yes, although they may have also been labeled depending on to whom they went. If they went to Westinghouse, it was called Inerteen. If it went to General Electric it was called Pyranol, but those were trade names of those two companies. The Monsanto trade name was Arochlor.

Q Let ask you this, because I've personally been unsure of it. As far as the actual product composition of Inerteen, Pyranol, or Arochlor, is it all the same product?

A No.

Q It's actually a different composition?

A Well, it varies. Arochlors vary from 1016 to 1268. The last two numbers means the degree of chlorination. Now, then, if you have Pyranol or Inerteen, the company General Electric or Westinghouse would ask for the inclusion of trichlorobenzene in various percentages in some of them. Some they would take straight Arochlor and call it Inerteen. Some they would take 75 percent Arochlor and 25 percent a solvent and call it Inerteen, so it was not the same compound.

Q I see. So the Arochlor compound that Monsanto marketed itself and assigned a chlorine number to were not necessarily the same products that companies, like Westinghouse, was using in their transformers and capacitors? In other words, was a speciality product made for other manufacturers?

A Well, first of all, there's a difference in the products and capacitors and used in capacitors and in transformers. Inerteen or Pyranol was never used in a capacitor. Straight Arochlor was, and it was Arochlor 1242. It was used 99.9 percent -- 99.5 percent until 1971.

Q Was Monsanto Westinghouse's exclusive distributor for Arochlor 1242 for capacitors?

A Well, I don't know what you mean by distributor. We were the sole manufacturer in the United States. I don't know if they bought any from France, or Italy, or Germany.

Q I guess my question should have been as far as you know, in the United States was Monsanto the sole supplier of PCB's used in Westinghouse capacitors?

A I don't know that. I know they were the sole manufacturer of the material in the United States.

Q You don't know if Westinghouse bought from other companies, or not?

A I don't know.

Q If they did, though, they would have been companies outside the continental United States; is that true?

A Presumably, yes.

Q And, in your opinion, 99 percent of the material that was used in capacitors, including those of Westinghouse, would be Arochlor 1242?

Q That's correct.

Q Where was Arochlor 1242 prouduced by Monsanto?

A Annistan, Alabama and also in England at one time, and also at the Krummerich plant in Sauget, S-a-u-g-e-t; Krummerich, K-r-u-m-m-e-r-i-c-h, plant in Illinois.

Q During that period of time, sir, prior to the war and right after the war, was the production of Arochlor a significant part of Monsanto's business, or did it gain prominence later in terms of a product that was prominent in

sales?

A It was always a prominent, important product. One couldn't run the subways of New York without Arochlor, without a fire resistent dielectric. Yes, it was very prominent.

Q When was the last time, to the best of your recollection, Dr. Kelly, either before or after 1974, that any Monsanto employee was diagnosed by your medical department or your successor's medical department, as having any form of PCB related injury or abnormality?

A I have no recollection that we ever had one. Early in 1935 the Swan Chemical Company had some that was a condition of -- they had some off spec benzene, but that was before Monsanto had it, and I saw some of those people, the residue, after I came with Monsanto, but it did not occur during my tenure with Monsanto. In fact, it didn't occur while the employees were with Monsanto. There was one chemical --

Q Well, one of the reasons for that, I assume, is because Monsanto had an active industrial hygiene program after you took over; did they not?

A Well, not for quite some time, but the other point, I believe, is just as important. The material is not the kind of a horrible toxin that people seem to believe it is. It just isn't, because there haven't been cases at

Monsanto. There has been extremely few cases. There's been only one or two case reports in the American literature in the last 30 years. One was an acute poisoning, and one was a mild chloracne, and I can't recall any more than two or three letters from customers talking about alleged injuries from PCB's.

Q Well, in my prior questions, when I was talking about injuries, I intended to include, for instance, chloracne, and you do agree that PCB's can cause chloracne?

A If one gets enough PCB's, yes, one can get chloracne, but the dose has to be very good, because, as I said, there has only been one case history of PCB's causing chloracne in the American literature.

Q When you refer to one case history, are you including related by phenyl compounds?

A I don't know what you mean by related by phenyl compounds?

Q Well, when you say there's been one case history, are you referring only to people who have been exposed to polychlorinated byphenyls, or are you referring to people who have been exposed to the compounds which are close in chemical relation?

A Like what ones? What may be close to you, may not close to me.

Q Like chlorinated benzenes, for example.

A Well, one cannot assume on the basis of structure that a compound is close. I mean if you take bichloride or mercury, and it's got two chlorine atoms and one mercury, that's a deadly poison. If you take calomel, that's one chlorine atom and one mercury atom. That's what everybody in the South used to take every Summer. So you cannot go by toxicological structure and say this looks a little like it. Betanaphthylamine, which has an amine group from one part of a benzene ring, it's a carcinogen. Alpha, which is moved over there, one stop. It is not a carcinogen. So you cannot go by related compounds.

Q So from this point forward, when you give your opinions in this deposition, and I ask you concerning your opinions about your experience with persons who have claimed exposure to chlorinated biphenyls, an injury to chlorinated biphenyls, we're talking strictly about PCB's; is that correct?

A With the one exception that there are some degradation products of PCB's that the dibenzofurans, which can occur and do occur at some times in PCB's. With that exception, yes, we're talking about PCB's.

Q Would you also include the dibenzodioxins in that?

A No, because there's no way you can get dibenzodioxin from PCB's. I'll be happy to quote the EPA

study for you on that. You just can't do it.

Q Can you tell me what study that was mentioned in?

A Either March of '86 or '87.

Q Was this a policy statement that was put out by the EPA.?

A It's a whole report. I mean it's not a policy statement. I don't know what they call call them.

Q Doctor, I seem to recall at some time in the past that there were studies done, I believe, at least, by Dow Chemical to the effect that the various dioxins were commonly found contaminates in PCB's.

A I think your confusing it with the 245T, the herbicide, because, first of all, Dow did not make PCB's, and I have never seen that document.

Q At any rate, for the purposes of this discussion it's your opinion that dioxins are not contaminates in PCB's?

A That's correct, mine and the EPA's.

Q Can dioxins be created from PCB's?

A Not from PCB's.

Q Can you tell me, sir, when you came back from the United States Army, how soon after that did Monsanto hire an industrial hygienist?

A Probably 18 to 24 months, I believe.

Q Sometime in the early 1940's or the mid 1940's?

A I came back in '44, and Elmer Wheeler came, I think by '46. I am not certain of the exact dates.

Q The man's name was Elmer Wheeler?

A Elmer Wheeler.

Q Did you, in fact, have anything to do with Mr. Wheeler being hired?

A Well, I hired him.

A Why did you feel it was important to have an industrial hygienist on staff?

A For two reasons. One, this man had a chemical engineering training and point of view that I didn't have, and he was in a position to carry out air studies, which I wasn't trained for. He was able to evaluate ventilation and any number of things that an industrial hygienist does, that a physician does not do.

Q In addition to that, were you responsible for setting up any kind of periodic medical exams for Monsanto employees?

A Yes. There were some of the plants that did have periodic examinations before I came back after the service. Some didn't. We had taken over some new plants by merger that had varying types of medical programs, and we tried to standardize them as well as we could.

Q Can you explain how the medical evaluation process at Monsanto became standardized; like on what type

of basis were these employees examined?

A Well, we would say that before a man comes to work for Monsanto, he has to have this type of examination with this type of x-ray and/or laboratory studies. Depending on the type of work he was doing, he or she would have to have periodic examinations at various times. The examinations would vary in scope, depending on the particular hazard to which they might be exposed.

Q So was there first some sort of assessment made of the potential exposure that each employee in each department would have?

A That's correct.

Q So I guess, for instance, if a person had potential for exposure to fumes or dust, that person might receive a chest x-ray?

A That's correct.

Q Whereas, somebody who was working with a pure solvent may not receive a chest x-ray?

A That's correct.

Q And, for instance, somebody who was exposed to a benzene product, might receive a liver enzyme profile?

A Well, the liver enzymes didn't come until later. Earlier in the 40's and 50's the treatment, the determination of the liver function tests required two venous sections, and that was not too popular a test to get

across.

Q I can imagine. Well, just, for example, in those persons who were working with substances which might have been considered to be hepatotoxic at that time, what sort of testing would be carried on in the examination conducted by Monsanto?

A It depends also on the exposure, too. I mean no matter how toxic a compound is, if you don't have a significant exposure, you aren't going to get any problems. In those earlier days, there were, as I said, there were urine tests that are certainly outdated now, that were used at times. There were these BSP tests, which was the two venous aspirations. That was about it. It was not as simple as it is now, where you get a whole barrage of tests for one blood sample.

Q Is it fair to say, at any rate, that by the mid 1940's or by the late 1940's Monsanto had in place a company-wide medical monitoring program for the purpose of identifying and preventing occupational diseases.

A I think that I would agree with that. I would say we tried to have a company-wide monitoring. That would depend a little upon the availability of Doctor hours. If you had a place like Elvin, Texas, where you may not have very many physicians, or other places, you couldn't do as much as you might want to do.

Q Well, I imagine -- for instance, were there contract physicians that were used in various locations where Monsanto had plants?

A Oh, yes. They varied from contract physicians to people who were on a retainer and came two or three hours a week, to a couple of plants where we had full time physicians. But you may not realize, but after the war there was a relatively serious shortage of doctors in this country, and it was a little hard to get part-time physicians.

Q As part of the program that you set up at that time, Doctor, what type of procedures of communication were, or lines of communication were initiated between your medical department and the safety department?

A Well, it operated at two levels. The safety department of the plant was very close to the doctor and the nurses in the dispensary, because the safety man was a full time man, and with the exception of a few plants, did we have full time doctors, so there, there was a very close relationship. And whenever I went to the plant to visit, to inspect the medical facilities and go through the plant, I always went with a safety instructor -- safety director. At the corporate level there was also a quite -- I mean we were in the same building. We talked all the time. There was no great formal intercourse, but it was an excellent working

arrangement. Safety data sheets that we sent out, that were medical, would go out to the plant safety inspector, as well as to the physician.

Q From time to time, in the 1940's and 50's, can you recall any emergencies which occurred which involved the spillage of toxic materials or emergency situations which required preventative steps to be taken to protect employees?

A You mean 40's and 50's?

Q Yes, sir.

A We're talking now 30 or 40 years ago, to remember. There are always spills in chemical plants. You do get exposures. That's why we have gas masks, air line respirators, and everything else.

Q Right. I guess what I wanted to ask is I realize that as you sit here today, you might not be able to pinpoint any specific incident for me, but I guess what I wanted to know is when these things did occur at Monsanto, what kind of emergency procedures or steps were taken and who set up those emergency --

A Oh. The safety people would set up -- the safety people and the manufacturing people would set up the clean-up or the -- not only the clean up, but the walling off of the area, isolating area. They would bring any exposed people, any of the walking people, or if there were

stretcher cases, to the dispensary where the nurses would see them, and from there they would go to the hospital. We, the medical department, took care of the casualties. They did not take care of the cleanups.

Q Well, were there preventative measures that were used in the field when cleanups occurred? For instance, what was available for these people? Was special clothing available? What was made available to the people who did the cleanup work?

A It depends on what it was. In other words, if it was an acid compound, they would have rubber boots, and gloves, and goggles, and aprons. If it were a PCB at room temperature, which didn't volatilize, they would not need all that.

Q Based on your recollection, what would they use for instance to clean up PCB's which spilled at room temperature? What would be utilized by the worker?

A They probably throw something equivalent to Kitty Litter on it. I don't know what the technical term would be, but its an absorbent like that, and they'd sweep it up and put it into a drum and take to a landfill.

Q How about in the case where you would have pyrolyzation of the PCB's? What kind a precaution --

A I don't think that occurs in the plant operations. In other words, that means, if I understand you

correctly, pyrolyzation, do you mean by a fire or do you mean by heat without oxygen in it?

Q Either one of those sort of things?

A But a fire --

Q Where you had a fire, where you had an airborne mist of PCB vapor, what kind of precautions would be taken then?

A The only way that you'd have a mist would be blowing out the stack of a reactor, -- I mean where you were making the stuff, and you would put a gas mask on and turn the thing off. In a fire -- we didn't have any fires in the PCB department, that I recall.

Q From the best you can remember, Doctor what were the employees at Monsanto told? People that worked in the PCB department, what were they told about PCB?

A Avoid breathing the fumes, especially in confined or elevated temperatures, avoid repeated or continuous skin contact.

Q And this was communicated by away of printed material, or safety meetings, or how did they get this information?

A Well, certainly safety meetings. There were departmental safety meetings once a month for all employees. They were indoctrinated when they came to work, by the foreman. We did send out information on PCB's, as well as

other compounds, to the safety people, and they talked to the employees at safety meetings.

Q At some point, Doctor, did Monsanto ultimately set up a research lab or an actual toxicology department?

A Yes.

Q Do you recall when that happened?

A The formation of it started in -- preliminary formation started early in '74, and I think it came to fruition in '76.

Q How many toxicoligists, or persons, or technicians involved under that department head were actually hired?

A Were actually what?

Q Hired at that time.

A Well, I wasn't there in '76.

Q Okay. Well, if you know.

A When I left, we had four toxicoligists, and I believe they hired a couple of more before they got this laboratory set up, and I would think they would have ten there, but I have only been in that laboratory twice, so I don't know how many people they have.

Q When you say toxicology, were these people physicians? Were they medical toxicologists?

A No. They were P.H.D.'s.

Q Prior to the time there was a formal toxicology

department, how did you and others working under your control endeavor to determine the toxicity of substances that were either being worked with or products being created by Monsanto?

A Well, there were three ways of doing it: (1) One would look up the literature to see if there were any data concerning the toxicological properties; (2) If the compound was not a new one to us, but had been manufactured by another company around the United States, I knew all the medical directors and I would call them up and say, "What do you know about this?" (3) If those two failed, failed to give us any information, we had the material tested at outside laboratories.

Q Were these three steps being followed by you even in the 1940's and 50's?

A Yes. I think our first work in an outside laboratory was around '38.

Q And, of course, at the same time you were also examing employees to determine whether or not there were actually any clinical effects from being in the departments they worked in; is that true?

A That's true.

Q So would you say that was another valid way of determining the toxicity of a substance?

A I don't think so. I don't think you would want

to wait until a worker got sick to find out if the material was toxic. One might get information from research chemists that were working with it in the bench area. After all, they're working with 10,000 different compounds at one -- and you might get information from them as to a side effect from one of the compounds.

Q Was the purpose of trying to determine the toxicological effects of these products, in addition to protecting employees, also to protect users of the products?

A Yes.

Q And, for instance, in your situation, were there times when you were, in fact, consulted by consumers of Monsanto products who said, "Doctor, what do I need to know about this product?"

A Oh, yes, any number of times both by letter and by telephone. There was a rule at Monsanto that the medical department would answer any medical or toxicological question that came into a sales office or came in anyplace. It would be forwarded to our office.

Q Did you find that that was a fairly regular aspect of the your work, that you would get inquiries from consumers?

A Yes.

Q Was there ever any time, for instance, that your department actually wrote literature on products? Like, for

instance, did you write up a pamphlet about Arochlors that you could distribute to people who had questions?

A The medical department was responsible for the toxicity information and the safe handling data that went into our company's development bulletins, their sales bulletins about various -- and various product bulletins, so that if somebody would ask a salesman what is known about this, they would hand them this bulletin and say, "Here it is. If you need any further questions, I will let St.Louis write you about it."

Q How long ago was it that those bulletins were actually created; I mean that they were available to your customers?

A Almost as long as I can remember.

Q Even back in the 40's?

A Oh, yes, certainly.

Q I am sure this question has been asked in prior depositions, but do those old product bulletins still exist, as far as you know?

A I don't think they do.

Q Doctor, could a competent chemist who sampled, let's say a capacitor fluid, could a competent chemist who sampled a PCB fluid, distinguish Arochlor from another company's PCB's?

A Well, I can't answer that directly, because I am

not an analytical chemist, but I do know, for example, that in Europe they tested Monsanto PC -- Aroclors, the French Arochlors, and the Italian -- French PCB's and the Italian PCB's and they found no dibenzofurans in ours by that -- his method. Now let's admit that 20 years ago, in the 60's, the methods weren't too good, and they found in appreciable numbers dibenzofurans in the two other products. But I can't answer the question any more than that.

Q I guess the question is this, and it might seem overly obvious to you, but I would assume that the object of Monsanto, when they made PCB's, is to make only PCB's, true?

A You mean if they sell PCB's?

Q Right, to make pure PCB's?

A As pure as you can, yes.

Q I guess my question might be better asked, let's assume another company, somewhere outside the United States was making a 54 percent chlorine PCB, would there be any way to distinguish that compound from Aroclor 1254?

A I can't answer that.

Q You just don't know?

A I don't know.

Q I guess I didn't ask you quite well enough to satisfy my curiosity, but I understand that Monsanto was the only company in the United States that made Arochlors; is that true?

A That was their patent name, and I think I added that's the only one that made PCB's, cholorinated biphenyl.

Q So Monsanto was the only company in the United States that made chlorinated biphenyls?

A That's correct.

Q Doctor, let me go back. I mentioned earlier -- I mentioned a word that I called pyrolization. What do you understand that to mean?

A Well, pyrolysis means distruction by heat. If it occurs in the presence -- I do not know if, strictly, that refers to it in an oxygen deficient atmosphere or whether it refers to it in an open area where you've got plenty of oxygen. I am not sure which is the right definition of that.

A Let me ask you this: Based on your knowledge about the most current literature, when you have a situation where a capacitor burned, such as it did in Centralia, Illinois at the ICG shops, what type of chemical changes occur in PCB materials which alter the byproducts which are generated as a result of that fire.

MS. CULP: I am going to interpose an objection on the grounds of foundation, because I don't think there's any evidence that the capacitors at the ICG facility in Centralia burned, as counsel has -- if you want to pose that hypothetical, that's fine.

Q (By Mr. Roven) Well, let me ask you this, Doctor. Based on your understanding of this case, do you have an opinion as to whether or not, first of all, there were, in fact, PCB's present in the work environment of Bob Gallatin at the ICG shops in Centralia?

A Do you mean do I have of my own knowledge?

Q What is your opinion based on --

A I think there were PCB's in the capacitor, yes.

Q Do you have an opinion on whether or not they burned?

A It depends on -- again, I don't know. They boiled out, according to what I understand. When they took the capacitors down, there were no PCB's in it. Whether they burned or dropped to the floor, I don't know.

Q So you don't have an opinion as to whether or not they burned?

A I don't know.

Q Well, let me ask you this: Whether or not they did -- let me ask my original question. When PCB's are burned and vaporized by fire, what compounds are created as a result of that?

A Hydrochloric acid, carbon and soot. You break down a benzene ring, and you get a small fraction. A fraction of under one percent can be broken. It can degrade to dibenzofurans, and I think that's the major constituents.

Q Based on the information that you received, do you have an opinion as to what type of PCB's were present in the capacitors in the Centralia shop?

A I have always been told, during my years at Monsanto, that the capacitors until 1971, I believe, were all 1242.

Q Is there anything special about the constituency of Arochlor 1242 which would alter your answer in terms of what it would produce when it would burned?

A No, sir.

Q It would be like any other Arochlor; would that be true?

A When you say any other Arochlor, you get up to some of the Arochlors which are not PCB's. Some Arochlors are chlorinated diphenylbenzene. Some are chlorinated diphenylbenzene plus PCB's. Some are hard waxy solids, and if any of those burn, I don't know what happens to them.

Q Okay. Let's talk about Arochlors which are, in fact, PCB's. Would there be any appreciable difference in the type of the furans or the type of materials which would be created when they burn?

A Yes, I think so. There's a certain structure of where the chlorines would be in the dibenzofurans. I think that varies between, say, 1242 and 1260, something like that. I think there is some difference.

Q Do you have any opinion as to whether, generally, the toxicity of the end product, of what is created by Arochlor is increased or decreased when it burns?

A It depends on a host of things. It depends on how hot the temperature is. There's only a certain window that dibenzofurans are formed. That's around 800 degrees centigrade. Now, it all depends how hot the fire is. If the fire gets up to 900 to a 1000, they're all burned up. If its under -- but I don't know. If it's under 600, the dibenzofurans aren't formed. But it depends a lot on the fire, and the fire a not a homogeneous thing. It's hotter in one area than it is in the other. I can't answer your question.

Q Would you agree with me, generally, that if furans are determined to be present in the residue of a fire, that as a general principle they are considered to be more highly toxic than PCB's?

A Yes. But, first of all, I don't consider PCB's to be highly toxic. Furans, dibenzofurans are, much more toxic, yes, than PCB's.

Q In terms of the the degree of exposure necessary to create pathology in human beings from exposure to PCB's versus furans, is there any way for you to quantitate it?

A No, sir.

Q Would you agree with me that it takes less

exposure to dibenzofurans to make someone sick than it would to exposure to PCB's?

A Yes.

Q Do you know whether, for instance, the IARC has determined whether any dibenzofurans are considered to be cancer causing substances?

A In what species?

Q In human beings.

A I don't believe I have seen any literature on that.

Q Doctor, let me ask you this general proposition. If measurable amounts of dibenzofurans are present in a work place, and persons are permitted to handle them by skin contact without any sort of the protective gear, would you generally agree with me that the opportunity for injurious exposure and foreseeable harm exists?

A And the question was -- last few words?

Q Would the opportunity for harm to human beings --

MR. ROVEN: I am sorry. Why don't you read the question back. Why don't you strike that and read the question back.

(Thereupon, the reporter read back the previous question, as requested.)

A That depends on two variables that you have in there. One, what is a measurable? I mean a part per

trillion? I mean if it's a part per trillion, I wouldn't worry about it. It all depends. Is this inculcated, or is it inside a piece of soot? So I can't answer the question.

Q Well, let me ask you this: How many parts per trillion or billion do you think would be necessary before the potential for injury exists?

A I don't know.

Q Do you have an opinion, if it was one part per billion, could the potential for injury exist?

A I don't think one part per billion is going to hurt anybody.

Q Is there a certain number that you have in your mind?

A No, I don't.

Q Let's assume that it was in the form of soot, since you brought it up. Would that, in itself, would that render the furan inert?

A No, it would not render it inert, but it might render it incapable of being absorbed through the skin.

Q What would you need to know before you could determine it could be absorbed by the skin?

A I think I'd probably need animal testing with the soot to see what happens.

MS. CULP: Doctor, anytime you need a a break -

MR. ROVEN: Let's take a break now.

(Thereupon, a short break was taken.)

Q (By Mr. Roven) Doctor, you have been kind enough to bring two groups of what appear to be medical documents which we can mark as Deposition Exhibit Two.

A Would I take them back with me?

Q Yes, you get to take them back with you. I just wanted to know, are these the sum total of the records that you have reviewed so far in this case?

A Well, I have a hospital record of Deaconess which didn't show anything in '87, and then there was some -- there's a hospital record that big. That didn't tell me much of anything. I didn't bring those, but we got them from you.

Q Okay. Aside from the hospital records, have you reviewed any other type of materials that have been given to you by Ms. Culp or from her firm or any type of materials, memos, or documents produced by the ICG, besides these materials?

A No. No.

MS. CULP: You reviewed Dr. Tietelbaum's deposition transcript. That's not in there.

MR. ROVEN: Yes. It's in here.

Q (By Mr. Roven) You have read Dr. Tietelbaum's deposition?

A Yes

Q Any other depositions, sir?

A DeCastro's.

Q Any others?

A Not that I can recall.

Q All right. Sir, I'd like to ask you a couple of things about your examination of Mr. Gallatin. You saw Mr. Gallatin on July 20, 1987?

A Yes, sir.

Q Do you recall, approximately, how long your examination lasted?

A I think the whole procedure lasted about three hours, because I had Gallatin, Mr. Gallatin and Mr. Kracht at the same time.

Q Were you seeing them interchangably, so to speak?

A Yes.

Q You would send one down for a lab test, see the other, have him do a lab test, and see the other man?

A Yes, sir.

Q And so the two examinations together, along with the lab test, lasted about three hours?

A Around that, yes, sir. It might have been four hours. I am not certain.

Q Were you able to accomplish everything that you thought was reasonably necessary to evaluate them for the effects of the PCB exposure?

A No, sir.

Q What were you not able to do?

A I wanted to send them to a dermatologist and a neurologist to substantiate my negative findings, but I was not allowed to by the plaintiff's attorneys.

Q Are talking about me?

A I don't know, but Mr. Gallatin went out and called somebody and came back and said, "I was told not to go."

Q When did you have an appointment set up for them to go to a dermatologist?

A Same afternoon.

Q Did you have somebody in mind?

A Yes.

Q Who were you going to send them to?

A One was Dr. Powell for skin, and the other was, I think it was Mendelson for neurology.

Q Why did you think that a neurological examination would be necessary?

A Because Mr. Gallatin had only subjective findings of peripheral neuropathy, and I wanted to have the neurologist confirm that the findings were subjective.

Q Why was peripheral neuropathy an issue in your mind?

A Because he stated he had pains in his arms and

legs.

Q Why was it necessary to ascertain whether or not he was suffering from the ill effects of the PCB exposure?

A Why was it?

Q Why was a neurological examination necessary, in your mind, to ascertain whether or not Mr. Gallatin was suffering from the ill effects of PCB exposure?

A I really wanted a neurological examination to ascertain that he was not suffering from it, that, in my opinion, he did not have anything except any symptoms, any signs of PCB intoxication.

Q If he, in fact, had peripheral neuropathy, how would that affect your opinion in his case, one way or the other?

A I don't -- it would depend, I believe, on the extent of the neuropathy, and I don't know if it would have affected it one way or other, but I wanted to be sure that somebody won't say to me, "You say he doesn't have any peripheral neuropathy? Are you a neurologist?" And I'll have to say, "No, I'm not a neurologist." So I wanted to send him to a neurologist and get his opinion.

Q Do you believe that peripheral neuropathy is, in fact, a possible consequence of being exposed to PCB's?

A Not from being exposed; from getting a very serious intoxication from it, yes, with an awful lot of

other symtoms and signs with massive -- with moderate to severe chloracne.

Q You had already determined, had you not, that Mr. Gallatin didn't have any of those other symptoms?

A That's correct.

Q Can you tell me, having made that determination, why you thought it was necessary to send him to a neurologist?

A Because I was sure that one the plaintiff's doctors would say he has peripheral neuropathy, and I wanted to be sure that an expert neurologist would either disprove or accept that statement, and if he did accept the statement that he had peripheral neuropathy, that would be a factor to take into a differential diagnosis. That would not make me change my mind that he was not suffering from PCB absorbtion.

Q At the time of his examination did you have these records available to you?

A I can't answer the question. May the 6th, '87, I may have had Dr. Tietelbaum's. I am not certain.

Q Were you made aware at that time, either by Ms. Culp or anyone else, that Mr. Gallatin had undergone testing for neuropathy?

A At sometime I was told he had EMG studies.

Q Were the EMG studies available to you?

A I don't know what time they were available.

Q Well, EMG studies are objective studies; are they not?

A Yes.

Q Could you have not reviewed the EMG studies which had already been conducted?

A Yes, I could, but I would like to know that the EMG studies were taken by a man that I had confidence in, and I did not know who did these EMG studies.

Q Since that time, up until today, have you had an opportunity to review the EMG studies?

A Yes.

Q What's your conclusion concerning the EMG studies?

A The EMG studies show that he may have a tunnelcarpal syndrome of a mild type. The EMG studies are certainly not particularly diagnositic of any severe peripheral neuropathy.

Q Are they diagnositic of a mild peripheral neuropathy?

A I think you'd have to ask a neurologist about that.

Q Have you done that?

A No.

Q Well, you have a neurologist that you could talk

to; is that true?

A Yes. But I am sure he would want to see the patient.

Q Well, let me ask you this: Do you intend to show the EMG studies to a neurologist prior to trial?

A I don't know if I will or not.

Q Sir, on the day that you examined Mr. Gallatin, do you have a note as to what his blood pressure was?

A Yes. 198 over 122 in the right arm and 170 over 120 in the left arm.

Q Would you agree that that's fairly elevated?

A Yes, it is.

Q Did you see any objective symptoms or signs in Mr. Gallatin that you thought were directly being caused by his elevated blood pressure?

A Well, his pulse was somewhat rapid. I didn't see --I saw no objective signs.

Q Maybe let me reask the question. Did you see anything that you attributed to either his history or the existence of high blood pressure on that day, beside the actual numbers showing high blood pressure?

A You mean his family history in which he had a brother with hypertension, also?

Q No, sir. I just wanted to know if you saw any secondary illness or any type of symptoms or signs in Mr.

Gallatin on that day that you attributed directly to this high blood pressure?

A No, I did not.

Q Did you feel that his high blood pressure was in any way symptomatic?

A Well, he obviously was under a strain, being examined in a strange city by a strange doctor. He was not ill at ease. He was a depressed man. He was not complaining about headaches. He was not dizzy at that time, so I did not see any overt signs of hypertensive crisis coming on.

Q You do remember Mr. Gallatin at this time?

A Yes. Sure.

Q You would agree that he was depressed?

A Yes.

Q Would you say he was depressed in a clinical sense?

A Yes.

Q You could determine that objectively?

A Yes.

Q It wasn't necessary to ask him if he was depressed?

A No.

Q Doctor, let me ask you this: He reported to you, I think, that he began to experience some numbness and

tingling in March of 1986?

A Yes, sir.

Q Do your notes contain any form of handwritten record or form that he filled in indicating that, or was this all taken orally?

A Taken orally.

Q Well, before this report was transcribed, do you have a set of handwritten notes that it came off?

A Yes. I had them. I don't know if they still exist over at Sutter Clinic, or not.

Q In the event that you find your handwritten notes, would you let Ms. Culp --

A Sure.

Q How soon after the examination were these reports dictated?

A Nine days.

Q At that time did you -- is it your customary practice to dictate your report strictly on the basis of your handwritten notes, or do you add conclusions to it that are not necessarily in your handwritten notes?

A We have to wait for the laboratory data to come back. We have data from the x-ray. We had to wait for the PCB levels to come back. We had to wait for the SMA 23 to come back. And some of the these, the T cells took quite awhile to get back.

Q Doctor, let me ask you this: You did this examination over two years after the date of the fire, the incident; is that true?

A Yes, sir.

Q Under these circumstances, did you expect the serum PCB test, in other words, the test that measured PCB's in the blood, to show an elevated level the PCB's?

A No, I didn't expect it; not for that reason. I didn't expect it to show much, because he didn't have any signs of chloracne. He didn't have any signs of liver problems. He didn't have any signs of the PCB intoxication.

Q Even if he had signs of chloracne two years later, would you not agree that a serum PCB blood test, two years after the fact, would likely not show elevated levels of PCB?

A Not necessarily, because in the Yicheng cases -- that's Y-i-c-h-e-n-g, cases in Taiwan, T-a-i-w-a-n, they were elevated twice normal a year afterwards. I don't know two years, but they were elevated twice normal.

Q The fact that he did not have elevated serum PCB levels did not, in itself, rule out the possibility that he still was suffering in some way from PCB exposure; did it?

A That was only one piece of the entire matrix.

Q Right. I understand that, but I am saying that that, in itself --

A No.

Q -- would not have been sufficient information to rule out the possibility of PCB syndrome or intoxication?

A First of all, I don't know what PCB syndrome is. I have never seen that in the literature outside of Dr. Tietelbaum's reports, so I can't comment on that, but it was a dot. The fact of a negative PCB below the detectable limits of the test was not a dominant factor in my reasoning.

Q Can you, basically, explain -- I understand what you're saying, and I appreciate your answer, but can you explain why that was not a dominant factor, given the time period?

A Yes. because PCB levels vary greatly. They vary greatly with the diet. They could vary with the exposure, with the occupational exposure. And if I came up with a level of PCB's in the blood two years afterwards that was 40 parts per billion, that would enter into my thinking as to what we may have here, but I was quite convinced that we weren't going to see that, but I wanted to be sure.

Q If you had seen, for instance, 40 parts per billion two years later, what type of red flag would that have raised for you? I realize you didn't see it, but if you had, of what significance might that have been?

A Well, it's hard to answer, because, first of all,

I don't believe anybody gets chloracne, unless they have a pretty high PBC level. You are asking me to take one item out of a diagnositic picture. When you try to make a diagnosis of PCB poisoning, you have to look at, first, the exposure; second, what does the man have, clinically; third, what does he have laboratory-wise? So in the clinical aspect, you look for enlarged liver. You look for chloracne, and there have been reports of peripheral neuropathy. In the laboratory work, you look for liver enzyme studies. You look for T cell abnormalities, which he didn't have, and you also look for PCB levels.

Q Let me ask this, initially, because this might be a better way to go about it. What manifestations of disease in humans do you believe are caused or can be caused by exposure to PCB's, if the exposure is sufficient?

A Chloracne, chemical hepatitis, and peripheral neuropathy.

Q Anything else?

A No. It all depends on how massive the exposure is, of course.

Q Is there anything, aside from these three things, that you would change or add to the list if the individual is exposed to both PCB's and dibenzofuran?

A I don't think so. I believe the information on dibenzofuran is relatively recent. When I say relatively,

ten years since the Japanese and Taiwan episodes. And they were taken internally by eating the material and in relatively large doses, and the chloracne was massive. I mean there was no question about it. It was massive. They had loss of weight at the time of the episode.

Q In an individual who exhibits any one of -- let me ask you this: Can these things, chloracne, chemical hepatitis, and peripheral neuropathy exist in isolation as a result of PCB exposure, or must one thing follow the other, or must they all be present in combination before a diagnosis can be made?

A If you have an acute exposure to PCB's, you can get jaundice and chemical hepatitis within three days, and you don't have time for chloracne, and you don't have time peripheral neuropathy. You don't have time. That's an acute episode, and there's been one case in American literature about that. You can get chloracne with no other symptoms, but the commonly accepted medical viewpoint is that apart from an acute episode, chloracne is the hallmark of PCB poisoning, and if you don't get that, you're not going to get any of the others.

Q Must the chloracne appear within a certain time, or is there a certain time frame in which it would be expected to appear?

A Well, it always appears within -- we're talking

about PCB's now?

Q Yes, sir.

A Within one to two, two and a half months after the episode.

Q Can you tell me, or can you cite for me any specific literature in which that opinion would be reflected?

A I can. I don't have it at my fingertips. Write it down. I will have it.

Q When human beings describe the existence of chloracne, retrospectively, what do they describe it as? Has it been described as a rash? Has it been described as eruptions in the literature?

A Well, I don't believe the literature puts the patient's diagnosis in. It's usually a physician and/or a dermatologist who describes it. I don't believe that chloracne is diagnosed by patients' description of something.

Q But patients do describe symptoms, and since you know what chloracne is, have you ever had patients describe to you dermal manifestations which you determined to be chloracne, but which they did not describe as chloracne by that term?

A Read that back to me, please.

(Thereupon, the reporter read back the previous question as

requested.)

A You want rephrase that question?

Q What does chloracne look like to a layman?

A It could vary from a few blackheads under the eyes, along what is called the malar, m-a-l-a-r, prominence, which is to the right of the eyes. It could -- that's the most minor type. It could start as either clogged up blackheads or small yellowish -- not pimples, because a pimple is reddish. A pimple is infectious, but a small yellow spot on the skin all the way up to large cystic masses, the size of half an inch in diameter.

Q Can it also encompass all the different variations of skin eruptions in between?

A No. In other words, you mean go from redness to comedones, which are blackheads?

Q I guess what I am asking, sir, is if a person has a manifestation of chloracne, must it it be either blackheads, or small yellow spots, or cystic type acne, or can it cover the spectrum of those things in any given individual?

A Well, he can't have a heat rash and call it chloracne. He could call it chloracne, but it isn't chloracne, if that's what you mean. If a man has folliculitis, a man who is operating with oils and greases, that's folliculitis. That's not chloracne. That's an

infection of a hair follicle. If you've got areas were he rubs himself together, a man with fat chunky thighs, rubs himself himself together, he's got a pinpoint type rash there, which is not chloracne.

Q I guess what I am asking is could an individual have blackheads along the malar prominences of the face and have a cystic type chloracne on some other place on his body, or are the three mutually exclusive? Can you only have the yellow discolorations without a cystic type discoloration?

A Yes, because that's the minor type. In other words, a cystic type of acne is more severe. Maybe I can explain it. You see a teen-ager with pimples. That's a minor form of teen-age acne. If you see a teen-ager with big red blotches on his face and on his back, and he's got swelling, the kind that they are talking about. where they are using Retin A or something like that, now, that is a serious form of adolescent nonccupational acne, teen-age acne, or adult acne. Well, the same thing obtains -- in chloracne you could have a small amount of these little yellow spots or have a small amount of blacksheads that the person doesn't even know he has, because they're on the back of his ear. He hasn't looked at them -- all the way up to a very serious involvement. You have seen pictures of them, I'm sure, in these articles you have read, of serious

chloracne.

Q Okay. And the only thing I am trying to ask you is, can a person have various stages of chloracne on differnt parts of his body at the same time, or will he always evolve from one stage to the next where they are mutually exclusive of each other?

A I do not think they are mutually exclusive. In other words, I would say that a person usually starts with a mild chloracne in his, either in the face, or the neck, or behind the ears, but I have seen cases of chloracne from herbicides that were serious, that were -- made in a matters of weeks had gone into extremely large, almost boils, but they did not come to a head, over his back, and over his neck, and some on his chest. And so they are not mutually -- I don't say that every cystic -- I am not saying that every cystic lump on the man started out as a small comedone.

Q If we call the blackhead stage, stage one; and we call the yellow spots state two; and we call the cystic variety stage three, can an individual have stage one chloracne on his face, stage two chloracne on his neck and shoulders, and stage three chloracne on some other part of his body; is that possible?

A It's possible, but from a practical point of view, you are really looking at the serious areas of a man.

You may not be paying much attention to the small little blackheads or small little yellow spots. If a man has got 150 masses of sweat material, ranging from a quarter of a inch to an inch over his body, conceivably he could have both, yes, but I do not believe, and I am not certain that you have to start with this large cystic area from a small little yellow spot.

Q I understand that there's not necessarily a progression from one to three. I just want to know if varieties one, two, three can manifest themselves on the same individual at the same time?

A I think they could, yes.

Q Sir, let me ask you this, also. Many times, if an individual is exposed to a product which produces chloracne, that individual can also be exposed to a coproduct or the same product which produces a skin rash, as well, can he not, an irritant type rash; is that not possible?

A Yes.

Q So you can have a systemic reaction resulting in chloracne and also have an immediate dermal reaction which consists of a regular rash from the same product; can you not?

A Yes.

Q And that can happen from PCB's, as well; can it

not?

A Well, PCB's a good solvent, and it will act on the skin like a paint remover.

Q So it's certainly consistent that individual could, say, have a, could simply have a red dermal rash from being in contact with PCB's within a week or two?

A And then what?

Q Well, aside from chloracne, could an individual contract a simple dermal rash from being in contact with PCB's?

A Yes.

Q And does that occur from time to time?

A If they don't follow the label directions, it could.

Q Sir, let me ask you about something in your reports. On the third paragraph you mention that the laboratory normal for PCB's in human fat, adepose tissue, I believe, is up to a 1000 micrograms per gram; is that correct?

A Yes, if that's parts per million. Yes, sir.

Q It's your opinion, then, that one 1000 parts per million would be considered a laboratory normal?

A Well, it was in the laboratory that Mr. DeCastro used. This the latest I believe. In the Deaconess Hospital laboratory the fat biopsy was two micrograms per gram of

fat, 2000 parts per billion. The normal from that laboratory was up to 1.0 micrograms, which is a 1000 parts per billion. That's one part per million.

Q So the laboratory normal, as used by this laboratory is one part per million?

A That's right.

Q What is your understanding of how that figure was derived or when it was derived?

A It was derived by random sampling of a number of of people that were both occupationally exposed, or people who ate fish a great deal in Michigan, contaminated fish; and people who used sludge as a gardening accessory, and they, the Public Health Service showed numerous levels of, did mostly on blood, but they also did it on fat in some cases.

Q Is it your understanding that the meaning of that term is that if an individual has less than one part per million PCB's in his fat tissue, that he cannot get ill from his exposure?

A No, I don't say that, at all.

Q So it is possible then that somebody can get ill from exposure to PCB's and show less than that amount in his adipose tissue?

A It's possible, but it's -- it's possible

Q Let me ask you one other thing about your report.

Apparently, Mr. Gallatin told you that somebody had advised him that he had chloracne lesions on his back?

A Yes.

Q And you saw no evidence of that?

A I saw none.

Q Did you see any type of lesions on his skin, at all?

A There were small, occasional small red spots similar to a heat rash on his buttocks.

A That was it?

A That was it.

Q Doctor, if an individual gets a systemic reaction to PCB's that result in some type of stage of Chloracne, does it remain constant in that person until it eventually resolves?

A Does what remain constant?

Q The Chloracne. Can Chloracne go into remission and reappear, or does it always remain constant?

A It can disappear, and some can stay.

Q But I guess my question is can it disappear and come back?

A No, I don't think so.

Q You think it remains with the person until it ultimately resolves?

A Yes. It doesn't come and go like a cold.

Q Can it manifest itself on different portions of the body at different times?

A Yes.

Q For instance, can an individual get chloracne lesions on his face and two months later develop them on his arm?

A It's possible, but it isn't usual. In other words, one would think that this a -- barring no further further exposure to whatever is causing the chloracne?

Q Yes, sir.

A I would think that would be a long period of time. If a person had that type of exposure, I feel that there would get a pretty severe reaction not too long after it started on their face, but I can't quantify how long a period that might be.

Q Is there any part of the body, in your opinion, in which human beings cannot exhibit chloracne or some other skin manifestation of exposure to PCB's?

A Well, I could quote Dr. Crow, who says that it doesn't appear on the nose. I have never seen any pictures of it on the palms of the hands. The thighs are usually not affected by chloracne.

Q Are there any other parts of the body in which you would definetly not expect to see it?

A Yes. I don't think I'd expect to see it in the

scalp.

Q Is there any reason for that? I mean is there a reason why you would not expect to see it?

A I think it's in the presence of sebaceous glands in those places, although I don't know why Crow says the nose, but she's very positive on it, and she is quoted as an authority.

Q So, basically, then, it would be the nose, the palms, the hands, and the scalp where you would not expect to see chloracne?

A Yes, well I think it's simpler to tell you where the more common places are. The more common places are the prominences round the cheeks, the back the ears, the neck, the back of the neck, the back of the chest and the anterior part of the chest, the penis and scrotum.

Q What in the past has been the dominant treatment for chloracne?

A It's been relatively unsatisfactory. They have tried x-ray, 70 at times, and that causes pigmentation, and it is no longer used. They have given Vibramycin, one of the antibiotics. Before the antibiotics, hot compresses and extract the material with a comedone extractor, which looks like a donut on the end of a toothpick. I do not know if Retin A is used for it or not, because I have seen no reports of chloracne

occurring in the medical lately, so I don't know.

Q If an individual does not die from intoxication from a chemical which causes chloracne, will the chloracne eventually resolve in all people?

A Not in everybody. I have seen cases from herbicides where there was dioxin. Now, remember that herbicide is different than PCB's. Dioxin isn't in PCB's, but it is clearing up. I mean, but they still would have comedones. That would be there. They weren't evacuated. The active phase goes away. There may be scarring. There would be scarring and pitting of the face.

Q So if an individual has an exposure that's sufficient to cause chloracne, that individual could conceivably have either the problems or the residual from that problem for the rest of their life?

A Well, it depends on degree, now, you are talking about. I mean, certainly if a person has a chloracne of the type that was described in the literature by Meigs, M-e-i-g-s, in which these six people inhaled PCB fumes, was mild. Some of them didn't even know they had it. That cured up within 18 months. The skin was normal. So you're talking about different things. You have people that had herbicide intoxication with dioxin. They had that the rest of their lives.

Q So it depends on the agent, really?

A It depends on the severity, I think, yes.

Q Are there any other type of skin manifestations or abnormalities that can be caused by PCB's that would not be strictly classified as chloracne?

A Yes. We talked about it. It's a good paint remover. It's like putting paint remover on your hand, on your wrist.

Q Aside from a rash, I mean are there any other types of things like boils, scale, sluffing of the skin, any other things like that that can be caused by PCB in relation or exposure that would not be strictly classified as chloracne?

A No, not unless it were boiling hot, but, I mean, room temperature stuff, it wouldn't.

Q Doctor, let me ask you a question. In reviewing Mr. Gallatin's situation, you saw that there were essentially two fats biopsies that were done. One was done on the side of the body, which I think revealed 19 parts per billion PCB's. Several months later there was a biopsy taken from the shoulder or the neck which revealed, I believe, 200 parts per billion?

A I don't know what the time frame was. I don't know which one was done first.

Q Well, assume for the stake of the question that the biopsy from the side, which showed the lesser amount,

was taken first. From your knowledge about PCB's, how do you explain the fact that the second biopsy, which was taken later, showed a 10 times higher level than the biopsy taken from the side?

A If the second was the lipoma that they took off, and a lipoma is a circumscribed fatty tumor, which it just sits there; whereas, the metabolism of that, one would not expect to be as marked as a metabolism of the fat under your skin and the rest of your body, so that I think it's perfectly logical that any PCB's that happen to be in the fat in the lipoma would not -- could vary from tissue elsewhere in the body. But still, remember these are all under the range that you expect, so conceivably, if they took another sample of Mr. Gallatin, he might have 150 someplace else. Anything up to a 1000 is normal, is in the normal range.

Q Would you anticipate in an individual, who was not occupationally exposed to PCB's, finding levels of up to a 1000 parts per billion?

A Well, there, again, I believe it depends on the laboratory which is running it. There are probably only half a dozen laboratories in the United States that are completely -- you could have results that are replicas that you can be 100 percent sure of the results. The EPA has sent out samples to various laboratories that they've got.

and variations all over the lot, so you've got to be sure of the laboratory. So to answer your question, if a laboratory tells me their normal is 1000, and you come in with 200, that would seem to be me to believe that that's pretty low as far as that laboratory is concerned.

Q Well, then, are you saying that the normal is established by the laboratory?

A No, it isn't, but laboratories do have their own normals. After all the EPA, when they did their work, it came out with these various figures. They used some laboratories, but I think most of the time the laboratory has some sort of a control, and they may -- I don't know where they get that control, but their control may be 1000 parts. I am not making myself clear on this, but it is not established by the laboratory, but the laboratory that does the analysis bases their interpretation of the results on some normal. Now, another laboratory, which might have 25 parts per million, could conceivably say that our laboratory runs a normal individual, and we find that our normal individuals run at 500 parts per billion.

Q So the normal established by the laboratory could be established on the basis of geographical distinctions depend depending on where the laboratory is?

A I don't know how they establish those.

Q I mean, you would agree with me that there may

very well be parts of the population in the United States where higher PCB levels in fat tissue exist?

A Yes.

Q In other words, people who live in metropolitan areas would, probably because of the type of exposure to the environment they have, probably have a higher background level of PCB's than somebody who lives in Alaska; Would you agree with me on that?

A I don't know, because people in Alaska may be eating a lot of fish.

Q Maybe so. But for whatever reason, there can certainly be geographical distinctions in what we would expect from background levels, true?

A It is true, but it hasn't been that great. In fact, I don't know how well it's been established in fat, because you don't go around taking fat biopsies, as a rule, from random individuals that are living in, either in St. Louis as school teachers, or in Alaska as air bush pilots. So there's a lot of work done on bloods in various places, and there, it hasn't varied all that greatly. I mean you might have from five parts per billion to ten per billion in fish eaters, and five parts for the people who don't fish.

Q Well, let me ask you this, personally. Based on your experience, are you satisfied that we have established

a norm which can be relied upon by physicians in this area?

A I think so, yes.

Q And what do you think that is?

A In fat?

Q Yes, sir.

A I think up to one part per million in fat. Under that would be considered in the range of normal people.

MS. CULP: Are we getting ready to stop now?

MR. ROVEN: Yes.

Q (By Mr. Roven) Doctor, have you, yourself, had patients with fat levels of more than one part per million and who were not sick?

A No, sir, I have not.

Q Have you ever had patients with more than one part per million in their fat?

A No.

Q Does that include people who, in fact, had heavy occupational exposures to Arochlor?

A Well, people weren't doing fat biopsies on individuals in occupational areas. These people were well. You don't go doing a biopsy on a well worker.

Q How many fat biopsies -- how many individuals have you seen fat biopsies done on that were, in fact, exposed to PCB's in some setting?

A None of mine. I have not have had any fat

biopsies taken on any of the people I have seen.

Q Why is that?

A Why?

Q Yes, sir.

A I didn't think it was necessary.

MR. ROVEN: We're almost ready to stop, but I've got about five minutes. Promise.

MS. CULP: Off the record.

(Thereupon, an off the record discussion was held.)

MR. ROVEN: Let's go back on the record.

Q (By Mr. Roven) Let me just ask two more questions. Sir, on page three of your report on Mr. Gallatin -- are with me?

A Yes.

Q You noted that his vibratory test showed that he felt the tuning fork for four seconds in either ankle. This is a subjective test which is hard to evaluate. Can you expound on that a little bit? Can you explain that to me?

A Yes. In other words, you put a tuning fork on a man's ankle, and you say, "Can you feel it?" And if he says, "No," there's no way that you would be able to tell that he doesn't feel it. But if he feels it, and he says, "Yes, I can feel it," and he says, "Well, I can't feel it now," you don't know if he still feels it or not, but, anyway, he was feeling it for four seconds in each leg.

Q What is the purpose of that test?

A The purpose of the test is to see if there's any disorder in the peripheral nerves that are responding to tuning fork vibrations.

Q If, in fact, Mr. Gallatin did feel the tuning fork for four seconds in either ankle, what would that indicate?

A He had nerves down to his ankle that were working pretty well.

Q Why, then, is it a hard test to evaluate?

A Because what if he said, "I didn't feel it." How do I know if he didn't t feel it, or not.

Q But he didn't say that; did he?

A No.

Q Just curious.

MR. ROVEN: Why don't we stop here? Do you want the Doctor to sign this portion of the deposition or should we just adjourn?

MS. CULP: The only thing, I think it might have be helpful to have him read it is for spelling? Do you feel comfortable that you've gotten the spelling?

(Thereupon, an off the record discussion was held.)

MR. ROVEN: The only thing I would ask, let me mark the Doctor's file two and three. He can have full use of it, and he can keep it. I just want it marked so I'll

know what it is next time. Okay?

MS. CULP: Okay.

(Thereupon, the reporter marked Plaintiff's Deposition Exhibit Nos. 2 and 3 for identification.)

(Signature waived.)

NOTORIAL CERTIFICATE

I, BRENDA S. ORSBORN, shorthand reporter and duly commissioned Notary Public, do hereby certify that there came before me at the Raddison Hotel, Ninth Street at Convention Plaza, St. Louis, Missouri,

ROBERT EMMET KELLY, M.D.,

who was by me first duly sworn to testify to the truth and nothing but the truth of all knowledge touching and concerning the matters in controversy in this cause; that the witness was thereupon carefully examined under oath, and said examination was reduced to writing by me; that the signature of the witness was expressly waived; and that this deposition is a true and correct record of the testimony given by the witness.

I further certify that I am neither attorney nor counsel for nor related nor employed by any of the parties to the action in which this deposition is taken; further that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 2nd day of June, 1988.

My commission expires May 28, 1990.

(Notary Public)