

## CROSS EXAMINATION by MR. CORWIN:

Q. Were you referring to literature that was included in the appendix in some of the previous motions in this case? (211)

A. Well, I had read some of that literature. I wasn't referring to that in its entirety.

Q. You don't make any decision based on that type of literature, do you?

A. No.

\* \* \*

## AFTERNOON SESSION (213)

CHRISTIAN T. WILLIAMSON resumed the witness stand, and further testified as follows:

Q. Mr. Williamson, in answer to some questions that were asked of you on direct examination, you indicated that the commission's use of DDT was less for this year than in previous years, is that right? (215)

A. Yes, that's right.

Q. Is this a deliberate design on the part of the commission to use less DDT?

A. Yes, it is.

Q. Is there some particular reason why this is being done?

A. Well, because any well-rounded control program should not depend on one insecticide or one tool. We are endeavoring to fill our arsenal with additional tools and hold this in reserve. (216)

Q. Well, with respect then to the chemical that you refer to by the trade name of abate, you don't expect that that would be something that you would be using continuously in the foreseeable future? Is that a fair statement?

A. Possibly so. It depends upon its stability.

Q. If you found that its effectiveness was being lessened for one reason or another, you would then go and substitute still another chemical, is that correct?

A. That's right.

\* \* \*

Q. Other than to approve the plan of work and supply the funds in the budget, did the county executive or the County Board of Supervisors ever exercise any control or jurisdiction over your department? (217)

A. No.

Q. Do you know anything about the mosquito control operation that is performed in that area and in Suffolk County where you don't do any work?

A. No, other than to be familiar with that operation.

Q. You don't know, do you, whether or not they do use any DDT down there?

A. No, I do not.

Q. Are you familiar with the dangers inherent from the use of some of these chemical pesticides?

A. I am.

Q. Are you aware of the fact that in some cases the danger is to man? (218)

A. I am, yes.

Q. And is that the reason for the training program that you have with your people?

A. Yes.

THE COURT: Do you have any training program?

THE WITNESS: We have an in-service training, I train the employees.

MR. YANNACONE: Who trains the employees?

THE WITNESS: I do

MR. YANNACONE: You do?

THE WITNESS: Yes.

\* \* \*

Q. Do you train personnel in your department in the use of these chemicals? (219)

A. That's right.

THE COURT: \* \* \* Will you describe, if you will, the approximate area of those places sprayed by you and your men?

THE WITNESS: Well, I think probably we can make a relative statement on that. For example, in considering one acre as a complete unit, in that one acre maybe an area of 50 feet square would be sprayed. We would not spray the whole acre.

THE COURT: You would spray where it was necessary to spray?

THE WITNESS: Where breeding was occurring. We would spray in the breeding area, and the breeding does not occur over the entire marsh. (220)

\* \* \*

Q. Are you aware of the fact that counsel for the plaintiff made the statement that you were spraying DDT in a sump or drainage pit near his house late in August of this year?

A. I was so informed that the statement was made.

Q. When did you discontinue using DDT?

\* \* \*

THE WITNESS: August the 5th of 1966.

Q. What was being sprayed in the vicinity of Mr. Yannacone's home late in August?

A. Number 2 fuel oil. (221)

Q. Just number 2 fuel oil?

A. That's all.

\* \* \*

THE COURT: What do you use-- just plain fuel oil?

THE WITNESS: Yes, Your Honor, we do.

MR. YANNACONE: And it works, Your Honor.

THE COURT: That is a laticidal material?

THE WITNESS: Yes, Your Honor.

THE COURT: All right.

Q. Now, you don't do any spraying by the use of planes and helicopters, do you?

A. We did some restricted and limited work with helicopters this summer in a dump area in Deer Park. This was a burrow pit, an old sand pit, and it was being filled.

MR. YANNACONE: Your Honor, before we go any further, spraying with a helicopter is fine, but are we talking about DDT spraying? (222)

THE WITNESS: We used oil and malathion. We used one application of DDT in July.

MR. YANNACONE: From a helicopter?

THE WITNESS: From a helicopter in this dump area.

\* \* \*

Q. Now, Mr. Williamson, are you familiar with Mr. Taormina's, if I pronounce the name correctly, affidavit that was procured in this case?

A. Yes, I read it.

Q. Are you familiar with what he refers to as the Yaphank Lake fish kill?

A. Yes.

Q. Are you familiar with the location of the stations where they took the samples on which they made a determination as to how much DDT they found in a certain area?

A. I saw them marked on his map or drawing.

Q. Well, do you remember where station 3 was, a sump which (223) was described as being on the north side of Longwood Road, east of Yaphank's Middle Road?

A. I do.

Q. Did you treat that particular sump with DDT?

A. I did.

Q. Have you treated it with DDT after 1964?

A. No.

\* \* \*

Q. Would water flow in the lake from that sump other than on the occasion of an exceptionally heavy rain ?

A. No.

THE COURT: You have to remember one other thing in this case, gentlemen. This man was not a hostile witness, at least in the mind of the Court, although he is salaried by the county. He is your witness, and you know that. He has a right to cross-examine, and he has a right to lead in his cross-examination here.

Q. You are aware generally that DDT is toxic to insects and other animal life, aren't you?

A. Yes.

Q. And you know in a general way or perhaps as a well-informed lay person, that with respect to the subject there is what has been described as a build up in the food chain, is that right?

A. Yes.

Q. Do you know whether or not your department is the sole user of DDT in Suffolk County?

A. We are not the sole users.

\* \* \*

THE COURT: Do you know whether anybody else has used DDT in Suffolk County. (226)

THE WITNESS: Yes, I do.

Q. Now, based upon your personal knowledge of the amount that you know you have used in any given year in the past three years and sales through outlets such as Agway, Long Island Products, the people who supply chemicals to farms, are you able to approximate percentagewise the amount that you use in relation to the total use?

A. I would approximate that we use a standard 5%.

Q. Now, based upon what you know of the application of DDT in the vicinity of this Yaphank Lake by your department, its toxicity, and the way it builds up in the food chain, do you have an opinion as to whether or not the cause of the fish kill was DDT by your department? Just do you have an opinion?

A. Yes, I do.

Q. What is it?

A. I don't think it was the material applied by my department.

\* \* \*

Q. Mr. Williamson, the plaintiff in this case, although nothing has been said about it in the body of the complaint, I think you may be aware that an action is being taken here on behalf of all the people of the County of Suffolk. Does that include you? (228)

A. It shouldn't.

Q. You don't go along with this?

A. I don't subscribe to it.

Q. You don't want her to represent you in this case, is that right?

A. No.

Q. You don't subscribe to what she is trying to do?

A. No.

Q. Now, you testified in answer to some questions that were asked of you on direct examination with respect to the effectiveness of DDT, and I call your attention to those questions and answers, and I ask you for the basis of the observations that you made when you were testing the effects of abate and the other chemicals to which you have referred in comparison to the effects of DDT-- whether you have an opinion as to the relative effectiveness of the

several chemicals about which you testified ? (229)

A. I do

Q. Which in your opinion is the most effective in the control and abolition of the mosquito?

A. DDT.

Q. Would you say generally that that applies to all of the species?

A. All species of mosquitos?

Q. Yes.

A. Yes.

Q. To what extent are you aware--and I'm now referring to your digest, some of which are known as the learned papers and the professional literature in the field, what do you know about the building up effect in some animals in the food chain of DDT?

A. Well, you want my opinion of that? (230)

Q. Yes.

A. My opinion is this: If the material is properly used and in proper quantities, the build up will be so slow as to be insignificant to any widespread danger or damage. If the material is abused, the build up would be quite rapid.

Q. Well, . . . Do you know whether or not the fish that were killed in Yaphank Lake, whether that was caused by DDT?

A. That is the report. I don't know from my own knowledge.

Q. Well, from what you know about what it takes to kill fish within certain concentrations of it, is your understanding of the facts such that there was sufficient DDT in the water at one particular time to effect the killing of some form of fish?

A. I believe that is true. (231)

Q. Would you say that whoever supplied or caused that large amount of DDT to accumulate in the lake was properly using it?

A. I would say no. It was an improper use.

Q. Is it your opinion, Mr. Williamson, that if this DDT is properly used, not only by your department, but by others who may be using it for the control of agricultural and household pests or anything else, that it will have any permanent, substantial, serious and irreparable injury to the natural life to Suffolk County?

A. No.

Q. Do you believe, as is alleged in the complaint in this action, that children now living and those yet unborn who live and shall live in Suffolk County will suffer serious, permanent and irreparable harm if you are permitted to continue the use of DDT? \* \* \*

A. No, I don't think there will be any damage. (232)

Q. Are you familiar with what is referred to as the benefit-risk equation?

A. Yes.

Q. What do you understand that to be?

A. Well, you are using a material that does have some danger, but the benefits derived from using that material are greater than the dangers that might occur from the proper use of the material. That in substance is my understanding of the equation.

THE COURT: Can I ask this question, please, in connection with that? Has DDT been improved upon or in any way modified through the years up until the present?

THE WITNESS: Well, it has been refined, yes, but to what degree I couldn't say.

THE COURT: Refined in which way?

THE WITNESS: Well, some of the inert or well, you might say waste materials have been taken out of it.

THE COURT: Has it been improved in that it is less harmful as a result of these changes? (233)

THE WITNESS: No, I don't think so.

\* \* \*

MR. CORWIN: I think Your Honor, we can treat that DDT as a chemical compound. It isn't DDT if it is changed.

\* \* \*

Q. Now, this concept of the benefit-risk equation is applicable to the law of other things which affect our lives, such as, for example, radioactivity, is that right?

A. I would say so, yes.

Q. The exhaust from automobiles?

A. Yes.

Q. The manufacture, distribution, and use of a lot of drugs? (234)

A. Yes.

Q. Such as morphine?

A. Yes. \* \* \*

Q. Mr. Williamson, are you familiar with federal controls and pesticides?

A. Yes.

Q. Are you generally familiar with the provisions of §§ 135 to 135k of Title 7 of the United States Code?

A. Reasonably so.

Q. Are you familiar with the provisions of the Food and Drug Act, Title 21 of the United States Code, particularly § 346a and § 346b?

A. Yes.

Q. Are you familiar with the state controls such as are set forth in the §§ 148 and following of the Agriculture and Markets Law?

A. Yes (235)

Q. Are you familiar with the functions and duties and set up of the Pesticide Control Board of the State of New York?

A. Not completely. Reasonably so.

Q. Now, going back to 1965, what percentage of the budget do you say was used for the purchase of DDT?

\* \* \*

THE WITNESS: Well, in 1965, we bought 20,000 gallons of DDT at 60 odd cents a gallon, so we can say \$12,000 for DDT. (237)

THE COURT: All right. It is on the record now, but I don't think it is very important to the issues in this case. . . .

MR. CORWIN: I respectfully except to the Court's characterization.

THE COURT: All right. I will withdraw that remark. Let us get on with the case, and let us get to the issues.

Q. Now, with reference to this Taormina affidavit in June of 1966, on the bottom of page 2, he stated that if 5% of the Suffolk County Mosquito Control budget was to be applied to environmental management, substantial benefits could be obtained not only in controlling mosquitos but also in improving the environments for fish and wildlife. Now how much of your budget is actually expended in that type of activity--controlling the environment? (238)

\* \* \*

A. I would say that probably three-quarters of our budget is spent on water management program, that is, ditching, drainage, maintaining waterways, stream clearance and so forth. I would say that that environmental management. (239)

\* \* \*

Q. Now, during the number of years that you have been in charge of the commission's work, you have been to a lot of conferences, haven't you?

A. I have.

Q. You have consulted with people who are learned and knowledgeable in this field?

A. I have.

Q. You have come to know whether or not you feel that you can accept their judgment and their experience together with their laboratory tests and things like that, isn't that so?

A. That's true.

Q. And in addition to that, you had a lot of practical experience, that is, counting mosquitos and your field work yourself, is that right? (240)

A. That's right.

Q. Do you keep in touch with other people in the field, such as the mosquito control commission of Nassau County?

A. Oh yes.

Q. Are you familiar with what is being done in other states in the union?

A. Yes.

Q. Are you familiar with New York State policy with respect to the use of pesticides generally?

A. Yes.

Q. And DDT in particular, as it is changing now?

A. Yes.

Q. Do you subscribe to the feeling of the plaintiff in this case that there should be judicial control of the use of this substance?

A. No, I do not.

Q. Do you believe that it is conceivable that there should be some kind of control?

A. Yes, I do.

(241)

Q. Are you familiar with what has been referred to as the Ribicoff Committee before?

A. Slightly, yes.

Q. Does that have to do with, among other things, the benefit-risk equation in the use of pesticides, fungicides, and rodenticides?

A. It does.

Q. Are you familiar with the conclusion to which the committee came with respect to the use of DDT, among others?

A. I read their conclusions, yes.

Q. And what they feel about a substantial effect of the benefit-risk equation?

MR. YANNACONE: Your Honor, I submit the report speaks for itself. If counsel has a copy, there is no reason why it shouldn't be introduced at this time and made a part of the record.

THE COURT: Do you have a copy, counsel?

MR. CORWIN: I have a copy, but I do not feel free to offer this particular copy in evidence. It belongs to one of my witnesses. However, your Honor, I would be very glad to have it deemed admitted in evidence, and I will obtain a copy if Mr. Yannacone has not objection. I will formally do so.

(242)

MR. YANNACONE: And I will formally offer it in evidence. \* \* \* Subject to further inquiry.

MR. CORWIN: I don't know what that means.

MR. YANNACONE: Your Honor, to complete the record, I read the report too. I know what counsel is going to say, and I think it ought to be in the record.

THE COURT: Can you stipulate as to it without putting the book in the record? You have that thick volume deemed in evidence, and if this thing goes up on appeal, why you will have a record as high as the ceiling.

(243)

MR. YANNACONE: Your Honor, so far as we are concerned, maybe we can stipulate on appeal in an appendix as to what portion is going to be in, but when you start playing with federal committee reports of 100 pages long, such as the Environmental Pollution Panel Committee report, we are going to talk about it at least for perusal.

THE COURT: If I have to read all of that, counsel, I might just as well resign and go back to fishing. I doubt if I will live that long. My lord, those volumes that I see there, if I have to wade through all that reading material, we will be here into 1969.



MR. YANNACONE: But, Your Honor, all of the witnesses are going to refer to probably parts of them, Therefore, they will be documented in evidence as a mechanical vehicle.

\* \* \*

THE COURT: I won't take anything away from you, gentlemen, I will give you everything you want, but within reason. (244)

MR. YANNACONE: We don't ask you to read it.

THE COURT: Well, I would like to finish this case during my lifetime.

Q. Mr. Williamson, do you know whether or not a substance commonly referred to as 2-4-D is a chlorinated compound?

A. I believe it is. \* \* \*

Q. Do you know?

A. I think it is. (245)

Q. It is a weed killer?

A. Yes.

Q. And you use it to kill crabgrass?

A. Yes.

Q. And it is commonly used in the County of Suffolk?

A. Yes.

Q. Did you ever kill any fish experimentally?

A. Not to my knowledge.

Q. Any rodents or mammals?

A. No.

Q. Even those who may be characterized as extremists in the organized conservation are entitled to their views, are they not?

A. Oh, yes.

Q. Not necessarily entitled to thrust them upon others?

A. That's right. (246)

Q. If those views became the majority views, would you feel differently about their entitlement to have their position enforced?

A. It would take a lot of thinking, but I guess I would.

Q. Whether it changed your view or not, if that was the majority view of this country, they would be entitled to have it enforced?

A. That angle, yes.

Q. Are you willing to have some of our trees felled in order to make roads?

A. Yes.

THE COURT: I think we can stipulate that he is a conservationist. Go ahead.

Q. Are you familiar with the fact that some of our wetlands should be dredged to make boating safe and more pleasant?

A. I agree with that, yes.

Q. Do you think that our lives are adversely affected because there are no sabre-toothed tigers, hairy mammoths and dodo birds? (247)

A. No, I don't think so. \* \* \*

Q. You don't think, do you, that the passenger pidgeon has adversely affected the children of Suffolk County, do you?

A. No.

Q. Are you concerned about the fact that oysters are in scant supply this year?

A. I am concerned, yes.

THE COURT: When we get to scallops, we can stop there.

THE WITNESS: I like those too.

THE COURT: They are gone too. The soft shell crabs are gone, and everything is gone. Let us go on with something else. I want to know what causes them to go. If it is claimed that it is the result of some of this DDT, let me have it.

Q. Would you be concerned if the basic crops such as potatoes, wheat, rice were endangered as a result of the infestation of insects? (248)

A. I certainly would.

Q. If the insect were particularly susceptible to DDT, would you be willing to sacrifice some lower animals to feed man?

A. Yes. \* \* \*

THE COURT: I will let you in on a secret. As far as I am concerned, both of you have been of little value to me. I still want to know whether it is dangerous and whether they are using it; whether something else could take its place and do the job as efficiently, and just exactly what the result of it is. That is all I am interested in, and I am sitting here patiently waiting for it.

Q. Has it been your experience, Mr. Williamson, that the mosquitos develop a resistance and a tolerance to DDT?

A. They do. (249)

Q. Does this resistance principally apply to other animals in varying degrees?

A. That I don't know.

Q. Do you believe in the evolutionary process and survival of the fittest? You believe in that, don't you?

A. Yes. \* \* \*

Q. I will ask you another question, Mr. Williamson. Do you feel it is proper for government to limit the extent to which man can and should control and change its environment in some cases?

A. Yes.

Q. Do you believe that that should be done legislatively rather than judicially?

A. Legislatively.

MR. CORWIN: I have no further questions.

\* \* \*

MR. YANNACONE: I do intend now to cross-examine this witness as to the opinions he gave on new matter for the county attorney. (250)

THE COURT: All right. Go ahead.

REDIRECT EXAMINATION by MR. YANNACONE:

Q. Mr. Williamson, you ventured an opinion as to the amount of DDT you used or used by your commission relative to the total amount used in the County of Suffolk. You did venture that opinion, didn't you? (251)

A. Yes.

Q. And you said it was 5%?

A. It is in the neighborhood of 5%.

Q. In the neighborhood, give or take a couple percent?

A. Yes.

Q. Less, according to you, than 10%, however?

A. Yes.

Q. But at least 5%?

A. I say in that neighborhood.

Q. Now to come up with this figure, you have to know the total amount of DDT used in the county, don't you? (252)

A. Do you want me to tell you how I came up with that figure?

Q. No, I want you to answer my question. You have to know the total amount used in the county to come up with what percentage of it you used, isn't that right?

A. Yes.

Q. Now, how much was used in the county during the year 1965?

A. I don't know.

Q. Then you don't know what percentage of it you used, do you, Mr. Williamson?

A. Based on that premise, no.

Q. Now, unfortunately, I was not a mathematician or statistician. Do you have another way to figure percentages? Do you have another method to compute the amount, percentagewise, of the DDT used, that your commission used, as opposed to the total amount used in the county, other than figuring the total amount you used against the total amount used in the county? (253)

A. Yes, I have.

Q. Tell us.

A. In a report in a technical publication.

Q. Name the publication, and where is the report?

A. Unfortunately, I do not have the copy of the publication, but it seems to be an accepted figure.

Q. Mr. Williamson, you tell me how you get the figure with respect to Suffolk County? What is the publication?

A. I just told you that I cannot give you the name of the publication, because I don't know it. It was a technical publication that came across my desk, and I read the figures in that technical publication.

Q. What year did it come across your desk?

A. This summer sometime.

Q. Did it refer to Suffolk County?

A. No, it referred to the country as a whole.

Q. What did it say?

A. It said that the total amount of DDT consumed by private industry, and the amount used by the departments of government, the departments of government consumed 5% of the total DDT used in the country.

Q. A nation-wide figure? (254)

A. A nation-wide figure, breakdown.

Q. Do you think that Suffolk County fairly represents the nation with respect to the use of agricultural or mosquito control pesticides?

A. I think so.

Q. Now, you took this national figure which has no statistics that you know of with respect to Suffolk County, and you based your statement that you used 5% on that report, is that correct?

A. That's right.

Q. And you can't recall the name of the report?

A. No, I don't.

Q. You can't recall the publication that it was in?

A. No.

Q. You don't have a copy of it?

A. No, I do not.

Q. But you swear by the statement?

A. Yes. (255)

Q. Do you know the author of the statistical material?

A. No, I do not.

Q. Do you get any regular scientific journals in your department?

A. Yes.

Q. What are they?

A. The National Agricultural Insecticide Journal, the Mosquito News Journal, and proceedings of the various meetings published in journal form, proceedings within the New Jersey Mosquito Association.

Q. Keep going.

A. Those are the ones that relate wholly to insecticides and our use of them.

Q. Do you get any general journals with respect to ecology?

A. No.

Q. Biology?

A. No.

Q. Entomology?

A. Well, the mosquito journals concerned.

(256)

Q. Other than the mosquito journals you named?

A. No.

Q. You don't get the journal of comparative entomology?

A. No.

\* \* \*

Q. Now, the journals that you just named that you get regularly, was this report one of them?

A. Was this report what?

Q. Was this report, referring to the 5% in one of them?

A. It could have been in the National Agricultural Insecticide Journal.

Q. Mr. Williamson, do you think you could go back overnight or maybe over the weekend and produce this paper?

A. No, I cannot, because I have looked for it for some time and it is not in my office.

Q. Aren't there any indicies, Mr. Williamson, that you can use to pick up this information?

(257)

A. I don't recall.

Q. Scientific disciplines have abstract services and index services?

A. Quite possible.

Q. Did you ever use one?

A. No.

Q. Did you ever think of using one in this case to find this statement?

A., No.

Q. But yet you have sworn under oath that the Suffolk County Mosquito Control Commission uses 5% only of the total amount of the DDT used in the County of Suffolk?

THE COURT: He said approximately 5%.

A. I predicated that statement on the report in this article.

Q. On that report only?

A. That's right.

Q. And you have already testified of your own knowledge that you know it doesn't have any specific Suffolk County figures in it?

(258)

A. That's right.

MR. YANNACONE: Your Honor, I move to strike the witness' testimony with respect to the percentage use of DDT as being completely unfounded by any type of evidence.

THE COURT: There is only one trouble. He has an opinion and that is the opinion he gave, for what it is worth.

MR. YANNACONE: I would like to move that the opinion be stricken as being incredible.

THE COURT: You laid the foundation, and you asked him the question.

MR. YANNACONE: Right.

THE COURT: And he gave you an answer. The answer could be as wrong as it could be, but that is his answer. Go ahead.

Q. Now, Mr. Williamson, you are sure though that you don't have any figures as to the Suffolk County consumption of DDT? (259)

A. No, I do not.

Q. You have never made any effort to ascertain from Agway or any of the other suppliers that Mr. Corwin named for you as to what their gross annual sales are of DDT?

A. No.

Q. The information is available to you, isn't it?

A. I suppose it is.

Q. You have never had the slightest bit of curiosity about finding out, have you?

A. No, that's right.

Q. All right. Now, let us talk about Yaphank Lake. You rendered an opinion, I think, that you weren't sure whether or not DDT killed the fish; that it might have. If I recall correctly, you were sure, and it was your considered opinion that your mosquito commission's spraying of DDT in a sump or catch basin was not the contributing cause, is that right?

A. That's right.

Q. Now you gave that opinion? (260)

A. Yes.

Q. That involved certain biological conclusions. Have you any training in general biology.

A. No.

Q. Have you any training in ecology?

A. No.

Q. Have you had any training in any of the life sciences?

A. No.

Q. In other words, you are a good mechanical engineer with a degree from Pratt, with no life science training, is that right?

A. Yes.

Q. You just formed an opinion as to the biological effect of the amount of DDT you sprayed in a routine operation in a catch basin that you don't know too much about in Yaphank. May I ask what you base that opinion on?

A. Well, on the volume contaminated in the Lake by the DDT.

Q. Do you know anything about the solubility of DDT? (261)

A. A little.

Q. Are you a chemist?

A. No.

Q. Have you ever made any chemical measurements with respect to the physical properties of DDT?

A. No.

Q. Have you ever attempted to tag any of the DDT sprayed by your commission and find out where it goes throughout the ecosystem?

A. No.

Q. Are you familiar with the phrase ecosystem?

A. Reasonably so.

Q. All right. Are you aware, or can you tell us what the ecosystem of the the Yaphank Lake sump area is?

A. No, I don't think that I could report on that.

THE COURT: Can somebody tell me what the ecosystem is?

MR. YANNACONE: We are going to produce some evidence in a few minutes, Your Honor, after I get through with Mr. Williamson.

THE COURT: All right. I never heard of the word before. (262)

MR. YANNACONE: An ecosystem, if you will take a lay definition of it, is a natural area in which plants, birds, animals and in many cases man, live together in a relatively stable community. The stable community with all its interdependent relations is the ecosystem.

\* \* \*

MR. CORWIN: May I say that he just got through characterizing this witness' qualifications and saying that he got a degree of mechanical engineering from Pratt Institute back in 1929, and that is all he knows. Now, he is asking him some esoteric question about ecosystems, and I submit that the question is improper, he is not qualified to answer it.

THE COURT: Except for the fact that certain questions you asked carry with it the questions he is asking now.

\* \* \*

Q. Can you tell us, Mr. Williamson, what the general area (264) around this sump looks like?

A. Well, it is a low depression on the north side of Longwood Road, and that is swampy during the wet seasons, the wet periods. There are tree growths around the perimeter of it. It has heavy brush growth through the sump area. I won't try to designate the names of the plants and vegetation that is growing there. It looks like a small swamp area.

Q. Is it a fresh water or salt-water swamp? (265)

A. It is a fresh water area.

Q. Does the sump communicate in any way with the upper or lower Yaphank lake.

A. There is a ditch from the end of the sump which passes through a culvert under the Yaphank Road, and the culvert is about, oh, I would say probably about a foot or a foot and a half above the invert of the ditch. So the sump has to fill up pretty well before the water flows through the culvert.

THE COURT: When you say pretty well, how much is that?

THE WITNESS: Probably 18 inches above the low point in the swamp area.

Q. You rendered an opinion about the biological effects of the DDT you sprayed in the sump. Do you know of your own knowledge any of the general biological effects of DDT upon animal life?

A. Well, I would say I do, yes.

Q. Tell us what you know about the general biological effects of DDT on animal life.

\* \* \*

A. It kills mosquito larvae, and it will kill adult mosquitos. (266)

Q. Are you sure about that?

A. Yes.

Q. Do you know what quantities it takes to kill them?

A. It takes a very small quantity to kill them. I can't give you the parts per million. I don't know, no.

Q. But it does work in the parts per million range?

A. It can be rated in the parts per million, yes.

Q. And this is a standard method of measuring low concentrations of toxic materials.

A. Yes.

MR. YANNACONE: For the record, Your Honor, I think there is a statement in one of the affidavits or in some periodical that you can visualize a part per million as a jigger of vermouth in a tank car full of gin. That is roughly one part per million, and that makes a very dry martini. I don't mean that facetiously, Your Honor. (267)

\* \* \*

MR. CORWIN: Can I make an observation? This may be helpful. I am reading from a periodical here called "Fish, Wildlife and Pesticides", It says here: "One part per billion is about the relationship of one ounce of chocolate syrup to one thousand tank cars of milk." (268)

THE COURT: All right. Change it over to scotch, and I think it will stay with me. However, go ahead.

\* \* \*

Q. Have you ever had occasion to study the effect of concentrations of DDT sufficient to kill mosquitos on other forms of wildlife?

A. No.

Q. Have you ever read anything about it?

A. Yes.

Q. Are you aware how much DDT it takes to kill a fish, a lake trout?

A. No.

Q. Are you aware of how much it takes to render a lake trout sterile?

A. No.

Q. Are you aware that the State of New York has abandoned the use of DDT in any water near or communicating with lake trout areas? (270)

A. No.

Q. You are not aware of that?

A. No.



Q. All right. If I told you they had, would you believe me?

A. Yes.

Q. If I told you they had, would you have any reason or opinion as to why they might have done it?

MR. CORWIN: Your Honor, this originally is his witness, and now he is putting a lot of hypothetical statements into this witness' mouth. If this isn't hearsay, I don't know what is.

THE COURT: Go ahead.

MR. CORWIN: I object to the question.

THE COURT: Is it your contention that the deleterious effect is simply on lake trout, or how about a pike or some other fish?

MR. YANNACONE: Your Honor, the problem in this particular (271) case, and I think Mr. Williamson will agree, is that data rises out of specific disasters generally, and we know a lot about DDT and lake trout. That is why I mention that. We know a lot about DDT and salmon, and we know a lot about DDT and certain bird species, such as robins. We don't know anything about DDT in all animal species.

THE COURT: I repeat again: Whatever they did, did they only have lake trout in that lake or other fish and other animals and the like?

MR. YANNACONE: Your Honor, I will produce the conservation department witness right after Mr. Williamson, and he will tell you about it. Generally it appears that the most disastrous effect was on lake trout. It was so obvious, the causal relation, that the ban was of necessity put into effect to safeguard the lake trout fish upstate. This basically is what happened. (272)

THE COURT: All, right. We will wait for your witness.

Q. You rendered another opinion as to the effectiveness of DDT viz-a-viz abate and other substances. Now, you rendered this opinion for Mr. Corwin, and I would like to know whether other than the observations you told us about on direct examination, you have no other basis for that opinion?

A. Well, the material that I have read from the work others have done.

Q. Well, tell us about the material?

A. Reports and papers read and delivered at various meetings I have attended.

Q. Do you have any of them?

A. I believe I have, yes.

Q. Can you refer to any of them?

A. Not categorically at this time, no. I don't remember the index number or the book number.

Q. You knew you were going to testify though today?

A. Yes.

\* \* \*

Q. Mr. Williamson, have you ever had occasion to receive (275) requests from the conservation department for examination of some of these books and records?

A. No.

Q.

Q. Never?

A. Not to my knowledge.

\* \* \*

Q. Have you ever been requested by the conservation department to furnish records or information relative to your use of DDT in certain areas?

\* \* \*

A. I believe that we have discussed it with members of the local conservation representatives. (276)

Q. Will you answer my question please, Mr. Williamson. Have you ever been requested to furnish information with respect to your commission's use of DDT in specific areas in Suffolk County by the New York State Conservation Department?

A. Yes, I would say yes to that.

Q. Have you furnished this information?

A. To the best of my ability.

Q. Are you sure?

A. To the best of my ability, yes.

THE COURT: Counsel, the man isn't likely to lie. He isn't likely to lie about a thing like that.

Q. Now you allegedly measured the effect of the effectiveness of DDT, to get back to that. Did you use any method other than the method you described on direct examination?

A. No.

(277)

Q. And you have no records even of those examinations?

A. That's right.

Q. But yet it is your opinion?

A. Yes.

Q. Are you familiar with the standard methods of scientific investigation of insect populations?

A. I don't quite understand what you mean by that.

Q. I will rephrase the question. Are there certain recognized scientific methods of measuring insect populations?

A. I presume there are. I don't know of them.

Q. Have you taken any efforts to find them out?

A. No.

\* \* \*

Q. You have made no attempt then, Mr. Williamson, to scientifically determine the mosquito population in this county, is that right? (278)

A. That's right.

Q. You have depended entirely upon your own native looking at a couple of dipper fulls?

A. No.

\* \* \*

A. We had the reaction of the people, residents of the county who report to us mosquito prevalence, annoyance.

Q. Do they report his information to you in quantitative or qualitative form, in subjective form or objective form?

A. They report it to me by telephone complaints, by requests for relief from mosquito nuisance. I don't know what you call that.

Q. Do you examine the areas and make any scientific investigation of the mosquitos present, the species, the distribution and the quantity?

A. We do. (279)

Q. Do you keep records of these examination?

A. Not daily records, no.

Q. Do you keep any records?

A. Yes.

Q. What kind of record?

A. Records of complaints and outcome of the investigation of the complaints.

Q. In what form do you report the outcome of your recommendation, your investigation?

A. Generally in a looseleaf booklet form where the names of the complainants are listed, and the person who makes the investigation notes in that book the reason for the complaint and the action taken on the complaint.

Q. Well, what field data does he formally put in his report?

A. He puts in the report, he finds in the field, when he goes to investigate, the source of the breeding, the reason for it, and the treatment that the area has received to relieve the mosquito influence.

Q. Does he make any quantitative measurements of the mosquitos present?

A. I would say yes. I will say that he will say breeding was heavy or breeding was light or adult mosquitos were plentiful, on the wing or light on the wing, yes. (280)

Q. Is it fair to say that other than general terms of heavy, light, moderate, there is no attempt made by your department to take accurate, scientific, quantitative measurements of the mosquito population?

A. We haven't felt that that was needed or necessary.

Q. Now, back to the effectiveness of DDT. Do you feel that you can measure the effectiveness of a chemical whose toxicity is in parts per million without quantitative scientific measurements?

A. No, I can't.

Q. Do you believe that others make these quantitative scientific measurements?

A. I believe they do.

Q. And do you tend to believe them when they are published in recognized scientific periodicals?

A. Yes.

Q. In other words then your whole operation is dependent upon information derived from scientific periodicals, publications, and the experimental work of other people? (281)

A. To a great extent. I might say that we have retained an entomologist on a part-time basis for a number of years.

Q. What is his name?

A. Schobor.

\* \* \*

Q. You can volunteer anything you want to. This isn't that type of proceeding. You made the statement that DDT is a most effective control of all species of mosquitos, is that right?

A. All species of mosquitos we are confronted with in Suffolk County. (282)

Q. Well, Let's get down to Suffolk County. What species to you work with?

A. Well, our principal mosquitos now are the culex pipiens complex, the aedes sollicitans, the aedes vexans, and the aedes canadensis. There is also the culiseta melanura, and then we do find other species in very much less numbers which are in such insignificant numbers that they are not of economic importance.

Q. Do you have an opinion as to the effectiveness of your commission's operation of spraying mosquitos prior to the year 1946?

A. Yes.

Q. How would you characterize it?

A. Very poor.

Q. Were you ever examined by or were your operations ever reviewed by or examined by the New York State Museum and Science Service?

A. Yes.

Q. For the period prior to 1946?

A. I believe it was, yes, among other things. (283)

\* \* \*

Q. Would you consider it an authoritative statement and evaluation?

A. If it was made by them, I would, certainly.

Q. Suppose I told you they said your record of success was outstanding?

MR. CORWIN: Objection.

THE COURT: Sustained.

Q. But it is your testimony that you didn't do such a good job?

A. I don't feel that it was a good job, no. We had a lot of complaints and a lot of mosquitos.

Q. You may well have. Do you recall that prior to 1935 there were present in this county malaria carrying mosquitos?

A. Yes. (284)

Q. Are they still here?

A. They are.

Q. Are they here in significant quantities? (285)  
 A. No.

\* \* \*

Q. Have you had occasion to measure quantitatively the effect of DDT on all the species of mosquitos present in Suffolk County? (286)  
 A. I would say yes.

Q. And this quantitative measurement was made basically in the same manner you described on direct examination?  
 A. Yes.

Q. You testified for Mr. Corwin that you were familiar with the literature on the building up effect in food chains. \* \* \*  
 A. I feel that I am reasonably aware of it.

Q. Have you had occasion to read the plaintiff's technical appendix?  
 A. I read some of it, yes. (287)

Q. You didn't read all of it?  
 A. No.

Q. Are you familiar with papers in it?  
 A. I have skimmed through it. I wouldn't say that I am familiar with them.

Q. Have you ever seen them before?  
 A. Perhaps some I have and some I haven't. I don't know.

Q. But you haven't seen all of them?  
 A. No.

Q. Do you recognize the names of the journals?  
 A. I believe so.

\* \* \*

MR. YANNACONE: He indicated that he was aware of the literature on the building up effect in the food chain. (288) \* \* \*

Then he gave an opinion, \* \* \*  
 That DDT properly used is an insignificant contributor to this build up; but if abused, it contributes to a rapid build-up.

THE COURT: And you say that that is wrong?

MR. YANNACONE: I do, Your Honor, and I would like to find out where he got this opinion from. \* \* \*

Q. On what technical literature do you base your information? (289)  
 \* \* \* that DDT properly used is an insignificant contributor in the build-up of the food chain?

A. Well, it is my personal opinion and logic.

Q. You don't base it on any technical literature?

A. I cannot pinpoint or report on technical literature that a statement of that kind may have been in, so I can't say.

Q. You formulated this opinion. Do you consider yourself an expert?  
 A. On what?

Q. On this particular subject.  
 A. No.

Q. Oh, then those weren't expert opinions?

A. You are talking about the build-up in the food chain, and I am not an expert on the food chain.

Q. I am asking specifically with relation to the statement that DDT, properly used, is an insignificant factor or contributor to the build-up of DDT and its products in a food chain. You made that statement didn't you?

A. That was my opinion. (289)

Q. And did you base it on any technical literature?

A. No.

Q. You based it on your own?

A. I based it on material that I have read.

\* \* \*

MR. YANNACONE: In other words, this is an unfounded opinion?

THE COURT: No, I think it is more than unfounded. Here is a man who says he has been in this game for 35 years. He has observed things, and he has lived with this particular type work. This is his opinion. I repeat, his opinion could be so far astray that it isn't even funny, but it is his opinion. (290)

MR. YANNACONE: All right. I would like to get then the basis of the observational data that rendered this opinion.

\* \* \*

Q. What did you use to form this opinion? What evidence?

A. Well, material that I have read, literature that I have read, and conclusions that I have drawn from reading that literature.

Q. Let us get to the point. Did you form it from personal observation in 35 years of field experience or did you form it from reading technical literature?

A. I read it. I formed it from reading literature.

Q. And you didn't form it from your 35 years of working in the field?

A. No.

Q. All right. Now, what technical literature did you base it on?

A. I couldn't give it to you. I don't know.

\* \* \*

Q. Now, you indicated, however, that it will build-up if DDT is abused in its application, is that right? (291)

A. I would assume that, yes.

Q. And that is your opinion from the same sources?

A. Yes.

Q. Can you tell the Court what you consider abuse of DDT?

A. Well, I would say general space spraying of massive doses of DDT

\* \* \*

Q. Do you consider individual spraying of Elm Trees for Dutch Elm disease an abuse of the use of DDT? (292)

A. I don't even know whether they use DDT for Dutch elm disease.

Q. Are you aware whether there are any elm trees in Suffolk County?

A. Yes.

Q. Are you aware of the Dutch Elm disease problem?

A. Yes.

\* \* \*

MR. YANNACONE: . . . Now, I have to know to tie in all the other technical material that is coming in what he considers too much. That's all I want to know. (294)

\* \* \*

THE WITNESS: I would say a pound to the acre or a pound and a half to the acre would be too much.

Q. What about half a pound?

A. I think half a pound is an accepted dosage rate for mosquito control.

Q. And not an abuse?

A. I wouldn't think an abuse, no. (295)

Q. And when you are talking about half a pound to the acre, you are talking about the standard meaning of that term in control work?

A. Yes.

Q. . . . What do you consider the natural resources of the County?

A. Natural vegetation, our native birds and animals, our native fish and fishlife.

Q. Do you feel that the maintenance of representative classes of these groups is necessary for the well-being of the people who live in the county?

A. Reasonably so.

Q. Now, you talk about the benefit-risk equation. That sounds like a very technical phrase. That also sounds like mathematics to me. How do you measure benefits, and how do you measure risks?

A. Well, again, I am giving you my opinion and not a scientific finding. I would say that if you are doing something that is going to benefit yourself or the majority of the people, and it is going to be or there is going to be some chance of slight or more or less damage resulting from that effort, will the benefits outweigh the risks or the damage. (296)

\* \* \*

Q. How do you measure the benefit? How do you measure the risk?

A. Well, again, speaking from a mosquito standpoint, the benefits to the county are economic in nature because of the attractiveness of the surrounding area against a mosquito infested area. \* \* \*

. . . Again, we have disease bearing mosquitos in the county, and there is a danger of encephalitis and other diseases being transmitted by a mosquito-infested community against the benefits of no disease in a mosquito-free community. I would say that that is a benefit-risk ratio or equation or whatever you want to call it. (297)

\* \* \*

Q. Now, one of the benefits you enumerated was the county as a recreational area. What is it about our ecosystem in Suffolk County that makes it so desirable as a recreational area? Is it our water? Is that one of the things?

Q. Is it our relatively open spaces?

A. Yes.

Q. Is it an abundance of wildlife?

A. I would say so, yes.

Q. Is it an abundance of fish?

A. Yes.

Q. These are necessary then to maintain us in a recreational (298)  
paradise, isn't that so?

A. Yes.

\* \* \*

Q. Are you aware of the government agencies that are (299)  
presently involved in the active use of the benefit-risk equation for  
public decisions?

A. No.

Q. You indicated that you had a great deal of familiarity with  
the U.S. Code. I think Title 7, Title 21, and large sections of the  
Agriculture and Markets Law of the State of New York. Are you aware  
of the federal agencies that actively day by day apply the benefit-risk  
equation and make large decisions based on it.

A. No.

Q. Where did you get this concept of benefit-risk equation?  
What do you base your knowledge of it on? (300)

A. Well, again, common sense.

Q. You are not using it then in the technical term that the  
U.S. Department of Agriculture or the Army Corps of Engineers or the  
Food and Drug Administration would use it, are you?

A. No.

\* \* \*

Q. Now, you also told Mr. Corwin that you were aware of the  
application of the benefit-risk equation to the field of radioactivity, auto (301)  
exhaust, the manufacture of drugs like morphine. Do you remember that?

A. Yes.

Q. Are you actually personally aware of the application of the  
benefit-risk equation to the subject of radioactivity or to the subject of  
air pollution?

A. No, not directly related to that.

Q. Or to the manufacture of drugs?

A. No.

Q. So you really don't know about the application of the benefit-  
risk equation, do you, Mr. Williamson?

A. No.

Q. Now, you indicated that you spent three-quarters of your  
budget on water management methods. Do these methods work?

A. Yes, very much so. It is the backbone of the control program.

Q. Did you have these methods before you had DDT?

A. Yes.

Q. Did they work then?

A. They worked then, but not to the degree that we felt was  
necessary. They needed help.



Q. Did you have the same number of men available before DDT as you have now? (302)

A. No.

\* \* \*

Q. Do you feel that in the mosquito control field the majority views should be the prevailing view? (307)

A. Well, that is a democracy, isn't it?

\* \* \*

Q. Now, do you honestly feel that DDT is in anyway related to the felling of trees for roads?

A. No.

Q. Do you feel it is in any way related to the dredging of creeks, harbors and what no in the County of Suffolk?

A. No.

Q. Do you feel that it contributed in any way to the extinction of the sabre-toothed tiger? (308)

A. No.

Q. Do you feel that it in any way contributed to the demise of the hairy mammoth, and I think it is the wooly mammoth?

MR. CORWIN: I am talking about the hairy mammoth.

A. No.

Q. Do you feel that it was in any way involved in the demise of the passenger pigeon?

A. No.

\* \* \*

Q. Are you aware of any relationship between the New York State Pesticide Control Board and your department? (312)

A. Any direct relationship?

Q. Yes.

A. I don't think there has been any direct relationship.

\* \* \*

Q. There is none, is there?

A. No.

\* \* \*

Q. Have you submitted your plans of work to the New York State Pesticide Control Board? (313)

A. No.

Q. Have you ever directly asked their advise or counsel?

A. No.

\* \* \*

Q. Have you ever attended any of their meetings? (314)

A. No.

RE-CROSS-EXAMINATION by MR. CORWIN:

Q. Did they (Pesticide Control Board) ever ask you to supply information to them?

A. No.

\* \* \*

Q. Now referring to the lake trout as a particular species, do you know whether or not there are any lake trout in Suffolk County?

A. I don't know.

\* \* \*

Q. Mr. Williamson, in connection with the preparation of the defense of this action, did you confer, among others, with Dr. Semel? (316)

A. Yes.

Q. Did he tell you----

MR. YANNACONE: I am going to object. Dr. Semel is the best witness.

THE COURT: Sustained.

MR. CORWIN: I have no further questions, Your Honor.

\* \* \*

THE COURT: All right. Mr. Yannacone, call your next witness. (317)