Q. I think we had the fish extracted just before the recess.

Q. Doctor, let's look at exhibit No. 151 again. I think we had managed to make it all the way up to chromatogram No. 8. —chromatograms 7 and 8 represent the samples of the fresh Coho up to the point where you normally terminate your $25 analysis, right?

A. Yes.

Q. All right. Now let's look at chromatogram No. 7....

Q. Chromatogram No. 7 indicates, does it not, a DDE peak, is that correct?

A. Yes, there is such a one, yes.

Q. And that peak is obviously well off scale of the chart, isn't it?

A. It is.

Q. It also indicates, chromatogram No. 7, does it not, a DDD peak?

A. Yes.

Q. And that peak is on scale?

A. Right.

Q. And it indicates a DDT peak that is also on scale?

A. Yes.

Q. Now you have marked on that chromatogram No.7 points where conflicting peaks from Arochlor 1254 might be found if they were actually in the sample, do you not?

A. Yes, we do.

Q. All right. One of those places is included near the following edge of the DDE peak, is that correct?

A. Yes, sir.

Q. Now the DDD peak, you have a line indicating that there is a place just ahead of it and near its leading edge there might be another 1254 compound elutant point?

A. Yes.

Q. And there is a 1254 shoulder point mark at the—on the continuing or far side to the right of the ODD peak considerably lower in another area, isn't that right?

A. Yes.

Q. And there is an indication on the far side of the DDT peak indicating another 1254 point, is that correct?

A. Yes.

Q. Now, Doctor, you couldn't estimate from that sample and that chromatogram the level of DDE could you?

A. No.

Q. And that is because the DDE peak extends beyond the limits, the upper limits of the graph paper?

A. Yes.

Q. In other words, the system was overloaded as far as DDE is concerned, is that right?

A. Yes, sir.

Q. You did find some heptachlor epoxide, did you not?

A. Yes, we have indications that heptachlor epoxide is present.

Q. All right. Now you made some quantitative estimates, did you not, based on chromatogram No. 7, of DDT and DDD is that right?

A. Yes.

Q. And these were in absolute amounts in terms of picograms, 350 picograms of DDT and 143 picograms of ODD right?

A. Yes.

Q. And yet it is obvious, is it not, from chromatogram No. 7 and the shoulder and secondary peak that appears to the far side of the right of the DDD peak, that there is perhaps some of one of the constituents of—an Aroclor compound in that chromatogram, isn't there?

A. Yes.

Q. Now, Doctor, how many Arochlor compounds are there that you know of?

A. Perhaps 10.

Q. Do you know what the chlorine content of Arochlor 1254 Is?

A. No, I don't.

Q. Did you ever try to find out, Doctor?

A. No, I haven't.

Q. Have you ever used any other polychlorinated biphenyl as a standard?

A. Yes, we have used—

Q. Which ones?

A. I don't have the numbers with me. We have used a compound which—in which most of the peaks came out previous to the ones shown by 1254,

and one which came out much later than the peaks shown by 1254.

Q. Would you believe me if I told you that Arochlor 1254 is a mixture of polychlorinated biphenyls containing on the average 54 percent chlorine?

A. I think I would.

Q. And would you believe me if I told you that Arochlor 1254 and Arochlor 1262 were different polychlorinated biphenyls with different amounts of chlorine in them?

A. Yes.

Q. Now, Doctor, you have testified yesterday that you have analyzed thousands of samples by gas chromatography for DDT and its metabolites. In those thousands of analyses, Doctor, in how many cases in naturally occurring samples would you say you have found any evidence of polychlorinated biphenyls?

MR. STAFFORD: I think his testimony was he had run thousands of samples during the time he was at the lab. I don't know as he said he ran thousands on the gas chromatograph.

MR. YANNACONE: Let me clarify.

Q. Doctor, how many samples would you estimate you have run or supervised the running of seeking evidence of DDT and its metabolites?

MR. STAFFORD: In all the procedures, you are talking about?

WITNESS: That was going to be my next question, that was if you're talking about gas chromatography, paper chromatography—

EXAMINATION BY MR. YANNACONE

Q. We are referring to gas chromatography, Doctor?

A. Where the request was specifically for DDT?

Q. And its metabolites?

A. I would say that about half of our last—in the last four or five years that we have been doing gas chromatographic analyses, perhaps as many as ten to fifteen thousand.

Q. I see. Doctor—Mr. Coon, you have then supervised 15,000 analyses for DDT and its metabolites by gas chromatography?

A. Yes.

Q. Of those 15,000 analyses, how many of them were environmental samples?

A. It would have to be a guess. Sixty percent.

Q. Sixty percent. So that means roughly 10,000 environmental samples?

MR. STAFFORD: Nine thousand, I think.

Q. Take nine thousand approximately, Mr. Coon? Approximately 9,000 environmental samples?

A. Yes, I would think so.

Q. In those 9,000 environmental examples more or less, how many of them have you—in how many of them have you found evidence of polychlorinated biphenyls naturally occurring?

A. By "evidence", do you mean something that we actually established that Arochlor was present, or that we thought the PCB's were present?

Q. Doctor, let's take it both ways. First, the number that you thought might have some Arochlor present?

EXAMINER VAN SUSTEREN: These would really be guesstimates, would they not?

WITNESS: They'd be very definitely awfully guesstimates—

Q. Order of magnitude is all I am interested in.

A. I would guess that probably no more than 3,000 of them.

Q. And of those 3,000 or thereabouts, how many of them did you actually check out to see whether there really were polychlorinated biphenyls present?

A. Oh, we probably checked—thirty.

Q. In other words, then, Mr. Coon, about 1/3 of the environmental samples you have examined more or less, gave you cause to suspect there might be polychlorinated biphenyls present; and of them (calculating), one percent you have actually checked?

A. To the extent that we felt that we could call it PCB's, yes.

Q. All right. Did you ever check anywhere you found there weren't any PCB's?

A. You mean check them for PCB's, or check how?

Q. Have you checked any environmental samples that have come to you seeking residue levels of DDT and its metabolites directly for PCB's, either before or after you determine the amount of DDT and its metabolites?

A. Yes.

Q. And did you find PCB's in fact in all of those cases?

A. I wouldn't want to say in all of those cases. There weren't enough to—there were a few that we felt we were seeing **PCB's.**

Q. And you looked for them then?

A. We looked for them.

Q. Did you find them?

A. To the best of our knowledge, we did find them.

Q. And when you did find them, it caused you to reduce your findings of DDT (for Thomas) and DDD (for David) is that right?

A. Yes.

Q. But it didn't cause you to alter your findings of DDE, right?

A. We did not do—reduce DDE, no.

Q. Now, Doctor—Mr. Coon, in chromatogram No. 7 the DDE peak is well beyond the limits, the upper limits of this scale, correct?

A. Yes.

Q. In chromatogram No. 8, where only 1/5 of the sample size was taken, the DDE (for Edward) peak is almost in the center of the scale, is that correct.

A. Yes.

Q. It was your estimate, was it not, that the level of DDE shown on chromatogram No. 8 was 9.64 parts per million but, more importantly in this particular case 185 picograms, is that right?

A. Yes.

Q. All right. Now back in chromatogram No. 3 you ran a test sample of DDE with a level of 100 picograms, is that correct?

A. Yes.

Q. Now, Mr. Coon, I want you to take a look at chromatogram No. 5 and chromatogram No. 6, the two Aroclor sample chromatograms. I want you to indicate the peak on those two chromatograms that might interfere with DDE (for Edward). I'm going to give you a green pencil and ask you to mark—With DDE (for Edward)?

EXAMINER VAN SUSTEREN: How are you going to mark?

MR. YANNACONE: With a green pencil; an arrow, any way he feels would not foul up the chromatogram.

EXAMINER VAN SUSTEREN: An X?

WITNESS: Fine with me.

Q. And you want to show it to us on chromatogram No. 6?

A. Oh, I'd have to determine the retention times here so I found out for sure which one of these it was.

Q. You can't tell, Mr. Coon?

A. From visually looking at this, I don't think anybody could necessarily. I could add it up if you want me to, and I will—

Q. No, just hold it a minute, Mr. Coon. Now tell us why you can't see it on chromatogram No. 6 when it's so easy to tell on chromatogram No. 5. What's the difference between chromatogram No. 6 and chromatogram No. 5 with respect to that particular so-called interfering peak?

A. The only difference is that one is slightly larger than the other.

Q. Slightly larger? Or considerably larger?

A. It is a relative thing when you are talking about small values.

Q. Give it to us in percentages, Doctor?

EXAMINER VAN SUSTEREN: By large", you mean the peak or the curve itself?

MR. YANNACONE: The peak, we are talking about a peak in a complex series.

EXAMINER VAN SUSTEREN: **All** right.

MR. YANNACONE: To be more precise, a complex wave form.

WITNESS: It would appear to be slightly under 50 percent of it.

Q. Can you identify the one in chromatogram No. 6 yet?

A. I went on the basis of all of these being relatively the same, and they would all be under 50 percent of that.

Q. Well, Mr. Coon, I will take the 50 percent, but it's a little bit less, isn't it?

A. Yes.

Q. And the peaks in the lower concentration are broader, are they not, and less sharply defined in chromatogram No. 6 than they are in chromatogram No. 5?

A. I wouldn't say they were broader— At the base, or—

Q. At the base?

A. At the base, **I** wouldn't say they were broader.

Q. They are broader at the base with respect to height than they are in chromatogram No. 5, aren't they? The rise time is slower?

A. Yes, right.

Q. In other words then, rise time apparently is a function of concentration, isn't it, Mr. Coon?

A. I don't know that to be a fact

Q. All right, Mr. Coon. Now the level of Arochlor in sample No. 6, chromatogram No. 6, is total 400 picograms, is it not?

A. It is.

Q. And there are recognizable—(counting) one, two, three, four, five— six peaks of approximately the same amplitude, right?

A. Yes.

Q. So that each of the compounds eluted at one of those points represents roughly one-sixth of 400 picograms, right?

A. Not necessarily....

Q. Mr. Coon, isn't it a fact that the amplitudes—First of all, wasn't the purpose of the calibration of this chart to quantify the relationships between concentration and peak amplitude?

A. Well, I'd like to straighten that out. Not in the case of the 1254, the PCB's here. This was not put on there for that **reason** at all.

Q. What was it put on there for?

A. This is for identification purposes because of the fact that **we** do not have a primary standard of 1254 or that we know **for** sure every one of those peaks that we could find in every chromatogram we might run across could be 1254 until standards are so obtained. I don't think these can be considered standards or that the dilutions, especially this low one, would actually reflect a true proportion.

Q. In other words then, Mr. Coon, you have nothing on this set of chromatograms which enables you to quantitatively determine the amount of PCB's, if any, that might be present; that all this is a qualitative identification?

A. That's all it is to us at this moment.

Q. And it's only qualitative on the basis of mere retention times in a column, isn't it?

A. On that particular column, yes, it is.