IN THE TRIAL COURTS FOR THE STATE OF ALASKA

THIRD JUDICIAL DISTRICT

AT ANCHORAGE

STATE OF ALASKA,

Plaintiff,

vs

JOSEPH HAZELWOOD,

Defendant.

No. 3AN 89-7217; 3AN 89-7218

TRIAL BY JURY
MARCH 13, 1990
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BEFORE THE HONORABLE KARL JOHNSTONE
Superior Court Judge

Anchorage, Alaska
March 13, 1990
8:30 a.m.

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TABLE OF CONTENTS

WITNESS INDEX

EXHIBIT INDEX

EXHIBIT	DESCRIPTION	PAGE

No exhibits admitted

PROCEEDINGS

MARCH 13, 1990

(Tape: C-3670)

(1434)

(On record - 8:37 a.m.)

(Jury not present)

THE CLERK: We're on record.

THE COURT: Mr. Madson?

MR. MADSON: Thank you, Your Honor. Yesterday when we were leaving the court Mr. Cole gave me this pile of materials which relates to Mr. Burr, the witness that's about to be cross examined today. And I think it well illustrates the depths to which the State of Alaska has gone to acquire information about Mr. Burr for cross examination prior to today.

But as Mr. Cole made an application to get into a certain area and just briefly inform the court, I wanted to make sure the court had a chance to fully evaluate the nature of the cross examination area that Mr. Cole wanted to go into.

From what he said yesterday, I looked at this and that's all what this material relates to. We have to have a little background here. And this goes back to 1984 in Minnesota involving Mr. Burr and how it relates to him. So it's six years old -- six to five

years old.

And it begins when the state of Minnesota was changing over from Breathalyzers to Intoxilyzers. There was a lot of controversy among the experts there as to whether one test or two tests were necessary, and there was controversy as to the relationship or correlation between two breath tests taken separately on the same subject.

Mr. Burr was an advocate of two tests. And he also, during the time he was working for the City of St. Paul, testified on occasion for defendants. And this, of course, did not endear him to the hearts and minds of state prosecutors.

So in 1985 in a case in Bemidji, he testified, the defendant was acquitted and the police chief and the city attorney there wrote his boss and complained about Mr. Burr testifying, and they had lost this case, and they didn't like his testimony saying that it had to be within 90% of this correlation, which was the gist of his testimony.

Mr. Burr wrote a memo -- this was before there was any policy or anything on it, to Intoxilyzer operators saying, in his opinion, the test had -- to be valid, must be within 90% of each other. And, by the way, he was proven correct in the two tests. They did

require two tests.

But anyway, because of this memo, which then became an issue of whether it was really policy or just Mr. Burr's opinion, there was enough pressure put on his boss, the chief of police in St. Paul, that he suspended Mr. Burr for a short period of time. That's the whole gist of this.

The other part of this material has to do with an article Mr. Burr wrote on the effect of a breath test -- breath freshener, I guess you call it, which contains ethyl alcohol, and it's affect on a breath test. And there's a controversy about what type of alcohol it was.

What it comes down to, Your Honor, is six years old material, or five years old; a difference of opinion between experts and the fact that some state prosecutors didn't like Mr. Burr testifying for defendants. It is totally off the track here. The main issue here has nothing to do with breath testing. This was a blood test, as the court knows. It has nothing to do with breath freshener's; it has nothing to do with correlation between tests and the Breathalyzer machine or an Intoxilyzer, it has to do with retrograde extrapolation, that's the whole issue.

So under 401 it's totally irrelevant, first of

all. Secondly, under 403, if it is relevant, it becomes a waste of time and confuses the issues, because it has absolutely nothing to do with the issue here at hand.

THE COURT: Okay. Mr. Cole, this would be an application you would have to make under 404 (b). And I'm not sure exactly what it is you intend on cross examining the witness with. I heard something about a prior discharge, which sounds to me to be, under 404 (b) specifically. And what else was it -- maybe you could elaborate on that, too.

MR. COLE: Your Honor, what Mr. Madson failed to tell you in the first question which has to do with this -- Mr. Burr testifying for defense attorneys, and the letter that was written, is that after this letter was written by the city attorney, the mayor and the chief of police -- Mr. Burr then sued the City of Bemidji, the police captain, the city attorney, and the mayor, for defamation of character. Now, that suit lasted four years and it actually went to trial in 1988.

THE COURT: Let's start at the beginning, Mr. Cole. What is it you want to offer into evidence?

MR. COLE: I want to offer into evidence that he sued the City of Bemidji for defamation of character

based -- and lost.

THE COURT: What are you trying to prove? What...

MR. COLE: What I'm trying to prove is bias...

THE COURT: ...exception?

Bias against the State of Alaska?

MR. COLE: The state entities; governmental and law enforcement agencies.

THE COURT: What else do you want to offer besides his lawsuit for defamation and his loss?

MR. COLE: The other thing that Mr. Madson brought up is that Mr. Burr has done some work in the field of what is called "breath fresheners"; Binaca specifically. On one occasion he testified that Binaca contains a 50-50 mixture of ethyl alcohol and water equivalent to whiskey.

In addition to that testimony that he gave under oath, he also wrote an article about that, where he said, again, on October 27th, "Binaca contains SD alcohol 50% ethanol, water, glycerine and saccrine." That's wrong.

The literature demonstrates that it does not contain and is not the equivalent of 50-50 -- a mixture of 50-50 ethyl alcohol and water. It's actually -- he misread the ingredients, and if he had read those --

and the ingredients are found in what is known as the cosmetic ingredients dictionary and in the CFR's, Title 27 -- it's 27 CFR 21.65, he would have found that that's incorrect. And we're offering that to show that he has misled people in the past, and specifically fact finders, a judge.

THE COURT: All right.

MR. COLE: And the other thing is that he was suspended, Your Honor, when he was originally suspended because he improperly used the state crime lab for his personal consulting work in aiding defense attorneys. And that's one of the reasons that he was suspended.

THE COURT: Mr. Cole, I'm not going to let you introduce his suspension or his lawsuit. I find its probative value, if there is probative value, is far outweighed by its potential for undue prejudice, confusion of the issues, introduction of a collateral issue here, which would take a needless consumption of time. It wouldn't come under 404 (b). I find it doesn't come under any of their evidence rule 600 series. You are trying to impeach with character here. That's not permitted. And any potential to show bias against the state of Alaska is de minimus and it's outweighed by its undue prejudice and potential to create confusion in the minds of the jury.

As far as the 50-50 Binaca, I'm at a loss to find out what that proves. Are you trying to show his qualifications are not very good. I'm trying to figure out what it is you're trying to prove?

THE COURT: He, under oath, has been deceptive in what he has related the ingredients of Binaca was. That was used in order -- in a case to show that Binaca contained ethyl alcohol and it could affect breath tests. And in trying...

THE COURT: You're trying to show he's deceptive; that he lied under oath?

MR. COLE: That's right.

THE COURT: Okay. The only way you can show that is to show he's been convicted of a crime involving veracity and our rules don't provide for showing that kind of character evidence. That's denied as well.

Are we ready with the jury now?

MR. COLE: Yes, Your Honor.

THE COURT: Okay. We'll take about five minutes; get the jury in and then we'll go.

THE CLERK: Please rise. Court stands in recess subject to call.

(Off record - 8:45 a.m.)

(On record - 8:52 a.m.)

(1845)

(Jury present)

THE CLERK: The Superior Court for the Third Judicial District with the Honorable Karl S. Johnstone presiding is now in session.

THE COURT: You may be seated.

Sir, you're still under oath.

THOMAS R. BURR

recalled as a witness, having previously been sworn upon oath, testified as follows:

CROSS EXAMINATION OF MR. BURR

BY MR. COLE:

Q You worked for the St. Paul Crime Lab for about 20 years, is that right?

A That's correct. Close to 21 years. 20 and three-quarters.

Q During that time did you consider yourself a toxicologist?

A I was a forensic scientist. My job title was criminalist. A large portion -- a great majority of the work and study I did over 20 years was in the field of toxicology.

Q But you were not called a toxicologist?

A I was not called a toxicologist, no.

Q You wouldn't consider yourself a toxicologist?

A I guess I don't consider myself a toxicologist -- call myself a toxicologist, no.

Q Now, during your time at the St. Paul Crime Lab I assume that you were provided on several occasions blood samples, correct, to test?

A Yeah, I have tested thousands of blood samples.

Q Thousands of blood samples. Okay. You were personally involved with testing those blood samples, I assume?

A I did many of the tests personally, yes.

Q And I also assume that while the time you were at the St. Paul Crime Lab that you did testing for drugs during that time?

A I did drug testing in biological samples and I did some drug analysis of solid dose drugs, too.

Q And you were trained in the use of an instrument called the gas chromatogram, correct?

A That's correct. I used gas chromatograph on a routine basis. I studied gas chromatography, took a course on it. And I developed a method of gas chromatography for blood alcohol analysis of my own, and so on, so I'm very familiar with gas chromatography.

Q Most of my questions today are just going to

require, yes, or, no, answers. So if you could limit yourself to that. I'm sure Mr. Madson will give you a chance to explain if you want to do that. Would that be okay?

A Sure.

Q In fact, I see from your resume here that you were trained in 1974 on gas chromatography, right?

A I believe that's correct, yes.

Q Did you use the gas chromatograph when you were working in the St. Paul Crime Lab?

A Daily.

Q And without going into the detail of how that instrument works -- it has the ability to identify substances that are contained in the blood, correct?

A That's correct, it can do that.

Q And it also has the capability of determining the amount of that particular substance in the blood, correct?

A That's correct.

Q Now, alcohol is one of these substances that the gas chromatograph identifies in blood samples, right?

A That's correct.

Q And it can also identify the amount of alcohol in a blood sample?

A Certainly.

Q And I assume that since you were asked to analyze numerous blood samples many times during your career with the St. Paul Crime Lab, you identified the presence of alcohol and blood samples used in the gas chromatograph?

A I certainly did.

Q And I assume that when you identified alcohol, you also identified the amount of alcohol in these blood samples, correct?

A Most cases, yes.

Q And there was a standard procedure you took before you used the gas chromatograph, correct, to make sure that the integrity of the result -- there was a certain validity to the test, correct?

A Correct. The standard procedure of analysis was used.

Q And after doing these type of tests you needed a way to record your results, right? And you did record the results that you would do on a certain test?

A The results of tests were recorded, yes.

Q And that's so that you could document the results?

A The results were documented, yes.

Q And so that you could remember it later on, right?

A That's one of the reasons why you write things down.

Q And you wrote reports for a lot of those cases, correct? That wasn't uncommon.

A I wrote many reports.

Q And after doing these tests and writing the results, on numerous occasions you were called upon to testify as to the results that you reached, correct?

A That's correct.

Q And you would explain when you testified the procedure that you used, to make sure and show that the test that you had taken -- the results that you had received were accurate, correct?

A That's correct.

Q And I assume that in the past you testified both as to the presence of alcohol and the amount of alcohol in a given blood sample on numerous occasions?

A That's correct.

Q And during the course of your testimony you would tell whoever you were testifying in front of, what the results were in terms of grams per milliliter and things like that? However they wanted to know figure.

A That's correct.

Q And I'm sure that at the same time you testified under oath about the accuracy of your results, and how accurate they actually were?

A I testified under oath as to the accuracy of the tests I conducted, correct.

Q Would it be fair to say that a gas chromatograph has an accuracy of plus or minus 5% for alcohol -- amount of alcohol?

A The instrument itself, yes, I would agree with that.

Q Now, you also, from what I read in your resume, have a very extensive background in breath testing.

A I have an extensive background in breath testing, yes.

Q And breath testing is simply an instrument that measures the amount of alcohol -- the presence of alcohol and the amount of alcohol in a breath sample, correct?

A Breath testing is a procedure for measuring alcohol on the breath and it can use a number of measuring devices.

Q And the attempt is to correlate that figure with the amount of blood alcohol in the system -- in the blood -- the alcohol in the blood, correct?

A That's the basic desire in a breath test is to get an answer which is comparable to the blood alcohol. That's the theory and basis behind breath testing, yes.

Q You would agree with me, would you not, that a blood sample test done by a gas chromatograph for the presence in the amount of alcohol in the human body is more accurate than a breath sample test done for the same purpose, would you not?

A In terms of determining blood alcohol concentration, yes, absolutely.

Q And you're sure about that?

A I'm sure that a blood test is better for determining blood alcohol than a breath test for determining blood alcohol, yes.

Q Now, you are aware in this case that a blood sample was drawn from Captain Hazelwood between 10:30 and 10:50 a.m. on March 24, 1989, correct?

A I'm aware of that, yes.

Q And you are aware that this sample was transported to a lab in Sacramento for testing, correct?

A That's correct.

Q And that this test revealed that Captain Hazelwood's blood alcohol content, between 10:30 and 10:50 a.m. on March 24, 1989, was .061, correct?

A That's correct.

Q And in addition to this test another test was done on a urine sample provided by Captain Hazelwood at or near the same time the blood sample was drawn, correct?

A Correct.

Q And this was also sent to Sacramento for testing?

A Yes.

Q And the result there was about a .094?

A That's what I recall, yes.

Q Now, as I understand your testimony, you indicated one of the things that you were asked to do was to interpret the tests and explain their implications, is that correct?

A That's correct.

Q And you reviewed the verification documents for the Compu-Chem Lab to determine whether or not that test was accurate?

A I don't believe I reviewed the actual documents from the laboratory.

Q So you have no reason to believe that this is not an accurate test?

A I have no reason to believe it's not an accurate test, no.

Q So we can start with the premise that at 10:30, 10:50 a.m. on March 23, 1989, Captain Hazelwood had a .061 blood alcohol content, plus or minus 5%, correct?

A Yes, I would say that that's a fair assumption.

Q So you would agree with the doctor who actually tested this, and Mr. Prouty's assessment that that's correct.

A I have no reason to believe that there's anything inaccurate about the results of the tests.

Q But if you had found anything inaccurate you surely would have brought that to Mr. Madson or Mr. Chalos' attention, correct?

A That's correct.

Q That was part of your job?

A Correct.

Q And you didn't do that?

A That's correct.

Q And you didn't testify about anything?

A That's correct.

Q Now, you said yesterday that in your work at the St. Paul Crime Lab you had the opportunity to view hundreds of videos of individuals who had been drinking while intoxicated, is that correct?

A I viewed hundreds of videos of people under the influence of alcohol, yes.

Q I'm not sure what the law is in Minnesota, is it drinking while intoxicated or drinking while under the influence?

A You mean driving?

Q Driving.

A Well, in Minnesota there's a law called -- the law says "driving under the influence", and there's also two presumptive statutes of 1-0 and 1-0 within two hours.

Q Well, I'll talk about it in terms of "driving while under the influence".

A Okay.

Q Now, you would agree with me that there is a

difference between a person whose mental and physical abilities to operate a motor vehicle are impaired due to alcohol and a person who is drunk and driving, would you not?

A Yes, I would make a distinction between drunk and impaired. Yes, I think that's a fair distinction to make.

Q Because yesterday you talked about, when a person is drunk -- you used the words "visibly and noticeably impaired", right?

A Right. I was talking about drunk -- in terms of when I was talking about visible and noticeable impairment and that. Things you can see physically.

Q People falling down, stumbling, things like that?

A Things of that sort, yes.

Q You don't have to be drunk to have your mental and physical abilities be impaired due to alcohol use, do you?

(2498)

A No, absolutely not.

Q Now, in reviewing your testimony you also said that you had reviewed thousands of police reports over the years that you've been there?

A I have, over my career, read many, many police reports. Thousands was just a figure. But it probably is a thousand or more, I'm sure.

Q Now, when you were watching these video tapes, were any of these situations where a person had been arrested for drunk driving and then come into the police station and then were video taped?

A Most of them were, yes.

Q And they were video taped to preserve the way the person looked at that time, correct?

A That was part of the reason for doing it, sure.

Q Now, when -- in addition, during those times -- oftentimes people were asked, "Well, how many drinks did you have tonight?", correct?

A Correct.

Q And they would give an answer sometimes. They would say, well, I had such and such a number of drinks, correct.

A They would sometimes answer. Most of the time they would answer, actually.

Q Now, did you ever hear when you were working, watching these videos, the persons who say, "I just had a couple of drinks."? Did you ever hear

them say that?

A That was common.

Q That was a common thing for people to say, "I just had a couple of drinks.", right?

A Sure. Absolutely.

Q And then you would get the results and you would see that the amount of alcohol that's indicated in the breath test just didn't correlate with the number of drinks that they said they had been drinking, right?

A That's correct.

Q In fact, a lot of times I'm sure you saw that a person would say, "I only had a couple of beers.", and they turn around and blow a one-six or a one-seven, right?

A I've seen that situation, absolutely.

Q And it's impossible for a person to get to a one-five or a one-six on just two beers, isn't it?

A That's correct.

Q But it happened on a fairly regular occasion, I assume?

A Correct.

Q And it's a fact, isn't it, that people rarely give accurate accounting of the number of drinks

they consumed when compared to their breath test results?

A I would say it's not common that the reported drinking matches the results of the chemical tests. It happens on a regular basis, but it's more common that they don't match.

Q And most of the time they don't match is when the individual has understated the number of drinks he's had?

A That's correct.

Q How many times, while you were watching, do you think, all these thousands of DWI video tapes, did a person say that they had more drinks that would actually have -- that the results would show?

A Not very often. That may have happened?

Q Did you ever see it happen?

A I don't have any specific recall of it. No. It may have.

Q Well, would it be fair to say that almost every time a person is asked how much did you have to drink, if he isn't accurate he understates it?

A I would say that that's a fair statement.

Q Now, I also assume that -- and you talked

about this a little bit yesterday, about your experiences in watching people and conducting field sobriety tests, that you had a chance to watch people perform certain acts after they had obviously been drinking, correct?

A That's correct.

Q And you made observations about how they acted, correct?

A That's correct.

Q And some people -- you made observations about how people's personalities, for instance, would be affected by alcohol?

A I did, yes.

Q And would it be fair to say that some people become very quiet after they had been drinking?

A They do.

Q And some people become very loud after they had been drinking?

A Yes, they sure do.

Q And some people become what -- they've been drinking a lot, become very, very quiet. Would that be fair to say?

A That's correct, yes.

Q And if some people have been drinking a lot they become very, very loud?

A That's correct.

Q So it kinda varies depending on the particular person?

A Oh, absolutely. The symptoms of alcohol intoxication vary depending on who is drinking and depending on the time. You know, they vary from one time to another with the same person.

Q Now, while you were watching these videos did you ever have the situation where you watch the guy come in and you watched them go through the field sobriety tests on the -- I assume you did field sobriety tests on the video, correct?

A Correct.

Q And you would watch them do field sobriety tests and that person would just do them perfectly, and then turn around and blow a one-seven or a one-eight. Did you ever have that situation?

A Not -- no -- well, I have to admit that I never saw anybody do them perfectly and blow a one-seven or a one-eight. I saw them do fairly well for a one-seven or a one-eight. There's a distinction between those two.

Q Fairly well, but so well that you could hardly notice the difference?

A They did well enough that you wouldn't expect them to blow that kind of a result based on their performance on the test, yes.

Q So it would be fair to say that how someone's -- their physical manifestations don't always accurately reflect their blood alcohol content at that time? That's a fair statement?

A Well, not really.

Q Oh, you would disagree with that then?

A The way you made the statement I would disagree with it, yeah.

Q So you think that at all times the physical manifestations of a person are an accurate reflection of what their blood alcohol content is at that time?

A I guess that statement doesn't have any -- I guess in the scientific context we're talking about, I don't think that statement really has any -- the way you pose the question, I guess I can't answer it that way.

Q Why not?

A Because it doesn't make any sense.

Q Well, let me ask it again.

A Sure.

Q Are clinical observations of intoxication a

better indicator of a person's level of intoxication than blood alcohol content?

A I would say that a chemical test is -- an accurate chemical test is a better indication of a person's alcohol influence at the time the test was taken, than are the clinical symptoms. I mean, in terms of judging which is the better indication of alcohol influence, the chemical test would be preferred to the clinical observations, correct.

Q You'd agree that alcohol does more than just cause you to slur your speech and stumble and fail to do dexterity tests. It affects other areas of the body, correct?

A Oh, absolutely. It affects things that you can't see from casual observation of an individual. Those things that are affected, they cannot be seen on casual observation. It can be measured scientifically and determined in other ways, that's correct.

Q And the things that you're just talking about are things like perception, correct? How a person perceives things while he's under the influence. That's difficult to tell based on clinical observations, right?

A Exactly. That's difficult to tell based on any kind of observations.

Q And decision making, that's something that can be difficult, correct?

A That's correct. Absolutely.

Q Judgment, correct?

A Correct.

Q Those are all things that are oftentimes difficult to observe. The clinical manifestations are not always readily apparent for those things, correct?

A That's correct.

Q And it's true, isn't it, that alcohol affects that part of your brain that deals with things like perception and judgment, decision making, to a greater degree than it affects your muscular coordination area?

A It affects that level and it affects your muscular coordination, that's correct.

Q So, sooner, the less -- at a lower level alcohol can affect -- the lower blood alcohol content could affect your decision making before it affects your coordination?

A Yes, I would say that's a fair statement.

Q And you're also familiar with the term

"masking" of -- the "masking effect". Are you familiar with that term?

A Yes. Colloquially I'm familiar with what you're talking about.

Q Would you explain to the jury what that means?

A What it means is that people -- some individuals, when they become tolerant to alcohol by consuming it on a regular basis, can, at the same level of influence, at the same alcohol concentrations, perform better than an ordinary individual could at that alcohol concentration, or better than they could have before they became tolerant of the alcohol.

It's not a matter of -- it's a matter of building tolerance. It's a matter of manifesting the symptoms of that alcohol influence. It's not a matter of being under the influence or not under the influence, it's a matter of the degree to which you show your influence at a particular alcohol concentration.

Whether you show -- whether you manifest the symptoms very apparently or whether you manifest the symptoms of alcohol intoxication not so grossly.

Q Subtly?

A It's more subtly, that's correct.

Q Let me give you -- tell me if this isn't an example. Some people, when they have been drinking, they go to reach for a drink, they'll go a lot slower to pick up that bottle, to make sure that they don't knock it over because knocking it over is a physical manifestation of somebody that's been intoxicated. Would you agree with me on that?

A Oh, yes, that's one of the ways in which people who are accustomed to drinking large amounts of alcohol will adjust their behaviors by moving a lot slower. That's why the symptoms of alcohol intoxication, is people's movements begin to slow down. That's just as much of a symptom as knocking over the bottle.

Q And I suppose another one might be a person not wanting to just stand in one place, but rather -- say, for instance, lean against something, so it wouldn't be as noticeable that he's been drinking because he was swaying. Would that be a fair statement?

A Yes. If one's been drinking a lot he might lean against something because it's easier to lean against it than to stand up straight.

(2995)

Q And if you were standing up straight people might notice that you were intoxicated because you would be swaying, right?

A That could happen, sure.

Q And that's kind of a learned or acquired trait, isn't it?

A That's correct.

Q So you would agree then that the best indicator of the level of intoxication of a person is an accurate blood alcohol sample?

A That's correct.

Q Now, would you tell me when you were first contacted to act in this case?

A I do not recall specifically the date that I was first contacted. Our office was first contacted by Mr. Madson sometime, I believe, in January.

Q This year?

A I believe so. I don't have specific recall of the specific date that I was contacted.

Q You said yesterday that you reviewed data and test results and explained meaning. Would you tell me, what did you review?

A In this particular case I reviewed some

documents that were prepared by Dr. Propst, I believe it was. Some notes and documents. I had conversations with some of the attorneys related to some of the fact situations of the case. When the tests were taken; what the time frames were, and all that; those were included in the notes.I reviewed transcripts of Dr. Prouty's testimony, and had various discussions with counsels in this case.

Q Did you review the personal interviews of any of the people that were involved in this case?

A Of any of the people that were -- no, I did not review any interviews of any people.

Q So it appears to me that the stuff that you personally saw was Dr. Prouty's work and Dr. Prouty's testimony, correct?

A I saw some of that, yes. And some other documents -- some notes that were taken or made by Dr. Propst or whatever it was. I reviewed some other documents, too.

Q What were those other documents?

A I'm trying to remember what else I reviewed and I don't really recall. I didn't receive any -- I've looked at a lot of documents since I've been here in Alaska, but I don't specifically

recall.

Those were the ones -- Dr. Prouty's transcript and conversations with the attorneys and the notes. I had the facts on when the tests were taken and what the times were involved in the case.

Q Those facts were given to you by Mr. Madson and Mr. Chalos?

A Yes.

Q Did you check those out?

A Well, basically I did. I also looked at the notes of the expert that was going to be used by you and the testimony of Dr. Prouty relating to the times that were involved and the results of the test, so I assumed that he was telling the truth under oath, I assumed that they were correct.

Q Well, when did you get here, to Anchorage?

A Sunday -- Saturday night. Wait a minute, I'm trying to remember. I got here Sunday.

Q Sunday. So you started reviewing this stuff on Sunday?

A I reviewed Dr. Prouty's testimony on Sunday.

(3252)

Q Let's see, you can't really remember

everything you read in this case, is that right?

A Actually I had -- I may have read other documents. I can't specifically recall. What I formed my opinion on were based Dr. Prouty's testimony and the facts that I was given in terms of what tests were taken at what time.

Q Now, you didn't do a report in this case?

A I did not write a report, that's correct.

Q And one of the reasons for doing reports is so that you don't forget things, correct, things that you've read?

A One reason for doing reports is so that you -- when you do something that you -- you know, so you can recall it later, that's correct.

Q Well, you've done reports in other cases as a consultant, haven't you?

A In some cases I've done reports, yes.

Q Now, you testified yesterday that you have been qualified as an expert in Alaska. How many times is that?

A Once.

Q As a matter of fact, that was last Friday?

A That's correct.

Q Down in Ketchikan?

A That's correct.

Q And you did a report in that case, correct?
A Yes, I believe I did a report in that case.
Q Well, I don't want to trick you. Maybe I could...
A I did do a report.
(3386)
MR. MADSON: Your Honor, I'm sorry, but I'm going to object. I don't know what the relevance is. There's nothing that requires a report. And a report in the Ketchikan case, I don't know what relevance it has in this case.
THE COURT: Objection overruled.
Q I want to show you your report and see if this refreshes your recollection.
A Yes, I remember this report specifically.
Q That's your name at the end?
A That's correct. This is the report that I wrote for the public defender's office in Ketchikan, Alaska at their request.
Q And that report was done January 13, 1990, correct?
A That's correct.
Q And it's three pages, correct?
A I believe so, yes.
Q And it sets out exactly what documents you

reviewed prior to the conclusions that you reached, correct?

A That's correct.

Q And it sets out in detail what you are prepared to testify to?

A It does.

Q And you didn't do that in this case?

A That's correct.

Q Now, I was looking at your resume here today. You don't have a Ph.D., do you, Mr. Burr?

A No, I do not, sir.

Q You don't have a master's degree?

A No, I do not.

Q You just have a bachelor of sciences degree?

A That's correct.

Q While you were getting your bachelor of sciences degree, would you tell the jury how many credits you earned in courses dealing with toxicology?

A I did not take any toxicology courses in my undergraduate work.

Q Would you tell the jury since then how many college credits you've earned in toxicology classes?

A I've taken courses -- no college credits in

toxicology.

Q So you've not earned any?

A College credits, no. Not college courses for credit, no, sir.

Q I notice that the people that you work with, Mr. Jensen, Mr. Hemple, and is it Mr. Waiking (ph)?

A That's correct, Mr. Waiking.

Q They all have Ph.D.'s?

A Yes, they do.

Q And you only have a B.S.?

A That's correct.

Q Now, you worked for the St. Paul Police Department for about 20 years, is that correct?

A That's correct.

Q And you worked in the crime lab there?

A That's correct.

Q And your job was a criminalist?

A I was a criminalist, yes.

Q Not a toxicologist?

A That's correct. My job title was criminalist, that's correct.

Q And after you analyzed the number of substances you would be called upon to testify about the presence of alcohol, or something to

that effect -- of drugs, correct?

A I often testified as to the results of the tests I did on biological samples for alcohol and drugs, correct.

Q But you never testified as to what the tests meant in those proceedings, did you? You just testified to the analytical findings?

MR. MADSON: Excuse me, I'm going to interrupt. That's two questions. I think he should have a chance to answer the first one before the second.

MR. COLE: I'll withdraw it.

Q You only testified to analytical findings that you made while you were a criminalist, correct?

A Incorrect.

Q You testified as to what the tests meant?

A Yes, I certainly did.

Q You didn't have a forensic toxicologist come in and testify about what the tests meant?

A I many, many times testified as to what the results of the tests meant in terms of the results that I found.

Q I think you indicated that you had done some training -- breath training of officers in 1960 through 1973, correct?

A Those are the wrong years. I did train breath test operators from 1968 through 19 -- about '75. I trained police officers as breath test operators in those years.

Q How many students did you train in 1971?

A I do not have specific recall of how many students I trained in any particular year.

Q Nine sound about right?

A I have no idea.

Q High or low, nine?

A I have...

MR. MADSON: Your Honor, I think he answered the question. He said he doesn't know.

A I may have trained none in 1971, I don't know. During those seven years I conducted probably 10 training sessions for breath test operators. Maybe none of them were in 1971, I don't know.

Q So you might have trained nobody in 1971?

A That's correct. I may have not trained anybody in 1971.

Q I was looking at your professional training on your resume. Would you -- let me show it to you here. Would you tell the jury which one of these courses dealt with toxicology?

A Sure. The courses on the Intoxilyzer dealt

with toxicology in February 1984. The course on -- at the University of Indiana in Bloomington, Indiana, that dealt almost exclusively with the alcohol toxicology. That was 80 hours of training and work in the area, of breath testing, blood testing, alcohol toxicology extensively. Those areas dealt specifically with toxicology -- alcohol.

Q In the '72 case, the seminar that you went to, that was a pretty good seminar, wasn't it?

A Which one is that?

Q The one that you talked about in Bloomington, Indiana, the instructors course?

A Yes, correct. That was a course that was involved with setting up chemical testing programs in law enforcement settings and dealing with all of the issues involved. That extensive work in the laboratory and classroom instruction and toxicology.

Q There was some big names of -- big names of people in the field of toxicology that taught at that, weren't there?

A Yes, Drs. Borkenstein (ph) and Dubowski were instructors at that.

Q And Dr. Dubowski?

A Dr. Dubowski was on the faculty of that -- he lectured at that, that's correct.

Q And, also, Mr. Prouty was on that faculty, wasn't he?

A He was. I don't specifically remember if he lectured at the one I was at. I think he may have. I know he did lecture on occasion at the University of Indiana, that's correct.

Q So you may have been one of his students back in 1974?

A I may have been, yes.

Q A good chance of it?

A Yes. I don't specifically recall if he taught there or not. He may have at that time.

Q So essentially one of students has come back to critique one of his teachers?

A I suppose that's happened before.

(Pause)

Q Oh, I noticed in your resume that you listed as professional and learned societies, the American Academy of Forensic Science?

A That's correct.

Q Now, correct me if I'm wrong, but these have multiple sections in these particular type of groups. In other words, they have serology,

toxicology, criminalist groups in the American Academy of Forensic Sciences, correct?

A They have multiple groups. The ones you mentioned are not all groups in it, but there are multiple groups in the American Academy, that's correct.

Q Which one are you in?

A I'm in the criminalistic section.

Q You aren't in the forensic?

A I am not a member of the toxicology section, that's correct.

Q And in the Midwestern Association of Forensic Sciences?

A That's correct.

Q What group are you in there?

A The organization is not divided into groups.

Q Not at all?

A No, sir.

Q Now, let's see. As I understand your testimony, you disagreed with Mr. Prouty on the following. One of them was the fact that he used retrograde extrapolation at all in this case, correct?

A That's correct.

Q The second was the .14 value that Dr. Prouty

testified to for Captain Hazelwood's BAC at 12 o'clock that evening, correct?

A I disagreed with that, yes.

Q And you also disagreed with the two tests -- saying that two tests would be better than just one test?

A That's correct. I said two tests are always better than one test.

Q And you also said that Mr. Prouty's use of a .51 Widmark Factor was a problem, correct?

A I said that I would not use that Widmark Factor for a person of Mr. Hazelwood's appearance, no.

Q Was there anything else that you had that you criticized?

A I don't remember all of my direct testimony. I know that those were the areas that I dealt with. I may have said something else.

Q It sounds about right though?

A It sounds correct.

Q Now, yesterday you testified that if a person had enough information he could go backwards in time and estimate a person's blood alcohol content, correct?

A Under some circumstances for some periods of

time, yes, that's correct.

Q You qualified it by saying a person needs a whole bunch of information before he or she could arrive at that result -- a valid result?

A That's correct.

Q You also testified that you have, in fact, on occasion been asked to perform retrograde extrapolation in the past?

A I certainly have, yes.

Q And you have also testified about that in the past, haven't you?

A I have, yes.

Q And, in fact, you testified that the longest period that you ever went back was for two to three hours, correct?

A That sounds correct, yes.

Q Well, could it have been longer?

A Probably not.

Q It would have been between the time -- within two or three hours of that time?

A That's correct.

Q When you testified what information did you have to know before you did back calculation?

A Okay. First of all, when I did back calculations I did not normally give a number on

a back calculation, because numbers spurious -- numbers -- okay, the information you really need to know is you need to know that the test that you've taken is, in fact, at or near the trend line, so multiple tests are real desirable.

You have to know that the person is post-absorptive. You have to know specifically what their burn off rate is, or you have to use the range. You have to know all kinds of information.

You have to know that they're post-absorptive. If they're not clearly post-absorptive...

Q You already mentioned that. What else is there?

A Okay. You have to know -- yes, a single test may or may not be near the trend line, so you may be starting from a false point.

Q You already mentioned that.

A Okay. And you have to know the person's burn off rate.

Q You already mentioned that.

A And if you know those things then you can predict whether or not a person -- you would expect them to be higher or lower at some previous time.

Q Okay.

A Within a short period of time.

Q When you did this in the past you had three things. One, whether they're on the trend line.

A Yeah.

Q Two, whether they are in the post-absorptive phase.

A Correct.

Q Three, their burn off rate?

A Correct.

Q Anything more?

(Tape: C-3671)

(000)

A Those things you need -- you have to know those things in order to have any validity at all to your retrograde extrapolation.

Q Anything more that you needed when you gave yours?

A When I looked backwards, probably not. That was sufficient to make some comment about the previous time.

Q Now -- and as I understand it, you cited several reasons why back calculating, retrograde extrapolation, whatever you want to call it, should not have been used in this case, correct?

A That's correct.

Q And one of them was that it was too long a period to calculate back, correct?

A That's correct.

Q And I assume that you meant that this 11 hour period was too long to do?

A That's correct.

Q So it's okay for you to do it for two to three hours back but not for Dr. Prouty to do it for 11?

A That's really not true, no.

Q Well, isn't it true, Mr. Burr, that the longer the time period between when a person stops drinking and the time he is tested, the more accurate that back calculation is?

A Not necessarily.

Q Yesterday you drew what I think is called the standard BAC curve against time, right?

A (No response.)

Q How about that. Is that -- and then we have -- I'll let you draw it.

A Draw what?

Q I want you to draw the standard post-absorptive phase, peaked, and elimination phase on this.

A A stylized curve, one would expect to look something like this, and then going on down like so. That's a stylized curve of alcohol.

Q You can have your seat. I just wanted to make sure that that got drawn correctly.

Now, isn't it correct that one of the reasons there's a controversy about retrograde extrapolation is because of the concerns with what is called the absorption phase, correct?

A That is one of the reasons why retrograde extrapolation is not a valid thing to do scientifically because we can never be sure that a person is post absorptive, except under very unusual circumstances, and given the fact that we can never be sure that someone is post absorptive.

If they are not post-absorptive then there is clearly no validity to any back calculation, because people are still going up at the time we're calculating them.

If you still have alcohol in your stomach at the time you back extrapolate to the whole thing is nonsense.

Q Are you saying that when you testified on retrograde extrapolation it was nonsense?

A I tested -- if a person is not post absorptive, then any estimation of alcohol at a prior time is nonsense.

Q Okay. So one of the fears now is that by back calculating you'll get a higher blood alcohol concentration that the person really had, correct?

A You could easily get a higher concentration than they had, correct.

Q And that's demonstrated by this, right? Sometimes a person is tested right about here (indicating)?

A That's correct.

Q And let's say he's tested -- he starts drinking here, he stopped right here, and he's tested right there (indicating)?

A Correct.

Q And if you back calculate you might get a figure up here, right?

A That's correct.

Q And the person's actual BAC might be right there, right (indicating)?

A That's correct.

Q And that wouldn't be right, right?

A That's correct.

Q So that's one of the reasons why it's very important to make sure that the peak has happened, right?

A That's absolutely correct. It's essential to know that a person is clearly post absorptive.

Q Now, what happens when you go from here -- and I'm not talking about the steepling effect, we're going to get into that in a little bit.

A Okay.

Q But I'm talking about when you go from number three to number two, does that do away with your fear on post absorptive effect?

A That takes post absorption. If a person is clearly post absorptive then they were clearly higher at the time at a previous time, you know.

Q So you would agree that an absorption of alcohol plays a key role in determining when the peak occurs, right?

A Well, absolutely. The peak occurs when -- the peak occurs when absorption -- when elimination -- basically when your elimination rate is higher than the rate that you absorbed it. It does not even mean you've completely absorbed all the alcohol you've had to drink. It could be on the down side of that curve and still have more

alcohol in your stomach.

Q But it's not going up, right?

A Not the trend line, no.

Q It also is important when a person stops drinking as to when the absorption rate -- when the absorption period ends, right?

A When you stop drinking -- obviously, if you keep on drinking it is always adding more alcohol to be absorbed, so it continues it on down the road.

Q Now you said yesterday that the absorption of alcohol in a human body could take anywhere from a half an hour to six hours, correct?

A At least six hours, yes.

Q Is that based on your own experiments or the literature you've read?

A That's based on the literature.

Q And I'm sure that someone like Dr. Dubowski, who you think is such a great expert in this field, his writings could support that conclusion?

A I don't specifically recall anything in Dr. Dubowski's writings that say -- that mentions -- I'm sure Dr. Dubowski is very clear about absorption of alcohol being crucial.

Q You said...

A Dr. -- I don't know if -- the six hours is not from Dr. Dubowski's paper, no.

Q You said you read everything from Dr. Dubowski, correct?

A I believe I've read everything he's written.

Q Did you read where he said that the absorption phase takes anywhere from a half an hour to three and a half hours?

MR. MADSON: Your Honor, I'm going to objection unless he can show what study he's referring to and have the witness have a chance to examine it to see if, in fact, he did read it.

MR. COLE: He said he's read every one of his articles.

MR. MADSON: Then I would object for the same reason Mr. Cole objected yesterday when I asked about Dubowski, because it's hearsay and this witness wasn't allow to testify about it.

If we want to open that door, that's fine. I think he should be shown the article.

MR. COLE: Well, I don't have the article, but the next witness is going to testify to that.

Q (Mr. Burr by Mr. Cole:) Is it true Dr. Dubowski has said that the absorption phase takes

between a half an hour and three and a half hours?

THE COURT: Don't answer the question.

Counsel approach the bench, please.

(315)

(Whispered bench conference as follows:)

THE COURT: You may cross examine the witness (indiscernible - whispering), and without it it's improper.

(End of whispered bench conference)

(322)

THE COURT: Objection sustained.

Q (Mr. Burr by Mr. Cole:) Mr. Burr, could you tell me the literature that you've read, the name of the article and the author who said that the absorption phase takes longer than six hours.

A Takes longer than six hours?

Q Up to six hours?

A Up to six hours, yes. As a matter of fact, I have the book in my briefcase. It's "Alcohol Tests and Biological Specimens For Medical Legal Purposes", I believe is the title of the book. It's a chapter written by Randall Bassalt (ph), et al.

Q Wait a minute, I need you to slow down.

A Randall Bassalt and others are the authors of that chapter in that particular publication. That's one of the things, specifically, I have with me in which he said up to six hours.

Q And is that in all people?

A I don't understand that question.

Q Do all people absorb at a six hour -- does it take six hours for alcohol to get into the blood in all people?

A Well, of course not. Of course not.

Q What percentage of the population does it take to get alcohol in your blood from your stomach? Six hours?

A I don't think there is sufficient data to answer that kind of question.

Q It's a very small amount, isn't it?

A The scientific data suggests and shows that people can take up to six hours to be fully absorptive -- to absorb all the alcohol -- to reach their peak alcohol concentration, depending on their physiological states, and, you know, whether they eat after they drink, and certain other factors that are involved in it. And the research has clearly shown that it could take up to six hours.

Q And your research showed that?

A No, other people's research.

Q What was the longest your research showed?

A Probably three hours to four hours, in that range.

Q So if Dr. Prouty has said that it's three and a half, four hours at max, you would disagree with that?

A I would disagree with that. I would say that the literature is clear that that's not true.

Q Now, in this case the evidence is that the defendant stopped drinking between 7:30 and 8:00 p.m. on the night of the 23rd. Would it be safe to say that he had peaked before giving his blood sample at 10:30 the next morning?

A Assuming no more alcohol consumption...

Q The defendant stopped drinking at between 7:30 and 8:00 on March 23, 1989. Is it fair to say that at 10:30 he had already peaked?

A He probably would have, yes.

Q Eight o'clock to 10:30. I calculate that as 14 and a half hours.

A And you're saying that he is still absorbing liquor?

A No, he's still not absorbing the alcohol that

he had. No, absolutely not. He's not -- if your question is, did he peak before the test was taken? Quite probably, yes. Sometime before.

Q Sometime before?

A Uh-huh (affirmative).

Q And the facts that you've seen, or the literature that you've read said that some people it takes six hours, depending on what they've had to eat, correct?

A That's correct.

Q And if he stopped at 8 o'clock, even under your liberal definition of absorption rates, he would have stopped -- peaked absorbing at about 2 o'clock that morning?

A Yes.

Q So if he would have stopped, even under your liberal interpretation, absorbing at 2 o'clock, if other concerns are met, you could calculate up to that point?

A When he's post absorptive -- if you know that he's post absorptive, yes. Using various burn off rates you could go back up to that point, sure.

Q And if other people testified that the absorption rate is generally not more than four

hours, you could go back to midnight, couldn't you?

A If he had absorbed all of it, you could give a possible range, if he's on the downside past his peak, and there's only a certain possibility for burn off rates, sure.

Q By the way, did you happen to do any test with Captain Hazelwood to determine what his burn off rate was?

A Did I test Captain Hazelwood to determine his -- when?

Q Elimination rate.

A When?

Q Any time.

A Any time. No.

Q Done any of...

A I have done no tests of his elimination rate, no.

Q You could have? There are ways to do that.

A You could test somebody's elimination rate on a particular occasion, sure.

Q So let me get back to what I asked you at the beginning when we started that. Isn't it true that the longer the time period between the time a person stops drinking and the time he is

tested, the more accurate back calculating is?

A No.

Q Even though you said that it's okay to do it after, your term, six hours?

A No, I said after six hours that he would, under most circumstances, have reached his peak alcohol concentration and be on his way down, that's correct. But I still don't believe it's a good practice to do based on other complicating factors.

Q Okay. Well, let's talk about the second complicated factor that you mentioned.

I believe that you talked about the fact that sometimes these tests on the downward phase go up and down, correct?

A Tests on all phases of the alcohol curve go up and down.

Q So your testimony is -- is that based on your own personal experiences or on the literature you've read?

A Both.

Q And the experiences that you used were breath tests, right?

A Most of them.

Q Well, how many times were you drawing blood

from an individual at various occasions while the were going up?

A I probably tested 20, 25 subjects over a period of time with breath tests and blood tests taken.

Q No, I mean blood tests -- just blood tests.

A Just blood tests. I've never tested people with just blood tests.

Q By the way, have you written anything on the results that you reached in any of your stuff?

A I have not published any of my work.

Q You have not published anything?

A No.

Q Now, you're saying that the up and down effect occurs in the absorption phase, is that correct?

A It occurs in both phases.

Q But it does occur in the elimination phase, correct?

A The short term fluctuations in the curve occur over the length of the whole curve.

Q And I assume that what you're referring to is Dr. Dubowski's -- what he terms "steepling effect"?

A He is one of the investigators that have shown that to be something that happens, correct.

Q Now, you say you're aware of all the literature, correct? You've read as much as you could, I think you indicated yesterday, in this field.

A I read much in the field, yes.

Q You read everything that Mr. Dubowski has written? That's what you said yesterday.

A That's correct.

Q And I'm sure you read articles that critiqued his work, correct?

A I read articles that critiqued Dr. Dubowski, sure.

Q Now since you've read all those articles, you know that his controlled drinking experience use breath tests rather than blood tests, correct?

A I am not sure that all of Dr. Dubowski's -- Dr. Dubowski's work -- some of it has been done with blood tests, some of it has been done with breath tests -- all alcohol tests.

(710)

Q You're sure about this?

A I believe he has done work with -- I know he's done work with blood tests. I don't know any specific work. I would have to look at it and see what he did, but I know he's done blood tests

and published things about blood tests.

Q I'm talking about in relation to his theory on the steepling effect.

A Oh, in relation to the extrapolation theory and the back calculations and the problems associated with that. In later papers he wrote he used a lot of data, but a lot of the data was breath tests and some of the data was blood testing.

Q You're sure about that?

A He used blood testing in some of his work, yes. And what specific paper...

Q Now I'm not talking about some of his work. I want to know, in the articles that he wrote in this steepling effect, did he use breath testing or blood testing?

A Breath testing, I believe. And...

Q Thank you.

A ...in one article in particular, I believe you're referring to, where he really elucidates the issues involved in retrograde extrapolation, he used breath tests.

Q Isn't it true that the general consensus among experts in this field is that these differences that he's noted by the use of the term steepling

effect, or the zigzag, is due to his analytical techniques, i.e., that he used breath tests and not blood tests to determine variation in elimination rates?

A Absolutely not.

Q Now, are you aware of whether Mr. A. W. -- you know who Mr. A. W. Jones is, correct?

A That's correct.

Q And you hold him in very high esteem, I assume?

A I believe that A. W. Jones is a very knowledgeable expert in the field of alcohol toxicology and he's a prolific researcher and writer, and he's an expert.

Q And do you know whether A. W. Jones has attempted to confirm Dr. Dubowski's results on elimination rates?

A I don't specifically know. I haven't seen anything he's published where he was critiquing Dr. Dubowski's work. He's published a lot of material on alcohol curves and concentrations and elimination rates, and blood and breath ratios and all kinds of things.

Q Go ahead.

A But I specifically don't remember any critique

of Dr. Dubowski's work on the steepling effect. He may have.

Q Well, are you aware that he's done it with blood testing to confirm whether or not a person -- this steeple effect occurs?

A He's done work with blood testing. I don't know what -- the purpose of the studies he's done. You'll have to refer to a specific study, I guess, if I can answer those questions.

Q I'm showing you a similar blood alcohol profile. As you can see, this is written by Dr. A. W. Jones. I just want to show you this profile.

A Well, let me look at this thing, please. Thank you.

(Pause)

MR. MADSON: Your Honor, maybe this would be a good time for a break if the witness needs time to review this. It's up to him, I guess.

A Okay.

Q You see that there's a graph there where he took various blood samples from an individual, right?

A That's correct. This is an alcohol concentration curve of one individual that he

studied, sure.

Q Do you see any of that steepling effect in there?

A A little bit.

Q That one little mark right there, is that what you're point at?

A There's a flattening, a plateauing, and -- this is one particular individual and there's a small example of a steepling effect right in that area.

Q Do you see an up and down in that -- all the way down?

A No, there's not a splicing.

Q In fact, it's almost a pretty straight line, isn't it?

A Well, the general trend line is down but there's an example point. At two and a half hours it's a point above the trend line.

Q Above the trend line?

A Absolutely. Two and a half hours -- this is a decreasing alcohol concentration at two and a half hours right in here, at this point. Point one, two, three four. This test here is a point -- the trend line is this way, and this is a point that's gone above the trend line slightly.

Q One point in six hours, is that correct?

A That's correct. So if we back track from that point then we're going to get a bad extrapolation backwards. We're going to calculate an alcohol concentration that's way too high. That's the point of the problem with being off the trend line.

Q But generally people are very close to the trend line, aren't they?

A If you were to take 10 tests you would expect most of them to be close to the trend line and some of them to be away from the trend line. That's the way data falls when you do it.

Q Well, what's the percentage that people fall away from? What studies have you done to show that?

A You can't do that. I mean, that's nonsense. I mean...

Q That you were able to do retrograde extrapolation in cases that you testified to?

A I was able to estimate alcohols at a previous time based on certain facts and data that I had, sure.

Q Now, the elimination phase, you would agree, decreases in a linear progression, right,

essentially?

A Not always. There is some controversy on that, too.

Q But you have done no experiments yourself to prove or disprove that?

A I have not, in myself, done any experiments to prove whether it's a first or second reaction at low concentrations, no.

Q And you also disagreed with Mr. Prouty on the fact that two tests would have been more helpful in this case, correct? You said two tests would be more helpful.

A I said two tests are always better than one test, because you've got more information.

Q In this case you said that two tests needed to be done, correct?

A I'm not sure if I said that. I said two tests would be better than one test. It would be good to have two tests. Whether that's needed or not, I guess that's not a scientific opinion.

Q Well your opinion is based upon your concern of whether or not this sample was taken in the elimination phase or not?

A That's part of the reason. I mean, that's one of the reasons -- if you take more than one test

you have more data.

Q The major reason is to assure you that you are in the elimination phase, correct? That's the major -- that's what you said yesterday.

A That's one of the major reasons, sure.

Q Is there any doubt in your mind that at 10:30 to 10:50 that this was not in the elimination phase?

A If he quite drinking at 8 o'clock and it was the last consumption, he would have probably absorbed everything he had to drink, sure. Except given some really strange circumstance. But, yes, he would be in the elimination phase if he quit drinking at 8:00 and this test was taken at 10:00 the next morning or 10:30, whatever.

Q And most people -- most people would have been in the elimination phase at about midnight that night, wouldn't they?

A The majority of people would have been totally absorbed by midnight, that's correct.

Q 95% of the people, correct?

A I don't think one could put a percentage on that.

Q Yet you could put percentage on the way people would appear under different levels of

intoxication?

A Yes. That was based on the studies -- some very clear...

Q That was based on your own personal observation, wasn't it?

A That was based on my observations and it was based on the literature in which -- about a dozen of the classic studies were looked at in terms of evaluation of alcohol concentrations and what percentage of the people were under the influence. So some of that data is real clear in the literature. At certain levels percentages of people had been known to be under the influence of -- you know, observed to be under the influence by various researchers.

Q Now, the urine test that was done in this case, do you recall that?

A I recall it, yes.

Q The result of .094, correct?

A That's correct.

Q That confirms that Captain Hazelwood had not had a lot to drink prior to that test being administered, correct?

A What? I guess I missed that.

Q That confirms that Captain Hazelwood had not

had a lot to drink right prior to the blood sample being drawn, correct?

A I don't know what you mean by "right prior".

Q Within the hour.

A Oh, he could have drunk within the hour and still had those blood and urine levels, sure.

Q The urine sample would have gotten to that level within an hour?

A Could have.

Q Could have.

A Could have. If he had drunk within an hour of the time the test was taken we could get these results, yes.

Q What do you base that on?

A The fact that he -- example, had he taken the alcohol and absorbed everything he had to drink. If he drank enough alcohol to get to o-six, absorbed it all within 20 minutes to a half an hour, within another half -- or your body is eliminating it, it's in the urine. It's incorporated within the hour in your body and you've got an equilibrium situation. That can happen in that short a period of time.

Q And you proved that in your tests?

A It can happen in that period of time. I've

never done that kind of a test specifically to determine that.

Q You're just saying that it's a possibility?

A It's possible to have your distribution complete within an hour of the time. If you were to take three ounces of whiskey right now at 10:00 and drink it. If I were to do that right now. I could be completed distributed through my system with these kind of consistency and samples within an hour. It probably would take longer than that, but it could be within an hour.

Q Now, as I understand it the next problem you had was Mr. Prouty's use of the .008 elimination rate, correct?

A I said .008 is on the -- near the bottom part of the spectrum of alcohol elimination and it is not -- you could use it. I mean, it's been measured in people, so I suppose you could use it if you want to. But it's not a very likely elimination rate for anybody.

Q But he did give the elimination rates of the other three possible groups, right?

A Well, there's a whole range of possibilities, right.

Q .10, .18, .030, right?

A It could be anyplace in between those and even much -- even higher than that, up to three-five. Even higher some people say.

Q Have you ever seen higher?

A Than al three? No.

Q And he gave a range of numbers at 12 o'clock under those three factors, correct?

A I believe he did, yes.

Q And you say you wouldn't use a .008, correct?

A I said .008 is a very unlikely scenario. The numbers derived from a .008 elimination rate is a very unlikely thing to have happened and an elimination rate based on a .18, or a .20, or .25 is much more likely.

Q What does A. W. Jones have to say about this? What rate does he use?

A I don't know what he uses as the average.

Q Do you know what he suggested to be used?

A In one paper that I read by A. W. Jones, which I happen to have with me -- A. W. Jones says that .008 is the bottom that -- that he figures that's the bottom number that's been measured. So if you want to give the benefit of the doubt to somebody as to the lowest they could have been, then you should use .008. If you're going to do

it at all, which he says you should do.

Q But he says that in certain circumstances it could happen, right?

A In certain circumstances a person can be .008, yeah. He says if you use .008 then you are giving the lowest possible number a person could have been at a previous time if you are going to be doing that.

Q Next you criticized Mr. Prouty for one of his scenarios where he used a .051 Widmark Factor, correct?

A When he was calculating alcohol based on the number of drinks and he used a .51 Widmark Factor, I criticized that, yes, absolutely.

Q Did you understand why he gave that figure?

A Well, he gave that figure because that gives you the highest possible alcohol concentration based on five and a half drinks -- or, five drinks at an ounce and a half. Using the .5 Widmark Factor gives you the highest possible alcohol concentration.

Q Isn't it true, Mr. Burr, that the reason that he gave that is that there had been an inference drawn that based on the number of drink Captain Hazelwood had had during the day, as has been

testified to in this trial, the inference was that no person under any scenario could be an 061 at 10:30 the next morning, correct?

A I don't know if that was the inference or not.

Q And all he did is point out that there is a scenario.

A Yeah, exactly. He took a Widmark Factor, which is completely unrealistic. That's something you can -- the Widmark Factor is something you can do without measurement. You can take a look at somebody and tell that the Widmark Factor is not .5.

Q He pointed out, didn't he, Mr. Burr, that he did not agree with the use of that Widmark Factor. All he was pointing out is that under the scenario there was a way that a person with the number of drinks that Captain Hazelwood had that day could be at an 061 at 10:30 the next day, correct?

A I guess from my reading of the transcript, he was saying that that was a possibility. And I don't believe that's a possibility at all, because I don't believe Mr. Hazelwood could possibly have a .51 Widmark Factor.

Q Well, so in other words that scenario was

fairly unlikely, is that what you're saying?

A Yes.

Q About as unlikely as people giving an accurate assessment of the number of drinks they had in an afternoon?

A I don't know how likely that is.

Q Well, you already testified that people rarely accurate assess the amount of alcohol they've had when they've been drinking, correct?

A Well, I was talking about people who were arrested for DWI and being interrogated by the police. I guess there is -- I don't know if you would ask -- under the circumstances, I have no basis to say whether someone on this circumstance would give an accurate answer or not.

Q Now, finally, if a person -- you testified yesterday that for a person to get to about a two-four, two-five, it would take 13 to 14 shots of 80 proof vodka, correct?

A That sounds correct.

Q Does Vodka come in different proofs?

A Yes.

Q What are they?

A 80 and 100 most vodka is. I don't know if there is any -- there have been, and I don't know

what they can -- you can buy vodka -- as a matter of fact, you can buy Everclear in some places, depending on where you are, which is 190 proof. But most vodka is 80 and 100. Everclear is the same thing, it's just grain alcohol. But 80 and 100 proof. I don't know if any other proofs are sold anyplace. Those are the only -- in most states those are the only two that are sold.

Q How many drinks would it have taken if Captain Hazelwood was having 100 proof vodka?

(1375)

A Well, that's about 20% -- it's actually about 10% strong. So it takes about 10% less -- a couple less.

Q Which would be how much?

A 12, I suppose, or something like that.

Q 11 to 12.

A Uh-huh (affirmative).

Q And that would be, say, only about six half -- double shots then, correct?

A That's correct.

Q Thank you. I have nothing further.

THE COURT: We'll take a little recess now. Remember my former instruction not to discuss the case among yourselves, to form or express any opinions.

We'll see you back after the recess.

THE CLERK: Please rise. Court stands in recess subject to call.

(1403)

(Off record - 10:08 a.m.)

(On record - 10:32 a.m.)

REDIRECT EXAMINATION OF MR. BURR

BY MR. MADSON:

Q Mr. Burr, Mr. Cole asked you a number of questions about your experience with gas chromatography and things like this, correct?

A That's correct.

Q As I understand it, the gist of it was, you see nothing wrong with using gas chromatography to tests for blood alcohol; it's a valid tests?

A That's correct, yes.

Q Sir, you were never asked to critique or look at the test results in this particular case with a view of whether they were accurate or inaccurate, were you?

A No, I was not.

Q You were asked to assume it was accurate?

A That's correct. That was the assumption that I worked under.

Q Now, Mr. Cole asked you a number of questions

about a breath tests in comparing it with a blood test and which one was best. Can you describe for the jury, please, how breath tests are commonly done and how it relates to blood alcohol levels?

MR. COLE: Objection. Relevance.

THE COURT: Objection overruled.

A Yes. Breath tests are done by having a person blow into any one of a number of instruments. For example, in the state of Alaska they use an instrument called the Intoximeter 3000, which is an infrared based instrument for measuring alcohol in the breath.

You take a sample of a person's breath and based on a built in ratio of 2100 parts to one it gives you a number which will give you a fairly accurate answer or a relationship to a person's blood alcohol concentration.

Q Is there a commonly used or accepted factor that relates from one to the other?

A Yes. 2100 to one is the factor that commonly relates from one to the other. So when you take a breath test and you take a blood test you get results that are close to each other. They are never going to be identical in all cases, but

they are going to be close.

Q But if you really want to know how much alcohol is in a person's blood, it's best to have a blood test as opposed to a breath test?

A That's correct.

Q But you could still get a fairly close approximation?

A That's correct.

Q In this case there was no breath test taken that you were aware of?

A Not that I'm aware of, no.

Q The research that you're aware of, does it use both breath and blood alcohol by the writers that you've read in this field?

A Yes. The writers that I've read in the field, depending on what study and what they're doing, when they're dealing with the absorption distribution elimination of alcohol and studying those issues, myself included, have done both blood and breath tests.

Oftentimes breath tests are done if your purpose of the study is to determine how people's alcohol goes up and how people's alcohol goes down. You can do that with a breath test just as easily as you can with a blood test. Whether

your correlation between the breath and the blood is 100%, you're still looking at the same progression. Your breath tests results are going to be consistent as people go up and down in their alcohol consumption, the same way as your blood tests. And sometimes you take both to compare them to see how they differ when people are absorbing versus eliminating, how blood and breath differ from each other.

Q Which of the two is a faster test?

A The breath tests are faster and easier to do, and that's why they are often done in studies that look at elimination, distribution of alcohol, and so on, because they are easier to do.

Q Now, Mr. Cole asked you about the urine test that was taken of Captain Hazelwood that was a .094. Does this by itself mean anything as far as what percent of alcohol was in his blood at a given time?

A Not particularly, no.

Q Maybe you could just explain why there is a difference between, say, blood and the urine alcohol. Very briefly.

Q Yes. The urine in a person's body has a

different water content in the blood for one thing. And, also, the urine is a reservoir in which, as your body eliminates alcohol, and as alcohol is excreted from your body, it gets into the urine and it collects there. So your urine has alcohol in it when you've been drinking, and that alcohol will be somewhat related to the alcohol that's in the blood, but not directly related unless you do some special things in taking the sample, in order to get it to relate directly to a blood alcohol test. But it's basically an indication that there's alcohol in the system.

Q And that could depend on such factors as when a person last urinated, things like this?

A Absolutely.

Q Now, you indicated that you looked at hundreds of videos in Minnesota involving DWI subjects, is that correct?

A I've looked at hundreds of videos, yes.

Q Mr. Cole asked you a number of questions about impairment versus drunk. Is there a distinction that you're aware of, or is this just a term of art, or how would you describe the difference?

A Well, scientifically there isn't any. Alcohol

impairs a person. Alcohol has an affect on the person's body and now those affects are on the brain and on the muscles, and so on and so on. It all really has to do with the influence of alcohol on the body's system.

Oftentimes we use the term "impaired" to mean somebody is affected by the alcohol, and intoxicated to mean that they are very noticeably under the influence. Both of them have to do with the impairment -- they are the same thing that alcohol is doing to the body.

Q In other words, if you're making visual observations of someone, you may conclude they are drunk, they're impaired, or they're intoxicated?

A Yes.

Q Is there any distinction in those terms except -- as far as you know?

A No, not really.

Q Can you, then, based on your experience, look at a person and determine whether they are visibly impaired?

A Oh, absolutely. I think it's very easy to do, to look at someone and tell if they are impaired by alcohol, to see symptoms of alcohol

intoxication, particularly when you get to the higher levels.

Q Now, you told Mr. Cole and the jury, in response to his question, that a blood alcohol test would be more accurate means of determining a person's intoxication level, or whether he's under he influence, if I understood you correctly?

A Yes. A blood test basically is better than a breath test.

Q But does a blood test by itself give you a clear indication or criteria to determine whether a person is actually impaired or not?

A Sometimes it does if it's real high, but not always.

Q What would you use, if anything, to correlate the number you get with your conclusion that the person is impaired? What other factors could you use?

A The other factors that you want to use is your observations of this particular individual. How they responded to your questions, how they walked, how they talked, how they looked. Your perception of their -- your judgment of their perception of time and space and where they were

and what they were doing. And your evaluation of how they are acting compared to how you normally would expect someone to act, or how you've normally seen this person act before, or something like that, and, say -- you know, you can notice these symptoms of alcohol on their body.

Q And, for instance, if you had people that said, yes, I saw the person and he seemed impaired, and you had a blood alcohol level -- the two may go together and correlate.

A That's...

MR. COLE: Objection. Leading.

THE COURT: You can discontinue the leading questions, please.

Q Mr. Burr, what would you look for, then, as far as any relationship, if any, between observations in blood alcohol?

A One would look for the observations to corroborate the results of the tests and the tests corroborate the results of the observations, and that's when you have an alcohol concentration test. You can make some pretty accurate predictions as to what you would expect to see in people at that particular level, and

those things, in most cases, agree with each other.

Q Have you, in your experience, had occasion to examine police reports? That is, officers' arrest reports about arresting a person and then taking the Intoximeter test of some type?

A Absolutely. Many of those.

Q Have you had occasion to review the officers' observations in a report versus the number that was reached by the breath test or the blood test?

A On hundreds of occasions.

Q Do you have an opinion, based on your observations or your knowledge of those reports, whether they go together, commonly correlate?

A They commonly correlate very well, yes.

Q If a person -- assuming in the area of a .15 blood alcohol content, okay. What, if anything, can you say about the observations made by arresting officers in that, whether they correlate with the officers' observations of impairment or not?

A Yes. I could say I don't ever remember seeing a police report in which somebody tested a .15, who the police officer did not find obvious signs of impairment in that individual that they

elucidated in their reports, you know, in their conclusions and findings that this person was under the influence and exhibited certain signs and symptoms of intoxication.

At that .15 level I've never seen a police report where the person showed no signs of impairment when tested .15.

Q You indicated that in your observations it was common to notice some changes such as personality

A That's correct.

Q Would this be true, sir, if you knew the person before or didn't know them?

MR. COLE: Judge, again, I'm going to object to leading questions by Mr. Madson. This is direct.

Q Mr. Burr, what difference, if any, would there be between observations of a person who you knew from past experience or one that was a stranger?

A Well, obviously to determine if somebody's personality has changed, one has to know what the personality was before. The fact that somebody is very boisterous and talkative and so on may not reflect a personality change at all. It may be the way they are. Or, if they are very quiet and retiring and shy, that may be the way they are normally.

By personality change, obviously you have to know what the person was like before and that's the sort of things you see in controlled drinking experiments in human subject studies where you observe somebody's behavior at the beginning at the session and then when they get under the influence their behavior changes, and then you could notice that change in behavior.

Q Is there a term that is used in the field of alcohol, physiology, known as mood swings?

A Yes.

Q What would that be, sir?

A Well, a mood swing would be when a person would be basically happy at one moment and crying the next minute and so on, to go from one emotional state to the next. Their mood swings from happy to sad very quickly, and that's common under alcohol influence.

Q Mr. Cole asked you about such things as leaning on an object rather than standing erect, right?

A Correct.

Q Do you have any opinion as to how valid this is by itself? I mean, for instance, I'm leaning on this podium. Does that tell you whether I'm

drunk or not?

A No, it does not. Obviously people lean on things when they are not under the influence, just because it takes some weight off your feet and it's something you just do.

Q You were also asked about people, I believe, doing tests or alcohol sobriety tests at a level of about 17 or 18. Your answer, I believe, was some do fairly well. Can you tell the jury an estimate of how many people actually could do fairly well?

(1946)

A Yes, I would say at that level, less than 10% of the people could do what I would consider fairly well on the test. Virtually one would show no signs of that alcohol influence.

Q If the level of intoxication or blood alcohol were to increase, do you have an opinion as to whether that percentage of people that could do the test would go up or down?

A As the alcohol level increases there are fewer and fewer people that can past the test, to use the term that would do -- you know, perform fairly well on the test -- on standardized field sobriety tests as their alcohol level goes up

until you get in the range of .25, and very few people will do anything, like passing a test on a field sobriety test.

Q Mr. Cole asked you about that and I think you said that the term "masking" is often used to disguise or not for a person to show -- not show the affects as readily as someone else?

A That's correct. Masking refers to a person's ability to hide some of the symptoms of alcohol influence.

Q When would masking, from your experience, be utilized by a person at all?

A Masking is -- and this tolerance that you build to alcohol, something that operates at -- in my experience, and much of the research and the literature at the lower levels of alcohol intoxication. When you get up to higher levels, .15 and above, yeah, you're dealing with all kinds of involuntary things that happen in your body that you basically have no control over. Things you can see in people's faces and just things that you can't consciously control.

Q What about a time period. Do you have an opinion as to whether a longer period of time for a person to have to consistently do this would

make any difference?

A Oh, absolutely. Absolutely. The longer period of time that you -- if your alcohol is up and you are trying to act sober, if you will, when you've been drinking a lot and you have a high alcohol level in your system, you may have some success in doing that for a short period of time and do a fairly good job at it. But the longer the period of time that goes on the less likely you are to be able to continue doing that.

Q Does it matter as far as the circumstances are concerned? Let's say, a police officer is trying to make an arrest or something. Would that be something that you would use in your opinion?

A Oh, absolutely. You can see that very much in the field, that when people are given a task to do and asked to perform, they tend to do better at it than if you are just casually observing them. So when people get arrested by the police they tend to do better than they would when they were in the bar and when they were drinking, for example.

Q Now, assuming a person has built up a tolerance to alcohol, does this normally require -- or, how would you describe this drinking, on a

day-to-day basis, or would that require day-to-day drinking to build up this tolerance as you described it?

A Yes, it would. In order to build a tolerance to alcohol and be able to somewhat accommodate the affects of alcohol on your body, your have to be a regular consumer of alcohol and you have to regularly drink to the level that you're going to be at masking the symptoms of that.

For example, if you were normally the type of person who has three drinks and you go out and have 10, you're not going to be able to hide the fact that you had 10 drinks. I mean, you're going to be in bad shape. But a person who routinely goes out and has 10 drinks will probably do a lot better than you if you only normally have one or two drinks.

Q Again, this would depend on the circumstances involved as to whether it would be noticeable by others?

A Absolutely.

Q Would there be a chance, sir, in your opinion, in a person's burn off rate if they were at that level that you say is tolerant and drinking large quantities of alcohol on a daily basis?

A Yes, there would. There is abundant evidence that people who are regular consumers of alcohol and who drink quite a bit regularly, they end up having higher burn off rates than people who drink rarely. At least to the point where they start suffering a lot of damage to their body from the alcohol. People who drink a lot, eventually they will reach a state where their body is beginning to break down from the alcohol, then their burn off rates go down. But when they are at the point where they just are normally drinking a lot they tend to have higher burn off rates because the body is adjusting to the high doses of alcohol it's getting.

Q Now assuming, sir, you have a blood alcohol test, let's say, at 14 or 15, something like that, but that's estimated, okay. But all the other evidence, the testimony is, there are no signs of impairment. What, if any, conclusion could you draw based on that?

A It would be my conclusion that if there is no other signs of impairment and nobody else -- people watching this individual have any indication that this individual is impaired, then it's unlikely that that's their alcohol

concentration. Because people at that level over an extended period of time would show some signs of intoxication.

Q Mr. Cole asked you about a report, sir. You were not asked to do one in this case?

A No, I was not.

Q Did you ever see a report that was purportedly made by Mr. Prouty with regard to this case?

A No, I saw no report by Mr. Prouty.

Q Do you know if he did a report?

A I don't know of any. I don't think he did.

Q You indicated that you took some courses, sir, in the field of toxicology even though you were not a toxicologist, correct?

A That's correct.

Q Is it your understanding that -- or belief that it is necessary to be a toxicologist to understand the concepts of alcohol and its affect on humans?

A No, absolutely not. Toxicology is -- actually, toxicology is a big term. There is a lot of people who are toxicologists who don't know anything about alcohol and other drugs in human bodies. Toxicology is a wide field. And there is forensic toxicology. People who

specialize just in that. And then there is a lot of other people in the area of forensic science who work and specialize in the area of toxicology who aren't toxicologists. So it's a matter of experience, interest, and area study and work rather than what your title is. People are called all kinds of things who work in the same area.

Q Now Mr. Cole asked you some questions about -- and he referred to Dr. Dubowski and Dr. A. W. Jones, correct?

A Correct.

Q You said you were familiar with their studies?

A Yes, I am.

Q And do you place any reasonable reliance on the work that they've done?

A I certainly do.

Q Then, sir, do you know whether Dr. Dubowski, for instance, agrees with the concept of a retrograde extrapolation over a long period of time?

(2300)

MR. COLE: Objection. Hearsay.

MR. MADSON: Your Honor, he went into all the questions about whether he agrees with Dubowski and

Jones -- whether he disagrees. I think I should be entitled to ask him the very same questions on the same subject matter.

THE COURT: It's calling for some hearsay. There was no objection to Mr. Cole's questions; there is to your, so I'm going to sustain the objection.

MR. MADSON: Your Honor, once again -- well...

Q (Mr. Burr by Mr. Madson:) Now you said you disagreed with Mr. Prouty in a number of respects?

A That's correct.

Q For instance, you said the Widmark Factor?

A That's absolutely correct.

Q You said you can, I believe, tell by looking at a person pretty well?

A One could make a real good estimate of the Widmark Factor by looking at someone, that's correct.

Q How could you do that, sir?

A Well, the Widmark factor -- what the Widmark factor has to do with is the body water content of an individual. The body water content of an individual is directly related to their body fat. With .67 being the average for a male, .5 being the very low end for someone who is particularly

high in body fat, particularly obese. And at the other end, about .8, maybe to as high as .85, for somebody who is particularly a lean muscular individual, a body builder or a running back on a football team or something like that, they have a high body water and a high Widmark Factor. And a real obese person would have a low Widmark Factor.

The average ordinary male would be in the area of .67. Well, you can look at someone and get a pretty good estimate of whether they're on the lean end, or on the fat end, or on the middle of that, and get a good idea what kind of Widmark Factor to use.

Q And I believe you also said that .008 burn off rate was something you disagreed with if that was used to draw the conclusion that Dr. Prouty did?

A Yes, that's correct.

Q And why is that, again, sir?

A Well, I disagree with using that because I think using that kind of a burn off rate over a long period of time is -- I don't think that is particular good because it's not a realistic number to us. I mean, it's quite unlikely that somebody is going to do that and it's not a

likely scenario.

Q Assuming then that his other considerations -- the other burn off rates that Mr. Prouty used were used by yourself to calculate backwards. And assuming, then, you've got a value of .25 to .30, right.

A Correct.

Q Would that be -- and, still, let's assume that there is still no visible signs for impairment at those levels. Is that consistent or inconsistent with the estimated blood alcohol reading?

A That's inconsistent. Absolutely inconsistent.

Q Why?

A At that alcohol concentration a very high percentage -- 97% or greater, up to 25 and close to 100% at the 30, people are visibly impaired to any one observer. And over a period of time with a number of people, I can't imagine somebody not being noticed to be intoxicated at those alcohol levels.

Q Mr. Cole asked you about the times in which you have used retrograde extrapolation yourself?

A Correct.

Q Would you give the jury an example of when you would feel there is some validity to this type of

estimate?

A Yes. First of all, as I stated, the retrograde extrapolation, in my opinion, and based on my previous testimony, is good for indicating that somebody's alcohol concentration may have been higher at a particular time, or close to the level that it was.

And I believe it's useful in a situation were, for example, you have someone who is driving their automobile and they are stopped at 1 o'clock. And they are run through a police procedure and they are tested at 1:45 or 2 o'clock, they're given a breath test or a blood sample. And you have information that they quite drinking at 11 o'clock, and so on, and were drinking in an ordinary social manner. You know, a few drinks and so on.

And to say, well, was their alcohol likely higher, or lower, or close to what it was. And, you know, were they going up or down and that sort of thing...

Q What time period was that?

A At the time period when they're tested, say, at 2 o'clock in the morning, and was driving at 1 o'clock in the morning, to say, barring some

unusual consumption pattern or something that they were probably close to the level or slightly higher than the level they're tested at. Just to give you an idea of the fact that they were close to the level that they were tested at. And that the test is time related to the particular incident, and that it has -- it has some scientific validity, and looking at their level of influence an hour earlier -- maybe even two hours earlier.

Q Then in this situation, the one you were asked to look at here, over a period of, say, 11 to 14 hours. Is it your opinion, sir, that it would be necessary to assume absolutely no drinking on the part of Captain Hazelwood during this period of time, to have a validity to the extrapolation period?

A Oh, absolutely. If there was any alcohol consumption during this period of time, and there is no validity whatsoever. There is no numbers you can say anything about -- you can make any estimate of any numbers.

Q Well assuming then, sir, if you drank at 7:00 a.m., 8:00 a.m., 9:00 a.m., would this test have any validity at all?

A None whatsoever.

Q You were also asked questions about the stylized curve. Now, if I understand correctly, the curve you drew -- maybe you could explain stylized, sir. What does that mean?

A Yes. By stylized it means -- it just shows a smooth up and a smooth down, which is not what normally happens. It normally goes up and down on less than a regular basis and all the points don't fall on the line, you just kinda draw a line in between the points.

There also was an averaged out curve showing absorption and I believe it was about an hour or something like that. And, of course that can -- you can draw a hundred different curves given the same drinking scenario.

Q Well, would it vary on the same person? In other words, could you get a curve on him at one time and then do another one later. Would they always be the same?

A Oh, absolutely not. They may be completely different. The rate of which they absorbed the alcohol may change from one time to another depending on all kinds of factors, and the burn off rate may change from one time to another

somewhat. So there is -- that can vary, given the same amount to drink over the same period of time you can get two completely different curves from the same individual on two different occasions.

Q Now, Mr. Cole showed you a report by, I think, Dr. Jones, one curve. Do you know if that was done on one individual or an average of many?

A That particular curve was one individual, I believe.

Q Would you have an opinion as to whether that would be consistent with some other individuals?

A It might not be. That's one individual's alcohol curve, and another individual may have a different alcohol burn off.

Q And assuming, sir, that someone is in the elimination phase, that is, their alcohol is decreasing, but the curve is not nice a linear, it goes up and down. If you happen to take a blood test at one of its little peaks where it's off the curve, what affect, if any, would this have on the conclusion going backwards, 11, 12 hours?

A It would give you the wrong number going back 11 or 12, because you would be starting at the

wrong point and you would be extrapolating backwards from there so you would be off in your estimate.

Q Mr. Cole asked you about absorption times, and I think, if I recall, you said that the literature says it could be at least as long as six hours to absorb alcohol?

A That's correct.

Q What about eating and -- say, drinking on an empty stomach and eating afterwards. What, if any, affect would this have?

A That's one of the things that could cause that phenomenon to happen. That's been reported in the literature that if you drink alcohol and then eat after you drink, that that's one of the things that can cause real delayed absorption of that alcohol.

Q Now, you were also asked to assume that he -- that is, Captain Hazelwood -- had peaked -- that is, his alcohol content had peaked before 2:00 a.m., right?

A Correct.

Q Do you know if any test was done on Captain Hazelwood at 2:00 a.m. to give you any more information as to whether this is true or not?

A There was no test done on him at that time, no.

Q You were also asked whether or not you could do burn off rates on an individual; you can determine a person's burn off rate?

A You can determine it today, yeah. I mean, you can give somebody alcohol to drink and determine -- and take tests and draw their alcohol curve.

Q What about tomorrow?

A Tomorrow it may differ. Their absorption rate may differ, and it will differ probably, and their burn off rate may be slightly different than it was. As a matter of fact, it would probably increase if you did it three days in a row.

Q Was there, in your opinion, any difference between the works that you were asked about by Jones and Dubowski as to whether blood tests or a breath test was used on the individual subject?

A No, that's really ancillary to the issues that were addressed and the scientific concepts being done. Breath or blood was just a method of getting an analytical number and looking alcohol concentration curves and factors that affect the absorption distribution elimination of alcohol

and those sorts of things. Whether you take a blood test or a breath test really is not relevant to the issues addressed in the papers.

Q What were the issues that were addressed?

MR. COLE: Objection. Hearsay.

MR. MADSON: Your Honor, he asked him about the paper. I think I could ask what the title was.

THE COURT: Go ahead with your question. What were the issues.

Q (Mr. Burr by Mr. Madson:) What were the issues that were addressed in those papers?

A The issues that were addressed in papers by Jones and Dubowski that we were referring to were issues that had to do with the absorption, distribution elimination of alcohol and -- in a particular individual and the factors that affected those things, and the issues involved in per se drinking, driving, laws, and those things.

Q Now, sir, do you have an opinion as to what -- as far as Mr. Prouty is using the Widmark Factor of .51, burn off rate of .008. Assuming these to be correct, what value would they have? I mean, what would be his purpose in saying these are realistic and -- in other words, that they support the state's scenario with this case.

MR. COLE: Objection. Speculation. Compound question.

THE COURT: Maybe you could rephrase your question. There were several questions in that one it sounded like.

Q Using Mr. Prouty's figures, .51 and .008, what value would you place on them with regard to whether they are realistic or not in this particular case?

A First of all, I don't believe that those numbers are realistic numbers to use in terms of what Dr. Prouty did. And what they did is they made a possible scenario where five, you know, shot and a half drinks, which is actually seven and a half drinks, could turn out to give you that alcohol concentration of .06 in the morning using a Widmark Factor that's unrealistic, and using a burn off rate that's unrealistically at the low end.

Q If realistic figures were used, then what, if any, affect would this have on that end result, so many drinks versus blood alcohol of .006...

A Right. If you use an average burn off rate and you used a realistic Widmark Factor for Captain Hazelwood, you would end up with needing

considerably more than five ounce and a half drinks, and you end up more in the range of 14 or something like that.

Q Thank you, sir. I don't have any other questions.

MR. COLE: Can we approach the bench?

THE COURT: Yes, sir.

(2950)

(Whispered bench conference as follows:)

MR. COLE: Your Honor, I want to make an application at this point. We were very careful in our examination of Mr. Prouty not to go into the experienced drinker, because I think there is an inference that can be draw...

THE COURT: Let's do this outside the presence of the jury.

We're going to need to take this matter outside of your presence because it will take a little longer than we have for a side bench conference.

Don't speculate what we're doing and don't discuss the case among yourselves or with any other person or form or express any opinions. When we are completed with this we will call you back.

(3000)

(Jury not present)

THE COURT: Mr. Cole?

MR. COLE: Your Honor, my application goes to the fact that in our direct of Mr. Prouty we were very careful when talking about the term, and asking not to refer to experienced drinkers. Dr. Prouty used the words "some people".

Now in this case Mr. Madson has opened up the door by going into a long recitation with Mr. Burr about people that drink often, and that build up a tolerance level. I believe that I should be entitled to go into with Mr. Burr his knowledge about heavy drinkers and how they react -- how alcohol affects them, whether or not they are better able to cover up the physical signs of intoxication. How they are the ones that are better able to perform field sobriety test at higher levels. How that does not necessarily mean a person that drinks day-to-day. This could be a reason why a person could have a number of drinks and not show the physical manifestation.

I believe Mr. Madson has opened up that door. I was very careful in my case not to go into it, and now they pretty much brought it up. I think I should be able to cross examine his knowledge on that.

MR. MADSON: Well, Your Honor, this was a classic example of attempt to sand bag. My notes show

that Mr. Cole asked this witness, what is masking? What does that mean? How is that done? That requires him to respond by saying some people are able to do this because they are more tolerant to alcohol, and he went into that explanation. Obviously, I was left in the position then of letting the jury just hear, which they could draw inference from which I believe would be incorrect, or asking additional questions. I was forced in that position by the state, not me, in asking these.

Secondly, I think there are some questions I think the State could ask on this tolerance, and just the same area I covered. But I certainly would object if they are going to try to get at any specific inference that this jury would try to draw, that Captain Hazelwood is somehow a heavy drinker and he belongs in this category, when there is certainly no evidence to support that at all.

THE COURT: It's my understanding, based on other cases I've had and hearing other experts testify, that some people can mask the symptoms of alcohol better than others, and I recall hearing some experts, I think -- I think Dr. Rodgers at one time indicated that people who are used to drinking can generally mask the symptoms better than people who are not. I haven't

heard evidence like that in this case, but that seems to be relevant evidence in determining...

MR. MADSON: Your Honor, I have no problem with that. In general terms, I fully agree. That's a subject...

THE COURT: What are your intentions, then, Mr. Cole?

MR. COLE: I would like to ask him if people that have -- what he considers serious drinkers, and go into -- that people that drink heavily do better on field sobriety tests than people that don't drink heavily. That people that drink heavily are able to mask the signs of intoxication better than other people. That people that drink heavily drink -- it's not uncommon for them to drink things like vodka, rather than, say, beer -- vodka straight.

That people that drink heavily can drink for longer periods of time than people that cannot. That people can obtain higher blood alcohol concentrations and still perform routine activities.

THE COURT: What are you trying to prove with this line of inquiry. Isn't the inference you're trying to raise with the jury, that Captain Hazelwood might be a heavy drinker and that's why he might have been able to mask his symptoms when he went through the

guard gate and walked up the ladder and was on the bridge at the time of the grounding. Isn't that the inference you're trying to raise?

MR. COLE: Yes.

THE COURT: What support do you have for that inference, other than these questions and answers?

MR. COLE: What support?

THE COURT: Uh-huh (affirmative). Admissible evidence do you have?

MR. COLE: In this case?

THE COURT: That he's a heavy drinker. What admissible evidence do you have, other than the inferences that are naturally drawn from those kind of questions?

MR. COLE: Well, I think that the fact that he starts drinking at 1:45 and drinks for approximately six to seven hours in a bar, that's one inference.

Number two, that he's not drinking just a beer or two, but he's drinking vodka straight in tumbler glasses.

Number three, that he's able to perform very well in the eyes of others even though he has a very high -- he had to have had a very high blood alcohol level at the time he was performing these things. Those are the inferences that I have that's been

admitted in this case.

THE COURT: Mr. Madson, anything else?

MR. MADSON: Only that the State's own evidence, Your Honor, shows that assume the 1:45 start drinking time is correct, which the evidence is certainly disputed on. That's, say, almost about a four hour period -- four hours or better. And the State's own evidence says it was approximately five drinks, which we are saying is even on the high side. How in the world you could draw an inference of about a drink an hour is heavy drinking, I think that is totally unrealistic and doesn't make a bit of sense.

THE COURT: All right. Mr. Cole, I think you should be entitled to explore all the possibilities that could lead to a blood alcohol that the evidence reflects could have been present here, and the affects on the defendant, which would include the possibilities that some people can mask better than others if they are heavy drinkers. If you think you can get that out of this witness.

However, it's a thin line that you're walking here. If you start using it for an improper purpose, I'm going to interrupt you. It's only merely to show the other parameters that might exist.

Before you argue that Captain Hazelwood may

have been a heavy drinker and therefore he could mask his symptoms better, you will have to apply to the court. Be very careful in this area, Mr. Cole.

Call the jury back in.

Being very careful can translate into being brief and to the point.

(3560)

(Jury present)

RECROSS EXAMINATION OF MR. BURR

BY MR. COLE:

Q Now, I believe you testified on redirect that under this scenario right here that if a person stops drinking at 11 o'clock and then drives and is stopped at 1 o'clock, and then is tested at 2 o'clock, you would feel comfortable about testifying about the time as far as what their blood alcohol level would be at 1 o'clock, is that correct?

A I said that that's the kind of case in which one can make -- since the time period is close, that one can make some reasonable inferences about what the alcohol level would have been, under an ordinary drinking scenario, a person was consuming in a normal social manner. Absent some, you know, drinking down at a heavy amount.

If you had some facts you could make some inferences about what their alcohol would have been at a prior time, right.

Q And that's even though you testified that your understanding of the literature is that the absorption rate could take between one-half hour and six hours, correct?

A Absolutely. And there is no reason that the person -- I mean, given this scenario, I didn't say that I would take an average burn off rate and add it to the result and say that it's a person's alcohol concentration, I didn't say that at all.

Q But you testified that you said you would be fairly confident in testifying that it was going up?

A I said I would be confident in testifying as to the issues involved in that. We could draw some reasonable relationship between this test and a prior time if it was close in time, in that there's not enough -- that if the person had absorbed all their alcohol and was on the way down for a short period of time that it would be reasonably close to this level, absent some strange set of facts of drinking. And, you know,

the burn off rates don't make that much difference because you have a short period of time, and so on. And that's what I'm saying.

Q Isn't it true that the general literature accepts about an hour as the absorption rate generally for the absorption time between when alcohol is consumed and when it enters into your blood system?

A I suppose on an average an hour is probably a good number.

Q And that's what you would use in a situation like that, correct?

A Well, in a situation like that, say, if you were an -- you know, somebody's drinking at 11:00 and stopped 12:00 and tested at 1:00, and -- so you have certain things you can say about that. That, depending on the other facts you have of drinking.

If you have no drinking history the you can't say anything.

Q And obviously you wouldn't use a six hour absorption rate in fact pattern like that, would you?

A Depending on the -- well, you can say that some of it, it can't be absorbed until six hours,

sure. So depending on how they were drinking it may affect the results of your number.

Q So you still feel comfortable about testifying about the blood alcohol level in a person under that scenario?

A Yes. I think there is some relevant scientific information you can produce given that kind of scenario, right.

Q You testified on cross examination -- I just want to make sure. Blood tests of the alcohol in a person's system are more accurate than breath tests?

A That's not what I said.

Q Well, is that true?

A No, it's not true.

Q So breath tests are more accurate than blood tests for determining the amount of alcohol in a person's system?

A Well now it depends on -- see, you're asking me a different question.

Q Well let me ask it to you again.

A Sure.

Q Are blood tests more accurate than breath tests in determining the amount of alcohol in a person's system?

A No.

Q In a person's blood?

A In a person's blood, yes. Blood tests are a more accurate method of measuring alcohol in a person's blood. If you want to know how much alcohol they have in their breath, then a breath test is better.

Q But in a person's blood, blood tests are better?

A Exactly. If you want to know how much alcohol is in a certain media, the best test is to test that media. You may be able to test something else and estimate the alcohol in the other media based on that test, but, you know, if you want to know how much alcohol is in their body, it depends on what you mean by "their body".

Q Blood supplies the brain with alcohol, correct?

A Oh, sure. Blood is the most...

Q Correct?

A ...relevant test to -- that's correct.

Q Blood is the most relevant test to determine how much alcohol is going to the brain, right?

A Oh, absolutely.

Q And blood is the most accurate test in

determining how much alcohol is being eliminated from the blood system, correct?

A That's being eliminated from the blood, yes. Right.

Q So my understanding is that in issues about absorption and burn out, you said on redirect, that the accuracy of the test that you used to determine absorption rates and burn off rates is not relevant?

A Well that's not what I said at all. I said that breath tests are absolutely acceptable and just as good as blood tests if your goal is to determine how alcohol is being absorbed and eliminated from the body. Although you're measuring a media that might not correlate exactly to the blood level, you're measuring a media that will remain consistent over the time of your testing. So if your answer that you get is .12, and if you did a blood test and got a .11 or a .13, that's really irrelevant in terms of determining what you're determining, as long as you don't mix your tests.

Q A blood test is more accurate than a breath test, isn't it?

A For determining blood alcohol, sure.

Q Now, you testified that clinical observations, like the way a person walks and talks are things that you would take into consideration in determining whether a blood alcohol concentration is corroborated by the facts, correct?

A Yes. Clinical observations and alcohol levels corroborate each other. We talked about that area.

Q And you would also agree that decision making is another way of determining whether or not a person is impaired?

A Oh, sure. It's much harder to measure than a lot of things, but people's decision making ability is impaired by alcohol, sure.

Q And I'm sure that you testified on a number of occasions that in, say, for instance, automobile accidents, that when a person is driving a car he is involved in a great number of decision making processes, correct?

A Oh, absolutely.

Q And when there is evidence that a person has made poor decisions, like they run through a red light, or they have been speeding in a particular case, or they have an accident -- they hit another car, that's evidence of bad judgment that

corroborates a blood alcohol content, correct?

A Correct. Those are things that involve bad judgment and are consistent with -- if somebody has an alcohol concentration of something, it may be consistent with that, sure.

Q Now, you talked about officers and police reports. Officers are trained in the field of alcohol detection, aren't they?

A Some of them are.

Q A lot of them are. In fact, I'm sure that you did some training of officers on how to observe the indication of intoxication, correct?

A They all have some training in that area.

Q And, in effect, you were a teacher at times?

A Correct, absolutely.

Q And people with special training in observing alcohol would be better, you would think, than persons that are not trained in detecting alcohol, correct?

(Tape: C-3672)

(000)

A You would hope so.

Q Now it's true, isn't it, that you talked about masking. Some people mask better than other people, correct?

A That's correct. Some people can do better at the same level of alcohol concentration than others.

Q And studies have shown that people that drink more, or more experienced drinkers, I think you talked about it earlier, are better at masking, correct?

A That's correct.

Q And if a person didn't want to have other people observe his signs of intoxication, one of the things he could do would be to go somewhere where nobody could observe him, right?

A I suppose.

Q That would be a pretty good idea, right?

A If you didn't want to be seen you'd go to someplace where nobody could see you, that makes sense.

Q Makes sense?

A Yeah.

Q Like, maybe go below.

MR. MADSON: I object to that, Your Honor.

MR. COLE: I'll withdraw the question.

Q Now, it's true, is it not, that in people that you saw that did well on field sobriety tests, even though they had high BA's -- well, let me

withdraw that. You indicated that a person has to drink daily in order to be an experienced drinker?

A Well, I may have -- routinely is a better word than daily. I maybe did say daily, but it doesn't have to be daily. But routinely -- you have to routinely drink in order to accommodate or to mask the effects of alcohol. You can't mask the effects of a 15 alcohol unless you regularly drink to that level. You don't learn to do it if you never get there.

Q And it's not uncommon for people who regularly drink to drink harder alcohol, or harder liquor?

MR. MADSON: I'll object to the form of that question, Your Honor, it calls for shear speculation.

MR. COLE: If a person says he's done tests...

THE COURT: He could give his opinion based on his experience.

A I don't know what determines people's preference for alcohol.

Q (Mr. Burr by Mr. Cole:) So you wouldn't agree with that?

A Wouldn't agree with what? That people who drink a lot drink hard liquor?

Q It's not uncommon for people...

A It's not uncommon for people who have drinking problem, that drink a lot, to drink whiskey, and it's not uncommon for them to drink beer.

Q You said it's not uncommon for someone to be involved in the area of toxicology and not be a toxicologist, is that correct?

A Yes. As a matter of fact, probably most of the scientists that are involved in the area of alcohol and drug toxicology in the forensic area are not toxicologists by education, are educated in some other way and have worked in that area and have become toxicologists by experience rather than by education.

Q Oftentimes their actual position is toxicologist, right?

A Yes. Some people are hired and their job title is toxicologist, sure.

Q Isn't it true that people that take toxicology and study toxicology are generally better versed than people who don't?

A Generally speaking, sure.

Q Now, at one point you -- would you consider Mr. Prouty a forensic toxicologist?

A Yes.

Q A fairly experienced forensic toxicologist,

correct?

A He's fairly experienced, yes.

Q Forty years in the field, correct?

A I don't now.

Q You read his transcript.

A I don't remember if it was 40 years or not.

Q You didn't read any of his qualifications then?

A I did read some of the qualifications. I don't remember 40.

Q You would agree that they are quite a bit more than your qualifications?

A He's very well qualified in the area of forensic toxicology.

Q Better qualified than you are?

A I guess that's a judgment. He's got more experience than I do.

Q Nearly 20 years more, correct?

A I don't remember if it 40 years or not, I didn't know he was that old. But however many I have -- 22 years of experience and work in the field. If he has more, then that's how much more he has, I guess.

Q And you would consider him a forensic toxicologist?

A Yes. He's worked in the area of toxicology for a long, long time.

Q You wouldn't consider yourself even a toxicologist?

A I don't call myself a toxicologist. That's not what I call myself.

Q Now, from the way I understand your testimony about the .008, and him using that as an elimination rate, you're faulting him for being conservative?

A I'm saying that .008 is not a likely burn off rate to use.

Q Let me repeat my question. You're faulting him for being conservative, right?

A Well, he is using what he considers to be the lowest possible burn off rate.

Q One more time. You are faulting him for being conservative, correct?

A I don't know if that's being conservative or not. I guess I can't answer that question because I don't know if that's being conservative or liberal.

Q Well, do you consider a .008 a liberal amount?

A Depending on what you're trying to prove.

Q It's conservative in the fact that it protects

defendants?

A In some cases, yeah.

Q Now, sir, you were asked some questions by Mr. Madson about drinking that Captain Hazelwood might have done prior to this test, is that correct? Do you remember him asking you -- this would have no validity if he had anything to drink at
7 o'clock, or if he had anything to drink at 8 o'clock, or if he had anything to drink at 9 o'clock, and you expressed your opinion that this back calculation had no validity, correct?

A That's correct. That there was drinking -- if you're doing back calculation, obviously, if there is some more drinking going on in between there, that means nothing. The numbers are useless.

Q What evidence have you to support the fact that Captain Hazelwood was drinking after 8 o'clock?

A Did I say he was drinking after 8 o'clock?

Q I want to know. Do you have any evidence, from the record that we have before this jury, that he was drinking after 8 o'clock that evening?

A I have no evidence of that.

Q So you have no reason to doubt -- no reason to say that there is anything wrong with the validity of this test due to some type of drinking that may have occurred, or you were asked to hypothesize occurred between 12 o'clock and 10:30 that morning, correct?

A If there was no drinking, then there was no drinking. If there was, there was.

Q And so if there was no drinking then that's not grounds for saying that this is not a valid test, correct?

A Correct. If there was no drinking then it is not a factor. And the issue is, if he was drinking, it is.

Q But you were aware of no evidence, correct?

A That's correct. I have no evidence that there was any drinking after 8:00 p.m. or whatever.

Q I have nothing further.

MR. MADSON: I'll be very brief, Your Honor. I just need to cover a couple things.

REDIRECT EXAMINATION OF MR. BURR

BY MR. MADSON:

Q The diagram on the board, Mr. Burr, you said in response to Mr. Cole that you could draw

reasonable inferences from that scenario. For instance, would you use a particular burn off rate in the times that you used retrograde extrapolation?

A On the times that I've done it I used .015, .018, those ranges. Somewhere between 10 and 20 as being an average type of burn off.

Q Would you try to get a figure that you would come up with and say, well, at 11 o'clock his blood alcohol was x, y, or z?

A No, no.

Q Why not?

A Well, because you can never really know what somebody's alcohol concentration was given a number at an earlier time. You can say based on the evidence, he was probably post absorptive; he was probably going down; and it's close in time, so given some unusual amount of absorption during that period of time he was relatively close. If he was going down he was a little bit higher. If he was coming up he was a little bit lower.

Q Well, let me ask you a hypothetical on that. If, say, a person was in an accident and a police officer comes on the scene and arrests him, and the guy says, yeah, I was driving but I was

sober, but then I had six drinks right away after the accident. Is that in a situation where you believe -- or, do you have an opinion where retrograde extrapolation may or may not have some...

A Yeah, that sort of situation -- obviously, you know, if somebody had an accident and then drank a bunch after the accident and was tested later on, you certainly couldn't go back to their alcohol at the time of the accident.

Q Mr. Cole asked you about decision making and judgment. Do you know of any studies, any tests, any scientific data to show how a person could be judged for his judgment or decision making at various alcohol or intoxication levels?

A No, those are very difficult things to measure, and they really aren't measured. What's basically measured is the results or consequences of behaviors, by looking at things like rates of people having accidents, and so on. But to actually measure someone's judgment ability is a really hard thing to do.

Q But, for instance, if somebody went through a red light, that would be a factor you could consider then in determining whether he used

judgment or not?

A Yes. Right. Running through a red light is obviously not using good judgment, but that's a fact you can consider, sure.

Q If on the other hand you had evidence to show a person had exercised good judgment and there was still an accident, what if any value could you place on the judgment quality -- or the effect of intoxication on judgment?

A If people are under the influence, one of the things they exhibit is bad judgment. And if you exhibit good judgment, obviously it's not -- it's indicative of somebody who is not under the influence of alcohol.

Q Now, does one have to be a police officer, or should one be a police officer. Is it necessary to detect visible signs of intoxication at, let's say, a .15, .20 or .25 blood alcohol level?

A Oh, absolutely not. Most ordinary people can detect those symptoms of intoxication.

Q Mr. Cole asked you about Mr. Prouty's use of a .008 as a conservative burn off rate and conservative values to benefit a person. Do you have an opinion, sir, as to whether or not the use of those figures could come up to a blood

alcohol level of, say, .14 or .15 that would be consistent with intoxication and yet consistent with a person's personal observations. In other words, intoxicated but not to the point where it's visibly intoxicated by observations?

A Yes.

Q So using those factors that would complete that scenario?

A That's correct.

Q Lastly, do you believe Mr. Prouty is better qualified to determine when retrograde extrapolation is a valid forensic tool in a particular than you are, sir?

A No.

Q I don't have any other questions.

MR. COLE: I have one question, sir.

RECROSS EXAMINATION OF MR. BURR

BY MR. COLE:

Q Mr. Burr, I would like you to assume that the blood alcohol test was valid between 10:30 and 10:50 on the morning of March 23, 1989, okay?

A All right.

Q And I would like you to assume that retrograde extrapolation was possible. There was no drinking, and that the absorption rate ended

prior to midnight, correct? Can you do that?

A Okay.

Q No matter what the person's elimination rate, it would always be greater than a .10 at midnight, wouldn't it?

A With that hypothetical, yes.

Q Thank you.

THE COURT: May the witness be excused?

MR. MADSON: Yes.

THE COURT: You're excused.

A Thank you.

(Witness excused.)

(550)

THE CLERK: Sir, if you'd go forward to the witness stand and remain standing and attach the microphone to your tie or your lapel.

(Oath administered)

A I do.

MICHAEL HLASTALA

called as a witness in behalf of the defendant, being first duly sworn upon oath, testified as follows:

THE CLERK: Sir, would you please state your full name and spell your last name?

A Yes. My name is Michael P. Hlastala. And that's spelled H-l-a-s-t-a-l-a.

THE CLERK: Spell it again.

A H-l-a-s-t-a-l-a.

THE CLERK: And your current mailing address?

A It's 7393 Braemar Drive, B-r-a-e-m-a-r, Edmonds, Washington, 98020.

THE CLERK: And your current occupation, sir?

A I'm a professor at the University of Washington in Seattle.

THE COURT: Mr. Madson, when we complete the qualifications of this witness, let's take a break before you get into substantive examination.

MR. MADSON: That's fine, Your Honor. Certainly.

DIRECT EXAMINATION OF MR. HLASTALA

BY MR. MADSON:

Q You have a Ph.D., sir?

A Yes.

Q Dr. Hlastala, your last name is a little unusual. What type of name is it?

A It's a Czech name.

Q What is your current position, sir?

A I'm a professor in Seattle at the University of Washington and my field is physiology. I have appointments in three different departments, the Department of Medicine, the Department of

Physiology and Biophysics and I'm an adjunct professor of bioengineering.

Q And in that capacity then what are you actual duties?

A Well, my duties are pretty standard for a university faculty member. I'm involved in teaching, in research and administrative work. My teaching is to medical students and also graduate students. These are students that are going for master's or Ph.D. degrees, mostly in health-related areas.

I'm the director of research in the division of pulmonary and critical care medicine, so I have some administrative work to do in that area. And I do research. My research relates to the lungs, the way that substances move between the breath and the blood in the lungs and also the way that substances are moved around to the body by the blood stream.

Q Now, in teaching, you teach medical doctors in addition to students?

A Yes. I also teach -- just let me amplify on that a little bit. Some of the students that we have are already physicians. They're becoming specialty trained in the field of pulmonary and

critical care medicine and my role is to be involved in teaching them how to do research and assisting them with their research projects.

Q And you're not a medical doctor though?

A That's correct.

Q Now, with regard to what you said your teaching and research experience and substances moving around the body, through the blood stream, would those substances include alcohol?

A Yes, that's one of them.

Q And have you studied and researched this particular topic...

A Yes, I have.

Q ...of alcohol in the blood?

A Yes, I have.

Q Would you describe your educational background just briefly, sir?

A Yes, I have a bachelor of science degree in physics and that's from the University of Washington in Seattle. I received that in 1966. And I have a Ph.D. degree in physiology. That's from the State University of New York at Buffalo. I received that in 1969.

Q And have you worked in the field continuously since receiving your Ph.D?

A Yes, that's correct. After returning from graduate school, I went to Seattle and worked in the aerospace industry for just a short while and then joined the University of Washington and I've been there since 1970.

Q Receive any particular honors or awards for your work or research?

A Yes, I've received a couple of awards from the National Institutes of Health in Washington, D.C. and one of them is called a research career development award; the other is called a merit award. I've also received a Guggenheim Fellowship which is an award given by the John Simon Guggenheim Foundation. That was for work that I did in the 1979-1980 academic year. I was on sabbatical leave and it allowed -- supported the research that I did during that time.

Q And have you received or done any foreign appointments?

A Yes, actually during the time I was a Guggenheim fellow, I was on sabbatical leave and my research was in Germany at a place called the Monts Blanc (ph) Institute for Internal Medicine. It's a research establishment in a university

town called Guttinghem (ph). I did research during that whole year.

Q And do you have any national responsibilities, sir, in the particular fields in which you are a professor or researcher?

A Yes, I do. I'm a member of a number of scientific organizations and I have some responsibilities in a few of those. Most of the time is spent in two areas. I'm an associate editor of a major journal, the Journal of Applied Physiology, and this is the journal where most scientists dealing with physiology related to the lungs publish their research. My job is to review papers that are submitted and with the assistance of other reviewers, to make a determination as to whether or not the papers should be published or whether it should be rejected or in fact, how it might -- we might also make suggestions to the authors on revising their paper as well.

Q What about publications or scientific papers yourself? Have you written any, sir?

A I have. I have about 180 publications and about 75 of those are full-length scientific articles. There's one other thing I needed to

mention with respect to my national responsibilities and that is I sit on a committee at the National Institutes of Health which takes a significant period of time. There, we're involved in reviewing very large grant applications that come in from other scientists in other universities. Our job is to prioritize those grant proposals.

Q And lastly sir, what would you say is your area of expertise and how does it relate to the determination of blood alcohol and physiology involved in blood alcohol and intoxication, if I can use that term?

A My general field of work relates to measurement of substances in breath and in blood and the physiology of the substances, the dynamics of them, how they change in the body, how they increase and decrease. That's the general field of work that I do and where I perform my research.

Q Thank you sir.

MR. MADSON: That's all the questions I had on qualifications, Your Honor.

THE COURT: Okay. We'll take a recess, ladies and gentlemen. Don't discuss the matter among

yourselves or form or express any opinions.

THE CLERK: Please rise. This Court stands in recess and recall.

(Off record - 11:04 a.m.)

(On record - 12:04 p.m.)

THE CLERK: This Court now resumes its session.

MR. COLE: Judge, is Mr. Madson through with his qualifications? If he is...

MR. MADSON: No, I've got a couple of others I just remembered.

Q (Mr. Hlastala by Mr. Madson:) Dr. Hlastala, have you testified before as an expert in the field of blood and alcohol and blood/alcohol physiology?

A Yes, I have.

Q On how many occasions, sir?

A Well, I'm not sure exactly. In excess of 400. I'm not sure exactly though.

Q Have you testified on this particular subject as an expert in the State of Alaska?

A Yes, I have.

Q How many occasions?

A Again, I'm not certain, but it would be somewhere between half a dozen and a dozen times.

Q Over what period of time?

A Over about a two-year period.

MR. MADSON: That's the qualification questions.

MR. COLE: Judge, I object to Dr. Hlastala being a witness and I would ask to voir dire.

THE COURT: I haven't heard a question yet. I have no idea what the questions are going to be. Let's wait until we hear a question.

Q (Mr. Hlastala by Mr. Madson:) Well, Dr. Hlastala, do you consider yourself an expert in the field of moving -- or the substance of alcohol in the blood stream and how it affects the physiology of a human being?

A Yes.

MR. COLE: Objection. Relevance. What he considers himself is not relevant.

THE COURT: I'll let the answer stand. Objection overruled.

Q Let me ask you this, sir. Do you feel qualified to speak on that subject?

A Yes, I do.

Q And what basis do you have for that belief, sir?

A Well, based on my 20 years experience with

physiology with research related to physiology, I...

Q Perhaps you can explain physiology. Maybe some of us don't understand.

A Well, physiology could be defined as the physics and mathematics of the human body or also of other animals as well and it's the processes that go on in the body. The way that alcohol is absorbed for example. The way that it burns off, the way that it comes out in the lungs, the use of the breath to make measurements of substances in the blood. All of these are physiological type tests and procedures and that's my general field.

Q Do you utilize the work of other experts in the same field to advance your own knowledge in the subject?

A Yeah, I certainly do. That's part of the scientific process. First, one has to have a little background in the area. You need to train in an area and then performing research I think is very important in developing expertise in an area, but you also have to recognize other people that have done work in this area and learn from what they've done and the things that they've

gone through and that's the whole process of publishing in the scientific literature. It's a process that I go through in publishing my research findings and also I'm involved with reading the publications that other scientists have put in the literature.

Q And Dr. Hlastala, there's been some testimony about the relationship or difference between breath alcohol and blood alcohol.

MR. COLE: Objection. Relevance.

THE COURT: Objection overruled. So far the question has not even been asked, Mr. Cole. Just wait until the question gets asked.

Q (Mr. Hlastala by Mr. Madson:) Can you tell us briefly, sir, how alcohol in the blood relates to alcohol in the breath and whether there is a difference in physiology involved?

MR. COLE: Objection. Relevance.

THE COURT: Objection overruled.

A There's a substantial difference between blood alcohol and breath alcohol. Breath alcohol is often used to make a determination of blood alcohol and the breath alcohol that gets out here to the breath does so by coming from the lungs. There's the air going down into the lungs through

a branching network of airways and air sacs, comes in close proximity to the blood. And then some alcohol if it's in the blood will come out into the breath and the breath then passes along these narrow airways to get out to the mouth and so there's a lot of things that go on in the meantime between the two. And that's the reason why there is a substantial variation between blood and breath. They're really two very different things. The blood alcohol and the breath alcohol.

Q If you wanted to know a measurement of a person's blood alcohol level at a given time, which of the two methods of testing would you say is the best or most preferable?

A Well, without question it's the blood.

Q Now, are you familiar with the absorption of alcohol in a human being after drinking has commenced and ceased?

A Yes.

MR. COLE: Objection. Lack of foundation to answer that question.

Q How are you familiar with that subject, sir?

A Well, I've done research in that area. We've published a study, in fact, just recently, in the

Journal of Studies on Alcohol related to the relationship between breath alcohol and blood alcohol and in doing so, one has to -- in doing experiments on humans, you have to understand the dynamics of the absorption and burn-off because it's very important to know whether a subject is in the burn-off phase or in the absorption phase in making these measurements. So we have performed research related to this.

In addition, I've reviewed probably in excess of 50 articles where people have made actual experimental measurements of blood and breath and the dynamics of alcohol.

Q What about alcohol elimination rates from the body? Are you familiar with that topic, and if so, how?

A Yes. Well, both -- for both the same reasons. I've done some measurements myself and I've also reviewed the literature in that area.

Q And sir, I wonder if...

MR. MADSON: Your Honor, would it be all right if I could move this up just a little and have Dr. Hlastala explain some charts?

THE COURT: Are they visible from back there so he doesn't have to stand up or...

MR. MADSON: I'm not sure, Your Honor. I guess it depends on -- they probably are to a certain extent. We can just try it.

Q Let me put on here now what's been marked as defendant's exhibit CC for identification.

MR. COLE: Judge, I would object to showing any exhibits to the jury until they've been admitted. That's a standard procedure and it's anything -- but the proper procedure is to get them admitted and then he can show them to the jury.

MR. MADSON: I'm not admitting these. These are for illustrative purposes only, Your Honor. He can draw it on the board, but this is much faster. It's already been done. He's prepared these.

THE COURT: He's made a point, Mr. Cole.

MR. COLE: That's fine. If that's what his purpose is, I have no problem with that.

Q (Mr. Hlastala by Mr. Madson:) Anyway, can you identify what's been marked as Exhibit CC there, sir and ask you, first of all, did you prepare this yourself or assist in its preparation?

A Yes, I did actually prepare it myself. I didn't prepare the hard copy here. I prepared something on a computer with a laser output and then it's been blown up by someone else.

Q There may be a pointer right there handy somewhere if you need it.

A That will come in handy.

Q Right there by your left hand, I believe.

A There we go.

Q Would you briefly explain what that's supposed to be, sir?

A Well, this is a pretty standard curve that you may have already seen before and it's -- the process that alcohol goes through in the body is a process of absorption and burn-off and this is just to illustrate that. This shows the blood alcohol concentration over here and down below here is the time in hours. Here's zero hours, one, two, three and the time of drinking is marked here with this little box down here.

Q Why is there a little line underneath there?

A Line underneath where?

Q On your base line there, there seems to be two lines. I don't know if that means anything or not.

A These little marks? Oh, this little curve right here is the period of drinking right here.

Q Now, does that purport to be an exact curve of every individual or how would you describe this

curve?

A No, it's actually quite different from person to person and this is just sort of a general curve. See, what happens is you ingest alcohol into the stomach. A little bit is absorbed from the stomach but not too much. What happens is the stomach begins the initial digestion process, then there's a muscle that separates and closes down the connection between the stomach and the intestines. And that relaxes. The stomach contents will go into the intestines and it's from the intestines where alcohol is absorbed primarily.

The absorption process is indicated by here. While the alcohol is being absorbed, the blood alcohol content is increasing gradually. And while it's increasing, it's going into the blood. The blood is distributing it around to the body and it's going into primarily the watery tissues in the body. There's also fatty areas in the body and not very much alcohol goes into that portion of the body. It gets distributed around in a dynamic sense.

As the blood alcohol is increasing, the amount of alcohol in the arm is increasing, in the legs.

Everywhere, it's increasing. In the brain also. And then after a peak is reached, after all of the alcohol is absorbed from the gastro-intestinal tract and then this burn-off occurs and this is the elimination phase or the post-absorption phase. Most of this elimination is due to the breakdown of the alcohol in the liver. There are chemical processes that go along that break down the alcohol. And that accounts for this. As the blood passes through the liver, it's that blood and the alcohol in that blood which is being broken down.

While it's being broken down, the alcohol is then washing out or coming out of the arm and the other tissues and so it's a process of going in and out. It's a very dynamic process, a changing process and you see here an example of it going up and coming down in a straight line.

Q Let me ask you, sir, so I can make sure there's no confusion. If you took a blood test of a person and say you've got a sample from his left arm and then got one from the right arm, would they be the same or would there be some difference because of these dynamics?

A There would be differences depending upon

where you took the blood sample. They may be very similar in the two arms if you took a venous or -- the venous blood is the blood that's coming away from the tissues. The arterial blood is the blood that's going to the tissues. If we're in the absorption phase and we're -- that initial part over here and alcohol is increasing, it's being unloaded or it's increasing in the tissues, the blood is coming into the artery, delivering alcohol and then as it's departing in the veins, it would have a lower alcohol concentration, because it's being given to the tissues. And less would be available in the returning blood.

In this post-absorptive phase, it's just the opposite. The blood actually increases in alcohol as it's passing through the tissues, picking up alcohol because it's washing out and going down in concentration. So it depends upon where you get the blood sample.

Q And sir, let me hand you now what's been marked for identification as exhibit CD. Perhaps you can just take those down if you need to refer to them later and ask you if you can identify this particular chart, sir.

A Yes, that's a similar chart. You notice it's

a little bit different. This particular chart illustrates the fact that there are differences amongst individuals in the burn-off rate or the elimination rate and that may have already been mentioned to you, but this shows an example of three different curves for three individuals that would have the same absorption, reach the same peak and then burn off at different rates. The normal, average burn-off rate is shown in the middle and the increased burn-off rate is shown here. It would go down faster and reach a lower level and this is a lesser burn-off rate, this top curve and that shows a case where there would be a higher alcohol concentration at a later time.

Q You can, I assume, determine a person's individual burn-off rate at a given time. Can you not?

A You can if you make measurements of the person and what you need to do is to take blood measurements along this curve and measure the slope or the change of the curve.

Q Would that change from one day to the next in the same individual or remain constant throughout his life?

MR. COLE: Objection. Lack of foundation. There's been no showing that this person has done any type of studies himself concerning blood alcohol concentrations.

THE COURT: Objection overruled.

Q Can you answer the question, sir?

A Yes.

Q What would your answer be, sir?

A Well, it's pretty constant with a person from person to person, this particular aspect. But it's important to realize that it can change with time and I'm not aware of any studies that have in a single person measured with time how those curves change, but there are known to be differences between males and females for example and other sorts of differences.

Q Now, going to the next chart...

A You know -- can I continue my answer to that previous one?

Q Oh sure. I assumed you had...

A Well, I thought of something else that I think it's important to say. I've drawn this as a fairly straight line and there's much debate in the literature and amongst scientists about the degree of straightness of this line or linearity

is another way of saying it. Most people argue that...

MR. COLE: Objection. His answer calls for hearsay.

MR. MADSON: Your Honor, I think we've already established that under Rule 703, an expert can rely -- reasonably rely upon the opinions and the work of others, as long as there's a reasonable reliance to formulate his opinion, he can testify to what would be normally inadmissible evidence. That's the reason experts are given greater latitude as opposed to lay witnesses.

THE COURT: There's no question he can rely on evidence that sometimes is not admissible. However, before the jury can hear it, I have to hear what it is first to see if it's probative value is outweighed by its undue prejudicial effect. I don't know what this is going to be, so confine your questions and answers to his opinion and preliminary things that might be hearsay are okay but as far as him giving his opinion, that's one thing but to have him relate the opinions of others is impermissible.

Q (Mr. Hlastala by Mr. Madson:) And Dr. Hlastala, do you have an opinion as to whether or not the elimination line there shown on the graph

is necessarily a straight or a linear function as opposed to one that might be curved?

A Well, in the data that I've obtained, in fact there's some question about that. Most of the individuals have fairly straight curves. Some individuals have a curviness in this direction. That is, it will bow down a little bit and then flatten out a little bit and there's also some biochemical reasons to believe that it may be slightly different in different individuals, so this is an idealized curve.

Q Okay. Are you finished with this one?

A Yeah.

Q Next is defendant's exhibit CE. Could you explain that please?

A This is a similar curve, only in this case, it's designed to illustrate variations in absorption time. There's a well known variation that occurs from individual to individual in the absorption time. I think that in general it's thought that without any food that this may vary between around a half an hour to reach a peak up to around three and a half hours to reach a peak, but that's kind of a limit.

There are also different kinds of values and a

lot of people may absorb in the one-hour time frame. There's just variations from time to time but this shows an example of different curves if there's different absorption times. What you do is you may increase rapidly your alcohol. Here's the drinking period. You may increase and after a half an hour or so reach a peak and then come down this straight curve or you may have a curve where you reach a peak afterwards, a little later in this case about an hour and in this case, it's almost an hour and a half for this peak. In this case, this peak has reached about three and a half hours, but you'll notice that all of them come up and reach this same straight line.

After the alcohol has been absorbed, if everything is identical on all of these individuals, they would reach this same point. The later the absorption period -- the longer the absorption period, the lower the peak. Notice that this peak is lower than most peaks and in addition, the peak is reached later in time than those peaks.

Q Now, does that assume each individual -- let me ask you. What assumption is this based on? Is this different individuals drinking the same

amount of alcohol or just...

A That's right. These would be different individuals that have the same body fat content and the same body weight, the same burn-off rate but have different absorption times within the normal range without any food.

Q Before the next chart, sir, let me ask you, you were retained by the defense with regard to this case, were you not?

A Yes.

Q What is your fee arrangement, sir?

A Well, the fee depends upon the time that I'm here and there's a charge dependent upon the time both working on the case beforehand and also the time that I'm here.

Q Do you have an idea -- have you billed anything yet, for example?

A Not yet.

Q Do you have any estimate of what your time involved in this case will be and your approximate fee?

A Well, that depends a little bit on when I'm done with testifying. If we -- it would be probably likely on the order of -- my guess would be somewhere around 15 hours or so. I charge at

about $100 an hour.

Q Approximately $1500?

A Something like that plus expenses.

Q That includes your testifying too?

A That's right. That's about what I expect it to be.

Q Putting up exhibit CF. Before you explain that sir, I'd like to ask you a few more questions. What were you asked to do with regard to this particular case? In other words, what function did you have or what role were you asked to play?

A In this particular case, my understanding of your request to me was that there was situation where there was an incident at around 12 o'clock, a few minutes after 12 o'clock, the grounding of a ship. And that there was a blood test taken at or around 10:40 or so and at this time, the value -- had a value -- am I allowed to say what the values were?

Q Sure.

A The value, as I understand it, to be as a .061 and that's what this point represents. And I was asked to make a determination as to what we can say about information about the blood alcohol

content in the individual back in the 12 o'clock time frame.

Q What information were you given, sir? What did you look at in addition to what you just described, if any?

A Well, let's see. I was given some information on the tests on the blood sample. I was given some written information and my recollection was it was a -- from a hearing, the National -- NTSB that was a hearing that provided some information about times involved here and I can't remember if the time of the blood sample came from that or from other information but I had received a little bit of literature from you.

Q What about testimony, sir? Have you reviewed any testimony?

A Yes, I received some testimony from that NTSB hearing.

Q What about trial testimony? Have you seen any trial testimony relating to this topic?

A Yes, I've seen some trial testimony from Mr. Prouty or Prouty.

Q Did you know Mr. Prouty, sir?

A I know his name, but we have not met.

Q Then, sir, calling your attention to what I

believe is exhibit CF there?

A Yes.

Q Would you explain -- well, let me ask you first of all. Can you explain that chart and relate that to the information you were given with regard to this case?

A Yes. This chart shows a plot of blood alcohol concentration on this axis. If you can't see it over there, it's going from zero. This is a .10 here and this is .50 up here. The time of drinking I have noted down here goes from around 4:30 p.m. to around 7:30 p.m.

Q Why did you make those assumptions?

A Because there was some information in the literature that I was sent that indicated that it is an approximate time, but that's just noted down here.

Q So, when does the drinking stop according to your chart?

A About 7:30 is what the chart says here. Also, I have a line at 12 a.m. right here, straight line going up which is the time -- the time of the incident, I understand to be a few minutes after 12. And then the blood sample is over here.

Q Are you familiar with this term called retrograde extrapolation?

A Yes, I am.

Q What exactly is that, if you could just briefly describe it? There's been testimony on that already sir.

A Okay. Retrograde extrapolation. The words just mean backwards estimation. Retrograde is backwards and extrapolation is to go out beyond where you have information. If you were going between points where you had information, you'd call it interpolation so we're extrapolating, going beyond where we have information. So the idea is we have information here and we're extrapolating or projecting back to some other time.

Q You recall in your review of Mr. Prouty's testimony where he said that this particular subject was at least a subject of debate among experts in the field?

A That's an understatement. It's very much a...

Q How would you describe it, sir?

A Well, there's a substantial amount of debate and question about that and it's primarily because of some of these variations that we've

already talked about a little bit before.

Q Could you describe it as having any forensic validity at all or under what circumstances would it have validity in your opinion, if you have one?

A Most experts that I'm aware of, that deal with this on a regular basis, are hesitant to...

(1950)

MR. COLE: Objection. Hearsay.

THE COURT: Objection overruled.

A ...are hesitant at extrapolating back for such a long time. Because of the variations that occur amongst individuals, it's usually argued that information can be obtained within a few hours perhaps of the time of the blood by making this backward guess or estimation. But even then, you have to recognize a range of variation. And these different curves illustrate why there's some of this variation but the farther you go back into time, the greater is the variation to the point where once you're beyond a few hours, it's virtually impossible to make any sense out of an extrapolation.

Q Then would you describe, sir, what the lines you've drawn on there, the downward sloping lines

if you will?

A Sure. These are different curves showing burn-off rates for different individuals that all go through the same blood point. So it asks the question, if we were to extrapolate back for different people that had different burn-off rates, what would their blood alcohol be at the time of this 12:00 o'clock time frame?

And shown here are different curves. And the curve that I've shown here, I know you won't be able to see over there, but that's -- here it says a .017 per hour. That's an average burn-off rate.

There are different studies show slightly different average values. But that's a reasonable average value; .017 per hour.

Also shown here is a range that I would consider would include the majority of the population. Perhaps somewhere between 90% and 95%. No one has done a lot of good statistical work on this, but we know that there's -- most of the people fall in the range of a .010 per hour up to around a .025 per hour.

And, again, there are differences amongst males and females. But the extreme values that

I've shown here are of -- here's a value of a .004 per hour...

Q You say extreme. What basis do you have to use this figure?

A That's kind of the low end of what has been published. I, personally, haven't seen numbers this low, but others have.

At the high end, a .040 per hour, probably represents the most extreme burn-off rate. And so this just shows different values.

Now, if you were to go back to this 12:00 o'clock time frame with these different burn-off rates, it just shows that, if you are willing to make the assumption that at this 12:00 o'clock frame all of the alcohol is absorbed and you are, in fact, on the post-absorbtive phase, that you're anywhere between about a .10 and up here about a .50.

Now, that's an incredible variation. Kind of demonstrates why it's so difficult to go back so far. If you don't have any information on the specific individual's burn-off rate, it's virtually impossible to go back to this point in time.

Q Now, for instance the .50 blood alcohol level,

how would you relate that in terms of a person's ability to do virtually any physical activity?

A There would be a lot of difficulty. That's to the point of death; approaching the point of death.

Q And yet that's consistent with your knowledge and the information you have and the literature from values that other researchers have found?

A Yes. Yes.

(2747)

Q Next, sir, let me put up there what's been marked as Exhibit CG and ask you to explain this, sir.

A This particular curve illustrates a few other things. And one of the things that you see here -- I'm gonna use this pencils because it's a little easier than this big thing. I've added on here. Not just these straight extrapolations back, but I've also added on an absorption curve here.

So this shows you then what a typical curve might look like.

Q Let me interrupt just a second. Are you still using the same elimination rates?

A That's correct. This is the same scale.

These are the same lines. These five lines that were on the previous chart. And I've added some things in here.

Now, this shows a typical kind of absorption curve where you'd come up, reach this point, and then come down the curve. Notice that my time of absorption here, let's see, this drinking in this particular case is over a three hour -- let's see, that's -- excuse me -- 4:30 to 7:30, is about three hours. And this is more than when I showed those earlier charts, where we had only about a 20 minute absorption time.

But you see here that we have drinks coming along all the way along here, depending on how much was consumed. And there would be absorption going on. And here the absorption is reaching completion about a half an hour or so after the end of the finish of the drinking.

Q So that would be at approximately 8:00, 8:30; roughly in that range?

A Yeah. That's what this is. That would be straight up here. And that's about 8:00 o'clock.

So this just shows what typical kinds of curves there might be to be compatible with these burn-off rates.

This is the 004 per hour. This is the 010 per hour. The 017 per hour. The 025 per hour. And the 040 per hour. On this case it was pretty high and I didn't even put this on the chart...

Q So at 12:00 o'clock then, what figures do you come up with with regard to blood alcohol content, based on your assumption of the absorption rates?

A Well, these are the same numbers. At 12:00 o'clock these are the same numbers that we had on the previous chart. Varying between a .10, since these are the same lines.

But this makes the very important assumption that there is complete absorption here before that particular time.

Also shown here are some numbers over here and maybe I should explain those.

Q I was going to ask you that next. What does that mean there?

A Well, these particular numbers are a calculation of the amount of alcohol that would have had to have been consumed to achieve these levels, making assumption of an average individual with an average body fat content.

And for each of these curves, let me just read

these numbers, if you can't see them. This is 7.7 standard drinks.

Maybe I should explain what a...

Q What's a standard drink?

A ...standard drink.

A standard drink is a one ounce shot of 80 proof liquor or a 12 ounce beer or a three and a third ounce glass of 12% wine.

So, again, it's a one ounce shot of 80 proof liquor or a standard beer. Those are about the same.

(2325)

So this would be about 7.7 standard drinks. So in order to be on this curve, even with this low burn-off rate, to reach that blood value, there would have had to have been 7.7 drinks consumed; standard drinks. And also we would have had to have complete absorption.

Now, further on, the .010 curve, again, at the low end of most of the population, there would have had to have been 14.1 standard drinks consumed over that period and immediate, a fairly rapid, absorption.

For this curve, for an average burn-off rate, there would have had to have been 21.5 ounces

consumed, or standard drinks, to reach that point here.

For this highest curve, this .025 per hour, we have 30 standard drinks. And for this very high burn-off rate, we have 45.9 standard drinks.

Now, maybe I should just mention that a fifth of liquor has about 25.4 standard ounces in it. So that would be a fifth of -- this is roughly or almost the equivalent of a fifth of 80 proof liquor.

Q And that's assuming the average burn-off rate

A That's...

Q And average absorption.

A That would be in this case. You have the average burn-off rate.

Q Now, let me hand you next, sir, Exhibit CH. What additional information or factors have you assumed or placed on there?

A Well, I've added a few more things on here.

For one, I've put some dash lines across here, at the .10 area, so that's easier to see. And then this is a .05 area right here.

Now, the other thing, is you'll see three other curves here. And these are curves for individuals that have a longer absorption time.

And this is a hypothetical curve.

Q Well, let me just stop you for a second.

This still assumes the same individual? The same number of drinks?

A That's right.

Q The same everything else?

A In this case, I've taken the liberty of using the value where a person would have a .004 burn-off rate. The lowest extreme value. And I show examples where a person may be absorbing and reaching a peak out here and, which case, the value at 12:00 o'clock would be lower than -- about a .075 or so.

And here's some examples of absorption that's very prolonged. And where that individual has values below a .05, about a .02 and about a .04, at the 12:00 o'clock time frame. Still compatible with a blood alcohol of a .061 at this time.

Now, that's for an individual who falls on this low burn-off rate curve.

Q And I assume then, sir, if you change that assumption, that is the low burn-off curve, you could draw additional curves, but they'll be raised higher?

A Yeah. That's right.

And, in fact, I think I have another chart that shows an example of curves like this for higher burn-off rate.

Q Perhaps we can look at that one then.

And last then, sir, defendant's Exhibit CI. Would you explain that, please?

A Yes.

This is an example of a normal curve, a normal standard curve, with a .017 burn-off rate. And it shows three curves where the same absorption times, these same rates of absorption, but now intersecting or cutting into this curve here later on.

You see later on in time down in here the value is, in fact, greater than a .10. But back here earlier on it's not. It's lower than that.

This really illustrates the reason that it's argued that it's so difficult to go back so far in time. Because here's an example where, consistent with everything, we've got a normal -- we've got a blood alcohol reading here.

And we've got a tremendous range from almost a zero all the way up to, in that other chart, all the way up to a .50 for the value of possibility.

That's why it's virtually impossible to go back and get meaningful information about what the blood alcohol was at that time.

Q And lastly, sir, do you agree or disagree with Mr. Prouty's conclusion that you can draw some valid forensic conclusions based on the retrograde extrapolation in this case to relate back to 12:00 o'clock to illustrate Captain Hazelwood's expected blood alcohol level at that time?

A Well, I would disagree in that I don't believe there would be any sense at all in trying to make any kind of extension back to that period of time.

Q Thank you, sir. I have no other questions.

MR. COLE: Your Honor, may I approach the clerk? I'd like to have a couple of exhibits marked.

THE COURT: Certainly.

(2680)

(Pause)

THE CLERK: State 176 through 179.

THE COURT: Thank you.

(2700)

CROSS EXAMINATION OF MR. HLASTALA

BY MR. COLE:

Q Good morning, Dr. Hlastala.

You work as a professor then at the University of Washington, correct?

A Yes. Excuse me.

Q And you have appointments approximately in three areas. Physiology, biophysics, and bioengineering. Correct?

A And in medicine, yes.

Q And in medicine. But you're not a doctor?

A I am a Ph.D.

Q You're not a medical...

A I'm not a physician. I'm not a physician.

Q You're not a physician.

A That's right.

Q Now, my understanding is that you have testified in the past that you're field of study is called respiratory physiology. Correct?

A Yes, it is.

Q And that is the study of the -- I want to make sure I get this right here -- my understanding is that is the study of the way substances come from the blood and lungs out to the breath. One part of it.

A Yes.

Q And also, the way substances are distributed

throughout the body. Substances through the blood. Correct?

A Yes.

Q Now, for the past 20 years you've been involved in research in respiratory physiology. Correct?

A Yes.

Q You're not a forensic toxicologist.

A That's correct.

Q You've been asked to testify in Alaska, you said, about a half a dozen times. Is that correct?

A Yeah. I'm not sure. I've also testified telephonically a few times. And I just don't recall exactly how many.

Q The jury trials that you've been asked to testify in the state of Alaska, one of them was named State of Alaska vs. Sarah Bellinger (ph), correct?

A Yes.

Q That was in Ketchikan?

A Yes.

Q Another one was State of Alaska vs. Mr. Stagno (ph), correct?

A That's correct.

Q And another one was State of Alaska vs. Mahand (ph), correct?

A Yes.

Q That was one you did with Mr. Madson, correct?

MR. MADSON: What was the name?

A No.

Q Mr. Stagno was the one you did...

A Stagno was with Mr. Madson, yes.

Q Okay. You've testified many times in the state of Washington, correct?

A Yes.

Q One of them was in a case called State of Alaska vs. Shantz (ph). Do you remember that?

A No, I don't.

Q If I showed you a copy of your testimony in that, would that refresh your recollection?

A Where was it?

Q I'll find out here.

(side conversation)

A It was the State of Washington vs. Shantz. I also don't recall. This is in King County. I don't remember the name, but...

Q Do you know the name Chris Madson (ph)?

A Yes.

Q And he's an attorney in Seattle?

A In Seattle, that's correct.

Q And he's hired you on several occasions?

A On a few.

Q Does this refresh your recollection?

A Well, I don't remember the case, but...

Q Now, in the Bellinger trial -- that was down in Ketchikan, correct?

A Yes.

Q And you were qualified as an expert in the area of physiological aspects of breath and other ares dealing with lung and respiratory conditions, correct?

A Could have been. I don't remember.

Q In that case you testified for a person by the name of Ray Brown?

A Yes, that's correct. I remember that.

Q He was the defense attorney in that case, correct?

A Uh-huh (affirmative).

Q And you were testifying as to the validity of a breath test in that case, correct?

A I believe so. I don't recall for sure. That may have been a blood test. I'm afraid I don't remember.

Q You don't remember that?

A That's correct.

Q Okay. Now, in the case of State vs. Mahan (ph) you were qualified as an expert in lung physiology and blood testing, is that correct?

A I don't know, but I presume that would be, yes.

Q And in Washington vs. Shantz, you were qualified in the area of respiratory physiology, correct?

A Again, I don't even remember that case, so I don't know.

Q I'll show you a copy of that to refresh your recollection.

(Pause)

A Well, that's what it says there, respiratory physiology.

Q That case dealt with a breath test, correct?

A I presume that it was, but I do not recall.

Q In all the cases that I've just mentioned, you were testifying about the inaccuracy of breath testing.

A I don't recall. I believe so.

Q Twenty years of research you've used the gas chromatograph to measure substances in your lab in Washington, correct?

A Yes, I have.

Q And I think you've testified in the past that you have an accuracy level of a plus or minus 2 percent, correct?

A I don't remember that. I often testified about the general accuracy of gas chromatography for measuring blood alcohol, and it's thought to be about plus or minus .01. In my particular case we measure other substances, also. And the accuracy is different for those different substances.

Q You don't have any first hand experience in measuring alcohol blood using gas chromatography?

A We've only done a little bit of testing with alcohol and blood. Most of it is -- when we do test, mostly we have some associates at the toxicology lab in the state of Washington at Harborview Hospital. They run them for us.

Q You have no firsthand experience in measuring alcohol content and blood using gas chromatograph?

A My own tests have been with other substances, that's correct. Except on one or two occasions is all.

Q One or two occasions you have been asked to

test alcohol using a gas chromatograph?

A That's right. Most of my research deals with other substances. But using exactly the same chromatography principles.

Q You've never done any controlled experiments on the different levels of blood alcohol content in a person and its relationship with physical and mental impairment?

A I've done some tests, but they have not been in a controlled fashion. We were doing...

Q Excuse me. My question was, you've never done any controlled experiments on the different levels...

MR. MADSON: Excuse me. I don't believe that was the question. He said "test". He didn't use the word "controlled". So I think the witness is entitled to answer the question as it was originally phrased.

THE COURT: Well, just ask the question and see if the witness can answer it.

Q Have you ever done any controlled tests on the different levels of blood alcohol content in a person in its relationship with physical and mental impairment?

A That's correct. I have not.

Q You've never done any controlled tests on the

absorption rate of alcohol in the human body?

A We have done tests on the absorption rate in the human body.

Q Those tests were based on breath tests?

A No. They were with blood.

Q Are those tests that you did yourself?

A Yes. We took the blood samples. The actual measurements were done in the toxicology lab in Seattle.

Q How many of those samples did you take?

A Oh, there were somewhere between 15 and 25 subjects.

Q And you took blood samples from those subjects?

A Yes.

Q Based on those 15 or 20 subjects, when was this test that you did?

A Well, it's part of a study that was just published in the journal of studies on alcohol in the January issue. We did the work a couple years ago.

Q Now, looking at your curriculum vitae that I have a copy of. You talked about the number of articles that you've written. And I believe you said somewhere in the neighborhood of 180?

A Yes. Those are the total, but the scientific articles would be a smaller fraction of that.

Q Now, in the CV that I have, there is a group of 74 full length articles, correct. Is that about right?

A Sounds about right.

Q And only the last one deals at all with alcohol, correct?

A No, that's not correct. Do you want me to point out the ones that do?

Q No. I want you to look at the first 74 of this, and find which one deals with alcohol.

A All right. Well, there is some information about alcohol at number 67. There is -- number 66 does not actually include alcohol, but is very closely related to that issue.

Q But it doesn't have anything on alcohol, right?

A It has -- that's right -- a subsequent study that we're working on now does have alcohol. It follows from...

Q But that article doesn't?

A That one does not.

Q And that article deals with soluble gas exchanges in human analysis, correct?

A Which one is that?

Q The one you just pointed to.

A Number 66, that's correct. Number 67 is the influence of gas physical properties on pulmonary gas exchange. And that has some alcohol information in it.

Q But that one is dealing with breath testing, right?

A That's correct.

Q Okay.

A But I think you asked about studies that pertain to alcohol.

Q Well, I'm going to ask you more questions when you point them out.

A Also point out 59, which is the interaction of ethanol with airway mucosa during exhalation. Ethanol is ethyl alcohol, which is the kind we're talking about.

Q But that has to do with breath testing?

A Of course.

Q What else? Of the first 74.

A This number 74, which has now been published. That's the one that I referred to earlier.

Q Other than that, all the rest of them deal with respiratory physiology, right?

A They all deal with respiratory physiology.

Q But none of the other ones deal with alcohol blood testing?

A No. They deal with blood testing for other related substances.

Q But not for alcohol?

A You have to understand that the properties and the testing of the way that these gases come out depend on their physical properties. And in order to really understand alcohol, you need to make measurements of other substances as well in order to study them, in order to do something kind of like extrapolation, and interpolate, also. Depending on the solubility and the diffusion of these gases, they all behave a little bit differently.

Q Sir, of the first 74 articles, one deals with the measurement of blood alcohol concentration, correct, or incorrect?

A I understood your question to be...

Q My question now to you is, of the seventy four articles that we just looked at, one deals with blood alcohol concentration?

A That's correct.

Q Now, you contributed some stuff to book

chapters and book reviews, correct?

A Yes.

Q And one deals with blood gas transport, correct?

A I don't remember. I believe so. Which book was that? Was that in the physiology textbook?

Q Applied Physiology. Or, no. Let me rephrase that. Of the four articles that you have written in your CV, none of them deal with alcohol?

A I'm not sure. Let me take a look at them. I'm preparing one at the present time, but I'm not sure if any of those are currently believe not. (Pause) That's correct. None of the four chapters do.

Q Now, you have -- the next category you have is "other articles". And there you list 14 other articles that you had published, correct?

A That's correct.

Q And all except for one deal with alcohol breath testing, correct?

A That's correct. But those are not scientific articles. Those are more review and summary articles.

Q Let me ask you again. All except for one focus on alcohol breath testing, correct?

A I don't remember how many. I'll have to look at it. I believe most of them do -- all of them. But what I'm not sure about is that one that you are referring to. (Pause) All of them relate to alcohol.

Q I said "alcohol breath testing". They all relate to alcohol breath testing.

A All of them relate to alcohol breath testing, yes.

Q And then you list another 79 abstracts, correct?

A Yes.

Q And all deal in one way or the other with lung physiology, correct?

A Yes.

Q And not one of them deals with alcohol?

A I believe some of them do deal with alcohol.

Q Their dealings with alcohol are all alcohol breath testing, correct?

A I don't know. Let's see. Well, there is one on alcohol, but that is breath testing for alcohol. I relate it to the interaction with the airways. Number 53 and -- these are closely related articles, but neither of those two did we make blood measurements.

Q There is not one of those articles that's related to blood testing for alcohol?

A Oh, yes. They are related -- many of them are related, but in them we didn't measure blood alcohol. Many of those articles have blood measurements for other substances, and the process is virtually the same.

Q But any of these articles aren't proof of that testing for alcohol, are they?

A No, they are for other closely related substances, not alcohol.

Q Not alcohol, correct?

A That's right.

Q Now, you are a professor at the University of Washington. I assume that you give lectures at various points, correct?

A Yes.

Q It's important to be prepared for those lectures?

A Yes.

Q Do you make notes and prepare in advance the material to help to remind you what you want to say in those lectures?

A Sometimes. More recently I don't need to use notes, but I have in the past.

Q Is that because you got to know the subject so well?

A That's one of the reasons, yes.

Q Did you make any notes or reports in this case?

A I've made some notes. The only reports I've made are this information that I sent up to Mr. Madson, but I haven't sent any other reports.

Q How many times have you been called to testify in criminal matters?

A Well, I mentioned that I testified in excess of 400 times, and the majority of those are in criminal matters.

Q I assume that because you deal with attorneys who may not have the required knowledge to question you properly on your field of expertise, you've drawn up a list of questions and answers to help them prepare to examine you, right?

A On occasion, if an attorney asks for such questions, I provide it. That's a pretty common practice for expert witnesses, as you mentioned, because they don't know the field, and it's easier to convey that information in that format.

Q Did you send one to Mr. Madson?

A I don't recall. Not with regard to this case.

I may have in a previous case. I don't remember.

Q In fact, you've changed these questions that you send attorneys over time, haven't you?

A Because issues change, and, also, they are different in different locations, because different instruments were used; different processes are involved; there are different requirements.

Q And it's also because prosecutors find out about these questions and they ask you embarrassing questions about what you write in here, don't they?

A I don't think there is anything embarrassing in there. I also sent these to prosecutors who have asked them for me, and I've done that on numerous occasions.

Q Do you recognize what has been marked for identification as plaintiff's Exhibit 176?

A Well, this may have been a very old set of questions from five or six years ago. I don't remember. The date is not shown up here at the top. This is a fax copy from somewhere else, so I'm not sure.

Q Is that a list of questions that you drew up?

A Oh, yeah, from a long time ago.

Q Is that an accurate representation of those questions?

MR. MADSON: Your Honor, I'm going to object. I don't see any relevance to this at all. Some other case, he can't remember where. The questions are probably a totally different issue.

MR. COLE: Your Honor, I could tie this up. It goes to his ability to be fair and objective.

THE COURT: I'll let Mr. Cole ask a couple more questions. If it doesn't get tied up promptly you will have to go on to another matter, though.

Q (Dr. Hlastala by Mr. Cole:) Sir, the top of this reads, "Suggested defense questions directed to Dr. Hlastala", correct?

A That's correct.

Q And in this, you tell the person that you send this to, "These questions are designed to allow concise answers." Correct? That's what you say, right?

A Uh-huh (affirmative).

Q "More complex scientific answers are best left for the response to questions from the opposing party." Correct?

A Yes.

Q And the reason is, because you want to try an

embarrass a person who is cross examining you when you are...

MR. MADSON: I'll object to that.

THE COURT: Objection sustained, Mr. Cole.

Q Well, in this script that you've written out, you tell an attorney the order of how the questioning should proceed, don't you?

A No. They can choose to use that if they are uncomfortable with designing their own questions. If they use their own questions, that's no problem. I mean, they don't have to use those.

Q You tell the attorneys the answers you expect to give them?

A Yes, that's, again, common practice.

Q You tell them the amount of time it will take to answer the question. You have them an estimate?

A I don't think so. What are you referring to?

Q Well, the length of the answers that you provide. You give them an idea of how long it's going to take.

A I don't think I have that in there. Maybe I'm wrong. I just don't remember.

Q You tell them when you are going to use charts?

A That's true. And on one of the questions I use a chart and I say in there that I'm going to use a chart.

Q You suggest to them what type of redirect questions to ask after the person has gotten through cross examining you?

A That's right. And for some young attorneys, that's handy to have.

Q As a consultant you have been asked to testify in Washington a number of times. You talked about that, right?

A Yes, I have, I think.

Q You testified in King County in Washington?

A Yes.

Q In district court, municipal court and superior court?

A Yes.

Q Pierce County, Washington. District court, three or four times. Correct?

A At least that. More than that, I believe.

Q Snohomish County, you testified there?

A Yes.

Q And other areas around Washington, correct?

A Yes.

Q You have been called on as an expert in 11

other states.

A Twelve, I think. Once in British Columbia. That would be 13 different places. But I think it would be 12 states.

(Tape: C-3673)

(000)

Q In all the criminal trials where you've been called upon to testify as an expert, you've always testified on behalf of the defendant, correct?

A That's correct. I've never been called by the prosecution in a criminal matter.

Q So, 100 per cent of the cases you've testified, correct? You've testified as a defense witness, correct?

A No, in criminal cases.

Q A hundred per cent of the criminal cases, you've testified as a defense witness.

A Correct.

Q Now, you've been asked this question before by prosecutors, haven't you?

A What question?

Q The question I just asked you, how many times you've been asked to testify by...

A Yes.

Q And you've prepared answers for that question, correct?

A I've prepared answers regarding the number of times that I've testified?

Q You had a prepared answer for Mr. Madson. Why don't you just read it and save me the time, on redirect, asking you your response to that question.

MR. MADSON: Excuse me. I don't know what we're referring to here. Something was given to me?

THE COURT: Why don't you show Mr. Madson...

MR. MADSON: Yeah, what are we looking at here?

THE COURT: ...what you want this witness to do and then ask a question Mr. Chalos.

Q (Mr. Hlastala by Mr. Chalos:) Well, you have a response that you typically give prosecutors after they've asked you how many times you've testified for defendants, don't you?

A I don't recall. My response varies from time to time. I mean, the more often I -- as I testify, that increases the number of times that I testify, so that would change, I suppose.

Q The professional organizations that you belong to all relate to the field of respiratory

physiology, correct?

A No, not completely.

Q Which ones don't?

A Well, let's see, I belong to the American Heart Association and that deals with the heart, it also deals with the lungs. I belong to the American Thoracic Society, that deals with the lungs; not only physiology, but also clinical matters. I belong to the Undersea Medical Society. That relates to aspects of diving, not just respiratory physiology. Let's see, I also belong to the Aerospace Medical Association and that deals with other stress related areas, and not just respiration. I deal with -- I'm a member of the Comparative Respiratory Society, that deals with respiratory physiology, but in animals, not in humans. The American Physiological Society deals with different aspects of physiology, respiration is just one of those aspects. And there are a few more, but I don't recall them.

Q You're not a member of any forensic sciences?

A That's correct.

Q Your editorial responsibilities are all related to the field of respiratory physiology.

A That's correct. We've dealt with physiology here today, and that's my field.

Q Your national responsibilities are all related to your field of respiratory physiology?

A Yes.

Q Now, you make money outside of the salary that you receive as a professor, correct?

A Yes, in consulting, I do.

Q And you are making money in this case. That's a form of income, correct?

A I mentioned that earlier, yes.

Q And you had not billed anything yet?

A That's correct.

Q The amount of money you charged depends on the extent of your involvement, correct?'

A That's correct.

Q Some small DWI cases, you charged as little as $350.00, correct?

A Even less for the Public Defender's Office in Seattle.

Q But your expense up here are about $750.00 a day?

A That's correct, plus expenses -- travel expenses.

Q Would it be fair to say that you get almost as

much money consulting as you do working as a professor?

A That's possible. My last income tax, that wasn't the case, and the previous one, that was not the case, and the previous one, my recollect, was not the case. It may have been in the past, I don't recall.

Q Now, my understanding is, you've been called to testify on how alcohol concentrations accumulate in the blood, correct?

A That would be one way of paraphrasing it, yes.

Q Different absorption rates of individuals?

A Yes.

Q Different elimination rates of individuals?

A Yes.

Q How elimination rates affect that calculation or retrograde extrapolation?

A Yes.

Q And a calculation of the number of drinks to get to a certain BAC blood alcohol content at a certain time, correct?

A Yes.

Q Did you conduct any tests of Captain Hazelwood to determine his absorption rate?

A No, I have not.

Q Did you conduct any tests with Captain Hazelwood to determine his elimination rate?

A No, I have not.

Q You could have done that, correct?

A One could, but it would be impossible to reproduce the absorption profile. So people usually don't do that with respect to absorption, because you just can't. It varies so much from time to time.

With regard to the burn-off rate, you possibly could, but the burn-off rate I don't think is really the issue.

Q The burn-off rate is not the issue?

A It doesn't really matter what the burn-off rate is in this particular case.

Q Well, before we get to that, it appears to me, in your testimony, you have that the blood alcohol content between 10:30 and 10:50 March 23, 1989.

A Yes, I have made that assumption.

Q You have no reason to doubt the assumption of that?

A No. My understanding is that the error -- you see, the error -- usually if it's operated properly, a chromatograph will be plus or minus

.01 or so. And whether we've got a .05 or .07, that doesn't matter in terms of the main issue. The main issue is this distant extrapolation and absorption possibility variation. So I assumed it to be accurate. I assumed it to be accurate.

Q So you have no reason to believe it's not accurate?

A No, I assumed it to be accurate. I have no reason to believe it's not accurate.

Q Now, the absorption phase -- this is when alcohol that is consumed -- or, when the amount of alcohol that's ingested is greater than the amount of alcohol that can be eliminated in the body, correct?

A When the rate of absorption is greater than the rate of burn-off, then you would be increasing. That would be the absorbtive phase.

Q And in your studies, what was your findings on various absorption rates?

A I don't recall it in detail, but my recollection was that some individuals absorbed -- reached a peak within about an hour, whereas others took in excess of two hours to reach a peak.

Q Did you find, in any of your studies, that a

person took, say, six hours?

A No, we did not.

Q Have you ever read anything where a person took six hours?

A Yes.

Q Would you consider that to be the norm in the community, the six hours?

A No. I think those extended times occur under certain circumstances. And the primary circumstance that that appears to occur is what is called -- the term is pre-prandial alcohol consumption. Wherein, taking in alcohol before you have anything in your stomach, there is some evidence that, published in literature, that that extends the absorption time. And, in fact, if you take a look at Barboriak and Mead. In 1970 they found half times for emptying of the stomach in excess of seven hours, caused by alcohol.

Q So those are the fatty foods, correct?

A No, that was -- I don't recall, but they were testing the difference. My recollection was that it was the same food given with and without alcohol. And there was a delay in the absorption -- the release time from the stomach contents, but I don't remember the food that they had.

Q You don't remember the...

A It was the same food under both circumstances.

Q But generally your opinion has been, in the past when you've testified, that it takes about an hour. Most people fall with the hour, hour and a half?

A No, that's not been my opinion. I think in most -- well, I think the majority of people probably, it's usually argued, fall within an hour and an hour and a half.

Q The ranges are between a half an hour and three and a half hours?

A That's correct, yeah. Except under the unusual circumstance where the alcohol is taken in fairly high concentration without food and then it could extend the emptying time.

Q And you've also testified, have you not, your opinion that part alcohol, part liquor absorbs faster than, say, beer, correct?

A In general I believe the studies show that, except in these unusual conditions that we're just talking about. But if you have a normal absorption pattern -- maybe I ought to put that up here.

Q I think a reasonable study to look at on that

is Leak and Silverman. And they showed -- my recollection was -- and this is not the kind of curves that they had, but they showed that beer is more -- because the stomach recognizes beer as having food content in it, something to process, that it tends to go farther to the right here, and a purer form of alcohol is more likely to be absorbed faster. Unless this clamp-down thing occurs, where the pillar extincter (ph) closes down.

Q But in most instances, most people, it occurs between a half an hour and three and a half hours, correct?

A I would say that is usually the case, yes.

Q And that is the accepted amounts in the literature?

A Without food. And when you're not having this clamp-down.

Q Now, the problem related with absorption, as you see it in that calculation, is the difficulty in determining when the peak time was, correct?

A That's one of the problems, yes.

Q That's a major problem?

A Indeed.

Q I'm not trying to trick you, but that's one of

the major problems?

A Yes.

Q That's what you spend a fair amount of your time talking about, right?

A I agree with you. It is one of the major problems.

Q Now, on this graph that you drew you are showing Captain Hazelwood peaking at 8 o'clock, right?

A Well, I didn't mean this to refer to Captain Hazelwood. In fact, I don't think I said that. But this is sort of making the assumption that a half hour post-drinking peak on all of those cases.

Q And in every one of those scenarios, if he has peaked at 12 o'clock, he's above a .10, right?

A On those five curves, yes. This is right about a 1.0, but essentially all of those are above.

Q And if the peak occurred at a time over here, further toward midnight, your numbers that you have here would be less, right?

A No, not in terms of the numbers of standard drinks. That would be the same. But the curve would look a little different. So you would have

-- this refers to any curve that intersects that curve right there. So if something came over here and hit, or came over here and hit, it would still be consistent with 7.7 to get to that value.

Q So if someone takes longer to peak, they are going to have the same amount of drinks?

A Yes. It's just a delayed absorption.

Q So if Captain Hazelwood was still drinking at nearly 8 o'clock, or between 7:30 and 8:00, the likelihood is that he peaked sometime after 8:00, correct? Or, that he peaked before midnight, that night, correct?

A Yes. We wouldn't know that for sure, but the odds since absorption times, are usually an hour to an hour and a half. That would indicate that there would likely be a peak here -- well, yes.

Q You would agree with that?

A Well, I would agree that the odds -- I mean, if you want to talk about the odds more likely than not, then it's more likely than not that the peak would be achieved before that time.

Q Is it 75 or 90% of the people that peaked -- would have peaked before midnight?

A I don't know.

Q Three and a half hours later?

A I don't know. It probably would be that.

Q Well, in your studies, how long was the longest you saw that it took somebody to peak?

A Well,in my particular studies, we never saw anybody in excess of three and a half hours. And we didn't see anybody that had this...

Q Excuse me. What was the longest time that you saw? That's a specific question.

A I think I mentioned before it was a couple hours -- two hours.

Q And the material that you've read -- well, let me withdraw that question. Would it be fair to say that under the information that you've received in your studies, that you would feel comfortable with saying that Captain Hazelwood would have peaked by 12 o'clock, correct?

A No, I'm not comfortable with that.

Q You're not?

A Right.

Q And that's even though you never saw anybody that went beyond two hours of their absorption rate, correct?

A I said that, but that's not the reason I'm uncomfortable.

Q Correct?

A That's correct.

Q And you generally feel that the amount -- the times are a half an hour to three and a half hours, correct?

A That's correct.

Q Now, on another chart, you indicated different elimination rates, but they are there, right?

A (No audible response.)

Q And you've testified in this case -- the elimination rates are set out from 10:30, right, in the graphs?

A You mean these curves here?

Q Right.

A Yes. That's on this chart.

Q .04, .01, .017.

A But you referred to another chart, and I'm not sure which chart you are talking about.

Q That chart.

A Oh, I see. You asked me about another chart.

Q This chart, there is different elimination rates on there.

MR. MADSON: What chart?

THE COURT: Maybe if we identify it by number it will be of some assistance.

Q Can you identify that one by number?

A If you are referring to this one, it's "CG".

Q CG. You, in your studies, found what type of elimination rates per individuals?

A What type of elimination?

Q Yes. What are the variations?

A Oh, you mean the magnitude of the elimination rate? The average male elimination rate that we found in ours was a .018 plus or minus a .004 per hour. That's a standard deviation.

Q What was the maximum and minimum?

A I don't remember that. But they weren't too far off of that range. We could calculate it, but I just don't remember the specifics.

Q Everybody that you tested was right around a .018?

A Well, there was a standard deviation of a plus or minus .004. And I -- you know, I could figure that out. That would be plus or minus -- three standard deviations would include 99% of what we did. That would be -- well, maybe we should figure 95%, which would be plus or minus two standard deviations. That would be a plus or minus .0 -- that would be a .009 up to a .025, would be the range that we found approximately.

Q Those are the ones that you remember?

A I'm calculating that from what I remember the variation to be. I don't remember what the maximum and minimums were.

Q That's all you have to say is, don't remember the maximum and minimums.

You've testified on several occasions how difficult it is to perform retrograde extrapolation, correct?

A Yes.

Q One of it is based on the absorption rate -- the difficulty involved with the absorption rate. And the other is the variability of burn-off amongst people, correct?

A Yes.

Q And you've set out this one chart that would show where -- there are scenarios where Captain Hazelwood's blood alcohol could be quite a bit lower, correct?

A Yes.

Q We're looking at CH, right?

A Uh-huh (affirmative).

Q Under this scenario -- for this bottom line, right? That would mean that if he started -- stopped drinking at 7:30, on your scenario, it

would have taken nearly 16 -- no, 12 -- it stops at 8:00. It looks like about 12 hours of absorption. Right.

A Maybe a little more than that. Let's see. This is four, eight, 12 -- it would be a little more than that, right. I have no way of knowing if that's the actual curve. That's just an example of a curve that's consistent with the information.

Q But it's also a curve that is inconsistent with any medical data that you know of, as far as absorption rates?

A No. I mentioned...

Q Do you know of absorption rates where people, 14 hours later, had alcohol?

A I mentioned the study by Barboriak and Mead, who showed seven hours as a half-time for stomach emptying. And that's consistent with that as a possibility.

Q As a possibility?

A Uh-huh (affirmative). As a possibility.

Q So you think that there is a possibility that if he stopped drinking at 7:30 he still could have had alcohol in his stomach being absorbed all the way until 9 o'clock the next day?

A I think that's possible. Not likely, but possible.

Q Give us a percentage?

A Well, there's a slim possibility. It's about as possible as having a .004 burn-off rate.

Q You've gone from possible to slim. Give us a percentage?

A I can't give you a percentage.

Q It's like, less than 1%, isn't it?

A Virtually any of these possibilities have small chances, that's why it is so difficult to extrapolate.

Q Well, .17 doesn't have small chances, because that's the average, right?

A But that also assumes -- this curve assumes so much. That's just an average burn-off rate, that's right.

Q Now, what about this one. This second line that you have, you have that as between four and six. That would be 10 hours?

A Yes. Well, it would be from the end of drinking -- maybe 10 to 12 hours.

Q That would mean that you're saying that the absorption rate is 10 to 12 hours, correct?

A In that curve, that's an example where it

would be that, yes.

Q And in your studies you never saw anybody more than two?

A No, I haven't.

Q And in prior testimony you've always said between a half hour and three and a half hours for most people, correct?

A That's assuming sort of a normal process, yes.

Q And you referred to Dr. Dubowski's tests on that particular point, haven't you?

A Yes.

Q And you said that in Dr. Dubowski's studies, people had slightly longer absorption rates because of food that they had, correct?

A No. In his studies there was no food -- Dubowski's studies.

Q And in this one right here, this scenario that you had, the third one, that would be for a six hour burn-off rate, is that correct?

A Absorption rate, yes.

Q Absorption rate. And you didn't find anybody in your studies that was more than two?

A In mine I did not.

Q And you generally feel that most people burn-off between an hour and an hour and a half,

correct -- or, absorbed between an hour and an hour and a half, correct?

A I guess the studies that I've done has been between an hour and two hours. But I think, if you look at most, it's between an hour and an hour and a half.

Q And so those are really not that possible, are they?

A They are as possible as a lot of these other curves. They are difficult. They are just one of the types of curves that is consistent with that blood value, is all.

Q Now, you've written about retrograde extrapolation, haven't you?

A Yes.

Q One of the articles you wrote is called "Physiology of Alcohol in the Body", correct?

A That was in a Washington Bar Association Journal.

Q Mr. Cole, would this be a good time to recess for the day?

A Yes.

(943)

THE COURT: Mr. Cole, would this be a good time to recess for the day?

MR. COLE: Yes.

THE COURT: Ladies and gentlemen, I asked counsel yesterday approximately how much longer the evidence will be. And based on the responses by both, I think probably we will be coming close to finishing the evidence this week. We may finish a little earlier than the end of the week, I'm not sure, though.

That doesn't mean that the case will be over at the end of the week, because if we do finish the evidence we will have probably a day of handling some miscellaneous matters that pertain to this case, and then you would be hearing final arguments next week sometime -- early in the week, hopefully. I can't tell you for sure, but I think we are going to be close to finishing the evidence this week. I'll give you an update as we go.

In the meantime, I'll see you back tomorrow at 8:15. Please be safe, and remember my instructions concerning the media sources about this case. Please don't discuss this case with any person, including yourselves, and don't form or express any opinions. See you back tomorrow at 8:15.

MR. MADSON: Your Honor, could we take up a matter after the jury is excused?

THE COURT: Yes, sir.

(Jury not present)

THE COURT: You may step down.

A Thank you.

(Witness steps down)

THE COURT: All right.

MR. MADSON: Your Honor, with regard to the matter brought up yesterday about the tape and the testimony. We have a witness that's arriving here tonight from New York. He can testify only tomorrow on this topic.

I don't know the court's calendar, and I'm only suggesting that if it's at all possible, if we can do the hearing after 1:30 the usual jury time tomorrow, that's certainly feasible with us. We are willing to do that.

I don't know what else we could do, but it would be just imperative that we can put him on some time tomorrow.

THE COURT: Could you call and see what's on the calendar tomorrow afternoon. I know I have, almost every day, spoken for 2:30 and 3:30 sentencings, and the other preliminary hearings.

I have two sentencings scheduled tomorrow, one 2:30 and one 3:30, and it generally involves participating by multiple persons, including the

Department of Corrections personnel. I am reluctant to try to reschedule that. Perhaps we could let the jury go a little early tomorrow.

MR. MADSON: That's what I was going to suggest. Maybe 12 or something like that?

THE COURT: Do you anticipate that we could finish in an hour and a half?

MR. MADSON: Well, with this one witness, I think we could, Your Honor. That means we have other ones that we probably couldn't use tomorrow; we'll just have to do it when we can. But...

THE COURT: Well, I don't know what I can do to accommodate you, other than to release the jury a little early. If you want me to release the jury be noon, I can do that. But I need at least an hour to start preparing for those things in the afternoon, and I'm burning on both ends, too, right now.

MR. MADSON: Well, why don't we try that, Your Honor. At least we can have this witness, who is available, and he could testify. I think that in all likelihood he could finish his testimony in an hour. It is pretty simple and straight forward. You know, he's going to give an opinion on these tapes. And that's the issue here, as to whether or not...

THE COURT: So we need to have some sort of a

FRI hearing ahead of that, is that what you're saying?

MR. MADSON: It really isn't a FRI hearing, Your Honor. The court tentatively admitted that inbound tape. Obviously the prosecution wants to use the voice of Captain Hazelwood on one; compare it to the other; and argue to the jury, "See, look at the difference; he must be drunk."

This individual, along with others, is prepared to testify that while these tapes are a sufficient quality that they could certainly be used to transcribe what a person said, and you could hear what they said. You cannot infer from those, because there are differences in speed and pitch in these tapes, that you can say a person is really talking -- they're speaking differently from one to the other.

Now, that's...

THE COURT: That's going to go to the weight of these tapes, is that the way you look at it?

MR. MADSON: Your Honor, I don't feel it's even sufficient to go to the jury. I mean, if that's the inference, just to say, "Listen to these two tapes." I think the court has to make a preliminary judgment on that to say whether or not they are even admissible for that particular purpose.

Now, we had a little argument about

admissibility, as long as they are relevant. The inbound tape isn't relevant for anything. I mean, there's somebody speaking and saying -- talking about -- assuming it's Captain Hazelwood. We don't know that for sure.

THE COURT: Well, as I understand the relevance, it's the manner in which he spoke on the inbound tape compared to the manner in which he spoke immediately after the grounding, to determine whether or not he may have been impaired.

MR. MADSON: Well, manner, I think, is going to be argued as speed. In other words, how fast he speaks on one and how slow on the other. We have reason to believe that the first tape is fast and the second tape is slow. That is, the pitch of the tape itself. The weight in which it's being recorded and the way it's played back.

It gets kind of complicated, but that can change, and we can show how that changes. And, granted, we can certainly argue that to the jury. But at the same time, I think it's important that this threshold level of admissibility, or reliability, for that purpose, has to be addressed. And I frankly don't feel that that's the case yet. We just have a tape. And we know that this inbound tape -- the original

doesn't exist; that's gone.

THE COURT: What foundation do you have for the admissibility of that tape? Now, we are only talking about the inbound tape, Mr. Cole. What foundation do you have to show that this is an accurate duplication of the original?

MR. COLE: I'm trying to remember the guy's name. He was the Coast Guard person -- Shepherd -- who testified, who Mr. Madson had an opportunity to cross examine on that issue and chose not to. He testified that this was an accurate representation of his voice and the people that he heard that day.

MR. MADSON: Your Honor, what he -- sure, it's his voice. He wasn't asked by the state whether it seemed the same, faster, or anything. It wasn't even, as far as he's concerned, relevant.

The question was, "Do you recognize on that?"

"Yes, I do."

Sure, we can recognize his voice on there. But if you're looking at the subtle differences, and that's what they are arguing about. That tape gets complicated, but the original reel-to-reel recording doesn't exist.

An individual made a copy of the original by using a Lanier little portable microcassette, holding

it up to a speaker; recorded that; and then transferred that on to a basic cassette.

THE COURT: Is that in evidence?

MR. MADSON: Yes.

THE COURT: That's what my recollection is.

MR. MADSON: And I think it's in evidence that the original has been destroyed.

Now, our expert, and our people will testify that this process changes the original to the extent where you can't say at all that it's an accurate reproduction. In that sense it's accurate in that you could certainly hear the words, and we've never had any argument with that. You can hear the words. But are they accurate as far as how they were spoken is really the issue. And that's what we are getting at with the individuals that we hope to have testify here.

They can't be deemed as accurate in the manner in which that person speaks. You can hear the words. But, in other words, is he speaking fast, slow, the same, things like this. Because that could change depending on how the tape was made.

THE COURT: Mr. Cole, anything else?

MR. COLE: Well, Judge, he testified, Mr. Shepherd, that this was an accurate representation of his conversation. It accurately portrayed the

conversation. There is an inference from that that if they are both being taped, that the same conversation is being taped; same voices in that conversation; that the other one is accurate, also.

What Mr. Madson is arguing only goes to the weight of that tape, but it doesn't go to the admissibility.

THE COURT: That's what it sounds like to me, too, Mr. Madson. If you've got a witness who is going to testify as to the inaccuracy, or how you can't rely on, that goes to the weight -- you can certainly call him in your case to support that assertion.

But whether or not -- I don't think we need to really do this outside the presence of the jury, if that's what your point is. We don't need to have a special hearing for that.

MR. MADSON: Well, if that's the court's ruling. I frankly disagree. But, you know, but that's what makes lawsuits.

THE COURT: Well, there is two whole floors in this building to go to the possibility I make mistakes. But my inclination now is that, if you want to call that witness you may call the witness in your case in chief, and we don't need to have a special hearing for it.

MR. MADSON: Okay. We'll do that.

THE COURT: Okay. Is there anything else we can take up at this time?

MR. MADSON: No.

THE COURT: Okay. Instructions today, remember?

MR. MADSON: Yes.

MR. COLE: Yes.

THE COURT: Thank you.

THE CLERK: Please rise. This court stands in recess subject to call.

(1230)

(Off record - 1:40 p.m.)

CONTINUED