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FAX MEMO - July 13, 2001

FROM: ED KUWATCH
TO: FAX FAST EDDIE SUBSCRIBERS*

TRANSCRIPT OF DEPOSITION OF MARCELLINE BURNS

This is a transcript of a deposition of Marcelline Burns, taken by Kapsack and Bair on April 17, 1998. Apparently Bruce and Hudson went all the way down to Los Angeles for the purpose of conducting this deposition.

The topic is a history of the development of the Standardized Fields Sobriety Test (SFST) battery.

Ed Kuwatch, Editor

IN RE: EXAMINATION UNDER OATH OF
MARCELLINE BURNS

EXAMINATION UNDER OATH OF MARCELLINE
BURNS, Ph.D.

TAKEN ON

FRIDAY, APRIL 17, 1998

REPORTED BY: LORI RAYE

CSR NO. 7052

Examination Under Oath of MARCELLINE BURNS, Ph.D., taken at 12400 Wilshire Boulevard, Suite 1300, Los Angeles, California, on Friday, April 17, 1998, at 12:15 p.m., before Lori Raye, CSR No. 7052, pursuant to notice.

APPEARANCES:

FOR ROBERT SONN:

KAPSACK & BAIR, LLP

BY: BRUCE KAPSACK, ESQ., HUDSON BAIR, ESQ., 353 Sacramento Street, Suite 1500, San Francisco, California 94111, 415 421 1021

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LOS ANGELES, CALIFORNIA, FRIDAY, APRIL
17, 1998, 12:20 p.m.

MARCELLINE BURNS, Ph.D., HAVING BEEN
FIRST DULY SWORN, WAS EXAMINED AND
TESTIFIED AS FOLLOWS:

EXAMINATION

BY MR. KAPSACK:

Q Could you please state your name and spell your last name for the record. A My name is Marcelline Burns, B-u-r-n-s.

Q And it's Dr. Burns; correct?

A Correct.

Q Have you had your deposition or examination under oath taken in the past, Dr. Burns?

A I have.

Q On more than a couple of occasions?

A Yes.

Q So you're familiar with the rules of depositions?

A I am.

Q Is there any need for me to go over them with you?

A No.

Q Obviously, at the end of this, you'll receive a copy of the transcript. If you need to make any changes, you'll have an opportunity to do so.

A Okay.

Q I have here what will be marked as Exhibit 1, a copy of your CV that you gave me today. Is this an accurate and up-to-date copy of your CV?

A It is.

Q I'm not going to go into it in any depth.

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(THE DOCUMENT REFERRED TO WAS MARKED BY THE REPORTER AS EXHIBIT 1 FOR IDENTIFICATION AND IS ATTACHED HERETO)

BY MR. KAPSACK:

Q We're here today to discuss standardized field sobriety tests. Are you familiar with that subject?

A I am.

Q Could you tell us briefly how it is that you know about standardized field sobriety tests, outside of maybe saying it's something that your father knew and his father before him knew.

A Well, I'm one of the founders of and the current director of the Southern California Research Institute. That's a nonprofit research group. We're funded by grants and contracts. I don't know how much you know about that process, but contracts are issued when the government agency identifies an area of research that they think needs to be done, and they issue a request for proposal. Any research group that believes they are competent to do that work can respond with a cost proposal and technical proposal.

In 1975, the National Highway Traffic Safety Administration, NHTSA, realized that the - this is my understanding of what led to the request for proposals. They recognized that the average blood alcohol concentration of arrests nationwide was .17 percent BAC.

The prevailing statute was .10 percent. There may have been one or two that still had a high one, but most of the states had gone to .10. If the average arrest is .17, that means that a lot of people who probably ought to go to jail are not doing so because the officer is either not detecting the driving pattern that leads him to stop the vehicle, or once he stops a vehicle, he's not recognizing the presence of one was completed in 1981. So that's how I got into this area.

Q Okay. Your background information regarding your ability to get into this area, your expertise, et cetera, is covered in your CV; correct?

A Yes and no.

Q Okay.

A At that time, I had several years' background in studying the effects of alcohol and other drugs. I didn't have any backgrounding roadside tests, nor do I think anybody in this country did at that time. It's not a research topic that has gotten a lot of attention worldwide.

Q Okay. I forgot to ask this in the beginning, so I'll ask it now. Have you testified in court previously regarding standardized field sobriety tests?

A Yes.

Q Can you give us a ballpark figure as to the number of times?

A No, not really. Not an accurate one. A lot of times, but I have no idea how many.

Q More than ten?

A Yes.

Q More than 100?

A Well, if you include hearings as being testimony, it probably would not be more than 100. I don't know. I have no idea.

Q The times that you have testified either at trials or hearings, have you been admitted as an expert --

A Yes.

Q -- regarding standardized field sobriety tests?

A Yes.

Q Subsequent to your study, were the three standardized field sobriety tests adopted by NHTSA?

A I don't know that NHTSA uses the word "adopted." What they did is they took the findings that we reported to them. They also took our data, our actual data set, and one of their staff, a man named Schweitz, did some additional analysis. Ultimately, they produced a training manual and began to sponsor training.

Now, I've told you about all I know about that because I don't work for NHTSA, except as a researcher. So I'm not really privy to all those processes.

Q Going back to 1975, shortly after you get the go-ahead and the funding to start the research in this area, did you start with the idea that there were these three tests, Horizontal Gaze Nystagmus, Walk-and-Turn and One-Leg Stand, that you were going to evaluate, or did you look at a broader base of tests that were currently being used or talked about in the field?

A Neither.

Q Okay.

A Any research project -- well, that's a pretty broad statement. I began a project with the literature reviewed to find out what the state of knowledge was concerning that topic at that time.

That was the first thing I did.

The second thing I did was went around various places in the United States and rode with DUI teams, special enforcement teams to actually determine what it was that they were doing.

Then finally, we compiled a fairly long list of tests. I think there were on the order of 15 to 20 that we thought might work. We did some pilot testing with them. It soon became evident that given the constraints at roadside, the time, variability and circumstances, the weather, the wide-ranging skills of the people you're dealing with, all of those things, plus you're dealing with the fact of what the squad cars don't have -- they already have too much, and we couldn't suggest adding apparatus on the basis of both cost and just practicality.

We had to think about officer safety, what they could do, and all those things eliminated most of the potential tests. We ended with six that we believed had some merit, and then conducted the first laboratory study with those.

Q Regarding the initial list of 15 tests, you eliminated some of those based on a variety of reasons.

Were there any tests at that time that were being given by officers which, although they may have been given in that particular jurisdiction for a long time, really had no basis in science, no viability? In other words, they really didn't relate to what the officers were investigating?

A I'm not sure I know how to answer that.

What officers were doing in 1975 was -- there was a lot of variability between agencies, even between officers and even between one arrest and the next. "Standardized" was not a word that had entered law enforcement in 1975. I think they were doing the best they could.

I've been puzzled about this for a long time, that since the automobile was introduced around the turn of the century, it was recognized that alcohol and

driving weren't going to combine very well, if you look at the literature. Why had there been nothing done? The first statute with a number, which happened to be .15, was enacted in Indiana fairly early on. I don't remember the exact date. I have to look it up. So I was really puzzled about why nobody thought about how the officers were going to enforce these statutes.

If you think about it, if you're talking about .15, you're talking about a visibly, obviously intoxicated person. Probably they didn't need a lot of help at that point. But when it switched from thinking about drunk drivers to thinking about impaired drivers, which is what the scientific literature was moving toward, then it became clear that officers need some help in being able to recognize the signs and symptoms associated with impairment by alcohol.

I forgot why I got onto that long exposition, but that's kind of the history of –

Q My question was, during your initial ride-alongs and stuff, did you see that there were certain tests that really were sort of folklorist, and wonder whether or not they had any basis to aid the officer in the decision you just talked about?

For instance, before we started the deposition, I mentioned there was one place where they said they had stopped people and made them recite the alphabet backwards, and that had absolutely no connection.

Did you discover, in either some of the tests that you didn't include in your group of 15, or later on, that there were certain tests where people or officers or the community thought, hey, this is a good test to give somebody as an indication, but it turns out it really wasn't a good test?

A Well, certainly, I observed tests that didn't make the cut. Where those tests -- you characterized them as folklorish. I don't know where they came from. Since there had been no research in this area, since there had not been a big emphasis on alcohol enforcement, I don't know, but I would suspect they just developed what they found to help them. Because at that point, there was no research on the validity and reliability of these things. But yes, there were tests being used in 1975 which did not make it into the first experiment.

Q Okay. Now, after your initial reading of the literature and some of your ride-alongs, you've culled down to a group of 15. Then you said shortly after moving it into the lab, some of those were cut out for economic reasons or just practicality reasons, like you said, the officer not having the time or equipment, or not being safe to conduct some of these tests on the side of the road, which is the environment the officer finds himself in; correct?

A Not quite. Those issues are all constraints at roadside. But the reason some of those tests were eliminated in pilot studies could be one of several. Either they weren't sensitive to alcohol, they didn't discriminate between above and below .10, or they were not suitable for certain ages or certain conditions. There were a variety of reasons why they just wouldn't work.

Q Didn't make the grade?

A Didn't make the grade.

Q Let me back up a little bit.

Obviously, you didn't jump from a huge number, from 15 to 3. It must have been different stages along the way.

About how long did that process take?

A You're talking about almost 25 years ago. I don't know.

Q Okay. I understand.

A The research began in '75. A final report was issued in June of '77. I did all the traveling, the literature review and the pilot test before we actually began the experiment. So I would guess it was probably three or four months, but I don't recall.

Q So obviously, it wasn't a hasty, overnight decision. It went through the stages you just described, the initial reading and observation by yourself, and then some pilot studies?

19 A Yes. And when you perform research for the federal government for agencies, they don't just give you the money and walk away and say "Let me know when you get finished." There is an overview process. So you're making monthly progress reports to them, and they're part of the decision process and part of the involvement of what you actually do.

So if I had said, just arbitrarily, "Well, I don't like these, and I like these," I would have been called on that. So it's a rigorous process.

Q Thank you. That was exactly the question I was trying to get to and I didn't hit it quite right, but your answer did.

So you didn't say, "I don't like this test, I'm not going to bother with it"; if a test appeared to be a test that was going to make the grade, it stayed in whether you liked it or not, and if it appeared it wasn't going to make the grade, it got dumped by the wayside whether you liked it or not; correct?

A That's very accurate. Whether I liked it or didn't like it, I don't remember having any

18 strong feelings one way or the other. But in research, numbers are what make the decisions, not your subjective evaluations.

Q To state the obvious, because that's part of the reason why we're here, this was all done in what is considered scientifically acceptable means; correct, all these testings?

A That's correct.

Q As you said before, you weren't just -- let me back up.

We're saying "you." You weren't alone in this project, were you?

A No, I was the project director on the first experiment. My colleague, Herbert Moskowitz, was also involved in that one.

Q So we're using the plural "you," so to speak.

A Right.

Q You weren't given the money and cut loose, and the feds said, "Give us a report in two years"; they were watching you, expecting regular reports back?

A That's correct. Part of your contractual agreement is that you report your progress on a monthly basis.

Q This may be hard for you to recall, and if you don't recall that's fine.

At any time during this process, did the agency or department, whoever was overseeing you for the federal government, besides accepting reports or anything else, ever come in and say "Wait a minute," or "Look at this," or direct you in any way, or were you pretty much allowed to focus on what you felt was scientifically correct?

A I don't recall any instance of them taking exception to anything that we reported and saying "We don't agree with this," or "Take another look," no. We're very good research people, so that's not something that happens to us.

Q Plus it must have been a little bit hard for anybody, since you're the first ones going down the path, to say "You're not going the right way"?

A That's true and not true. There was another large-scale project going on in Finland slightly before this. I didn't know about it early on, and so I don't know if NHTSA knew about it.

But in fact, there had been a pretty good and rather extensive study that was done differently than what we did because they did it retrospectively by looking at records. But interestingly enough, they came to the same conclusions independently.

Q So you're at this project for a couple years, and your file report -- I don't know what the right word is. I don't want to say culls or whittles, but you develop the position that the three best tests are the tests that you mentioned before, Horizontal Gaze Nystagmus, Walk-and-Turn and One-Leg Stand?

A That's correct, based on the statistical analysis of that first experiment.

Q Again, it's not based on any whim or anything; this is what the numbers show?

A Absolutely.

Q So you give the final blue ribbon report, all typed on the right-size pages with the right margins that the federal government always wants, tape instead of staples so no one cuts their fingers, and you give it to NHTSA?

A That's correct.

Q And now, NHTSA, it's my understanding, put it together in a training manual; correct?

A Not yet. There's another process.

Q Okay. Go ahead. What happens next?

A Well, understand that the first experiment we were examining -- not we. Police officers were examining subjects who had zero to .15 BAC in a double-blind designed experiment with six tests. We had come out of the pilot experiment with six tests that we believed might work at roadside.

Q Let me interrupt for a minute.

Could you please tell us what the other three tests were? I'm assuming that three of them are the ones that we've been talking about, and there were three more?

A Correct. I'll probably have to look at my report.

One of them was the Paper-and-Pencil test. We wanted very much to find something to use when the person says, "But I have a bad leg --" or whatever -- "and can't do balance tests." So we had Paper-and-Pencil actually, a couple. We had one and an alternate. Neither one of them proved workable. All of the other tests had some level of accuracy.

What we did was take the best ones. Let me -- one of them was the Finger-to-Nose. I'll tell you what the other one was. Finger Count, I think. Correct, Finger Count. So there were the three tests that we finally recommended for the test battery, Finger-to-Nose, Finger Count and Paper-and-Pencil test.

Q Just so we're clear, given that it was 20-some-odd years ago, you had to refresh your recollection.

Could you tell us what you looked at?

A I looked at the final report for the research contract.

Q Okay. So you come out of the pilot program with these six tests?

A Correct.

Q You send a report regarding that to NHTSA; is that correct?

A I'm sure the results of the pilot were reported in a progress report. I no longer have that. Based on the pilot work, we then said, "We propose to do the experiment with these six tests," and then proceeded to do so.

Q Is this still under NHTSA? Is this who you're still answering to for the federal government?

A I don't know what that question means. I don't answer to the federal government.

MR. BAIR: Are they the agency that employed you to conduct the study, NHTSA?

THE WITNESS: We were under contract to them, yes.

BY MR. KAPSACK:

Q And it hasn't changed to a different organization? This is --

A During this research?

Q Right.

A No, it was always NHTSA.

Q I wanted to make sure we were clear on that, and the CIA didn't come in and say "We're taking over this project."

A No.

Q So in the report, you suggest to NHTSA that you be allowed to use these six tests to take 9 into the field or into the laboratory?

A Yes. Although I don't have those progress reports, I'm sure what happened was at the end of the pilot study, in our progress report, we reported the findings on the pilot studies, reported the six that we expected to examine and experiment, and undoubtedly detailed how we were going to conduct the experiment.

Q Then I would take it that you got the official go-ahead.

A I'm sure we did.

Q Because you went ahead?

A We went ahead.

Q Okay. So now you go ahead with these six tests?

A Right.

Q And you said that these are the ones you were going to use as experiments.

Can you tell us what you mean by "experiment"? This isn't like a chemistry thing.

A I can describe exactly what we did.

Q Sure.

A We recruited the human subjects for the study. The qualifications for this particular study were that they had to be licensed drivers and they had to be willing to drink alcohol. Other than that -- because we wanted to recruit a cross-section of the driving population such that police officers were going to encounter at roadside.

By random procedures, we assigned them, unknown to them, to various alcohol conditions. There were more people at zero -- even though they drank a beverage, who were at zero because otherwise, we would have created the expectation to the officer that every other one or every third one is going to be under the influence, and we didn't want to

do that. So an officer on a given day might see six people on the road who had had no alcohol. The actual range of BAC's was zero to .15.

We recruited ten police officers from law enforcement agencies in and around Los Angeles, and brought them in for one session which was about four hours long, and we trained them on how we wanted them to administer these six tests. In other words, "You do it this way; not creative, not inventive; you do it this way." But it was a short training, and given that police officers had not had any experience with standardized testing methods, I feel fairly confident saying they hadn't developed any particular confidence themselves in what they were doing.

Nonetheless, we brought them in two at the time on weekend days. We brought in, as I recall, about 15 to 20 people for drinking sessions. The officers didn't see the people during the drinking period. They were segregated.

They had no contact with them until they reached their peak BAC, measured via breath instrument, and they were introduced into the room. At that point, the officer could ask questions.

We had one of our staff in the room as well to observe everything that was going on. He could ask them the kinds of things he asked them at roadside, then administered the test, and then he had to record a decision whether he believed that person was above or below .10, which was the statute in California at that time, and whether in the real world, this person would be subject to arrest.

Q And again, obviously, this was not the type of thing that was done in one weekend or two, but must have stretched out over some time?

A It did. I don't recall exactly how long. As I said, because it completely took over our facility to have all these people in our facility, we did it on weekends, Saturdays and Sundays. We had two police officers per day, and as I recall, about 15 to 20 subjects, and we ran a total of 238. So it took a while.

Q Again, you've already mentioned double-blind and the fact that the officers did not see the drinking, so you followed appropriate scientific measures for the experiment.

A We did.

Q Again, out of everybody who was working on the experiment throughout any of these tests, the standard field sobriety tests or the six that you were evaluating, nobody did it based on any whim, it was all based on pure numbers?

A Correct.

Q Did you drop any of the six along the way, or did you wait for the entire experiment to

3 be finished to look at the data?

A All of the subjects had at least five tests. At this time, I don't remember how we administered the Paper-and-Pencil test, whether it was just people who had some problem with balance.

I suspect we administered it to everybody, but I truthfully don't recall without looking it up. But everybody had the complete set of tests.

Q Then this experimental portion comes to an end, and I guess that's where your hard work really starts is you sit down and look at the data and analyze the data; right?

A Correct. It's not the hard part. It's the fun part.

Q Personally, I would have thought the fun part would have been going to hit the drinks.

A That's the difference between attorneys and research people. We like math.

Q The only math most attorneys like is 33 and 40 percent.

A I've found that out.

Q So you crunch the numbers, and you make a determination that you should -- well, let me ask you.

What happens next, do you determine that three of these are not valid or more valid or what? Where do you go next?

A Well, once the data is collected, then we do the statistical analysis, and you probably don't want to know about this, but we did things like step-wise linear regression where you put some in and take some out to see which works best.

I did canonical correlation, which shows you how you best separate above and below, which tests do that best. I did discriminant function. All of these are very sophisticated and are done by computer. You don't crunch them on your calculator. They're very sophisticated statistical methods for what we needed to do, which is not just the best test but the best combination.

It's fairly complex, because one might be the best test, and two might be the second best test, but if one and two are measuring the same kind of thing, you might actually have a better test by taking one and then the third one. So you need to configure the battery as a whole, that best discriminates the above and below .10.

In fact, what the analysis showed us is that balance is a good measure, walking is a good measure, but if you've already measured balance, you don't gain much by measuring it again. So although Romberg, which was one of our alternates, is a very good test, an excellent test, if you're going to use the One-Leg Stand, you don't really gain enough by doing another balance test to include it. It doesn't mean it's a bad test. It's a good test. But you have not gained anything by adding -- you have not harmed anything, but you've taken up more time.

Q Right. It's repetitive?

A It's repetitive. So the final configuration were the three best tests in total for making this discrimination.

Q Okay. You described the three other tests, and we'll skip the Paper-and-Pencil test because we don't remember it too well, and I've never even heard of it before today.

You described the Finger-to-Nose test or Touch-the-Nose test.

Was that repetitive of one of the other tests, or was it found not to be an accurate test, or was there just a better configuration as to why it was left behind, so to speak?

A It was a sensitive test, as I recall, but it just wasn't quite as good as the ones we recommended. The analysis didn't show it to improve the overall correlation with BAC, either.

Q And the other one was Finger Count?

A Right. Same answer.

Q Same thing, okay.

Getting back to something you said, when the officers first came in and you trained them, this was the first time they had really experienced a standardized format.

Is that important?

A The standardized?

Q Standardization, is that an important factor?

A Yes, it is.

Q How important? Is it critical, fatal, sort of important?

A Well, if the tests are going to have meaning as objective measures, they have to be administered in a standardized way.

If Officer A -- let's use Walk-and-Turn, for example.

If officer A uses 10 steps down and 12 steps back, there's nothing inherently wrong with that, and it may give him a good idea whether he's looking at an impairment or not, but it's not the standardized instructions. Therefore, the scoring and the observations don't relate to any of the research data or any of the accumulated data over the years. So it's not that the officer hasn't gained any information; he doesn't have the same base to refer it to if he changes it.

Q So it's almost as if he's creating a new test because he doesn't have the scientific data to back it up on?

A Well, he's just not doing it in a standardized way. "Standardized" means everybody is going to do it the same way every time. So if it's used in Seattle or Miami, it's going to be used in the same way and it's going to be subject to the same interpretation and it's going to have the same meaning when you get into court with it.

Q When you say "meaning," you mean as far as reliability or accuracy?

A I mean both.

Q I think I understand.

So if it's given according to the standardized criteria, then the conclusions that come from it or the data that's collected from that individual can be related to the data that you've compiled over the years because the officer who gave it in that particular case did it the way it's always been done in the experimental situations; correct?

A In the experimental situation and in the field situation, because now we have accumulated a lot of years of experience.

Q Okay. Is there any way that you can adjust for deviation from the standard? For instance, let's just say, speaking generally, that there's a test that the standardized format requires the officer to do five things or asks the individual to do five things, but the officer only does four of those so the officer actually gave 80 percent standardization.

Can you correlate that back to the data? Can you say, "Since the officer was only 80 percent standardized, I should adjust the final result," or does it mean the final result really has no backing?

A Neither of the above.

Q Okay.

A I would not try to adjust it by any percentage. But whether or not it has any meaning kind of depends on what the deviation was. Let me give you an example.

I once saw an officer taken to task, and that's all I'll say about that because he used the word "pivot" for the Walk-and-Turn. In other words, he said, "You take nine heel-toe steps, counting out loud, leave your arms to the side, watch your step, and when you get to the ninth step, pivot on that step and return in the same manner." The argument being that's not the right word, and you should tell him to turn around by

taking small steps. I don't think that makes much difference.

There are things that make a difference; there are things that don't make a difference. And I really think you'd have to evaluate it. Some of the things that people get upset about don't make much difference. I mean, use a little common sense. The word "pivot," in my mind, is not a world-shaking error. There are other things that are more distressing.

If you don't give the instructions properly, you don't tell them to leave their arms at their side, count their steps out loud, take nine steps, et cetera, those are critical because the nature of the task requires them to assume the stance on the line, to stand in that position while they're given instructions, and the ability to understand and follow the instructions is part of the test.

So if they don't do that, that's important. And then whether or not the results have as much meaning as you would like them to become problematic.

Q Let me see if I can bring this to a level that at least I understand.

For instance, nine steps is the standard on a Walk-and-Turn; correct?

A Correct.

Q If the officer tells the person to take only seven steps instead of nine, but the person falls off the line each and every time, it's not really important that he only had him do seven?

A That's correct.

Q But on the other hand, if the officer says "I want you to take 35 steps," and after 13 or 14 the guy steps off the line, that kind of deviation may mean that the officer's conclusion that the person is under the influence or over a certain level could be wrong because he's gone to the point that it could be fatigue or something else?

A I think you got the meaning of it. I frequently hear, for example, a lot of argument in court about whether or not the stimulus for HGN was held exactly 12 inches in front of the person. We wrote into the instructions a distance as being a comfortable focal distance so that the person is not trying to focus too near and gets sick and throws up, or is so far you're not sure.

You know, whether it's 11 and a half or 13, I don't really care. But you have to give an instruction. In other words, hold the stimulus approximately 12 inches in front, up a little bit so you can see their eyes. You have to take these things in context.

MR. BAIR: But sort of also within reason?

THE WITNESS: That's correct. The instructions, as they're written, are written for a reason. You know, having them assume the position on the line while they listen to the instructions, that's an important component of the test. How the stimulus is held and how it's moved, those are all part of the test. But a slight deviation of the focal distance is not going to undermine the results.

BY MR. KAPSACK:

Q Okay. These instructions that you talk about are the instructions that eventually found their way into the NHTSA manual?

A Correct.

Q Did you get an opportunity -- and I know we're jumping around a little bit, but did you get an opportunity to review the NHTSA manual before it

was put into mass publication to make sure they didn't change any of the things you had told them along the way?

A Again, yes and no. The first manual was sent to me, and I reviewed it, and there was at least one thing in the manual which I thought was an error and advised them of it. It was subsequently changed. But there have been subsequent editions, and I'm not sure that I have reviewed all of those, certainly not prior to their release. I may have eventually obtained a copy of all of them, but I didn't review them.

MR. BAIR: But, really, the conclusions from your first study, more or less, have remained the same? All of your additional studies have only served to compound those conclusions or to reinforce those conclusions?

THE WITNESS: There have been no substantive changes in the tests or the -- NHTSA developed the scoring; I didn't. There have been some slight changes. NHTSA made some slight changes in instructions that differ from what we did. Again, I don't think they're substantive, and I don't think they matter.

MR. BAIR: Have you done any tests regarding the effectiveness of, like, the Hand-Pat test as a method of testing the sobriety of the driver?

THE WITNESS: Unless the Hand-Pat was part of that original series that we pilot tested, the answer is no. I don't remember if it was in that, but we didn't use it in either of the main experiments.

MR. BAIR: So over the years, I guess, like law enforcement has developed certain kinds of tests, have you added any of them in and tested their efficacy, or have you continued to stick with the three that you originally determined to be the most accurate?

THE WITNESS: Standardized field sobriety testing, which includes the three tests we're talking about here, has not changed.

Let me add that the drug recognition expert policeman uses five tests, and they include the Finger-to-Nose and the Romberg with a time estimation. There are very good reasons for doing that when you're looking for drugs because those two tests give you information with regard to drug symptoms that the others don't. But the standardized field sobriety tests have not changed.

BY MR. KAPSACK:

Q I guess part of the question that I was picking up is, has there been any time that somebody said, "Hey, the officers in Alabama have just started doing this test, and they say it works really well"?

Have you had that kind of information come to you and had a chance to evaluate that? Has anybody said, "There's a new test that officers are using," and you say, "Let's put it in the lab and see if it works"?

A No. First of all, I see a lot of road tests used by officers because I see arrest reports. But you have to understand when you're nonprofit research, you only do what somebody pays you to do. You don't have the luxury of doing anything else.

Q I assume that you keep up to date in this field, keep abreast of any other studies that are going on regarding --

A Field sobriety tests?

Q Yes.

A To my knowledge, there are not any others going on.

Q Well, that was the follow-up question.

A To my knowledge. It's possible that somebody somewhere is doing something, but I have no information about that.

Q Obviously, some little sheriff's office somewhere could be doing their own experiment. But if it was a major type of thing, you would know about it?

A Yes, I would. Let me add, there has been a revalidation or validation study for the .08. That was done by a research group called National Public Services Research Institute in Landover, Maryland. It was done two or three years ago. Essentially, they said, "Guess what? These are the best tests."

Q I know the answer, but we have to get it down for the reporter.

When you say "Guess what? These are the best tests," you mean the same three we've been talking about?

A Correct.

Q Now, these standardized tests were developed as an aid for officers to make an initial determination in the field as to initially whether or not the person had a blood alcohol level that was over .1; correct? That was the initial --

A That's correct, .1 or above.

Q These tests, in and of themselves, don't state whether the person is able to drive the

15 vehicle. In other words, these tests show there is a likelihood that someone is over .1, and since the medical community is pretty much in agreement that over .1 means you're not capable of operating a motor vehicle reasonably under the law, at least, the tests can therefore be used for that, but directly, the tests don't show the ability or inability to operate a motor vehicle; correct?

A Correct. What you're asking is, are these tests of driving? They are not. If they were tests of driving, they would be field driving tests. I can elaborate on the reasons and everything behind that if you want, but they are not tests of driving. They are tests of sobriety. There's a whole series of literature that tests alcohol and driving schools.

Q That's the missing link, so to speak.

The sobriety tests will tell you the probable level of alcohol, or at least the probable minimal level of alcohol, and then you go to the literature or the expert or the doctor to say what effect that level of alcohol will have on a person's mental and physical abilities regarding driving?

A Well, the research over the years is what led the legislators to choose the levels that they did. And as the research accumulates, those levels keep coming down. The officer is not charged with making a decision about driving skills at roadside. He couldn't. There's no way you can judge somebody in five minutes at roadside that you never saw before to make a decision about their driving skills.

What he is charged with doing is making a judgment about their sobriety or presence of alcohol or impairment by alcohol, if you will.

Q To fill in the blanks a little bit, I believe we left off historically with your taking the original six through the experimental stages, and coming down with three.

A Correct.

Q And do you recall about when that was?

A That report was submitted in June of 1977.

MR. BAIR: That was the '77 report?

THE WITNESS: Correct.

MR. BAIR: And you did a report in '81?

THE WITNESS: That was the follow-up contract that studied only the three.

BY MR. KAPSACK:

Q So '77 comes, you've been submitting progress reports to NHTSA all along, but now you start with the ride-alongs and the reading, culling it down to 15, taking the 15 down to six, and the six to the experiment. Now you say, "These three are the three best, as far as we're concerned, that we recommend should be the standardized battery,"

NHTSA takes that and agrees with you?

A I don't know if we used the word "recommend." What you do in the final report is you report everything you did. Everything. Who the subjects were, how you did the experiment, your data analysis. Then you reach some conclusions based on that set of work. Those conclusions were that those three tests were the best at discriminating between above and below .10.

Q So now four years goes by.

A Couple years. A year and a half, two years.

Q Okay. I'm not going to ask you what NHTSA did, because you don't work for them so you don't know. But they turn around and say "We're soliciting proposals again," or something along those lines?

A Yes.

Q This time, it's for a follow-up study?

A What the second study was to do was to do further research with the three tests to standardize them. In other words, to standardize them and develop the scoring and the administration procedures so that they would be as sensitive as you can make them. In other words, we have identified the best tests. Now let's make it the very best test battery we can make it.

Q Some fine-tuning?

A Some fine-tuning.

Q Same type of thing, you submit your proposal and you get it?

A Correct.

Q You get the contract?

A Correct.

Q This was in what year, if you recall?

A Well, the final report was in '81, which leads me to believe it would have been '79. I don't recall the exact date of the initiation, but it was, again, a two-and-a-half to three-year project.

Q So you spent about a year and a half, two years analyzing data again, fine-tuning --

A We ran a whole other experiment.

Q You ran a whole other experiment? Okay. Same type of experiment you described before?

A Very similar, except now we only use three tests, not six, but the design was similar. We brought ten police officers in, trained them how to do it in a standardized way, recruited subjects. Everything was double-blind.

One thing we did differently between the two and the one is that in the second study, we brought about 100 of the subjects back for a second session. The reason for that was to examine the reliability of the tests. "Reliability" being used here in the statistical sense. It's very similar, but has a very specific meaning.

If you bring the subjects back, produce the same BAC, have them examined again with the same tests, sometimes by the same officer, that's one kind of check. Sometimes by a different officer. Do you get the same results?

And you have to have two administrations of the test battery to the same person in order to do that. So that was an addition.

Also, we did a small field study. Not a good field study, not big enough. There were a lot of things that we didn't like about it, and reported that we didn't like it because there weren't funds to do it. That was the second.

Q So you submit that report, or the report of all this in '81?

A Correct.

Q And you fine-tune the standardization?

A Correct.

Q And supplement your findings with the additional data?

A This time we had 297 subjects.

Q And that's 18 years ago.

What's the next?

A Well, the next step is NHTSA's step, and I'm not really the person to tell you exactly what and how and why they did it, except as an outsider, to say that training began sometime thereafter of law enforcement nationwide.

Q I take it throughout this you're still involved in it to a certain degree.

When is the next time you get a contract or do a study, or anything along those lines?

A Well, the next time I actually worked for NHTSA that involved these tests was with a study of the Drug Recognition Program, of which these tests are a component, and that was in 1985.

That's the only work I directly did for NHTSA, except to appear as an expert.

Q Getting back to the tests themselves, why three? Is there any significance to why -- you've already told us you found that some of them were repetitive and things like that.

Can the officer make a reliable decision based on one test, or does he need all three?

A Okay. One of the reasons for three, coming at it from one direction, is officers don't have all night to do all the tests in the world out there. There is a limit as to the amount of time they can invest in any one stop. So the redundancy -- I can't justify the redundancy. If you're not getting more information, why do more tests?

Coming at it from the other direction, although Horizontal Gaze Nystagmus is almost as good alone a predictor as all three tests, it's kind of a maximum of testing, whether roadside or educational or psychological or medical testing, that if it's an important decision, you don't want to base it, unless you have to, unless circumstances force you to -- but you would prefer to have evidence from more than one test.

If you had very disparate results -- let's take another field. If you went to your physician and he had one test that said you have diabetes and another that said you have heart disease and another that said you have cancer, I think he would be a little puzzled. He would like to see all his markers, blood tests, EKG's, pointing in one direction to give him some confidence in his diagnosis.

So instead of saying, "Horizontal Gaze Nystagmus is a pretty good test and predictor; we'll just go with that," you really need more evidence, in my view. And I think that's a pretty widely held view.

So there were three, but as I said before, we found adding to that of those six that we identified didn't really improve predictions, so we didn't have four or five.

Q And you don't have only one for the reasons you just stated, because you want a second opinion, you want a little backup there?

A Well, there's always a risk if you rely on a single marker. Now, sometimes an officer may have to. The circumstances may be such that the only thing he can do is look at their eyes.

But let's suppose you have somebody who has a real problem with balance because of some medical condition, or you have somebody who has really strange eyes for some reason that I don't know.

But if that's the only test you have, you really don't have any basis for a decision.

Q Now, initially when you did the experiments on these, they were done in the facilities where you have a somewhat controlled environment?

A Absolutely.

Q The overwhelming percentage, if not 100 percent of the time these tests are given on the side of the road, how much of a factor does that play?

A That plays a factor that works -- well, there's a number of factors working here, and it works both ways. Certainly, in the controlled environment where there was no consequence to an officer's error, that had to affect the data. If you look at the data, you can see it did.

One of the things that I'm often challenged on is in the first experiment, they made a lot of false alarms. That is, they said this person is above .10 when, in fact, they weren't. If you look at the data as I did, you discover that their criterion was really .08. In other words, they were saying arrest at the point they saw significant impairment. That was .08, not .10.

Their sergeants are not going to be upset and the lieutenant is not going to be upset if they make an error, and this person is not going back on the road driving impaired. So you can't recreate all the same variables in the laboratory that you have at roadside, which is one of the reasons I wanted to do a field study.

Q And conversely, in the laboratory, you don't have some of the distractions that you would have on the roadside?

A That's true.

Q For instance, I would assume you kept the laboratory fairly well lit. It's not the kind of nighttime stop that officers get involved in.

A True. Another important variable is that those officers had just been trained, with one exception, and that was in the second study. None of them had heard of Horizontal Gaze Nystagmus before. It takes a period of learning to believe what you really see for officers who are trained in nystagmus. So my concern, my interest was in finding what officers who had used the test battery for a period of time were capable.

(DISCUSSION HELD OFF THE RECORD)

BY MR. KAPSACK:

Q There also must be a period of institutional learning for which most police departments are

notoriously slow. When you talk about confidence, the officers had to have confidence when they came to you individually. I'm sure the first few times you told the officers, "You're going to take a stimulus and move it in front of their eyes," they must have looked at you like you were crazy.

A I'm sure they did.

Q But then when they went back to their departments and they said, "No, it really works," I'm sure the rest of the officers looked at them like they were crazy, too.

A There is a period of accepting. Police officers are notorious for not accepting newfangled ideas, so to speak.

Q When these tests are done on the side of the road, is there a set standard or a given margin that the officer should use regarding mistakes or failures in the field sobriety tests that he should attribute to the environment, if you understand me?

A I understand you. I'm trying to think if there's any such thing.

The only thing that's required for nystagmus is that the suspect be able to see the stimulus and the officer be able to see his eyes.

It doesn't matter if the wind is blowing or it's raining, you know. Those things just don't matter.

Walk-and-Turn, preferably, is done on a flat, dry surface. If it cannot be, then I think the officer is going to have to take that into account. But to my knowledge, there are no particular guidelines that -- there's been no research that says that if the pavement slopes X number of degrees, that cannot be done. But I don't think it would be possible to do it.

Again, I think it's a matter of common sense, but it has not been a matter of research.

MR. BAIR: Footwear would make a significant impact on a study with regard to the Walk-and-Turn.

THE WITNESS: It can, and I think it depends on the individual. Depending on where it is and the circumstances, officers very often give somebody who is wearing high heels or boots with heels the option of taking them off.

BY MR. KAPSACK:

Q I would assume that Walk-and-Turn would be hard in a six-inch spike heel.

A Unless you do every day, then it's a piece of cake.

MR. BAIR: Tennis shoes may be difficult, then.

BY MR. KAPSACK:

Q Have you ever been asked by NHTSA, or has there ever been a proposal that was requested regarding any of the other tests that have come and gone, such as, I believe the Hand-Pat was mentioned, or a written alphabet or anything like that that you know of that you've been involved in?

A I've never been asked to do any research with those. It's possible -- I don't remember the report from the more recent study for the .08. They did use some other tests, but I don't remember now what they were.

MR. BAIR: I think I just would like to get down specifically what those three tests are. If you could, tell us the walk out nine steps, walk back, exactly what those tests are so that we have a record of exactly what those tests are that your group came to the conclusion were accurate.

THE WITNESS: Well, HGN, which is a jerking movement of the eyeballs, is administered by having the individual stand with their arms at their side, holding his or her head still, and the officer or person administering the test holds the stimulus approximately 12 inches in front of their face, elevated slightly so they'll open their eyes.

Because the point is, you have to see their eyes. Then he or she moves the stimulus -- how shall I describe it? -- back and forth in front of the eyes laterally and observes that individual's eyes.

First of all, the determination is made whether the eyes can track the stimulus smoothly, or whether they jerk as they move. I'm tempted to use my hands because I teach it. So lack of smooth pursuit is one sign. That's worth one point in each eye.

The second sign is the distinct jerking at maximum deviation. In other words, when the eyes have been moved as far as they can go to the side, and then held there for about four seconds, is there a distinct jerking, not just a little tremor? Because that can occur because it's an uncomfortable position. There needs to be a distinct jerking that persists.

And then finally, the person who is administering the test looks for the angle of gaze when there's the first onset of jerking. In other words, has the individual deviated his eyes 40 degrees, 45 degrees or 30 degrees? Because it's the relationship between that and the BAC.

MR. BAIR: Each one of those is worth one point in each eye?

THE WITNESS: That's correct. So a maximum of six, and four points is a basis for taking them in.

The Walk-and-Turn test is just what it sounds like, a test of the individual's ability to walk and execute a turn and return. They're told to put the left foot on the line, put the right foot in front of it and stand in that position while the officer gives the rest of the instructions.

He then instructs and demonstrates by showing what heel-to-toe is. He tells the individuals, "I want you to take nine heel-to-toe steps along the line. Watch your feet at all times, leave your arms at your side, and count your steps aloud. When you get to the ninth step, turn around, take small steps turning around and come back along the line in the same way with nine heel-to-toe steps. Do you understand?"

And if the individual says "I don't understand," then the officer repeats the instructions. And there are eight -- I believe there are eight errors that can be scored. Two errors are reason to arrest.

BY MR. KAPSACK:

Q Let me interrupt you for a second here. We talked about this a little bit earlier.

You said they should take little steps, and we talked about how the officer has to use common sense.

A He demonstrates that, by the way.

Q Right.

I have seen this where the officer has prescribed that it must be a specific number of steps.

A To turn around?

Q To turn around. I have seen and heard them say "You must pivot on your foot using three steps to turn around."

A I'm not aware of the source of that.

Q This is part of the problem, little bits that have been added and taken away that have occurred in some places.

A Let me say that I don't think that would do any harm unless he scored an error for failure to take three steps. If he wants them to take three steps, I don't think that's a big deal.

But he has no basis to score against them for taking four because that's not part of the standardized testing.

Q That gets back to your testimony before, because that's what gives it its reliability.

A That's what gives it its predictive power.

Q Predictive power?

A "Reliability" means something different to me.

Q I like that, "predictive power."

A Yeah. What you're trying to do is predict accurately whether this person is going to have a breath test that shows above or below .10.

Q If I, as an officer, score something as an error that's not considered an error under the standardized rules, then my power of predictability is not very good.

MR. BAIR: Or has been diminished.

BY MR. KAPSACK:

Q Could be getting worse, because we've never studied that aspect.

A Could be. Sometimes officers tell me with misguided pride that they've made the test a little more difficult, or changed it. I don't like to discourage hard-working police officers, but I have to say to them, "That's very interesting, and it may be that your test is better, but we don't know that. So please don't do it."

MR. BAIR: Maybe they're getting down to .06, which may be the next test.

THE WITNESS: If the American Medical Association and MADD has its way, we're going to .05.

BY MR. KAPSACK:

Q The third test I think is where we were.

A Third is the One-Leg Stand, and the suspect is told to stand with their feet together, to lift one leg, either one, approximately six inches off the ground, point the toe, watch their toe, their foot at all times, and to count.

Now, this is a place where NHTSA has made a change. Our instructions were -- I don't think it's a significant change, but just so you're aware of it, originally we said you count 1,001, 1,002, 1,003, until you reach 1,030.

We wanted to be sure they held that stance for 30 seconds because it turns out that people at .10 very often can hold it to 20 or 25 seconds. It's only when the attention begins to waiver that the balance gets messed up. So it's critical to hold it for 30 seconds, and that was the point of the counting.

NHTSA has just within the last couple years changed that instruction so that they're now told "Count 1,001, 1,002, 1,003, until I tell you to stop." And the officer now times it for 30 seconds and then records the count. In other inches?

A No. You have to give them some instruction. I mean, there's a difference between six inches and straight out. But if it's five and a half inches or seven inches, it's not going to make a difference in the test. I suppose there's some point like a fulcrum at which it's easier to balance, perhaps. I don't know. But the instructions are six inches, approximately six inches off the ground.

Q In all these tests, again, common sense plays an important role. For instance, you know, for any of

these tests, I would guess, standing on one leg came to my mind immediately if it's being done in a place where the highway goes in a mountain gap, and you've got 25-mile-an-hour winds. It's probably not the best place to give the test, and that's going to have some effect.

A It might be difficult, but, you know, the field tests we did in Colorado, one of the things we were interested in was, are these tests valid in Colorado mountains where it snows and blows and does all kinds of unpleasant things? And we didn't find any significant effect of the weather, except that officers tended to make a mistake by letting people go who should have been arrested if they didn't have on adequate clothing.

In other words, if it was cold and they didn't have a jacket, they tended to make an error by releasing them.

Q By assuming some of the mistakes were as a result of being cold?

A Either that, or they just felt sorry for them.

MR. BAIR: Didn't complete the tests?

THE WITNESS: Just didn't keep them -- that's the only thing I can assume. If officers make an error, it's far more likely to be a release than an arrest. They don't arrest very many incorrectly, but they release enough incorrectly that, as road users, we should worry.

MR. KAPSACK: I'd like to take a five-minute break.

(BRIEF RECESS)

MR. KAPSACK: That's all we have. Thank you.

DECLARATION

I hereby declare that I am the deponent in the within matter; that I have read the foregoing examination under oath and know the contents thereof. And I declare that the same is true of my knowledge, except as to the matters which are therein stated upon my information or belief, and as to those matters, I believe it to be true

I declare under the penalties of perjury of the State of California that the foregoing is true and correct.

Executed on the _____ day of _____, 19 , at _____.

WITNESS

I, Lori Raye, A Certified Shorthand Reporter for the State of California, do hereby certify:

That prior to being examined, MARCELLINE BURNS, Ph.D., the witness named in the foregoing examination under oath was by me duly sworn to testify the truth, the whole truth and nothing but the truth pursuant to Section No. 2093 of the Code of Civil Procedure;

That said examination under oath was taken before me, at the time and place therein set forth, and was taken down by me stenographically and thereafter transcribed;

I further certify that I am neither counsel for, nor related to, any party to said action, nor in anywise interested in the outcome thereof.

In witness whereof, I have hereunto subscribed my name this 5th day of May 1998.