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4 IN RE: )  
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6 EXAMINATION UNDER OATH )  
7 OF )  
8 ) Pages 1 - 62  
9 MARCELLINE BURNS )  
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17 EXAMINATION UNDER OATH OF MARCELLINE BURNS, Ph.D.  
18 TAKEN ON  
19 FRIDAY, APRIL 17, 1998  
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23 )  
24 REPORTED BY: LORI RAYE  
25 CSR NO. 7052

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1  
2 Examination Under Oath of MARCELLINE BURNS,  
3 Ph.D., taken at 12400 Wilshire Boulevard,  
4 Suite 1300, Los Angeles, California, on Friday,  
5 April 17, 1998, at 12:15 p.m., before Lori Raye,  
6 CSR No. 7052, pursuant to notice.  
7  
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9  
10 APPEARANCES:  
11  
12  
13 FOR ROBERT SONN:  
14  
15  
16 KAPSACK & BAIR, LLP  
17 BY: BRUCE KAPSACK, ESQ.  
18 HUDSON BAIR, ESQ.  
19 353 Sacramento Street  
20 Suite 1500  
21 San Francisco, California 94111  
22 (415) 421-1021  
23  
24  
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1 I N D E X  
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3 WITNESS  
4 MARCELLINE BURNS, Ph.D.  
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6 EXAMINATION PAGE  
7 BY MR. KAPSACK ..... 4  
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11 EXHIBITS  
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13 NO. DESCRIPTION PAGE  
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15 1 Curriculum Vitae of Marcelline Burns, Ph.D. 5  
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1 LOS ANGELES, CALIFORNIA, FRIDAY, APRIL 17, 1998  
2 12:20 p.m.  
3  
4  
5 MARCELLINE BURNS, Ph.D.,  
6 HAVING BEEN FIRST DULY SWORN, WAS  
7 EXAMINED AND TESTIFIED AS FOLLOWS:  
8  
9 EXAMINATION  
10  
11 BY MR. KAPSACK:  
12 Q. Could you please state your name and  
13 spell your last name for the record.  
14 A. My name is Marcelline Burns,  
15 B-u-r-n-s.  
16 Q. And it's Dr. Burns; correct?  
17 A. Correct.  
18 Q. Have you had your deposition or  
19 examination under oath taken in the past,  
20 Dr. Burns?  
21 A. I have.  
22 Q. On more than a couple of occasions?  
23 A. Yes.  
24 Q. So you're familiar with the rules of  
25 depositions?

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1 A. I am.  
2 Q. Is there any need for me to go over  
3 them with you?  
4 A. No.  
5 Q. Obviously, at the end of this, you'll  
6 receive a copy of the transcript. If you need to  
7 make any changes, you'll have an opportunity to do  
8 so.  
9 A. Okay.  
10 Q. I have here what will be marked as  
11 Exhibit 1, a copy of your CV that you gave me  
12 today.  
13 Is this an accurate and up-to-date  
14 copy of your CV?  
15 A. It is.  
16 Q. I'm not going to go into it in any  
17 depth.  
18 (THE DOCUMENT REFERRED TO WAS MARKED  
19 BY THE REPORTER AS EXHIBIT 1 FOR IDENTIFICATION AND  
20 IS ATTACHED HERETO)  
21 BY MR. KAPSACK:  
22 Q. We're here today to discuss  
23 standardized field sobriety tests.  
24 Are you familiar with that subject?  
25 A. I am.

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1 Q. Could you tell us briefly how it is  
2 that you know about standardized field sobriety  
3 tests, outside of maybe saying it's something that  
4 your father knew and his father before him knew.  
5 A. Well, I'm one of the founders of and  
6 the current director of the Southern California  
7 Research Institute. That's a nonprofit research  
8 group. We're funded by grants and contracts.  
9 I don't know how much you know about  
10 that process, but contracts are issued when the  
11 government agency identifies an area of research  
12 that they think needs to be done, and they issue a  
13 request for proposal. Any research group that  
14 believes they are competent to do that work can  
15 respond with a cost proposal and technical  
16 proposal.  
17 In 1975, the National Highway Traffic  
18 Safety Administration, NHTSA, realized that the --  
19 this is my understanding of what led to the request  
20 for proposals. They recognized that the average  
21 blood alcohol concentration of arrests nationwide  
22 was .17 percent BAC.  
23 The prevailing statute was  
24 .10 percent. There may have been one or two that  
25 still had a high one, but most of the states had

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1 gone to .10. If the average arrest is .17, that  
2 means that a lot of people who probably ought to go  
3 to jail are not doing so because the officer is  
4 either not detecting the driving pattern that leads  
5 him to stop the vehicle, or once he stops a  
6 vehicle, he's not recognizing the presence of  
7 alcohol.  
8 The National Highway Safety  
9 Administration actually funded several research  
10 contracts, but the RFP that we responded to was  
11 specifically to develop a battery of tests that  
12 police officers could use at roadside that would  
13 help them to make the correct decision so that it  
14 is a competitive bidding process.  
15 Our bid, both the technical proposal  
16 which outlines how to expect to do it, what your  
17 expertise is, so forth, and our cost proposal won  
18 that award, and we began that research in 1975.  
19 The final report was submitted in 1977, and it was  
20 in that report that we recommended the three tests,  
21 Horizontal Gaze Nystagmus, Walk-and-Turn and  
22 One-Leg Stand.  
23 Based on that recommendation, they  
24 subsequently issued a second contract to us to do a  
25 second study with just those three tests, and that

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1 one was completed in 1981. So that's how I got  
2 into this area.  
3 Q. Okay. Your background information  
4 regarding your ability to get into this area, your  
5 expertise, et cetera, is covered in your CV;  
6 correct?  
7 A. Yes and no.  
8 Q. Okay.  
9 A. At that time, I had several years'  
10 background in studying the effects of alcohol and  
11 other drugs. I didn't have any background in  
12 roadside tests, nor do I think anybody in this  
13 country did at that time. It's not a research  
14 topic that has gotten a lot of attention worldwide.  
15 Q. Okay. I forgot to ask this in the  
16 beginning, so I'll ask it now.  
17 Have you testified in court previously  
18 regarding standardized field sobriety tests?  
19 A. Yes.  
20 Q. Can you give us a ballpark figure as  
21 to the number of times?  
22 A. No, not really. Not an accurate one.  
23 A lot of times, but I have no idea how many.  
24 Q. More than ten?  
25 A. Yes.

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1 Q. More than 100?  
2 A. Well, if you include hearings as being  
3 testimony, it probably would not be more than 100.  
4 I don't know. I have no idea.  
5 Q. The times that you have testified  
6 either at trials or hearings, have you been  
7 admitted as an expert --  
8 A. Yes.  
9 Q. -- regarding standardized field  
10 sobriety tests?  
11 A. Yes.  
12 Q. Subsequent to your study, were the  
13 three standardized field sobriety tests adopted by  
14 NHTSA?  
15 A. I don't know that NHTSA uses the word  
16 "adopted." What they did is they took the  
17 findings that we reported to them. They also took  
18 our data, our actual data set, and one of their  
19 staff, a man named Schweitz, did some additional  
20 analysis. Ultimately, they produced a training  
21 manual and began to sponsor training.  
22 Now, I've told you about all I know  
23 about that because I don't work for NHTSA, except  
24 as a researcher. So I'm not really privy to all  
25 those processes.

1 the wide-ranging skills of the people you're  
2 dealing with, all of those things, plus you're  
3 dealing with the fact of what the squad cars don't  
4 have -- they already have too much, and we couldn't  
5 suggest adding apparatus on the basis of both cost  
6 and just practicality.  
7 We had to think about officer safety,  
8 what they could do, and all those things eliminated  
9 most of the potential tests. We ended with six  
10 that we believed had some merit, and then conducted  
11 the first laboratory study with those.  
12 Q. Regarding the initial list of 15  
13 tests, you eliminated some of those based on a  
14 variety of reasons.  
15 Were there any tests at that time that  
16 were being given by officers which, although they  
17 may have been given in that particular jurisdiction  
18 for a long time, really had no basis in science, no  
19 viability? In other words, they really didn't  
20 relate to what the officers were investigating?  
21 A. I'm not sure I know how to answer  
22 that.  
23 What officers were doing in 1975  
24 was -- there was a lot of variability between  
25 agencies, even between officers and even between

1 Q. Going back to 1975, shortly after you  
2 get the go-ahead and the funding to start the  
3 research in this area, did you start with the idea  
4 that there were these three tests, Horizontal Gaze  
5 Nystagmus, Walk-and-Turn and One-Leg Stand, that  
6 you were going to evaluate, or did you look at a  
7 broader base of tests that were currently being  
8 used or talked about in the field?  
9 A. Neither.  
10 Q. Okay.  
11 A. Any research project -- well, that's a  
12 pretty broad statement. I began a project with the  
13 literature reviewed to find out what the state of  
14 knowledge was concerning that topic at that time.  
15 That was the first thing I did.  
16 The second thing I did was went around  
17 various places in the United States and rode with  
18 DUI teams, special enforcement teams to actually  
19 determine what it was that they were doing.  
20 Then finally, we compiled a fairly  
21 long list of tests. I think there were on the  
22 order of 15 to 20 that we thought might work. We  
23 did some pilot testing with them. It soon became  
24 evident that given the constraints at roadside, the  
25 time, variability and circumstances, the weather,

1 one arrest and the next. "Standardized" was not a  
2 word that had entered law enforcement in 1975. I  
3 think they were doing the best they could.  
4 I've been puzzled about this for a  
5 long time, that since the automobile was introduced  
6 around the turn of the century, it was recognized  
7 that alcohol and driving weren't going to combine  
8 very well, if you look at the literature. Why had  
9 there been nothing done? The first statute with a  
10 number, which happened to be .15, was enacted in  
11 Indiana fairly early on. I don't remember the  
12 exact date. I have to look it up. So I was really  
13 puzzled about why nobody thought about how the  
14 officers were going to enforce these statutes.  
15 If you think about it, if you're  
16 talking about .15, you're talking about a visibly,  
17 obviously intoxicated person. Probably they didn't  
18 need a lot of help at that point. But when it  
19 switched from thinking about drunk drivers to  
20 thinking about impaired drivers, which is what the  
21 scientific literature was moving toward, then it  
22 became clear that officers need some help in being  
23 able to recognize the signs and symptoms associated  
24 with impairment by alcohol.  
25 I forgot why I got onto that long

1 exposition, but that's kind of the history of --  
2 Q. My question was, during your initial  
3 ride-alongs and stuff, did you see that there were  
4 certain tests that really were sort of folklorish,  
5 and wonder whether or not they had any basis to aid  
6 the officer in the decision you just talked about?  
7 For instance, before we started the  
8 deposition, I mentioned there was one place where  
9 they said they had stopped people and made them  
10 recite the alphabet backwards, and that had  
11 absolutely no connection.  
12 Did you discover, in either some of  
13 the tests that you didn't include in your group of  
14 15, or later on, that there were certain tests  
15 where people or officers or the community thought,  
16 hey, this is a good test to give somebody as an  
17 indication, but it turns out it really wasn't a  
18 good test?  
19 A. Well, certainly, I observed tests that  
20 didn't make the cut. Where those tests -- you  
21 characterized them as folklorish. I don't know  
22 where they came from. Since there had been no  
23 research in this area, since there had not been a  
24 big emphasis on alcohol enforcement, I don't know,  
25 but I would suspect they just developed what they

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1 found to help them. Because at that point, there  
2 was no research on the validity and reliability of  
3 these things. But yes, there were tests being used  
4 in 1975 which did not make it into the first  
5 experiment.  
6 Q. Okay. Now, after your initial reading  
7 of the literature and some of your ride-alongs,  
8 you've culled down to a group of 15. Then you said  
9 shortly after moving it into the lab, some of those  
10 were cut out for economic reasons or just  
11 practicality reasons, like you said, the officer  
12 not having the time or equipment, or not being safe  
13 to conduct some of these tests on the side of the  
14 road, which is the environment the officer finds  
15 himself in; correct?  
16 A. Not quite. Those issues are all  
17 constraints at roadside. But the reason some of  
18 those tests were eliminated in pilot studies could  
19 be one of several. Either they weren't sensitive  
20 to alcohol, they didn't discriminate between above  
21 and below .10, or they were not suitable for  
22 certain ages or certain conditions. There were a  
23 variety of reasons why they just wouldn't work.  
24 Q. Didn't make the grade?  
25 A. Didn't make the grade.

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1 Q. Let me back up a little bit.  
2 Obviously, you didn't jump from a huge  
3 number, from 15 to 3. It must have been different  
4 stages along the way.  
5 About how long did that process take?  
6 A. You're talking about almost 25 years  
7 ago. I don't know.  
8 Q. Okay. I understand.  
9 A. The research began in '75. A final  
10 report was issued in June of '77. I did all the  
11 traveling, the literature review and the pilot test  
12 before we actually began the experiment. So I  
13 would guess it was probably three or four months,  
14 but I don't recall.  
15 Q. So obviously, it wasn't a hasty,  
16 overnight decision. It went through the stages you  
17 just described, the initial reading and observation  
18 by yourself, and then some pilot studies?  
19 A. Yes. And when you perform research  
20 for the federal government for agencies, they don't  
21 just give you the money and walk away and say "Let  
22 me know when you get finished." There is an  
23 overview process. So you're making monthly  
24 progress reports to them, and they're part of the  
25 decision process and part of the evolvement of what

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1 you actually do.  
2 So if I had said, just arbitrarily,  
3 "Well, I don't like these, and I like these," I  
4 would have been called on that. So it's a rigorous  
5 process.  
6 Q. Thank you. That was exactly the  
7 question I was trying to get to and I didn't hit it  
8 quite right, but your answer did.  
9 So you didn't say, "I don't like this  
10 test, I'm not going to bother with it"; if a test  
11 appeared to be a test that was going to make the  
12 grade, it stayed in whether you liked it or not,  
13 and if it appeared it wasn't going to make the  
14 grade, it got dumped by the wayside whether you  
15 liked it or not; correct?  
16 A. That's very accurate. Whether I liked  
17 it or didn't like it, I don't remember having any  
18 strong feelings one way or the other. But in  
19 research, numbers are what make the decisions, not  
20 your subjective evaluations.  
21 Q. To state the obvious, because that's  
22 part of the reason why we're here, this was all  
23 done in what is considered scientifically  
24 acceptable means; correct, all these testings?  
25 A. That's correct.

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1 Q. As you said before, you weren't  
2 just -- let me back up.  
3 We're saying "you." You weren't alone  
4 in this project, were you?  
5 A. No, I was the project director on the  
6 first experiment. My colleague, Herbert Moskowitz,  
7 was also involved in that one.  
8 Q. So we're using the plural "you," so to  
9 speak.  
10 A. Right.  
11 Q. You weren't given the money and cut  
12 loose, and the feds said, "Give us a report in two  
13 years"; they were watching you, expecting regular  
14 reports back?  
15 A. That's correct. Part of your  
16 contractual agreement is that you report your  
17 progress on a monthly basis.  
18 Q. This may be hard for you to recall,  
19 and if you don't recall that's fine.  
20 At any time during this process, did  
21 the agency or department, whoever was overseeing  
22 you for the federal government, besides accepting  
23 reports or anything else, ever come in and say  
24 "Wait a minute," or "Look at this," or direct you  
25 in any way, or were you pretty much allowed to

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1 focus on what you felt was scientifically correct?  
2 A. I don't recall any instance of them  
3 taking exception to anything that we reported and  
4 saying "We don't agree with this," or "Take another  
5 look," no. We're very good research people, so  
6 that's not something that happens to us.  
7 Q. Plus it must have been a little bit  
8 hard for anybody, since you're the first ones going  
9 down the path, to say "You're not going the right  
10 way"?  
11 A. That's true and not true. There was  
12 another large-scale project going on in Finland  
13 slightly before this. I didn't know about it early  
14 on, and so I don't know if NHTSA knew about it.  
15 But in fact, there had been a pretty good and  
16 rather extensive study that was done differently  
17 than what we did because they did it  
18 retrospectively by looking at records. But  
19 interestingly enough, they came to the same  
20 conclusions independently.  
21 Q. So you're at this project for a couple  
22 years, and your file report -- I don't know what  
23 the right word is. I don't want to say culls or  
24 whittles, but you develop the position that the  
25 three best tests are the tests that you mentioned

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1 before, Horizontal Gaze Nystagmus, Walk-and-Turn  
2 and One-Leg Stand?  
3 A. That's correct, based on the  
4 statistical analysis of that first experiment.  
5 Q. Again, it's not based on any whim or  
6 anything; this is what the numbers show?  
7 A. Absolutely.  
8 Q. So you give the final blue ribbon  
9 report, all typed on the right-size pages with the  
10 right margins that the federal government always  
11 wants, tape instead of staples so no one cuts their  
12 fingers, and you give it to NHTSA?  
13 A. That's correct.  
14 Q. And now, NHTSA, it's my understanding,  
15 put it together in a training manual; correct?  
16 A. Not yet. There's another process.  
17 Q. Okay. Go ahead. What happens next?  
18 A. Well, understand that the first  
19 experiment we were examining -- not we. Police  
20 officers were examining subjects who had zero  
21 to .15 BAC in a double-blind designed experiment  
22 with six tests. We had come out of the pilot  
23 experiment with six tests that we believed might  
24 work at roadside.  
25 Q. Let me interrupt for a minute.

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1 Could you please tell us what the  
2 other three tests were? I'm assuming that three of  
3 them are the ones that we've been talking about,  
4 and there were three more?  
5 A. Correct. I'll probably have to look  
6 at my report.  
7 One of them was the Paper-and-Pencil  
8 test. We wanted very much to find something to use  
9 when the person says, "But I have a bad leg --" or  
10 whatever -- "and can't do balance tests." So we  
11 had Paper-and-Pencil actually, a couple. We had  
12 one and an alternate. Neither one of them proved  
13 workable. All of the other tests had some level of  
14 accuracy.  
15 What we did was take the best ones.  
16 Let me -- one of them was the Finger-to-Nose. I'll  
17 tell you what the other one was. Finger Count, I  
18 think. Correct, Finger Count. So there were the  
19 three tests that we finally recommended for the  
20 test battery, Finger-to-Nose, Finger Count and  
21 Paper-and-Pencil test.  
22 Q. Just so we're clear, given that it was  
23 20-some-odd years ago, you had to refresh your  
24 recollection.  
25 Could you tell us what you looked at?

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1 A. I looked at the final report for the  
2 research contract.  
3 Q. Okay. So you come out of the pilot  
4 program with these six tests?  
5 A. Correct.  
6 Q. You send a report regarding that to  
7 NHTSA; is that correct?  
8 A. I'm sure the results of the pilot were  
9 reported in a progress report. I no longer have  
10 that. Based on the pilot work, we then said, "We  
11 propose to do the experiment with these six tests,"  
12 and then proceeded to do so.  
13 Q. Is this still under NHTSA? Is this  
14 who you're still answering to for the federal  
15 government?  
16 A. I don't know what that question  
17 means. I don't answer to the federal government.  
18 MR. BAIR: Are they the agency that employed  
19 you to conduct the study, NHTSA?  
20 THE WITNESS: We were under contract to them,  
21 yes.  
22 BY MR. KAPSACK:  
23 Q. And it hasn't changed to a different  
24 organization? This is --  
25 A. During this research?

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1 you were going to use as experiments.  
2 Can you tell us what you mean by  
3 "experiment"? This isn't like a chemistry thing.  
4 A. I can describe exactly what we did.  
5 Q. Sure.  
6 A. We recruited the human subjects for  
7 the study. The qualifications for this particular  
8 study were that they had to be licensed drivers and  
9 they had to be willing to drink alcohol. Other  
10 than that -- because we wanted to recruit a  
11 cross-section of the driving population such that  
12 police officers were going to encounter at  
13 roadside.  
14 By random procedures, we assigned  
15 them, unknown to them, to various alcohol  
16 conditions. There were more people at zero -- even  
17 though they drank a beverage, who were at zero  
18 because otherwise, we would have created the  
19 expectation to the officer that every other one or  
20 every third one is going to be under the influence,  
21 and we didn't want to do that. So an officer on a  
22 given day might see six people on the road who had  
23 had no alcohol. The actual range of BAC's was zero  
24 to .15.  
25 We recruited ten police officers from

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1 Q. Right.  
2 A. No, it was always NHTSA.  
3 Q. I wanted to make sure we were clear on  
4 that, and the CIA didn't come in and say "We're  
5 taking over this project."  
6 A. No.  
7 Q. So in the report, you suggest to NHTSA  
8 that you be allowed to use these six tests to take  
9 into the field or into the laboratory?  
10 A. Yes. Although I don't have those  
11 progress reports, I'm sure what happened was at the  
12 end of the pilot study, in our progress report, we  
13 reported the findings on the pilot studies,  
14 reported the six that we expected to examine and  
15 experiment, and undoubtedly detailed how we were  
16 going to conduct the experiment.  
17 Q. Then I would take it that you got the  
18 official go-ahead.  
19 A. I'm sure we did.  
20 Q. Because you went ahead?  
21 A. We went ahead.  
22 Q. Okay. So now you go ahead with these  
23 six tests?  
24 A. Right.  
25 Q. And you said that these are the ones

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1 law enforcement agencies in and around Los Angeles,  
2 and brought them in for one session which was about  
3 four hours long, and we trained them on how we  
4 wanted them to administer these six tests. In  
5 other words, "You do it this way; not creative, not  
6 inventive; you do it this way." But it was a short  
7 training, and given that police officers had not  
8 had any experience with standardized testing  
9 methods, I feel fairly confident saying they hadn't  
10 developed any particular confidence themselves in  
11 what they were doing.  
12 Nonetheless, we brought them in two at  
13 the time on weekend days. We brought in, as I  
14 recall, about 15 to 20 people for drinking  
15 sessions. The officers didn't see the people  
16 during the drinking period. They were segregated.  
17 They had no contact with them until they reached  
18 their peak BAC, measured via breath instrument, and  
19 they were introduced into the room. At that point,  
20 the officer could ask questions.  
21 We had one of our staff in the room as  
22 well to observe everything that was going on. He  
23 could ask them the kinds of things he asked them at  
24 roadside, then administered the test, and then he  
25 had to record a decision whether he believed that

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1 person was above or below .10, which was the  
2 statute in California at that time, and whether in  
3 the real world, this person would be subject to  
4 arrest.  
5 Q. And again, obviously, this was not the  
6 type of thing that was done in one weekend or two,  
7 but must have stretched out over some time?  
8 A. It did. I don't recall exactly how  
9 long. As I said, because it completely took over  
10 our facility to have all these people in our  
11 facility, we did it on weekends, Saturdays and  
12 Sundays. We had two police officers per day, and  
13 as I recall, about 15 to 20 subjects, and we ran a  
14 total of 238. So it took a while.  
15 Q. Again, you've already mentioned  
16 double-blind and the fact that the officers did not  
17 see the drinking, so you followed appropriate  
18 scientific measures for the experiment.  
19 A. We did.  
20 Q. Again, out of everybody who was  
21 working on the experiment throughout any of these  
22 tests, the standard field sobriety tests or the six  
23 that you were evaluating, nobody did it based on  
24 any whim, it was all based on pure numbers?  
25 A. Correct.

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1 Q. Did you drop any of the six along the  
2 way, or did you wait for the entire experiment to  
3 be finished to look at the data?  
4 A. All of the subjects had at least five  
5 tests. At this time, I don't remember how we  
6 administered the Paper-and-Pencil test, whether it  
7 was just people who had some problem with balance.  
8 I suspect we administered it to everybody, but I  
9 truthfully don't recall without looking it up. But  
10 everybody had the complete set of tests.  
11 Q. Then this experimental portion comes  
12 to an end, and I guess that's where your hard work  
13 really starts is you sit down and look at the data  
14 and analyze the data; right?  
15 A. Correct. It's not the hard part.  
16 It's the fun part.  
17 Q. Personally, I would have thought the  
18 fun part would have been going to hit the drinks.  
19 A. That's the difference between  
20 attorneys and research people. We like math.  
21 Q. The only math most attorneys like is  
22 33 and 40 percent.  
23 A. I've found that out.  
24 Q. So you crunch the numbers, and you  
25 make a determination that you should -- well, let

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1 me ask you.  
2 What happens next, do you determine  
3 that three of these are not valid or more valid or  
4 what? Where do you go next?  
5 A. Well, once the data is collected, then  
6 we do the statistical analysis, and you probably  
7 don't want to know about this, but we did things  
8 like step-wise linear regression where you put some  
9 in and take some out to see which works best.  
10 I did canonical correlation, which  
11 shows you how you best separate above and below,  
12 which tests do that best. I did discriminant  
13 function. All of these are very sophisticated and  
14 are done by computer. You don't crunch them on  
15 your calculator. They're very sophisticated  
16 statistical methods for what we needed to do, which  
17 is not just the best test but the best  
18 combination.  
19 It's fairly complex, because one might  
20 be the best test, and two might be the second best  
21 test, but if one and two are measuring the same  
22 kind of thing, you might actually have a better  
23 test by taking one and then the third one. So you  
24 need to configure the battery as a whole, that best  
25 discriminates the above and below .10.

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1 In fact, what the analysis showed us  
2 is that balance is a good measure, walking is a  
3 good measure, but if you've already measured  
4 balance, you don't gain much by measuring it  
5 again. So although Romberg, which was one of our  
6 alternates, is a very good test, an excellent test,  
7 if you're going to use the One-Leg Stand, you don't  
8 really gain enough by doing another balance test to  
9 include it. It doesn't mean it's a bad test. It's  
10 a good test. But you have not gained anything by  
11 adding -- you have not harmed anything, but you've  
12 taken up more time.  
13 Q. Right. It's repetitive?  
14 A. It's repetitive. So the final  
15 configuration were the three best tests in total  
16 for making this discrimination.  
17 Q. Okay. You described the three other  
18 tests, and we'll skip the Paper-and-Pencil test  
19 because we don't remember it too well, and I've  
20 never even heard of it before today.  
21 You described the Finger-to-Nose test  
22 or Touch-the-Nose test.  
23 Was that repetitive of one of the  
24 other tests, or was it found not to be an accurate  
25 test, or was there just a better configuration as

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1 to why it was left behind, so to speak?  
2 A. It was a sensitive test, as I recall,  
3 but it just wasn't quite as good as the ones we  
4 recommended. The analysis didn't show it to  
5 improve the overall correlation with BAC, either.

6 Q. And the other one was Finger Count?

7 A. Right. Same answer.

8 Q. Same thing, okay.

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

13 Is that important?

14 A. The standardized?

15 Q. Standardization, is that an important  
16 factor?

17 A. Yes, it is.

18 Q. How important? Is it critical, fatal,  
19 sort of important?

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

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

25 If officer A uses 10 steps down and 12

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1 come from it or the data that's collected from that  
2 individual can be related to the data that you've  
3 compiled over the years because the officer who  
4 gave it in that particular case did it the way it's  
5 always been done in the experimental situations  
6 correct?

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

10 Q. Okay. Is there any way that you can  
11 adjust for deviation from the standard? For  
12 instance, let's just say, speaking generally, that  
13 there's a test that the standardized format  
14 requires the officer to do five things or asks the  
15 individual to do five things, but the officer only  
16 does four of those so the officer actually gave  
17 80 percent standardization.

18 Can you correlate that back to the  
19 data? Can you say, "Since the officer was only  
20 80 percent standardized, I should adjust the final  
21 result," or does it mean the final result really  
22 has no backing?

23 A. Neither of the above.

24 Q. Okay.

25 A. I would not try to adjust it by any

Page .

1 steps back, there's nothing inherently wrong with  
2 that, and it may give him a good idea whether he's  
3 looking at an impairment or not, but it's not the  
4 standardized instructions. Therefore, the scoring  
5 and the observations don't relate to any of the  
6 research data or any of the accumulated data over  
7 the years. So it's not that the officer hasn't  
8 gained any information; he doesn't have the same  
9 base to refer it to if he changes it.

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

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

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

22 A. I mean both.

23 Q. I think I understand.

24 So if it's given according to the  
25 standardized criteria, then the conclusions that

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1 percentage. But whether or not it has any meaning  
2 kind of depends on what the deviation was. Let me  
3 give you an example.

4 I once saw an officer taken to task,  
5 and that's all I'll say about that because he used  
6 the word "pivot" for the Walk-and-Turn. In other  
7 words, he said, "You take nine heel-toe steps,  
8 counting out loud, leave your arms to the side,  
9 watch your step, and when you get to the ninth  
10 step, pivot on that step and return in the same  
11 manner." The argument being that's not the right  
12 word, and you should tell him to turn around by  
13 taking small steps. I don't think that makes much  
14 difference.

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

23 If you don't give the instructions  
24 properly, you don't tell them to leave their arms  
25 at their side, count their steps out loud, take

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1 nine steps, et cetera, those are critical because  
 2 the nature of the task requires them to assume the  
 3 stance on the line, to stand in that position while  
 4 they're given instructions, and the ability to  
 5 understand and follow the instructions is part of  
 6 the test.  
 7 ~~So if they don't do that, that's~~  
 8 ~~important. And then whether or not the results~~  
 9 ~~have as much meaning as you would like them to~~  
 10 ~~becomes problematic.~~  
 11 Q. Let me see if I can bring this to a  
 12 level that at least I understand.  
 13 For instance, nine steps is the  
 14 standard on a Walk-and-Turn; correct?  
 15 A. Correct.  
 16 Q. If the officer tells the person to  
 17 take only seven steps instead of nine, but the  
 18 person falls off the line each and every time, it's  
 19 not really important that he only had him do seven?  
 20 A. That's correct.  
 21 Q. But on the other hand, if the officer  
 22 says "I want you to take 35 steps," and after 13 or  
 23 14 the guy steps off the line, that kind of  
 24 deviation may mean that the officer's conclusion  
 25 that the person is under the influence or over a

1 certain level could be wrong because he's gone to  
 2 the point that it could be fatigue or something  
 3 else?  
 4 A. I think you got the meaning of it. I  
 5 frequently hear, for example, a lot of argument in  
 6 court about whether or not the stimulus for HGN was  
 7 held exactly 12 inches in front of the person. We  
 8 wrote into the instructions a distance as being a  
 9 comfortable focal distance so that the person is  
 10 not trying to focus too near and gets sick and  
 11 throws up, or is so far you're not sure.  
 12 You know, whether it's 11 and a half  
 13 or 13, I don't really care. But you have to give  
 14 an instruction. In other words, hold the stimulus  
 15 approximately 12 inches in front, up a little bit  
 16 so you can see their eyes. You have to take these  
 17 things in context.  
 18 MR. BAIR: But sort of also within reason?  
 19 THE WITNESS: That's correct. The  
 20 instructions, as they're written, are written for a  
 21 reason. You know, having them assume the position  
 22 on the line while they listen to the instructions,  
 23 that's an important component of the test. How the  
 24 stimulus is held and how it's moved, those are all  
 25 part of the test. But a slight deviation of the

1 focal distance is not going to undermine the  
 2 results.  
 3 BY MR. KAPSACK:  
 4 Q. Okay. These instructions that you  
 5 talk about are the instructions that eventually  
 6 found their way into the NHTSA manual?  
 7 A. Correct.  
 8 Q. Did you get an opportunity -- and I  
 9 know we're jumping around a little bit, but did you  
 10 get an opportunity to review the NHTSA manual  
 11 before it was put into mass publication to make  
 12 sure they didn't change any of the things you had  
 13 told them along the way?  
 14 A. Again, yes and no. The first manual  
 15 was sent to me, and I reviewed it, and there was at  
 16 least one thing in the manual which I thought was  
 17 an error and advised them of it. It was  
 18 subsequently changed. But there have been  
 19 subsequent editions, and I'm not sure that I have  
 20 reviewed all of those, certainly not prior to their  
 21 release. I may have eventually obtained a copy of  
 22 all of them, but I didn't review them.  
 23 MR. BAIR: But, really, the conclusions from  
 24 your first study, more or less, have remained the  
 25 same? All of your additional studies have only

1 served to compound those conclusions or to  
 2 reinforce those conclusions?  
 3 THE WITNESS: There have been no substantive  
 4 changes in the tests or the -- NHTSA developed the  
 5 scoring; I didn't. There have been some slight  
 6 changes. NHTSA made some slight changes in  
 7 instructions that differ from what we did. Again,  
 8 I don't think they're substantive, and I don't  
 9 think they matter.  
 10 MR. BAIR: Have you done any tests regarding  
 11 the effectiveness of, like, the Hand-Pat test as a  
 12 method of testing the sobriety of the driver?  
 13 THE WITNESS: Unless the Hand-Pat was part of  
 14 that original series that we pilot tested, the  
 15 answer is no. I don't remember if it was in that,  
 16 but we didn't use it in either of the main  
 17 experiments.  
 18 MR. BAIR: So over the years, I guess, like  
 19 law enforcement has developed certain kinds of  
 20 tests, have you added any of them in and tested  
 21 their efficacy, or have you continued to stick with  
 22 the three that you originally determined to be the  
 23 most accurate?  
 24 THE WITNESS: Standardized field sobriety  
 25 testing, which includes the three tests we're

1 talking about here, has not changed.  
 2 Let me add that the drug recognition  
 3 expert policeman uses five tests, and they include  
 4 the Finger-to-Nose and the Romberg with a time  
 5 estimation. There are very good reasons for doing  
 6 that when you're looking for drugs because those  
 7 two tests give you information with regard to drug  
 8 symptoms that the others don't. But the  
 9 standardized field sobriety tests have not  
 10 changed.  
 11 BY MR. KAPSACK:  
 12 Q. I guess part of the question that I  
 13 was picking up is, has there been any time that  
 14 somebody said, "Hey, the officers in Alabama have  
 15 just started doing this test, and they say it works  
 16 really well"?  
 17 Have you had that kind of information  
 18 come to you and had a chance to evaluate that? Has  
 19 anybody said, "There's a new test that officers are  
 20 using," and you say, "Let's put it in the lab and  
 21 see if it works"?  
 22 A. No. First of all, I see a lot of road  
 23 tests used by officers because I see arrest  
 24 reports. But you have to understand when you're  
 25 nonprofit research, you only do what somebody pays

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1 you to do. You don't have the luxury of doing  
 2 anything else.  
 3 Q. I assume that you keep up to date in  
 4 this field, keep abreast of any other studies that  
 5 are going on regarding --  
 6 A. Field sobriety tests?  
 7 Q. Yes.  
 8 A. To my knowledge, there are not any  
 9 others going on.  
 10 Q. Well, that was the follow-up  
 11 question.  
 12 A. To my knowledge. It's possible that  
 13 somebody somewhere is doing something, but I have  
 14 no information about that.  
 15 Q. Obviously, some little sheriff's  
 16 office somewhere could be doing their own  
 17 experiment. But if it was a major type of thing,  
 18 you would know about it?  
 19 A. Yes, I would. Let me add, there has  
 20 been a revalidation or validation study for  
 21 the .08. That was done by a research group called  
 22 National Public Services Research Institute in  
 23 Landover, Maryland. It was done two or three years  
 24 ago. Essentially, they said, "Guess what? These  
 25 are the best tests."

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1 Q. I know the answer, but we have to get  
 2 it down for the reporter.  
 3 When you say "Guess what? These are  
 4 the best tests," you mean the same three we've been  
 5 talking about?  
 6 A. Correct.  
 7 Q. Now, these standardized tests were  
 8 developed as an aid for officers to make an initial  
 9 determination in the field as to initially whether  
 10 or not the person had a blood alcohol level that  
 11 was over .1; correct? That was the initial --  
 12 A. That's correct, .1 or above.  
 13 Q. These tests, in and of themselves,  
 14 don't state whether the person is able to drive the  
 15 vehicle. In other words, these tests show there is  
 16 a likelihood that someone is over .1, and since the  
 17 medical community is pretty much in agreement that  
 18 over .1 means you're not capable of operating a  
 19 motor vehicle reasonably under the law, at least,  
 20 the tests can therefore be used for that, but  
 21 directly, the tests don't show the ability or  
 22 inability to operate a motor vehicle; correct?  
 23 A. Correct. What you're asking is, are  
 24 these tests of driving? They are not. If they  
 25 were tests of driving, they would be field driving

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1 tests. I can elaborate on the reasons and  
 2 everything behind that if you want, but they are  
 3 not tests of driving. They are tests of sobriety.  
 4 There's a whole series of literature that tests  
 5 alcohol and driving schools.  
 6 Q. That's the missing link, so to speak.  
 7 The sobriety tests will tell you the probable level  
 8 of alcohol, or at least the probable minimal level  
 9 of alcohol, and then you go to the literature or  
 10 the expert or the doctor to say what effect that  
 11 level of alcohol will have on a person's mental and  
 12 physical abilities regarding driving?  
 13 A. Well, the research over the years is  
 14 what led the legislators to choose the levels that  
 15 they did. And as the research accumulates, those  
 16 levels keep coming down. The officer is not  
 17 charged with making a decision about driving skills  
 18 at roadside. He couldn't. There's no way you can  
 19 judge somebody in five minutes at roadside that you  
 20 never saw before to make a decision about their  
 21 driving skills.  
 22 What he is charged with doing is  
 23 making a judgment about their sobriety or presence  
 24 of alcohol or impairment by alcohol, if you will.  
 25 Q. To fill in the blanks a little bit, I

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1 I believe we left off historically with your taking  
2 the original six through the experimental stages,  
3 and coming down with three.  
4 A. Correct.  
5 Q. And do you recall about when that was?  
6 A. That report was submitted in June of  
7 1977.  
8 MR. BAIR: That was the '77 report?  
9 THE WITNESS: Correct.  
10 MR. BAIR: And you did a report in '81?  
11 THE WITNESS: That was the follow-up contract  
12 that studied only the three.  
13 BY MR. KAPSACK:  
14 Q. So '77 comes, you've been submitting  
15 progress reports to NHTSA all along, but now you  
16 start with the ride-alongs and the reading, culling  
17 it down to 15, taking the 15 down to six, and the  
18 six to the experiment. Now you say, "These three  
19 are the three best, as far as we're concerned, that  
20 we recommend should be the standardized battery,"  
21 NHTSA takes that and agrees with you?  
22 A. I don't know if we used the word  
23 "recommend." What you do in the final report is  
24 you report everything you did. Everything. Who  
25 the subjects were, how you did the experiment, your

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1 data analysis. Then you reach some conclusions  
2 based on that set of work. Those conclusions were  
3 that those three tests were the best at  
4 discriminating between above and below .10.  
5 Q. So now four years goes by.  
6 A. Couple years. A year and a half, two  
7 years.  
8 Q. Okay. I'm not going to ask you what  
9 NHTSA did, because you don't work for them so you  
10 don't know. But they turn around and say "We're  
11 soliciting proposals again," or something along  
12 those lines?  
13 A. Yes.  
14 Q. This time, it's for a follow-up study?  
15 A. What the second study was to do was to  
16 do further research with the three tests to  
17 standardize them. In other words, to standardize  
18 them and develop the scoring and the administration  
19 procedures so that they would be as sensitive as  
20 you can make them. In other words, we have  
21 identified the best tests. Now let's make it the  
22 very best test battery we can make it.  
23 Q. Some fine-tuning?  
24 A. Some fine-tuning.  
25 Q. Same type of thing, you submit your

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1 proposal and you get it?  
2 A. Correct.  
3 Q. You get the contract?  
4 A. Correct.  
5 Q. This was in what year, if you recall?  
6 A. Well, the final report was in '81,  
7 which leads me to believe it would have been '79.  
8 I don't recall the exact date of the initiation,  
9 but it was, again, a two-and-a-half to three-year  
10 project.  
11 Q. So you spent about a year and a half,  
12 two years analyzing data again, fine-tuning --  
13 A. We ran a whole other experiment.  
14 Q. You ran a whole other experiment?  
15 Okay. Same type of experiment you described  
16 before?  
17 A. Very similar, except now we only use  
18 three tests, not six, but the design was similar.  
19 We brought ten police officers in, trained them how  
20 to do it in a standardized way, recruited  
21 subjects. Everything was double-blind.  
22 One thing we did differently between  
23 the two and the one is that in the second study, we  
24 brought about 100 of the subjects back for a second  
25 session. The reason for that was to examine the

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1 reliability of the tests. "Reliability" being used  
2 here in the statistical sense. It's very similar,  
3 but has a very specific meaning.  
4 If you bring the subjects back,  
5 produce the same BAC, have them examined again with  
6 the same tests, sometimes by the same officer,  
7 that's one kind of check. Sometimes by a different  
8 officer. Do you get the same results?  
9 And you have to have two  
10 administrations of the test battery to the same  
11 person in order to do that. So that was an  
12 addition.  
13 Also, we did a small field study. Not  
14 a good field study, not big enough. There were a  
15 lot of things that we didn't like about it, and  
16 reported that we didn't like it because there  
17 weren't funds to do it. That was the second.  
18 Q. So you submit that report, or the  
19 report of all this in '81?  
20 A. Correct.  
21 Q. And you fine-tune the standardization?  
22 A. Correct.  
23 Q. And supplement your findings with the  
24 additional data?  
25 A. This time we had 297 subjects.

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1 Q. And that's 18 years ago.  
2 What's the next?  
3 A. Well, the next step is NHTSA's step,  
4 and I'm not really the person to tell you exactly  
5 what and how and why they did it, except as an  
6 outsider, to say that training began sometime  
7 thereafter of law enforcement nationwide.  
8 Q. I take it throughout this you're still  
9 involved in it to a certain degree.  
10 When is the next time you get a  
11 contract or do a study, or anything along those  
12 lines?  
13 A. Well, the next time I actually worked  
14 for NHTSA that involved these tests was with a  
15 study of the Drug Recognition Program, of which  
16 these tests are a component, and that was in 1985.  
17 That's the only work I directly did for NHTSA,  
18 except to appear as an expert.  
19 Q. Getting back to the tests themselves,  
20 why three? Is there any significance to why --  
21 you've already told us you found that some of them  
22 were repetitive and things like that.  
23 Can the officer make a reliable  
24 decision based on one test, or does he need all  
25 three?

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1 A. Okay. One of the reasons for three,  
2 coming at it from one direction, is officers don't  
3 have all night to do all the tests in the world out  
4 there. There is a limit as to the amount of time  
5 they can invest in any one stop. So the  
6 redundancy -- I can't justify the redundancy. If  
7 you're not getting more information, why do more  
8 tests?  
9 Coming at it from the other direction,  
10 although Horizontal Gaze Nystagmus is almost as  
11 good alone a predictor as all three tests, it's  
12 kind of a maximum of testing, whether roadside or  
13 educational or psychological or medical testing,  
14 that if it's an important decision, you don't want  
15 to base it, unless you have to, unless  
16 circumstances force you to -- but you would prefer  
17 to have evidence from more than one test.  
18 If you had very disparate results --  
19 let's take another field. If you went to your  
20 physician and he had one test that said you have  
21 diabetes and another that said you have heart  
22 disease and another that said you have cancer, I  
23 think he would be a little puzzled. He would like  
24 to see all his markers, blood tests, EKG's,  
25 pointing in one direction to give him some

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1 confidence in his diagnosis.  
2 So instead of saying, "Horizontal Gaze  
3 Nystagmus is a pretty good test and predictor;  
4 we'll just go with that," you really need more  
5 evidence, in my view. And I think that's a pretty  
6 widely held view.  
7 So there were three, but as I said  
8 before, we found adding to that of those six that  
9 we identified didn't really improve predictions, so  
10 we didn't have four or five.  
11 Q. And you don't have only one for the  
12 reasons you just stated, because you want a second  
13 opinion, you want a little backup there?  
14 A. Well, there's always a risk if you  
15 rely on a single marker. Now, sometimes an officer  
16 may have to. The circumstances may be such that  
17 the only thing he can do is look at their eyes.  
18 But let's suppose you have somebody who has a real  
19 problem with balance because of some medical  
20 condition, or you have somebody who has really  
21 strange eyes for some reason that I don't know.  
22 But if that's the only test you have, you really  
23 don't have any basis for a decision.  
24 Q. Now, initially when you did the  
25 experiments on these, they were done in the

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1 facilities where you have a somewhat controlled  
2 environment?  
3 A. Absolutely.  
4 Q. The overwhelming percentage, if not  
5 100 percent of the time these tests are given on  
6 the side of the road, how much of a factor does  
7 that play?  
8 A. That plays a factor that works --  
9 well, there's a number of factors working here, and  
10 it works both ways. Certainly, in the controlled  
11 environment where there was no consequence to an  
12 officer's error, that had to affect the data. If  
13 you look at the data, you can see it did.  
14 One of the things that I'm often  
15 challenged on is in the first experiment, they made  
16 a lot of false alarms. That is, they said this  
17 person is above .10 when, in fact, they weren't.  
18 If you look at the data as I did, you discover that  
19 their criterion was really .08. In other words,  
20 they were saying arrest at the point they saw  
21 significant impairment. That was .08, not .10.  
22 Their sergeants are not going to be  
23 upset and the lieutenant is not going to be upset  
24 if they make an error, and this person is not going  
25 back on the road driving impaired. So you can't

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1 recreate all the same variables in the laboratory  
2 that you have at roadside, which is one of the  
3 reasons I wanted to do a field study.  
4 Q. And conversely, in the laboratory, you  
5 don't have some of the distractions that you would  
6 have on the roadside?  
7 A. That's true.  
8 Q. For instance, I would assume you kept  
9 the laboratory fairly well lit. It's not the kind  
10 of nighttime stop that officers get involved in.  
11 A. True. Another important variable is  
12 that those officers had just been trained, with one  
13 exception, and that was in the second study. None  
14 of them had heard of Horizontal Gaze Nystagmus  
15 before. It takes a period of learning to believe  
16 what you really see for officers who are trained in  
17 nystagmus. So my concern, my interest was in  
18 finding what officers who had used the test battery  
19 for a period of time were capable.  
20 (DISCUSSION HELD OFF THE RECORD)  
21 BY MR. KAPSACK:  
22 Q. There also must be a period of  
23 institutional learning for which most police  
24 departments are notoriously slow. When you talk  
25 about confidence, the officers had to have

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1 raining, you know. Those things just don't  
2 matter.  
3 Walk-and-Turn, preferably, is done on  
4 a flat, dry surface. If it cannot be, then I think  
5 the officer is going to have to take that into  
6 account. But to my knowledge, there are no  
7 particular guidelines that -- there's been no  
8 research that says that if the pavement slopes X  
9 number of degrees, that cannot be done. But I  
10 don't think it would be possible to do it.  
11 Again, I think it's a matter of common  
12 sense, but it has not been a matter of research.  
13 MR. BAIR: Footwear would make a significant  
14 impact on a study with regard to the  
15 Walk-and-Turn.  
16 THE WITNESS: It can, and I think it depends  
17 on the individual. Depending on where it is and  
18 the circumstances, officers very often give  
19 somebody who is wearing high heels or boots with  
20 heels the option of taking them off.  
21 BY MR. KAPSACK:  
22 Q. I would assume that Walk-and-Turn  
23 would be hard in a six-inch spike heel.  
24 A. Unless you do every day, then it's a  
25 piece of cake.

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1 confidence when they came to you individually. I'm  
2 sure the first few times you told the officers,  
3 "You're going to take a stimulus and move it in  
4 front of their eyes," they must have looked at you  
5 like you were crazy.  
6 A. I'm sure they did.  
7 Q. But then when they went back to their  
8 departments and they said, "No, it really works,"  
9 I'm sure the rest of the officers looked at them  
10 like they were crazy, too.  
11 A. There is a period of accepting.  
12 Police officers are notorious for not accepting  
13 newfangled ideas, so to speak.  
14 Q. When these tests are done on the side  
15 of the road, is there a set standard or a given  
16 margin that the officer should use regarding  
17 mistakes or failures in the field sobriety tests  
18 that he should attribute to the environment, if you  
19 understand me?  
20 A. I understand you. I'm trying to think  
21 if there's any such thing.  
22 The only thing that's required for  
23 nystagmus is that the suspect be able to see the  
24 stimulus and the officer be able to see his eyes.  
25 It doesn't matter if the wind is blowing or it's

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1 MR. BAIR: Tennis shoes may be difficult,  
2 then.  
3 BY MR. KAPSACK:  
4 Q. Have you ever been asked by NHTSA, or  
5 has there ever been a proposal that was requested  
6 regarding any of the other tests that have come and  
7 gone, such as, I believe the Hand-Pat was  
8 mentioned, or a written alphabet or anything like  
9 that that you know of that you've been involved in?  
10 A. I've never been asked to do any  
11 research with those. It's possible -- I don't  
12 remember the report from the more recent study for  
13 the .08. They did use some other tests, but I  
14 don't remember now what they were.  
15 MR. BAIR: I think I just would like to get  
16 down specifically what those three tests are. If  
17 you could, tell us the walk out nine steps, walk  
18 back, exactly what those tests are so that we have  
19 a record of exactly what those tests are that your  
20 group came to the conclusion were accurate.  
21 THE WITNESS: Well, HGN, which is a jerking  
22 movement of the eyeballs, is administered by having  
23 the individual stand with their arms at their side,  
24 holding his or her head still, and the officer or  
25 person administering the test holds the stimulus

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1 approximately 12 inches in front of their face,  
 2 elevated slightly so they'll open their eyes.  
 3 Because the point is, you have to see their eyes.  
 4 Then he or she moves the stimulus -- how shall I  
 5 describe it? -- back and forth in front of the  
 6 eyes laterally and observes that individual's  
 7 eyes.  
 8 First of all, the determination is  
 9 made whether the eyes can track the stimulus  
 10 smoothly, or whether they jerk as they move. I'm  
 11 tempted to use my hands because I teach it. So  
 12 lack of smooth pursuit is one sign. That's worth  
 13 one point in each eye.  
 14 The second sign is the distinct  
 15 jerking at maximum deviation. In other words, when  
 16 the eyes have been moved as far as they can go to  
 17 the side, and then held there for about four  
 18 seconds, is there a distinct jerking, not just a  
 19 little tremor? Because that can occur because it's  
 20 an uncomfortable position. There needs to be a  
 21 distinct jerking that persists.  
 22 And then finally, the person who is  
 23 administering the test looks for the angle of gaze  
 24 when there's the first onset of jerking. In other  
 25 words, has the individual deviated his eyes 40

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1 instructions. And there are eight -- I believe  
 2 there are eight errors that can be scored. Two  
 3 errors are reason to arrest.  
 4 BY MR. KAPSACK:  
 5 Q. Let me interrupt you for a second  
 6 here. We talked about this a little bit earlier.  
 7 You said they should take little  
 8 steps, and we talked about how the officer has to  
 9 use common sense.  
 10 A. He demonstrates that, by the way.  
 11 Q. Right.  
 12 I have seen this where the officer has  
 13 prescribed that it must be a specific number of  
 14 steps.  
 15 A. To turn around?  
 16 Q. To turn around. I have seen and heard  
 17 them say "You must pivot on your foot using three  
 18 steps to turn around."  
 19 A. I'm not aware of the source of that.  
 20 Q. This is part of the problem, little  
 21 bits that have been added and taken away that have  
 22 occurred in some places.  
 23 A. Let me say that I don't think that  
 24 would do any harm unless he scored an error for  
 25 failure to take three steps. If he wants them to

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1 degrees, 45 degrees or 30 degrees? Because it's  
 2 the relationship between that and the BAC.  
 3 MR. BAIR: Each one of those is worth one  
 4 point in each eye?  
 5 THE WITNESS: That's correct. So a maximum of  
 6 six, and four points is a basis for taking them  
 7 in.  
 8 The Walk-and-Turn test is just what it  
 9 sounds like, a test of the individual's ability to  
 10 walk and execute a turn and return. They're told  
 11 to put the left foot on the line, put the right  
 12 foot in front of it and stand in that position  
 13 while the officer gives the rest of the  
 14 instructions.  
 15 He then instructs and demonstrates by  
 16 showing what heel-to-toe is. He tells the  
 17 individuals, "I want you to take nine heel-to-toe  
 18 steps along the line. Watch your feet at all  
 19 times, leave your arms at your side, and count your  
 20 steps aloud. When you get to the ninth step, turn  
 21 around, take small steps turning around and come  
 22 back along the line in the same way with nine  
 23 heel-to-toe steps. Do you understand?"  
 24 And if the individual says "I don't  
 25 understand," then the officer repeats the

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1 take three steps, I don't think that's a big deal.  
 2 But he has no basis to score against them for  
 3 taking four because that's not part of the  
 4 standardized testing.  
 5 Q. That gets back to your testimony  
 6 before, because that's what gives it its  
 7 reliability.  
 8 A. That's what gives it its predictive  
 9 power.  
 10 Q. Predictive power?  
 11 A. "Reliability" means something  
 12 different to me.  
 13 Q. I like that, "predictive power."  
 14 A. Yeah. What you're trying to do is  
 15 predict accurately whether this person is going to  
 16 have a breath test that shows above or below .10.  
 17 Q. If I, as an officer, score something  
 18 as an error that's not considered an error under  
 19 the standardized rules, then my power of  
 20 predictability is not very good.  
 21 MR. BAIR: Or has been diminished.  
 22 BY MR. KAPSACK:  
 23 Q. Could be getting worse, because we've  
 24 never studied that aspect.  
 25 A. Could be. Sometimes officers tell me

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

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

9 THE WITNESS: If the American Medical  
10 Association and MADD has its way, we're going to  
11 .05.

12 BY MR. KAPSACK:

13 Q. The third test I think is where we  
14 were.

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

20 Now, this is a place where NHTSA has  
21 made a change. Our instructions were -- I don't  
22 think it's a significant change, but just so you're  
23 aware of it, originally we said you count 1,001,  
24 1,002, 1,003, until you reach 1,030.

25 We wanted to be sure they held that

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1 inches?

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

11 Q. In all these tests, again, common  
12 sense plays an important role. For instance, you  
13 know, for any of these tests, I would guess,  
14 standing on one leg came to my mind immediately if  
15 it's being done in a place where the highway goes  
16 in a mountain gap, and you've got 25-mile-an-hour  
17 winds. It's probably not the best place to give  
18 the test, and that's going to have some effect.

19 A. It might be difficult, but, you know,  
20 the field tests we did in Colorado, one of the  
21 things we were interested in was, are these tests  
22 valid in Colorado mountains where it snows and  
23 blows and does all kinds of unpleasant things? And  
24 we didn't find any significant effect of the  
25 weather, except that officers tended to make a

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1 stance for 30 seconds because it turns out that  
2 people at .10 very often can hold it to 20 or 25  
3 seconds. It's only when the attention begins to  
4 waiver that the balance gets messed up. So it's  
5 critical to hold it for 30 seconds, and that was  
6 the point of the counting.

7 NHTSA has just within the last couple  
8 years changed that instruction so that they're now  
9 told "Count 1,001, 1,002, 1,003, until I tell you  
10 to stop." And the officer now times it for 30  
11 seconds and then records the count. In other  
12 words, if a person was at 25, they write down 25.  
13 And that's what they do.

14 Q. You had been giving us points before.  
15 Do you recall the points on this one?

16 A. I believe it's two.

17 Q. Again, getting back to one of the  
18 broader themes, the person is supposed to hold  
19 their foot six inches off the ground, but the six  
20 inches isn't the key here?

21 A. No.

22 Q. It's holding it off the ground?

23 A. Correct.

24 Q. The officer should not be out there  
25 measuring whether it's five and a half or eight

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1 mistake by letting people go who should have been  
2 arrested if they didn't have on adequate clothing.  
3 In other words, if it was cold and they didn't have  
4 a jacket, they tended to make an error by releasing  
5 them.

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

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

10 MR. BAIR: Didn't complete the tests?

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

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

19 (BRIEF RECESS)

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

21

22

23

24

25

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1                   DECLARATION  
2  
3  
4  
5       I hereby declare that I am the deponent in the  
6 within matter; that I have read the foregoing  
7 examination under oath and know the contents  
8 thereof. And I declare that the same is true of my  
9 knowledge, except as to the matters which are  
10 therein stated upon my information or belief, and  
11 as to those matters, I believe it to be true  
12       I declare under the penalties of perjury of  
13 the State of California that the foregoing is true  
14 and correct.  
15       Executed on the \_\_\_\_\_ day of \_\_\_\_\_  
16 19 \_\_, at \_\_\_\_\_.  
17  
18  
19  
20  
21                   \_\_\_\_\_  
                                  WITNESS  
22  
23  
24  
25

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1  
2       I, Lori Raye, A Certified Shorthand Reporter  
3 for the State of California, do hereby certify:  
4       That prior to being examined, MARCELLINE  
5 BURNS, Ph.D., the witness named in the foregoing  
6 examination under oath was by me duly sworn to  
7 testify the truth, the whole truth and nothing but  
8 the truth pursuant to Section No. 2093 of the Code  
9 of Civil Procedure;  
10       That said examination under oath was taken  
11 before me, at the time and place therein set forth,  
12 and was taken down by me stenographically and  
13 thereafter transcribed;  
14       I further certify that I am neither counsel  
15 for, nor related to, any party to said action, nor  
16 in anywise interested in the outcome thereof.  
17       In witness whereof, I have hereunto  
18 subscribed my name this 5th day of May 1998.  
19  
20  
21  
22                   \_\_\_\_\_  
                                  LORI RAYE  
                                  CSR No. 7052  
23  
24  
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