DAVID SHAWN POPE

2 OF 3

IN THE 204TH JUDICIAL DISTRICT COURT

DALLAS COUNTY, TEXAS

THE STATE OF TEXAS

VS.

DAVID SHAWN POPE

CAUSE NO. F85-98755-NQ

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STATEMENT OF FACTS
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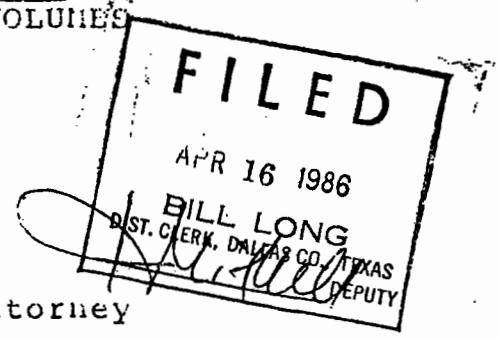

A P P E A R A N C E S:

HON. HENRY WADE,
Criminal District Attorney
Dallas County, Texas

BY: MS. KIM GILLES
Assistant District Attorney
and
MR. DAN MACCOD,
Assistant District Attorney

REPRESENTING: THE STATE OF TEXAS

HON. CURTIS D. GLOVER
Dallas, Texas

REPRESENTING: THE DEFENDANT

BE IT REMEMBERED THAT ON THE 4th day of February, 1986, the above styled hearing came on to be heard before the HONORABLE RICHARD MAYS, Judge of the 204th Judicial District Court of Dallas County, Texas, and a jury, and that the following is a true, accurate and complete transcript of the proceedings had:

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

Q Would you state your name for the record, please?
A Larry Howe Williams.
Q You will need to speak up once we bring the jury in, Mr. Williams.
A Yes, ma'am.
Q How are you employed, sir?
A By the Houston Police Department as a voice identification examiner.
Q How long have you been with the Houston Police Department?
A Since 1972.
Q About fourteen years or so?
A Yes, ma'am.
Q And you have indicated, I think, what it is you do for the police department?
A Yes.
Q All right. You are in the identification section and specifically deal with voice identification and fingerprint identification?
A Yes, ma'am, I am.
Q What is voice identification?
A Voice identification is a scientific process where an unknown tape recording of an individual can be positively identified or eliminated through the use of the sound spectograph.

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

Q I am going to pick on you at this point and get you used to speaking up. I will ask you to speak up.

A Okay.

Q In performing that scientific process and comparison, do you use equipment?

A Yes, I do.

Q Let me show you what has been previously introduced and admitted into evidence in a hearing and what is marked as hearing State's Exhibits 1, 2 and 3. Would you tell the Judge if this is the equipment you used in doing this comparison?

A Yes, this is my equipment that was used in this particular incident.

Q All right. In this particular incident, did you compare the tapes that are numbered here as State's Exhibit 13 and State's Exhibit No. 22?

A May I see those tapes, please?

Q I'm sorry.

A Yes, they are.

Q Those are the ones you did comparisons on?

A Yes.

Q What we call spectrographic comparisons?

A Yes, ma'am.

Q Before we talk about the procedure you followed, would you tell the Judge about your training and qualifications in this field?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A I began working in the field in March of 1983 when I attended a school and I was approved by the International Association of Voice Print Identification in Sommerville, New Jersey. The training consisted of a two week school at that location, then two years of on the job training, doing training cases and actual cases.

Q At this particular school that you attended, would you briefly just describe for the Judge the type of training that you received, what you were shown there at the school?

A We were shown and told various aspects of physiology and magnetic tape recording and given numerous trials -- test trials involving twins, the comparison between fathers and sons, mothers and daughters, grandfathers, tests which were made ten and twenty years apart to determine whether or not we had the capability of doing this particular work.

Q In other words, you were given tapes to compare and the people there knew the proper response and you were tested to see if you were capable of determining things correctly?

A Yes, ma'am, we were.

Q Determining the identity or eliminating the identity, correct?

A Yes, that is correct.

Q Have you completed all of the training procedures and processes that are recommended or that are approved by the International Association of Voice Identification?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A Yes, I have.

Q And are you a member of that association?

A Yes, I am.

Q And what other associations are you a member of?

A The International Association for Identification, which voice print identification is a subsection thereof, the Texas Division of the International Association for Voice Print Identification, the Southeast Texas Division for Voice Identification and the Texas Law Enforcement Education Association.

Q And in addition to that, do you sometimes lecture on this topic, that is, voice print identification?

A Yes, I have.

Q Now, you have mentioned that you have been doing this for the Houston Police Department since, I think you said 1983; is that correct?

A Yes, that is correct.

Q And would you say in your time there in the Houston Police Department that you have done this on -- that you have been involved in spectrographic identifications or eliminations on few or many occasions?

A Many occasions.

Q If I were just to ask you to approximate a number of spectrograms that you have worked with and viewed, could you give the Judge a rough estimate on something like that?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A A few thousand.

Q Now, in addition to the testing that you received up there after you had gone through the course, were you taught a specific procedure in your courses and in your training on how to conduct a spectrographic analysis and how to produce spectrograms?

A Yes, a procedure on how to operate the sound spectrograph itself and then how to make a positive identification or elimination based upon a criteria.

Q And let me ask you this: In this particular case involving the tapes that I have elicited for the record and the numbers there, these two tapes, did you follow this set procedure in this case?

A Yes, I did.

Q Would you then explain to the Judge the procedure that you followed in this case which is the set procedure, and you can refer to those diagrams there of the instrument if you need to and fill him in on what you did in this particular case.

A The first process is to listen to the two tapes, both the known and unknown, to determine if their quality is such that can be used in this specific identification or elimination process.

Q And just let me interrupt you. The quality of these tapes, in your opinion, is what?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A Good.

Q Go ahead.

A These two tapes were rerecorded onto a reel-to-reel tape recorder which is built into the sound spectrograph.

Then, by utilizing the sound spectrograph, several spectrograms were made, and then after a complete and thorough examination of both the known and unknown spectrograms produced from the other tape recordings, it was possible to determine a positive identification in this case.

Q All right. Now, Mr. Williams, the Judge has heard quite a bit from Dr. Truby about this. He has seen these diagrams and he has seen the actual way in which the spectrograms are produced. Did you produce these spectrograms, that being State's Exhibits 7 and 8?

A Yes, I did.

Q In addition to some others that Dr. Truby has already shown to him and talked with him about?

A Yes, ma'am.

Q Let me ask you if you had an opportunity to do a comparison yourself?

A Yes, ma'am, I did.

Q And if you formed an opinion?

A Yes, ma'am, I have.

Q And were you able to eliminate or identify the speakers in State's Exhibits No. 13 and 22? By that I mean

were you able to state whether or not they were one in the same person?

A Yes, I was.

Q And what is your opinion as to that?

A My opinion is that the voice of the unknown -- the voice which produced the unknown tape recording was the same as the voice which was produced in the known tape recording.

Q Let me ask you if it is a part of your procedure and if you followed it in this case -- specifically, so that the Judge will know on this issue, if it is part of this procedure to be sure -- to determine that the instrument is operating properly before you begin your test experiments and the running of the spectrograms themselves?

A Yes, this instrument is calibrated prior to usage in an actual case.

Q Did you do that calibration in this case with this instrument before doing the spectrographic analysis of these two tapes?

A Yes, I did.

Q And did you make a determination prior to doing the spectrograms as to whether or not the instrument was properly calibrated?

A Yes, I did.

Q And in addition to that, are you able to tell whether or not it is properly calibrated by the actual

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

spectrograms that the spectrographic equipment produces doing the analysis or doing the production of these spectrograms?

A Yes, I can.

Q In other words, it is indicative of the condition of the instrument?

A Yes.

Q When I say, "It," I refer to the spectrograph?

A Yes.

MS. GILLES: I will pass the witness.

CROSS-EXAMINATION

BY MR. GLOVER:

Q Mr. Williams, what is your educational background?

A I graduated from high school at Denison High in Denison, Texas. I have attended the Grayson County Junior College and then I attended college at the University of Houston.

Q May we assume by that that you do not have a degree from college?

A That is correct.

Q Okay. What was your particular area of study when you were in junior college and in the other school?

A Psychology primarily at junior college and speech communication at the University of Houston.

Q How many months did you go to the University of Houston?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A Four.

Q Four months?

A Three or four.

Q Three or four months at the University of Houston? Okay. You indicated that you arrived at an opinion concerning these tapes. Is that opinion based on any sort of probabilities?

A Probabilities?

Q Yes.

A No, not in this case, not in the manner in which I was taught to do this.

Q You are saying that in your opinion there is no reservation in your opinion about your determination of these tapes being one in the same person?

A No, sir.

Q No reservation whatsoever?

A No.

Q No probabilities of inaccuracy?

A No.

Q Okay. You are just one hundred percent sure?

A Yes.

MR. GLOVER: That is all we have of this witness, Judge.

MS. GILLES: That is all we have on the hearing, Judge, of this witness.

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

MR. GLOVER: Are you ready to hear from me about this testimony, Judge?

THE COURT: No, I take it now you are going to try to introduce the spectrograms and have the expert testimony about it elicited in front of the jury; is that correct, Counsel?

MS. GILLES: Yes.

THE COURT: Any objection?

MR. GLOVER: Yes. May I ask him just one more question?

THE COURT: Sure.

BY MR. GLOVER:

Q Have you talked to Dr. Truby in the last few days?

A Yes.

Q When?

A Last night, as a matter of fact.

Q Where was he?

A He was at my sister's. He was spending the night at my sister's in Garland.

Q Were you there?

A Yes, sir, I was there.

Q The two of you were together?

A Yes, sir, we were together.

Q Okay. And did you talk -- you talked about potential questions that might be asked you here today?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

A They did come up on occasion.

Q Okay. It was really a matter of convenience for you two being there and spending the night together last night to discuss the case, was it not?

A Yes.

Q Did Dr. Truby tell you anything about what the Defense lawyer might be asking you?

A No.

Q Never mentioned anything like that?

A Not to my recollection.

Q What did he tell you?

A We discussed --

MS. GILLES: I object to hearsay and relevancy.

BY MR. GLOVER:

Q About this case?

A About this case, nothing that I can remember.

Q Okay. Did you talk about anything concerning your expert testimony?

A In this particular case, my expert testimony in this particular case?

Q You talked about other cases; is that what it was?

A No, we talked about research in other areas.

Q Other areas of what?

A His past life and other works that he has done.

Q Okay. Never mentioned the case that is on trial

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

here today?

A Not to my recollection, sir.

Q You are sure about that?

A Yes, as sure as I possibly could be.

Q Okay. Where is Dr. Truby today?

A He should be here in the building.

Q Okay.

THE COURT: Any objection to any of this testimony, Mr. Glover?

MR. GLOVER: Yes. The objection goes that the process or the whole concept of spectrography, I submit to the Court has not been legitimately established as being a science, and particularly by this witness. Further, that the proper predicate has not been laid for testimony concerning procedures such as the use of the spectrograph.

THE COURT: Sustained.

MS. GILLES: May I have the objection repeated, please, or read by the court reporter, Judge?

THE COURT: What?

MS. GILLES: May I have Curtis' objection read back to me, please?

THE COURT: He said something about you hadn't proved a proper predicate on the use of the spectrograph.

MS. GILLES: All right. May I take the witness again for questioning?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

THE COURT: Oh, sure.

MS. GILLES: Thank you.

REDIRECT EXAMINATION

BY MS. GILLES:

Q In terms of what has been marked as hearing State's Exhibit No. 1, 2 and 3, the instrument there, you indicated that you calibrated this instrument prior to using it?

A Yes, ma'am.

Q And that you --

THE COURT: I have already heard that, Counsel.

MS. GILLES: I am getting there.

BY MS. GILLES:

Q Did you form a conclusion as to the calibration of that instrument?

THE COURT: He has already testified to that, Counsel.

BY MS. GILLES:

Q Was it working properly?

A Yes, it was.

THE COURT: He has already testified to that.

BY MS. GILLES:

Q And let me ask you if this is equipment that you have used on few or many occasions?

A On many occasions.

Q It is equipment that you used prior to this

spectrographic analysis and afterward?

A That is correct.

Q And the spectrograms that have been introduced into evidence for the Judge in an earlier hearing through Dr. Truby were spectrograms produced by the spectrograph; is that correct?

A Yes.

Q And it is from those that you made your analysis and testified as to the results?

A Yes, that is correct.

Q Now, in specific, the spectrograms that you made have what -- what are they made from, let me ask you that, an unknown set of spectrograms and a known set?

A Yes, the spectrograms are produced from the tape recording which was used in the process of transferring the magnetic information from both the known and unknown into an electrical impulse which was burned into the paper as a process of the spectrograph and this was done on each spectrogram.

Q And would it be fair to say it was done with the voice of the unknown suspect or unknown tape and then again an entire set done with the known?

A That is correct.

Q And is the calibration of the spectrograph the only requirement or means of testing it prior to actually making

the spectrograms?

A That is correct, yes.

Q And is doing that calibration a fail safe function in that it indicates to you whether or not the instrument is working correctly at the time?

A Yes, when I received the spectrograph, I received a master set of calibrations. These were made by the manufacturer and they indicate a properly working instrument. Then, prior to case, there is a way in which you can run your own calibration through your own instrument and verify what you have with the master set that you receive from the instrument. This was done in this particular case, and therefore it verified the calibration of the instrument.

Q In other words, the master set shows you -- indicates to you exactly what the spectrograph should be producing?

A That is correct.

Q And once you calibrated the instrument, it is you testimony that that is the level at which the spectrographic instrument was operated?

A Yes, that is correct.

MS. GILLES: We will reoffer this line of testimony.

MR. GLOVER: Same objection.

THE COURT: Well, I am going to add to this predicate that which Dr. Truby stated with regard to how the

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

machine works and its theory. That, of course, is absolutely necessary for there to be a predicate. However, I'm going to add that to this.

I believe -- is this a picture of your machine?

THE WITNESS: Yes, sir.

THE COURT: All right. So he testified that is the way that machine worked, and I guess there is enough in all of this to prove it up. I am going to overrule you at this time.

MR. GLOVER: I will make the additional objection that his expertise in this particular area and his qualifications as a scientific expert concerning spectrography and its results, the spectrograms, as well as the examining of the spectrograms, his background has not been sufficient to allow him to testify.

THE COURT: I will sustain the objection with regard to any analysis. However, I will overrule you as to the taking of spectrograms and the operation of the machine.

MS. GILLES: May I ask the witness a few more questions for the record?

THE COURT: In regard to what?

MS. GILLES: Well, Your Honor, the purpose of this witness is not to establish that he a biochemist or a scientist or a physicist or a mathematician or an engineer, it is simply to show he is an expert in terms of being an examiner or a technician.

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

I have elicited for the record his training both at the schools established by the International Association for Voice Identification and on the job for three years. He has testified to the Court that he has done analysis of over a thousand spectrograms, and it is the State's position that he is qualified to not only discuss the technical aspects of what he did, but also his opinion or his analysis of the spectrograms that he produced. That is what he does and it is the State's contention that he is not an expert in terms of being a scientist here to explain all of the scientific principles behind the science, but it is the State's position that he is an expert in terms of being an examiner and being an operator, so to speak.

THE COURT: I figured all of that out.

MS. GILLES: Then I need to know what your ruling is on his ability to testify as to what he did, but his conclusions or opinions, the analysis that he came up with.

THE COURT: I sustain the objection with regard to him stating an opinion as to the results of the spectrograms. I overrule the objection as to the taking of the spectrograms and the operating of the machine, and I figured out what the State's position was before you stated it after I had already made my ruling.

Bring the jury in.

MS. GILLES: Can I have just a minute, Your Honor?

OUTSIDE THE PRESENCE AND HEARING OF THE JURY:

I need to instruct the witness on something.

(Whereupon, the jury was returned into open court, and the following proceedings were held, in the presence and hearing of the jury.)

DIRECT EXAMINATION

BY MS. GILLES:

Q I will ask you to -- that chair won't scoot so you need to pull that microphone toward you or speak into it loudly enough so the last jurors can hear you. Just pretend I am sitting right back there.

A All right.

Q State your name for the record, please.

A Larry Howe Williams.

Q Larry Williams?

A Yes, ma'am.

Q And would you tell the jury how you are employed?

A By the Houston Police Department as a voice identification examiner.

Q And are you up here today from Houston?

A Yes, I am.

Q So that the jury will know a little about you, sir, are you a family man?

A [redacted]

Q And would you tell them about your background in terms of your education and when you went with the Houston

Police Department?

A I have gone to college at Grayson County Junior College in Denison, Texas and I attended courses at the University of Houston. I joined the Houston Police Department in 1972. In March of 1983 I attended an approved course at Sommerville, New Jersey for voice print identification.

Q Let me stop you just real quickly there. Would you tell the jury specifically -- you have been with the Houston Police Department fourteen years, you have worked in the field of voice print identification, and you are about to tell us about the training in that area.

Before you do that, would you explain to the jury what voice print identification is?

A Voice print identification is a process where one can produce spectrograms from an instrument called a sound spectrograph. With this, what can be done is a sample of the unknown is compared to a sample of the known voice.

Q Excuse me. A sample of the unknown is compared with a sample of the --

A Known voice.

Q To what end or for what purpose?

A The purpose is to either make an identification or an elimination of the voices.

Q Let me ask you then, now that the jury knows a little bit more about what we are talking about, voice print

identification, what your training in that area is?

A The courses at Sommerville, New Jersey consisted of a comparison of several hundred spectrograms, brief practical knowledge of the operation of audio tape recorders, physiology, and the operation of the spectrograph itself so that other spectrograms can be produced from the sound spectrograph.

Q In particular, at this school, would you tell the jury the type of things that you worked with in learning about the process? This was a number of years back when you went to school?

A Yes, approximately three years ago.

Q All right. What types of things were analyzed and tested on and were shown there at the school?

A We were shown several test spectrograms where it was required to determine the elimination or identification of a known voice and unknown voice.

Now, that included also the testing of fathers and sons and mothers and daughters and grandfathers and fathers and their sons and individuals over a period of time, ten, fifteen or twenty years, to see if the individual that was receiving this training would have the capabilities once they were through with that training to further their education in this field.

Q Let me ask you then when you talked about fathers

and sons and daughters and mothers, are you saying that you were working with tape recordings where people might sound alike like a mother and her daughter or a father and his son?

A Yes.

Q And you used this scientific equipment to determine whether or not indeed it was the same speaker or not the same speaker?

A Yes, ma'am.

Q In other words, you didn't know it was a father and son until after the test results were shown to you?

A That is correct. Only the instructors knew the correct results until we were through with the test.

Q Would it be safe to say spectrographic analysis does not rely solely upon what the ear might hear?

A That is correct.

Q In addition, you mentioned that some of the identifications there were over a span of time?

A Yes, that is correct.

Q What do you mean by that?

MR. GLOVER: Your Honor, in light of my objections to the Court concerning this particular evidence, I submit to the Court that we are getting into an area that is outside the scope of his testimony as an operator of the spectrograph and I object to it.

THE COURT: Overruled.

Q And are these spectrograms that were produced in this case?

A Yes, they are.

MS. GILLES: We would offer State's Exhibits 26 and 27 at this time.

MR. GLOVER: The same objection that we had for the Court previously.

THE COURT: Same ruling. They are admitted into evidence.

MR. GLOVER: The Court recalls my objection?

THE COURT: Yes.

BY MS. GILLES:

Q If you would, Officer Williams, would you step down here in front of the jury, and I want to remind you that you are not going to be in front of a microphone and the reporter has got to take down what you are saying. So, if you would, step down here and show the jury how it is that this instrument functions and the procedure that you utilized, and in doing that, keeping your voice up where he can hear you.

A Okay. (The witness complies.) Ladies and gentlemen, as you can see, this is a rather small photograph. Can everyone see it clearly? The tape recordings that I received, both be known and unknown were on a cassette recorder. To work with it, the instrument itself, the audio portion, the sound that you hear on the cassette that you

received needs to be transposed onto a reel to reel working recording so the tape can be wound around the drum and utilized in the manner it is designed.

Q Let me stop you and ask you this: Is that recorder, the reel to reel, part of the spectrographic instrument itself?

A Yes. It is not an added feature. The tape recording, once it is rerecorded onto reel to reel tape, as you can see, the tape is brought down around this drum. The tape is brought down from this reel and down around the drum and tied in here. This will represent approximately two and a half seconds worth of sound. The sound is locked on. There is a tape clamp which holds the particular piece of tape in place on the drum. The tape does not move.

Now, you have a paper which is a spectrogram itself that has not been marked and it is placed upon this drum in a manner such as this. This paper is wound around the drum. You can rotate the reel to reel tape and listen to it to determine which sections of the tape you actually want a spectrogram of. Since you cannot hold up a magnetic tape and look at it, you have to hear it.

Now, what happens is this tape is locked on to the drum but you can unlock it. There is a playback head that is in this drum. A standard playback speed can be started in motion by switches over here located at this portion and the

individual can hear what is on that two and a half seconds of sound and this will repeat itself as this playback head goes around the tape.

Q Are you saying that you take -- in this case, you took -- let's start with State's Exhibit No. 13, the unknown recording, the recording between the rapist and Sharon, and you put it on this reel to reel tape and then you began to work in segments of two and a half seconds of speech from that tape at a time?

A That is correct.

Q Would it be fair to say this is a very lengthy and time consuming process?

A This is the longest case I have ever done.

Q And you took that entire tape, that portion of it involving the suspect's voice, not Sharon's, and produced two and a half -- two point five seconds worth of speech on each of the spectrograms?

A Yes, that is correct.

Q That is done, as you are showing the jury here, on this drum with the paper on it here in State's Exhibit No. 24; is that correct?

A Yes, that is correct.

Q Let me ask you this: Are you saying the net effect then of this instrument is to make -- to make speech visible?

A Yes, that is correct.

Q This instrument takes the speech we can all hear from the tape recording and makes it visible on a spectrogram?

A Yes, that is correct.

Q All right. In this particular case, tell the jury, if you would, did you do all of the spectrograms of the telephone call that Sharon is involved in initially and then go back and do the known voice of the Defendant over here, David Pope, or what is exactly the procedure that you use?

A Yes, the procedure that I use was to make all the spectrograms utilizing the tapes of the unknown voice recording first and then I go back and make the spectrograms of the known tape recordings. This is the procedure which I was taught.

Q All right. Is that the standard procedure in doing this type of production on the spectrographic instrument?

A Yes, it is.

Q So you established two sets of spectrograms then?

A That is correct.

Q One, the voice of the unknown speaker, the speaker talking to Sharon, in segments of two point five seconds?

A Yes, that is correct.

Q And the same thing was done with his voice over here?

A Yes, that is correct.

Q Let me show you State's Exhibits 26 and 27. Could

you show the jury how these relate to the photographs of the spectrographic instrument itself, 26 and 27 being the spectrograms?

A Okay.

Q Explain that to the jury.

A The information that is on the tape, as we were told, this is transferred into an electronic pulse. This is a metal drum and this is a paper that is designed to be sensitive to an electronic spark. The head will rotate around the drum in a very rapid rate -- it is eighty to ninety times per minute, I believe -- and this head scans -- the recording head passes over the sound that is on the tape. Then that energy that is on the magnetic tape is transferred into an electronic impulse and goes through a very fine needle that burns onto the paper those portions of the sound or speech that it has picked up from the tape.

Q And does the spectrographic instrument itself stop the tape at two point five seconds worth of speech?

A Yes, ma'am.

Q That is its own time from that it works with?

A Yes, ma'am.

Q That is not controlled by you, that is what the instrument does?

A No, this was a convenient size that was apparently determined by the manufacturer so the paper is easy to work

with since speech and word recording can be a continuous thing.

Q So it is its own automated self in terms of stopping the tape, starting the tape, making the spectrograms?

A Yes, ma'am.

Q All right. State's Exhibits 26 and 27 -- I believe that is right -- are those the two spectrogram numbers?

A Yes, ma'am.

Q Okay. Thank you. Were they produced by the spectrographic instrument that was shown there to the jury in the photographs?

A Yes, they were.

Q Now, without going into anything other than the mechanics of this process, is there a way that it is delineated as to which of these spectrograms is from what we call the unknown tape and which is from his voice over there?

A Yes, we are taught in the process to mark the unknown with red ink and the known in black or blue ink or another darker ink so we can keep them separated.

Q All right. So then in compiling the stack of spectrograms that were produced by the rapist when he was on the phone with Sharon when he was unapprehended -- let's say the unknown voice, let's call it that -- of when you produced all that stack of spectrograms, the lettering at the bottom of that -- each of those is in what color?

A The lettering at the bottom of the unknown was in red and the lettering at the bottom of the known was in black.

Q So then when you made the stack of spectrograms of David Pope's voice, you lettered everything in black?

A Yes, that is correct.

Q Now, would you just read at the bottom of State's Exhibit No. -- well, that is all right. Let me ask you this: At the bottom of State's Exhibit No. 26, is that your handwriting that appears there in red lettering?

A Yes, it is.

Q And at the bottom of State's Exhibit No. 27, is that your handwriting that appears there in the dark lettering?

A Yes, it is.

Q About how many -- if you could guess, about how long do you think it took you to compile and go through and listen and find and mark these spectrograms?

A Through the entire was approximately 350 hours.

Q You can take your seat.

A Thank you. (The witness complies.)

Q Now, you have told us that you have been trained in this field of voice print identification to make you an examiner; is that correct?

A Yes, that is correct.

Q And are you also a member of organizations involved in this field?

A Yes, I am.

Q Would you tell the jury about that?

A The International Association for Voice Identification. That was an association that was designed for people that were interested in that particular field -- specifically that field. Also the International Association for Indentification as opposed to the other Organization of Voice Identification. That is an international organization that is recognized by several law enforcement agencies and scientific groups, which they have several subdivisions, and voice print identification is one.

Q All right. And in addition to that, do you lecture? Have you lectured in this field?

A Yes, I have.

Q Now, let me ask you as part of the procedure that you go through before you ever start creating these spectrograms, is there a way you test the instrument before you ever get started to be sure of its accuracy in the production of spectrograms?

A Yes, there is a calibration process.

Q What does that mean?

A The instrument generally has two tones. One is a hundred -- a 500 hertz tone and the other one is 100 hertz tone. This comes from the manufacturer itself. They calibrate the instrument at the factory to determine whether

or not it is in proper operating condition. And the instrument that I work with, they also sent me a copy of this master set of calibrations.

There is a procedure with which one can calibrate ones own machine so that you can determine whether or not the one you have is working as it was designed to work from the factory.

Q All right. So prior to you starting, do you run through these master sets and determine whether or not it is properly calibrated before you start?

A Yes, ma'am.

Q And did you do that in this case?

A I certainly did.

Q Was it properly calibrated?

A Yes, it was.

Q And in addition to the test that you run, can one experienced in the field determine from looking at the spectrograms whether or not the instrument is properly calibrated?

A Yes, you can.

Q Now, so that it is clear for the jury, you are a trained, qualified examiner -- spectrographic examiner and you are not here to tell this jury that you are a scientist in the field of bioacoustics?

MR. GLOVER: Your Honor, we will object to the form

BY MS. GILLES:

Q What do you mean by the time difference?

A There were several tape recordings that had been made years prior to the time that I attended school. They were made of individuals, say, ten, fifteen, twenty years ago. So you are looking at about a ten, fifteen or twenty year time span until I had actually attended the school.

These tape recordings were made and kept at the school and when we ran the test, we had to -- as far as the test we had to solve, we had to determine whether the same individual's voice had changed over a period of time, ten, fifteen, twenty years. These tests were also conducted in studies that we were told about.

Q All right. Let me ask you then would it be fair to say that fifteen years from now my voice might sound to some degree to the ear different than it does right now?

A Yes, that is possible.

Q All right. And whether it sounds the same or not, the spectrographic analysis process could determine whether or not it was indeed one in the same speaker on those two tapes, one now and one fifteen years from now?

A That is correct.

Q Let me ask you if you have brought here with you some photographs of what a spectrographic analysis instrument looks like?

A Yes, I have.

MS. GILLES: I will need to have these marked for trial purposes at this time.

(Whereupon, State's Exhibits No. 23, 24 and 25 were marked for identification.)

BY MS. GILLES:

Q Having had those marked, let me show you what will now be referred to as State's Exhibits 23, 24 and 25.

Are those the photographs that I referred to a moment ago that you brought here for the jury of the instrument?

A Yes, they are.

MS. GILLES: I would offer 23, 24 and 25 at this time.

MR. GLOVER: My objection again concerning the admissibility of these exhibits as heretofore stated before the Court.

THE COURT: I recall those objections and they are overruled. They are admitted into evidence.

BY MS. GILLES:

Q Do State's Exhibits 23, 24 and 25 show this instrument?

A Yes, they do.

Q And in State's Exhibit No. 23, is that a picture of the entire instrument?

A Yes.

Q And 24 and 25 are more close up views of portions of that instrument?

A Yes, that is correct.

Q Now, let me ask you if there is a specific set procedure that one uses in creating spectrograms or doing a spectrographic analysis?

A Yes, there is.

Q And were you called upon by the Garland Police Department, and specifically Investigator Wheatley, to utilize that procedure in this particular case?

A Yes, I was.

Q And the procedure involved, as you mentioned to the jury, is the comparison of tape recordings?

A That is correct.

Q And were you asked by Investigator Wheatley -- in fact, did he bring you some tape recordings?

A Yes, he did.

Q And were the recordings that he brought to you to have run through the spectrographic instrument here State's Exhibit No. 13 and 22?

A Yes.

Q And did you conduct the spectrographic creation of spectrograms from these two tapes?

A Yes, I did.

Q And for the record, I'm going to refer to State's Exhibit No. 13 as the call of the unapprehended suspect between the rapist and Sharon Lemke and State's Exhibit No. 22 the known voice tape of the Defendant, David Shawn Pope. Are those the two tapes you were utilizing in your procedures down there in Houston?

A Yes, they are.

Q All right. This instrument shown in 23, 24 and 25 is called a spectrograph; is that correct?

A That is correct.

Q And what is the product produced by a spectrograph called?

A A spectrogram.

Q All right.

MS. GILLES: I need to have two additional exhibits remarked from hearing exhibits to evidentiary ones.

(Whereupon, State's Exhibit No. 26 and 27 were marked for identification.)

BY MS. GILLES:

Q Let me show you what has now been marked as State's Exhibits 26 and 27. Do you recognize these?

A Yes, I do.

Q And are these spectrograms examples of the product that a spectrographic instrument produces?

A Yes, they are.

of the question.

THE COURT: Sustained.

BY MS. GILLES:

Q Would you tell the jury whether or not you are a scientist in the field of bioacoustics?

A No, I am not a scientist.

Q And would you tell the jury whether or not you are here to try to explain to them the principles of physics and mathematics that make up a part of this science and this instrument?

MR. GLOVER: Assuming facts not in evidence. Object to it.

THE COURT: Overruled.

BY MS. GILLES:

Q You may answer the question. Are you a scientist?

A No, no, I am not a scientist in the field.

Q You are here as the operator, the technician of this instrument?

A Yes, that is correct.

MS. GILLES: I will pass the witness, Judge. We need to approach the bench, please.

THE COURT: All right.

(Whereupon, an off the record discussion was held between counsel and the Court, outside the hearing of the jury.)

MS. GILLES: Judge, before I pass the witness may I have him back for a couple more questions?

THE COURT: Yes.

BY MS. GILLES:

Q Let me ask you if you caused the spectrograms that you produced from these two tape recordings to be sent to any individual?

A Yes, I did.

Q And who is that?

A That was Dr. Henry Truby.

Q These spectrograms, the known set and the unknown set, were sent to Dr. Henry Truby?

A Yes, that is correct.

Q And where does he reside?

A Miami, Florida.

MS. GILLES: Pass the witness.

MR. GLOVER: We have no questions at this time.

THE COURT: You may step down. Call your next witness.

MS. GILLES: The State would call Henry Truby, and may the record reflect, Your Honor, that this witness has previously been sworn and is still under oath.

THE COURT: Correct.

(NO OMISSIONS)

Whereupon,

DR. HENRY TRUBY,

called as a witness by the State, having been duly sworn by the Court to testify to the truth, the whole truth, and nothing but the truth, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. GILLES:

Q Would you state your name for the record, please, sir?

A Henry Truby.

Q Thank you. Your last name is spelled (spelling) T-r-u-b-y?

A Yes, ma'am.

Q Are you, sir, a scientist in the field of bioacoustics?

A Yes, ma'am, I am.

Q And would you acquaint the jury with what that means?

A Well, bioacoustics is a science that has to do with the sound produced by the body or with reference to the body.

Q And it is a science dealing then with sound?

A Sound, body sound, heart sound, circulation sound, speech sound, respiratory sound, anything from a baby crying right on through your last gasp.

Q And would you tell the jury a little bit about yourself? Let me ask you do you currently reside in Miami, Florida?

A Yes, ma'am.

Q And are you a family man?

A Yes, ma'am.

Q How many children do you have, sir?

A Six.

Q Let me ask you how long you have been working in the field of acoustic sciences?

A Forty years.

Q All right, sir. Would you familiarize the jury with your educational background and then from there I will ask you -- well, moving to -- I will ask you some questions about your work within this field. But just so the jury will know a little bit about you, what is your educational background?

A Well, in the university level, I first got a degree from Paris Junior College, Paris, Texas, in mathematics. Then I got a Bachelor's Degree from the University of Texas in Austin. I then served in the war for five years in the South Pacific. Then I got a degree from the University of Wisconsin in English language, a Master's Degree. I was teaching in the Math Department but I got a degree in English.

Q I'm sorry, where was that?

A The University of Wisconsin. Then that university

was only at medicine. Some years later I completed my doctoral work at Columbia University in linguistics.

Q What is that, sir?

A Linguistics is the study of language, anything to do with language, anything from the normal, ordinary everyday features of pronunciation and syntax and spelling and everything on up to how language works interrelatedly between the translation of languages, the analysis of languages, the pathology or languages. Anything to do with language.

Q What do you mean when you say the "pathology of language"?

A Abnormal production of language or rescission of language in audiology or what is commonly called speech pathology or speech therapy. That wasn't my particular emphasization, but, of course, I have taught in those areas over the years of analysis, research, the making of dictionaries, production of textbooks, inter-languages, between languages, that is, and my final degree was a Doctorate from the University of Lund, which is an ancient Swedish university in acoustic phonetics, specifically which has to do with the study of sounds of speech and analysis and production and research.

Q When you say that acoustic phonetics is dealing with production of speech, is there a way -- what are you talking about there?

A Speech sound and its analysis. The field of acoustic phonetics is about a hundred something years old, I would suppose, but before that, the older people working in the field were conscious of those facts as long as there has been a way to duplicate language by just hand-me-down songs, histories and the like. Even Aristotle in 300 B.C. was working in some way to reproduce language sounds and, of course, we have had writing now for several thousand years, which is a way to put sound down.

But in the last hundred years, we have been able to make instrumental analyses which is more meaningful as far as history is concerned and as far as technology is concerned.

Q Are you saying in the last hundred years, because of the technology, there has been such a greater increase in the amount of information that we have in this field?

A Yes, in the conversion of sounds that you hear and the sounds that you can see and that can be converted into patterns that can be read or examined for research purposes or identification purposes or the like.

Q And does that area that you are talking about, the conversion of speech into visible sound, I will say for lack of a better word, is that a specific science within the field of acoustic science?

A Yes, there have been instrumentation developed, as I say, over the past 75 years or so, but specifically, since

about 1945.

Q And what is that field called?

A That is called sound spectrography, and when it is focused on speech, it is called speech sound spectrography. When it is focused on other things such as infant cry analysis, baby cry analysis or animal sound analysis, there has been a lot of work in recent years that has focused on that aspect of spectrography.

Q So sound spectrography can relate to many areas of sound, not just the human voice speaking?

A Yes, exactly.

Q All right. And have you done research and have you worked in the area not only of speech sound spectrography, but in sound spectrography?

A Yes, not only in a general way, but in several specific areas.

Q All right. Let me ask you a little bit about -- I think you talked about your last degree that you received in acoustic phonetics from the University of Lund in Sweden. Your dissertation there was specifically in what field?

A Speech spectrography.

Q All right. Could you tell the jury a little bit about your work in the area of sound spectrography?

A Well, right after World War II, it became possible to convert the sound of language into a visible form.

Q And when you say it was right after World War II, had that actually been worked on during the war?

A Oh, yes, before the war. But during the war it was used in espionage work and in transferring spoken language from one place to another without any chance for it being intercepted. In other words, this was not -- has not even the cryptography -- it is not coded, it is a mechanical automatic way to scramble sounds into other patterns and transmit them and at the other end would come out an actual picture which could be interpreted then. This is a Xerox of a sound spectrogram.

Q Excuse me just a minute. Let me have that marked, please.

A Okay.

MS. GILLES: Mark that, please.

(Whereupon, State's Exhibit No. 28 was marked for identification.)

BY MS. GILLES:

Q Let me ask you, before we utilize some of these exhibits, if I might need you to just talk about the history of the science first, or would it help you to have this in doing that?

A I think it would help to have it. It would be clearer, I believe.

Q All right. And you have your own copy up there.

Could I have that to show to Defense counsel, please?

MS. GILLES: For the record, I am offering State's Exhibit No. 28, which the Defense counsel is viewing at this point and Dr. Truby has an identical copy of it which he wishes to keep up there with him to refer to as State's Exhibit No. 28 is exhibited to the jury.

MR. GLOVER: We object to it, Your Honor. It doesn't conform with our Motion for Discovery.

THE COURT: Overruled. It is admitted.

BY MS. GILLES:

Q State's Exhibit No. 28, then, could you explain what that is, please?

A Yes, it is just a general display of how it would be to utter an isolated vowel of the vowels E, O, A, and that these have characteristic patterns in language which would, if the pronunciation were similar to those, carry through any of the 5,000 human languages we use today on this planet, and they would help you then to identify the word linguistically from a language standpoint.

Q Let me stop you a minute then. Are you saying that if I say the sound "E," it will appear a certain way on the spectrogram?

A Yes.

Q And that is shown here as to what they look like once they are analyzed?

A Every time you say anything that sounds like "E," it is going to look like that and it doesn't matter who says it.

Q That is the basic shape?

A That is the basic shape.

MR. GLOVER: Do you have an extra copy of that?

MS. GILLES: Yes.

BY MS. GILLES:

Q Now, I believe that you were telling the jury that this area of research or of this science began during the war and was used in espionage. What do you mean when you say that?

A Well, the instrument began to be used anyway that was confident to the agents using it, I presume. It wasn't released for general scientific use until May of 1945, I think. I began using it in March of 1946. It had been worked on for many, many years prior to that by Bell Telephone Laboratories and others and it appeared in scientific writings as a method under development. It gave us a new handle on language. We had been recording since the 1890's, but the only way to make heads or tails out of a recording was to listen to it. So it converted it in a meaningful way.

Now, we had earlier oscillograms and some of my immediate ancestors were very competent at reading oscillograms and could tell you not only what was on an oscillogram linguistically, but could tell you who uttered it.

But by the time it turned into the form which we have just seen, it gave us something -- some patterns that were easy to pass on to students. We trained different people to read these visible pictures and they could interpret language that way, or the language of a speaker making the recording -- they could do that in real time, that is immediately, or you have a permanent reproduction of that particular sound.

Now, if somebody said, "He yet," like that, that would be on there. That would forever be on there and there wouldn't be anything you could do about it. You could capture it that way, could look at the recording again and make another spectrogram. You could make measurements on it and it began to make machine translation and just general translation and other kinds of things very possible.

Q Are you saying then it is from the area of just hearing speech and to being able to study it because you had a recorded visual --

A Yes, and Bell Telephone Laboratories used the term "visible speech" for theirs, and a book was produced of some magnitude back in about 1947. Actually the first time that anyone had used the term "visible speech" was in 1849. That was Alexander Melv# Bell who developed a system like this, but he couldn't turn it around. That was the father of Alexander Graham Bell and 100 years earlier he had produced a system where he could write the syllables down or any one of his sons

-- he had three sons that could write the syllables down and send them to their father and the father could tell which person had uttered what.

Q And in the '40s during the war --

A It was turned into a mechanical instrumentation, and the speaking of that vowel "E," then somebody could say, "Here it is, you can see it," and it could be produced into a word.

Q Just a second. I am not sure what you are referring to.

A This is identical and copies were just made.

MS. GILLES: Mark this, please.

(Whereupon, State's Exhibit No. 29 was marked for identification.)

BY MS. GILLES:

Q Could I see your copy, please?

A (The witness complies.)

THE COURT: Are you making an offer, Counsel?

MS. GILLES: Yes. I think at this point he would like his own copy. I would offer State's Exhibit No. 29. At this time Dr. Truby has an exact copy of it which he will refer to up on the stand.

THE COURT: Any objection, Mr. Glover?

MR. GLOVER: My objection to the entire line of testimony is that it is not credible.

THE COURT: Overruled. You may continue.

BY MS. GILLES:

Q Now, State's Exhibit No. 29, what are you saying this is, sir?

A Well, we were speaking a moment ago of the vowel "E". If you incorporate that into a word and pronounce it like the word "see" for instance -- we have the word "see" and see can be spelled in various ways. It can be (spelling) s-e-e or it can be spelled (spelling) s-e-a, or it could be the name of the letter "C". But nonetheless, its utterance, "see, see, see," repeated by the same speaker will bear characteristics which don't change for that same speaker very much, not enough so it would fail to be identified not only as uttered, but what was uttered.

Q All right.

A And by whom.

Q Let me just ask you a question, sir. On State's Exhibit No. 29 that I hold here and which you are looking at a copy there, is this then an example of an actual word -- that is the word "see" as opposed to that "E" sound that you were showing the jury earlier on State's Exhibit No. 28?

A Yes, it is a word incorporating in an additional sound as in "see," and it isolates the vowel "E" that we were talking about earlier. It could also be the name of the letter "E" so it has -- it is a word, too, in a sense, but having --

Q Let me ask you this: Are you saying it doesn't matter if it is (spelling) s-e-a or (spelling) s-e-e or the letter "C," the thing that is important here is what is said, not the spelling?

A Yes, spelling has nothing to do with it. Spelling is just kind of a rough attempt to put down what you just heard. If I say, "I see something," everybody knows which "see" I am talking about. If I say, "I dropped it in the sea," they know which "sea" I am talking about. When "E" is by itself, the conformities are of such a nature, once it is introduced into the word "sea," then it is modified by the preceding sound and it interrelates those two sounds in a manner which then is an additional complication or characteristic of the pronunciation of the word.

Q By that particular speaker?

A By that particular speaker. It takes about 5,000 of such interrelationships to describe English.

Q That is what makes up English language?

A Yes. That is why it takes me four years to train somebody in phonetics in a university.

Q Now, the development of this instrument then was developed through the Bell System Laboratory; is that correct?

A Yes, ma'am.

Q What we used to call before all of this split-up, AT&T and the Bell Telephone Company?

A Whatever. Bell Telephone Research Laboratories it was for many, many years and still is a very active communication center.

Q Now, in what year was it that you began working with this instrument and spectrographic analysis?

A One of the visiting research scientists to Bell Telephone Labs was a professor at the University of Wisconsin and he brought one of the instruments out there and I began working with it in about March or July of '46, somewhere in there.

Q Would it be fair to say then that you were one of the first civilian scientists to work with this?

A Well, after Professor Joos, I guess I was the second one. He was a civilian scientist who was invited into the Bell Laboratories because of his knowledge in linguistics to work with the instruments.

Q And would you tell the jury about speech spectrographic analysis? You have started telling us about it, but have you yourself worked in this area for many, many years and published many articles in books in that area?

A Yes, once I became conscious of the fact that this instrument -- as I said earlier, I was a mathematician, and maybe still am to a certain degree, and was teaching mathematics at the university. This is a mathematical instrument. This is a mathematical conversion of the sound of

anything to the visible form of that anything. We have continued -- I don't suppose there have been many days since 1946, in the middle of the summer, that I haven't been working with this. It is both a hobby and an avocation and a profession with me and I will never get finished with all of the things I would like to do in this area, nor would anybody else, I suppose.

Q Would it be fair to say that you have published well over a hundred articles in the area of bioacoustics and speech print identification and Voice Print Identification, all of these things you have talked to us about?

A Yes, that is certainly quite accurate.

Q The basic principle or premise, perhaps, in using speech spectrographic analysis is what?

A Each of us handles his or her language differently from anybody else. In other words, uniquely.

Q And where that premise -- did you explain where that derives from, the uniqueness?

A It was first reported in literature in the Bible, I suppose, and then everything everywhere south of that until now that we can -- we all know we can identify people if we are familiar with their voice, the speech production, and the various instrumentations of transmission like the telephone, radio, television, movie soundtracks and all of that simply confirm that technologically. We have used it in amnesia

cases, we have used it, as I say, in pathology in various ways and in all kinds of language studies.

Q Okay. You say that if we know someone, we can identify them?

A That is the basic premise, right.

Q In other words, I know my mother's voice. She calls me on the phone and I can recognize it because it is her voice. Is that what you mean, just hearing it?

A Yes, and that has been a very strong method of identification. The problem with that is that sometimes each of us has made a mistake. It was some kind of interference or just a plain, pure mistake. The spectrogram and the spectrographic form doesn't. It would reflect the small differences which might have made us think we heard somebody, but it would show those differences in an objective way and you would see why you made such a mistake. For instance, with all of these brilliant imitators like Rich Little, Johnny Carson, those people, no matter how clever their imitation is, you look at the spectrogram of it and you see that Johnny Carson is still not George Burns or James Cagney or whomever he might be imitating. If you are listening to especially a radio broadcast, it might sound mighty good. Sometimes they do a fine job.

Q And the spectrograph would show it was the voice of the imitator and not the real Johnny Carson or the real George

Burns?

A Precisely.

Q Even though it might sound that way when you listened to it?

A Yes, it is a beautiful caricature. The imitator caricatures those things which appeal to the ear, but they don't get everything. There is no way for them to memorize all of the phonetic details and everything, and the person they are imitating has been speaking that way for however old he is.

Q The converse of that, I am talking with you now. I think something is funny and I say, "Don't make me laugh," and then I am serious and I say, "Don't make me mad." Now, by just listening, the record may not reflect it, but my intonation is different?

A Oh, yes.

Q And somebody not seeing me say that could presume that it was two different speakers?

A They might if they didn't know you in both of those moods.

Q Somebody not familiar with me?

A Right.

Q What would the spectrograph indicate to you in that example I just gave you about my voice?

A It would sort of -- it would kind of dissect the

word. It would take the moving speech and analyze it into these characteristics of "E" or whatever sounds are in there in such a way that it would show no matter whether you were angry or upset or inebriated or whatever, that you still were not able to -- nothing messes up your articulation to the point that it isn't recognizable.

This looks more or less a little harmless, but this is from zero cycles on up to 8,000 cycles, and each cycle of the frequency of this spectrum here in time is significant.

Q All right. Let me stop you there. You are saying in that example I gave you about how I spoke --

A Uh-huh.

Q -- that would all be indicated there on the spectrogram?

A You would see those things, too, but they wouldn't change your basic articulation.

Q That is what I needed to ask you. What if I were really good and I could throw my voice to where I sounded like Nancy Reagan? Would that indicate to you that it was still me talking?

A Yes, because what you are throwing your voice into, as I say, would be kind of a caricature. What really happens, you would be modifying vowels, like in the case of an extreme alcoholic, you might change your sound to slur certain sounds, but you won't change your basic pronunciation. If you say,

"dog," you say, "dog." If you say "Dawg," you say, "d-a-w-g." So if you say, "I have a dog," instead of, "I have a dawg," You won't be able to do anything with maybe the "d-o" sound or the "g-a" sound or whatever. The information is overwhelming on these things.

Q And why is it that this science states that I would not change my overall pronunciation?

A If you changed your overall pronunciation too much, maybe people wouldn't understand what you are saying.

Q Is pronunciation a learned thing and is it based on the physical makeup of my throat?

A It is a subconsciously learned thing. It started prenatally with the influence of your mother's speech on developing the unborn baby and picks up respiratory and sort of timing and things that later become -- when he gets in the air, become cry sounds which in themselves are so individualistic that you can identify babies from them. You can tell identical twins apart, quadruplets. It is an amazing complication.

Q All right. And there have been years and numbers of studies in this area?

A In all of these areas.

Q Let me show you what I am going to have marked as State's Exhibit No. 30.

(Whereupon, State's Exhibit No. 30 was marked

for identification.)

BY MS. GILLES:

Q Do you have an exact copy of it also, Doctor?

A No, I don't, but that is all right.

MS. GILLES: We would offer State's Exhibit No. 30.

MR. GLOVER: The same objection to the entire area, not being credible or competent.

THE COURT: Same ruling. It is admitted into evidence.

BY MS. GILLES:

Q All right. What is shown in State's Exhibit No. 30 is something that you touched on there for a minute?

A That is four spectrograms taken from two sets of identical twins.

Q All right. One set of twins, Joann and Carol, and the other set of twins, Ronald and Roger. Might identical twins to the ear sound the same?

A Very likely. Very likely they would sound the same, but probably not to each other or to their mother or something.

Q Okay. But to someone who didn't know them?

A Oh, yes, someone who didn't know them wouldn't be able to tell them apart.

Q All right. In the example in State's Exhibit No. 30, were these twins, each set individually asked to speak the

phrase "Were you"?

A That was extracted from some speech they were making like, "Were you there Saturday?" or something of that sort.

Q All right. And what we have here on the spectrograph, though, is the small phrase, "Were you"; is that correct?

A Yes.

Q Okay. And what does the spectrogram in those cases indicate about the twins saying the same word or phrase?

A Well, from left to right, it indicates that when Joann said, "Were you," that the pattern that you can see half way across the room is different from the one that Carol said, but in a generalistic way, you can still see that it is the language expression "Were you."

Q Is the same true in the study that was done in the example of Ronald and Roger, the speech pattern produced is different?

A The same with Ronald and Roger, and they were extracted from sentences -- probably the same original sentence.

Q So what you are saying, this is just --

A And made at quite different times.

Q -- this is just one little example of one study of many studies that have been done on twins?

A Yes.

Q So just the jury will know what we are talking about here --

A We picked and naturally we work with all kinds of twins and triplets and quadruplets, but identical. They are called --

Q Would you say that --

A Monozygoti, which is a technical word for identical twins.

Q And the spectrogram then demonstrates even identical twins have different speech patterns and say the words somewhat differently, indicating a uniqueness of speech?

A Yes. Again, the distinction is from an engineering standpoint, they are different, but from a language point of view, they are the same since you can understand them. We all speak the language, but we don't really care about the details of it.

Q Okay. Let me ask you if in your 40 years of doing this and working with spectrograms, would you say that you have used or viewed and analyzed spectrograms on few or many occasions?

A I would say -- I would say many of those.

Q And in fact, are you an expert in this field and considered an expert in this field?

A I suppose would be an immodest way of putting it.

Q Let me ask you whether or not you were called upon

by Larry Williams that the jury has met and heard from to analyze some spectrograms that he had produced down in Houston, Texas?

A Yes, I was.

Q And did those spectrograms involve, for terminology so we are clear on what we are talking about, an unknown set and a known set, that being where the speaker in one was unknown at the time it was made and the speaker in the other was known at the time it was made?

A Yes.

Q And did you have an opportunity at the time to view those spectrograms?

A I did.

Q Now, let me ask you, before you talk about the analysis of those sets of spectrograms, State's Exhibit Nos. 26 and 27 are some examples of what we are talking about here, are they not?

A Yes, these are two of the spectrograms that were sent me.

Q Okay. Let me ask you if before you even begin the analysis if you can tell anything about the instrument upon which these spectrograms were produced in terms of whether or not the spectrographic instrument was working properly?

A That is also possible from the spectrogram to tell whether the instrument is functioning right. It serves as

what we call in the laboratory a calibration of the instrument, which you do in the use of all biophysical instruments, and this machine was in good working order and it produced intelligible sound patterns.

Q All right. In addition to that, can you tell from the spectrograms that you were sent about the quality of the recordings from which they were made?

A Yes.

Q And how is it that you can tell that from looking at the spectrograms?

A Well, the differing degrees of poor quality would impose different things on the spectrograph. After all, it is just an instrument and it is a sound analysis instrument, so it doesn't know whether you are going to say speech into it or make noises into it. So if there is a noise in the room, it will pick it up. All of these are clear. These are what we call clean recordings.

Q All right. For instance, you are saying that if there had been other noise in the room like as I am speaking to you now and clapping my hands?

A Those would appear, those claps, right, during your utterance.

Q They would appear there?

A Ambient noise in the room would be reflected, and if you are out in the traffic and doing this, you could still

understand them as a human, but the machine would then have a noisy recording and you would have a more difficult time to extract the signal just as you would in traffic and you might cup your ear or whatever.

Q These are relatively interference free and the samples represent the speech and not a bunch of background noise, things in the background like a party and that type thing?

A Precisely.

Q And this one here you are looking at and some of these other spectrograms have more background noise than others, do they not, or interference?

A Yes, the ones he sent me were all more or less noise free.

Q The ones that he sent to you for analysis?

A Yes. If he had others, I don't know.

Q And does the -- is it a good idea to use the best, most noise free, clutter free spectrograms available in doing an analysis?

A Well, it is -- you could -- you could say it is a little easier from an expert point of view. If it happens to fall in a critical area, that doesn't bother you any. You can still extract the measurements. It is just not as obvious, perhaps.

Q All right. Now, when you were sent these

spectrograms by Larry Williams, they were sent to you down at Miami; is that right?

A Yes, ma'am.

Q And then you brought them here with you to this trial?

A Yes, ma'am.

Q And would it be safe to say you are not involved with or don't know the facts or don't know this person sitting down here? Let me put it this way: This young man right here, do you know him?

A No.

Q The first time you saw him was in this courtroom a few days ago?

A During the pretrial.

Q Right. And what you have done here is simply to make a scientific spectrographic analysis of the spectrograms involved?

A Yes, of the spectrograms involved. I don't have any knowledge that it is this fellow. I mean I don't know anything about that. All I know is this spectrogram was sent to me. For instance, Exhibit 7 is marked in red and that indicates by our protocol that it is made by an unknown speaker they would like to identify and this one enumerated in black, State's Exhibit No. 8, I compared portions of it which seemed plausible for comparison to me.

Q All right. So what you are saying is you just have a known set and an unknown set. You don't even know the name of the known person. You just know it is a known set and unknown set. You don't know the charges or anything like that. You just take those known and unknown and plop them or analyze them for either identity as the same person or an elimination?

A Yes, exactly.

Q And what you are looking for in spectrographic analysis then is a decision as to whether or not the known and the unknown are one and the same individual?

A Well, you look for points of similarity until -- and if there are none and the sample is large enough, which this certainly is, then you would assume that either the recorded portions you have don't indicate that they are the same person --

Q All right.

A -- but while you are going along, if you find points of similarity, then it becomes obvious after 15-20 times -- similar patterns that these must have been made by the same individual.

Q All right. And that these spectrograms, if there is no points of comparison, as you have shown to the jury in the patterns of speech, the way the words are said phonetically, then you don't have the same individual?

A Exactly.

Q If you have enough patterns in the way the words are said, enough of them in the spectrograms that you look at, what does that indicate to you?

A It indicates that they were made by the same individual.

Q Have you had an opportunity to do this process -- make this analysis in this case?

A Yes, I have.

Q And have you been able to form an opinion?

A Well, my opinion was formed reasonably soon when I -- as soon as I had marked 10-15 similar patterns in these two instances that they were -- that the original producer of these was the same individual.

Q All right. So that I am clear and the jury is clear, you looked through these spectrograms of the known and unknown and you found a great number of identical patterns?

A I found a sufficient number to serve as an identification to convince me, and then take a few more just to reinforce it, that no matter how much you do of these samples, you would continue to get points of similarity every now and then.

Q All right. Let me ask you then, so that it is clear, are you saying the known tape and the unknown tape were made by one and the same person?

A I do so state.

Q Do you have any question about that?

MR. GLOVER: Objection, bolstering.

THE COURT: Sustained.

BY MS. GILLES:

Q Is that your scientific conclusive opinion?

A That is.

Q Now, you talked about the number of points, the number of patterns, I think you used the term. Is there a certain number -- a set number which a society like the International Association of Voice Identification, of which you are the Chairman, recommend before you make a positive identification? Do we have any guidelines in that area? That is what I am asking.

A Yes, what our experience -- some of us, as I said, as long as 40 years of looking at these things, reveals that once you get 10 or a dozen pattern similarities, the same speaker will have produced them. Obviously if you got more or if you go over it more carefully, you are going to find more and more and more if it is the same individual. And as I said, in the earlier examination of this exhibit here -- I don't have the number on it, but whatever it was -- we see that those were all made by the same speaker. In the classroom, a teacher would tell us those are homothone of each other, the same sounds and a different spelling -- well,

the spelling doesn't have anything to do with it. They are the same sounds. If that particular element of sound is in the word, it is still going to look like "C." If it is "seizure," it is going to look like "C." It will be modified according to its context. Those are things you look for. Sometimes the patterns change a little bit because the speaker one time may start to say something and misspeak. We all do that every day of our lives, we misspeak and have to correct a little bit. So if in the correction, you find that, that is when it is handy to have the original tape recording so you can listen to what actually they did say from the standpoint of some mistake. You look back on the spectrogram and you can see that adjustment to the intended utterance and you will get a positive match of that part, too. In other words, all errors of any sort are predictable if you have enough experience. There are no two cases of measles alike, but you can still diagnose measles pretty easily.

Q Let me ask you whether or not the fact that -- assume this is a fact: You have a set of spectrograms, whether it is known or unknown, where the person is speaking and having a conversation, and in the other set of spectrograms -- let's mark that the known set -- you have a person who is reading as opposed to carrying on a conversation.

A Yes.

Q Would there be some discernible differences right immediately? Even before you had addressed the issue of whether or not it is the same speaker, would there be some differences there between the spoken speech, conversational speech and reading speech?

A Yes, and those are rather obvious to an experienced examiner what they would be. A voice print examiner per se doesn't necessarily look for those things, but again you get into the academic area of it, you can tell. When you are reading something, you know what is coming next so you don't make -- you make certain kinds of adjustments in your phonetic output. But if I am going to say, "Well, it is about 12:00 o'clock," I will hesitate before I look at the clock and affirm it and say, "It is really exactly 12:05 according to that clock." But if I read it, it is all there for me and I don't have to hesitate and pick out what time it is. It says there on the page that it is 12:05 and I'll just read it. So those things are predictable adjustments.

Q Let me ask you if there can also be a predictable adjustment, assuming the fact that in the unknown voice spectrograms we have a conversational type situation as I am talking to you now and in the unknown set of spectrograms that you compared and I speak like this in as much monotone as I can. What is that going -- what kind of indication will you receive on your spectrograms?

A The monotony aspect of it is not reflected in the articulation. That is reflected in another way which we haven't gone into at all, because it might be used in an extremeness to try to determine if a voice were the same. But if the articulatory pattern -- in other words, the pronunciation, enunciation of speech -- if those features were adequate, then you don't need to get into those other matters.

Q In other words, if I talk like this or I talk like this, the ear hears it different between monotone and conversational sound, but the spectrogram reveals whether or not my pattern of speaking is the same regardless of the sound?

A Yes, whatever you say or how you say it, it will be reflected on this picture.

Q All right.

A From the analyst's point of view, he will see those differences and account for them if that is necessary, but in the point of identify aspect, he doesn't have to account for anything to get the points of identity. They will still occur in a regular fashion.

THE COURT: Let's stop there.

MS. GILLES: I have like two more questions and I am through.

(NO OMISSIONS)

BY MS. GILLES:

Q The bottom line analysis on the known voice and the unknown voice in this situation were only made by one single person in the whole wide world?

A Exactly.

Q Just like fingerprints, it is unique?

A Exactly.

MS. GILLES: Nothing further.

THE COURT: Ladies and gentlemen, we will go to lunch now. Remember my warnings about not discussing the case among yourselves. Please be back in my jury room at 1:10.

(Whereupon, the jury was retired, and the noon recess was taken, after which the following proceedings were held, outside the presence and hearing of the jury.)

THE COURT: Bring them in.

(Whereupon, the jury was returned into open court, and the following proceedings were held, in the presence and hearing of the jury.)

THE COURT: Cross-examination, Mr. Glover.

CROSS-EXAMINATION

BY MR. GLOVER:

Q Dr. Truby, what is your current pursuit? What do you do currently?

A I am -- I continue to conduct scientific research in various ranges of environmental studies and prenatal and neonatal studies and Voice Print Identification.

Q Well, let me ask you this way: Are you currently employed somewhere?

A I employ myself.

Q You don't have someone you work for then; is that right?

A No.

Q You are not affiliated with or you don't work for any university?

A No.

Q All right. When is the last time that you were employed by some institution or university?

A For any great length of time, 1977, I suppose.

Q All right. Where was that?

A L.S.U. That is Louisiana State University Medical School in New Orleans, and simultaneously at L.S.U. in Baton Rouge.

Q For what period of time?

A A year.

Q Okay. And were you on -- were you employed as a professor at that university?

A Yes, sir, I was.

Q What did you do?

A Well, I conducted research and I lectured down at the medical school in New Orleans and did research that had to do with speech sound analysis and the adaptation of computer technology to speech sound analysis in their department that was called Biocommunications, which has to do with communication among animals and people and between animals and people, and at the university proper up at Baton Rouge, on the campus there I taught courses in acoustic phonetics and speech and hearing anatomy and physiology.

Q Okay. And you were there a year? And you have not been employed by any university since that time for any great length of time?

A No, I have lectures I give for various universities on sort of a regular basis here and there.

Q Do you have an office in Miami?

A Yes, in my home.

Q You have an office in your home?

A Uh-huh.

Q So you are essentially based out of your home now; is that right?

A I also have a laboratory in Michigan which is devoted specifically to these analyses.

Q All right. It is your laboratory?

A It belongs to two of us.

Q Who are you-all?

A Lieutenant Smrkovski of the Michigan State Police. It is a private laboratory of his.

Q Where is it?

A Holt, Michigan.

Q Is it in someone's home?

A Yes, it is a home laboratory.

Q All right. It is in Lieutenant Smrkovski's home?

A Yes.

Q All right. And that is your laboratory along with the Lieutenant?

A Yes, we do all of our research there.

Q Okay. When is the last time you were in that laboratory?

A A few weeks ago, I suppose.

Q Okay. For what period of time?

A Well, I alternate -- I ran back and forth between a case I had in Oshkosh, Wisconsin and a case I had in Fort Lauderdale and a case I had in Miami.

Q That necessitated you running back to the laboratory?

A Well, it didn't necessitate it, but I did so because I have instrumentation there that I wish to use. I have a computer there I can push stuff around with.

Q Do you own part of that stuff?

A Yes.

Q Along with the Lieutenant?

A Yes.

Q Okay. He is a policeman?

A That is his major occupation, yes.

Q Okay. You indicated 1977 on your employment. What about 1976? Where were you employed then?

A I was sort of winding up things at the University of Miami. I resigned from the faculty as a full professor with tenure in about 1972, but I continued to do research and kept getting rehired as a research scientist or one thing and another for several years, and I also taught locally there at another university, Florida International, as a professor of anthropology. I did everything I could to get away from the university, but it wasn't easy.

Q Okay. What else did you do there in Miami? You have indicated something about the University of Miami. Was there another place where you worked?

A Florida International University.

Q Did you work anyplace else?

A Not to have an employer if that is the direction of your question.

Q Okay. You indicated that you resigned from the University of Miami?

A That is right.

Q Were you asked to resign from the University of

Miami?

A Asked to resign?

Q Yes.

A Well, somebody is always asking you to resign from the time you sign on.

Q Okay. Isn't it a fact, Dr. Truby, that you were fired from that university for misrepresenting your credentials as having a Ph.D. from a university that you did not?

A No, it is not a fact, but I couldn't get it on the record to deny it publicly because I have been accused by people every now and then that don't seem to know what went on.

Q Don't seem to know what went on?

A Yes.

Q And was that at the University of Miami?

A That was at the University of Miami.

Q You are telling this jury you were not fired from the University for misrepresenting the fact you had a Ph.D. when indeed you did not?

A I am telling them precisely that. I am telling them the discussion that came up was whether I had two Ph.D.'s rather than one.

Q Do you want to tell us about that?

A I would be glad to. In 1954 I left precipitously to

teach at the University of Kiel in Germany from Columbia. At that time I had completed all of my doctoral work in linguistics, which I did have an acoustics phonetics laboratory there and did work also from time to time in the phonetics laboratory. But I was full time at Columbia and completed all of my doctoral studies.

I had an opportunity to go to Germany. I went over there on a Fullbright travel grant and stayed in Germany for a year or so and taught at the University of Kiel (spelling) K-i-e-l. Then I went up to Stockhold and stayed 8 years in Sweden. During that time -- in the early part of that, I got my doctorate at the University of Lund (spelling) L-u-n-d, which is an old Swedish university, specifically in the field that I wished.

When I came back to the United States, the question of the Columbia Doctorate had never come up since I finished the course and all and was examined and I did finish my dissertation successfully and I went to work for the IBM Research Laboratories in California. So there went another 4 years or so. Then we started the dolphin translation research program.

Q Let me interrupt you here, if I might. My question to you, sir, was were you fired from the University of Miami?

A Yes, and I answered that.

Q Is your answer under oath that you were not asked to

leave that university because you had misrepresented the fact that you had a Ph.D.?

A I did not. I had no obligation to leave that university for any reason.

Q Was not a committee of professors called there to determine whether or not you had been appropriately fired from that university?

A There was not.

Q Okay. That is your testimony under oath?

A That is my testimony.

Q Okay.

A But to continue the so-called misrepresentation, when I went to the university -- I didn't go to the University of Miami. When I went to Miami, three of us formed an institute to study a lot of things about communication, and one of the things most popularly picked up on was the dolphin research. Many years went by and suddenly I began to teach at the university also and had a full professorship with tenure and a lot of grants and other things going on. Somebody on the faculty, it must have rubbed them the wrong way and they accused me -- not me -- but they made the accusation that I claimed I had two Ph.D.'s when I only had one. My laboratory inquired of the University of Columbia what the situation was and they not only didn't have a record of my doctorate from them which was prior to the Swedish one, but they didn't --

they had me having completed graduate studies at the University of Hawaii where I had never attended and Texas Christian University where I had never attended and Southern California.

Q That is what Columbia showed?

A That is right.

Q I see.

A I said, "Well, somebody has been a little careless on their bookkeeping," and that was 20 years ago by now or whatever. But I said, "At any rate, I will proceed to document this doctorate that I earned from the university years ago. I was there under President Eisenhower's administration there -- I mean his Columbia Presidency. So the old chairman of the department was still alive and he executed an affidavit deposition that has been appropriately filed. We got statements and affidavits from professors -- from people who are now professors that were students with me and everybody else is dead that had anything to do with it, I guess, since it was now about -- well, '54 -- 32 years ago.

The matter still hasn't been settled on paper, but I lost interest in it maybe 20 years ago or whatever. In the meanwhile, I resigned from the University of Miami who didn't think one Ph.D., I guess, was enough for them.

Somebody made an accusation and, no, there was no committee appointed. There was no reason to, I am sure. My

tenure was good for as long as I wanted to make it good. But I didn't desire to stay anyplace where I was having that kind of flack, and I have done these other things since then as far as organizing the International Association of Voice Print Identification, the World Dolphin Foundation and teaching at other universities like Florida International, L.S.U., the University of Arizona in Tucson, the University of Hawaii, et cetera, et cetera.

Q You keep harking back to a body of people called the International something or other.

A Association.

Q Of Voice Print?

A Voice Identification.

Q Voice Identification, not Voice Print?

A Yes.

Q You call it --

A The International Association of Voice Identification.

Q Okay. Is it your representation to this jury that Voice Print Identification is analogous to fingerprint identification?

A In many ways it is, yes.

Q Okay. You understand what fingerprints are, don't you? You take an unknown and then a known and then sit down and compare them?

A I think I do understand that much.

Q Okay. And what you are contending here is that voices are fed through some sort of electronic device and they burn out something on a piece of paper that electronically moves up and down a line; isn't that essentially what you are talking about?

A Yes, I think we have introduced the sound spectrograms to the Court.

Q Okay. Now, knowing what you know about fingerprints, if you take a fingerprint and you put it down here and you put another one over here and you have two side by side and you are trying to compare them, the fact that that person has had his tonsils removed, would that affect that fingerprint?

A Well, not according to my understanding of anatomy, no.

Q Would the fact that he had had a tooth pulled affect that fingerprint?

A Same answer.

Q Would the fact that he made that fingerprint 30 days apart, or those two compared fingerprints, affect that fingerprint, in your judgment?

A The only way it might affect it, you can't make two fingerprints identically the same if you are looking at them with an electronic microscope, but you can make the patterns

the same.

Q Are we using an electronic microscope in the spectrograph?

A Almost essentially, yes, in an analagous way, yes. The myriad of details on the sound spectrograph do not in that way coincide with the necessary details to make a fingerprint comparison.

Q Okay. You are saying that it is analagous to an electronic microscope?

A Not analagous to an electronic microscope, but it is an acoustic microscope, to use a figurative term.

Q Okay. You have derived, sir, have you not, on your own as to the points of comparison that you will make on any two graphs that you are looking at or comparing? Did you derive that system determining where to make those points of comparison yourself?

A No.

Q Who did?

A They are derivable because they are apparent on the graph. The signal is self-deriving by putting the signal at the point of interception of a given frequency or given component of frequency, et cetera, et cetera.

Q Who in this discipline, if I might refer to it, that you pursue has determined where you decide where you are going to say at what peak that you do this? Who has decided that?

You or a group of scientists?

A You are attempting to get a complicated cadence.

Q You put a dot above a peak and you say, "There is one right there." Who in your group has sat down in writing and said, "There is where you put a dot on one and there is where you put a dot on the other?"

A A dot is just my way of doing it. Maybe somebody else might do it the same if I teach them or show them that this is a good way to do it. What is on the graph is a development of literally decades of scientific investigation which show these points simultaneously in time on the spectrogram and they are the points which are representative of the vocal track configurations, essentially. In other words, the resonance chambers of the mouth, oral passage or pharyngal cavity or whatever, and these correspond very accurately.

Q Are you familiar with the Acoustical Society of America?

A Yes, I obtained membership in that society about, oh, from about 1948 on, I guess.

Q Okay. Do you feel that it is a representative body of people or scientists that pursue the area in which you are interested?

A There are a few members of it who are in this area, yes. It is an acoustical society. It has everything to do

with acoustics.

Q All right. You have talked about acoustics here today, haven't you?

A Yes.

Q You consider yourself to be some sort of an acoustical expert, don't you?

A Yes, sir.

Q That society has acoustical experts, doesn't it?

A Yes, from various disciplines, yes.

Q Okay. Do you think it is a good society?

A Well, it is a reputable international society, yes.

Q Okay. Are you familiar with the Technical Committee of Speech Communications of the Acoustic Society of America? Are you familiar with a committee report of six scientists in the field of acoustics who were called together and their names are Richard Bolt, Franklin Cooper, Edward Davis, Peter (Spelling) D-e-n-e-s-h --

A Denish, yes.

Q Are you familiar with him?

A Yes.

Q Okay. And James Pickett and Kenneth Stevens, are you familiar with those folks?

A They are all good friends of mine except Richard Bolt. I don't know him that well. I now Dr. Bolt from way back. He is not a close associate.

Q Okay. Are you familiar with a report that they made in 1970 that said that the voice print process was still in an experimental stage and the reliability of the conclusions based on data obtained from the process was uncertain?

A In 1970, yes.

Q Are you familiar with that?

A I am familiar with that.

Q Okay. Are you further familiar with the fact that they said, "The available results are inadequate to establish the reliability of voice identification by spectrograms. We believe this conclusion is shared by most scientists who are knowledgeable about speech. Hence, many of them are deeply concerned about the use of spectrography as evidence in court"?

A In 1970, I am familiar with it, yes.

Q Okay. Are you familiar with a report in 1973 from Bolt, Cooper, Davis, Denesh, Pickett and Stevens again addressing that problem?

A Yes, and we answered that in publication.

Q Okay. And they said, "In light of Tosi" -- Who is Tosi?

A Tosi is Professor Oscar Tosi of Michigan State University. He is a full professor of physics and speech sciences and he is one of the founders in 1971 of the International Association of Voice Identification. He is

still on our Board of Directors and he has also been on the Certification Committee for Officers ever since about 1974 and so on, although we began doing this in 1971-72, and he is still a professor at Michigan State University working now on the automation of Voice Print Identification. He also served on some of these committees that you are referring to.

Q Are you familiar with a report in '73 wherein the authors expressed their concern about certain aspects of the Tosi experiments? I guess he has done a lot of experimenting, hasn't he?

A Yes, he had 24,900 spectrograms read by 250 people, I think. I have forgotten those kinds of figures. But it was 24,598 spectrograms.

Q And the committee said that the Tosi experiments' failure to consider the problems of mimicking or disguising the voices and changes of the voice levels or changes due to stress or other emotional states of the speaker. They expressed further concern, did they not, over the increase in error rates in comparing voice samples taken at different times as well as the increase in error in other circumstances? Are you familiar with that report?

A I am, and that is why we answered in publication, because that report was full of errors such as those you have just read.

Q You are saying that Bolt, Cooper, Davis, Denesh,

Pickett and Stevens all made errors in that regard?

A The report, if that was their concensus, which I have always seriously doubted, is in error, yes.

Q Let me ask you this question: You have indicated that you have certain interests in and do you consider yourself to be a phonetician?

A Yes, I am.

Q All right. How many people in the United States, if you know, or you might approximate this, would have Ph.D.'s or doctoral degrees in these areas? Do you have any idea? Could we say thousands?

A No, no, not in acoustic phonetics. There might be nobody in the United States.

Q Well, I didn't say acoustic phonetics. I am talking about folks that study phonetics.

A There are all kinds of people that study lots of things at different levels, but if you want to know about professors of acoustic phonetics -- if you want to know people with doctoral degrees in phonetics, there are about three or four that have gotten their degrees in Europe, which is the only place you can get them. We are not up to that, apparently. Peter Laderfoged, a professor at U.C.L.A., is one and he is a confirmed --

Q My question to you was do you know how many people there are that have doctoral degrees in phonetics?

A Acoustic phonetics, two or three. Phonetics in general, I wouldn't have any idea.

Q Would you say hundreds?

A I have no idea.

Q So many that you can't say; is that it?

A Not necessarily so many, but I don't know whether it is 100, 200, 500. It could be either. I remember when we needed 10,000 more speech pathologists in the country and put out a suggested program for universities to try to train some.

Q Are you familiar with an organization in the United States called the National Academy of Sciences?

A I am.

Q Okay. Are you familiar with a report that the National Academy of Sciences made wherein they formulated a group, I believe, of 45 scientists and denounced this principle that you have brought to this jury today?

A That is full of errors. The National Academy of Sciences did not produce such a report. There were not 45 people involved. What they did was ask their national research council to appoint a committee and they appointed a committee of about nine people and they issued a report.

Q Okay. They are the ones that denounced the process that you are --

A No, they didn't. If you will read on page 68 they don't give -- they say emphatically, "We take no position on

admissibility."

Q "We take no position on admissibility"?

A Yes.

Q All right. What were they saying, Dr. Truby? Were they saying that it is not developed scientifically?

A It can be interpreted two ways scientifically. When scientists say something of this sort, either, A, they don't think the science has progressed far enough to be acceptable by at least them, or, B, as interpreted by other scientists when they are saying, "We don't know enough about it ourselves yet." No self-respecting scientist would say he is too dumb to understand it. He would just say, "We haven't seen enough evidence yet so we can know what we are talking about."

Q And that report was made in 1979; isn't that right?

A Well, I have got it right here. I will see. '79.

Q Okay.

A I answered that for the Florida Academy of Sciences in 1979.

Q Did the National Academy of Sciences ask you to answer it?

A No, but the Florida Academy of Sciences did.

Q All right. Who at the Florida Academy of Sciences asked you to answer it?

A Pardon?

Q Who at the Florida Academy of Sciences asked you to

answer it?

A Which individual?

Q Yes.

A I really don't remember. Whoever was the program chairman, I suppose, made the contact.

Q Okay.

A And whoever presided then, I don't remember. But I have an abstract from that, too, if you would like to concern yourself with it.

Q Are you familiar with a study made by Dr. Hollien? Are you familiar with him?

A I know his name in the literature and I think I did meet him at the Acoustical Society of America meeting years ago. I know he has been interested in various aspects -- specific aspects of this subject.

Q Are you familiar with a study that he made where he concluded and he states, "Due to the higher error rates for all absolute identification tasks, it is concluded that given the conditions of this study, accurate identification of speakers by visual comparisons of spectrograms is not possible"?

A I don't remember verbatim those are his -- I don't recollect those are his conclusions, but if you read that, that is fine. I don't know the conditions of his study and wouldn't be able to give any opinion on the validity of his

remarks without knowing what the conditions of his study were.

Q Well, now, you told this jury that you are up to par on all of this business. Wouldn't it add something to your credentials if you read the criticisms of what you profess to the jury today?

A Yes. You read my credentials from 1970 and we were up to par enough so we formed the International Association of Voice Identification in 1971 just to make sure such criticisms would not be ever uttered again, and we proceeded to train people and to investigate these areas.

Q And what were the figures of what was done --

A 34,996 identifications of 250 speakers were attempted by 29 trained examiners then in italics solely on the basis of inspection of sound spectrograms. This task involved contemporary and noncontemporary utterances, that is at the same time or later, in open and closed trials, meaning you know who it is because they were in the room or you didn't know who it is because they may or may not have been in the room and it was uttered in isolation, uttered in a fixed context, and uttered in random context. All of these were answers to criticisms one gets in the scientific field. That is part of the fun of being a scientist. You criticize each other until you don't have anything else left to criticize.

Q Are you familiar with the Federal Bureau of Investigation?

A I think so.

Q Isn't it a fact the Federal Bureau of Investigation has made the statement that it is not proven or sufficiently well authenticated to serve as a reliable basis for expert testimony as to the identity at this time? Are you familiar with that report?

A No. Who was the author of that report?

Q The F.B.I. issued that statement.

A The F.B.I. doesn't write things.

Q Oh, they don't?

A No, the F.B.I. doesn't. Somebody in the F.B.I. does. Somebody issues a report.

Q Let me ask you have you ever seen the F.B.I. attempt to use Voice Print Identification in a Court of Law?

A Never.

MR. GLOVER: Pass the witness.

THE COURT: Anything further?

MS. GILLES: Just a couple of things.

REDIRECT EXAMINATION

BY MS. GILLES:

Q Does the F.B.I. use spectrographic identification?

A They do on a regular daily basis.

Q To eliminate or identify individuals involved in their investigations?

A Yes, and even more explicit and specific and

detailed examinations than that.

Q And you have personal knowledge of that, do you not?

A I do.

Q Let me ask you this: The Oscar Tosi that we referred to in the studies that were done, that was a federally-funded grant for this issue of reliability, was it not?

A An L.E.A. grant, which means Law Enforcement Agency grant.

Q Through the federal government?

A The federal government, Department of Treasury.

MS. GILLES: I have no further questions.

RECROSS EXAMINATION

BY MR. CLOVER:

Q Let me ask you this in response to your remarks about the Federal Bureau of Investigation: Have you ever been present in an F.B.I. office where agents were conducting spectrographic interviews?

A In their laboratory, yes.

Q Have you ever been present when they did it in an investigative stage?

A I am not sure.

MR. CLOVER: Pass the witness.

MS. GILLES: I have no further questions.

THE COURT: You may step down. Call your next

witness, Counsel.

MS. GILLES: Your Honor and members of the jury, the State rests its case in chief.

THE COURT: The State of Texas rests.

MR. GLOVER: May I have a motion for the Court?

THE COURT: Yes. Ladies and gentlemen, go back in the jury room, please, for a few minutes.

(Whereupon, the jury was retired, after which the following proceedings were held, outside the presence and hearing of the jury.)

THE COURT: What is your motion, Mr. Glover?

MR. GLOVER: Comes now the Defendant and moves the Court to instruct the jury to return a verdict in this case of not guilty in that the evidence is insufficient to support a conviction.

THE COURT: Overruled.

MR. GLOVER: That is it.

THE COURT: Are you prepared to call your first witness?

MR. GLOVER: Yes.

THE COURT: Bring them in.

(Whereupon, the jury was returned into open court, and the following proceedings were held, in the presence and hearing of the jury.)

THE COURT: The State of Texas rests, Mr. Glover.

MR. GLOVER: Call Dr. Ritterman.

(Continued in next volume.)