

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

DEPARTMENT NO. 106

HON. RAYMOND CHOATE, JUDGE

PEOPLE OF THE STATE OF CALIFORNIA,
Plaintiff,

vs.

BRUCE MCGREGOR DAVIS,

Defendant.

231

No. A-267861

REPORTERS' DAILY TRANSCRIPT

Wednesday, January 26, 1972

VOLUME 31APPEARANCES:

For the People:

JOSEPH P. BUSCH, JR., District Attorney
BY: ANTHONY MANZELLA
and
STEPHEN R. KAY,
Deputies District Attorney

For Defendant Davis: GEORGE V. DENNY, III

CHRISTANSEN

COPY

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Official Court Reporters

I N D E XPEOPLE'S WITNESSES: DIRECT CROSS REDIRECT RECROSS

CHRISTANSEN, Robert P. 4563 4595
 4652
 (Cont'd)

DEFENDANT'S:

KAUFMANN, William J. 4635 4646K

E X H I B I T SPEOPLE'S: FOR IDENTIFICATION IN EVIDENCE

31 - bullet 4576

99 - bullet 4583

100-A through 100-G - seven
photomicrographs 4589 4733

DEFENDANT'S:

G - shell casing, bullet
and envelope 4707

H-1 through H-6 - Photographs 4733 4734

1 LOS ANGELES, CALIFORNIA, WEDNESDAY, JANUARY 26, 1972, 9:49 A.M.

2
3 THE COURT: All right. The record will show the
4 defendant to be present with his counsel. All the jurors are
5 present.

6 Good morning, ladies and gentlemen.

7 (Whereupon, murmurs of "Good morning" were heard
8 from members of the jury.)

9 MR. KAY: I'm going to get the first witness, your
10 Honor.

11 (Whereupon, Mr. Kay exited the courtroom.)

12 MR. DENNY: Your Honor, I wonder if before the witness
13 begins to testify we might approach the bench with counsel?

14 THE COURT: Yes.

15 (Pause in the proceedings, after which Mr. Kay
16 returned to the courtroom, whereupon the following proceedings
17 were had:)

18 MR. KAY: The People call Sergeant Christansen.

19 THE CLERK: Do you solemnly swear that the testimony you
20 are about to give in the cause now pending before this court,
21 shall be the truth, the whole truth, and nothing but the
22 truth, so help you God?

23 THE WITNESS: I do.

24
25 ROBERT P. CHRISTANSEN,
26 called as a witness by and on behalf of the People, having
27 been first duly sworn, was examined and testified as follows:

28 THE CLERK: Please take the stand and be seated.

1 THE BAILIFF: State and spell your full name, sir.

2 THE WITNESS: Robert P. Christansen, C-h-r-i-s-t-a-n-
3 -s-e-n.

4 MR. DENNY: Your Honor, I wonder if we may approach the
5 bench?

6 THE COURT: Yes, you may.

7 (Whereupon, the following proceedings were had at
8 the bench among Court and counsel, outside the hearing of the
9 jury:)

10 MR. DENNY: Your Honor, Mr. Kay informs me that their
11 intended afternoon witness, Sergeant Whiteley, has been called
12 out of town suddenly, and that they don't have any witnesses
13 for the afternoon session, and --

14 THE COURT: I dislike losing the afternoon. Is there
15 anybody you can produce?

16 MR. DENNY: That's what I was wondering, whether among
17 some 40-odd witnesses that still appear to be on tap, there
18 aren't one or two who at this time of the morning couldn't be
19 contacted by Mr. Manzella, so that we could get them down
20 here?

21 Because I hate to stretch this thing out, as it
22 has been stretching out, too.

23 THE COURT: Is Mr. Manzella here?

24 MR. KAY: No, he is not here.

25 THE COURT: He is not in the office?

26 MR. KAY: No.

27 THE COURT: This is a very --

28 MR. KAY: And I apologize to your Honor for --

1 THE COURT: This is a very poor way of running this
2 thing.

3 MR. KAY: Well, I would like to say on the record, if
4 your Honor is going to take that line, that we have had
5 witnesses backed up here from out of state; we have had trouble
6 with the auditor's office in getting them paid.

7 Mr. Denny said that he was going to take about two
8 and a half hours to cross examine Ella Jo Bailey. She was on
9 the stand about four days.

10 We have all kinds of witness problems. We have
11 done everything to get this trial moving. We want to get it
12 over with.

13 And as I said, we didn't find out until 9:00
14 o'clock last night that Sergeant Whiteley had to go to
15 Arizona on an emergency.

16 THE COURT: Well, you know of no one that you could
17 produce?

18 MR. KAY: I've already talked to our investigator, and
19 he said: No, it's just -- you know, we can't get them in.

20 MR. DENNY: Well, your Honor, I must say that I agree with
21 Mr. Kay that some of the examination has, I know, put him in a
22 bind. And I'm not casting any stones on the problems that they
23 have had, because I know they have had problems with
24 witnesses, and it's very difficult.

25 But the only reason I bring up the subject is that
26 I hate to lose a half a day, and we are having little enough
27 time when we start at 10:00 o'clock in the morning anyway.

28 So that if there is any way of getting any of --

1 some -- as I say, out of 40-odd witnesses still remaining to be
2 called, both in the Hinman case and the Shea case, I would
3 think that --

4 MR. KAY: There's not 40-odd witnesses remaining to be
5 called. We have maybe about 18.

6 MR. DENNY: Well, any of them.

7 THE COURT: Well, if there's any one of those 18 that you
8 can put on, or any group of them that you can put on this
9 afternoon --

10 MR. KAY: I have already examined all the possibilities.
11 We are going to be ready to go tomorrow morning at 9:30. But
12 I just -- I could get up on the stand and testify, if I had
13 something to testify to, but unfortunately I don't.

14 THE COURT: All right. Let's proceed for now.

15 (Whereupon, the following proceedings were had in
16 open court, in the presence and hearing of the jury:)

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1 THE COURT: The People have informed me, ladies and
2 gentlemen, that they have difficulty with out-of-state
3 witnesses, with the result that they will not be able to
4 proceed this afternoon.

5 It's intended at the present time that we'll
6 take two hours of this morning, and then the Court will
7 excuse you until tomorrow morning at 9:30.

8 I thought I'd tell you that, so that in the
9 event you wanted to make some plans, if you had any plans
10 to make in connection with the balance of the day, that you
11 might want to do that.

12 MR. KAY: Of course, your Honor, that's assuming that
13 we finish with this morning's witness. I don't know how
14 long --

15 THE COURT: Well, let's proceed.

16 MR. KAY: -- they're going to take.

17 THE COURT: All right.

18
19 DIRECT EXAMINATION

20 BY MR. KAY:

21 Q Now, Sergeant Christansen, I understand that you
22 were in bed all last week with acute bronchitis, so there is
23 a drinking fountain right to your right there. So, if you
24 start coughing or anything, feel free to excuse yourself and
25 get a drink.

26 A Thank you.

27 Q I know you've had a problem.

28 Sergeant Christansen, what is your occupation and

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1 assignment?

2 A I'm a Deputy Sheriff, Los Angeles County. I am
3 assigned to the Crime Lab as a firearms identification
4 examiner.

5 Q And how long have you been so assigned?

6 A Five and one-half years.

7 Q Okay. Would you please tell us your background,
8 your training and experience in the field of firearms identi-
9 fication and examination?

10 A Yes. I was trained in the Crime Lab by the
11 late Clifford Crompt and by Sergeant James Montgomery, who
12 had a total of more than 30 years experience in the field.

13 Q Now, is that both of them together, or --

14 A That's both of them together.

15 Q All right. How long did your training period
16 last under those two men?

17 A My training period was approximately one year of
18 formal training. However, it's a continuing process. We
19 are all learning all the time.

20 Q And is Mr. Montgomery the present head of the
21 Sheriff's Crime Lab?

22 A He is the present head of the Firearms Identifi-
23 cation Section.

24 Q All right. Continue, if you will.

25 A Yes. I have been trained by representatives of
26 three of the major arms manufacturers, and by --

27 Q Which arms manufacturers are those?

28 A Smith & Wesson, Remington, and Ithaca.

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1 Q Continue.

2 A I have received training from one of the major
3 optical equipment manufacturers -- this is the American
4 Optical Company.

5 I have read most of the available books on the
6 subject.

7 Q Are there any major works in the field,
8 specifically?

9 A Yes. The Bible, so to speak, in this field is
10 "Firearms Identification, Investigation and Evidence," by
11 Jury, Hatcher and Weller.

12 I am a member of a professional organization,
13 made up of firearms examiners --

14 Q What is the name of that organization?

15 A The Association of Firearms and Tool Mark
16 Examiners.

17 It is an international organization. I receive
18 their pamphlets and newsletters and study those.

19 Q Now, is there any other organization for firearms
20 experts, other than that one?

21 A Not devoted wholly to firearms experts.

22 Q Continue, if you will.

23 A That's about it.

24 Q All right. And approximately how many cases,
25 firearms identification cases, have you done for the Los Angeles
26 Sheriff's Office?

27 A Several thousand.

28 Q All right. And have you ever qualified as an

1 expert in the courts of the State of California? The
2 Superior Courts? The Municipal Courts?

3 A Yes, I have.

4 Q Approximately how many times have you so quali-
5 fied?

6 A More than 100 times.

7 Q All right. And do you only do your firearms
8 examinations for the Sheriff's Office, or do you do them
9 for any other agencies?

10 A No, we do the firearms examinations for all of
11 the policing agencies within the County, with the exception
12 of the Los Angeles Police Department and Long Beach Police
13 Department.

14 We do examinations --
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1 Q Now, I am talking about you specifically.

2 A I specifically -- yes, I specifically do these --

3 Q All right.

4 A -- examinations for certain state agencies and
5 federal agencies, if they request it.

6 Q All right. Now, on these occasions where you've --
7 oh, also, let me ask you this:

8 Have you taken any college courses on firearms
9 identification?

10 A As far as I know, there are no courses given in
11 firearms identification.

12 Q Now, on the occasions where you've qualified as an
13 expert in the courts of the State of California, have you given
14 your opinion as to whether or not a given bullet was fired from
15 a given gun?

16 A Yes, I have.

17 Q All right. And how do you determine that, whether
18 a particular bullet was fired from a particular gun?

19 A By a visual comparison with the use of a comparison
20 microscope, comparing peculiarities or striations that will
21 appear on only bullets fired in one particular weapon.

22 Q And what do you mean by striations? What are
23 they?

24 A Striations are merely fine marks, scratches,
25 inletting grooves, whatever you want to call them. They're
26 very fine, and normally can be seen only under a microscope.

27 Q Okay. Now, does the barrel through -- the barrel
28 of a gun through which a bullet passes leave any identifying

1 marks on the bullet, when the bullet passes through the
2 barrel?

3 A Yes, it does.

4 Q And what types of marks are these?

5 A These are the striations that we refer to.

6 Q All right. And what are lands and grooves?

7 A Lands and grooves are the -- the lands are the
8 raised portions of the barrel, the interior of the barrel of
9 the weapon.

10 The grooves are the lowered portions of the interior
11 of the barrel of a weapon. These are manufactured into the
12 weapon with a twist or a turning rate to impart a twist
13 (indicating) to a bullet when it is fired.

14 Q In other words, when the bullet passes through the
15 barrel, the lands and grooves catch the bullet and twist it
16 (indicating)? Is that it?

17 A That's correct.

18 Q And how deep are these -- well, how deep are the
19 grooves and how high are the lands, generally, in a barrel?

20 A There's a great deal of variations from manufacturer
21 to manufacturer to manufacturer. The normally accepted
22 standard is four one-thousandths of an inch.

23 Q For each -- for a land and groove?

24 A The difference between --

25 Q Between the land and groove?

26 A -- between the land and the groove, yes.

27 Q Now, would any two guns have the same identical
28 imperfections in the barrel of the gun, the same lands and the

1 same grooves, so that they would leave the same striations
2 on a bullet? Two different guns?

3 A Well, two different guns could have the same lands
4 and grooves. However, the imperfections would be different
5 in all weapons.

6 Q All right. So would -- if you had two guns and
7 you fired -- of the same caliber, and you fired a bullet from
8 each gun, would the striations on the two bullets look the
9 same, or would they be different?

10 A They might have similarities, but they would also
11 have differences.

12 Q Okay. Do any two guns have the same similarities
13 in striations, imperfections, exactly identical imperfections?

14 A No, sir.

15 Q So, in other words, that's somewhat like a finger-
16 print? No two fingerprints are the same?

17 A Yes, sir.

18 Q Do other things cause imperfections in the barrel
19 of the gun, other than just the manufacturing of the barrel?

20 A Yes.

21 Q And what are some of those things?

22 A Abuse of the weapon; permitting the weapon to
23 rust or corrode; the eroding of -- the actual eating away of
24 the metal; building up of foreign objects in the barrel, and --
25 or cutting away of the barrel by foreign matter that gets in
26 it.

27 Those will all leave individual characteristics.

28 Q What about the use of the gun?

1 A Use of the weapon? Yes. Wear definitely
2 contributes to it.

3 Q Now, are you familiar with a gun which is called
4 the 9-millimeter Radom?

5 A Yes, I am.

6 Q Approximately how many Radoms have you examined
7 in your career as a ballistics expert for the Sheriff's
8 department?

9 A Uh -- approximately twenty to thirty.

10 Q Well, there's one thing I forgot to ask you about
11 the lands and the grooves.

12 In the barrel of the gun, when a bullet is fired
13 through the barrel, is there some sort of a reversing
14 process, with the lands and the grooves, as far as their
15 impression of the bullet?

16 A (No response.)

17 Q Do you understand my question, or is it --

18 A I believe so.

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1 Q Do you understand my question?

2 A I believe so. The lands of the barrel would
3 leave a groove marking in the bullet.

4 Q All right. In other words, the lands, are the high
5 point in the barrel, and when the bullets pass through, that
6 will kind of groove out a striation on the bullet, is that --

7 A Yes, it will leave a low point on the bullet.

8 Q And the grooves of the barrel would leave a high
9 point on the bullet?

10 A Yes, sir.

11 Q Well, can you tell us a little about a 9 milli-
12 meter Radom? Who makes it or who is it -- or who did make
13 it, what country?

14 A The 9 millimeter Radom was the Polish service
15 weapon that was adopted in the middle thirties by Poland. It
16 was manufactured by Poland until the Nazis took over during
17 the Second World War. They continued the manufacture of
18 the weapon with some changes and used it as their weapon.

19 As far as I know, manufacture was never resumed
20 of these after the Second World War.

21 Q Now, Sergeant, how many -- approximately how many
22 9 millimeter bullets have you examined to determine if they
23 have been fired from a particular gun, approximately?

24 A Well, more than 100.

25 Q I have here People's 30 for identification.
26 Do you recognize this as seeing it before?

27 A Yes, I do.

28 Q When did you first see that?

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1 I notice you are referring to a report of yours.
2 Did you make this after you first saw this gun?

3 A Yes. These are copies of the reports that I have
4 made in this case.

5 I first saw this weapon on March 11th, 1970.

6 Q Who did you receive that from?

7 A Deputy Gleason from the Sheriff's Homicide
8 Bureau.

9 Q Okay.

10 MR. KAY: Your Honor, I have here a bullet which has
11 previously been marked as People's 31 for identification.
12 May it remain as People's 31 in this proceeding?

13 THE COURT: So ordered. So ordered. People's 31.

14 Q BY MR. KAY: Now, I've removed from one brown
15 coin envelope a smaller brown coin envelope.

16 Would you examine the contents of that envelope?

17 A Yes.

18 It is an expended 9 millimeter bullet.

19 Q When did you first see this expended 9 millimeter
20 bullet?

21 A On January 8, 1970.

22 Q And did you go somewhere to recover this bullet
23 on January 8, 1970?

24 A Yes, I did.

25 Q Where did you go?

26 A To 964 Old Topanga Canyon Road in the Malibu
27 area.

28 Q Where did you find People's 31, that bullet, when

31 Id.

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1 you went to 964 Old Topanga Road?

2 A It was in the wood exterior wall of the house
3 at that location on the outside wall of the kitchen.

4 Q I have here People's 10. That's already been
5 marked, and I believe introduced, showing you photograph C
6 of People's 10.

7 Do you recognize what is depicted in that
8 photograph?

9 A Yes, I do.

10 Q And you notice the markings on the cabinet there.
11 There's circled in red with the initials "CG" and there
12 appears to be a hole under the sink.

13 Did you observe those markings when you went
14 there?

15 A Yes, I did.

16 Q All right. And did you formulate an opinion
17 as to what caused those markings?

18 A I formulated an opinion as to what could have
19 caused those markings.

20 Q What was that opinion?

21 A A bullet ricochet and entry.

22 Q Now, you notice a hole below the sink there.

23 Did you look under the sink even with that hole
24 in the wall to see if there was another hole there?

25 A Yes, I did.

26 Q And did that hole that was under the sink line
27 up with the holes that was in front of the sink, under the
28 sink?

1 A Yes, it did.

2 Q Was that the hole from which you recovered the
3 bullet, the one that was under the sink?

4 A Yes, I recovered the bullet from the reverse
5 side of that wall at that location.

6 Q In other words, you went outside and recovered
7 it from the outside wall?

8 A Yes, sir.

9 Q Now, what type of wall was it that this bullet
10 passed through, People's 31?

11 A Under the sink was a plaster wall and it passed
12 into the wood sheeting on the outside of the house.

13 Q How did you recover People's 31 for identifica-
14 tion?

15 A By pulling the sheeting loose and splitting it.

16 Q Do you know if there's any way to determine the
17 age of the -- what you said was a ricochet mark and the
18 bullet hole?

1a fls. 19 A No, there's no way that I am familiar with.

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1 Q Can you, on People's 31 -- would you examine that
2 again, if you would?

3 A (Witness complies.)

4 Q Now, can you tell us something about that bullet?
5 Where, when you examined it? Did you determine the manufacturer
6 of that bullet?

7 A No, the bullet is similar in construction and
8 appearance to some foreign military types of ammunition.

9 Q What caliber is that bullet?

10 A 9-millimeter.

11 Q What caliber again is the Radom?

12 A 9-millimeter.

13 Q Now, did you conduct an examination to attempt to
14 determine whether that bullet, People's 31, that you recovered
15 from the Hinman home at 964 Old Topanga Canyon Road, whether
16 that bullet was fired from that gun, People's 30, the 9-
17 millimeter Radom?

18 A Yes, I did conduct an examination.

19 Q Okay. Now, would you describe the test that you
20 performed?

21 A Yes, I fired the Radom pistol and recovered the
22 bullets that I fired from the pistol and made a microscopic
23 comparison of those bullets with the bullet that I recovered
24 from the residence on Old Topanga Canyon Road.

25 Q Okay. Now, let's go into that a little bit.

26 You say that you fired the 9-millimeter Radom. Where
27 did you fire the 9-millimeter Radom?

28 A In the bullet recovery tank in the Sheriff's Crime

1 Laboratory.

2 Q That's in downtown Los Angeles?

3 A Yes, sir.

4 Q Now, would you please describe to the jury what
5 the bullet recovery tank is?

6 A Yes. It is simply a galvanized tank approximately
7 18 inches in diameter, and about nine feet deep that does
8 contain nine feet of water. We use water because it deforms
9 our test bullets very little. The tank has a hydraulic
10 basket on it that enables me to lift the bullet fired from
11 the weapon back up to the top of the tank and recover it.

12 Q So, in other words, what you do is you stand over
13 the tank and fire it into the water?

14 A Yes, sir.

15 Q Now, did you formulate an opinion as to what
16 condition the bullet that you recovered from the Hinman house
17 was in?

18 A The bullet is in poor condition.

19 MR. DENNY: Just a moment, I'll object to this unless it
20 states as to time.

21 MR. KAY: Well, during his examination.

22 MR. DENNY: Well, he indicated he made at least two
23 examinations. One when he first got the bullet and one a
24 comparison later, three months later.

25 Q BY MR. KAY: All right, when you first got the
26 bullet, did you formulate an opinion as to the condition of the
27 bullet right after you recovered it from the house at 964 Old
28 Topanga Road?

1 A Yes, I did.

2 Q When was it that you performed this comparison to
3 try and determine whether or not People's 31, that bullet,
4 was fired from the 9-millimeter Radom, People's 30?

5 A It would have been on or shortly after March 11,
6 1970, when I received the weapon.

7 Q So, shortly after you received the 9-millimeter
8 Radom is when you performed the test?

9 A Yes, sir.

10 Q And you recovered the bullet from the Hinman home
11 on January 8th?

12 A Yes, sir.

13 Q All right. Now, also when you made this comparison
14 between the bullet you recovered from the Hinman home and the
15 test-fired bullet, did you also formulate an opinion as to the
16 condition of the bullet you recovered from the Hinman home?

17 A Yes, sir.

18 Q Was your opinion, then, when you performed the
19 test, any different from when you recovered the bullet from the
20 Hinman home?

21 A No, sir.

22 Q All right. What was your opinion?

23 A In my opinion the bullet is in what we would
24 consider bad condition from making a comparison test.

25 Q Why is that?

26 A The bullet is apparently undersized and it has been
27 fired through a plaster wall.

28 Plaster contains a great deal of abrasive

1 substances which, in effect, wear off parts of the sides of
2 the bullets.

3 Q Now, what does this do to the striations of
4 a bullet when the bullet is fired through the plaster wall?

5 A It erases and obliterates some, and in some cases
6 will actually add some.

7 Q Now, after you made the test firing of the gun,
8 of the 9-millimeter Radom, you said you made a microscopic
9 comparison between the test-fired bullet and the bullet you
10 recovered at the Hinman home.

11 Would you please describe this to the jury, what
12 the microscope is like when you made the examination?

13 A A comparison microscope is, in effect, a
14 microscope that you can look through and see two objects
15 simultaneously. We have two stages that we can mount the
16 bullet on and look at portions of each bullet at the same
17 time.

18 The stages can be manipulated and the bullets
19 revolved to see different portions of them at the same time.

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1 Q In other words, then, does the microscope have a
2 common prism?

3 A Yes, it does.

4 Q Now, based upon your microscopic examination
5 of the bullet that you recovered from the Hinman home and
6 the test fired bullet -- well, first, let me --

7 I have here a bullet in my hand. May this be
8 marked as People's next in order? Probably about 99 or --

99 id.

9 THE COURT: It would be No. 99 for identification.

10 MR. KAY: Thank you, your Honor.

11 Q I show you this bullet.

12 Is that the bullet that you test fired from the
13 9 millimeter Radom to compare with People's 31?

14 A Yes. This is one of the bullets that I test
15 fired to compare.

16 Q Okay. I'll leave that over there.

17 And what's the condition of that bullet as
18 compared with People's 31, the bullet you recovered from
19 the Hinman home?

20 A Well, it is relatively better.

21 Q In other words, can you see the striations on
22 that?

23 A Yes, much, much better.

24 Q Now, based upon your microscopic examination
25 of those two bullets, the bullet you recovered from the
26 Hinman home and the test fired bullet, did you -- do you have
27 an opinion as to whether the bullet that you recovered from
28 the Hinman home was fired from the 9 millimeter Radom?

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1 MR. DENNY: That's a yes or no answer.

2 Q BY MR. KAY: Yes.

3 A Yes.

4 Q All right. And what is your opinion?

5 A The bullet could have been fired in the Radom.

6 Q All right. And what's the basis of your opinion?

7 A The same number of lands and grooves. The same
8 direction of the --

9 Q Now, wait a minute. The same number of lands and
10 grooves. You mean the bullet you recovered from the Hinman
11 home has the same number of lands and grooves as the test
12 fired bullet?

13 A Yes, sir.

14 Q Okay, continue.

15 A The same direction of twists, that is the rifling
16 went in the same direction, to the right.

17 Q Can you explain that to the jury, what the
18 "twist" means?

19 A Yes. The lands and grooves cut into the weapon
20 are cut with a twist or turning motion to impart a turning
21 motion to the bullet in flight. And this name of this angle
22 is the twist on, the common calling of it, and it can be
23 either to the left or to the right.

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1 Q In other words, so when a bullet leaves the barrel
2 of a gun, it can either be rotating (indicating) counterclock-
3 wise or clockwise?

4 A Yes, depending on the way the barrel is manufactured.

5 Q All right. And if it goes clockwise, it's a right-
6 hand twist (indicating); and if it goes counterclockwise, it's
7 a left-hand twist (indicating)?

8 A Yes, sir.

9 Q Continue. I think I interrupted you.

10 You told us about the lands and grooves and the
11 twist.

12 A And the width of the lands and grooves on the two
13 bullets are of the same width.

14 Q Now, is that the width between the lands and
15 grooves, or the actual width of a land and a groove?

16 A The actual width of a land and a groove.

17 Q Okay.

18 Now, can you state definitely that the bullet that
19 you recovered from the Hinman home was fired from the 9
20 millimeter Radom?

21 A No, sir.

22 Q Okay. And why is that?

23 A Because of the condition of the bullet. It just
24 doesn't lend itself to a good comparison test.

25 Q All right. Now, can you state definitely that the
26 bullet you recovered from the Hinman home was not fired from
27 that 9 millimeter Radom?

28 A No, I cannot.

1 Q And why is that?

2 A The same reason: the condition of the bullet.

3 Q Now, did you examine the barrel of that 9 milli-
4 meter Radom, People's 30?

5 A Yes, I did.

6 Q And what type of condition did you find the barrel
7 of that Radom to be in, when you first examined it, around
8 March 11th?

9 A In very poor condition.

10 Q And what do you mean by that? Would you describe
11 that?

12 A The barrel shows a great deal of evidence of
13 wear. It's -- and abuse. It is pitted -- that is, has
14 rusted spots in it, and a great deal of scratching.

15 The barrel appears to have been used a great deal,
16 and it appears to be oversized.

17 Q And does the fact that the barrel is oversized,
18 does that -- is that generally caused from use, --

19 A Yes, normally.

20 Q -- firing of the gun?

21 A Normally, yes.

22 Q Now, did you examine the bullet that you recovered
23 -- well, obviously, you did. You examined the bullet that you
24 recovered from the Hinman home before you examined the gun.

25 A Yes.

26 Q All right. Because you recovered the bullet in
27 January, and you didn't get the gun until March; is that
28 right?

1 A Yes, sir.

2 Q All right. Now, were you able, in examining the
3 bullet that you recovered from the Hinman home, before you
4 got People's 30, the 9 millimeter Radom, were you able to
5 formulate an opinion with regard to the condition of the
6 interior of the barrel from the gun from which it was fired?

7 A Yes, sir.

8 Q And what was your opinion?

9 A In my opinion, the bullet had been fired in a
10 weapon with a barrel in poor condition.

11 Q All right. And you formulated this opinion
12 before you even saw People's 30, the 9 millimeter Radom?

13 A Yes.

14 Q Now, in your opinion, could the bullet that you
15 recovered from the Hinman home, the 9 millimeter bullet,
16 could that have been fired from 9 millimeter weapons other
17 than the 9 millimeter Radom that you have in front of you?

18 A Yes, sir.

19 Q And would you explain that?

20 A There are several different weapons made with
21 the same general characteristics -- that is, the same number
22 of lands and grooves, the same direction of twist, and
23 approximately the same width of lands and grooves.

24 There are other makes of weapons with these same
25 characteristics as the Radom has.

26 Q So in other words, you cannot exclude the bullet
27 that you recovered from the Hinman home as being fired from
28 other 9 millimeter weapons?

1 A No, sir, I cannot.

2 Q What is a photomicrograph?

3 A A photomicrograph is a photo -- a photograph or a
4 picture taken through a microscope.

5 Q Now, pursuant to a request by Mr. Denny, did you
6 take some photomicrographs of the bullet that you recovered
7 from the Hinman home?

8 A Yes, sir.

9 Q All right. And also of the test-fired bullet?

10 A Yes, sir.

11 Q Now, the --

12 MR. DENNY: Just a moment. I'll object to -- and move
13 that that answer be stricken, as ambiguous, in that he stated
14 that there were a number of bullets that he test fired.

15 THE COURT: Well, the objection is overruled. The
16 answer may remain in the record.

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1 Q BY MR. KAY: Well, were the photographs -- to
2 clarify it for Mr. Denny, were the photographs that you took
3 of the bullet that you recovered from the Hinman home and the
4 particular test-fired bullet that's in front of you now?

5 A Yes, sir, it was.

6 Q All right. Now, did you arrive at the conclusions
7 that you have stated today in court, regarding whether or not
8 the bullet you recovered from the Hinman house was fired from
9 that particular Radom, did you come to these opinions and
10 conclusions before you took these photomicrographs?

11 A Yes.

12 Q Now, do these photomicrographs that you took at
13 Mr. Denny's request have any bearing on your opinion?

14 A No, sir.

15 Q All right. Did they at all change your opinion?

16 A No, sir.

17 MR. KAY: Your Honor, I have seven photomicrographs, and
18 they're numbered -- well, I have an envelope that says "Crime
19 Lab, Warner." May these photographs collectively be marked as
20 People's next in order?

21 THE COURT: They would be 100 for identification.

22 And how many do you have?

23 MR. KAY: I think there are seven.

24 MR. DENNY: There are seven, your Honor.

25 MR. KAY: Seven, yes.

26 THE COURT: That would be -A through -G, then, 100-A
27 through -G.

28 MR. KAY: I'll mark them with the letters on the back.

100-A
thru G
ID

1 Q Now, Sergeant Christansen, I am showing you the
2 seven photomicrographs. Look at those a minute and tell me if
3 you recognize them.

4 A Yes. These are the photomicrographs that we took in
5 the crime lab.

6 Q Now, do these photomicrographs accurately reflect
7 what you saw through the microscope during your comparison?

8 A Well --

9 Q In other words, do you see the same things in these
10 photographs as you see through the microscope -- or, as you saw
11 through the microscope, during your comparison?

12 A No, sir.

13 Q All right. And could you explain that?

14 A Yes. The eye is much more adjustable than the
15 lens of a camera, and the eyes can see things that the camera
16 cannot.

17 Conversely, I understand the camera can take pictures
18 of things the eye cannot see.

19 Q Now, did you base your opinion on what you saw with
20 your eye through the microscope, or what the camera saw through
21 the microscope?

22 A No, I based my opinion on what I saw through the
23 microscope.

24 Q Now, does the Los Angeles Sheriff's Office have a
25 camera which would take a picture of the bullet, which would
26 accurately reflect exactly what you saw through the microscope,
27 with your eye, when you were making your comparison?

28 A No, sir.

1 Q And what type of camera did you take these
2 photographs with?

3 A It's the camera that was furnished with the
4 American Optical Comparison Microscope.

5 I'm not sure of the brand name.

6 Q All right. And is that the only camera that
7 the Sheriff's Office has to take such pictures?

8 A Yes, sir.

9 Q All right. Now, during the five and a half years
10 that you've worked as a ballistics expert in the Los Angeles
11 Sheriff's Department, have you ever taken photomicrographs of
12 bullets for use while testifying in court?

13 A No, sir.

14 Q All right. And other than these photographs that
15 you've taken right here, have you in your career ever taken any
16 other photomicrographs?

17 A Yes, sir.

18 Q And how many?

19 A I think on two prior occasions.

20 Q Okay. Do you consider yourself an expert in the
21 taking of photomicrographs?

22 A No, sir.

23 Q What is the practice among firearms experts regard-
24 ing the taking of photomicrographs to show the comparison of
25 two bullets?

26 MR. DENNY: I will object to that, unless he qualifies
27 further, that he knows what the practice is, if there is a
28 practice.

1 THE COURT: Sustained.

2 Q BY MR. KAY: All right. Sergeant Christansen,
3 is there a practice among firearms experts, as far as taking
4 or not taking photomicrographs, for the comparison of bullets?

5 Is there a general practice?

6 A No, sir.

7 Q In other words, there's a division of opinion?

8 A Yes, sir.

9 MR. KAY: May I have just a moment, your Honor?

10 THE COURT: Yes, you may.

11 (Pause in the proceedings.)

12 (Proceedings had on an unrelated matter.)

13 MR. KAY: May we approach the bench a moment, your Honor?

14 THE COURT: Yes, you may.
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(Whereupon the following proceedings were had at the bench among Court and counsel, outside the hearing of the jury:)

MR. KAY: This concludes my examination of the witness. However, I am aware of something that Mr. Denny is going to attempt to do -- I believe that he's going to attempt to do-- and I want to strongly object to it, as being improper.

I believe that he is going to try and show this witness photographs of bullets that were taken in the case of Jack Kirschke, who was the Deputy District Attorney charged with murder of his wife and her lover.

I believe two things: No. 1, that Mr. Denny's doing this to try and prejudice Mr. Manzella and myself in front of the jury, because we are Deputy District Attorneys, and certainly our credibility is in issue.

And, No. 2, I believe that Mr. Denny knows that the cameras through which the photographs were taken in the Kirschke case were not Sheriff's cameras; they have no such cameras that they take photographs with, of the type that were taken by Mr. Wolfer in the Los Angeles Police Department.

And I think it would be improper to bring these photographs in on both grounds that I've stated.

THE COURT: Well, he hasn't yet --

MR. KAY: Well, I --

THE COURT: -- offered it.

MR. DENNY: Well, your Honor, let me just say: I do intend to use those as a basis of comparison. One, I had no idea what kind of cameras the Sheriffs had, versus what kind

2b-2

1 of cameras LAPD has.

2 But it just goes to further substantiate that which
3 I indicated to the jury in my opening statement I would show,
4 and that is: That the People were going to present experts
5 who come in with half baked opinions.

6 MR. KAY: Well, based on --

7 THE COURT: Well, if you wish to show that there are
8 other cameras available, as the witness has stated, then --

9 MR. KAY: Well, there are not other cameras available
10 to this witness.

11 THE COURT: Well, the witness has not stated that. He
12 stated that he used the camera that comes with his -- more or
13 less as standard equipment, with his microscope.

14 I don't see that the case of Kirschke need be
15 mentioned whatever.

16 MR. DENNY: Your Honor, I can mention it by case number
17 only. And I have no reason to mention the name of Kirschke
18 to embarrass anybody.

19 I used to be a Deputy District Attorney myself.
20 Jack was in the office at the same time I was, and it
21 embarrasses me as much as anybody else.

22 I will identify it by case number only.

23 THE COURT: Well, let's proceed, and we'll take it
24 question by question.

3 'fls.

(Whereupon the following proceedings were had in opening court within the presence and hearing of the jury:)

MR. KAY: I have no further questions at this time. Thank you, Sergeant Christansen.

THE COURT: Cross-examination.

CROSS-EXAMINATION

BY MR. DENNY:

Q Sergeant Christansen, you've been a sergeant for how long?

A Nine years.

Q And a deputy for how long total, including those nine years?

A Eighteen years.

Q And you've been a member of the Firearms Identification Section of the Sheriff's Crime Lab for how long?

A Five and one-half years.

Q And before that you did what? What was your assignment before that?

A I was in the automotive section.

Q Doing what?

A Vehicle repair liaison.

Q Liaison with whom?

A County Mechanical Department.

Q In other words, it was your job to make sure that the mechanics did the job right and keep the Sheriff's cars in operating condition, is that right?

3-2

1 A Yes, sir.

2 Q How long were you employed there?

3 A Uh, three and a half years.

4 Q And before that what was your assignment?

5 A I was a sergeant in the jail division.

6 Q Where?

7 A Hall of Justice Jail.

8 Q Right upstairs here?

9 A Yes, sir.

10 Q For how long were you so assigned?

11 A Four months.

12 Q Before that what was your assignment?

13 A I was a patrol deputy at Temple City Station.

14 Q For how long?

15 A Seven and one-half years.

16 Q In other words, when you made sheriff, you were

17 assigned out at Temple City and into the jail section, is

18 that right?

19 A When I made sergeant, yes, sir.

20 Q Yes. And before your work as a patrol deputy in

21 Temple City, what was your work?

22 A I worked at Montrose Substation as a patrol

23 deputy.

24 Q For how long?

25 A Approximately one year.

26 Q And before that?

27 A I worked at the Wayside Honor Rancho.

28 Q Again, that's a jail facility?

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A A correctional facility.

Q A correctional facility?

A Yes, sir.

Q Hopefully correctional instead of just jail, is that right?

A Yes, sir.

Q And for how long, Sergeant?

A Approximately a year and a half.

Q And before that?

A Prior to that I wasn't in the Sheriff's Department.

Q Did you go to the Sheriff's Academy 18 years ago or did they have one then?

A Uh, I went to the Sheriff's Academy about 17 years ago.

Q Or 17 years ago?

A Yes.

Q Was that after you became a deputy?

A Yes, sir.

Q And did you get a course of training there or just sort of -- a regular course that would be given an incoming deputy or just sort of brush-up work?

A No, that was a regular course that would be given an incoming deputy at that time.

Q How long was that?

A Four weeks.

Q And was any portion of that devoted to firearms identification?

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1 A No, sir.

2 Q Subsequent to -- oh, in your educational back-
3 ground before that? What was your educational background
4 before you became a Deputy Sheriff?

5 A Before I became a Deputy Sheriff?

6 Q Yes.

7 A I was a high school graduate. I graduated from
8 the United States Armed Forces Institute while I was in the
9 Service.

10 Q Is that supposed to be a college equivalent?

11 A No, sir.

12 Q Of what?

13 A That was a high school equivalent.

14 Q All right. Did you take any college courses
15 after you left the Service or after you graduated from
16 high school?

17 A Yes, I did.

18 Q What was that?

19 A I have taken police science courses as they are
20 called.

21 Q Where?

22 A Valley College, East Los Angeles College and
23 University of Southern California.

24 Q How many units have you taken of police science?

25 A Uh, 52 or 53.

26 Q And that is over how long a period?

27 A Approximately ten years.

28 Q And when is the last time you were enrolled in

1 any such course?

2 A I am presently enrolled in one.

3 Q Where, sir?

4 A Well, this is an extension course from California
5 State L.A.

6 Q In what?

7 A This is in police community relations.

8 Q A good course.

9 All right, sir. Now, you say that as far as
10 you are aware none of the police science courses teach
11 firearm identification as such, is that correct?

12 A That's correct.

13 Q So that none of the 50 some odd units of courses
14 which you have taken since you became a deputy have been
15 specifically involved in firearms identification and
16 comparison, is that right?

3a fls. 17 A That's correct.

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1 Q So that the work that you have done in that field
2 has been solely training you received from Cliff Crompt and
3 Sergeant Montgomery and on-the-job training and what you have
4 read, is that correct?

5 A That's correct.

6 Q All right. Now, Clifford Crompt was a well known
7 portly old gentleman, well respected, is that correct, in the
8 community of forensic -- both chemist and firearms identifica-
9 tion experts; is that true?

10 A Yes, sir.

11 Q And you worked under Cliff for how long?

12 A Hmmm, approximately two years.

13 Q All right. At that time he was not, however, head
14 of the firearms identification unit, was he? He was head of
15 the crime lab.

16 A He was head of the entire crime lab.

17 Q Right. Up until the time of his death, is that
18 right?

19 A Yes, sir.

20 Q All right. So that you didn't take your direct
21 supervision and guidance from Cliff, did you?

22 A No. Most of it was not directly from him.

23 Q All right. So most of it was Sergeant Montgomery,
24 is that right?

25 A Yes, sir.

26 Q And Sergeant Montgomery had been in the firearms
27 identification unit for how long before you got there?

28 A Hmmm, I think six or seven years.

3a-2

1 Q All right. And do you know anything about his
2 background, training and experience?

3 A Yes, sir.

4 He worked as a range training officer at the
5 Sheriff's Academy for several years prior to that.

6 Q That's showing people how to fire guns safely and
7 various weapons, isn't that correct?

8 A And maintenance of weapons and so forth.

9 Q Maintenance of weapons.

10 A And he was a commercial gunsmith prior to coming
11 on the Sheriff's department.

12 Q All right. But as far as formal training, do you
13 know what formal training he had?

14 A No, sir, I do not.

15 Q All right. At the time you came on, you were
16 assigned to the firearms identification unit and told this is
17 your new assignment, learn it, and do it, essentially; is that
18 right?

19 A Essentially, yes, sir.

20 Q All right. And when you went to learn it, did you
21 read some books?

22 A Yes, sir.

23 Q You've mentioned one book only here, that's the
24 Mathews book, is that right?

25 I'm sorry, not the Mathews book --

26 A The Jury, Hatcher and Weller.

27 Q Did you read any other books?

28 A Yes, sir.

1 Q What are those?

2 A I did read the Mathews book on firearms identifica-
3 tion, Burrard's book.

4 Q Is that spelled B-e-r-a-r-d?

5 A No, (spelling) B-u-r-r-a-r-d, I believe.

6 The books, general books on scientific crime
7 identification that have portions devoted to firearms
8 identification.

9 Soderman and O'Connell's book and the author of
10 the other one escapes me at this time.

11 Q How about Gunther's book on firearms identifica-
12 tion?

13 A Yes, I have sketch-read Gunther's book.

14 Q Sketch-read it?

15 A Yes, sir.

16 Q Isn't Gunther as much a bible as the other book
17 that you described as the bible?

18 A Not generally considered so, no, sir.

19 Q All right. And do you know when the last edition
20 of this other book -- and again, why it escapes me, I'm sorry --
21 Hatcher and Weller's book.

22 Do you know when the last edition of that was put
23 out?

24 A I believe the revision was in 1957, but I'm not
25 sure.

26 Q All right. Now, you said you've also received
27 certain training from firearms manufacturers, is that correct?

28 A Yes, sir.

1 Q And you named Smith and Wesson, Remington and
2 Ithaca.

3 And when you say you were trained by representatives
4 of three arms manufacturers, what did the representative of
5 Smith and Wesson do as far as your training?

6 A He trained me in the working mechanism of the
7 Smith and Wesson revolvers and the semi-automatic pistols.
8 Helped me with identification procedures of the different
9 weapons.

3b fol

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1 Q Well, when you say he helped you with the
2 identification procedures, what do you mean?

3 A Well, I asked him direct questions related to
4 the different models, times of manufacture, and especially
5 the serial numbers on the weapons.

6 Q As relative to what aspect of identification?

7 A As relative to identifying the weapons and the
8 functioning of the weapons.

9 Q Well, do you mean through comparison of bullets?

10 A No, sir. This is of the weapons themselves.

11 Q So that as far as that particular aspect of the
12 training, you were just interested in being able to identify
13 the gun itself as a Smith & Wesson manufactured at a
14 particular time within a particular serial number range;
15 is that right?

16 A Yes, sir.

17 Q That's what he helped you with?

18 A Yes, sir.

19 Q All right.

20 But not with identification through ballistics?

21 A No, sir.

22 Q All right.

23 And how long was your session with the Smith &
24 Wesson representative?

25 A 40 hours.

26 Q 40 hours?

27 A Yes, sir.

28 Q Locally?

3b-2

1 A Yes, sir.

2 Q Did he come into the Crime Lab or did you go to
3 some place where --

4 A No, sir, he came to the Pasadena Police Pistol
5 Range and representatives of different agencies were sent to
6 him.

7 Q All right. And how about the representative of
8 Remington; is that the same type of procedure?

9 A Remington has been on one day meetings and on an
10 annual basis or a semi-annual basis, and I have attended five
11 or six of these.

12 Q Well, was it -- is that for the same purpose?

13 A The same general purpose, yes, sir.

14 Q All right. So, again, it does not have anything
15 to do with the identification of the firearm through
16 ballistics?

17 A No, sir, it does not.

18 Q All right. And how about Ithaca Arms, the
19 representative there that you had some training with?

20 A Yes, there was 24 hours of training with him
21 and it was the same general type of training.

22 Q Again, not identification of the firearm through
23 comparison and ballistics?

24 A No, sir.

25 Q All right. Now, is it a fact, Sergeant Mont-
26 gomery --

27 MR. KAY: Sergeant Christansen.

28 Q BY MR. DENNY: I'm sorry, Sergeant Christansen.

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1 Is it a fact that various guns manufactured by
2 a particular manufacturer will have distinct class char-
3 acteristics that you can fairly readily trace to the particu-
4 lar gun manufacturer?

5 A Yes, sir.

6 Q All right. But this was not a part of the
7 training given to you by Smith & Wesson and Remington and
8 Ithaca representatives?

9 A No, sir, it was not.

10 Q All right. Now, you also said you were trained
11 by American Optical Company. I don't have down in my notes
12 representatives, but did they send representatives to --

13 A Yes, sir, they sent representatives, two repre-
14 sentatives of American Optical.

15 Q What sort of training did you get from them?

16 A This training was in the form of the mechanical
17 functions of the comparison microscope.

18 Q Well, when did you get this training?

19 A Well, it was approximately two years ago, sir.
20 I don't know the exact date.

21 Q All right. And I take it before that time you
22 indicated you had been a member of the Firearms Identification
23 Unit for eight years to date?

24 A Five and a half years.

25 Q For five and a half years?

26 A Yes.

27 Q I'm sorry.

28 All right, so for three and a half years before

1 they came, you have been identifying firearms without having
2 had this training from the American Optical Company
3 representatives?

4 A Yes, sir.

5 Q I take it Sergeant Montgomery did give you some
6 on the job training, before they got there, is that right?

7 A Yes, sir.

8 Q All right. So that would you state that the
9 training you received from the American Optical Company
10 representatives really was just sort of repetitive,
11 cumulative of what you had already learned from Sergeant
12 Montgomery?

13 MR. KAY: That's irrelevant.

14 Well, I'll withdraw the objection.

15 A Yes, sir, I would say that.

16 Q BY MR. DENNY: All right. So that then in your
17 list of qualifications, when you set forth American Optical
18 Company as one of the bases of your qualifications, actually
19 it didn't add anything to your qualifications, is that right?

20 MR. KAY: Well, that's argumentative.

21 THE COURT: Sustained.

22 Q BY MR. DENNY: Well, is it a fact, sir, that what
23 you learned from them added nothing to your technical know-
24 ledge, background and efficiency?

25 MR. KAY: Same objection.

26 THE COURT: Overruled. You may answer.

27 A No, I think it did add to my efficacy and
28 efficiency, although not a great deal.

1 Q In other words, you started doing things a
2 little bit differently after you received this training than
3 in the three and a half years prior that you'd been identi-
4 fying firearms in court?

5 A Yes, sir.

6 Q All right, sir.

7 They perhaps told you you had been doing a few
8 things wrong?

9 A No, sir.

10 Q All right. Now, at the same time you said that a
11 camera came with the American Optical Company comparison
12 microscope that you use, is that correct?

13 A Yes, sir.

14 Q And was that -- when did the Sheriff's Crime Lab,
15 to your knowledge, get that microscope that you used in your
16 comparison of the bullets of this particular case?

17 A The microscope I used in the comparison of the
18 bullets was purchased in the early fifties. I'm not sure
19 of the date.

20 Q And the camera that you say you took the photo-
21 micrographs with, that camera was -- came with the microscope,
22 to your knowledge?

23 A No, sir, that came on the other microscope that
24 we use.

25 Q Are you saying now that you look to make your
26 visual comparison under one comparison microscope and you
27 make photomicrographs on another comparison microscope?

28 A In some cases.

1 Q In this case?

2 A In this case, yes.

3 Q What is the difference -- well, let's take it
4 step by step.

5 As far as the photomicrographs that you made
6 pursuant to court order in this case, what kind of comparison
7 microscope were those made with?

4 fls. 8 A The American Optical.

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1 Q I've forgotten what year.

2 A Approximately two years ago.

3 Q Well, was it at that time that the representatives
4 came to show you how to use that?

5 A Yes, sir.

6 Q Up until that time, to your knowledge, had the
7 Sheriff's department had equipment to make photomicrographs?

8 A Yes, they had equipment.

9 Q Jerry-built equipment?

10 A Very much so.

11 Q All right. So then, two years ago was the first
12 time that the Los Angeles Sheriff's Department Crime Lab had
13 equipment specifically made to make photomicrographs; is that
14 correct?

15 A Modern equipment to make good photomicrographs,
16 yes, sir.

17 Q Well, you say to make "good photomicrographs."
18 Will that equipment make good photomicrographs,
19 to your knowledge? That American Optical Comparison Micro-
20 scope, fitted for photomicrography?

21 A Yes, it will make reasonably good photomicrographs.

22 Q Well, when you say "reasonably good," sir, did the
23 people who showed you how to do it produce photomicrographs
24 of good quality?

25 A Yes, they did.

26 Q And did you -- were you trained by them to make
27 photomicrographs of comparably good quality?

28 A It was demonstrated to me how to make photo-

1 micrographs by these people.

2 Q Well, when they demonstrated, did they have you do
3 so, to see whether you could do it or not?

4 A Yes, sir.

5 Q And Sergeant Montgomery?

6 A I don't believe Sergeant Montgomery did, no, sir.

7 Q And did you produce photomicrographs under their
8 supervision and direction --

9 A Yes, sir.

10 Q -- two years ago? All right.

11 And were they of comparable quality to the ones
12 that the representatives of American Optical produced?

13 A Yes, sir.

14 Q And were they good quality?

15 A Yes, sir.

16 Q All right. So that you can produce good quality
17 photomicrographs, if you are called upon to do so?

18 A Yes, sir.

19 Q Or do you have to have a representative of
20 American Optical standing over your shoulder to see that you do
21 a good job?

22 A No, not normally.

23 Q All right. Now, then, is there a range of power
24 that you use in making comparisons, under a comparison
25 microscope, or taking photographs under a comparison micro-
26 scope for photomicrographs?

27 A Yes, sir, there's a range of power.

28 Q And what is that range?

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1 A It -- it ranges from approximately five power to --
2 well, approximately fifty power.

3 Q And is this dependent upon the lenses that you can
4 insert into the microscope?

5 A Yes, partially.

6 Q Well, what else?

7 A Uh -- we have a turret type lenses. We can also
8 adjust some of the lenses that are permanently mounted.

9 Q All right. Now, in connection with the photo-
10 micrographs that are marked for identification here as
11 People's 99, what power did you use in making those?

12 A Approximately ten power.

13 THE COURT: We'll take a recess at this time, ladies
14 and gentlemen.

15 During the recess, you are obliged not to converse
16 amongst yourselves nor with anyone else, nor to permit anyone
17 to converse with you on any subject connected with the matter,
18 nor to form nor express any opinion on it until it is finally
19 submitted to you.

20 About ten minutes.

21 (Proceedings had on an unrelated matter.)

22 THE COURT: Ladies and gentlemen, the jury may have
23 fifteen minutes. We have some other matters, so that I am
24 hopeful that --

25 MR. DENNY: Your Honor?

26 THE COURT: -- we can pursue our other work during the
27 recess.

28 MR. DENNY: Your Honor, before the jurors leave, I might

4-4

1 say that it appears we will go into the afternoon session.
2 There are additional witnesses, the People have informed me.

3 THE COURT: Did everybody hear that?

4 MR. KAY: Sorry.

5 THE COURT: Strike all those remarks about a free
6 afternoon.

7 MR. KAY: Well, some of it might be free. They're short
8 witnesses.

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9 (Mid-morning recess.)
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1 THE COURT: The defendant and his counsel and all
2 jurors are present, the record may show.

3 Mr. Denny, you may proceed.

4 MR. DENNY: Thank you, your Honor.

5 Q BY MR. DENNY: By the way, Sergeant Christansen,
6 as a part of your expertise, you said you took courses from
7 Smith & Wesson; Smith & Wesson and Remington and Ithaca
8 Arms and just specifically the identification of particular
9 firearms so that you could look at them and identify them,
10 is that right?

11 A Yes.

12 Q And you did this with a number of other firearms
13 without the representatives being there to try to familiarize
14 yourself with weapons; is that right?

15 A Yes, sir.

16 Q So that part of your training to become an expert
17 in the field of firearms identification is the ability to
18 look at and identify various kinds of guns, is that correct?

19 A Yes, that's part of it.

20 Q And that you have attempted to do over the,
21 what, five and a half years since you've been assigned to
22 the Firearms Identification unit?

23 A Yes, sir.

24 Q All right. Now, we've had some --

25 May I approach the witness, your Honor?

26 THE COURT: Yes, you may.

27 Q BY MR. DENNY: We've had some photographs
28 previously received in evidence under Defendant's C series,

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1 C-1 through 12. And I wonder if you could --

2 MR. KAY: Well, your Honor, I'm going to object to any--

3 THE COURT: Well, let's get the question.

4 Q BY MR. DENNY: I wonder if you could, based on
5 your expertise and background and knowledge and training in
6 the field of firearms identification, identify the gun
7 pictured in C-1?

8 MR. KAY: Well, your Honor, I'm going to object. It
9 is irrelevant to his testimony in this case.

10 MR. DENNY: It is relevant to his expertise.

11 THE COURT: The objection is sustained.

12 MR. DENNY: Well, your Honor, this is offered only for
13 his expertise.

14 THE COURT: The Court believes it is under 352, the
15 Court would consider it is too time consuming. Let's proceed.
16 In addition, there is lack of foundation, Mr.
17 Denny.

18 MR. DENNY: Of his expertise?

19 THE COURT: No, in respect to the pictures.

20 MR. DENNY: Well --

21 THE COURT: Let's proceed. The objection is sustained.

22 Q BY MR. DENNY: I would like to proceed in another
23 way, your Honor, then.

24 Showing you C-1, and showing you C-1 out of the
25 folder, this indicates that it is a .45 caliber Llama model
26 IX-A.

27 MR. KAY: Same objection, your Honor.

28 THE COURT: Well, let him finish the question, Mr. Kay,

1 for the record.

2 MR. KAY: For the record.

3 Q BY MR. DENNY: Based on your training and
4 experience with weapons, does the picture of the weapon
5 photographed there, accurately show the .45 caliber Llama
6 model IX-A?

7 MR. KAY: Irrelevant, your Honor.

8 THE COURT: Sustained. The Court's ruling would be the
9 same, Mr. Denny, with respect to the pictures. Let's go on
10 with cross-examination.

11 MR. DENNY: Well, your Honor, I am attempting to
12 establish the foundation for these pictures, also, through
13 this witness as an expert. If he is an expert, if he is
14 qualified to identify them, he should be able to identify
15 at least whether the writing to the right of the picture
16 accurately describes the gun.

17 THE COURT: The question would be immaterial.

18 MR. DENNY: Well, may I make him my witness for that
19 purpose?

20 MR. KAY: Well, I would object to it at this time,
21 your Honor.

22 THE COURT: The objection is sustained.

23 Q BY MR. DENNY: Deputy -- Sergeant, excuse me
24 for demoting you -- can you identify firearms from looking
25 at pictures of them?

26 MR. KAY: That's irrelevant.

27 THE COURT: Sustained.

28 Q BY MR. DENNY: Now, going back to your training,

1 and particularly insofar as photomicrographs are concerned.

2 Did you indicate that you had never made any
3 photomicrographs for court work prior to the photomicrographs
4 that you made here that have been received or marked as
5 People's 100, I believe?

6 A Yes, I have not.

7 Q You've been around when others in the identifica-
8 tion unit have?

9 A Yes, sir.

10 Q Sergeant Montgomery?

11 A I don't believe I have ever been around when
12 Sergeant Montgomery made them for court presentation.

13 Q Well, who?

14 A Sergeant Warner.

15 Q Sergeant Warner. This is within the last two
16 years that you have gotten the American Optical Company
17 equipment to do so --

18 A No, sir.

19 Q -- not the jerry-built stuff that you were using
20 before that?

21 A Yes, sir.

22 Q All right. And did you indicate, and I'm not
23 sure whether my notes correctly reflect it, that you had only
24 done photomicrograph work twice before you did this work?

25 A Yes, sir, I believe that's right.

26 Q But that was not for court?

27 A No, sir. This was more or less the learning or
28 experimenting process.

1 Q All right. And was it you who personally
2 prepared this photomicrographs, People's 100 for identifica-
3 tion here?

4 A No, I assisted in the preparation. It was a
5 joint effort.

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1 Q Joint effort with you and who?

2 A Sergeant Warner.

3 Q Sergeant Warner?

4 A Yes, sir.

5 Q What is Sergeant Warner's connection with the
6 identification -- the firearms identification unit of the
7 Sheriff's crime lab?

8 A Sergeant Warner is a firearms identification
9 examiner in the Sheriff's crime lab.

10 Q Well, does he also work under Sergeant
11 Montgomery?

12 A Yes, sir.

13 Q All right. Then, did Sergeant Montgomery oversee
14 the work of both of you in this particular case, in preparing
15 those exhibits, People's 100?

16 A I don't know. I don't recall whether Sergeant
17 Montgomery was physically present at the time or not.

18 Q All right. Now, sir, in the training that you
19 got from the people at American Optical and you say these
20 photomicrographs that they produced was good quality, what
21 was it that you were told by way of instruction was critical
22 in getting good photomicrographs for comparison purpose of
23 bullets?

24 MR. KAY: Calls for hearsay.

25 THE COURT: Sustained.

26 MR. DENNY: Your Honor, this is part of his training and
27 expertise.

28 THE COURT: The objection is sustained.

5a-2

1 Q BY MR. DENNY: Well, do you know, sir, what the
2 critical factors are in getting good photomicrographs?

3 A Yes, sir.

4 Q What are those critical factors?

5 A Lighting and focus.

6 Q And if either one was not done properly, you will
7 get fuzzy reproduction, is that right?

8 Well, strike that.

9 If the focus is not done properly, you will get
10 fuzzy reproduction, is that right?

11 A I believe so, yes, sir.

12 Q And if lighting is done improperly, you will get
13 false highlights or false dark areas appearing on the photo-
14 graph of the bullet, will you not?

15 A I believe so.

16 Q In other words, depending on how you light the
17 bullet, a low place on the bullet with a direct source of
18 light on it will be highlighted in the picture and, conversely,
19 a high place that is in shadow may appear as a darkened area
20 on the photograph, isn't that correct?

21 A I don't know. You're getting too technical in
22 this subject for me.

23 Q Well, you can't just take a light and shoot it at
24 a bullet and take a picture and expect that the picture will
25 accurately reflect what is on that bullet?

26 A No, sir.

27 Q All right. How do you set up a proper light source
28 to get a good, clear photomicrograph of a bullet?

1 First, what kind of light source do you use?

2 THE COURT: Well, we have two questions.

3 Q BY MR. DENNY: I'm just asking what kind of light
4 source do you use in your photomicrography?

5 A You use the light source that is provided with the
6 microscope for illuminating the stages at the time you are
7 viewing it or photographing it.

8 Q All right.

9 A The same light source in both cases.

10 Q All right. Now, as far as the American Optical
11 Company microscope that was used in making the photographs
12 here, what kind of light source was provided there?

13 A There are two individual lights on an arm device,
14 an adjustable arm device. The lights are adjustable.

15 Q The height of the lights and the spacing of the
16 lights from the bullets?

17 A Yes, sir, that is adjustable.

18 Q Are adjustable in all directions, is that correct?

19 A Yes, sir.

20 Q And that adjustment is critical?

21 A Yes, sir.

22 Q All right. And the type of light I'm interested
23 in at the present time, is it a fluorescent light or --

24 A No, it is an incandescent light.

25 Q All right.

26 A A small bulb that works through a rheostat.

27 Q So that again the amount of light can be adjusted
28 that is thrown onto the bullet, is that correct?

1 A Yes, sir.

2 Q And if you get too much light it will wipe out
3 detail, is that correct?

4 A That's correct.

5 Q And if you get too little light, the picture will
6 be dark because the highlights in the valleys and the peaks
7 and impressions on the striations will not be well enough
8 lighted for definition, is that correct?

9 A That is correct.

10 Q So, again, in order to take good photomicrographs,
11 the adjustment of the height, the adjustment of the nearness
12 of the light and the adjustment of the amount of light are all
13 critical, is that correct?

14 A That's correct.

15 Q All right. Now, what is the light source used in
16 the comparison microscope and -- first of all, let's get what
17 is the comparison microscope that you say you used in making
18 simply your visual comparisons of the evidence bullet here,
19 People's 30, I believe, and the test bullet, People's 99?

20 A Yes, the microscope I used for that is the Ernest
21 Leitz comparison microscope.

22 Q Leitz, I believe that's spelled L-e-i-t-z?

23 A Right.

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Q And how new or old a microscope is that?

A It dates to the early fifties.

Q All right. And what is the light source used on that? The same type as the American Optical?

A Generally the same type. There are some mechanical differences, but it is generally the same type.

Q And a rheostat also for the lights?

A Yes, sir.

Q All right. So that you can see through the American Optical microscope the same as through the Ernest Leitz microscope; you can get the same view, the same magnification with both, is that right, with the naked eye?

A Yes, generally. Yes, sir.

Q Well, tell me how they differ? Assuming the same magnification, the same power magnification.

A The main physical difference, it is obvious, is the fact that the Leitz is a monocular microscope that is used with one eye and the American Optical is binocular, used with both eyes.

Q Being then a better microscope from the standpoint of comparison and identification?

A Not necessarily, no, sir.

Q Easier to work with? You don't have to squint one eye when you're looking into the American Optical?

A That's correct, you don't.

Q All right. But each are comparison microscopes?

A Yes, sir.

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1 Q All right. So that whether you look with one
2 eye through the Ernest Leitz microscope or with two eyes
3 through the American Optical, nevertheless, what you see will
4 be in all essentials the same no matter which microscope you
5 are looking under, assuming the same magnification as far
6 as the lens goes; is that correct?

7 A Yes, sir.

8 Q So that, then, the only difference is whether you
9 can set up your photographic equipment to take what you can
10 see visually is the same through either microscope, isn't
11 that correct, in making a photomicrograph?

12 A Yes, sir.

13 Q To try to portray what you see?

14 A Yes, sir.

15 Q All right. And you don't know what kind of
16 camera it is that is provided with American Optical?

17 A No, I do not.

18 Q Well, is it 4 X 5, as far as the negative that
19 is produced?

20 A The camera has actually interchangeable backs.
21 It can be used with a Polaroid back or with a cut-film back.
22 And I believe the size is 4 X 5. I'm not a photographer.
23 I'm not sure.

24 Q Well, is Sergeant Warner a photographer?

25 A Yes, he is. His hobby is photography.

26 Q Well, apart from what his hobby is, is his vocation
27 photography inasfar as his work in the Sheriff's Crime Lab?

28 A No, sir.

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1 Q So that what you are saying is that in preparing
2 these photomicrographs, nobody who is specifically trained in
3 either photography or photomicrography took these pictures,
4 is that correct?

5 A That's correct.

6 Q All right. Now, you've stated to the jury that
7 the camera provided with this particular equipment, the
8 American Optical comparison microscope, cannot take what the
9 eye can see; is that what you stated?

10 A Yes, sir.

11 Q The eye can see things that the camera can't?

12 A Yes, sir.

13 Q And the camera, conversely, you say can see
14 some things that the eye can't?

15 A That is my understanding.

16 Q Well, what is it that the camera can see that
17 the eye can't?

18 A The most obvious thing that comes to my mind is
19 in the high speed photography where the camera can stop things
20 that are merely a blur to the eye.

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1 Q Well, we are not talking about that. We are
2 talking about this camera, taking a picture of a very
3 stationary two bullets.

4 What is it that that camera can see that the eye
5 cannot see?

6 A Nothing, that I am aware of.

7 Q All right. So that when you say the camera can
8 see things that the eye can't see, you are not referring to
9 this particular camera, then?

10 A No, sir.

11 Q All right. Now, what is it that the eye can see,
12 in this particular setup, on the American Optical microscope,
13 comparison microscope, what is it that the eye can see that the
14 camera can't photograph?

15 A The eye can adjust itself for curvatures and so
16 forth on these bullet surfaces that the microscope, while it
17 may be adjusted for one portion, will not have this other
18 portion clearly in focus.

19 Q All it takes, then, is turning it on the spindle,
20 slightly, and taking a photograph of that portion that will be
21 in your focus; isn't that correct?

22 A Yes, I would assume that you could, if you took
23 enough photos, yes.

24 Q So that if -- well, do you know what portion,
25 for instance, of a 9-millimeter bullet -- of the circumference
26 of a 9-millimeter bullet is -- or with proper adjustment would
27 be -- in focus, when taking a picture of it?

28 How much of the area?

1 MR. KAY: That's ambiguous. I don't --

2 MR. DENNY: Well, let me rephrase it, if it's ambiguous
3 to Mr. Kay.

4 THE COURT: Overruled. Do you understand --

5 MR. DENNY: Well, his forehead is furrowed, and it appears
6 that it may be ambiguous, so let me withdraw it and rephrase
7 it.

8 Q Sergeant Christansen, taking the 9-millimeter
9 bullet, either one of them here, that bullet, as you go around
10 the circumference, there's three hundred-sixty degrees of the
11 circumference of the bullet; right?

12 A Yes, sir.

13 Q All right. When that bullet is set on the spindle,
14 and the camera is focused above it (indicating), how many
15 degrees around the circumference of the bullet will be in clear
16 focus when the camera is properly adjusted?

17 A I don't know.

18 Q Do you have any knowledge at all on that?

19 A No, sir.

20 Q Well, it's not just -- you do know, at any rate,
21 that it's not going to be just one or two degrees, don't you?

22 In other words, it will be at least ten to fifteen
23 degrees? Or at least ten degrees that is going to be in clear
24 focus?

25 A Yes.

26 Q All right. So that even if you have to take 36
27 pictures, going around ten degrees at a time, you can see what
28 the camera -- you can take with the camera pictures that will

1 show everything that the naked eye can view on the circum-
2 ference of that bullet; isn't that true?

3 A (Pause) No.

4 Q In what respect is it not true, sir?

5 A When you are viewing striations or striae on
6 bullets, lighting is critical. There are times when you can
7 see things at a slight angle, or a downward angle -- perhaps
8 on the downward curvature of the bullet -- that if the camera
9 were in focus on another portion of it, you would not be able
10 to see clearly in a photomicrograph.

11 Q You say you would be looking on the curvature and
12 see with the naked eye something that appeared relevant,
13 significant, on the striations or marks?

14 A Not with the naked eye. With the aid of the
15 microscope.

16 Q Yes. With the aid of the microscope.

17 A Yes, sir.

18 Q All right. Now, if you were going to make an
19 identification of that -- well, first of all, you say this --
20 you might see with the naked eye; is that right?

21 A Yes.

22 Q Well, even as you look with a microscope, using
23 the naked eye, the adjustment of that microscope, as far as
24 focus, is critical; is it not?

25 A Yes, sir.

26 Q And the camera only takes what the prism of the
27 microscope show at the eyepiece; isn't that correct?

28 A Yes.

1 Q So that even if you -- as you look at that bullet
2 with the naked eye through that camera -- strike that; through
3 the lenses of the microscope, a portion of the bullet is going
4 to be out of focus, --

5 A Yes, sir.

6 Q -- is that correct?

7 Both of the sides are going to be out of focus?

8 A Yes, sir.

9 Q Because you focus critically on the top portion of
10 the bullet that you are looking at at any given time; is that
11 correct?

12 A Not necessarily the top portion, no, sir.

13 Q All right. But if you then change the focus, so
14 the focus is over on the side, and that focus comes in clear,
15 then you will see that in clear focus, and the top will be a
16 little bit out of focus; is that right?

17 A Yes.

18 Q But then, you can photograph that very thing;
19 can't you?

20 A Yes, sir. I would assume you can.

21 Q So the camera can take a picture, a clear picture,
22 of everything the eye sees clearly; isn't that correct?

23 A Yes, sir. If you take enough pictures, I assume
24 that it will.

25 MR. DENNY: All right. Thank you.

26 THE COURT: We'll recess now, ladies and gentlemen. We
27 will recess until 2:00 o'clock.

28 During the recess, you are obliged not to converse

1 among yourselves nor with anyone else, nor permit anyone to
2 converse with you on any subject connected with the matter,
3 nor to form or express any opinion on the matter until it is
4 finally submitted to you.

5 (Whereupon, at 12:01 P. M., an adjournment was
6 taken in this matter until 2:00 o'clock P. M. of the same
7 day, Wednesday, January 26, 1972.)

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LOS ANGELES, CALIFORNIA, WEDNESDAY, JANUARY 26, 1972 2:00 PM

(Whereupon, the following proceedings were had in the chambers of the Court out of the presence and hearing of the jury:)

THE COURT: All right, the record will show we're in chambers and Mr. Denny is making a motion.

MR. KAY: We've not been apprised of his motion.

THE COURT: Nor have I. He asked permission to come into chambers to make a motion.

MR. DENNY: Actually, I asked to have it heard outside, but you said we'd take it in chambers, I think, for the record, but at any rate for the --

THE COURT: Do you want the defendant present?

MR. DENNY: I don't suppose it is totally necessary to have him present under the circumstances.

Your Honor, this motion is a motion for a jury view of the Spahn Ranch under conditions as closely similar to those that prevailed on the supposed dates which the People have heretofore relied on as the supposed dates of the murder of Shorty Shea, namely, August 27, 28 or 29, 1969, the dates, again, upon which supposedly Ruby Pearl saw the defendant in company of the co-defendants charged and some uncharged when supposedly they got out of a car and walked rapidly towards Shorty Shea after she had just conversed with him and after she started to leave the Spahn Ranch at a time between 11:00 and 12:00 midnight, 11:00 o'clock and 12:00

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1 midnight on one of these three dates.

2 The People have contended previously in both the
3 Manson and the Grogan cases that Barbara Hoyt is supposed to
4 have heard the screams of Shorty Shea on the night of the
5 full moon and, indeed, in the Grogan case the People presented
6 evidence by way of Dr. William W. Kaufmann, the Director of
7 the Griffith Park Observatory, to establish what the condi-
8 tions of the moon were on those three dates, August 26, 27,
9 28.

10 I have called Dr. Kaufmann here, and he sits
11 here beside me to testify in support of my motion for a jury
12 view to show that we can recreate, as nearly as humanly
13 possible, under the present circumstances, the conditions of
14 light which prevailed at the time that those sightings which
15 I presume will be similarly testified to in this case were
16 made by Ruby Pearl.

17 MR. KAY: I might say for the record, we intend to call
18 Dr. Kaufmann, too. As a matter of fact, I've talked to him
19 over the phone and he'll probably be testifying for us on
20 Friday.

21 MR. KAUFMANN: This Friday?

22 MR. KAY: This Friday morning. Can you make it?

23 MR. KAUFMANN: Let me think very briefly. Yes.

24 MR. KAY: Okay.

25 MR. DENNY: If I had known that, I wouldn't have paid
26 him one-hundred bucks to come today and I would have made the
27 motion on Friday.

28 I should make the motion at this time, and I am

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1 happy to pay him the expert fee which he certainly deserves
2 for appearing here, in order to make the motion timely so
3 that arrangements could be made for a jury view. It
4 obviously would require getting a bus and getting a reporter
5 and sufficient court personnel to take care of the jurors
6 at that time.

7 The reason for the request is simply this, your
8 Honor: The credibility of Ruby Pearl is critical and it is
9 the reason that I had previously made a motion before this
10 Court to have an ophthalmological examination of Miss Pearl
11 to determine whether she could see what she said she saw.

12 Now, Dr. Kaufmann has testified previously in
13 the Grogan case that under the circumstances of a full moon
14 one can see certain things. That the light of the full moon
15 is sufficient only to distinguish objects in a sort of black,
16 white or gray, but there's not enough moon to define color.

17 MR. KAY: And, of course, Ruby Pearl didn't testify
18 that she saw any color, or, at least, she hasn't in the past.

19 MR. DENNY: All right.

20 THE COURT: You anticipate that the testimony of Ruby
21 Pearl will be about the same as it was in the Grogan case?

22 MR. KAY: Grogan, yes.

23 MR. MANZELLA: Yes.

24 THE COURT: And in the Manson case?

25 MR. MANZELLA: Yes, your Honor.

26 I was wondering if you would inquire, what's this
27 jury view to be of, recreated at the Griffith Park Observatory
28 or at Spahn Ranch?

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MR. DENNY: No, at Spahn Ranch. I've had Dr. Kaufmann--

MR. KAY: You're going to unburn it down?

MR. DENNY: Well, the only object of this is to determine the amount of light available. And I would like to swear Dr. Kaufmann and have him testify concerning the ability to recreate that. I would like to do so at this time in support of this motion.

THE COURT: All right, the Court will hear from you.

MR. KAUFMANN: Do you want me to stand up?

THE CLERK: Would you please raise your right hand.

You do solemnly swear that the testimony you may give in the cause now pending before this Court shall be the truth, the whole truth, and nothing but the truth, so help you God?

THE WITNESS: I do.

THE COURT: Please state your name for the record.

THE WITNESS: Dr. William J. Kaufmann, K-a-u-f-m-a-n-n.

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WILLIAM J. KAUFMAN,

called as a witness by and on behalf of the defense, was duly sworn, and examined and testified as follows:

DIRECT EXAMINATION

BY MR. DENNY:

Q Dr. Kaufman, you are the Director of the Griffith Park Observatory?

A That is true.

Q And have been for how long?

A Since March, 1970.

Q And your prior background and experience just briefly for the Court?

A Bachelor of arts degree magna cum laude 1963.

Q From where?

A Adelphi University, and that's spelled A-d-e-l-p-h-i. Master of science in physics, 1965, from Rutgers University, and PhD in astrophysics, 1968, from Indiana University.

A lecturer at UCLA during 1968-69 academic year, and National Science Foundation postdoctorate fellow at Cal Tech in theoretical astrophysics 1969 to 1970.

Q And you belong to what societies, sir?

A The American Astronomical Society and the Royal Astronomical Society of Great Britain.

Q And, sir, you have previously appeared, as I indicated to the Court, as the People's witness as an expert in the Grogan case, too; is that correct?

1 A That is correct.

2 Q People versus Steve Grogan.

3 At my request, sir, did you make some calculations
4 as to a comparison of the moonrise and moon conditions so as
5 to determine whether we could recreate as closely as possible
6 during this season the conditions of the moon now as they were
7 on August 26th, 27, 28 and 29 of 1969?

8 A Yes, you did.

9 Q And did you make those calculations?

10 A Yes, I did.

11 Q All right. And just briefly, as far as the method
12 of calculating, what did you do?

13 A Now, if you want the method, okay.

14 What the method of laws -- first, this was all the
15 result of a telephone call last night. And the calculations --

16 THE COURT: I'm really not interested in the method.
17 I'm interested in what he proposes to do and how he believes he
18 will, as closely as possible, recreate the conditions.

19 Q BY MR. DENNY: All right, then, just briefly, you
20 did take the four days of August 26, 27, 28, and 29, 1969, is
21 that correct?

22 A Yes.

23 Q And which of those dates was the date on which
24 there was an actual full moon?

25 A August 27, 1969.

26 Q All right. And in your experience, sir, and based
27 on your background and experience, are the dates on either side,
28 directly on either side, that is the 26th and 28th, as far as

1 the naked eye are concerned, would you say in looking at the
2 moon a person would say that the moon is full on all three of
3 those dates?

4 A Absolutely, yes.

5 MR. MANZELLA: How about on the 29th, if I may ask?

6 THE WITNESS: It depends on the skill of the observer.

7 MR. MANZELLA: How about the same question Mr. Denny
8 asked to a layman looking at the moon; would he say it was a
9 full moon on the 29th?

10 THE WITNESS: It depends on the observer. A farmer, who
11 is familiar with watching the moon for some reason or the
12 other, may very well notice that it is a little flat on one side.
13 An average observer, including myself, if I just glance up into
14 the sky on any of these dates and don't happen to know when the
15 full moon occurs, we would all say it is a full moon.

16 Q BY MR. DENNY: On any of the three dates?

17 A Yes.

18 Q Mr. Manzella asked about the fourth date, August
19 29, which is actually two days after the full moon.

20 A I would notice that it definitely is not a full
21 moon.

22 Q And a farmer?

23 A Perhaps, also.

24 The man in the street, perhaps not, I don't know.
25 I can't testify for him.

26 THE COURT: A farmer with good eyesight?

27 THE WITNESS: Right.

28 Q BY MR. DENNY: All right.

(Laughter.)

Q BY MR. DENNY: Now, sir, at about 11:00 o'clock to midnight on the date of August 26th, did you calculate how high the moon would have been in the sky?

A It would perhaps be easier if I just addressed the Court and just -- you know, rather than this tedious question-answer or would you prefer --

THE COURT: Well, Mr. Denny has certain things that he wants.

THE WITNESS: I'm sorry. You are paying me, so I'll do it that way.

Q BY MR. DENNY: Well, you can explain to the Court simply, essentially, how you can show that this weekend the conditions will be essentially the same as they were back on these four dates, can you do that for the Court?

7b fol

7b-1

1 A Okay.

2 First of all, August 27, 1969, we had a full
3 moon.

4 On Saturday night, Sunday morning, that's of
5 this month, January 30, 1972, we will also have a full moon.

6 It turns out that we also have a full total
7 eclipse of the moon, but that will not concern us here for
8 reasons that will become apparent.

9 On, for example, August 26th, of 1969, the day
10 before the full moon, on August 26th of '69 the moon was in
11 the sky for about eleven and one-quarter hours, eleven
12 hours, fifteen minutes.

13 And what I'll say now is too within the accuracy
14 of the human eye correct for all the days in question in
15 August. The moon was in the sky for a little bit longer
16 than eleven and a quarter hours and at its highest point,
17 which occurred around midnight of those days, the moon was
18 about 45 degrees above the southern horizon.

19 Okay, on January 29, of this month, of this year,
20 the moon will be in the sky for 14 hours and eight minutes.
21 Considerably longer.

22 Also, at its highest point, which is again
23 around midnight, the moon will be 75 degrees above the
24 southern horizon.

25 So you can see they are different in August of
26 '69 and January of '72.

27 The question then becomes, perhaps we can then
28 on, say, August 29th, calculate a time at which the moon is

7b-2

1 45 degrees above the horizon.

2 Q You're talking about January 29, not August 29th?

3 A Excuse me, January 29 of 1972.

4 So that as far as the illumination is concerned,
5 you have approximately the same total amount of illumination
6 that you had late in August of '69.

7 And according --

8 THE COURT: At a given hour?

9 THE WITNESS: Yes, at a given time.

10 You see, the moon rise, and I suggest that perhaps
11 you'd be interested in a copy of the results of my calcula-
12 tions.

13 Moon rise, for example, on January 29, 1972,
14 will be -- in Los Angeles, now, at 4:51 p.m. Pacific Standard
15 Time.

16 Q BY MR. DENNY: Just so I can -- to interrupt a
17 minute, you're calculating the longitudinal and latitudinal,
18 et cetera, right over the City Hall?

19 A Right.

20 Q So going a little bit west of Chatsworth, it
21 would be a couple minutes later?

22 A One or two. I'd have to look up the longitudinal
23 and latitudinal.

24 Q Right about that time?

25 A We're within -- right.

26 And it turns out that from my calculations on
27 either the 29th, 30th or 31st of this month, the moon will
28 be approximately 45 degrees above the horizon at very nearly

7b-3

1 three hours and forty-five minutes after moonrise.

2 In other words, you look up, you calculate the
3 time at which the moon rises, at about three and three-
4 quarter hours to that time, and the moon will be about 45
5 degrees above the horizon. It will be above the horizon in
6 the east, not in the south. A little bit south, about five
7 or ten degrees south of east.

8 MR. KAY: Where was it in August of '69?

9 THE WITNESS: Directly south. Directly south.

10 MR. KAY: So the position of the moon would be different?

11 THE WITNESS: Would be different, yes. The results
12 would be that you would have shadows and lighting approxi-
13 mately quite similar to the conditions late in August of '69,
14 but the shadows would be in a different direction. They
15 would be 90 degrees different, off, of what they were at that
16 time.

17 MR. KAY: Uh-huh.

18 THE COURT: Would you think that that would be important
19 in an identification?

20 THE WITNESS: Well --

21 THE COURT: It may or may not be. It is something --

22 THE WITNESS: It depends.

23 From my own personal experience, I can recognize
24 my friends and acquaintances at some reasonable distance by
25 the light of a full moon if they are not standing in the
26 shadows.

27 THE COURT: That's an unfair question to ask, in any
28 event.

7b-4
1 MR. MANZELLA: It was a good answer.

2 THE WITNESS: I would say in general it is my
3 recommendation in all trials and matters of this type,
4 whether it is automobile accidents or criminal cases that
5 it is very valuable, and I'm testifying as much for you as
6 for him, to get the Court out there and get the jury out
7 there and no testimony is necessary; just have the members
8 of the jury walk around to see whether they can see each
9 other.

10 MR. KAY: Well, the problem is, that's not the rele-
11 vant thing. It is whether Ruby Pearl can see, not whether
12 the members of the jury can see.

13 THE WITNESS: So, anyway, to finish up here this one
14 example calculation for January 29th, which was Saturday
15 evening, the moon will be approximately 45 degrees above
16 the horizon. And that's the geometrical horizon now. That's
17 not to do -- I don't know whether there are mountains or
18 trees or hills. This is the flat level horizon, the
19 theoretical horizon, at 8:45, a quarter to 9:00 on that
20 Saturday evening. And that's a very convenient time.
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8 fls.

BY MR. DENNY:

Q And how about Sunday evening?

A Sunday evening, what you would do -- again, I have calculated here the time of moonrise at 5:55 p.m. That's late afternoon. Add to that three hours and forty-five minutes, so you have about 6:00 o'clock, plus three hours and forty-five minutes; maybe a quarter to 10:00.

Q And how about the following day?

A It would be about a quarter to 11:00. And any time between -- if I say a quarter to 10:00, I mean any time between 9:30 and 10:00 o'clock.

Q All right. Now, Dr. Kaufmann, you were shown pictures of the Spahn Ranch, as far as certain of the topography -- that is, the mountains that were there -- and do you recall indicating at the time that from your observation of those pictures, at any rate, that those mountains were no more than 15 degrees from the horizon, or thereabouts?

So that they would not in any way interfere with the moon at 45 degrees?

A I do not recall that I mentioned a number. However, I recall, from the pictures, it looked as though the moon would not at all be obscured from view.

Q All right.

And further, if we are interested solely in the amount of illumination that would be available on August 26th or 27th, versus the amount of illumination that would be available on January 29th or 30th, would there be any difference at all in the amount of illumination from the moon, at the two times when you've indicated that the moon

1 would be at a 45 degree elevation?

2 A Yes, minor ones. First of all, I have no
3 control over the weather. If it's pouring rain, you are
4 going to have just a little difficulty.

5 Q All right. But assuming that it is clear on
6 January 29th or 30th of this year, then --

7 THE COURT: Do you mean by that, Doctor, when you
8 say "a little difficulty" --

9 THE WITNESS: You might not be able to see a damned
10 thing, right, yes.

11 Q BY MR. DENNY: All right. Assuming the night is
12 clear and it is not overcast, will there be essentially the
13 same illumination thrown on the earth by the moon on
14 January 29th or 30th of this year as was thrown on the earth
15 by the moon on August 26th, 27th and 28th --

16 A Yes.

17 Q -- '69?

18 A Yes. And one of the other effects which enters
19 into the brightness of the moon is the fact that the moon
20 does not go around the earth in a perfectly circular orbit.

21 THE COURT: I was about to ask you about that.

22 THE WITNESS: Rather, it goes around the earth in a
23 slightly elliptical orbit.

24 MR. KAY: Yes.

25 THE WITNESS: And sometimes in its orbit it's nearer
26 the earth, and therefore appears bigger in the sky; and
27 sometimes, it's further away from the earth and appears
28 smaller in the sky.

1 MR. KAY: Now, Doctor, isn't there one problem? Let
2 me just ask this while we are on this point.

3 MR. DENNY: Well, I am on a point, too.

4 THE COURT: Mr. Kay, let him finish.

5 MR. KAY: All right. There's something that's been
6 left out.

7 THE COURT: You will get to it.

8 Q BY MR. DENNY: Insofar as that aspect of the
9 brightness of the moon, have you been able to determine --
10 or is there any way for you to determine whether that would
11 have any significant difference in the illumination cast
12 from the moon, in August of '69, versus that which you
13 would expect to be cast by the moon at a 45 degree angle,
14 again, this coming January 29th?

15 A Even to the layman, there is a big noticeable
16 difference in the brightness of the moon, depending on
17 whether you are at the close point to the earth -- which
18 is called apogee -- or perigee -- or the far point from the
19 earth, which is called the apogee.

20 And I have the data in front of me. I can look
21 it up if you --

8a fls.

22 THE COURT: Could you do that, sir, at this time?
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1 THE WITNESS: Only if it's an extreme difference do we
2 have to be concerned.

3 Okay. I have perigee occurring on the 22nd of
4 January. So we are talking about seven days after perigee.

5 THE COURT: Perigee is the nearest point?

6 THE WITNESS: The nearest point.

7 THE COURT: Yes.

8 THE WITNESS: And perigee in August of '69 occurred on the
9 25th.

10 So, you have a difference from the 25th, say, to
11 the 28th or 29th, you have a difference of about four days;
12 whereas there is a difference of seven days.

13 I would say there's virtually no possibility of the
14 human eye detecting any noticeable difference -- the only real
15 difference comes out when you have a full moon occurring right
16 at perigee, and then maybe a month or two later, you have one
17 at apogee, you do notice a difference between a brilliant
18 full moon and just a nice full moon.

19 MR. KAY: Are you finished, Mr. Denny?

20 MR. DENNY: I am finished.

21
22 CROSS EXAMINATION

23 BY MR. KAY:

24 Q Now, Doctor, you don't know what the cloud cover
25 was like on August 26th, 27th and 28th? That was your
26 testimony in the Grogan trial?

27 A Of course. Of course.

28 Q Now, that does make some difference, doesn't it?

1 Because doesn't the moon use some cloud covers to reflect?
2 And then therefore a person standing on the earth would --
3 looking at it, would think it's brighter?

4 A It depends, very critically -- and this is from my
5 own experience, and I'm just talking now of my own personal
6 experience, from walking around outside in the dark.

7 It depends very critically on the type of cloud.
8 If you have a puffy cumulus cloud, which is not at all
9 obscuring the moon, then that cloud, you would be able to
10 clearly see in the sky, and will reflect more light onto the
11 ground.

12 On the other hand, if you have a general haze,
13 that will reduce the illumination of the moon itself.

14 So, therefore, there are many critical questions
15 which come into play that way. I would suggest that you look
16 up the -- that you get some weather expert to make some sort
17 of statement, if you are going to give this a try. And keep in
18 mind that it may be a bust, if the cloud conditions are very,
19 very different.

20 Q BY MR. KAY: Okay. And also, what about the fact
21 that conditions on the ground might have changed greatly since
22 that time?

23 I don't know if you are aware that the Spahn Ranch
24 burned down; that there are no more buildings there, or the
25 trees on the ground, shrubbery, things like that.

26 Would that have any effect in your opinion?

27 A It depends on what you are looking for. If you want
28 to see the buildings, you are going to, again, have a little

1 difficulty.

2 However, as far as just recognizing people, if
3 this is what you are interested in, whether you can see someone
4 whom you've seen before, and tell whether it's Charlie or
5 Joe or Mary, this would not be necessary.

6 Q What if that person was standing, say, in front of
7 a building? That could -- that could kind of be used as a
8 reflection, say, in August of 1969. In other words, that would
9 be the background, and whereas now there wouldn't be any
10 buildings, and you'd just be looking off into space.

11 A It would be --

12 MR. DENNY: Just a moment, Doctor. I'm going to object
13 to that as asking for a hypothetical question that's not
14 based on the evidence, because the evidence in this case shows
15 that the moon at that time, as shown by Dr. Kaufmann, and as
16 shown by the testimony, was behind the buildings of the
17 ranch, to the south, the moon having risen from the east,
18 going to the south, setting in the west, and was therefore
19 behind the buildings.

20 So, I would object on the grounds it's also
21 irrelevant.

22 Q BY MR. KAY: Well, is that --

23 THE COURT: You might rephrase it.
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8b-1

1 Q BY MR. KAY: All right. The fact that these
2 buildings wouldn't be here today -- say that a person was
3 looking -- people were standing in front of the buildings,
4 and the moon was up behind the buildings.

5 Now, would that make any difference now, if the
6 person was in the same position, looking at those same people,
7 and there was no building there now?

8 A It depends on how the people were dressed, what
9 color the building was painted. If it was painted black,
10 you will get a very different effect than if it was painted
11 white.

12 From what you describe, you will not see anything
13 entirely, because if you have the building here and the moon
14 behind it, at that time of the year, you have long shadows,
15 at 45 degrees.

16 Q Um-hmm.

17 A And from my own experience, I can negotiate very
18 well by the light of the full moon, without stumbling over
19 rocks, as long as I'm not in the shade.

20 Q Um-hmm.

21 A But if I go into the shade of a tree, for instance,
22 I'll stumble over some roots.

23 THE COURT: You sound normal in that respect, Doctor.

24 THE WITNESS: But a lot of people don't realize --

25 THE COURT: Anything further?

26 MR. KAY: Wellllll --

27 THE COURT: Go ahead.

28 MR. KAY: I can tell by the look in your Honor's face

8b-2

1 that you don't want me to ask any more questions, so --

2 THE COURT: No, you may. Go ahead. I don't mean to
3 foreclose either of you.

4 MR. KAY: Well, let me think a minute.

5 Tony, do you have any --

6 MR. MANZELLA: No, I don't think we have any more
7 questions.

8 MR. KAY: All right.

9 THE COURT: Well, the Court does not think that the
10 proposed viewing of Spahn's Ranch in January of this year
11 closely approximates -- closely enough approximates the
12 condition in August of '69, to warrant taking the jury out
13 there.

14 The Court denies the motion.

15 MR. DENNY: Well, may I ask the Court in what way it
16 does not do so? Because there's no closer way that you can
17 get it, assuming that it's going to be a clear night.

18 THE COURT: We could wait until August and assume that
19 it's going to be a good night, I suppose.

20 MR. DENNY: Well, we can't do that, though.

21 THE COURT: We can't do that. And the Court finds that
22 the conditions are not sufficiently --

23 MR. DENNY: Well --

24 THE COURT: -- close to those conditions which existed
25 at that time, so as to warrant taking a jury out there.

26 MR. DENNY: Well, your Honor, can I cite --

27 THE COURT: The atmospheric conditions -- go ahead.
28 Could you cite what?

1 MR. DENNY: I would like to cite to the Court -- excuse
2 me, Mr. Kay and Mr. Kaufmann -- a couple of cases, where
3 specifically it says:

4 "A showing of an exact identity or
5 similarity is not required, nor need identity or
6 similarity be shown to a minute degree."

7 People vs. Hadley, 175 Cal. 118; People vs.
8 Phelan, P-h-e-l-a-n, 123 Cal. 551.

9 Your Honor, I don't think we -- we do have to show
10 an exact similarity. There is no way possible, under all of
11 the conditions, to create an exact similarity.

12 But this is a critical --

13 THE COURT: Well, this is so far from what the conditions
14 might have been, from what I have heard and know of the evidence,
15 that the Court believes that it would not be probative.

16 And the Court doesn't wish to waste any further
17 time on it. It's now 2:30. The jury's waiting.

18 Let's proceed.

19 (Whereupon, the following proceedings were had
20 in open court, within the presence and hearing of the
21 jury:)

22 THE COURT: All right. In the case of People vs.
23 Davis, the record will show that all of the jurors are
24 present.

25 (Proceedings had on an unrelated matter.)

26 THE COURT: The defendant is present; all jurors are
27 present, the record should show, and all counsel.

28 Where is the witness?

(Proceedings had on an unrelated matter.)

ROBERT P. CHRISTANSEN,

having been previously duly sworn, resumed the stand and testified further as follows:

THE COURT: State your name, please.

THE WITNESS: Robert P. Christansen.

THE COURT: Go ahead, Mr. Denny.

CROSS-EXAMINATION (Continued)

BY MR. DENNY:

Q Sergeant Christansen, you had indicated that you are a member of a particular association of firearms and tool marks examiners; is that right?

A Yes, sir.

8c fls.

8c-1

1 Q And you say there are no other organizations
2 devoted wholly to firearms experts; is that right?

3 A To the best of my knowledge, there is not.

4 Q Well, are there other organizations devoted more
5 generally to forensic experts in the criminalistics field?

6 MR. KAY: Irrelevant.

7 THE COURT: Sustained.

8 MR. DENNY: This goes to his qualifications also, your
9 Honor.

10 MR. KAY: It's irrelevant. He is a firearms expert.

11 THE COURT: It would appear to be irrelevant.

12 Q BY MR. DENNY: Well, sir, in your experience are
13 those people who are qualified experts in the field of firearms
14 also members of a more generalized organization in the field
15 of criminalistics?

16 MR. KAY: Irrelevant.

17 THE COURT: Sustained.

18 Q BY MR. DENNY: You took your training from Cliff
19 Crompt?

20 A Partially, yes, sir.

21 Q And he was a person under whom you say you were
22 trained, partially?

23 A Yes, sir.

24 Q And what organizations was he a member of?

25 A The California Association of Criminalists. The
26 American Academy of Forensic Sciences, that I know of.

27 Q All right. And the American Academy of Forensic
28 Sciences is an academy of top-flight qualified criminalists,

8c-2

1 also in the field of firearms and ballistics; isn't that
2 correct?

3 MR. KAY: That's irrelevant. And calling for a
4 conclusion.

5 THE COURT: Sustained.

6 Q BY MR. DENNY: All right, sir. Now, as far as
7 identification of firearms, firearms have certain class
8 characteristics; is that correct?

9 A Yes, sir.

10 Q As distinguished from individual characteristics;
11 is that right?

12 A Yes, sir.

13 Q And could you define for the jury and spell out
14 for the jury what are the class characteristics of an automatic
15 pistol? What you would look for, as far as the class
16 characteristics?

17 If you have a bullet, and you are trying to
18 determine whether that bullet was fired from an automatic
19 pistol, what class characteristics would you look for to make
20 that determination?

21 A (No response.)

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9-1 1 Q Well, let me backtrack since that seems to cause
2 you some problem there.

3 What are class characteristics?

4 A Class characteristics are general characteris-
5 tics of all weapons of a particular brand or type.

6 For instance, the number of lands and grooves,
7 the direction of twist, the width or possibly peculiar shape
8 of lands or grooves.

9 Q The bore or caliber or millimeter, calimeter --
10 caliber or millimeter of the bullet that will provide a
11 class characteristic from the gun that the bullet exited
12 from?

13 A Yes.

14 Q All right. Would you say class characteristics
15 are those characteristics that can be determined specifically
16 from the specifications of the gun manufacturer before any-
17 thing is ever done to manufacture the gun?

18 A Yes.

19 Q So that you could look at a drawing, blueprint
20 of a particular gun and determine what the class character-
21 istics are of that gun or will be when it is produced, is
22 that correct?

23 A If all the pertinent data is contained in the
24 blueprint, yes, sir.

25 Q All right.

26 The bore diameter, the height of the land or
27 the depth of the groove, the width of the land, the width
28 of the groove; is that correct?

1 A Yes, sir.

2 Q All right. The forcing cone, that will all
3 be spelled out?

4 A Yes, sir.

5 Q And the angle of twist, that will be spelled out?

6 A (Nods head.)

7 Q The length of twist, as far as how far the
8 bullet has to travel to make a complete revolution, that will
9 be spelled out?

10 A (Nods head.)

11 THE COURT: Answer aloud, please.

12 THE WITNESS: Yes, I would expect it to be spelled out
13 in a blueprint.

14 Q BY MR. DENNY: All right. And the forcing cone
15 that we've talked about just a minute ago, what is that?

16 A The forcing cone is the portion of the barrel,
17 the rear of the barrel that the bullet first enters as it
18 leaves the chamber of the weapon when the weapon is discharged.
19 This is the more or less cone-shaped portion at the rear of
20 the barrel that directs the bullet into the rifling.

21 Q And the lands that stick out into the barrel,
22 around the circumference of the barrel, are sort of chamfered
23 down to form that cone, is that right?

24 A Yes, sir.

25 Q All right. Now, individual characteristics are
26 formed how on a gun? What causes individual characteristics
27 in a gun?

28 A Individual characteristics can be caused by

1 imperfections in the tool during the manufacturing of the
2 weapon and by build up of impurities ahead of the cutting tool
3 that cause particular scratches by anything that causes an
4 imperfection in the barrel that is visible.

5 Q Well, that's not the only way that individual
6 characteristics are formed, is it?

7 A No, sir.

8 Q All right. Could you go on with other ways
9 individual characteristics are formed?

10 A Individual characteristics can be formed by abuse
11 when a barrel is permitted to rust or deteriorate in any
12 fashion.

13 Q And what is that called, that specific term that's
14 used for that?

15 A Generally corrosion is used for that.

16 Q All right. And how else, then?

17 A It can be caused by a normal wearing away. It
18 can be caused by a --

19 Q I'm sorry to interrupt you, but if you are start-
20 ing on another tack, let's get to that, the normal wearing
21 away. The gun barrel, particularly of an automatic pistol,
22 is generally made of a hard metal, is that correct?

23 A Yes, sir.

24 Q What sort of metal?

25 A Normally a steel.

26 Q A particular type of steel?

27 A I don't know, I'm not a metallurgist.

28 Q Are you a firearms expert?

1 A Yes, sir.

2 Q Well, is it dropped forged steel?

3 A In some cases, yes, sir.

4 Q All right. And that particular type of steel
5 is an extremely hard type of steel, relatively hard type of
6 steel, is it not?

7 A Yes, sir.

8 Q All right. And bullets that are fired through
9 such a weapon are generally of a softer metal, is that
10 correct?

11 A Yes, normally they are.

12 Q Made of what?

13 A Can be made of lead, copper, brass, cupronickel
14 or other alloys.

9a fls.

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1 Q Well, the bullets themselves are not normally made
2 of copper or brass, are they? That's just the coating over --

3 A The bullet jacket, yes.

4 Q So that you can have either a lead slug or a lead
5 slug jacketed with copper, brass or some other alloy, is that
6 right?

7 A Yes.

8 Q And that jacket is formed how? How is that made?
9 How is that manufactured?

10 A By -- normally by presses, by pressing from --
11 through a die, die formed.

12 Q And in that pressing operation in a jacketed
13 bullet, it is called a drawing operation, is that correct?

14 A Yes.

15 Q And in the drawing operation are striae or lines
16 formed on the jacket itself through the drawing operation?

17 A Yes.

18 Q So that even a perfect jacketed bullet will have
19 certain lines or striations that are formed by the drawing
20 operation, is that correct?

21 A Yes, normally they will.

22 Q All right. Now, both the lead bullet, and even if
23 it is coated with a copper or other alloy, will normally be,
24 and in fact in every case will be softer than the drop forged
25 metal of the gun barrel, is that correct?

26 A Yes, to the best of my knowledge, it is correct.

27 Q All right. So that the wearing process on a
28 barrel, is that caused by the softer metal going through it and

9a-2

1 the soft metal wearing away the hard metal?

2 A It can be, yes, with a great deal of use.

3 Q Well, is not, sir, the wearing away or erosion of
4 a barrel formed by the escape of gasses from the explosion of
5 the shell as those gasses are forced by the bullet as it exits
6 the barrel?

7 A This also contributes to the wear on the barrel,
8 yes, sir.

9 Q Isn't that the main thing that causes the erosion
10 of the interior of the barrel?

11 A Yes, probably the main cause of erosion.

12 Q Because those gasses are extremely hot and they
13 come under great pressure?

14 A Yes, sir.

15 Q So it is the pressure and the heat of the
16 escaping gasses and not the fact merely of the passage of the
17 bullet that causes erosion of the barrel, isn't that correct?

18 A It is a combination of the factors.

19 Q All right. Now, what is an individual peculiarity
20 in a signature?

21 A This is an individual line that is unique or
22 peculiar to a particular firearm.

23 Q When you say an individual line, are you still
24 talking solely about striations?

25 A Basically striations, yes, sir.

26 Q Well, a gun can have -- can leave as its
27 signature other than simply striations, can it not?

28 A Yes, sir.

9a-3

1 Q What sort of other marks besides striations will a
2 gun leave as its signature on the bullet?

3 A On a bullet?

4 Q Yes.

5 A It may leave some traces of pitting on the bullet,
6 actual wearing away or tearing away of the bullet metal.

7 Q Well, that would still be a striation, wouldn't it?

8 A Well, you could call it a short striation in some
9 cases, yes, sir.

10 Q All right. Are there any other individual
11 peculiarities that a gun barrel may have that would leave a
12 particular type of mark other than simply a line, a striation on
13 the bullet?

14 A Not that I can think of offhand, sir.

15 Q All right. Now, going back again to the individual
16 characteristics. Not just class characteristics, but individual
17 characteristics.

18 Could you name what some other individual
19 characteristics are that are distinct in a gun from class
20 characteristics?

21 A Well, your individual characteristics would be your
22 striations or your striae and the pattern they form.

23 Q Are those the only individual characteristics that
24 you look for when you're making a determination as to whether one
25 bullet was fired from the same gun as another bullet?

26 A If I have already determined from class character-
27 istics that the weapons are compatible, yes.

28 Q All right, sir.

1 Don't you look for whether or not in the
2 manufacture the person making the gun or in the process of
3 manufacture the specifications were departed from in some way?

4 For instance, although the lands are supposed to be
5 a certain width, these lands are a little bit wider; would that
6 be, then, an individual characteristic as distinguished from
7 the class characteristic that the specifications would show?

8 A Yes, this could be considered an individual
9 characteristic, yes, sir.

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9b-1

1 Q And if the grooves were a little deeper than
2 provided for by the specifications, would that be an
3 individual rather than a class characteristic?

4 A Yes. If it were unique to this particular
5 weapon and not to most of this type of weapon, it would be
6 an individual characteristic.

7 Q Well, are you saying that there are certain
8 tolerances that are built into manufacturing specifications
9 for the depth of groove?

10 A Yes, I believe there are.

11 Q All right. Now, you indicated, I think, in
12 response to Mr. Manzella's question that the normal depth of
13 groove was four thousandths of an inch, .004 of an inch;
14 is that right?

15 A Yes, but I also stated there could be some
16 variation in this.

17 Q Well, that's what I was trying to get to.
18 How much variation would you say that is provided
19 for in specifications of normal automatic pistols?

20 A I think it would depend on the individual
21 manufacturer because there's a great deal of difference in
22 the degree of tolerance that the different manufacturers
23 attempt to hold.

24 Q Well, when you're talking about a degree of
25 tolerance, then, we're talking about specifications based
26 on your study of specifications of firearms.

27 Would it be proper to say that the depth of
28 groove on the basis of specifications of various firearms

9b-2

1 could range from anywhere from two one-thousandths of an
2 inch to five one-thousandths of an inch?

3 A Yes, I think they could vary that much.

4 Q All right. And if a weapon -- by the way, when
5 a groove is made, first of all, in the manufacture of a gun
6 barrel, the bore is drilled; is that correct?

7 A Well, there are different manufacturing processes,
8 yes. This is one method.

9 Q Well, do you know any other method besides
10 originally boring the bore of the barrel?

11 A Yes, I do.

12 Q What is that?

13 A Mandrel forming the barrel.

14 Q And explain what mandrel forming of the barrel
15 is?

16 A This is when the barrel is actually formed or
17 hammered around a mandrel or a pattern.

18 Q All right. In which case the mandrel or pattern
19 is a good deal smaller than the final bore is going to be,
20 is that correct? It is reamed out later to a larger diameter?

21 A I don't believe in most cases it is reamed.
22 In some cases it is polished.

23 Q All right. The normal process, however, is to
24 bore by a drill, to drill the bore, is that right?

25 A Yes, quite often this is done.

26 Q All right. And do you know how it is done?

27 By the way, you pronounce it "Ray-dom"?

28 A "Ray-dom."

1 Q Or "Rah-dom"?

2 A I pronounce it "Ray-dom."

3 Q Well, we had another witness that pronounced
4 it "Rah-dom."

5 Is there a proper way, do you know?

6 A I don't know. It is a name of a city in
7 Poland. Perhaps if you could find a Pole, perhaps they
8 would give you the correct pronunciation.

9 JUROR OBRADOVICH: Rah, rah, not Ray.

10 MR. DENNY: "Rah-dom."

11 THE WITNESS: Thank you.

12 MR. DENNY: Thank you, Mrs. Obradovich.

13 Q So now that we have all been educated on that,
14 do you know how the Radom's bore is made?

15 A No, I do not.

16 Q Is there any way of determining from observation
17 of the bore whether it is mandrel formed or whether it is
18 drilled?

19 A Not that I know of.

20 Q All right. Let us take, for an assumption,
21 that a bore has been drilled. That, then, is the smallest
22 portion of the gun as you look at it from the end of the
23 barrel, and then further machining is done to put the grooves
24 in and give them a twist, is that right?

25 A Yes, sir.

26 Q And that can be done by one of two processes,
27 is that right?

28 A Well, there are at least two processes, yes, sir.

1 Q Well, tell me the two that you know of.

2 A By a hook cutter working individually. That is
3 scraping out a portion of each land individually or by the--

4 Q You say "each land" or "each groove"?

5 A Uh, each groove on -- in the barrel.

6 THE COURT: We'll take a short recess now, ladies
7 and gentlemen.

8 During the recess you're obliged not to converse
9 amongst yourselves, nor with anyone else, nor permit anyone
10 to converse with you on any subject connected with the matter,
11 nor form or express any opinion on it until it is finally
12 submitted to you. About ten minutes. Not any more.

10 fls.

13 (Afternoon recess.)
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1 THE COURT: The defendant is present with counsel. The
2 record may show all the jurors are present.

3 Mr. Denny, you may proceed.

4 MR. DENNY: Thank you.

5 Q I think you were interrupted almost at mid-breath,
6 about -- with a hook cutter, how a bore is cut for the grooves;
7 is that right?

8 A Yes, sir. With the hook cutter, it is run through,
9 often more than once in a particular spot, to cut the individual
10 groove markings in the barrel.

11 Q Well, when you say "often more than once," it is
12 part of the cutting process --

13 A It is part of --

14 Q -- to put it through a number of times; isn't that
15 correct?

16 A Right. It is often backed off and run through
17 the same groove, in order to make the groove deeper, to get to
18 the required or the specified amount of depth.

19 And it is subsequently moved around a certain
20 number of degrees on the bore, and brought through again, until
21 the correct number of grooves are cut.

22 Q Well, is it your understanding that one groove is
23 cut down to the decided -- to the desired depth, all the way,
24 and then the next groove is cut again, through a repeated
25 cutting process, backing off and cutting, until it is done?
26 And so forth, around, until all six grooves are individually
27 cut down to the proper specified depth?

28 A This is my understanding, when using the hook

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1 cutter.

2 Q Well, isn't the process that one cut is made for
3 -- well, say, the number one groove, and then the barrel is
4 rotated -- say if there are going to be six lands and grooves,
5 the barrel is rotated a sixth -- and the next cut is made, and
6 the next cut made, and the barrel is rotated again, and the
7 next cut is made, and then the cutter is slightly depressed --
8 after you get around to groove number one again -- and the
9 process is repeated, so that --

10 MR. KAY: Your Honor?

11 Q BY MR. DENNY: -- so that each cut, finally, each
12 groove has been cut the same number of times by the hook
13 cutter?

14 MR. KAY: Your Honor, I am going to object. I think we
15 are getting a little far afield.

16 THE COURT: The objection is sustained.

17 It doesn't appear to be material.

18 Q BY MR. DENNY: Well, is there another method of
19 cutting the grooves in the barrel?

20 MR. KAY: Same objection.

21 THE COURT: Sustained.

22 MR. DENNY: This goes to his expertise, again, your
23 Honor; and this goes to this particular gun.

24 THE COURT: The objection is sustained.

25 Q BY MR. DENNY: Well, sir, do you know whether the
26 grooves in the -- not this particular Radom, but any Radom --
27 are cut with a hook cutter, or another kind of cutter?

28 A I do not, no.

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1 Q And do you know if there is a difference in
2 the formation of grooves made by a hook cutter, as distinguished
3 from another kind of cutter?

4 A No, I do not know.

5 Q Do you know if there's another kind of cutter?

6 A Yes, I do.

7 Q What kind of cutter?

8 A They are broaches with different kinds of cutting
9 edges, that cut all or more than one groove at a time.

10 Q Scrape cutters, are they called?

11 A I have never heard them called scrape cutters. I've
12 only heard "broaches."

13 Q All right. And sometimes they will cut opposite
14 grooves at the same time? In other words, groove number one and
15 number three -- or groove one and four, as they go through the
16 barrel?

17 A I believe so, yes, sir.

18 Q All right. That's the way the Colt is made; is
19 that right? With that type of cutter?

20 A My understanding is that the Colt is made where all
21 six are cut at one time.

22 Q With a --

23 A Broach.

24 Q All right. And that's the new Colt?

25 A Yes.

26 Q All right.

27 Now, again, if a gun is cut with a scrape cutter,
28 the scrape cutter is harder than the gun barrel itself, even

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1 the hard gun barrel of the drop-forged steel gun barrel; is
2 that right?

3 A Yes, sir.

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Q All right. And so the scrape cutter, in cutting the grooves, with harder steel, scrapes away the now softer steel, even of this drop-forged steel of the gun; is that right?

A Yes, sir.

Q Or of the gun barrel?

And the marks that are left -- you say they are marks made by the cutter?

A Yes, sir, quite often.

Q All right. They may also be made by what else?

A By a chip or a fragment of the steel from the gun barrel that gets caught between the cutter and the gun barrel, where it is cutting.

Q Or there may be imperfections in the barrel itself; is that correct?

A Yes, sir. That's possible, too.

Q Softer spots or things of that kind?

A Yes, sir.

Q That independent of the surface of the cutter will leave some characteristic markings when a bullet passes through; is that right?

A Yes.

Q Now, in a process when you have, say, a scrape cutter creating the grooves, by cutting down, say, two one-thousandths of an inch -- or four, or three, or whatever -- it leaves what now appear to be raised portions, the lands, around the interior of the gun, going back in a twisting motion (indicating); is that right?

1 A Yes, sir.

2 Q All right. And on either side of the lands
3 there are what are called shoulders; is that correct?

4 A Yes, sir.

5 Q Are those shoulders absolutely square shoulders,
6 in an automatic pistol?

7 A It depends on which automatic pistol, and what
8 type of cutter, and the sharpness of the cutter at the time
9 the grooves were cut in the barrel.

10 Q There are an awful lot of factors involved, then,
11 in the formation of the shoulders; is that right?

12 A Yes, sir.

13 Q As to whether the shoulders are perpendicular
14 to the barrel of the gun or whether they're on something of
15 a slant (indicating), toward the bottom of the groove; is
16 that right?

17 A Yes, sir.

18 Q All right. And to your knowledge, are certain
19 guns made by specification, so that the land shoulders are
20 slanting (indicating) somewhat toward the bottom of the
21 groove?

22 A Yes, they are.

23 Q And are certain guns made by specification,
24 so that the land shoulders are approximately vertical to the
25 interior of the barrel of the gun? Or square?

26 A Yes, they are.

27 Q And is this, then, an important class char-
28 acteristic?

1 A No, sir.

2 Q In looking at a bullet, would a bullet fired from
3 a gun with square land shoulders have a different impression
4 on it than a bullet fired from a gun with diagonal or slanting
5 land shoulders?

6 A Yes, it probably would.

7 Q Well, would this be significant to you, in
8 attempting to make an identification of a bullet fired from
9 a particular gun?

10 A Yes. In an individual comparison, it would.

11 Q All right. And in determining whether a bullet
12 has been fired from a particular gun, you look at the one
13 particular shoulder, land shoulder, that has significance
14 in identification, don't you, as that land shoulder impression
15 is made on the bullet?

16 A You look at both land shoulders.

17 Q Well, one land shoulder is going to show up a
18 great deal more than the other; isn't that right?

19 A That's the one that is commonly called the
20 driven shoulder. That will show more, normally.

21 Q And the driven shoulder is which shoulder?

22 A This is the shoulder that is actually pressing
23 or imparting the twist to the bullet.

24 Q So that in a left-hand twist, it would be the
25 left-hand shoulder, as it appears on the bullet; is that
26 right? Giving it the left-hand spin?

27 A Yes, sir.

28 Q And in a right-hand twist, it would be the

1 right-hand shoulder, as that land shoulder impression is made
2 on the bullet, which gives it the right-hand spin; is that
3 right?

4 A Yes, sir.

5 Q All right. And are the shoulder marks, then --
6 particularly the driving edge or the driven edge shoulder mark--
7 important, then, in determining identification of a bullet having
8 been fired from a particular gun?

9 A Yes, they're important.

10 Q Not just as a class characteristic, but as an
11 individual characteristic?

12 A Yes, sir. Only as an individual characteristic.

13 Q Well, is it not possible to determine, from a new
14 gun, and a bullet fired therefrom, with -- with certain
15 specifications at hand -- or certain other bullets having been
16 fired from similar guns -- that the bullet was fired from a
17 particular class of gun, --

18 MR. KAY: Your Honor, --

19 Q BY MR. DENNY: -- simply by looking at the land
20 shoulder impression?

10b fls. 21 A I don't believe so, no, sir.

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1 Q All right. Now, land shoulder impressions, how-
2 ever, are pertinent, valuable information in determining
3 whether a given bullet was fired from a particular weapon;
4 is that right?

5 A Yes, sir.

6 Q All right. Now, you've indicated, I think, that
7 in this particular case, the bullet -- is that People's 30?

8 MR. KAY: People's 31.

9 MR. DENNY: People's 31. Do we have those bullets? Or
10 are they here?

11 (Pause in the proceedings.)

12 Q BY MR. DENNY: People's 31 was an undersized
13 bullet?

14 A Yes, sir.

15 Q Now, you've testified previously in this case,
16 have you not, sir, in connection with the Hinman murder?

17 A Yes, sir.

18 Q And you testified in the Beausoleil case?

19 A Yes, sir.

20 Q Twice?

21 A Certainly, at the second Beausoleil case, right, --

22 A Yes, sir.

23 Q -- or the retrial?

24 And the Manson case? The Manson case?

25 A Yes.

26 Q And did you ever, before today, state that in your
27 opinion the bullet, People's 31, the bullet that you
28 recovered on or about January 9, I think -- was an undersized

10b-2

1 bullet?

2 MR. KAY: That assumes a fact not in evidence: That he
3 was asked.

4 THE COURT: Sustained. The objection is sustained.

5 Q BY MR. DENNY: Well, sir, when did you form the
6 opinion that this bullet was an undersized bullet? That is,
7 People's 31?

8 A About five minutes after I got back to the crime
9 lab with the bullet.

10 Q And how did you determine that it was possibly
11 an undersized bullet? Or not possibly, but that it was an
12 undersized bullet?

13 A By measuring the bullet.

14 Q With what?

15 A A micrometer.

16 Q And the micrometer showed that it measured what?

17 A I don't recall. It seems like it was about three --
18 three -- 353. Point 353. 353 one-thousandths of an inch.

19 Q All right. Did you make any note or notation or
20 anything like that on any written memoranda or memorandum
21 concerning --

22 A Yes.

23 Q -- your measurement by micrometer of that bullet?

24 A I believe I did.

25 Q Do you have that paper work at all?

26 A It is probably still on file in the crime lab.

27 Q Well, do you normally maintain all of your paper
28 work in connection with your work in identification and

10b-J

1 comparison of bullets and firearms?

2 A There's no standard procedure on it. This would
3 be part of my notes. Sometimes we maintain them; sometimes we
4 don't.

5 Q Well, I'm talking about not "we," but you. Do
6 you?

7 A Well, I'm speaking about myself, as an individual.

8 Q All right. Now, on a 9-millimeter bullet, what
9 is the normal width or diameter of a 9-millimeter bullet,
10 measured in inches, as you have here?

11 A Well, approximately 355 one-thousandths of an inch.

12 Q Three hundred and fifty-five?

13 A Um-hmmm.

14 Q So, are you saying now that when you measured
15 this one at 353 versus 355, that the difference of two one-
16 thousandths of an inch indicated to you that it was under-
17 sized?

18 A Yes, sir.

19 Q And are there tolerances in ammunition, as to the
20 size of the bullet, as to the diameter?

21 A Yes, there are.

22 Q And what are those tolerances?

23 A I don't know. I would assume it varies from
24 manufacturer to manufacturer.

25 Q Well, in specifications, if a manufacturer makes
26 his ammunition for a 9-millimeter gun, to specifications,
27 can he make it anywhere from 350 thousandths of an inch to
28 360 thousandths of an inch, and still be within specifications?

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A I would doubt that very much. That's quite a --
quite a liberal tolerance allowance.

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1 Q Well, I'm asking you, then, what --

2 A I don't --

3 Q -- in your --

4 A -- know the manufacturer's specifications on this.

5 Q All right. Now, sir, when a bullet is fired from
6 a gun, as it's forced into the forcing cone and then begins to
7 take up its spin -- either a right-hand or a left-hand spin --
8 the lands grab ahold of that bullet; is that right?

9 A Yes, sir.

10 Q And the lands then compress the bullet -- they
11 push into the bullet and compress the bullet; is that correct?

12 A No, sir. I normally wouldn't expect them to
13 compress the bullet.

14 I would expect them to cut into the bullet.

15 Q But as a bullet is fired under extreme pressure,
16 and it is grabbed by those lands, there is a compressive
17 force, not just cutting but compressing also on the bullet
18 (indicating); is there not?

19 A Yes, sir.

20 Q And by the same token, with that terrific force
21 of the explosion behind it, there's also an expansive force
22 as the rest of the bullet is forced into the grooves and
23 on, --

24 A Yes.

25 Q -- isn't that right?

26 A Depending on the construction of the bullet.

27 Q Well, when a gun is milled, so that the grooves
28 are cut into the gun, you have, then, a bigger bore than you

1 started off with; isn't that right?

2 MR. KAY: Your Honor, I'm going to object. I think we
3 are getting far afield.

4 THE COURT: The objection is sustained.

5 MR. DENNY: Well, your Honor, this goes right to this
6 very bullet that we are talking about, and I have to lay the
7 foundation. I have to lay the foundation for it.

8 MR. KAY: I think Mr. Denny said that about a half an
9 hour ago.

10 THE COURT: The objection is sustained.

11 Mr. Kay's remark is stricken, ladies and gentle-
12 men.

13 Restrain yourself, Mr. Kay.

14 Q BY MR. DENNY: Sir, when a bullet is fired from
15 a gun, and it takes up the motion in the barrel, would you
16 describe, please, what happens to that bullet, within the
17 barrel of the gun?

18 A The bullet passes through the bore of the weapon--

19 Q What happens as it passes through?

20 A It picks up the striations, the markings from the
21 barrel of the weapon.

22 Q Well, what happens to the bullet itself?

23 A You want me to say that it expands? Depending
24 on the bullet construction, if you have a soft lead bullet,
25 the bullet will expand to fill the bore of the weapon.

26 If the bullet has a more solid jacket, the bullet
27 passes through the bore of the weapon, gasses escaping around
28 the edges of the bullet, if the bore is undersized.

1 Q If the bore is oversized?

2 A Oversized; I'm sorry.

3 Or the bullet undersized.

4 Q All right. Is there not a tendency, however,
5 for the bullet to fill up the area in the grooves?

6 A Depending entirely upon bullet construction.

7 Q All right. Now, do you know what the manufacturer's
8 specifications of the diameter of the bore and the groove depth
9 are for the Polish 9 millimeter Radom?

10 A No, I do not.

11 Q Well, do you know whether, by manufacturer's
12 specifications, the 9 millimeter Radom is built so that it
13 is much larger -- that is, the bore is larger than 355
14 thousandths of an inch?

15 A I do not know.

16 Q You indicated, sir, that you are familiar with
17 Mathews' Firearms Identification; is that correct?

18 A Yes, sir.

19 Q And this is one of the leading books in the --

20 A Yes, it is.

21 Q -- field of firearms identification?

22 A Yes.

11 fls.

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1 MR. DENNY: May I approach the witness, your Honor?

2 THE COURT: Yes, you may.

3 Q BY MR. DENNY: Is this particular work used as
4 an authoritative work, sir, as far as assistance in determin-
5 ing the specifications of particular weapons?

6 A Yes, it is.

7 Q All right. And directing your attention to Page
8 139 at the bottom for the Radom vis 35, v-i-s 35, as far as
9 the bore diameter specifications indicated there, are what?

10 MR. KAY: Well, I'm going to object to that unless
11 Mr. Denny can establish that Sergeant Christansen relied
12 on this in formulating his opinion under the Evidence Code.
13 I think that's a requirement.

14 MR. DENNY: I don't believe I have to do that for this
15 particular information. I'm asking for just the information
16 that's shown.

17 THE COURT: The objection is sustained.

18 Sergeant, did you consult this volume in
19 examining the Radom?

20 THE WITNESS: Not for this particular portion of it,
21 anyway, sir.

22 MR. DENNY: Well, your Honor, may I be --

23 THE COURT: Had you ever consulted this volume for the
24 purpose of learning these data about the Radom?

25 THE WITNESS: No, sir.

26 MR. DENNY: Your Honor, may I approach the bench for
27 argument, if the Court is going to rule on this?

28 THE COURT: Yes, you may.

1 (Whereupon, the following proceedings were had
2 at the bench among Court and counsel, outside the hearing of
3 the jury:)

4 MR. DENNY: Your Honor, in this case, I'm not asking him
5 whether he did -- whether he did rely -- well, before the
6 Court reads that, I'd ask to be heard.

7 THE COURT: Go ahead.

8 MR. DENNY: I'm not asking this witness a matter to test
9 him as to whether he did rely on this, I simply have
10 established the foundation for the use of this material in
11 establishing what the specifications are.

12 I have asked him if he is familiar with Mathews
13 firearms identification; "Yes."

14 Whether it is an authoritative work in the field;
15 "Yes."

16 Whether he has used it; "Yes."

17 Whether he is familiar with the firearm
18 specifications that are used therein; "Yes."

19 Whether they are considered authoritative; "Yes."

20 All of these questions he's answered "Yes" to.

21 Now, I'm simply trying to get into evidence what
22 this authoritative work, are the specifications. From there
23 we can go on from what he did or did not do. I'm simply
24 trying to get into evidence from an authoritative work, which
25 he says is authoritative that he has in the past used the
26 specifications shown here.

27 THE COURT: Why isn't it hearsay? And if it is hearsay,
28 under what exception does it come in?

1 MR. DENNY: It is only hearsay, your Honor, insofar as
2 the use. If he uses it for his opinion, then you're using it
3 under the hearsay exceptions there. But you can use
4 specifications, general specifications from any specs, any
5 document. You don't have to get into the manufacture, what the
6 specifications --

7 THE COURT: As if taking judicial knowledge?

8 MR. DENNY: I'm sorry.

9 THE COURT: As if taking judicial knowledge or as if an
10 ultimate fact; is that right?

11 MR. DENNY: No, no, that's not right.

12 THE COURT: Then, I fail to understand. What section
13 would it come in, under what section of the Code?

14 MR. DENNY: That it is a scientific work that he has
15 used in the past that is authoritative in the field and that
16 he, as an expert, has in other cases used and relied on it.

17 MR. KAY: I think 721 is right on the point.

18 THE COURT: I think it might be admissible under 1340 and
19 1341 if sufficient background were established. Do you want to
20 look at those, Mr. Denny, those sections?

21 MR. KAY: I don't see how it could be admissible under
22 these sections.

23 MR. DENNY: May I see it?

24 MR. KAY: 1340, 1341 and 1270.

25 THE COURT: Well, this is kind of a published
26 compilation of information concerning weapons, as I understand
27 it; is that correct?

28 MR. DENNY: That is correct, your Honor.

1 THE COURT: And if it is generally used and relied upon
2 as accurate in the course of a business, in the course of the
3 business of making comparisons of bullets and --

4 MR. DENNY: As he has so testified.

5 THE COURT: -- and working with weapons, then, it would
6 be admissible under 1340 and 1341.

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1 MR. MANZELLA: People would suggest that has not been
2 established.

3 THE COURT: I don't think it has been.

4 MR. DENNY: Well, he indicated he did use it since it
5 was authoritative, that he has used it, he has relied on
6 those figures.

7 THE COURT: You need a better background. If it is
8 admissible, if it comes in, it will come in under those
9 sections.

10 Do you want to read those?

11 (Whereupon, the following proceedings were
12 had in open court within the presence and hearing
13 of the jury:)

14 Q BY MR. DENNY: By the way, Sergeant Christansen,
15 before we get into this matter, when you talk about a barrel
16 wearing, as would be evidenced particularly from a bullet
17 having been fired through that barrel, are you talking about
18 the effects of erosion on the barrel or corrosion?

19 A Both.

20 Q Well, would corrosion, that is rusting, eating
21 away, of pock marks and things like that, cause the barrel
22 to enlarge, that is, the diameter of the bore to enlarge?
23 Or would erosion, the effect of the gasses and the passage
24 of the bullet through it cause it to enlarge?

25 A I believe both would cause it to enlarge.

26 Q Is there also an effect of build up of matter
27 within a barrel if it is not cleaned?

28 A Yes. In certain portions of barrels there can

11a-2

1 be a build up of matter.

2 Q All right. Now, assuming a barrel has worn down
3 to a point where you would describe it as a worn barrel --

4 Well, first of all, let's look at it.

5 There are degrees where within a barrel so that
6 you're going on, say, a continuum from almost new to the
7 point of unserviceability or danger to operate; is that right?

8 A Yes, sir.

9 Q All right. And this particular barrel of the
10 Radom, People's 30, within what area of that continuum would
11 you describe the condition of this particular barrel?

12 A It would be near the unserviceable condition. It
13 would be very badly worn.

14 Q Well, by "unserviceable," do you mean dangerous
15 to operate or simply not very accurate because of the wearing
16 of the lands?

17 A Uh, probably not very accurate. I doubt if it
18 is dangerous.

19 Q All right. And how deep are the grooves in this
20 gun, People's 30?

21 A I don't know.

22 Q You haven't measured them?

23 A No, sir.

24 Q How deep are they supposed to be?

25 A I don't know.

26 Q How large is the bore now, that the depth of
27 groove from one groove to the opposite groove; how deep is
28 that?

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A I don't know.

Q How deep is it supposed to be?

A I don't know.

Q Do you know how much wear in thousandths of an inch you would expect from that gun new to the gun as you see it now, how many thousandths of an inch are worn off?

A No, sir, I don't.

Q From the interior?

A No.

Q All right. Now, let's get back to this book, Mathews' Firearms Identification.

You indicated, I think, that this is an authoritative work in the field?

A Yes.

Q And relied on by people in the field for specifications contained therein?

A Yes, sir.

Q And you have relied on it yourself on occasions for getting specifications and data of the various firearms set forth in this book, is that right?

A Yes, I have.

Q All right. Again, if I may approach the witness, your Honor?

THE COURT: Yes, you may.

Q BY MR. DENNY: Showing you the data on the Radom Vis 35 for the bore diameter, what does that indicate?

A .3479 to .3488.

Q In inches?

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A In inches, right.

Q Right.

A Ten-thousandths of an inch.

Q So that would mean essentially one one-thousandth of an inch difference in tolerance built into the specifications or based on the measurements having been made by Professor Mathews of the number of guns that he examined, is that right?

A Yes, that's right.

Q All right. And that figure, then, even at the outside figure of .3488 inches, is smaller than the size of a bullet, 9 millimeter bullet, a normal size which you say is .355; is that right?

A Yes, sir.

Q All right. So there would have to be some considerable wear in that barrel before a normal size bullet would fail to take up the regular course of the path by virtue of the lands being -- well, let me withdraw that question and start again.

A .355 bullet would go through the barrel of a gun .3488 inches with some difficulty, right?

It would require -- you couldn't just push it through or drop it through?

A No, sir, you couldn't just drop it through, no, sir.

Q All right. And it would take up all the sides of the bullet up against the sides of the grooves, right?

1 A It would depend upon the depth of the grooves.

2 Q Well, assuming the grooves here, as we've got
3 the bore diameter, .3479 or .3488 or is that -- now, just
4 the bore of the top of the lands?

5 A Just -- that is normally what I would expect, on
6 the bore diameter, is from land to land.

7 Q Ah-hah, it does make some difference as to how
8 deep the grooves are cut in the specifications there?

9 A Yes.

10 Q All right. And is it possible to measure on a
11 bullet the width of land impressions?

12 A Yes, it is possible.

13 Q Now, where would you make that measurement, if
14 you are attempting to measure the width of land impressions?

15 A Now, are you speaking of the land impression on
16 the bullet?

17 Q Yes.

18 A From shoulder to shoulder.

19 Q From land shoulder, driven shoulder to the other
20 shoulder?

21 A Right.

22 Q But where on the bullet, is there any one
23 particular place where you would normally attempt to make
24 that?

25 A No, normally I would expect it to be more
26 complete and better nearer the base of the bullet.

12 fls. 26

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1 Q Well, that brings us into another matter. Is the
2 base of the bullet the best place to measure the width of land
3 impressions, under any circumstances?

4 A No, sir. Nothing's better under any circumstances.

5 Q Well, is that the place where you would most
6 generally attempt to measure it?

7 A Nearer the base, yes, sir, at the rear portion of
8 the bullet.

9 Q Well, when a bullet is fired, as it's fired into
10 the lands, certain scratch marks are made along the bullet as
11 it's going straight ahead, before it takes up the rotational
12 spin (indicating), isn't that correct?

13 A Yes, sir.

14 Q And those scratch marks will go all the way down
15 the base of the bullet; isn't that right?

16 A Not normally.

17 Q They will not?

18 A No, sir.

19 Q Where do they stop?

20 A There's a portion of the nose of a bullet that
21 is normally deformed at the time the bullet takes up the
22 rifling or starts its twist. It varies from bullet to bullet.
23 It depends upon how far the bullet is from the beginning of
24 the lands in the barrel.

25 Q Well, now, let's talk about an automatic pistol,
26 because there's a difference between a rifle -- strike that.

27 There's a difference between a revolver and an
28 automatic pistol, isn't there? Insofar as the marks that are

12-2

1 made on the bullet, --

2 A Yes, sir.

3 Q -- isn't that correct? All right.

4 Let's stick to the automatic, or the semi-
5 automatic pistol.

6 When the bullet is pushed up from the --

7 A Magazine.

8 Q Right. (Continuing) -- by the spring, into the
9 chamber and ready for firing, the head of the bullet is
10 where?

11 A It's in the chamber; and depending upon the
12 manufacturers of the gun and the tolerance, it is somewhere
13 close to the end of the lands.

14 Q Or the forcing cone?

15 A The forcing cone, yes, sir.

16 Q All right. Now, when that gun is fired, that
17 bullet starts forward in a transverse direction, along the
18 axis of the barrel (indicating); isn't that correct?

19 A Yes, sir.

20 Q All right. And as it is fired, the ends of the
21 lands make marks on that bullet, going in a forward position,
22 along the axis of the barrel; isn't that right?

23 A Yes, sir.

24 Q And then depending on how new or old the barrel
25 is, the bullet will take up the transverse -- or, the
26 rotational action caused by the lands grabbing hold; is that
27 right?

28 A Yes, sir.

1 Q All right. And then that begins to make marks
2 on the bullet on an angle; is that right?

3 A Yes, sir.

4 Q All right. Now, will not the lands at the
5 forcing cone drive straight down that bullet and leave their
6 mark all the way to the end, to the base of the bullet?

7 A No, sir, not normally. Because the bullet will
8 be spinning by the time -- or, will be rotating by the time
9 the base of the bullet has reached the portion of the lands.

10 Q What is "slippage"?

11 A Slippage is the distance the bullet travels
12 forward before the engraving of the barrel into the bullet
13 causes it to rotate.

14 Q Well, on a barrel that is somewhat older, where
15 the lands don't pick up the bullet quite as fast, the marks
16 that start on the angle of the lands, grabbing a hold of the
17 bullet, start a good bit further down -- say you have got a
18 left-hand twist (indicating); right? The marks start a good
19 bit further over to the right -- I'm sorry -- further over to
20 the left, as the bullet is projected out, because the bullet
21 has almost gotten a portion of the way through the barrel
22 before that rotational movement starts; isn't that true?

23 MR. KAY: Well, I'll object to that as an improper
24 hypothetical.

25 THE COURT: Overruled. You may answer.

26 THE WITNESS: I don't know.

27 Q BY MR. DENNY: Well, just so we get it straight,
28 it is your testimony, sir, that every bullet fired from a gun,

1 no matter whether it's new or old, that the base of that -- at
2 the base of that bullet, there will be land shoulder
3 impressions of the driving shoulder and the other shoulder,
4 the non-driving shoulder, that you can measure at that point?
5 Assuming there has been no deformation of the bullet.

12aefol 6 A No, it is not my testimony.
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1 Q All right. There will be, then, those cases
2 where the shoulder, the driving shoulder, is over a good deal
3 farther because of slippage; isn't that correct?

4 A I wouldn't expect it to be, no, sir.

5 Q Well, then, what about the instances where you
6 will not have the land shoulder impressions on the base of
7 the bullet, on a non-deformed bullet?

8 A On a non-deformed bullet?

9 Q Yes.

10 A When a bullet is undersized, of the wrong caliber,
11 when the bullet has passed through something that obliterates
12 markings on the bullet --

13 Q No, no, no. We are talking about a non-deformed
14 bullet, a bullet fired into a water recovery tank.

15 A In that case, if it were the proper bullet, and the
16 barrel were in reasonable condition, I would expect to find
17 some markings on it, yes, sir.

18 Q Both shoulders evident on the base of the bullet,
19 so that you could measure from driven shoulder -- or driving
20 shoulder -- to the non-driving shoulder, accurately; is
21 that right?

22 A Yes, sir, if the gun were in reasonable condition.

23 Q And if it were not in reasonable condition?

24 A If it were not in reasonable condition, partial
25 striations or partial picking up, where the bullet had
26 rubbed or had frictioned against the sides of the barrel.

27 Q All right. Sir, let's go to the bullet that you
28 indicated that you fired as a test-fired bullet in this

1 particular case.

2 You indicated it was one of the bullets you
3 test-fired; is that correct?

4 A Yes, sir.

5 Q And how many did you test fire on March -- what
6 was it?

7 A March 11th or shortly thereafter.

8 Q Of 1970?

9 A Of 1970.

10 Q All right. How many bullets did you test fire?

11 A At least two.

12 Q Well, did you make any sort of note in your
13 notes, sir, as to how many you test fired?

14 A No, sir, I did not.

15 Q Isn't it proper procedure to keep all test-fired
16 bullets that you test fire from a gun?

17 A No, sir.

18 Q What do you do with test-fired bullets that you
19 don't introduce into evidence? Throw them away?

20 A Some of them.

21 Q Did you throw away some of the bullets that you
22 test fired in this gun?

23 A I don't know. I don't recall how many I fired
24 in this gun.

25 Q Well, did you only keep one that showed particular
26 things?

27 A I don't know.

28 Q Well, you were the one who did the test firing;

1 we've established that, right?

2 A Yes, sir.

3 Q All right.

4 MR. KAY: Mr. Denny, if it will help you, I have the
5 other test-fired bullet in my drawer in my office.

6 MR. DENNY: Well, it would help me. I would like to
7 see them.

8 MR. KAY: Fine.

9 MR. DENNY: I know we subpoenaed them.

10 MR. KAY: Well, I don't know about that. But I have it
11 in my possession.

12 Q BY MR. DENNY: Well, Sergeant Christansen, you
13 know about that. We did subpoena those test-fired bullets,
14 didn't we?

15 THE COURT: Well, that's immaterial.

16 Go on with your cross-examination.

17 MR. DENNY: Well, your Honor, I need those bullets
18 right now in the course of my cross-examination.

19 MR. KAY: It's one bullet, not "those bullets." I
20 can go down and get it.

21 THE COURT: Would you do that?

22 MR. KAY: Does the Court want to take a recess?

23 THE COURT: Oh, I think Mr. Manzella can handle it in
24 your absence.

25 MR. DENNY: Tony, wake up.

26 MR. MANZELLA: Is it necessary?

27 (Laughter.)

28 THE COURT: Go ahead with your cross-examination.

1 (Whereupon Mr. Kay exited the courtroom, and
2 the following proceedings were had in his absence:)

3 Q BY MR. DENNY: All right. Was there some
4 particular reason why you chose this particular bullet of the
5 two test-fired bullets to introduce into evidence?

6 A Yes, sir.

7 Q Why was that?

8 A This bullet is a foreign military bullet. It
9 appears to be similar in construction and conformity to the
10 recovered bullet.

11 Q Perhaps you don't understand my question.

12 Is there some particular reason why you chose
13 the bullet now marked People's 99 for identification, as
14 distinguished from the other bullet that's in Mr. Kay's
15 drawer?

16 Is there a difference between those bullets?

17 A Yes, there is.

12b fls¹⁷

12b-1

1 Q All right. And what's the difference?

2 A There's a difference in the manufacture. There's
3 a difference in the -- an apparent difference in the
4 composition of the bullet jacket. There's a difference in the
5 diameter of the bullets.

6 Q And is the bullet, People's 99 for identification,
7 smaller than the normal diameter? Was it at the time you
8 test fired it?

9 A Yes, it was.

10 Q And did you measure it?

11 A Yes, I did.

12 Q And what was the diameter when you measured it?

13 A I don't recall.

14 Q Well, do you have any notes to reflect what the
15 diameter was --

16 A No, sir.

17 Q -- at the time you measured it?

18 A No, sir, I do not, with me.

19 Q Well, do you have them at the lab?

20 A I'm not sure, sir.

21 Q Well, do you have any recollection at all how much
22 smaller than the approximate normal that you said -- .355
23 one thousandths of an inch -- was this bullet? Do you have
24 any recollection?

25 A No, I do not.

26 Q And again, we are referring to People's 99 for
27 identification.

28 All right. What about the other bullet? What size

12b-2

1 was that, this one that Mr. Kay's bringing up?

2 A I don't know.

3 Q Did you measure it?

4 A No, I did not.

5 Q Was it from the same box that the other bullet,
6 People's 99, was from?

7 A No, sir, it was not.

8 Q Was it the same manufacturer?

9 A No, it was not.

10 Q Was it a copper-jacketed bullet?

11 A Yes, it was.

12 Q Do you know what manufacturer it was?

13 A I don't recall.

14 Q And the marks on that bullet were very definite
15 and distinct, as far as the land impressions and groove
16 impressions; is that correct?

17 A They were more definite and distinct, yes, sir.

18 Q And you were requested to and did fire another
19 test, sometime recently, this year; is that right?

20 A Yes, I did.

21 Q And do you have that test-fired bullet?

22 A I gave that test-fired bullet to the clerk of the
23 court, at the time I received the duces tecum subpoena.

24 MR. DENNY: Excuse me just a moment.

25 (Pause in the proceedings while a discussion off
26 the record ensued at the clerk's desk between Mr. Denny and
27 the clerk.)

28 Q BY MR. DENNY: And do you recall what kind of

12b-3

1 bullet that was?

2 A No, sir, I do not.

3 Q Well, it was a copper-jacketed bullet, was it?

4 A It was, yes, sir.

5 Q And did you make any measurements of that bullet?

6 A No, sir.

7 Q And the markings or striations on that bullet,
8 from both the land and groove impressions, were very definite
9 and distinct; is that right?

10 A Yes, sir. They were quite distinct.

11 Q So that that Radom, People's 30 in evidence --
12 unless it's not in evidence yet; but at any rate, People's
13 30 -- that Radom can fire 9-millimeter bullets that leave
14 very distinct land and groove impressions on the bullets?
15 On normal, regular bullets fired therefrom; is that right?

16 A Yes.

17 Q And you have no trouble whatsoever seeing the land
18 and groove impressions and the striations and the identifying
19 characteristics on those bullets that are normal sized
20 bullets fired from that gun; is that right?

21 A No, sir.

22 Q All right. And the only kind of bullet that you
23 might have any problem at all with is one that is of smaller
24 than normal diameter; is that right?

25 A If it is a bullet recovered in a water tank, as
26 you say, yes.

27 Q All right. And this particular bullet, People's
28 99 for identification, shows a great deal of blackening around

1 both the lands and the grooves; is that right? The land and
2 groove impressions?

3 A I don't recall.

4 Q Well, would you like to take a look at it?

5 By the way, do you -- do you use a jeweler's loupe
6 or something of that kind in looking at bullets, ever?

7 A Yes, I often do.

8 Q Do you have one?

9 A No, I do not.

10 Q Well, you may borrow mine, if you'd like, for this
11 particular purpose. It's a ten-power loupe.

12 A Thank you.

13 Q Do you want to take a look at that bullet and
14 determine whether or not you find powder traces on that?

15 THE COURT: Will you mark that bullet for identification?

16 MR. DENNY: That has been marked, your Honor, I believe
17 as 99. That's the one we have been talking about.

18 THE COURT: This is the test-fired bullet?

19 MR. DENNY: That is the first test-fired bullet, about
20 which he has testified already, not the one that Mr. Kay just
21 brought up.

22 THE COURT: Very well.

23 (Pause in the proceedings while a discussion off
24 the record ensued at the clerk's desk between Mr. Denny and
25 the clerk.)

26 Q BY MR. DENNY: You can see with the naked eye,
27 actually, the marks of the powder and gasses on that bullet,
28 can you not, sir?

1 A I can see marks on the bullet. I can't identify
2 them as being from powders and gasses.

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1 Q Well, as an expert, sir, in the field of firearms,
2 is it your testimony that the dark marks that appear around
3 the base of that bullet on both the land and the groove
4 impressions are not from the exploding gasses that propelled
5 that bullet out of the gun?

6 A Yes, that is my testimony.

7 Q Well, can you tell us what those darkened areas
8 are, then?

9 A Yes. This is a military bullet. It was probably
10 sealed with some type of lacquer for water-proofing.

11 Q Well, sir, is it your testimony, then, that before
12 you fired a test bullet, you fired a bullet with some kind of
13 sealant or coloring matter on it?

14 A Yes.

15 Q Well, is there anything that you knew of in
16 connection with the evidence bullet, that is the one recovered
17 from the Hinman home, that led you to believe that it had any
18 sort of sealant or coloring matter on it?

19 A I don't recall.

20 Q Well, did you think it was a fair comparison,
21 then, in attempting to make a comparison, to use a bullet
22 that had a sealant or coloring matter on it to compare with
23 one that you didn't know whether it would have such a
24 matter or not?

25 A Yes, I did.

26 Q It changes a good deal, does it not, sir, the
27 characteristics of what the bullet appears to be under the
28 comparison microscope to have darkened areas caused by any

13-2

1 foreign matter on the bullet?

2 A No, sir, it doesn't change it one iota.

3 Q Insofar as the lighting that appears on the
4 bullets, where you have darkened areas within a land impres-
5 sion, and if you fire a regular bullet without sealing matter
6 or lacquer of some kind so that the land impression shows
7 light and clear, the two are going to show up different under
8 the comparison microscope, aren't they?

9 A No, sir. The coloring will be slightly different,
10 but the markings will still be there. You compensate for this
11 with your lighting. This is a standard practice.

12 Q Oh, all right. Now, I have previously had marked
13 for identification as Defendant's A, a bullet, and I have just
14 removed the bullet from the envelope here.

15 I ask you to look at both the envelope and the
16 bullet and shell casing together, and ask you if you recognize
17 that or recognize those?

18 A Yes, I do.

19 Q And what are the items?

20 A These items are the expended bullet and
21 cartridge case that I fired from the crime laboratory
22 when you brought your independent expert to examine the
23 evidence?

24 Q On what date?

25 A November 18th, 1971.

26 Q All right.

27 And on November 18, 1971, you test fired the
28 Radom again, using that bullet in Defendant's A, is that

1 correct?

2 A That's correct.

3 Q All right. And that picked up reasonably strong
4 land impressions on the bullet, is that correct?

5 A Reasonably strong, yes, sir.

6 Q All right. And what kind of ammunition was used
7 in that particular test?

8 A This is Winchester or Western Repeating Arms
9 Company.

10 Q 9 millimeter?

11 A 9 millimeter, yes, sir.

12 Q And I take it you did not measure the diameter
13 of the bullet at that time?

14 A No, I did not.

15 Q All right. Now, I have, in addition, the
16 envelope that Mr. Kay just brought up.

17 Would you care to look at that and identify the
18 envelope and its contents?

19 A Yes, this is an envelope, two expended cartridge
20 cases and one expended bullet that I fired in the Radom on
21 March 13, 1970.

22 Q And can you tell from looking at the shell casing
23 which shell casing goes with which -- well, can you tell
24 from the shell casings which shell casing goes with the
25 bullet, the bullet itself, in People's 99?

26 A Yes, I can.

27 Q Which one is that?

28 A This is the foreign military cartridge case with

1 the FNT head stamp.

2 Q FNT standing for what?

3 A Fabrica Nacional de Toledo.

4 Q Spanish Military --

5 A Yes, sir.

6 Q -- piece of ammunition?

7 A Yes, sir.

8 Q Mr. Kay, do you have any objection if we put
9 that cartridge case with the bullet, People's 99?

10 MR. KAY: No, I don't.

11 Q BY MR. DENNY: All right. And looking again at
12 the bullet and shell casing that Mr. Kay just brought up,
13 what kind of ammunition was that?

14 A Again, this was Winchester-Western.

15 Q All right.

16 Your Honor, may we have the bullet and shell
17 casing and envelope together marked Defendant's next in
18 order?

19 THE COURT: That would be G.

20 THE CLERK: H. You just marked that G.

21 MR. DENNY: No, this would be G.

22 THE CLERK: That's G?

23 MR. DENNY: Yes.

24 THE COURT: That would be my --

25 THE CLERK: That's what you just told me to mark?

26 MR. DENNY: Yes.

27 THE CLERK: All right, that's G, then.
28

13a fls.

13a-1

1 THE COURT: So it is the envelope containing one of the
2 March test-fired bullets?

3 MR. DENNY: March, 1970 test-fired bullets.

4 THE COURT: And the shell casing, so ordered.

5 Q BY MR. DENNY: I'm sorry, Deputy Christansen,
6 what did you say the kind of ammunition was that was fired?

7 A It is Winchester-Western. The WRA stands for
8 Winchester Repeating Arms Company.

9 Q All right. Now, I notice on the tip of this
10 bullet there appears to be some sort of wax.

11 Would you look at that; is that correct?

12 A Yes, sir.

13 Q If you will leave it there and not remove it at
14 all.

15 And that wax is from what operation?

16 A Probably the wax that I used to hold the bullet
17 on the comparison microscope.

18 Q Did you use this particular bullet, then, rather
19 than the bullet, People's 99, to attempt to make a comparison
20 between People's 99 and People's 31, the recovered bullet?

21 A I probably used both.

22 Q Do you recall?

23 A No, I don't.

24 Q And the land impressions on that particular bullet,
25 marked as Defendant's G, are reasonably good land impressions,
26 aren't they?

27 A Yes, they're reasonably good.

28 Q So that of all the test-fired bullets that were

13a-2

1 test fired, the three that you are presently aware of or
2 remember, the only one that doesn't have good land impressions
3 is this one that you had introduced or was introduced in the
4 course of your testimony on direct, People's 99; is that
5 correct, the undersized bullet?

6 A Yes, sir.

7 Q All right.

8 Now, have you done any comparison firings to
9 determine the effects of a normal bullet fired from the 9-
10 millimeter Radom through three pieces of wood and plaster and
11 a fourth piece of wood sheeting?

12 MR. KAY: Irrelevant.

13 MR. DENNY: Goes to his --

14 THE COURT: Overruled, you may answer.

15 THE WITNESS: No, I have not.

16 Q BY MR. DENNY: Now, sir, when the bullet travels
17 through another medium other than water, specifically when it
18 travels through wood, what happens to the dimensions of that
19 bullet?

20 A Well, there are a great many factors involved,
21 including the hardness and density of the wood and the
22 construction of the bullet.

23 Q All right.

24 A In some cases nothing happens to the dimension of
25 the bullet.

26 Q All right. If it passed through balsa wood or
27 something like that --

28 A I wouldn't expect anything to happen to the

13a-3

1 dimension of the bullet.

2 Q All right. And particularly if it were a copper-
3 jacketed bullet?

4 A Yes, sir.

5 Q All right. The reason for the copper jacket is
6 to try to retain the aerodynamic stability and the solidity
7 of the bullet, is that right, as distinguished from the lead
8 bullet?

9 A Well, that's part of it.

10 Q All right, partly, all right.

11 But if it passes through harder substances, like
12 harder wood, and if it passes through a number of pieces of
13 harder wood, and if it passes through plaster, harder
14 plaster; what happens to the dimensions of the bullet?

15 A Well, if it passes through plaster, the exterior
16 dimensions are normally reduced somewhat.

17 Q The bullet becomes smaller in diameter, is that
18 right?

19 A Yes, sir.

20 Q And by the very forces of going through wood,
21 pressing through wood, that also tends to elongate the bullet
22 somewhat just a little bit, elongate and narrow it, isn't
23 that correct?

24 A Not to my knowledge.

25 Q To your knowledge, at least, the only thing you can
26 say then would be that the diameter would be decreased by
27 virtue of its passage through these materials; is that right?

28 A Yes, very slightly.

1 Q All right. So that again, depending upon a number
2 of factors, it would be difficult to tell whether a recovered
3 bullet, having passed through a number of pieces of wood and
4 plaster and, therefore, decreased in size was smaller than
5 normal because of its passage or because smaller than normal
6 in manufacture; isn't that true?

7 A No, sir. I don't think that that is true. I
8 don't think -- what we're talking about the decrease in size
9 or diameter of this bullet that it is to this great an extent
10 that it is going to make an appreciable difference.

11 Q How can you tell, sir, without having made tests?

12 A Only from experience.

13b-1

1 Q All right. And as far as criminalistics and
2 ballistics expert work goes, would it not be a better
3 practice to make a specific test with a specific Radom
4 through a specific known number of pieces of wood similar to
5 the pieces of wood in the case before you to determine what
6 the effects on the bullet would be rather than just guess
7 on what the effects might be based on other work that you have
8 done?

9 MR. KAY: Argumentative and irrelevant.

10 THE COURT: Overruled. You may answer.

11 A It would probably be better practice if you
12 could duplicate the exact conditions under which the bullet
13 had passed through these items, including the abrasive
14 material or the exact mix of the plaster which would be quite
15 difficult, I am afraid.

16 Q It would be quite difficult, wouldn't it?

17 A Yes, sir, it would.

18 Q And without being able to do that, you could
19 not say what the effect would be on a normal bullet fired
20 through those materials, could you?

21 MR. KAY: Well, it is irrelevant what would happen to
22 a normal bullet.

23 MR. DENNY: No, it is not, your Honor.

24 THE COURT: Overruled.

25 A No, I could not say.

26 Q BY MR. DENNY: All right. So that when -- and
27 how many materials did this bullet that you recovered, that's
28 in evidence, People's 31, pass through?

13b-2

1 A It ricocheted off of one piece of wood, passed
2 through another piece of wood --

3 Q How thick?

4 A Approximately one inch, if I recall. There's
5 been some time.

6 Q All right.

7 A -- went through the plaster wall.

8 Q How thick?

9 A Normal thickness of a plaster wall. I didn't
10 measure it.

11 Q You don't have any idea approximately how thick
12 that wall was?

13 A Let's say approximately three-quarters of an inch.
14 A very rough approximation.

15 Q Through some lathing on the other side?

16 A I don't recall whether there was any lathing or
17 whether there was any type of support for the plaster.

18 Q Any kind of chicken wire or anything like that?

19 A I don't recall any being in there.

20 And I recovered it from the center of approxi-
21 mately a one-inch piece of board that was the outside sheeting
22 of the house.

23 Q All right. And a ricochet, would that also
24 tend to perhaps decrease the size of the bullet?

25 A Yes, I suppose it could.

26 Q All right. So that a ricochet could decrease
27 the size of the passing through one piece of wood an inch
28 thick, could decrease the size of it passing through a

1 three-quarter inch plaster wall, could decrease the size
2 of it some more in passing through or into a half an inch
3 worth of sheeting on the outside or could also decrease the
4 size of it, is that right?

5 A Yes, I would imagine.

6 Q And all of these factors could so decrease the
7 size of it that you could not tell from looking at it whether
8 that decrease in size had been caused by that passage through
9 those things or simply by virtue of the fact that it was
10 manufactured somewhat smaller than normal; isn't that true?

11 A No, sir, that's not true.

12 I would not expect these factors to reduce the
13 size of the bullet as much.

14 Q How much?

15 A An appreciable amount so you could not tell
16 whether it had been reduced in size.

14 fls.

14-1

1 Q Well, how much was it decreased in size?

2 A I don't know.

3 Q That's the whole thing, isn't it? You don't know?

4 A That's correct.

5 Q The bullet you found, you say, was of a size, when
6 you measured it, just two one-thousandths of an inch smaller
7 than the standard or normal or -- the middle norm -- of a 9-
8 millimeter bullet; isn't that right?

9 A It was undersized; and as I remember, it was
10 approximately this dimension, yes, sir.

11 Q All right. Now, in looking at this particular
12 bullet, People's 31, is it your testimony that you can determine
13 or see from that bullet any land impressions?

14 A Yes, it is my testimony that I can.

15 Q And can you see both shoulders of any particular
16 land impression?

17 A Yes, I can.

18 Q And did you make any mark or identifying mark of
19 any kind on that bullet, People's 31, to show which, if any,
20 land impression you could see both shoulders of?

21 A No, I did not.

22 Q You did make some mark on that bullet at some
23 time, an india ink mark, did you not?

24 A I did not.

25 Q Did somebody else?

26 A Yes, someone else.

27 Q Who?

28 A Mr. Harper, your independent expert.

14-2

1 Q At the time he set up the bullets under the
2 comparison microscope?

3 MR. KAY: Now, that assumes a fact not in evidence, that
4 Mr. Harper set the bullets up.

5 THE COURT: Overruled. You may answer.

6 Q BY MR. DENNY: At the time the bullets were set up
7 under the comparison microscope?

8 A Yes, sir, at the time the bullets were set up.

9 Q All right. Now, sir, are you able in any way
10 to indicate on this bullet which portion of the bullet shows
11 a land impression, where you can see both shoulders of the land
12 impression by looking at it?

13 A No, I don't believe so, not in the courtroom.

14 Q Well, are you able to show, under the ten-power
15 microscope? Are you able to see under a ten-power microscope
16 the land impression showing both the driving shoulder and the
17 opposite shoulder mark?

18 A Not a normal microscope. It wouldn't have correct
19 lighting for it.

20 Q Well, your own microscope at the lab?

21 A Yes.

22 Q Under ten-power?

23 A I'm not sure of the power.

24 But I can see it myself, and other people can see
25 it.

26 Q Well, at the time you made the identification, what
27 power magnification were you using?

28 A I don't know.

14-3

1 Q Well, do you use a particular power, normally,
2 in making your identification of bullets?

3 A You use the lowest power that gets the job done,
4 is the normal standard.

5 Q All right. But you don't know what the lowest
6 power was that you were using at the time you say you
7 identified these land shoulder markings?

8 A No, I do not.

9 Q All right. If you were able to take this bullet
10 back to the lab and look at it under your comparison micro-
11 scope, you could put a mark on the bullet, indicating which
12 land shoulder -- land impression -- or land impressions you
13 could see, where both the driving shoulder and the opposite
14 shoulder were evidence; is that right?

15 A Yes, I believe I could.

16 Q All right. Now, did you measure those shoulders
17 that you say you saw -- by the way, did you see more than one
18 land impression where the driving shoulder and the opposite
19 shoulder were evidence on that bullet, People's 31?

20 A I don't believe so. I think there's only one that
21 is quite visible.

22 Q All right. Now, sir, did you measure that?

23 A No, I didn't take a physical measurement of it.
24 I did get a ratio from it, by comparing it with other bullets.

25 Q Well, how did you do that?

26 A On a comparison microscope, I looked at the width
27 of the land marking in comparison with the width of a land
28 marking of another bullet --

1 Q What kind of bullet?

2 A -- on the other stage.

3 Another 9-millimeter bullet.

4 Q Fired from what kind of gun?

5 A I don't recall.

6 Q Well, was it fired from a gun with six lands and
7 grooves, --

8 A Yes.

9 Q -- five lands and grooves, seven lands and grooves?

10 A Six.

11 Q Is there any particular reason why you picked
12 out a bullet fired from a gun with six lands and grooves to make
13 a comparison with?

14 A Yes, because --

15 Q And what was that reason?

16 A -- it's the most common of the 9-millimeters.

17 Q It is, isn't it?

18 A Yes, it is.

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14a fol

14a-1

Q And in fact, there are some 60 -- or 63 different kinds of guns with six milli -- with six lands and grooves, on a 9 millimeter automatic pistol, with a right-hand twist; isn't that right?

A I'm not sure of the exact number. There are quite a few.

Q Well, again, taking this book, Mathews' Firearms Identification, Volume I --

May I approach the witness, your Honor?

THE COURT: Yes, you may.

Q BY MR. DENNY: Referring to pages 139 and '40, starting with 9 millimeter, going from the four with the right-hand twist down to the six with the right-hand twist, would you read the various guns that are named there?

A Going from the four to the six?

Q No, no. Just starting at six.

A Starting at six.

(Reading.)

"Astra, Model 300 --"

THE COURT: You needn't do that.

Q BY MR. DENNY: Well, do you want to count them, sir?

A Yes, sir.

THE COURT: To yourself.

Q BY MR. DENNY: Yes, just to yourself.

A (Witness complies.)

Q Including the Radom, how many are there?

A I get 60.

14a-2

1 Q 60?

2 A Yes, sir.

3 Q All right. So that there are at least 60 9
4 millimeter automatic pistols, six lands and grooves, right-
5 hand twist, that could fire a bullet leaving those markings
6 on the gun; is that right?

7 A No, sir. There is a difference in width of
8 lands and grooves of some of these, that weren't taken into
9 consideration in counting the 60.

10 Q Ahh! Now, you measured or did not measure the
11 lands and grooves?

12 A I did not measure. I established the ratio.

13 Q You established what sort of ratio?

14 A The ratio of the land surface to the groove
15 surface -- were approximately one to one, in this case.

16 Q Now, can you measure from a bullet that is,
17 as you say, undersized, and almost erased -- is that correct?
18 Almost erased?

19 A Yes, sir.

20 Q Can you accurately measure the land widths or
21 the land width of any particular land? Can you do so?

22 A Yes.

23 Q How?

24 A By using a visual measuring device on the bullet.

25 Q And what is the visual measuring device that is
26 used for this purpose?

27 A The visual measuring device used for this
28 purpose is a grid square, with the grids or the squares of a

1 known factor used in a microscope.

2 Q But you didn't use those on this bullet, did you?

3 A No, sir.

4 Q So you did not accurately measure the land
5 width on the evidence bullet here, People's 31, did you?

6 A No, sir.

7 Q So you don't know what the exact width of the
8 land impression is on that bullet, do you?

9 A No, sir.

10 Q All right. And even assuming you had a measure-
11 ment of what appeared to be a land impression from one
12 shoulder to the other, from the driving shoulder to the
13 non-driving shoulder, that is not an accurate record of
14 how wide that shoulder is, if it's a worn gun; is that
15 correct?

16 A It is an accurate record of how wide that
17 shoulder is in that particular weapon.

18 Q If, sir, the edges of the shoulders are worn,
19 they will leave a round impression in the bullet; (indicating)
20 will they not?

21 A Yes, sir.

22 Q And it is impossible to tell, even under a
23 microscope, where that shoulder actually starts and where it
24 ends, because of the rounded shoulder (indicating), as it
25 makes the impression in the bullet; isn't that right?

26 A Yes, sir.

27 Q So that you can't tell, really, within several
28 thousandths of an inch -- or even down to a few hundredths

1 of an inch -- how wide a land shoulder is of a worn land,
2 by the impression it makes on a bullet, can you?

3 A Yes, you can.

14b fls.

14b-1

1 Q How close can you get on a worn shoulder?

2 A I don't know exactly in thousandths. We do not
3 use this measurement. However, the wear would have to be
4 terrific to change it to any great number of thousandths of an
5 inch.

6 Q All right. And what are the specifications of the
7 Radom, as far as the width of land, the land width? What are
8 those specifications?

9 A I don't know.

10 Q So you don't know what the normal specifications
11 are, and you don't know what the specifications are of this
12 particular Radom; is that right?

13 A That's correct.

14 MR. DENNY: Well, your Honor, I am going to go into the
15 photographs, but I will take some time on that.

16 THE COURT: Still on cross examination?

17 MR. DENNY: Yes. I will have further cross examination
18 on the photomicrographs, yes.

19 THE COURT: How much longer do you anticipate your cross
20 will be?

21 MR. DENNY: At least a half an hour.

22 THE COURT: All right. The Court will -- let's see if
23 we can conclude cross examination today.

24 I'll give you a five-minute recess. During the
25 recess, you are admonished that you are not to converse amongst
26 yourselves nor with anyone else, nor are you to form nor
27 express an opinion on the matter until it is finally submitted
28 to you.

1 I don't like to push you too hard here. I know you
2 have been sitting, and that you are tired. But let's see how
3 far we can get tonight.

4 I have got a problem in that I have to be at another
5 unusual type of meeting, of a small committee that I am on,
6 and we'll have to work on that committee most of the day on
7 Friday. So, it's going to take some of our time.

8 It's a -- it's kind of an urgent meeting of a group,
9 a small group of judges of the Superior Court.

10 So, I'll have to spend some time on Friday because
11 of that. But we are in recess now.

12 (Mid-afternoon recess.)
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1 THE COURT: The record will show the defendant to be
2 present with his counsel and all the jurors are in place.

3 You may proceed.

4 State your name.

5 THE WITNESS: Robert P. Christansen.

6 Q BY MR. DENNY: By the way, Sergeant Christansen,
7 when you set up a bullet to test fire a bullet, do you put
8 any mark on the bullet, generally?

9 A No, sir.

10 Q Well, isn't it good practice among recognized
11 experts in the field when you are going to test fire a
12 bullet, particularly for comparison purposes, to put a little
13 nick in the nose of the bullet which will be at a particular
14 position in the gun, that's probably over the No. 1 land or,
15 at least, some identifiable position so that all your test-
16 fired bullets, then, will start off at that position?

17 A This is a matter of opinion. I believe that
18 very few experts use this system.

19 Q Well, without doing that, you have no way of
20 knowing what particular land made what particular impression
21 on your test-fired bullets, do you?

22 A No, sir.

23 Q And if you are going to match, then, a test-fired
24 bullet with another test-fired bullet, you have to work
25 around and work around and work around until you line them
26 up under the microscope in order just to get the comparison
27 of land No. 1 with land No. 1, is that right?

28 A Under normal conditions we don't compare two

1 test-fired bullets.

2 Q Well, even if you take a test-fired bullet and
3 attempt to compare it with an evidence bullet or a recovered
4 bullet.

5 If you line them up, then, there's no way of
6 determining what was the top land or the No. 1 land, if you
7 are going to call it No. 1 going around clockwise -- what
8 was the top land on either bullet; isn't that right?

9 A No, sir, there is no way of determining.

10 Q All right. And then, if you are going to make
11 photomicrographs comparing the bullets, and you haven't had
12 an opportunity to look at them for a while and you take the
13 test bullet and you take the evidence bullet, you've got to
14 go through all the whole thing of matching them up again as
15 to which land goes to which land under the microscope, is
16 that right?

17 A Yes, sir. However, if we know that we are going
18 to line them up again at a later date, we will often, at
19 this time, make an indexing mark or a comparable mark on each
20 bullet.

21 Q Sometimes referred to as a phase mark?

22 A I've only heard one expert refer to it as a
23 phase mark.

24 Q Well, do you know Gunther?

25 A Yes, I know Gunther..

26 Q Read his book?

27 A Yes, sir.

28 Q He refers to it as a phase mark, does he not?

1 A He refers to having the bullets in phase. Nowhere
2 in the book could I find where he referred to it as a phase
3 mark.

4 Q All right. The bullets are in phase because of
5 a mark that is put on them or a mark is put on them when they
6 are in phase, is that right?

7 MR. KAY: This is irrelevant, your Honor.

8 THE COURT: I think so, sustained.

9 Q BY MR. DENNY: All right.

10 Well, you put no marks on these bullets, either
11 the evidence bullet or any test bullet, is that right?

12 MR. KAY: That's irrelevant, your Honor.

13 THE COURT: Sustained.

14 Q BY MR. DENNY: Well, you said there are marks on
15 the two bullets, that is People's 31 and another bullet;
16 isn't that right, that Mr. Harper put on?

17 A Yes.

18 Q On which bullets?

19 A On the evidence bullet -- oh, I'm sorry, on the
20 bullet that came from Old Topanga Canyon Road and on the --

21 Q We'll call that the evidence bullet, People's 31.

22 A And on the bullet that I test fired in the
23 crime laboratory for Mr. Harper -- hmm, I don't have the
24 exact date. I believe it was in November of last year.

25 Q And which bullet did you use with the test --
26 strike that.

27 Which bullet did you use with the evidence
28 bullet, People's 31, in setting up the photomicrographs?

1 A This was People's 99. This was one of the
2 original test bullets that I fired.

3 Q The one with the dark residue or matter on,
4 is that right?

5 A Yes, sir.

6 Q All right. And that was a bullet that was not
7 available to Mr. Harper at the time he was there?

8 A That was the bullet that I did not have in my
9 possession at the time Mr. Harper was there, yes, sir.

10 Q All right. Now, I have been examining this
11 bullet since it was brought here and introduced into evidence,
12 and I wonder if you could take a look with my loupe -- this
13 is a ten-power loupe -- at what appears to be a mark on the
14 nose of that bullet, about halfway down from the nose to the
15 shoulder.

16 THE COURT: And are you referring to 99 now?

17 MR. DENNY: Yes, I am, your Honor. The bullet 99.

18 Q Does that appear to you to be a mark that you
19 put on the bullet for some reason?

20 A No, it does not.

21 Q Well, does it appear to be a mark that was not
22 on the bullet at the time it was test fired or do you know?

23 A I don't know. I don't recall any foreign object
24 being on the bullet at the time it was test fired.

25 Q Well, is that the type of mark that you put on
26 a bullet when you're making any kind of marks on a bullet?

27 A No, sir.

28 Q You don't know anything about where that

1 particular mark came from?

2 A I do not.

3 Q What does that mark appear to be to you?

4 A It appears to be ink or paint.

5 Q And blue in color?

6 A Yes, sir.

7 Q All right. Now, sir, going to the photomicro-
8 graphs a moment.

9 You made some photomicrographs with Sergeant
10 Warner pursuant to a court order; is that correct?

11 A Yes, sir.

12 Q And pursuant to what court order?

13 MR. KAY: Irrelevant.

14 MR. DENNY: Well --

15 THE COURT: Sustained.

16 Q BY MR. DENNY: What did you do, then, pursuant
17 to the court order?

18 A Mounted the test and evidence bullet on the
19 stages of the comparison microscope and photographed them.

20 Q What did you photograph?

21 A Views of the bullet or the bullets mounted on the
22 stages of the comparison microscope.

23 Q What views of the bullet mounted on the stages
24 of the comparison microscope?

25 A Views of the entire circumference of the bullet
26 mounted on the stages.

27 Q So that they showed all six land impressions of
28 the test-fired bullet?

A Yes, sir.

1 Q And all of the grooves? Or the groove areas, the
2 groove impressions on the test-fired bullet; is that correct?

3 A Yes, sir.

4 Q And as you took pictures of each of the six land
5 impressions on the test-fired bullet, that bullet was turned
6 (indicating), so that you took one picture for land impression
7 number one; you'd turn it, take land impression number two; is
8 that right?

9 A Yes, sir. This is basically what we did.

10 Q All right. And at the same time, you turned the
11 evidence bullet, People's 31, the same number of degrees
12 (indicating), and took a comparable picture of what would have
13 been comparable to land impression number two, if there were
14 a land impression number two on the bullet?

15 A Yes, sir.

16 Q And you've indicated that there was only one
17 land impression that was evident; is that right?

18 A That was quite visible, yes, sir.

19 Q All right. And then you went around taking land
20 impression three, land impression four, land impression five,
21 land impression six; is that right?

22 A Yes, sir.

23 Q Now, sir, in your experience -- and I think you
24 answered Mr. Kay on this -- is it your experience that the
25 land impression made by one land of a gun will be identically
26 repeated in the land impression made by another land of that
27 same gun, on the same bullet?

28 A No, sir. It's never identical.

16-2

1 Q It is never identical?

2 A No, sir.

3 Q Each land imparts its own unique signature, --

4 A That's correct.

5 Q -- is that right?

6 A Yes, sir.

7 Q All right. So we get it straight, in response
8 to a court order, you made up -- a court order secured by me,
9 I think Mr. Manzella had indicated -- you made up, with -- you
10 took, with Sergeant Warner, photomicrographs of each of the
11 six land impressions of the test bullet fired on March 11th or
12 12th, 1970, compared at the same time with each of the
13 comparable areas on the total circumference of the evidence
14 bullet, People's 31; is that correct?

15 A Yes, sir.

16 Q All right. Now, the photographs, People's 100, that
17 have been marked for identification -- and there are actually
18 seven photographs, but one of them is a duplicate -- number
19 six; is that right?

20 A Yes, sir.

21 Q So setting aside -- is either one of these number
22 sixes better photographically? I think perhaps this one on
23 the right shows the highlights here a little better than the
24 one on the left; is that right?

25 A Perhaps, yes, sir.

26 Q That would be a matter of developing; is that
27 right?

28 A Uh -- no. This was -- the reason there are

16-3

1 duplicates is because there was an attempt made on our part to
2 get better focus.

3 Q All right. So assuming this one, number six, that
4 I have on my right is a little bit better focus, we'll put
5 this number six away; right?

6 A All right.

7 MR. DENNY: All right. Excuse me for turning my back on
8 you.

9 Q All right. Now, then, the photographs, then,
10 numbered one through six, indicate in response to the Court's
11 order, as you've indicated by your testimony, that number one
12 would be essentially number one land impression;

13 Number two would be number two land impression;

14 Number three would be number three land impression;

15 Number four would be number four land impression;

16 Number five would be number five land impression;

17 Number six would be number six land impression;

18 Is that right?

19 A Yes, essentially, that is right.

20 Q All right. And then if you were able to put this
21 on a cylinder, all around (indicating), you would have, with
22 perhaps some overlap, pictures of the entire circumference
23 of the two bullets, where they were photographed; is that
24 correct?

25 A Yes, sir.

26 MR. DENNY: Your Honor, I would request that these be
27 received in evidence at this time so that we may show them to
28 the jurors.

16-4

1 MR. KAY: Well, I think there's a lack of foundation at
2 this point, as to explaining what's in the photograph.

3 THE COURT: It has heretofore been marked?

4 MR. DENNY: They have heretofore been marked People's
5 100 for identification.

6 MR. KAY: That's 100-A through G.

7 THE COURT: Hyphen A through hyphen G, yes.

8 All right. The Court will receive them in
9 evidence.

10 Q BY MR. DENNY: Sergeant Christansen, I have some
11 photographs here, 11-by-14 in size, mounted.

12 Your Honor, may they be marked respectively -- I
13 think it's Defendant's H is next in order -- H-1 through
14 hyphen 6?

15 THE COURT: They may be so marked.

16a fol

1 Q BY MR. DENNY: Showing you Defendant's H-1, is
2 that simply an enlargement of the 8 X 10 of People's 100-A?

3 A Yes, it appears to be.

4 Q All right. And showing you Defendant's H-2,
5 is that simply an enlargement of People's 100-B?

6 A Yes, it appears to be.

7 Q Showing you Defendant's H-3, is that simply an
8 enlargement of People's 100-C?

9 A Yes, it appears to be.

10 Q Showing you Defendant's H-4, does that appear to
11 be simply an enlargement of People's 100-D?

12 A Yes, sir.

13 Q Showing you Defendant's H-5, does that appear to
14 be simply an enlargement of People's 100-E?

15 A Yes, sir.

16 Q Showing you Defendant's H-6, does that appear to
17 be simply an enlargement of People's 100-F?

18 A Yes, sir.

19 MR. DENNY: Your Honor, I would ask that these photo-
20 graphs, Defendant's H-1 through -6, be received in evidence.

21 MR. KAY: No objection.

22 THE COURT: So ordered.

23 MR. DENNY: Your Honor, I'm going to have to bring this
24 blackboard out, because the other stand is not adequate for
25 the job.

26 I wonder, Sergeant Christansen, if you could step
27 down here.

28 Your Honor, I wonder if I may give the jurors

H-1-6 Ev.

1 down at the far end the smaller pictures, the 8 X 10 pictures
2 of the People's Exhibits, while we are working a little bit
3 more closely with the jurors down here with the larger
4 exhibits, --

5 THE COURT: Yes, you may.

6 MR. DENNY: -- for them to look at.

7 MR. KAY: Well, your Honor, may I inquire? Your Honor
8 said that he was probably going to recess at 5:00 tonight.
9 Rather than getting started with this process, maybe we can
10 start in the morning.

11 THE COURT: All right. That seems reasonable. It's
12 a couple of minutes to 5:00 at this time.

13 So we'll recess, ladies and gentlemen, until
14 9:30 tomorrow morning. We will try to start promptly at
15 that time. I will see what I can do about setting aside
16 other bits of my calendar that I must handle each morning.

17 I'll try to set that aside. We will try to
18 start so that we can take a full day of it tomorrow.

19 Remember the admonition that I must give you,
20 and that is to the effect that you are not to discuss this
21 matter among yourselves, nor with anyone else, nor permit
22 anyone else to discuss the case with you, nor to form or
23 express any opinion on the matter until it is finally
24 submitted to you.

25 Good night.

26 (Whereupon, murmurs of "Good night" were heard
27 from the members of the jury.)

28 MR. KAY: Good night, your Honor.

1 (Whereupon, at 4:59 o'clock p.m., an adjournment
2 was taken in this matter until 9:30 o'clock a.m.
3 of the following morning, Thursday, January 27,
4 1972.)
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