

1 RAYMOND D. RAWSON,
2 CALLED AS A WITNESS HEREIN, HAVING BEEN FIRST DULY SWORN,
3 WAS EXAMINED AND TESTIFIED AS FOLLOWS:

4

5 THE COURT: PLEASE HAVE A SEAT OVER HERE, DOCTOR.

6 THE WITNESS: OKAY.

7

8 DIRECT EXAMINATION

9 BY MR. LEVY:

10 Q. PLEASE TELL THE JURY YOUR NAME.

11 A. YES. IT'S RAYMOND D. RAWSON.

12 Q. I'D LIKE TO REFER TO YOUR CURRICULUM VITAE --
13 EXHIBIT 117 FOR IDENTIFICATION -- AND ASK YOU SELECTED
14 PORTIONS OF IT.

15 IS THIS YOUR OFFICE ADDRESS, AT CLARK COUNTY
16 COLLEGE?

17 A. YES, IT IS.

18 Q. IS THAT PART OF THE LAS VEGAS UNIVERSITY SYSTEM?

19 A. YES. IT'S THE UNIVERSITY OF NEVADA SYSTEM.

20 Q. EXCUSE ME. AND IT'S IN LAS VEGAS?

21 A. YES.

22 Q. AND DO YOU HAVE AN ASSOCIATION WITH THE CLARK
23 COUNTY CORONER'S OFFICE?

24 A. YES. I'M A DEPUTY CORONER, CHIEF MEDICAL
25 EXAMINER.

1 Q. AND DO YOU HAVE AN ASSOCIATION WITH THE
2 LEGISLATURE?

3 A. YES, I DO. I'M A STATE SENATOR, IN A ONE SENATOR
4 DISTRICT IN LAS VEGAS.

5 Q. WITH REGARD TO YOUR EDUCATION, WHERE DID IT
6 START?

7 A. COLLEGE DEGREE WAS AT U.N.L.V., THEN CALLED
8 NEVADA NORTHERN. IT WAS A BACHELOR OF SCIENCE IN CHEMISTRY
9 AND ZOOLOGY. AND I WENT FROM THERE TO LOMA LINDA
10 UNIVERSITY DENTAL SCHOOL, IN SOUTH CALIFORNIA, AND RECEIVED
11 MY DENTAL DEGREE. IN 1978, I BELIEVE, I RECEIVED A
12 MASTER'S DEGREE, AND THAT WAS IN PHYSICAL ANTHROPOLOGY,
13 WHICH IS ESSENTIALLY THE ANATOMY OF ANTHROPOLOGY. I THEN
14 FOLLOWED WITH A SPECIALIZED COURSE AT THE ARMED FORCES
15 INSTITUTE OF PATHOLOGY, WHICH I RECEIVED A CERTIFICATE.
16 AND I HAVE TO THINK IF THERE IS ANYTHING ELSE THERE. I
17 HAVE SOME BOARD CERTIFICATIONS THAT HAVE AN EDUCATION
18 COMPONENT WITH THEM.

19 Q. AND WHAT BOARDS?

20 A. THE AMERICAN BOARD OF FORENSIC ODONTOLOGY AND THE
21 AMERICAN BOARD OF ORAL MEDICINE.

22 Q. WITH REGARD TO CERTAIN POSITIONS THAT YOU HAVE
23 HELD, IN 1988 TO THE PRESENT, AS I'M INDICATING, WHAT
24 FACULTY WERE YOU ON?

25 A. ARMED FORCES INSTITUTE OF PATHOLOGY. I DIDN'T

1 PARTICIPATE LAST YEAR BECAUSE WE WERE IN LEGISLATIVE
2 SESSION. AND I'M ALSO AN ADJUNCT FACULTY AT UNIVERSITY OF
3 NEVADA, LAS VEGAS.

4 Q. DID YOU IN 1986-87, WHAT WERE YOU -- WHAT WAS
5 YOUR POSITION WITH REFERENCE TO THE AMERICAN BOARD OF
6 FORENSIC ODONTOLOGY?

7 A. I WAS THE CHAIRMAN OF THAT NATIONAL GROUP.

8 Q. YOU MENTIONED YOU WERE SENATOR OF DISTRICT 6 IN
9 NEVADA?

10 A. YES.

11 Q. AND IN 1985 TO '87 WHAT ACTIVITY DID YOU HAVE
12 WITH THE AMERICAN DENTAL ASSOCIATION?

13 A. I HAVE TO SEE IF I CAN SEE THAT FROM HERE.

14 A. OH, I DID SERVE ON THE EDITORIAL REVIEW BOARD FOR
15 SCIENTIFIC JOURNALS, ONE OF THOSE WAS THE AMERICAN DENTAL
16 ASSOCIATION.

17 Q. FROM 1984 TO THE PRESENT, WHAT'S BEEN YOUR
18 ASSOCIATION WITH NORTHWESTERN UNIVERSITY?

19 A. I HAVE AN ADJUNCT ASSOCIATE PROFESSOR IN ORAL
20 DIAGNOSIS, RADIOLOGY AND FORENSIC DENTISTRY.

21 Q. IN 1984 TO '85 WHAT WERE YOU CHAIRMAN OF?

22 A. THE AMERICAN BOARD OF -- I HAVE TO -- I CAN'T SEE
23 IF THAT'S THE AMERICAN BOARD OF FORENSIC ODONTOLOGY OR IF
24 IT'S THE ODONTOLOGY SECTION OF THE AMERICAN ACADEMY OF
25 FORENSIC SCIENCES.

1 Q. IS THAT BITE MARK STANDARDS COMMITTEE?

2 A. OH, OKAY. I ALSO SERVED A NUMBER OF YEARS AS A
3 MEMBER, AND DURING THAT PERIOD OF TIME AS A CHAIRMAN OF THE
4 BITE MARK STANDARDS COMMITTEE.

5 Q. '82 TO '84, WERE YOU THE CHAIRMAN OF THE
6 ODONTOLOGY SECTION, THE AMERICAN ACADEMY OF FORENSIC
7 SCIENCES?

8 A. YES, I WAS.

9 Q. 1980 TO THE PRESENT, WITH REGARD TO THE
10 UNIVERSITY OF NEVADA, WHAT POSITION AS ADJUNCT PROFESSOR DO
11 YOU HOLD?

12 A. I HAVE AN ADJUNCT FULL PROFESSOR IN THE SCHOOL OR
13 DEPARTMENT OF BIOLOGY.

14 Q. WITH REGARD TO YOUR DEGREES AND A PROFESSORSHIP
15 HERE IN BIOLOGY, DO YOU HAVE A KNOWLEDGE OF HUMAN TISSUE?

16 A. YES, I DO.

17 Q. IS THAT CONSIDERED BIOLOGICAL?

18 A. YES.

19 Q. IN 1980 TO '84, WHAT WAS YOUR ASSOCIATION ON BITE
20 MARK STANDARDS? WAS THAT WITH THE AMERICAN ACADEMY OF
21 FORENSIC SCIENCES?

22 A. YES, IT WAS.

23 Q. FROM 1979 TO THE PRESENT, WITH REGARD TO THE
24 JOURNAL OF FORENSIC MEDICINE AND PATHOLOGY, WHAT IS YOUR
25 POSITION?

1 A. AGAIN, I SERVED ON AN EDITORIAL REVIEW BOARD,
2 SEVERAL JOURNALS, AND THAT WAS ONE OF THOSE ALSO.

3 Q. WITH REGARD TO BEING ON THE STAFF OF THE SUNRISE
4 HOSPITAL IN LAS VEGAS, NEVADA, IN '79 AND '84, WHAT WERE
5 YOU?

6 A. I WAS CHIEF OF THE DENTAL DEPARTMENT AT THAT
7 TIME. I AM STILL ON STAFF, AND I HAVE MAINTAINED MY
8 PRIVILEGES THERE, ALTHOUGH I DON'T ADMIT VERY MANY PATIENTS
9 NOW.

10 Q. WHAT ABOUT THE STAFF OF SOUTHERN NEVADA MEMORIAL
11 HOSPITAL IN LAS VEGAS?

12 A. I HAVE LET THAT STAFF PRIVILEGE GO. THEY ARE A
13 PUBLIC FUNDED UNIVERSITY HOSPITAL. AND THEY DON'T REALLY
14 HAVE A DENTAL PROGRAM GOING RIGHT NOW.

15 Q. IN 1976 TO THE PRESENT WITH REGARD TO THE
16 CORONER'S OFFICE, WHAT DO YOU DO?

17 A. WELL, AS THE DEPUTY CORONER, I'M FULLY SWORN AND
18 CAN DO ANYTHING FROM EVIDENCE SEARCHES, PROPERTY
19 ACCOUNTING, TO EXAMINATIONS. AS A CHIEF DENTAL EXAMINER,
20 I'VE -- I'M IN CHARGE OF THE MASS DISASTER PLAN, IDENTIFY
21 ALL THE PEOPLE THAT WERE IN THE MGM GRAND HOTEL FIRE.

22 Q. DOES THAT INCLUDE EXAMINATION OF BODIES FOR BITE
23 MARKS?

24 A. YES.

25 Q. ADULTS AND CHILDREN?

1 A. YES.

2 Q. MALES AND FEMALES?

3 A. YES, BOTH.

4 Q. HAVE YOU HAD A GOOD DEAL OF EXPERIENCE JUST WITH
5 THE CORONER'S OFFICE IN BITE MARK IDENTIFICATION?

6 A. YES. WE HAVE NUMEROUS BITE MARKS THAT ARE SEEN
7 THERE.

8 Q. AND BASED UPON YOUR EXPERIENCE WITH THE CORONER'S
9 OFFICE, WHAT TYPE OF ACTIVITIES ARE BITE MARKS OFTENTIMES
10 ASSOCIATED WITH?

11 A. WELL, I HAVE SPENT A FAIR AMOUNT OF TIME STUDYING
12 THIS, JUST BECAUSE OF INTEREST IN IT. THERE'S A HIGH
13 CORRELATION BETWEEN BITING ACTIVITY AND SEX CRIMES, BITING
14 ACTIVITY AND FIGHTING.

15 Q. HAVE YOU ALSO SEEN THEM IN HOMICIDE CASES -- IN
16 1968 TO THE PRESENT -- WITH REGARD TO THE PRACTICE OF
17 DENTISTRY? WHAT IS YOUR -- WHAT IS YOUR PRACTICE?

18 A. I STARTED PRACTICE IN 1968 IN THE PRIVATE
19 PRACTICE OF DENTISTRY, AND I HAVE MAINTAINED SOME PRIVATE
20 PRACTICE THROUGHOUT.

21 Q. HAVE YOU CONSULTED TO VARIOUS AGENCIES?

22 A. YES.

23 Q. DOES THAT INCLUDE THE VERNAL DISTRICT ATTORNEY IN
24 '85?

25 A. YES.

1 Q. AND DID IT ALSO INCLUDE THE GLENDALE, WISCONSIN
2 DISTRICT ATTORNEY?

3 A. YES.

4 Q. HAVE YOU CONSULTED TO THE EDITORIAL BOARD OF THE
5 JOURNAL OF THE AMERICAN DENTAL ASSOCIATION IN '85 THROUGH
6 '87?

7 A. YES.

8 Q. HAVE YOU CONSULTED WITH THE SEATTLE DISTRICT
9 ATTORNEY IN '85?

10 A. YES.

11 Q. AND IN '84, DID YOU CONSULT WITH THE VENTURA
12 COUNTY DISTRICT ATTORNEY?

13 A. YES.

14 Q. WHAT KINDS OF CONSULTING DID YOU DO?

15 A. ALL OF THOSE WERE ASSOCIATED WITH BITE MARKS,
16 EXCEPT THE EDITORIAL REVIEW BOARD. THAT ALSO DEALT WITH
17 ARTICLES ON BITE MARKS, BUT THE OTHERS WERE ACTUAL CASES
18 THAT THEY HAD CONCERN ABOUT.

19 Q. HOW ABOUT -- WHAT WAS YOUR ACTIVITY IN CONSULTING
20 WITH THE NEVADA STATE BOARD OF DENTAL EXAMINERS IN '90 --
21 '82 THROUGH '91?

22 A. THEY WERE ISSUES OF PEER REVIEW AND LICENSURE.
23 THERE WERE VARIOUS ACTIONS THAT WERE DIRECTED TOWARDS
24 REMOVING LICENSURE FROM CERTAIN DENTISTS, AND I DID REVIEW
25 CASES FOR THE BOARD.

1 Q. WHAT CONSULTING DID YOU DO FOR PINAL COUNTY --
2 WE CALL THEM DEPUTY COUNTY ATTORNEYS; YOU MENTIONED
3 DISTRICT ATTORNEY, IN 1980.

4 A. THAT WAS WHAT WAS TOLD TO ME TO BE A SENSATIONAL
5 CAR ACCIDENT WHERE AN INDIVIDUAL HAD HIT THE DASHBOARD, AND
6 BY DEMONSTRATING WHO HIT THE DASHBOARD AND WHAT POSITION
7 THEY HIT, THEY WERE ABLE TO DETERMINE WHO WAS DRIVING THE
8 CAR. THERE WERE SOME FATALITIES OUT OF IT.

9 Q. DOES THAT HAVE SOMETHING TO DO WITH IDENTIFICATION?

10 A. YES.

11 Q. AND NYE COUNTY DISTRICT ATTORNEY, YOU CONSULTED
12 WHAT ISSUE THERE?

13 A. THAT WAS BITE MARK CASE. I BELIEVE THAT IS
14 THE -- LET'S SEE. IT WAS NOT THE PRECEDENCE CASE, BUT IT
15 WAS AN EARLY CASE IN NEVADA.

16 Q. HOW ABOUT IN 1978, HAVE YOU CONTINUOUSLY BEEN
17 CONSULTING WITH THE CLARK COUNTY DISTRICT ATTORNEY?

18 A. YES.

19 Q. WHAT TYPES OF CASES?

20 A. THAT ALSO WAS AN EARLY CASE IN NEVADA, AND THAT
21 MAY ALSO BE THE PRECEDENCE CASE.

22 Q. AND WITHOUT GOING OVER WHAT YOU HAVE HELD IN 1977
23 TO THE PRESENT, THE MASS DISASTER PROGRAM WITH THE CLARK
24 COUNTY CORONER'S OFFICE, WHAT DOES THAT HAVE TO DO WITH
25 WITH DENTAL IDENTIFICATION?

1 A. WELL, AS THE CHIEF DENTAL OFFICER, I'M
2 RESPONSIBLE FOR THE DENTAL IDENTIFICATION OF ANY VICTIMS OF
3 A MASS DISASTER. WE HAVE A PLAN AND GO THROUGH AN EXERCISE
4 TO KEEP PEOPLE TUNED AND CURRENT ON THE METHODS OF
5 IDENTIFYING PEOPLE FROM THEIR TEETH.

6 Q. WHAT PROFESSIONAL ORGANIZATIONS DO YOU BELONG TO?

7 A. MANY OF THEM, BUT THE AMERICAN ACADEMY OF
8 FORENSIC SCIENCES, AMERICAN BOARD OF FORENSIC ODONTOLOGY,
9 AMERICAN DENTAL ASSOCIATION, AND IT HAS VARIOUS COMPONENTS.
10 I THINK -- OH, FEDERATION DENTAIRE INTERNATIONALE -- I
11 NOTICED WHEN I CAME DOWN FOR THIS I HAVE A DUE STATEMENT ON
12 MY DESK FROM HOME. SO I DON'T KNOW HOW THAT WILL SHOW
13 TODAY, IF I'M IN OR OUT. IT'S AN INTERNATIONAL
14 ORGANIZATION THAT'S AVAILABLE FOR DENTISTS.

15 Q. JUST WITH REGARD TO ONE HONOR, WHAT DOES IT MEAN
16 FACULTY AWARD OF MERIT, CLARK COUNTY COMMUNITY COLLEGE,
17 SPRING OF '89?

18 A. IT'S AN AWARD GIVEN TO OUTSTANDING FACULTY, AND
19 ONLY A CERTAIN PERCENTAGE OF FACULTY CAN RECEIVE THEM.

20 Q. IS THIS IN THE AREA OF TEACHING OR
21 ADMINISTRATION?

22 A. TEACHING.

23 Q. WHAT IS YOUR -- WHAT DO YOU TEACH THERE?

24 A. I TEACH IN A DENTAL HYGIENE PROGRAM, AND I TEACH
25 A VARIETY OF COURSES, BUT RADIOLOGY, ORAL PATHOLOGY,

1 ANESTHESIA. THE BASIC ORAL BIOLOGY, PHARMACOLOGY.

2 Q. WITH REGARD TO LECTURES AND RESEARCH
3 PRESENTATIONS, IN 1991, AND IN PRIOR YEARS, HAVE YOU GIVEN
4 BITE MARK CASE MANAGEMENT SEMINARS TO NORTHWESTERN
5 UNIVERSITY?

6 A. YES. WE'VE GIVEN, I THINK, LAST YEAR WAS OUR
7 10TH ANNIVERSARY OF A POST-DOCTORAL COURSE FOR DENTISTS IN
8 BITE MARKS, BITE MARK TECHNOLOGY, AND TECHNIQUES. AND IT'S
9 A COMPLEX COURSE THAT'S BEEN GIVEN AT NORTHWESTERN AND
10 DRAWS PEOPLE FROM ALL OVER THE COUNTRY.

11 Q. IN 1987 DID YOU GIVE A LECTURE, SEMINAR, ON
12 CLASSIFICATION OF BITE MARKS TO THE AMERICAN ACADEMY OF
13 FORENSIC SCIENCES?

14 A. YES.

15 Q. IN 1986 WHAT WAS THE MASS DISASTER SYMPOSIUM
16 BEFORE THE AMERICAN DENTAL ASSOCIATION IN CHICAGO?

17 A. THIS IS WHEN I WAS CHAIRMAN OF THE AMERICAN BOARD
18 OF FORENSIC ODONTOLOGY. AND WE ORGANIZED A SPECIAL
19 THREE-DAY SEMINAR IN CHICAGO. THE AMERICAN BOARD AND THE
20 AMERICAN DENTAL ASSOCIATION CAME TOGETHER TO SPONSOR THIS.
21 THEY -- WE BROUGHT IN, OH, MAYBE 300 EXPERTS FROM ALL OVER
22 THE COUNTRY. THE F.A.A. EVERYONE THAT WAS INVOLVED WITH
23 MASS TRANSPORTATION AND POTENTIAL CATASTROPHE AND
24 ESSENTIALLY DEVELOPED A PROTOCOL OR A FORMAT FOR HANDLING
25 MASS DISASTER IN THE FUTURE.

1 Q. IN 1985 YOU GAVE AN ORIGINAL PAPER ON DISTORTION
2 ANALYSIS TO THE AMERICAN BOARD OF FORENSIC ODONTOLOGY; IS
3 THAT CORRECT?

4 A. YES.

5 Q. WHAT DO YOU MEAN BY DISTORTION ANALYSIS?

6 A. I HAVE BEEN INVOLVED FOR MANY -- 12 OR 14 YEARS
7 IN LOOKING AT THE ISSUE OF DISTORTION, AND THIS WAS A PAPER
8 THAT BROUGHT SOME OF THOSE POINTS OUT TO ALL OF THE MEMBERS
9 OF THE ACADEMY AND OF THE BOARD. AND IT'S SIMPLY PUT ON
10 THE TABLE, SOME OF THE ISSUES THAT WE NEED TO BE ABLE TO
11 ANALYZE. OUT OF THAT HAS COME A -- OH, A LOT OF WORK THAT
12 HAS REALLY FURTHERED OUR SCIENCE.

13 ONE THING WAS A SPECIAL SCALE THAT WE DEVELOPED
14 SO THAT WE CAN READ DISTORTION, UNDERSTAND IT, AND EVEN
15 CORRECT FOR IT.

16 Q. I HAVE -- I'M HOLDING UP A SCALE THAT DR. PIAKIS
17 UTILIZED IN HIS TESTIMONY. IS THIS WHAT YOU'RE TALKING
18 ABOUT?

19 A. YES, THAT'S CALLED A.B.F.O. NUMBER 2. IT'S THE
20 AMERICAN BOARD OF FORENSIC ODONTOLOGY SCALE NUMBER 2, AND I
21 DESIGNED SCALE NUMBER 1, WHICH WAS USED SHORT-TERM. GAVE
22 US THE IDEA AND THE VERIFICATION TO BE ABLE TO BUILD THE
23 SECOND SCALE.

24 Q. AND SO YOU'RE FAMILIAR WITH DISTORTION AND ITS
25 COMPONENTS?

1 A. YES.

2 Q. WHAT -- AND TO THE NEVADA CRIMINALISTS, IN 1985,
3 YOU GAVE A LECTURE ON FORENSIC ODONTOLOGY. WHAT DID THAT
4 INVOLVE?

5 A. THAT WAS RECOGNITION OF BITE MARK INJURIES IN
6 CHILDREN AND RAPE SUSPECTS, AND THE PROPER HANDLING OF THE
7 EVIDENCE SO THAT IT WOULDN'T BE WASTED.

8 Q. IN 1985 YOU GAVE A LECTURE IN CAT SCANING AS AN
9 AID TO BITE MARK INVESTIGATIONS. WHAT WAS THAT ABOUT?

10 A. CAT SCANNING IS KIND OF A SOPHISTICATED
11 TECHNOLOGY FOR MEDICINE. BUT IT ALSO LENDS ITSELF TO SOME
12 DENTAL PROCEDURES, AND WE'RE ABLE TO USE A CAT SCANNING
13 DEVICE TO RECORD PRECISELY THE BITING EDGES OF THE TEETH.
14 AND I PIONEERED THAT TECHNIQUE, AND THEN REPORTED ON IT AT
15 THAT MEETING.

16 Q. NOW, IN 1984 YOU GAVE A POST-DOCTORAL
17 PRESENTATION ON BITE MARK TECHNIQUES AND RESEARCH
18 DIRECTIONS AT NORTHWESTERN UNIVERSITY. WHAT DO YOU MEAN BY
19 POST-DOCTORAL PRESENTATION?

20 A. THIS -- ONE OF THE PREREQUISITES TO GET INTO THAT
21 COURSE WAS TO BE A GRADUATE DENTIST, HAD TO HAVE A
22 DOCTORATE DEGREE.

23 Q. SO IT IS AN ADVANCED STUDY OF BITE MARK
24 TECHNIQUES AND ANALYSIS?

25 A. YES.

1 Q. WHAT DID YOU DO IN 1984 BY WAY OF BITE MARK
2 STANDARDS BEFORE THE AMERICAN ACADEMY OF FORENSIC SCIENCE?
3 WHAT DO YOU MEAN BY STANDARDS IN BITE MARKS?

4 A. WELL, PART OF DEALING WITH THE STANDARDS
5 COMMITTEE WAS TO DEVELOP WHAT NOW IS REFERRED TO AS
6 GUIDELINES FOR FORENSIC DENTISTS. AND WE'VE CONCENTRATED
7 ON ISSUES OF EVIDENCE COLLECTION, PHOTOGRAPHY, TISSUE
8 PRESERVATION. THERE'S A NUMBER OF OTHER ITEMS, AND THIS
9 HAS DEVELOPED A GUIDELINE FOR FORENSIC DENTISTS TO KIND OF
10 CHECK OFF AS THEY ARE DOING A CASE. IT'S RARE THAT
11 EVERYTHING IN THE GUIDELINES CAN BE FOLLOWED, BUT IT'S AN
12 IDEAL SITUATION.

13 Q. IN 1984 IS THAT ABOUT THE SAME AS THE BITE MARK
14 WORKSHOP BEFORE THE AMERICAN BOARD OF ODONTOLOGY?

15 A. WELL, IT'S AT THE SAME TIME AND IT'S SOME OF THE
16 SAME PEOPLE WERE WORKING ON IT AND THE PRODUCTS ALL RELATED
17 TOGETHER. IT WAS AN EXTREMELY PRODUCTIVE TIME IN OUR
18 FIELD. IT'S KIND OF A NEW FIELD, AND MANY OF THE
19 GUIDELINES AND STANDARDS WERE BEING LAID DOWN AT THAT TIME.
20 THERE WAS A CORE OF VERY INTERESTED, CAPABLE PEOPLE THAT
21 WERE EXCITED ABOUT FURTHERING THE FIELD, AND THAT'S ONE OF
22 THE PRODUCTS OF THAT TIME.

23 Q. IN 1983 ON THE PROPOSED METHOD OF CLASSIFICATION
24 OF BITE MARKS BEFORE THE AMERICAN ACADEMY OF FORENSIC
25 SCIENCES IN OHIO, WAS THIS A -- FURTHER PRELIMINARY WORK

1 THAT YOU DID WITH REGARD TO YOUR LATER STANDARDS?

2 A. YES. WE'VE ESSENTIALLY PUT THE ISSUE OF LOOKING
3 AT BITE MARK INJURIES INTO THE SAME CATEGORY THAT AN ORAL
4 PATHOLOGIST, THAT A PHYSICIAN, WOULD CLASSIFY ANY WOUND, SO
5 WE'RE ABLE TO LOOK AT BITE WOUNDS, AND IF WE TALK IN TERMS
6 OF A CLASS 2 BITE OR A BITE WITH ERYTHEMA THAT MEANS
7 SOMETHING TO ANOTHER FORENSIC DENTIST.

8 Q. WHAT DO YOU MEAN BY WHEN YOU GAVE A SEMINAR ON
9 STATISTICAL EVIDENCE ON THE INDIVIDUALITY OF THE HUMAN
10 DENTITION BEFORE THE AMERICAN ACADEMY OF FORENSIC SCIENCES
11 IN OHIO?

12 A. THERE WAS AN ASSUMPTION THAT TEETH WERE UNIQUE,
13 THAT THERE WERE NO TWO SETS OF TEETH ALIKE AND THERE ARE
14 CASES THAT GO BACK INTO THE 15, 1600'S WHERE THEY BEGAN TO
15 IDENTIFY PEOPLE BY TEETH, AND THEY JUST ASSUMED THAT THE
16 HUMAN DENTITION IS UNIQUE.

17 KAISER NIELSEN DID SOME PRELIMINARY STATISTICAL
18 WORK IN SCANDINAVIA, BUT THERE WAS NO REAL BODY OF
19 KNOWLEDGE ON THAT, AND SO I STARTED A NATIONWIDE STUDY
20 WHERE WE SAMPLED THE GENERAL POPULATION, HAD THEM BITE INTO
21 WAX AND THEN ALL OF THOSE BITES WERE ANALYZED, COMPUTER
22 ANALYZED, AND WE ENDED UP WITH A BASE OF STATISTICS THAT
23 COULD TELL US ARE THERE TWO SETS OF DENTITION ALIKE, AND
24 THERE AREN'T. THEY ARE ALL UNIQUE AND IDENTIFIABLE.

25 WE PURSUED THAT WITH A FURTHER STUDY OF TWINS,

1 WHERE WE SELECTED IDENTICAL TWIN PAIRS AT U.C.L.A. AND THEN
2 STUDIED THEIR DENTITION VERY CLOSELY WITH A COMPUTER, AND
3 WE WERE ABLE TO DISTINGUISH ALL OF THE TWIN PAIRS FROM EACH
4 OTHER. IN OTHER WORDS, THERE ARE NO TWO SETS OF TEETH THAT
5 ARE EXACTLY ALIKE.

6 Q. EVEN IN IDENTICAL TWINS?

7 A. THAT'S CORRECT.

8 Q. WHAT KIND OF FORENSIC DENTAL IDENTIFICATION DID
9 YOU DO AS PART OF THE GENERAL STAFF AT SUNRISE HOSPITAL IN
10 LAS VEGAS?

11 A. THAT WAS WHAT YEAR? 1980?

12 Q. '80.

13 A. THAT WAS PROBABLY ASSOCIATED WITH MASS DISASTER
14 TYPE OF IDENTIFICATION, AND I CAN'T REMEMBER IF THAT'S JUST
15 BEFORE OR JUST AFTER THE MGM, BUT IT WAS PART OF AN EFFORT
16 TO HAVE A GENERAL BODY OF DENTISTS THAT WERE CAPABLE OF
17 BEING ABLE TO DO IDENTIFICATION WORK.

18 Q. WHAT TYPE OF SEMINAR IN '79 DID YOU GIVE ON
19 IDENTIFICATION OF BITE MARKS IN CRIMINAL CASES TO THE
20 INTERNATIONAL ASSOCIATION OF CORONERS AND MEDICAL EXAMINERS
21 IN LAS VEGAS?

22 A. THAT WAS A MEETING OF -- I'M NOT SURE, MAYBE 500
23 OR MAYBE A THOUSAND MEDICAL EXAMINERS, AND IT WAS A REVIEW
24 OF BEING ABLE TO RECOGNIZE BITE MARK EVIDENCE. THERE ARE
25 MANY KINDS OF WOUNDS THAT, YOU KNOW, INSTRUMENTS THAT CAN

1 LEAVE A PATTERN ON THE BODY. MEDICAL EXAMINERS ARE USED TO
2 SEEING PATTERNED INJURIES. BUT THEY HADN'T REALLY BEEN
3 TUNED IN TO LOOKING FOR BITE MARKS VERY MUCH. AND SO WAS
4 A -- ABOUT AN HOUR OR TWO SESSION WITH THOSE MEDICAL
5 EXAMINERS, DEMONSTRATING HOW TO RECOGNIZE BITE MARKS.

6 Q. IF MEDICAL EXAMINERS WERE NOT FAMILIAR WITH IT,
7 HAVE YOU HAD ANY EXPERIENCE IN YOUR VARIOUS PRESENTATIONS,
8 LECTURES, AND TEACHINGS WITH WHETHER THE STUDENTS THAT YOU
9 TAUGHT AT UNIVERSITY, AND SO FORTH, WERE PARTICULARLY USED
10 TO THE IDEA OF BITE MARKS AND THE UNIQUENESS OF THEM?

11 A. I'VE TAUGHT ADVANCED PHYSICAL ANTHROPOLOGY
12 CLASSES WHERE I HAVE TAKEN STUDENTS THROUGH VARIOUS
13 EXERCISES, AND I THINK THEY HAVE ALL HAD TO BE -- HAD TO BE
14 SHOWN HOW THE TEETH ARE UNIQUE. SOME STARTED WITH A
15 FEELING THAT THEY WERE, AND SOME DIDN'T KNOW, BUT I HAVE
16 TAKEN THEM THROUGH EXAMPLES OF REALLY DETERMINING THAT.

17 ACTUALLY STARTED WITH A CLASS IN THE NATIONAL
18 SURVEY OF DENTITION. WE STARTED WITH A CLASS ONE YEAR AND
19 HAD THEM SAMPLE EACH OTHER, AND WE DEVELOPED OUR SAMPLING
20 TECHNIQUES WITH THAT CLASS. SO SOME OF THEM WERE
21 INSTRUMENTAL IN THE VERY BEGINNING PHASES OF IT.

22 Q. IN 1979 YOU GAVE A LECTURE ON TRANSILLUMINATION
23 AND IMAGE INTENSIFICATION OF BITE MARKS AT THE AMERICAN
24 ACADEMY OF FORENSIC SCIENCES AT ST. LOUIS. WHAT DO YOU
25 MEAN BY THAT?

1 A. ONE OF THE DIFFICULTIES IN DEMONSTRATING BITE
2 MARK EVIDENCE IS TO TRY TO PHOTOGRAPH IT OR RECORD IT IN A
3 WAY THAT OTHER PEOPLE CAN SEE WHEN YOU ACTUALLY LOOK AT IT.
4 AND WE USE STANDARD PHOTOGRAPHY. BUT ANOTHER APPROACH IS
5 TO SHINE LIGHT BEHIND THE TISSUE AND THEN PHOTOGRAPH IT AND
6 THEN IT GIVES -- YOU CAN SEE DIFFERENT DETAILS IN IT THAT
7 YOU OFTEN CAN'T SEE WITH NORMAL PHOTOGRAPHY.

8 THE IMAGE INTENSIFICATION WAS TO USE A STARLIGHT
9 SCOPE, AND I INJECTED A GLOWING SOLUTION UNDERNEATH THE
10 TISSUE SO THAT THERE WAS A FAINT GLOW TO THE TISSUE AND
11 THEN USED AN IMAGE INTENSIFIER TO PHOTOGRAPH THAT, AND IT
12 WAS STARTLING, IN THE DETAIL THAT IT BROUGHT OUT. THERE
13 WERE SOME DISTORTION PROBLEMS BECAUSE OF THE INACCURACY OF
14 IMAGE INTENSIFIERS, BUT IT -- IT WAS KIND OF A BOLD NEW WAY
15 TO LOOK AT IT, AND WE SAW THINGS THAT WE HAD NEVER SEEN
16 BEFORE.

17 Q. HAVE YOU USED VARIOUS INSTRUMENTS, EITHER AIDS OR
18 TO OBTAIN THE EVIDENCE, BY WAY OF STILL CAMERAS, MOVIE OR
19 VIDEO CAMERAS, OTHER INSTRUMENTS, CAT SCAN, AND SUCH
20 INSTRUMENTS AS THAT?

21 A. I HAVE TRIED TO ADAPT TO ANY TECHNOLOGY THAT I
22 WAS FAMILIAR WITH, TO RECORDING THE EVIDENCE ASSOCIATED
23 WITH BITE MARKS.

24 Q. DOES THAT INCLUDE STILL PHOTOGRAPHY?

25 A. YES. AND VIDEO PHOTOGRAPHY.

1 Q. AND HAVE YOU DONE THAT IN THE PAST AND MADE
2 EITHER TEACHING PRESENTATIONS OR TO ASSIST THE COUNTY
3 ATTORNEYS FOR CASE WORKUPS?

4 A. YES, YES, I HAVE.

5 Q. WITH REGARD TO PROFESSIONAL MEETINGS AND
6 CONTINUING EDUCATION, JUST IN GENERAL, HAVE YOU KEPT UP IN
7 FORENSIC SCIENCE, ORAL MEDICINE, FORENSIC ODONTOLOGY,
8 RADIOLOGY, BITE MARK TYPE EVIDENCE AND THAT SORT OF THING?

9 A. WE HAVE A GENERAL REQUIREMENT OF 12 CONTINUING
10 EDUCATION HOURS A YEAR TO MAINTAIN OUR LICENSE, AND I
11 USUALLY SURPASS THAT BY 40 OR 50 HOURS. SO I'M FAIRLY
12 ACTIVE IN CONTINUING EDUCATION PROGRAMS.

13 Q. DOES THIS CURRICULUM VITAE SHOW ALL OF THE MOST
14 RECENT THINGS? I THINK YOU HAVE US FROM ABOUT 19 -- WELL,
15 1990, BUT IS IT --

16 A. IT'S -- I'M IN THE PROCESS OF UPDATING IT RIGHT
17 NOW. I HAVE ADDED A NUMBER OF THINGS THAT I HAVE BEEN
18 INVOLVED IN OR THAT I HAVE ATTENDED. AND -- BUT IT'S
19 REPRESENTATIVE OF THE TYPE OF THINGS THAT I'M STILL
20 INVOLVED IN.

21 Q. FOR EXAMPLE, MEDICOLEGAL INVESTIGATION OF DEATH,
22 UNIVERSITY OF NEW MEXICO, IN 1976, HAVE YOU KEPT UP YOUR
23 PROFESSIONAL INTEREST AND CREDENTIALS AND THAT SORT OF
24 THING?

25 A. YES. AND THAT WAS ONE OF THOSE EARLY COURSES TO

1 TRY TO GAIN AS MUCH KNOWLEDGE AS I COULD FROM AS MANY
2 DIFFERENT SOURCES AS I COULD. CURRENTLY I PROBABLY
3 RESEARCH AND WRITE OR SHARE INFORMATION AS MUCH AS I GATHER
4 FROM OTHER PEOPLE.

5 Q. I TAKE IT YOU PUBLISH?

6 A. YES.

7 Q. AND SOME OF THE PUBLICATIONS, A REVIEW OF BITE
8 MARK EVIDENCE, IN THE J.A.D.A., 1979. DID YOU CONTRIBUTE
9 TO THAT JOURNAL WITH REGARD TO BITE MARK EVIDENCE?

10 A. THAT'S WHAT THEY REFER TO A PREMIUM OR PREMIERE
11 ISSUE AND THE AMERICAN DENTAL ASSOCIATION ASKED ME TO WRITE
12 THAT ARTICLE.

13 Q. SO THAT'S THE JOURNAL OF AMERICAN DENTAL
14 ASSOCIATION?

15 A. YES. SO THE EDITOR SOLICITED ME TO WRITE THAT,
16 AND IT WAS AN ENTIRE VOLUME, AND THIS WAS A REVIEW TO PUT
17 INTO UNDERSTANDABLE TERMS FOR THE AVERAGE DENTIST SO THEY
18 COULD UNDERSTAND THE SCOPE OF BITE MARK ANALYSIS OR BITE
19 MARK TECHNOLOGY.

20 Q. THE PUBLICATION, THE JOURNAL OF FORENSIC SCIENCES
21 IN 1979, RADIOGRAPHIC INTERPRETATION OF CONTRAST MEDIA,
22 ENHANCED BITE MARKS, HAVE YOU -- HAS ANY OF THAT TYPE
23 RESEARCH AND STUDY SHOWN UP IN YOUR INVESTIGATION OF THIS
24 CASE WITH REGARD TO VICTIM KIM ANCONA AND DEFENDANT RAY
25 KRONE?

1 A. NO. I DIDN'T USE THE CONTRAST ENHANCEMENT.
2 THAT'S A -- THAT'S A COMPLICATED WAY OF SAYING A MAMMOGRAM.
3 ONLY IT'S A SPECIAL TYPE OF MAMMOGRAPHY THAT WE USE FOR
4 TISSUE, AND IF WE'RE -- IF WE HAVE A PIECE OF FLAT TISSUE
5 AND ARE ABLE TO FLOW AN IODINE SOLUTION OVER IT AND THEN
6 SUBJECT IT TO THE MAMMOGRAPHY OR WHAT WE CALL ZERO
7 RADIOGRAPHY, THEN IT USES AN IMAGE OF THE BITE PATTERN THAT
8 CAN'T REALLY BE RECORDING IT ANY OTHER WAY BECAUSE IT'S
9 RECORDING IT THROUGH THE VARIOUS TISSUES. IT DIDN'T LEND
10 ITSELF TO THIS TISSUE.

11 Q. BUT IN ANY EVENT, YOU HAVE DONE RESEARCH WITH THE
12 FEMALE BREASTS AND BITE MARKS?

13 A. YES.

14 Q. ON THE ARTICLE IN 1984, STATISTICAL EVIDENCE FOR
15 THE INDIVIDUALITY OF THE HUMAN DENTITION, DID YOU DO SOME
16 STATISTICAL RESEARCH?

17 A. THAT'S THE PUBLICATION OF THE NATIONWIDE STUDY TO
18 GET A POPULATION SAMPLING OF PEOPLE'S TEETH FROM ALL OVER
19 THE COUNTRY AND THEN ANALYZE IT CAREFULLY TO SEE WHAT KINDS
20 OF VARIATION OR WHAT KINDS OF SIMILARITY WE HAD IN THE
21 COUNTRY.

22 Q. DID YOU PUBLISH AN ARTICLE AT THE AMERICAN
23 ACADEMY OF FORENSIC SCIENCES IN '83 DEALING WITH A METHOD
24 OF CLASSIFYING DISTORTION AND BITE MARKS?

25 A. YES. I'M JUST TRYING TO SEE IF THAT WAS IN THE

1 ABSTRACTS. IF THAT WAS --

2 Q. IT SAYS ABSTRACTS.

3 A. OKAY. THAT WAS A PRESENTATION, A SLIDE
4 PRESENTATION, THAT I DEMONSTRATED TO THE ACADEMY THAT IS
5 WRITTEN UP IN SHORT.

6 Q. SO, AGAIN, YOU'RE FAMILIAR WITH DISTORTION IN
7 BITE MARKS?

8 A. YES.

9 Q. NOW, DID YOU WRITE THE MORPHOLOGICAL
10 CHARACTERISTICS OF THE HUMAN BREAST IMPORTANT TO BITE MARK
11 INVESTIGATORS, TO THE AMERICAN ACADEMY OF FORENSIC
12 SCIENCES; AGAIN IT'S ABSTRACTS?

13 A. YES. I COAUTHORED THAT ARTICLE, AND THAT WAS
14 GIVEN AS A PRESENTATION AT THE AMERICAN ACADEMY, BUT IT WAS
15 ALSO PUBLISHED AS A FULL ARTICLE BEHIND THAT, AND THE
16 COAUTHOR WAS ONE OF -- I GUESS MY MENTOR OR TEACHER IN
17 PHYSICAL ANTHROPOLOGY, SO WE STUDIED THIS IN DETAIL SO THAT
18 IT WOULD BE USEFUL NOT ONLY TO FORENSIC DENTISTS BUT THAT
19 IT WOULD BE USEFUL IN THE FIELD OF PHYSICAL ANTHROPOLOGY.

20 Q. YOU EARLIER MENTIONED DOING A COMPUTERIZED STUDY
21 OF BITE MARK STUDIES IN THE GENERAL POPULATION, AND I TAKE
22 IT IN '79 YOU ACTUALLY WROTE -- AUTHORED A STUDY ON THAT?

23 A. YES.

24 Q. FOR THE AMERICAN ACADEMY OF FORENSIC SCIENCES?

25 A. YES.

1 Q. AND --

2 A. THAT WAS BOTH PUBLISHED, AND IT'S BEEN PRESENTED
3 TO THE GENERAL BODY OF THE ACADEMY.

4 Q. AND WHAT DID YOU FIND OUT AS TO THE UNIQUENESS OR
5 INDIVIDUALITY OF EACH HUMAN DENTITION?

6 A. WELL, THE HUMAN DENTITION IS UNIQUE IN THAT YOU
7 SIMPLY NEED TO LOOK AT ENOUGH TEETH CLOSELY ENOUGH TO BE
8 ABLE TO DISTINGUISH BETWEEN ANY TWO SETS OF TEETH.

9 Q. AND DID YOU AUTHOR AN ARTICLE WITH REGARD TO
10 ANALYSIS OF PHOTOGRAPHIC DISTORTION IN BITE MARKS, AND ARE
11 YOU -- IN 1986, FOR THE JOURNAL OF FORENSIC SCIENCES. ARE
12 YOU FAMILIAR WITH PHOTOGRAPHIC DISTORTION AND BITE MARKS?

13 A. YES. I WORKED EXTENSIVELY WITH IT AND BOTH ON
14 THE BITE MARK GUIDELINES COMMITTEE AND THE RESEARCH
15 COMMITTEE THAT WAS INSTALLED BEFORE THAT, AND I HAVE WORKED
16 ON IT SINCE.

17 Q. YOU AUTHORED SOMETHING WITH REGARD TO GUIDELINES
18 FOR BITE MARK ANALYSIS IN FORENSIC INVESTIGATION. YOU
19 EARLIER MENTIONED ESTABLISHING GUIDELINES; IS THAT CORRECT?

20 A. YES. THIS IS AN ARTICLE THAT CAME OUT IN THE
21 JOURNAL OF THE AMERICAN DENTAL ASSOCIATION, SO IT GOES TO
22 THE GENERAL MEMBERSHIP OF DENTISTS IN THE COUNTRY, MAYBE
23 ONE HUNDRED FIFTY OR SIXTY THOUSAND. IT WAS A COAUTHORED
24 ARTICLE WITH THE OTHER MEMBERS OF THE BITE MARK GUIDELINES
25 COMMITTEE. AND SO IT'S DR. VALE, DR. HERSCHAFT, DR.

1 SPERBER, AND MYSELF.

2 Q. ARE YOU CURRENTLY AUTHORING A TEXTBOOK ON BITE
3 MARK EVIDENCE, ITS LEGAL AND SCIENTIFIC FOUNDATION?

4 A. YES.

5 Q. BUT IT'S NOT COMPLETE?

6 A. NO.

7 Q. WHERE ARE YOU LICENSED TO PRACTICE DENTISTRY?

8 A. I HAVE A NATIONAL BOARD -- WHAT DO THEY CALL IT?

9 I GUESS IT'S A CERTIFICATE FROM THE NATIONAL BOARD. I'M
10 LICENSED IN CALIFORNIA AND LICENSED IN NEVADA.

11 Q. WHEN WERE YOU LICENSED RESPECTIVELY IN THOSE
12 STATES?

13 A. IN 1968.

14 Q. AND ARE YOU A DIPLOMATE IN THE AMERICAN BOARD OF
15 FORENSIC ODONTOLOGY?

16 A. YES, SIR.

17 Q. AND HOW ABOUT ORAL MEDICINE?

18 A. AND THE SAME THING. AND WE'RE REFERRED TO AS
19 BEING FELLOWS OR DIPLOMATES, BEING THE HIGHEST ORDER OF
20 MEMBERSHIP.

21 Q. WITH REGARD TO YOUR PROFESSORSHIPS OR ADJUNCT
22 PROFESSORSHIPS IN EITHER DENTISTRY OR BIOLOGY OR ORAL
23 BIOLOGY, ARE YOU ACTIVE IN TEACHING THOSE COURSES?

24 A. YES. I ALSO AM AN ADJUNCT PROFESSOR, FULL
25 PROFESSOR, AT THE UNIVERSITY OF NEVADA, SCHOOL OF MEDICINE,

1 IN THE DEPARTMENT OF PATHOLOGY AND FAMILY MEDICINE. AND I
2 TEACH PATHOLOGY, SOME PATHOLOGY SUBJECTS ASSOCIATED WITH
3 DENTISTRY AND FORENSIC DENTISTRY TO THE MEDICAL STUDENTS.

4 Q. HAVE YOU DONE A GOOD DEAL OF WORK IN HOMICIDE
5 CASES WITH REGARD TO IDENTIFICATIONS FROM -- IN VARIOUS
6 YEARS -- THROUGH THE VARIOUS YEARS?

7 A. I'VE DONE HUNDREDS OF IDENTIFICATIONS, AND I
8 DON'T HAVE ALL OF THOSE IN MY V.C.

9 Q. ARE SOME OF THESE REFLECTED IN THIS CURRICULUM
10 VITAE?

11 A. YES, THAT'S JUST REPRESENTATIVE, AND MANY OF
12 THOSE HAD BEEN HOMICIDES. SOME WILL BE SUICIDES. SOME ARE
13 ACCIDENTAL DEATHS.

14 Q. HAVE YOU GIVEN COURT TESTIMONY IN VARIOUS
15 CRIMINAL CASES?

16 A. YES, I HAVE.

17 Q. WITH REGARD TO BITE MARK CASES, HAVE YOU ACTED AS
18 AN EXPERT IN VARIOUS BITE MARK CASES, FOR EXAMPLE, IN MARCH
19 OF 1980, IN THE STATE OF NEVADA VERSUS AGUILAR?

20 A. YES.

21 Q. HOW ABOUT IN '81, NEVADA VERSUS PATTON?

22 A. YES. THAT'S WRITTEN PATTON, BUT THEY PRONOUNCED
23 HIS NAME PATTON. BUT IT LOOKS LIKE PATTON.

24 Q. SO THERE ARE VARIOUS CASES, AND YOU PARTICULARIZE
25 THEM LATER ON IN THE CURRICULUM VITAE; IS THAT CORRECT?

1 A. YES.

2 Q. YOU HAVE DEALT WITH BITE MARK CASES IN NUMEROUS
3 STATES?

4 A. YES.

5 Q. DOES THAT INCLUDE ARIZONA?

6 A. YES.

7 Q. COCONINO COUNTY?

8 A. YES.

9 Q. WAS THAT IN ARIZONA VERSUS ABNEY?

10 A. I THINK THAT'S COCONINO COUNTY.

11 Q. YES.

12 A. FLAGSTAFF.

13 Q. AND DID YOU GIVE, AMONG OTHER PLACES, TESTIMONY
14 AS AN EXPERT?

15 A. YES.

16 Q. FOR EXAMPLE, ON BITE MARK CASES STILL PENDING.
17 DOES THAT INCLUDE A HOMICIDE -- HOMICIDE BITE MARK ON THE
18 HAND IN LAS VEGAS, AND A BITE -- MALE BITE ON THE TIP OF A
19 NOSE IN LAS VEGAS?

20 A. YES, THEY'RE STILL OPEN CASES. THERE'S ONE CASE
21 I HAD ON THERE, CODDINGTON. IT'S A YOUNG GIRL. YEAH, THAT
22 CASE HE HAS NOW BEEN CONVICTED OF A DIFFERENT CASE. SAME
23 CASE, IN CALIFORNIA.

24 Q. SO HAVE YOU DONE HUNDREDS OF BITE MARK CASES?
25 THOUSANDS?

1 A. I HAVE EXAMINED THOUSANDS OF BITE MARKS, AND I
2 HAVE GIVEN OPINIONS ON HUNDREDS. I'M SURE THAT I HAVEN'T
3 REACHED A HUNDRED THAT HAVE BEEN IN THE COURT, THAT I HAVE
4 ACTUALLY GIVEN TESTIMONY ON.

5 Q. NOW, SOME OF THE COURT TESTIMONY, HAVE SOME
6 REACHED THE APPELLATE OPINION SUCH AS STATE VS. --

7 A. STINSON, IS IT?

8 Q. STINSON IN 1986, AND STATE VS. KENDRICK -- WHICH
9 IS A WISCONSIN CASE -- AND STATE VS. KENDRICK IN '87, WHICH
10 IS A WASHINGTON CASE?

11 A. YES. AND THERE IS ALSO DEUTSCHER IN NEVADA,
12 D-E-U-T-S-C-H-E-R.

13 Q. AND THEN WERE YOU AN EXPERT IN THAT CASE?

14 A. YES.

15 Q. WAS THAT A HOMICIDE CASE?

16 A. YES, IT WAS.

17 Q. DID IT INVOLVE A DEATH PENALTY?

18 A. YES, IT DID.

19 Q. AND WAS IT ABOUT A BITE MARK?

20 A. YES.

21 Q. WITH REGARD TO JUST A FEW SELECT BITE MARK CASES,
22 I HAVE LISTED A FEW -- I MEAN I HAVE HIGHLIGHTED A FEW.
23 CODDINGTON, ARIZONA V. ABNEY, NEVADA V. RAMIREZ, AND
24 OTHERS, IN VARIOUS YEARS AS NOTED ON YOUR CURRICULUM VITAE.
25 ARE ANY OF THOSE HOMICIDE CASES?

1 A. ALMOST ALL OF THE BITE MARK CASES ARE HOMICIDE.
2 THEY'RE -- I HAVE NUMEROUS CHILD ABUSE CASES, BUT MANY OF
3 THOSE, IF THERE'S A SURVIVING CHILD, WILL BE HANDLED
4 THROUGH THE JUVENILE COURT, AND THEY'RE HANDLED A LITTLE
5 BIT DIFFERENTLY, SO YOU DON'T SEE THEM ON A TYPICAL COURT
6 DOCKET. I THINK MOST OF THOSE THAT YOU'VE MENTIONED ARE,
7 TO MY RECOLLECTION, ARE HOMICIDE CASES.

8 Q. ANY SEXUAL ASSAULT?

9 A. YOU CAN'T SAY ALWAYS IN SCIENCE, BUT THERE'S
10 ALMOST ALWAYS A SEXUAL ASSAULT ASSOCIATED WITH A BITE MARK.

11 Q. SEXUAL ASSAULT AND HOMICIDE?

12 A. YES.

13 Q. WHICH ONE?

14 A. WELL, WHENEVER YOU SEE A HOMICIDE WITH A BITE
15 MARK, THERE'S USUALLY A SEXUAL ASSAULT.

16 Q. WOULD YOU CLASSIFY THE ABNEY CASE IN FLAGSTAFF,
17 COCONINO COUNTY, THAT YOU TESTIFIED AT IN '87, AS THAT TYPE
18 OF CASE?

19 A. YEAH. I'M NOT SURE WHAT WAS RECOVERED TO
20 DEMONSTRATE THE SEXUAL ASSAULT.

21 Q. WHAT WAS IT, A BREAST BITE?

22 A. YES. A BREAST BITE.

23 Q. AND WAS IT A DEAD WOMAN?

24 A. YES.

25 Q. AND WAS THE DEFENDANT MALE?

1 A. YES.

2 Q. OKAY. SO YOU HAVE PARTICIPATED AS -- YOU HAVE
3 QUALIFIED AS AN EXPERT IN VARIOUS COURTS; IS THAT CORRECT?

4 A. YES.

5 Q. FEDERAL COURTS?

6 A. I DON'T THINK SO.

7 Q. SUPERIOR COURTS IN VARIOUS COUNTIES AND VARIOUS
8 STATES, SUCH AS THIS TYPE OF COURT?

9 A. YES.

10 Q. OF COURSE --

11 A. I HAVE REVIEWED -- FOR THE U.S. ATTORNEY, I HAVE
12 REVIEWED CASES, BUT I DON'T THINK ANY OF THOSE HAVE -- I
13 DON'T THINK I HAVE ACTUALLY BEEN ON THE WITNESS STAND ON
14 THOSE. I HAVE GIVEN REPORTS.

15 BUT I HAVE BEEN ON THE WITNESS STAND IN NUMEROUS
16 STATE COURTS, SUPERIOR COURTS.

17 Q. DID SOME OF THOSE CASES WORK -- DID THEY GO ALL
18 THE WAY TO BEING DECIDED UPON BY THE JURY?

19 A. YES.

20 Q. HOW LONG HAVE YOU SPENT IN BITE MARK
21 IDENTIFICATION, BITE MARK CASES IN YOUR CAREER?

22 A. AT LEAST 15 YEARS.

23 Q. AND IS THAT A PART OF YOUR WORK IN FORENSIC
24 ODONTOLOGY?

25 A. YES.

(Whereupon the following proceedings were
held in open court.)

7 Go ahead, Mr. Levy.

8 MR. LEVY: Thank you, Your Honor.

BY MR. LEWIS.

12 Q. Dr. Rawson, I show you these items that
13 were admitted in evidence through Dr. Piakis, being
14 photos 118 through 122 and 126 through 132, and teeth
15 impression 125, and teeth casts 124 and 123.

16 The question to you is: Have you seen
17 these before? Were they provided to you in order for
18 you to make your analysis?

19 A. Okay. There are two items here that I
20 haven't seen before. They're item 121 and item 120.
21 They're overlays that have been made.

Q. Okay. I'll take them.

23 A. And as I remember, Exhibit 122 has some
24 teeth that are lettered on that that I haven't seen that
25 before. So they have either been added after or I

1 haven't seen them.

2 Q. Okay.

3 A. The photograph I'm sure that I've seen, but
4 there was not numbering on it.

5 Q. So excluding the numbering on 122, you
6 believe that you received this photograph?

7 A. Yes.

8 Q. Okay. Now if you look -- okay.

9 A. Okay. The rest of this I believe I've
10 seen. It was delivered to me on the 11th of March.

11 Q. Now what about the teeth casts and the
12 impression, have you looked at those?

13 A. Yes.

14 Q. So did you have all of those items with you
15 up in your laboratory in Las Vegas to analyze
16 preparatory to you making a determination?

17 A. Yes.

18 Q. I show you Exhibit 109 for identification
19 and ask if you recognize this as a video that you made
20 of your findings?

21 A. Yes, it is.

22 MR. LEVY: I move Exhibit 109.

23 THE COURT: 109 is admitted subject to the
24 earlier discussion.

25 MR. LEVY: Thank you.

1 Q. BY MR. LEVY: Dr. Rawson, have you reached
2 an opinion with regard to the teeth impressions on
3 Kim Ancona's breast, whether they came from the teeth of
4 Ray Krone via the medium of his teeth casts and teeth
5 impressions on the foam and the exhibits before you?

6 A. Yes, I have.

7 Q. And what is your opinion?

8 A. My opinion is that the teeth that are
9 represented to me as being Ray Krone's teeth did cause
10 the injury patterns that we call bite marks.

11 Q. And how certain are you of your opinion?

12 A. I'm certain. It's a very good match.

13 Q. Now, do you have a basis for your opinion?

14 A. Yes, I do.

15 Q. Can you demonstrate that basis through this
16 videotape?

17 A. Yes, I can.

18 MR. LEVY: With the Court's permission,
19 could the witness step from the box in order to help the
20 jury?

21 THE COURT: Yes. Go right ahead, sir.

22 MR. LEVY: I'll talk out loud to
23 Dr. Rawson before I get going.

24 Dr. Rawson, this is the VCR control. I'll
25 turn it toward you. This is play, fast forward, rewind,

1 stop.

2 THE WITNESS: Okay.

3 THE COURT: Go ahead, sir.

4 THE WITNESS: Let's fast forward through
5 the -- okay.

6 This is simply a title slide indicating
7 that this is bite mark evidence that's been collected,
8 put together so that it can all be seen in one place.

9 Q. BY MR. LEVY: Could you speak up,
10 Dr. Rawson?

11 A. Yes.

12 This videotaping started on the 14th of
13 March and went on from that point. I was still doing
14 some taping a week ago on new specimens that had been
15 sent to me.

16 Now this is footage that was represented to
17 me as being taken by Dr. Piakis, or at least I received
18 it from that source. And there is a basic comparison
19 taking place here that appears to be an appropriate
20 comparison.

21 It's rare that we have the body still there
22 when a suspect is found in a bite mark case. So we
23 typically don't have an opportunity to actually go to
24 the body with casts, with models.

25 Now I put this in simply to illustrate the

1 evidence that was given to me. And it does give an
2 orientation for one of the bites.

3 There appears to be no sound track on this.
4 I was not able to discover any. And so I'm not aware of
5 any of the conversation that took place during this
6 filming.

7 MR. JONES: Excuse me, Your Honor. Could
8 we have a question-and-answer format?

9 MR. LEVY: That's fine, Your Honor. I'm
10 prepared.

11 Q. BY MR. LEVY: Is this still Dr. Piakis'
12 tape of the putting on of Mr. Krone's teeth against the
13 actual body and the left breast?

14 A. Yes, it is.

15 Q. And what is it that you see from your
16 expertise, Dr. Rawson, with regard to the match?

17 A. Well, it appears to be a very close match.
18 The tissue is pliable. And as the models touch the
19 tissue there you can reproduce some of the dynamics of
20 the bite. And it's a very good match on that tooth
21 number 8 and 9, the two central incisors.

22 Now this is a photograph that is laid out
23 that I will do the -- some of the comparisons with.
24 It's placed here so that we can look at some of the
25 characteristics of the bite.

1 Q. Excuse me, Dr. Rawson. Is this
2 photograph -- are we through with footage from
3 Dr. Piakis' tape?

4 A. Yes, we are.

5 Q. And is this one of the photographs you
6 received and utilized for your demonstration?

7 A. Yes, it is.

8 Q. What is the purpose of this photograph?

9 A. This photograph really gives a very good
10 view of the entire -- the entire areola area with the
11 bite mark injuries.

12 Q. You mean the upper and lower --

13 A. Yes.

14 Q. And does the ruler -- is that there for
15 purposes of -- to indicate nondistortion?

16 A. Yes. The ruler is there so that we can do
17 proper measuring. And we can make a proper relationship
18 with anything we compare to this.

19 The bite does demonstrate -- if I may go
20 back to that for just a moment. This bite demonstrates
21 an overall injury pattern with the upper arch in what we
22 would call a 12:00 o'clock position. There's also a
23 lower arch form opposite that in what we might refer to
24 as 6:00 o'clock.

25 There's another bite pattern that we might

1 refer to as the 10:00 o'clock position where the two
2 central incisors are reflected there. And then the
3 opposing arch which might be considered a 5:00 o'clock
4 position.

5 And there are other injuries that are seen
6 on the breast here.

7 There is a slight mark from the 12:00
8 o'clock bite where there is kind of a second impression
9 and even a third indentation from that bite. There's
10 also some indication that there is a bite in the 2:00
11 o'clock.

12 Q. Could you try putting that on some kind of
13 a hold, Dr. Rawson? I'm not sure that -- I'm not sure
14 that it will maintain the quality when it's on hold.
15 Well, that's not bad.

16 Let me ask you a couple of questions.

17 That's the left breast of Kim Andona?

18 A. Yes.

19 Q. Now, would -- those are the wounds that you
20 can visually see; is that correct?

21 A. That's correct.

22 Q. Are there anything -- will teeth touching
23 the flesh always necessarily leave a wound pattern like
24 that?

25 A. No. We know that it takes a certain amount

1 of biting pressure, that a tooth has to be in contact
2 with the tissue with a certain amount of force to create
3 an injury pattern.

4 And I -- you know, like I can bite the side
5 of my finger about as hard as I can stand and it won't
6 produce a bruise pattern like this. It will produce an
7 indentation that in a half hour will look red and within
8 a few hours will be gone.

9 Q. One other preliminary question I'd like to
10 ask with regard to the 10:00 o'clock position. There
11 are two marks and one which sort of angles out. Were
12 you able to closely analyze that particular marking?

13 A. Yes, I've looked closely at that. There's
14 actually an indentation or an impression of the two
15 central incisors, and then there's a scratch that runs
16 across what would be the impression from tooth number 9.

17 Q. How did you determine that was a scratch as
18 distinguished from a tooth impression?

19 A. Well, in looking at it under the microscope
20 there's an indentation with a coloration, and then
21 there's a kind of a parting of the tissue. It's
22 actually freed up as far as like you'd see in a plowed
23 field. The tissue is just freed up, and it comes across
24 and swings into the bite -- the bite pattern.

25 Q. So that is observable under microscopic

1 magnification?

2 A. Yes.

3 Q. I think that was all the particular
4 questions I had at this point, Dr. Rawson, on that.

5 A. Okay. Now this is a photograph that's
6 represented to me as being of Ray Krone. And there are
7 things that we look at in any of the photographs to see
8 if there's deviation, to see if there's a certain
9 narrowness or broadness to the face, to the biting
10 areas.

11 And I've taken each of these slides that
12 were presented to me and placed them on the videotape.
13 You can see with the lip slightly apart that there is
14 one tooth that appears to be long in front. It turns
15 out to be tooth number 9.

16 This is a right lateral view. It shows the
17 sharpness of the canine, tooth number 6. And it shows
18 the relative shortness of tooth number 7. It's well out
19 of the plane of occlusion and wouldn't be expected to
20 mark unless there was an avulsive type of mark where the
21 tissue was excised or actually bitten into.

22 It shows also a point on the lower right
23 canine, which would be tooth number 27. The left
24 lateral demonstrates the same shortness with that
25 lateral incisor.

1 And we're able to see some of the lower
2 anterior teeth, that there is a tooth that is projecting
3 higher towards the mid line. That's tooth number 24.
4 And the left canine is tooth number 22. And it is not
5 as sharp as the right canine.

6 Looking straight on, this is what we would
7 refer to as a restricted arch. The prominent teeth are
8 certainly the left central incisor, number 9. And the
9 right canine -- the left canine also on the lower arch
10 of the mid line is off. It appears to be a bridge. And
11 again tooth number 24 is long. 26 is relatively longer
12 than 25.

13 And then 27 is the longest and sharpest
14 tooth on that arch. That's porcelain work. The tooth
15 above tooth number 9 is also a porcelain crown. And it
16 is left considerably longer than the central incisor
17 next to it. Look at the incisor ledge or the biting
18 ledge. We can see on the tooth number 8 that there is
19 an unusual wear pattern. There's probably been some
20 chipping. And there is an actual chip out of the lip
21 surface of that biting edge.

22 Then we can see a certain curvature to the
23 porcelain work on tooth number 9. There's a triangular
24 area that's not shown fully from this view on tooth
25 number 6.

1 Again, if we look more close up at the
2 anterior teeth, we see an irregular pattern of teeth.
3 This is not a typical reconstruction. And we could only
4 speculate as to why a porcelain crown was left long like
5 that. They do wear at a different rate than normal
6 teeth, and it may well be that it's been in for some
7 time.

8 Q. Could you go back to the last teeth,
9 Dr. Rawson?

10 A. Yes.

11 Q. And now can you put it on pause?

12 A. Yes. I'll try and get a little further.

13 Okay.

14 Q. Now based upon your prior research and
15 work, including with computers, on the uniqueness of
16 human dentition, could you share through this particular
17 view the uniqueness of human dentition, and whether this
18 set of teeth of Ray Krone's is unique? And thirdly, in
19 your opinion, are there any two sets of teeth or
20 dentition the same between the same -- between two
21 different human beings?

22 A. There's really two aspects to the human
23 dentition. The first, and what is used most by forensic
24 dentists, is the positioning of teeth.

25 And to talk about that in simple terms, any

1 one tooth, if we were to look at the teeth as being in,
2 say, the lower arch, and if we looked at two teeth in
3 relationship to each other, one tooth may be forward
4 from the tooth next to it, or it may be back, or it may
5 be to the side, or it may be to the other side, or it
6 may be rotated to what we would refer to as the mesial,
7 or what's referred to as rotated to the distal.

8 So there's six basic positions that a tooth
9 can be in. And the early work really concentrated on
10 those basic six positions. And if you then are looking
11 at two teeth and the number of positions that they may
12 be in, it would be six times six, or 36 possible
13 positions that these teeth could be in. Each position
14 would be distinguishable from the other positions.

15 Q. Would that also include the variation of
16 lengths, widths, and those sorts of dimensions?

A. No. It doesn't take into account any
differences in the height of one tooth versus another.
It doesn't take into account any of the wear patterns,
any of the shape of the teeth, simply the positions of
the teeth. And most of the early bite marks were
used -- the determinations were really made based on
those six positions.

Now the study that I went into tried to identify more precisely how many positions can a tooth

1 actually be in. And it turns out that on average a
2 tooth can be in about 150 different positions, each one
3 of which is easily recognizable. And if you are looking
4 at a tooth in that kind of detail, then you can see that
5 very quickly. Just having two teeth, the possibilities
6 of two teeth being in the same position, it would be 150
7 times 150, whatever that is. Maybe 1200 or something
8 like that.

9 So in other words, there are many more
10 positions that a tooth can be in than we had previously
11 realized. And now granting that, I still take a fairly
12 conservative view on the way that I'll look at those
13 positions. And then we can start to deal with the terms
14 of how high is the tooth, or how short is the tooth, or
15 what's the basic shape, is it really a small tooth or is
16 it a wide tooth? And we can get a lot more specific.

17 It's safe for us to say at this point that
18 there are no two sets of dentition alike, that there are
19 distinct differences in all sets of teeth. We've done
20 this examination on kids that are adults who as kids
21 have gone through orthodontic therapy so all of their
22 teeth were lined up as pretty as they were lined up, and
23 still we find that we can distinguish those people, that
24 they're identifiable by tooth pattern.

25 So there are no two -- and of course we

1 went to the twin study to try and demonstrate whether or
2 not there would be a mirror image in twins. And I can
3 reverse one of the images and compare, and it gives us
4 the closest comparison. But they're still easily
5 distinguishable. Even in identical twins the human
6 dentition is unique.

7 So when we go back now and look at this
8 view of the teeth, there are so many factors that we can
9 look at in relationship to what is the overall arch form
10 in the upper teeth, and what position is each tooth in
11 in that arch, and what's the rotation of each tooth in
12 that arch, and what's the length or the shortness of
13 each tooth in that arch? And without ever getting to
14 the specific characteristics we can determine the match
15 simply on the basis of those things that I've talked
16 about.

17 Now if we can find particular
18 characteristics about a tooth also reflected in the bite
19 mark, that's -- in a scientific sense that's a gift.
20 It's just more proof of the pudding, so to speak.

21 Q. Dr. Rawson, another preliminary question:
22 In your review of the utilization of bite mark evidence
23 in cases, in courts of law, have you noted about how far
24 back the utilization of bite mark evidence goes?

25 A. The first case -- I have the reference in

1 my notes. But I believe it's an Ohio case in 1870.
2 There were actually some bite marks presented in some of
3 the Salem witch trials, but we feel there was no science
4 behind that at the time, that it was simply people that
5 had no dental knowledge looking at bite marks and saying
6 that they matched.

7 But by 1870 the first dean of the Michigan
8 School of Dentistry testified extensively on a bite mark
9 case. And it was -- he laid down the pattern of how we
10 should really look at a bite mark case very, very close
11 to the way the American Board of Forensic Odontology now
12 suggests that we do it. In fact, we had presented our
13 guidelines, and someone in doing historical research for
14 something else, found this case and went back and read
15 it and found that it parallels what the American Board
16 is advocating now very closely.

17 Q. So bite mark evidence is not new in
18 American jurisprudence?

19 A. No.

20 We have another case before 1900. There's
21 a key case in 1927 where a policeman was bitten on the
22 arm. We have a great explosion in the number of cases
23 in the 1950s and sixties. We have maybe -- oh, in 1968
24 I knew of 190 cases that had been through the appellate
25 level. I'm not sure how many cases have been through

5 the appellate levels now. There have been thousands of
6 bite mark cases tried in this country. As far as I
7 know, to my knowledge they have been accepted in every
8 jurisdiction. It has been allowed in every case.

9 Q. Thank you, Dr. Rawson.

10 A. This goes back again now to the evidence
11 photograph that shows the --

12 MR. JONES: Excuse me, Doctor.

13 Could we have the question and answer
14 format?

15 Q. BY MR. LEVY: The next photo appears to be
16 the left breast of Kim Ancona?

17 A. Yes. And this shows the wound pattern.

18 Q. What are you about to show the jury at this
19 point? What is that?

20 A. This is one of the styrofoam bites.

21 Q. Of Ray Krone's teeth?

22 A. That's correct.

23 I have to look at it for just a minute to
24 see where we are. Okay.

25 What this starts off with is a -- the
evidence photograph of the left breast of Kim Ancona.
And it shows the bite wound pattern, in essence. It
shows the scale running along beside and underneath
this.

1 And then the next view is of one of the
2 styrofoam bites. It also has a scale in it. And we see
3 the bite pattern.

4 Q. What is it that you're about to show the
5 jury?

6 A. What I'm trying to demonstrate here is that
7 we're in the same scale. That the scale on the bite
8 mark photograph matches the scale on the bite --

9 Q. So it's the same --

10 A. -- on the styrofoam bite.

11 Q. So it's the same size to size?

12 A. That's correct.

13 As that superimposes, then I can hold that
14 frame and verify the scale. This is simply a technique
15 that's done to demonstrate -- demonstrate the scale.
16 And so we have the centimeter lines over each other. I
17 have mark for mark matching on those scales.

18 And then it's a matter of moving these
19 bites around so that we can see the relationship. And
20 then we'll see that the tooth pattern is consistent with
21 the injury pattern. The tooth pattern in the styrofoam
22 then is the same as the tooth pattern in the tissue.

23 Q. Is this one of many ways you're going to
24 show the jury?

25 A. Yes.

1 Q. Demonstrate to the jury?

2 A. Yes.

3 Q. If you could hold that for a moment,
4 please.

5 A. Okay.

6 Q. That appears to look like at first -- the
7 photographic thrust of it is as though it is raised up.
8 Is that raised up or indented in?

9 A. Well, any type of exhibit that we produce
10 is simply trying to illustrate what it is we can see.
11 In other words, I will study a bite mark and arrive at
12 an opinion, and then face the difficult task of trying
13 to be able to show other people what it is that I can
14 see.

15 Q. Now here's my point --

16 A. But as we look at this you'll see shadows
17 on it.

18 Q. Okay. I want -- when I first saw it, I'm
19 not sure the jury -- it may seem like this is raised up.
20 Is it indented in as the bite mark on the foam?

21 A. This particular view shows that as
22 indented. But it forms an optical illusion for some
23 people. When some people look at an image like that,
24 that will look like this is raised up. And for other
25 people it will looked like it's depressed in. And there

1 isn't any way to predict which way people will see it.

2 But in either case, this is a pattern that
3 is what we would refer to as a third-dimensional
4 pattern, there's depth to it.

5 Q. Where is the number 9 tooth?

6 A. Tooth number 9 is right in that area. And
7 tooth number 8 right below. And then this would be
8 tooth number 6.

9 Q. And is some of the way that you can see it
10 better or not due to shadows?

11 A. Yes. We try to side light a little bit so
12 that it's not white on white. You just can't see it.
13 If there's a little bit of side lighting then it creates
14 that third dimensional aspect. There isn't any photo
15 enhancement of this. There isn't any computer-generated
16 image. We can make it look like a mountain or make it
17 look like a hole with the computer. But I've used none
18 of those kinds of devices.

19 Q. Thank you.

20 A. Okay. You can see the wear patterns in
21 teeth. You can see the triangle that's kind of created
22 as the biting tip is worn off of a tooth. We have a
23 triangle there. There's a dimension to the tooth as
24 it's worn. And I'm simply overlaying the styrofoam bite
25 over the tissue.

1 Q. What is this blue light effect?

2 A. Now this blue is simply switched the camera
3 to negative. So it's a color camera. We're getting the
4 negative now of that white, which shows as blue. And
5 you do it simply for contrast.

6 Now to me that still looks like an
7 indentation. Now to some people that will look like
8 it's positive, like it's a mountain or a hill. By going
9 to the different colors you simply are able to see the
10 bite pattern in contrast to the tissue.

11 Q. What are you doing now?

12 A. I'm wiping from side to side simply showing
13 that the mark in the styrofoam is equivalent to that
14 mark in the tissue. And the same thing on tooth number
15 8, that the mark in the styrofoam is the same as that
16 mark in the tissue.

17 And then I'll end up by looking at tooth
18 number 6, where you can see that the little triangular
19 space that was created in the styrofoam is duplicated
20 also in the tissue in a bruising pattern.

21 Q. Is that quite -- is all of that quite
22 unique?

23 A. Oh, this is -- it's a very good match.
24 It's unique, yes.

25 Q. Is it clear?

1 A. It's clear. This is about as far as a lot
2 of people would go in determining a bite mark. I mean,
3 it simply shows.

4 Q. You mean as far as different techniques?

5 A. Yes.

6 Q. But you've done additional --

7 A. Yes. I've looked at this from many
8 different directions. This is fading in and out, simply
9 to show the same thing. And now I have to let this go
10 into it for a moment again.

11 This is still the left breast of Kim
12 Ancona.

13 And this now is a set of --

14 Q. Could you put it on pause until you explain
15 this to the jury?

16 A. Yes.

17 Q. How did you develop the image of the teeth
18 to make the overlay?

19 A. Okay. The models and a scale are placed on
20 the clear glass of a copy machine.

21 Q. Let me -- just a moment, Dr. Rawson.

22 A. Yes.

23 Q. I'm going to bring these exhibits over
24 here. And from time to time as you deem it appropriate
25 I would ask that you would share with the jury the

1 actual models of the foam bite and any photographs that
2 you -- still photographs you feel might be of any
3 benefit for the jury's knowledge.

4 A. Okay. Well, the model -- there are a
5 number of ways that we can record the biting surfaces.
6 One of those ways is to bite into styrofoam and then
7 compare the styrofoam to the tissue injury.

8 Another way is to place a piece of
9 transparent plastic over the teeth and then trace the
10 edges of the teeth. But that allows for human error to
11 creep into the process.

12 And so one of the techniques that's been
13 advocated for a number of years is to do an acetate
14 overlay by placing these models right on the flat glass
15 screen of a copy machine and then placing a scale by it,
16 which we see on the right side of the monitor, so that
17 we have a scaling. We can make sure that we're one to
18 one, or a true three one, or whatever size we're looking
19 at. And then closing the cover and simply making a copy
20 of that.

21 And if the copy looks like the teeth, and
22 we verify it by measurements, then we can run that.
23 Instead of on paper we can run it on a clear acetate
24 sheet so that it's transparent, you can look through it.
25 That's what is represented here, a clear acetate image

1 of the biting edges of the teeth.

2 And the teeth as we look at them in this
3 direction, tooth number 9 is on the left side as we look
4 at it. Tooth number 9 is the long central incisor. And
5 it would be on the left side of the arch. But if you
6 turn it over and look at it this way -- now I've shown
7 it to you that way. The way I'm looking at that now is
8 the way that would come down on the tissue. That long
9 tooth, tooth number 9, will be the left side.

10 Q. In that regard, Dr. Rawson, and your
11 superimposition, one over the other, this is the photo
12 of Kim Ancona's left breast, and you superimposed the
13 teeth. How would it show on the screen?

14 A. If we look at it this way -- and let me
15 demonstrate. And I'll hold it just a little bit off the
16 bite mark so you can see the basic relationship.

17 And that's now looking at it as if you were
18 above the teeth looking down on the injury pattern. But
19 the way we photocopied that, it's as if we're looking at
20 this surface of it. Not looking down on it, but looking
21 at this surface. So we turn that overlay over.

22 In other words, the overlay is a reverse of
23 what really shows here. So we simply look at it from
24 the other side and it overlays exactly. That's a
25 complicated way of saying a very simple thing. And I

1 show that in another place on the videotape to try to
2 make that a little bit more clear.

3 Q. Thank you.

4 A. That acetate image then can be verified
5 scalewise, and then simply placed in relationship to the
6 injury. And this is real time simply moving it to show
7 how it fits into that injury pattern.

8 Q. These would be the upper teeth to the top
9 of the -- upper teeth of Ray Krone and the top of the
10 left breast of Kim Ancona?

11 A. That's correct.

12 Now, I'm just showing some relationship
13 here to the way we do this process. And this will be a
14 studying process, that for hours sometimes you'll look
15 from different directions just seeing what really
16 matches, what doesn't match, what's consistent.

17 Q. And do you do this for purposes of accuracy
18 and precision?

19 A. That's correct.

20 Then by looking at simply a close-up view
21 of that Xerox image and comparing that to the injury
22 pattern on the tissue, we can --

23 Q. Is this the number 9 tooth?

24 A. That's correct, it's tooth number 9.

25 -- we can follow some particular

1 characteristics around that tooth.

2 Now there's an overall shape to that that
3 is mimicked in the tissue or it is duplicated in the
4 tissue. And we see some different gradations of
5 bruising. And that's one of the characteristics of
6 tissue, it simply will show darker bruising in some
7 areas than others.

8 Q. Now what are you doing now?

9 A. This is a comparison of the scale -- of the
10 styrofoam bite to the scale of the Xerox copy of the
11 incisal edges of the teeth.

12 Q. Are you now superimposing the foam bite
13 mark and the teeth?

14 A. That's correct.

15 Now we know that those teeth made the bite
16 mark in the foam. And this is simply demonstrating the
17 comparison procedure of how those teeth fit into the
18 foam.

19 Q. That's a verification process?

20 A. That's correct.

21 Now this is basic information that's put
22 down on a CAT scan of these same models. And this
23 information is simply technical information that tells
24 the date that it was -- the CAT scanning was done. It
25 tells the basic settings of the instrument.

1 And a CAT scanner is designed -- in the
2 human body we may take an X-ray say of something in the
3 middle of the body, and you see everything in front of
4 that object and everything in back of that object that's
5 in the body. So everything's superimposed over. And
6 radiologists have long been worried about trying to get
7 rid of everything they didn't want to see and just
8 looking at, say if it was the gallbladder, they just
9 want to see the gallbladder.

10 And tomography is a very complicated X-ray
11 process of being able to just visualize one thin slice
12 through the individual. So we can take a slice through
13 my body. Everything in front of that you wouldn't see,
14 everything behind that you wouldn't see. And it's
15 simply an image of a certain corridor within the body.

16 A CAT scanner is a computerized process
17 that will show you any level of the body that you want
18 to see. In other words, they record everything that is
19 seen through the body, and then they can set it for
20 whatever depth -- they can look at whatever depth they
21 want to.

22 And I've developed a little jig that holds
23 these models in a CAT scanner headrest. The CAT scanner
24 can take an image just before the tooth, and then it can
25 take an image just to the biting edge of the teeth, and

1 then take an image a millimeter and half deeper than the
2 biting edge.

3 And this is simply the information sheet
4 setting the stage for the CAT scan images that we'll
5 see.

6 Q. Is the CAT scan image quite accurate?

7 A. Yes, it is.

8 Q. And is this another way of further
9 confirming the precision -- by way of a precision
10 instrument, whether Ray Krone's teeth made the
11 impressions in Kim Ancona's breast?

12 A. That's correct.

13 And when we look at the Xerox copies,
14 there's a lot of superfluous things around. It's dark.
15 It's hard to see there. It's hard to make a comparison.

16 Q. What are these pictures on the screen?

17 A. This is a side view of the model holder
18 that is in a headrest.

19 Now put this in perspective. The headrest
20 is down this way. That's simply setting in this
21 complicated device that can take the various X-ray
22 views. And if a person were in here, it would be as if
23 a person were laying down looking at the ceiling. Their
24 head would be in this headrest.

25 This model then shows that this is a scout

1 film. And it shows the various levels that we're going
2 to look at. And there's a series of very close lines
3 that are close, that they're difficult to see on the
4 T.V. But it's just saying one level here, one level
5 next to it, one level next to it, one level next to it.
6 Each one is a millimeter and a half deeper down the edge
7 of the teeth.

8 And so this is -- is simply reference for
9 us to look at that describes how the CAT scanning was
10 done. It can show it in a negative image or a positive
11 image. And some radiologists like to have it one way or
12 another just for ease of reading.

13 Now this would be the first -- the first
14 image. And all we see are three very tiny dark spots
15 that would represent three of the lower teeth. In other
16 words, they're the highest teeth and they're just barely
17 marking.

18 The next one superimposes into that. Now
19 we can see more teeth that would be touching the tissue.
20 And above we can see tooth number 9 and tooth number 5
21 and 6 that would be touching the tissue. Everything
22 else is shorter than that.

23 Then this will fade into the next
24 millimeter and a half in depth so that we'll see more
25 teeth show up. And as more teeth show, we're also going

1 down the surface of the teeth and so they tend to look
2 bigger with each successive step.

3 Now this is just a millimeter and a half
4 further from the biting edge and we see more teeth
5 showing now. Tooth number 5, 6, 8, 9, 11 and 12. On
6 the lower we see almost the full arch.

7 Another millimeter and a half we see the
8 full arch on the lower. We still don't see all of the
9 full arch on the upper. Tooth number 7 still is so high
10 above the biting line that you can't -- still can't see
11 it.

12 And I think I superimposed one more. We
13 just begin to see the mark from tooth number 7.

14 And so if the teeth very lightly came in
15 contact with the tissue, you would expect none -- maybe
16 none of the upper to leave a mark, maybe two or three of
17 the lower. If the bite's a little harder you'd expect
18 to see more teeth that would show a mark. Harder, more
19 teeth that would show a mark. And if there was tissue
20 that was actually bitten out, you'd expect to see all of
21 those teeth then leave some kind of a mark.

22 You can look at the size of tooth number 9,
23 that's clear down by the gum line, and it's a fat tooth
24 by the time you get down to the gum line.

25 This backs out or demonstrates that same

1 thing in a bigger scale. And you can see tooth number
2 9, tooth number 6. As it is superimposes then we can
3 now see 5, 6, 8 and 9.

4 Q. Does this explain any gaps that you've
5 implied -- any gaps in the wounds shown on the left
6 breast of Kim Ancona?

7 A. Yes. It's very pertinent to that.

8 This also shows -- at this point we'll stop
9 that and you can see that we're really seeing the -- in
10 the darkest color, the darkest black is the biting edge
11 of the tooth.

12 And then a millimeter and a half further
13 from the biting edge the tooth gets bigger. So this
14 tooth number 6 is a pointed tooth. And the point then
15 would be expected to leave some kind of an impression
16 like that. If it was bitten further into the tissue
17 you'd expect to see that bruising on the tissue to
18 expand out.

19 Q. Dr. Pawson, I notice there's -- in this CAT
20 scan, tooth 9, there's a little curve here. Is that
21 correct? Would that be a point of application?

22 A. The curvature certainly is part of that.
23 And we can see since this tooth number 9 is so long, it
24 demonstrates very -- the first demonstration of it it's
25 already -- it would be well into the tissue. But we can

1 see part of that curvature here. And as the tooth goes
2 deeper it gets bigger. So it may leave a complicated
3 image that goes into the tissue.

4 It's hard to explain some of these things.
5 But we've come to understand them well.

6 There is another area we need to look at.
7 And I can stop it right there. You see in this section
8 that tooth number 8, there's a different depth to this
9 incisal edge or to the biting edge. And we can't see
10 the full width of that tooth because part of it is
11 shorter than the rest of it.

12 Now the rest of this process is -- you
13 know, it's unremarkable. It's simply showing -- simply
14 showing the superimposition of deeper and deeper layers.
15 And so you can see the teeth or the bruising patterns
16 that they would produce get deeper and deeper.

17 And this is getting to a level now where
18 it's beyond what the teeth actually went into the
19 tissue. In other words, the teeth did not leave marks
20 this big.

21 And it just goes to the next layer where we
22 would start to see this tooth number 7.

23 And then the same thing is demonstrated
24 just backing out of it, reversing the color.

25 Q. Could you put pause?

1 A. You bet.

2 Q. Stop there.

3 I'm looking at this tooth. It's tooth
4 number what?

5 A. Tooth number 8.

6 Q. Can you go forward? Okay, stop.

7 This little place here, I don't know
8 whether you've mentioned it before. I think -- yes, you
9 did. Is that a chip?

10 A. Yes.

11 When we were looking at the actual slide of
12 the teeth in the mouth, there is a certain wear on this
13 tooth. But there's a chip on it that's a chip on what
14 we would refer to as the labial or buccal incisal edge.
15 It just means it's the cheek or lip side on the biting
16 edge. There's a little chip out of the tooth and it's
17 demonstrated there.

18 Q. Thank you.

19 A. We also see kind of the triangular effect
20 of this tooth number 6. And kind of the differential
21 pattern that's created by this tooth number 9.

22 This is backing down along the length of
23 the tooth now to where we have just tooth number 9, 6
24 and 5 showing.

25 And then that's the last -- the last view

1 where it shows any of the teeth.

2 On the lower arch, same thing, we can see
3 20, 22, 27, 28, 29.

4 Q. Is this still the CAT scan, Dr. Rawson?

5 A. Yes, this is still the CAT scan. And this
6 is shown light image on dark field.

7 As we go to the next view, and that's an
8 important view to look at. The widest areas would be
9 the first areas that would come in contact with the
10 tissue. The gray areas are the next level that would
11 come in contact with the tissue. And so it's common to
12 get double images because of the shape of the teeth.
13 And you might be able to see an overall bruise pattern
14 with a more clearly delineated bruise in the center or
15 to the edge of it. You might see that same thing under
16 tooth 22.

17 The anterior teeth are not as long as
18 either one of the eye teeth, and so they would tend not
19 to mark as well. You see one tooth that's particularly
20 shorter, would show the least well. And there is a
21 distinctive pattern that's a unique dentition, a unique
22 arch.

23 This simply goes to the next level which is
24 beyond the level that there was any biting into this
25 tissue. And then it will pack out.

1 Q. Is this the actual teeth of Ray Krone being
2 shown now with the superimposition of the CAT scan?

3 A. Yes.

4 Now if I can -- we can get that to stop
5 without fluttering. This is a model of Ray Krone's
6 teeth that are set up with the scale so that we can
7 demonstrate the measurement. And this is the way they
8 would look if we were looking at them. It's not the way
9 they would look if they were coming down on the tissue.
10 And so it's just the reverse view. There's nothing
11 that's been done to this. We're simply looking at
12 biting edges the way you would look at them.

13 And I do a superimposition with the CAT
14 scan, which has the scale imprinted upon the film so
15 that we know what the scale is. And it's a simple
16 superimposition to demonstrate the match between the CAT
17 scan and the teeth. In other words, it's an accurate
18 representation of the biting edges of the teeth.

19 Q. One scale to another, CAT scan to actual
20 teeth?

21 A. That's correct. And the scale is
22 demonstrated right across there.

23 Q. Is this what you call a wiping
24 demonstration?

25 A. Yes. Instead of superimposing now this is

1 wiping. And you can see as it stops on the incisal edge
2 that to one side is the CAT scan view, the other side is
3 the model view of the teeth. And you can see that
4 there's a high correlation. They match. The little
5 triangular area on tooth number 6 is -- every tooth
6 around the arch that is shown on the CAT scan matches
7 well the model that they were made from.

8 And we use both of these techniques, both
9 superimposition and the wiping motion just as ways of
10 being able to see what's going on.

11 Q. Have you developed these techniques through
12 the years, Doctor, for purposes of precision and
13 accuracy?

14 A. Yes, that's correct.

15 Now this demonstrates the way we would be
16 looking at the teeth and the way we would be looking at
17 the photograph. Tooth number 9 would be on the opposite
18 side. And so for purposes of comparison, you have to
19 turn that model and then place it over the photograph.
20 And that shows the relationship then of turning the CAT
21 scan film so that you can see the proper orientation.

22 Q. So you're looking down from the top of the
23 teeth onto the wound just as though they would actually
24 have contacted it then?

25 A. Yes, that's correct.

1 Now I don't do this for any comparison
2 purposes, simply to illustrate the technique that we use
3 in placing the teeth on the tissue. We can then do that
4 with the CAT scan image over a photograph of the left
5 breast of Kim Ancona.

6 Q. So far, Dr. Rawson, the orientation has
7 been on the 12:00 o'clock wound?

8 A. Yes. And this is that same view showing
9 the scale. And then superimposing over that the CAT
10 scan view with the scale so that we can verify that
11 they're both in the same -- the same size.

12 Q. Superimposing the CAT scan and the teeth to
13 the wounds of Kim Ancona?

14 A. That's correct.

15 Now this is a bite where there's some
16 bruise left by 6, a definite by 6, by 8, by 9. And
17 tooth number 11 -- 7, 10, 11, 12, 13, those teeth are
18 not contacting the tissue.

19 Q. And is this depth of the CAT scan overlay
20 about the same depth as the wound for purposes of
21 matching?

22 A. Yes. And that's a very good match. I
23 mean, that is an illustration of what I can actually see
24 as I'm working in my laboratory. And it just
25 illustrates to other people what I can see.

1 Now it's simply putting the color
2 photograph of the breast into the negative color or the
3 blue color so that we can contrast the two. And here
4 the bite injuries look white. Any of the bruise
5 patterns look white. There's a superimposition. That's
6 as nice a match as we -- as we really ever see in a bite
7 mark case.

8 Q. By "nice" do you mean accurate?

9 A. Yes. That was a nonscientific term. This
10 is really an excellent match, and would be held in high
11 regard by forensic odontologists.

12 Now there's a wiping action just to show
13 the same thing. Again, high correlation. I mean, that
14 is -- that tooth caused that injury.

15 And as we go to tooth number 8, same thing,
16 that tooth caused that injury.

17 And finally to tooth number 6, although
18 that's more of a diffused bruise, that tooth caused that
19 bruising.

20 Q. By extrapolation then, did those teeth
21 cause those bruises on Kim Ancona's left breast?

22 A. That's correct.

23 The arch form is just well illustrated
24 there.

25 Q. Further, is this a superimposition of a CAT

1 scan on Kim Ancona's wounds?

2 A. That's simply going back to the natural
3 colors and demonstrating that it's the same match. And
4 for someone that's color-blind, they may have a very
5 difficult time seeing this. We know that a certain
6 percentage of the population won't see colors the way we
7 see them. And I may have some peculiarities about my
8 color seeing that's not recognized. And so everybody
9 sees this in a different color.

10 But shapes, the patterns are the important
11 aspect of this. And they simply match. Whether we're
12 doing it in blue and white or color and gray, whatever
13 the colors are.

14 Now we can -- there's no reason to spend
15 more time than necessary on that. That is just an
16 excellent match.

17 Q. Is this going to show the lower dentition
18 on the lower part of the wound of Kim Ancona?

19 A. Yes.

20 Now this is showing a bite. There's
21 actually a number of bites on this tissue, and we've
22 been concentrating on one of those. This is another one
23 of those bites. And this would be in that 10:00
24 o'clock, 5:00 o'clock position.

25 Q. So you're rotating the bottom between the

1 12:00 and the 10:00 o'clock?

2 A. Yes. And this is looking at the lower
3 arch. And then there's just an excellent matching
4 there.

5 Now I've made some exhibits that
6 demonstrate that statically. It's more dynamic to be
7 able to look at it on the videotape. But you can place
8 these into a static exhibit so that you can look at
9 them.

10 Q. Which you have done, Dr. Rawson?

11 A. Yes.

12 Okay. This is essentially the same thing.
13 I'll slow it down to demonstrate the 12:00 o'clock bite
14 and the opposing arch. And then as we turn that you'll
15 be able to see the 10:00 o'clock bite.

16 Q. Dr. Rawson, in the acetate between the
17 lower and upper arch there's quite a space. Is that for
18 demonstrative purposes as distinguished from the actual
19 shape?

20 A. That's correct.

21 Now I believe that's the end of that tape.

22 Q. Are you through with the tape then?

23 A. Yes.

24 Q. Okay. I'll return these exhibits to the
25 witness chair.

1 Now you indicated you had some static
2 exhibits.

3 For purposes of timing, if we could
4 approach?

5 THE COURT: Yes.

6 (Discussion was held off the record between
7 the Court and counsel.)

8 Q. BY MR. LEVY: I show you, Dr. Rawson,
9 what's marked as Exhibits 145 for identification, 144
10 for identification, and 146 for identification. Do
11 you -- did you prepare these and do you recognize them
12 as having provided them to me to be marked today?

13 A. Yes, I do.

14 Q. And do they purport to represent the views
15 of Ray Krone's teeth and overlays onto the wound of Kim
16 Ancona's left breast?

17 A. Yes. The first two that you mentioned have
18 both the model -- the CAT scan model of the teeth
19 superimposing that over the breast tissue. The third
20 one is photomicrographs. They're photographs taken
21 through a microscope of the tissue.

22 Q. 146?

23 A. That's correct.

24 Q. And to your understanding were they
25 provided to you as slides made by Dr. Shaw, the medical

1 examiner, a month or so ago and sent up to you?

2 A. Yes, that's correct.

3 MR. LEVY: I move 144, 145, 146.

4 MR. JONES: Subject to prior objection,

5 Your Honor. Nothing further to add.

6 THE COURT: 144, 145 and 146 are admitted.

7 Q. BY MR. LEVY: Dr. Rawson, with the Court's
8 permission, could you step down and show these exhibits
9 to the jury?

10 A. This first Exhibit No. 144 is an exhibit
11 that shows the one segment of the CAT scan film. It's
12 actually film that's very large and has each of the
13 views on it. And then we can look at any one of those
14 views and have this grid system placed on it. It's
15 all -- all of this is seen on a video screen when we
16 have them lined in the order that they should be. Then
17 that imprints on film, which is developed.

18 And this is a blow up now of one piece of
19 that -- that CAT scanning document. And it has the
20 basic information on it. It was taken on the 18th of
21 March 1992 by a GE 9800 CAT scanning unit. And it's
22 unit number 2, which is a particular unit at this
23 facility. And these images now have been traced onto
24 clear acetate sheets and placed to demonstrate the basic
25 positioning of the -- of two of the bites that we can

1 see.

2 As we talk about the number of bites here,
3 there's really one bite that came in in a 12:00 o'clock
4 position, and then the teeth have moved down across the
5 tissue. So they leave more than one image.

6 The most definite image is the first image
7 that went into the tissue. But there is some ancillary
8 image that's produced coming in a sliding motion away.
9 And the bite opposite that then also demonstrates some
10 drag mark. But it's particularly hard to see. And I
11 could -- I could see it on the microscope at low power
12 looking at the tissue. But it's -- it doesn't record
13 well on these in either the black and white or the color
14 film. If we were to look at this first 12:00 o'clock
15 position, then we'd see the overlay with the basic
16 positions of these teeth.

17 Now when I'm working with the video
18 equipment and I have that CAT scanning overlay I can
19 move it around and I can get a sense of the dynamics of
20 this. As we put a static overlay down you're just kind
21 of stuck seeing the one place. That's the only place
22 that it goes. And you don't get an appreciation for the
23 full dynamics as that bit into the tissue. But it
24 illustrates the -- what's been seen on the videotape.

25 As we look at the 11:00 o'clock -- yes, the

1 11:00 o'clock or 10:00 o'clock bite, it just has a
2 different axis to it. And the basic alignment is set
3 up, and the lower arch form is set. The different parts
4 of the bite can be used for different measurements. We
5 see good measurements in various areas. And we use
6 different parts of it different ways.

7 I can demonstrate a good match between
8 tooth number 6, tooth number 8, tooth number 9, and then
9 tooth number 22, 23, 24, 25, 26, 27 and 28. And tooth
10 number 24 being diminutive slightly, very slightly
11 marking.

12 That, in essence, then in a static display,
13 it shows what can be seen on the videotape.

14 Q. Was that scale to make the ratio between
15 the CAT scan teeth and the wounds the same?

16 A. Yes. And that scale is marked on the
17 overlays. The CAT scanning contributed lines two
18 centimeters apart, or 20 millimeters between lines. And
19 if those lines are laid up over the scale on this, it
20 again lines up to be 20 millimeters or two centimeters.

21 Q. Thank you. Could you go to Exhibit 145?

22 A. Okay. Now this is Exhibit 145. And this
23 also is set up with an imprint or an image of the CAT
24 scanning film that is blown up to the same scale that we
25 see on the color copy of the photograph of the breast.

1 And this just puts them into -- you can see
2 that this overlay was made off that CAT scanning
3 document, and that that simply lays down and produces
4 that pattern on the -- for the lower teeth. Same thing
5 with tooth number 9, 8 and 6. That can be flipped up so
6 that the relationship can be seen then with tooth number
7 6, 8 and 9.

8 It just demonstrates in a verifiable way
9 that the scales are the same, that this overlay was made
10 from that photograph or CAT scan of the teeth. And that
11 this one was made from that part of the CAT scan of the
12 teeth.

13 Q. Does it also scale the same ratio?

14 A. Yes, the scale is the same. And again,
15 that's verified on both and can be measured.

16 Q. One additional question with regard to this
17 Exhibit 145. This line here that goes sort of
18 outward -- outwards and up.

19 A. Yes.

20 Q. Could you explain that to the jury?

21 A. Yes. That is a scratch or cut. I refer to
22 it as a scratch, but it doesn't go deeply into the
23 tissue. But it can be seen much as if I just took
24 the -- took a straight pin and just run it across my
25 finger just enough to break the surface.

1 Q. And you saw that under the microscope?

2 A. Yes.

3 Q. And you noted that it had a pattern of a
4 scratch not a bite?

5 A. Yes. And it is at a different level as the
6 bite impressions.

7 In other words, the bite impressions were
8 made first, and then that scratch is seen going across
9 the top of the bite.

10 Q. Across the top of the bite as though made
11 after the bite?

12 A. Yes.

13 Q. Did you have any further information from
14 Exhibit 145?

15 A. I think just looking at this on this color
16 copy it shows particularly well the pattern of the lower
17 teeth. And it can be demonstrated that that lower arch
18 fit in -- I can actually measure the embrasure spaces.
19 I can follow the individual placement of the teeth
20 around that arch. And then as it bites in there is a
21 dragging in a direction towards the nipple. And that
22 leaves what looks like a bruised area that just kind of
23 moves towards the nipple.

24 Tremendous amount of information carried in
25 these photographs.

1 Q. To make the -- you mentioned earlier on
2 that one can bite one's finger like this. And I take it
3 one can see sort of an imprint of the teeth?

4 A. Yes.

5 Q. And yet I don't see any bruising. You
6 mentioned something along that line.

7 A. Yes.

8 Q. Well, first of all, you've indicated that
9 you've done research with regard to the female breast
10 tissue, et cetera, in relation to bite marks.

11 A. Yes.

12 Q. Now perhaps it's a different kind of
13 tissue, and perhaps you could explain that. But the
14 question is this: To leave the bite marks we see on the
15 left breast of Kim Ancona on Exhibit 145, what kind of
16 pressure is exerted to leave those kind of marks or
17 bruising or however you wish to describe it?

18 A. Well, it's significant pressure. And I
19 guess the best way to describe that is that as hard as I
20 can bite, just enough that it's about as much as I can
21 stand painwise to bite, I leave a nice indentation. But
22 within five minutes there's just a little pinkness
23 there. There is no bruising caused from that.

24 I've demonstrated in classes and I've had
25 maybe 4,000 people bite the palm of their hand just as

1 hard as they can in the fleshy part. And in that we've
2 seen two people that have been able to raise any kind of
3 a bruise at all with as hard as they can bite. So for
4 persons on a blood coagulant, blood thinner, or if they
5 were taking a dozen aspirin a day for more than a month,
6 they might be able to produce a bruise with that kind of
7 pressure.

8 When we see this kind of a mark, we know
9 that the average individual would not willingly accept
10 it. In other words, that's painful. And unless someone
11 is really involved in some kind of a pain ritual or
12 painful sexual experience, they wouldn't -- they would
13 try to pull away, I guess is what I'm saying, if they
14 were conscious. That would be a painful bite.

15 Q. So did you say initially then that that --
16 those wounds, those marks were left by significant
17 pressure of the jaws shutting on the left breast of
18 Kim Ancona?

16 A. That's correct.

Q. Did you have any further information for the jury on Exhibit 145?

22 A. N.O.

Q. Could you go to 146, please? What is this -- could you orient the jury what this is?

the first time in history that the United States has been involved in a war of aggression.

1 made from slides provided to you by Dr. Shaw, the
2 medical examiner here, from tissue samples -- you
3 understood tissue samples of the bites?

4 A. Yes.

5 Q. Of Kim Ancona's left breast?

6 A. Yes. Dr. Shaw sent to me slides,
7 microscopic slides and an orientation photograph. And
8 the various bruise patterns on the tissue were
9 demonstrated with letters of the alphabet, A through
10 G -- or H. And he then took a scalpel and cut a section
11 of that tissue through each one of those marks and went
12 through a process of mounting those on microscope
13 slides. And it's those microscope slides that he sent
14 to me.

.5 15 I then viewed each of those microscope
16 slides, searched every detail of the slides -- of the
17 tissue that was on the slides.

18 Q. What was the purpose of this exercise,
19 Dr. Rawson?

20 A. It was looking for tissue changes caused by
21 the bite in an effort to try to time the bite in
22 relationship to death.

23 Q. The time the bite wound was inflicted in
24 relation to the death of Kim Ancona?

25 A. Yes.

1 Q. What did you find?

2 A. Well, I can demonstrate very quickly that
3 on the lowest power, this is a 40 times magnification,
4 the outer layer of skin shown here, with a little bit of
5 disruption of the skin, this represents where the teeth
6 would have contacted that area. It caused a weakening
7 or a loss of the epidermis or the very outer layers of
8 the skin.

9 The nerves that come into this tissue go
10 into the very bottom part of this dark epidermis that
11 was lost. When that much tissue is lost, that would be
12 equivalent to a scrape, or you would feel that, in other
13 words. And we can see the connective tissue that comes
14 away from that is compressed in that area. So that's
15 where the tooth actually imprinted on the tissue.

16 As we go down through this connective
17 tissue layer, then we can see some glands. These are
18 sweat glands and some fat tissue, adipose tissue. And
19 there's a little area that's a little brighter, it's a
20 little redder, associated between that fat tissue and
21 the sweat gland. That represents red blood cells that
22 have been pushed out into the tissue. It's bleeding, in
23 other words.

24 Q. Before you go on, Dr. Rawson, you've got
25 the letter D above these.

1 A. Yes.

2 Q. Perhaps I just didn't listen intently. But
3 is this -- are these photographs enlargements of what
4 you saw on the slides in relation to one of those bite
5 marks, the tissue taken from one of the bite marks?

6 A. Yes, that's correct.

7 Q. Would you point to the jury which one?

8 A. That's number D. Now if we were to orient
9 again the 12:00 o'clock bite, it's up here. Directly
10 below that is the opposing arch. And then the 10:00
11 o'clock bite is in this plane. This would be tooth
12 number 27 that contacted the tissue in this area.

13 But there's also another bite that comes
14 across in this direction that doesn't leave a very
15 distinct pattern. And this is kind of a double imprint
16 in this area from tooth number 6.

17 Q. As in -- so actually you can discern these
18 three bites, one faint and two plain?

19 A. Yes. I can see five different positions of
20 the teeth in this. And I really localize it down to two
21 main bites.

22 Q. Now why did you choose the tissue with the
23 letter D by it?

24 A. Well, I've demonstrated that because that's
25 the only one of these that showed any hemorrhage at all.

1 Q. At all?

2 A. At all.

3 Q. The rest showed no hemorrhage at all?

4 A. That's right.

5 And as -- the significance of that is that
6 with this depth of pressure and this type of a wound
7 pattern that's left following death, we know that there
8 was significant biting pressure but no significant blood
9 pressure at the time of the bite. The fact that there's
10 some blood that's been pushed out into this tissue is
11 indicative that there was some type of blood pressure,
12 but that it was not very high.

13 Q. Could you complete then your discussion to
14 the jury?

15 A. Okay. As I looked at this slide -- and
16 this represents just a small part of the slide. It's
17 the area that shows the hemorrhage -- I could follow the
18 vessels. And I could see the vessel walls ruptured and
19 red blood cells coming out of the arteries. But there
20 wasn't very much blood out in the tissue. And again,
21 that just indicates that there was not very much blood
22 pressure at that point.

23 Q. Some blood pressure?

24 A. Some. But not very much.

25 And so, you know, it's the type of thing

1 where if there had been a heart attack and the heart had
2 stopped, then you'd see the blood pressure going down to
3 zero. And it was somewhere in that point. If a person
4 was bleeding to where they were losing fluid volume, it
5 would be somewhere in that process where they -- and
6 that's as close as we can come to saying whether or not
7 this person was alive or dead. We can say that -- I
8 used the term perimortem, simply meaning around the time
9 of death.

10 Q. There's a term postmortem.

11 A. Postmortem would be after death, and
12 premortem or ante mortem would be before a person died.
13 And I would use the term perimortem because there's good
14 evidence that there was some blood pressure but not very
15 much.

16 Q. Where the letter D is indicated for that
17 particular bite?

18 A. Okay. Now D on the orientation photograph
19 is here, and then each of these is a successive blow up
20 of that same tissue. At 100 X we can see now that area
21 of hemorrhage is basically taking half of the volume of
22 that photograph.

23 And as we go to 400 X, then this is
24 demonstrating a piece about two square inches, something
25 like that, out of the heart of the 100 X. And in this

1 we can see vessels. There's a small artery that has a
2 few blood vessels inside, but most of the blood vessels
3 are outside of the artery. These red blood cells are
4 scattered throughout the tissue, pushed down even into
5 and around some of the fat cells. They simply went the
6 path of least resistance through the tissue.

7 And the reason that we would look at that
8 is we want to see, was there any inflammatory reaction.
9 As I bit my hand, I've got a little redness there, which
10 is an inflammatory reaction. The vessels dilate and try
11 to get protective cells that come to that area to
12 protect the body. And we refer to that term as
13 margination. If white blood cells line the lining of
14 that vessel, we know that the body is trying to speed
15 these white cells there to protect the body.

16 We see no white cells in these views.
17 There is no margination, in other words. And about as
18 close as we can come, we can say this hasn't been five
19 hours before the time of death. I use the term "five
20 hours." You'll hear some that will say you can't tell
21 more than four hours, or some maybe more than six.

22 So we shouldn't pin it down as to a
23 specific time as much as simply saying that we know that
24 this bite wasn't created a day before, probably not half
25 a day before. And there's other evidence to suggest it.

1 was probably produced around the time of death.

2 Q. Now if that was the only bite, number D,
3 that had hemorrhage and the others did not have
4 hemorrhage, what does that signify?

5 A. Well, again the depth of the biting
6 pressure here, and the fact that we see no hemorrhage,
7 it indicates to me it's more likely that the person was
8 really dead or very close to dead.

9 Q. As in postmortem?

10 A. That's right.

11 Q. Is that your opinion?

12 A. Yes.

13 Q. Okay. Was there anything else you wished
14 to share with the jury with regard to the bite mark on
15 Kim Ancona's left breast and -- well, wait a minute.
16 One thing does occur to me.

17 Do you remember -- did you see any photos
18 with regard to a bite mark of the throat?

19 A. Yes. I saw both tissue and photographs of
20 the bite mark.

21 Q. Along that line you were -- you received
22 the tissue from -- that was taken from Kim Ancona's left
23 breast and her throat?

24 A. Yes.

25 Q. You examined it?

1 A. Yes.

2 Q. What did you find with regard to the bite
3 marks of her throat? Recognizing there were stab wounds
4 there as well.

5 A. I could still identify the pattern of this
6 same teeth creating all of these bite marks. There was
7 distortion in the tissue of the throat.

8 The tissue of the breast, there was a ring,
9 a custom plastic ring that was formed around the tissue
10 and then the tissue -- it was attached to the tissue and
11 the tissue was removed. So there's no distortion with
12 that method.

13 With the skin over the throat, it was
14 simply removed without anything to restrain it or to
15 maintain the position. But I could still identify the
16 pattern.

17 Q. From the actual tissue?

18 A. Yes.

19 Q. And by recognizing the pattern, is it your
20 opinion that it was Ray Krone's teeth?

21 A. Yes.

22 Q. All right. Now back to the question that
23 preceded this: Was there anything else you wished to
24 share with the jury?

25 A. No, I think that covers it.

1 MR. LEVY: That's all the direct questions
2 I have, Your Honor.

3 THE COURT: All right. Thank you. We'll
4 break for our lunch at this particular time.
5 Counsel.

6 (Discussion was held off the record between
7 the Court and counsel.)

8 THE COURT: All right. We'll start again
9 at approximately 1:45. Please remember the Court's
10 admonition then and we'll see you at that time. Thank
11 you.

12 (Lunch recess was taken.)

13 THE COURT: Let the record show the
14 presence of all of our jurors, the defendant and
15 counsel.

16 Mr. Jones, did you want to proceed in the
17 fashion we had talked about?

18 MR. JONES: Yes, Your Honor.

19 If the Court pleases, there's a witness who
20 appeared today, so that if we could just take him out of
21 order.

22 THE COURT: We can do that.

23 We'll interrupt the State's presentation of
24 his case for brief testimony from a defense witness who
25 needs to be elsewhere, I guess.

1 MR. FREDRICKSON: All right.

2 THE COURT: Let's bring Dr. Rawson back to
3 the stand.

4 MR. FREDRICKSON: Your Honor, may I ask you
5 one question?

6 THE COURT: No, sir. We're --

7 MR. FREDRICKSON: Why haven't I seen a
8 picture?

9 THE COURT: Maybe -- I have nothing to say
10 to you, sir, at this time. If you'd like to talk to one
11 of the police officers outside you can do that.

12 MR. FREDRICKSON: I don't want to talk to
13 them. I got to go back to work.

14 THE COURT: Counsel, will you please
15 approach the bench?

16 (Discussion was held off the record between
17 the Court and counsel.)

18 THE COURT: Cross-examination.

19 MR. JONES: Thank you, Your Honor.

20

21 CROSS-EXAMINATION

22 BY MR. JONES:

23 Q. Dr. Rawson, I know you've got a plane to
24 catch. I'm going to try to be relatively brief with
25 you. And thank you for allowing the witness to come and

1 testify first. Let's see if we can move quickly and
2 establish any common ground, and then I'll ask you some
3 questions from there.

20
4 First of all, would you agree with me that
5 forensic odontologists are people like anybody else and
6 they can make mistakes?

7 A. Certainly.

8 Q. Okay. Would you further agree with me that
9 tissue, human tissue by its very nature can be a very
10 difficult medium to try and obtain these impressions
11 with and attempt to make a match?

12 A. Yes. In fact, that statement comes from a
13 textbook I think Ervin Sulfer (ph) wrote a number of
14 years ago. There's been a lot of exception taken to
15 that now. And the profession generally feels that the
16 tissue, although you wouldn't use tissue to make an
17 impression of a tooth to make a bridge or a crown, that
18 it fairly accurately records trauma.

19 Q. Records trauma?

20 A. Trauma.

21 Q. So when you talk about tissue, the problems
22 with tissue are what, that it stretches, that it is
23 soft? Could you explain to the jury what the problems
24 are with tissue?

25 A. Well, the statement was originally brought

1 up when Dr. Sulfer stated in a textbook that tissue is a
2 very poor impression material. And that's the context
3 he was using it in.

4 If I wanted to make a denture for someone,
5 I wouldn't take an impression with skin. In that sense
6 it is a poor impression material. But we have a number
7 of studies and a lot of reports that have been given on
8 a national level now that show the real meaning to what
9 was behind that statement.

10 Q. Well, do you agree or disagree that tissue
11 by its nature can be a very difficult medium to work
12 with to analyze and to interpret?

13 A. Yes, it can be.

14 Q. All right. And your difficult task is made
15 even more difficult if you don't have a full set of
16 teeth -- which obviously makes it a very simple thing --
17 if you don't have a full set of teeth marks showing all
18 the teeth?

19 A. Yes.

20 Q. By way of comparison, if you had a piece of
21 styrofoam like the one that's in evidence here, if you
22 have a full set that's an easy job for you, isn't it,
23 with your expertise?

24 A. Well, understand that this process of
25 comparison is the same regardless of the number of

1 impressions. And that in many ways the more teeth you
2 add, the more area there is to observe and to fit into
3 the pattern. It actually complicates the amount of time
4 that you have to deal with it.

5 Q. In other words, if you have a lot of teeth
6 to look at, then you have a lot of different variables
7 and factors to consider?

8 A. No. You have to give the same careful
9 attention to every tooth mark. And so the more marks
10 you have, the longer it takes to do a complete
11 examination.

12 Q. You've indicated, based on the evidence
13 that you were given by the prosecutor and Detective
14 Gregory of the Phoenix Police Department, that your
15 opinion that there's a match and that Ray's dentition --
16 am I saying it right, dentition? -- is one and the same
17 as the bite mark that you examined?

18 A. That's correct.

19 Q. Okay. With regard to the injury on the
20 neck, let's see if we can get some further agreement.
21 That one, if you only had that particular bite mark, the
22 one that appeared on the neck, and nothing else, you'd
23 have a very, very difficult time making a match,
24 wouldn't you?

25 A. No. Actually the relationship was still

1 clearly visible on the bite mark on the neck. There
2 were distortions. There were conditions that had to be
3 dealt with.

4 It was easier to work with the bite mark on
5 the breast, I guess, if that's your question. Yes, it
6 was easier.

7 Q. My question was: If that was the only one
8 you had, you wouldn't have been able to make a match,
9 would you?

10 A. No, I think it was sufficient to make the
11 match from the neck wounds.

12 Q. Wasn't that the tissue that was put in the
13 mason jar that we saw in Las Vegas when we went for the
14 interview?

15 A. That's correct. It was actually a plastic
16 maybe half gallon size jar.

17 Q. And it was dropped into the formula?

18 A. Yes.

19 Q. That's, what, 37 percent solution of
20 formaldehyde?

21 A. That's a fixing solution that anything over
22 ten percent fixes the tissue.

23 Q. Well, aren't there specific problems with
24 that type of procedure in terms of distortion?

25 A. In the early days of bite marks that's the

1 way they saved all the tissue. All the early analysis
2 was done that way. And I think following the Patterson
3 case where the entire breast tissue was saved that way,
4 there was a recognition that it would be nice to stop
5 some of the distortion because it would be easier to
6 work out the case. We've done that. And it simplifies
7 and places the whole procedure in a more scientific
8 basis. But that doesn't mean we still can't analyze
9 bite marks the way we used to.

10 Q. Well, aren't effects of the formula
11 twofold, shrinkage and hardening?

12 A. Yes. You simplify them, but in effect we
13 get a fixing or a preserving of the tissue. And in that
14 process, not particularly because of the formula, but
15 because the tissue is removed from all the
16 underpinnings, the underlying support, the tissue will
17 tend to shrink. And it shrinks as much as 30 percent.

18 Q. And that in addition to the fact that it
19 was also tissue that had been cut presumably with a
20 knife?

21 A. Yes.

22 Q. That would create additional problems also?

23 A. Yes. Each one of those creates distortions
24 that you have to deal with.

25 Q. Let me make sure I understand. Is it your

1 testimony then that if you only have that mark you would
2 still be able to make an identification?

3 A. Yes.

4 Q. Okay. Let's move on to another area then.

5 As far as the videotape that you show of -- I wonder if
6 we could go through a portion of that and I could ask
7 you some questions about that. Could we set that up
8 again?

9 I think we're basically ready to go. Do
10 you have the remote there, Doctor?

11 A. Would you like me to approach the --

12 Q. You can if you like. I think they've
13 turned the bottom toward you. Maybe it would be easier
14 for you to see.

15 A. I would see it better if I was over here
16 where I was.

17 Q. All right. We'll do that for you.

18 Now if you would, if we could fast forward
19 to a point where I can ask you some questions.

20 All right. Would you stop it there,
21 please?

22 Look, Doctor, if you would, at the 12:00
23 o'clock bite. Do you know which one I mean by that?

24 A. Yes.

25 Q. I think you made reference to it. You just

1 pointed with your pointer.

2 A. Yes.

3 Q. You previously testified that -- I believe
4 we've got the orientation of that bite with what you
5 presumed to be the number 8 and number 9 teeth?

6 A. Number 8 there and number 9 there.

7 Q. And did you measure how much space there
8 was between those two teeth marks that were found on the
9 victim?

10 A. The measurements were made by direct
11 overlay comparison. In other words, I was able to use a
12 model of the teeth to actually do measurements.

13 Q. And can you give us that measurement,
14 Doctor?

15 A. No, I don't have those recorded. It seems
16 to me that it was 8 something millimeters wide. But I
17 don't have it recorded.

18 Q. You've got your ruler there. Would it be
19 possible to give us an estimate based on the ruler?

20 A. I wouldn't do that off of the T.V. screen.
21 If you want to go to some hard copies. Because this is
22 jumping and we couldn't do an accurate measurement off
23 of this, no.

24 Q. What was the number that you recalled
25 before?

1 A. Well, it was 8 something millimeters is
2 just what comes to mind. But I've recorded a lot of
3 numbers. I've done a lot of angles. I've done
4 measurements as far as the arch form in the process of
5 this. It's just that I don't have any of those
6 things --

7 Q. Excuse me, Doctor. Let me get one of your
8 other exhibits. Just keep that on for me.

9 Let me show you Exhibit 144. It also has
10 your ruler on it, does it not?

11 A. That's correct.

12 Q. If we pull back the acetates, would you be
13 able then to tell us?

14 A. You wanted me to measure which tooth?

15 Q. The space there between 8 and 9, how much
16 distance would that be?

17 And I see you've also got your own ruler
18 out now.

19 A. Yes.

20 Now from the end of the mark that I can see
21 on tooth number 8, it's about a millimeter and a half.

22 Q. Millimeter and a half?

23 A. And the reason I say about a millimeter and
24 a half, I'm using a flat ruler and having to convert
25 from three to one back to one to one. It's about a

1 millimeter and a half.

2 Q. Thank you, Doctor. Let me take that out of
3 your way.

4 And could you go back to the fast forward
5 mode?

6 A. Okay.

7 Q. Would you hold it there, Doctor?

8 A. Okay.

9 Q. Are tooth 8 and 9 depicted in this photo?

10 A. Yes, they are.

11 Q. How much space -- you need to stop it,
12 please.

13 A. I'm sorry.

14 Q. Is that a close up of 8 and 9 there?

15 A. Yes, it is.

16 Q. How much space does there appear to be
17 between tooth 8 and 9?

18 A. Between the biting edges of these teeth
19 there is a space. Now I can't measure that because
20 again it's on a jumping screen. But if we either have
21 the models or if you have a photograph such as this I
22 can measure that one to one.

23 But as you see, the way I'm holding the
24 ruler, there is an upturn on the mesial or the middle
25 edge of the biting surface of tooth number 8 that leaves

1 a space in there that's simply not marking on the
2 tissue.

3 Q. And you don't know from your notes or your
4 memory in terms of how much space there was there?

5 A. That looks like about a millimeter and a
6 half.

7 Q. It looks like a millimeter and a half
8 there?

9 A. Look at the biting surface of this tooth.
10 Draw a line straight across. And that leaves a wedge
11 shape in there that would not touch the tissue.

12 Q. You're talking about that part?

13 A. That's correct.

14 Q. But as far as the tooth coming straight
15 down, they appear to touch, don't they?

16 A. They do touch, or they appear to touch.

17 Q. And the little area you're talking about,
18 is that your opinion as to why when we look on the other
19 exhibit where there is some space between the two marks
20 you've identified as being tooth 8 and 9?

21 A. I believe that becomes obvious to anyone
22 looking at this that this part of the tooth didn't touch
23 the tissue. It's this part of the tooth that touches
24 the tissue, and that there is a space between the teeth
25 and that part.

1 Q. And that -- it's your opinion that this
2 particular space that's depicted where these teeth touch
3 created the distance apart between 8 and 9; is that
4 right?

5 A. It's a well-known principle in forensic
6 dentistry that every part of a tooth will not leave an
7 impression in the skin. An area has to be able to touch
8 the skin, it has to be able to put the same kind of
9 pressure. We have --

10 Q. I think you answered my question. He can
11 ask you those other questions on redirect.

12 A. Okay.

13 Q. Let's go forward to the next tape. And
14 could you hold it there for just a moment?

15 A. Yes.

16 Q. Go back to the last one.

17 A. There?

18 Q. There. Thank you.

19 Is this particular photo -- is this
20 particular photo an example of what we call photographic
21 distortion, where it appears 8 and 9 are the same length
22 and we know they're not?

23 A. It's really a factor of photographing a
24 three-dimensional object in two dimensions. So you
25 could not use this photograph to indicate the length of

1 the teeth.

2 Q. So the photographs, depending on the angle
3 that they have -- the angle that the camera has, can
4 create some distortion, this might be an example?

5 A. Yes, that's an example.

6 Q. And fast forward, please.

7 All right. Hold it there, please.

8 Now what we're looking at right now would
9 be the styrofoam of Ray Krone's teeth?

10 A. That's correct.

11 Q. At least that was the information given to
12 you. And we don't have any reason to doubt that.

13 On this particular styrofoam, the tooth
14 that produced the most prominent wound on the victim is
15 barely discernible there; is that right? It doesn't
16 stand out? Maybe it does to you as a scientist, but as
17 an ordinary person looks at it you can barely see it.

18 A. Are you talking about tooth number 9, do
19 you mean?

20 Q. Yes.

21 A. That's noticeable to me. It's not the most
22 noticeable, but it's observable.

23 Q. Fast forward, please.

24 A. Okay.

25 Q. All right. Could you hold it there,

1 please?

2 A. I'm sorry, I have to -- it won't always
3 stop it where I want it to stop.

4 Q. I know. That's close enough. We can go
5 from there.

6 A. Okay.

7 Q. Now this is your attempt to line up with
8 the Xerox of the teeth that you created and to attempt
9 to make them line up to the marks; is that right?

10 A. No. This was an attempt to demonstrate
11 technique overlaying -- I didn't intend to use this as
12 final -- the final proof or final demonstration, but to
13 demonstrate how the overlays can be -- can be moved and
14 brought in to demonstrate some of the dynamics of the
15 bite.

16 Q. Is it fair to say, Doctor, that the way you
17 have it aligned right at this point where we see it --
18 it looks like just below the number 9 tooth?

19 A. Yes.

20 Q. The number 9 tooth appears to be going
21 upward and to the right of the screen. And the number 9
22 tooth is instead round and would not normally make that
23 impression.

24 A. And again, I say this is a moment in time
25 of moving that around on the photograph, and it happens

1 to show the overlay of the teeth at about, I don't know,
2 15 degrees, some angulation different.

3 Q. Fast forward, please.

4 A. Okay.

5 Q. Now, could you hold that, please?

6 A. Yes.

7 Q. Now I believe you indicated on direct in
8 response to the prosecutor's questions that what we have
9 now is an overlay, a video overlay, if you will, and the
10 larger object appearing in the screen is the number 9
11 tooth?

12 A. Yes. The large object here is the overlay
13 on acetate of the photocopy machine image of the teeth.
14 And it is tooth number 9.

15 Q. And that's at some kind of magnification;
16 right?

17 A. Yes. I can't recall what it is. I think
18 it's nine times. It is in the same scale.

19 Q. And the injury that was noted in the 12:00
20 o'clock position is the darker injury underneath; is
21 that right?

22 A. Yes.

23 I have this set slightly above. And you
24 can see the line in the injury somewhere like that. And
25 you lose it in the darkness coming down on the lingual

1 or the tongue side.

2 Q. Doesn't this appear to show the left edge
3 of the injury where the darker portion is? That's the
4 significant injury, is it not?

5 A. Let's go back --

6 Q. Go back to the other one where it's clear.
7 All right.

8 Isn't that the injury right there depicted?

9 A. That is the injury.

10 Q. And then this is the overlay?

11 A. That's correct.

12 Q. So will you at least agree with me that
13 that particular tooth appears to be twice as large as
14 the injury?

15 A. No, it doesn't look twice as large to me.
16 The image on the acetate does appear to be larger. I
17 can follow a line through that area, then there's a
18 darker line here. We have a tongue side that cuts
19 around this side. The difference there might be 20
20 percent or something like that.

21 Q. Well, you made reference to this area over
22 here. Are you saying that this may be part of that one
23 tooth injury?

24 A. We have a double impression in this --

25 Q. Well, if you could just answer yes or no,

1 A. Your question again?

2 Q. My question is: This area to the left of
3 this brown spot, are you saying that this could be part
4 of the injury or is an injury?

5 A. Okay. To answer your question then as
6 directly as I can, this part is a double impression.
7 It's also tooth number 11. Which is basically creating
8 a bruise in that size. And tooth number 8 is lost as we
9 get into the double bruise. The 10:00 o'clock bite,
10 tooth number 6, has caused some of this bruising here.

11 Q. So if I can find out -- if I understand
12 what you're saying, you're saying then it's your opinion
13 that there was another bite, a third or fourth bite,
14 that a different tooth came down there?

15 A. The second bite that we've described, the
16 10:00 o'clock.

17 Q. The 10:00 o'clock bite?

18 A. The eye tooth also presses in this area.

19 Q. Doesn't this particular wound have
20 something of a crescent moon shape in the magnification?

21 A. I don't know how you want to describe that.
22 I see a line that follows -- makes a nice general buccal
23 surface. The lingual surface is lost, however. There
24 is some of the concavity on the tongue side. But that
25 is obscured by another bruise here that's caused by

1 tooth number 6. So the detail of this is lost in the
2 double bite.

3 Q. Well, would you at least agree with me that
4 the dark portion appears to form something of a crescent
5 going upwards?

6 A. Yes, I can see a dark portion there that
7 has a dip in it or however -- a crescent.

8 Q. And I assume from what we've talked about
9 before, what these dark portions are showing is
10 significant injuries; right? When we say a dark portion
11 on this screen --

12 A. Yes.

13 Q. -- we're to assume that's a significant
14 injury?

15 A. Yes.

16 Q. Fast forward, please.

17 And hold there, please. That's fine.

18 Now as you testified this morning, what we
19 have now is a CT scan, and you're taking layers. The
20 longest portions of the teeth are showing up first on
21 these layers; is that right?

22 A. Yes, that's correct.

23 Q. And what we see is that number -- what
24 number tooth that at 12:00 o'clock?

25 A. That's tooth number 9.

1 Q. Number 9 showing up first along with --

2 A. Tooth number 6 and tooth number 5.

3 Q. And because of the length of the teeth
4 then, isn't it likely that those three teeth showing up
5 first would produce the most significant injuries?

6 A. It's likely that if we're -- if you see a
7 bite where all of these teeth were in touch with the
8 tissue you would see the more significant injuries with
9 those teeth.

10 Q. But didn't -- did you in this case?

11 A. Of course we did. The most significant
12 injury is the tooth that is hitting the hardest.

13 Q. That's number 9; right?

14 A. That's 9. Tooth number 6 leaves a
15 noticeable and significant injury. And there is some
16 bruising from tooth number 5.

17 You know, we have 32 teeth in our mouth,
18 and only some teeth will come in contact with the
19 tissue.

20 Q. Isn't it fair, Doctor, that the injuries
21 you determined were there were nowhere near as
22 significant as the one you observed with number 9?

23 A. No, I wouldn't say that at all. I think we
24 have a very specific injury with number 9. But there is
25 still a very noticeable injury with tooth number 6. And

1 if you look at the relative proportion of these on the
2 CAT scan, tooth number 6 is barely contacting the tissue
3 at this point. And I would expect to find a
4 relationship very similar to that.

5 Q. All right. Thank you, Doctor. That's all
6 I have. You can have a seat.

7 Your Honor, should I move these?

8 THE COURT: Yes, please, if you would.

9 Q. BY MR. JONES: Now, Doctor, you would agree
10 with me that the injury produced by tooth number 6 is
11 nowhere near as severe as number 9, would you not?

12 A. No, I wouldn't agree with you. I think
13 it's -- it demonstrates a significant biting pressure.
14 If you're saying is it as well outlined, no.

15 Q. Maybe that's what -- I didn't say it very
16 well.

17 A. Okay.

18 Q. It's not as well outlined.

19 Now, in your analysis in this particular
20 kind of case, don't you have to also add and account for
21 distortion that might have been caused by the sucking of
22 the breast as well as the biting?

23 A. You know, whenever we do an examination of
24 this type we are concerned about distortion or any
25 possible distortion anywhere along the way. I don't see

1 any significant evidence of sucking on this. That
2 doesn't disprove the fact that there may have been some.
3 But I don't see any evidence of sucking.

4 Q. What type of evidence would you be looking
5 for?

6 A. Petechial hemorrhages. And again, if that
7 sucking took place postmortem, you may or may not see
8 that. But we see definite bruises in the center of a
9 bite when there's been a significant sucking action. A
10 hickey, in other words. And I just don't see anything
11 like that.

12 Q. And wouldn't -- in other words, to be able
13 to see those bruises, wouldn't sucking have to go on for
14 a period of time?

15 A. No, not particularly. We can
16 experimentally produce that type of suction in a second.
17 It doesn't --

18 Q. Is it strong enough?

19 A. With strong sucking action you can very
20 quickly produce a hickey.

21 Q. My question, Doctor, is: That particular
22 physical act can cause distortion on the breast, can do
23 it. Do you agree or not?

24 A. There are many things that can and that's
25 one of them.

1 Q. It can.

2 Another area that could cause distortion
3 would be the type of tissue we're dealing with, erectile
4 tissue, if you will?

5 A. Yes. However, none of the bites are on the
6 nipples themselves. And remember, in all of this
7 distortion, if tissue can be drawn out of place, it can
8 return to its normal form. And the tendency for the
9 tissue is always to relax to its normal state. And in
10 fact, there's very little distortion, if any, that's
11 really shown in this bite.

12 Q. The tissue returns to its normal state, you
13 said?

14 A. Yeah.

15 Q. It would return to its normal state after
16 the injury, wouldn't it?

17 A. Yes.

18 What I'm saying, if I bring my tissue
19 together like this, there's a significant distortion to
20 that tissue. As soon as I remove my fingers it has a
21 tendency to pull back to its normal form.

22 Q. By using your example, Doctor, where you
23 bring that up and you create an injury, when you release
24 it and let it go, the bite mark itself spreads out,
25 doesn't it?

1 A. Yes.

2 Q. And you have to account for that as part of
3 your analysis?

4 A. Yes.

5 And we've analyzed that in some detail,
6 produced many, many experimental bites to study that.
7 And the tissue, in whatever state it is, as the teeth
8 come in contact and then gather the tissue together, the
9 tissue will then go back to the same form it was in as
10 the teeth came in contact. In other words, it may have
11 gone through a significant distortion, but it returns to
12 the normal form that it was in.

13 Q. To its normal form?

14 A. Yes.

15 Q. But just so we're clear, when it's
16 impacted, when the mark is made, it's not in its normal
17 form, is it?

18 A. Yes. I guess the point I'm trying to make
19 to you is, it's not a factor in this bite.

20 Q. In this bite you don't believe it to be?

21 A. That's correct.

22 Q. And that's your opinion?

23 A. Yes.

24 Q. And one additional part about tissue I
25 don't think we've discussed yet, Doctor, is that tissue

1 also tears and stretches in bite cases, doesn't it?

2 A. Yes. There is a classification that allows
3 for the extent of the injury. This is an injury that
4 demonstrates no tear or incision or avulsion. It's not
5 a bite of that extent.

6 Q. And again, in your opinion you didn't see
7 any evidence of tearing or stretching, but you know that
8 does occur in bite mark cases?

9 A. That's correct.

10 Q. Now when you go about making one of these
11 evaluations, analysis, and coming to an opinion, I
12 believe you indicated in response to the prosecutor's
13 questions that you spend many hours looking at the
14 tissue, looking at the other exhibits that the State has
15 provided to you?

16 A. That's correct.

17 Q. Did you use a scoring system in any sense?

18 A. I developed a scoring system. And I
19 always, as I evaluate a bite mark, think in terms of the
20 scoring system. But it's not a system that is used
21 systematically now by forensic dentists, and so I don't
22 go through the normal exercise of scoring.

23 Q. In fact, I asked you in our pretrial
24 interview whether or not you used a scoring system. You
25 told me no, didn't you?

1 A. That's correct.

2 Q. And you yourself have developed one that
3 you presented for the other members of your expert
4 community to consider and adopt, did you not?

5 A. Yes.

6 Q. And when was that, about '82, '83?

7 A. I'm not sure. It was early eighties.

8 Q. But you didn't use that same system in this
9 case to actually score?

10 A. As I said, I didn't do a formal scoring.
11 But I evaluate every bite mark in terms of the knowledge
12 that went into developing that scoring system.

13 Q. I understand, Doctor. And you also
14 indicated that -- and I believe you've lectured and
15 written papers on this -- that a computer analysis of
16 the wounds and the dentition are important and should be
17 undertaken; isn't that true?

18 A. Well, again, this is a field that evolves,
19 like any field. And at the time when we were doing the
20 very first computer analysis of bite marks, that seemed
21 like an important thing to do, because it brought forth
22 far more information than anyone had ever seen before.

23 The extent of our understanding of bite
24 marks and the way we analyze them has evolved past that
25 point to where I'm using many of the same techniques as

1 a computer analysis when I evaluate a bite mark today.
2 I still look in terms of the XY coordinates of various
3 marks on the skin. I still think in terms of
4 angulation. It's all of the things that I would put
5 into a computer to analyze. But the system, the
6 technique has evolved.

7 It finally comes down to this, do we want a
8 machine to make a determination that may hold someone's
9 life in the balance, or do we want to hold that final
10 decision for the wisdom that we have? And it's like, I
11 suppose, landing a computerized airplane. The computer
12 may be very capable. I would rather have the pilot do
13 it.

14 Q. To clarify, you didn't do a computer
15 analysis in this case, did you?

16 A. No, sir.

17 Q. And you admit that you're on record as
18 recommending that in the past?

19 A. In an early paper in the evolution of the
20 process I advocated computer analysis, yes.

21 Q. Then just because a computer analysis is
22 done that the computer is doing the work, isn't an
23 expert still looking at the material and evaluating?

24 A. The early computer programs were directed
25 at a point of giving us a number that would essentially

1 say it's a match or it's not a match. And that's a
2 decision that I don't know anybody in our field that
3 advocates that today.

4 Q. So you're talking about the type of program
5 then, we don't want a computer spitting out this is a
6 match and that's the end of the inquiry?

7 A. I guess it's a dumb machine and it's the
8 way we use it that's important.

9 Q. Right.

10 Now you've been involved in studies in the
11 past, haven't you, where blind studies were done and
12 forensic odontologists were unable to determine the
13 identity of a specific individual based on a review of a
14 bite mark and their dentures or casts?

15 A. Yes.

16 Q. And when that particular evidence or data
17 was submitted to forensic odontologists around the
18 country, 67 percent were able to come up with a correct
19 match?

20 A. You know, I don't remember the exact
21 percent. But that's in the neighborhood.

22 We developed a series of bite marks of
23 known origination. In other words, not through a trial,
24 but through a witnessed biting. We took photographs
25 from those bite marks. And we had some that were

1 excellent bite marks and some that were very poor bite
2 marks. We had a full continuum of bite marks. And we
3 sent those cases to 100 forensic dentists. And about
4 half of them returned the cases with their evaluation of
5 the bite marks.

6 Q. So my question then, Doctor, there is room
7 for error in this field, is there not?

8 A. Well, you know, I think any study has to be
9 looked at, and you have to hold that anything that's
10 done by humans has that potential for error.

11 This particular study sent a complicated
12 set of four bite marks in all the models to forensic
13 dentists with no payment for their consultation time.

14 Q. So it was up to them to decide how much
15 time went into it?

16 A. Sure. And in talking with them, none of
17 them spent --

18 Q. Excuse me, Doctor, I don't want any hearsay
19 coming in. You did the study?

20 A. Well, it's my study, and I'm reporting to
21 you what the people that participated in the study said.

22 Q. It's up to the Court. I'm not requesting
23 hearsay from you.

24 MR. LEVY: Your Honor, I see --

25 THE COURT: Is there an objection to what

1 the witness is basing his testimony on on the hear -- on
2 the study, is that what you're saying?

3 MR. JONES: I'm just not trying to offer
4 hearsay.

5 MR. LEVY: No, Your Honor. I'm just
6 interested to hear his answer to the question that he's
7 been asked.

8 THE COURT: I'll allow you to develop that
9 further on your redirect if you want to.

10 Q. BY MR. JONES: There wasn't any mention --
11 I don't think the prosecutor mentioned anything about
12 comparisons to bite marks to fingerprint analysis. And
13 I know you've been on record before as saying that it
14 matches up well and that it should be on the same par as
15 fingerprint analysis; is that true?

16 A. I don't know that I said that here. I
17 think it's very --

18 Q. You didn't say it here. I'm talking about
19 you're on record previously.

20 A. I think both in published literature and in
21 oral presentations I've indicated that it has all the
22 voracity, all of the strength that a fingerprint would
23 have, yes.

24 Q. And to be fair, Doctor, would it be better
25 to say that it can be -- it can be as strong, depending

1 on the quality of the mark, how much information you
2 have?

3 A. You know, I guess I would say that the
4 fingerprints can be as accurate as bite mark
5 identification.

6 Q. As opposed to the other way around?

7 A. Yes.

8 Q. But there are some significant differences
9 between the two. They do have a scoring system in
10 fingerprint analysis, don't they, Doctor?

11 A. Yes.

12 Q. A standard scoring system?

13 A. Yes. Yes, they do. I don't know that it's
14 referred to as a scoring system. But they do have a
15 means of evaluating, yes.

16 Q. Developed in the 1800s, first used by Scott
17 Lenyard (ph). I think you know all this; is that true?

18 A. I think the first case is 19 something in
19 this country.

20 Q. In this country?

21 A. Yes.

22 Q. And we also have a central repository for
23 fingerprints so you can actually go and look at the
24 print itself and match it to what you found at a crime
25 scene?

1 A. That's correct.

2 Q. And we don't have such a thing with regard
3 to bite marks; is that right?

4 A. That's correct.

5 I might indicate in relationship to that
6 that today when we have some type of a disaster and need
7 to identify someone, we have far more access to
8 dentition records than we do fingerprint records. There
9 are more X-rays available on people in this country than
10 there are fingerprints available. And a typical example
11 of like in the Sioux City crash some 90 percent of the
12 people were identified through their X-rays, not
13 through --

14 Q. Not through fingerprints?

15 A. Not through fingerprints.

16 Q. And that's a different area, though, isn't
17 it? I mean, you've got the teeth -- you've got the
18 teeth of the person and you're trying to go back and
19 take the teeth and match them up to the X-rays; isn't
20 that right?

21 A. Yes.

22 And if you really want to carry that a
23 little further, that's very much like we're doing here.
24 I'm matching the teeth to marks left by the teeth. Now
25 I can take those teeth and match them to X-rays of the

1 teeth. It's usually not used in this context, but the
2 technologies are not very dissimilar.

3 Q. You don't think it's different to take --
4 you don't think we're talking about a whole different
5 area, Doctor, to take an impression off of a tissue,
6 human tissue with distortion, and try to match that up
7 with someone's styrofoam teeth? You don't think that's
8 different than having the teeth and looking at X-rays
9 and making a one-to-one comparison?

10 A. If you're asking me are they different
11 techniques that are used in it? Sure they are. Is
12 there any difference?

13 Q. It's easier, isn't it?

14 A. Oh, I don't know. I think we have some
15 very difficult times doing identification. The ease or
16 the difficulty of a process doesn't talk about its
17 rightness in a particular situation.

18 I guess I'm telling you that both are based
19 on the same thing. Teeth are unique. And any work
20 that's done to teeth is unique because it's custom-made.
21 And that is enough to base the identification of a
22 person on. It's also enough to base the identification
23 of a person based on the marks they've left with those
24 teeth.

25 Q. Now you have analyzed, I think from your

1 testimony, thousands of bite marks. Is that what you
2 said?

3 A. No, I don't think that's the way it was
4 said. I have seen thousands -- not thousands. I have
5 one particular study where we've classified over 1,000
6 bite marks. I've analyzed in some detail those bite
7 marks. I've prepared for court something less than 100.
8 I've given reports on about that many to some proper
9 jurisdiction.

10 Q. And you've also been involved in some civil
11 cases where this identification issue is involved?

12 A. Yes.

13 Q. In the last six months since you became
14 involved with this case I assume you're working on other
15 cases as well?

16 A. Yes.

17 Q. Do you know how many?

18 A. No. Not many. I've given an opinion I
19 think during this same period of time for a case in
20 northern California. There's been some review of a case
21 in Detroit. There have been a few other cases, but not
22 many. Not a dozen.

23 Q. How many hours do you think you've spent on
24 this case?

25 A. I would guess 50 hours, formally work on

1 it. I've spent as many hours informally thinking about
2 it, running things over in my mind.

3 Q. What's your fee for coming here?

4 A. I charge, I suppose, similar to what you
5 do. I charge \$125 an hour for the formal working time
6 on a case. And \$1,000 a day for any day that I have to
7 be out of my office and out of production.

8 Q. In addition to the other work on other
9 cases, judging by your curriculum vitae, you have lots
10 of other duties that you have to do and were doing in
11 the last six months; is that true?

12 A. Yes, that's correct.

13 Q. You've had speaking engagements, seminars?

14 A. Yes.

15 Q. You're writing a book?

16 A. Yes.

17 Legislative hearings. I've taught classes.

18 Q. Was the legislature in session up in
19 Nevada?

20 A. No, it wasn't in session, but I do carry
21 responsibilities beyond session.

22 Q. And there are hearings that are ongoing
23 even when it's not in session?

24 A. Yes.

25 Q. And I believe you're also director of the

8 1 Clark County Community College dental hygiene program?

9 2 A. Yes.

10 3 And during that period of time I was
11 4 department chair while the department chair was on
12 5 sabbatical.

13 6 Q. So there are duties there that go with
14 7 that. That takes up quite a bit of your time?

15 8 A. Yes. So I've been busy.

16 9 Q. Apparently you're on the editorial board of
17 10 a journal of forensic medicine magazine. Does that
18 11 require time?

19 12 A. No. I'm no longer on that editorial board.
20 13 And I have been clearing out many of the
21 14 responsibilities I've carried in the past to try and
22 15 simplify --

23 16 Q. You indicated previously you had 40 to 50
24 17 hours of continuing education in the last year?

25 18 A. I don't -- I just -- I have to sort that
out how many. I've attended some courses, yes.

26 19 Q. You list on your CV that you also have a
27 20 limited private practice in dentistry. Are you seeing
28 21 patients as well?

29 22 A. Yes.

30 23 Q. You also indicated you're a full professor
31 24 of Clark County Community College. Do you teach courses

1 as well?

2 A. Yes.

3 Q. And then I think for your church you're
4 state president. You've got administrative duties there
5 as well?

6 A. Yes.

7 Q. Doctor, how do you find the time to give 50
8 hours to this particular case with all that you're
9 doing?

10 A. If a case is important enough for me to
11 look at and give an opinion, then that's important
12 enough to spend whatever time is necessary to see that
13 that's an accurate opinion. Now I format my life with
14 days that I devote to forensics and days that I devote
15 to church and days that I devote to the legislature, and
16 there are days that are in practice. And there are
17 hours of those days that are associated with
18 administration and so on.

19 I suppose it's a matter of organizing
20 similar to the way you would, unless this is the only
21 case that you handle in your life.

22 Q. It's not.

23 In addition you're running for reelection?

24 A. Yes.

25 Q. I assume there's time required to make

1 personal appearances and that sort of thing?

2 A. Yes. However, it's not a hotly contested
3 race. I'm not particularly targeted.

4 Q. Do you have opposition?

5 A. I have opposition.

6 Q. In your party?

7 A. Yes.

8 Q. But you say it's not contested?

9 A. I think I have opposition in two or three
10 parties. I have somebody that's running every
11 possibility that they could.

12 Q. Now in your analysis and your evaluation
13 and the time that you spent looking at this, would you
14 also agree with me that it would have been important to
15 know if there were any other instruments that may have
16 left marks on the left breast?

17 A. We like to know as much as we can about
18 every case that we look at. There is an instrument
19 that's left a mark on the breast that I can account for.

20 Q. The 10:00 o'clock scratch?

21 A. That's right.

22 Q. We'll talk about that in just a moment.

23 A. Would you agree with me that knives or
24 pieces of wood do leave marks too, and sometimes it's
25 important to eliminate them and get them out of the way

1 as part of your analysis?

2 A. Yes. We often see extraneous marks. Bite
3 marks will be created through clothing sometimes,
4 through multiple layers of clothing. So in the pattern
5 analysis of bite marks we try to account for every
6 aspect of it we can.

7 Q. Isn't it true, Doctor, that you never
8 obtained -- it was never provided to you the knife
9 involved in this particular case so you could make a --
10 an examination of the injury and compare it to the
11 knife, the edge of the knife?

12 A. Well, that's true. I never asked for the
13 knife. I didn't see any cut wounds that would have made
14 me do that. If we had analyzed to the full extent this
15 bite mark or two bite marks actually on the neck, I may
16 have wanted to see more of the instrumentation. It was
17 obvious to me that the scratch mark on the -- this 10:00
18 o'clock bite was not a tooth mark, but it was some kind
19 of a sharp, pointed instrument.

20 I see marks that are similar as if people
21 are drug across the ground, it can come from small
22 grains of sand. It can come from a needle, it can come
23 from a knife tip. That gets beyond the point of the
24 dentition. And so I have all the information I need
25 there to be able to demonstrate the match with the

1 dentition. And if they want to have a tool mark
2 examiner look at some of the other things, that's fine.

3 Q. A tool mark examiner?

4 A. Sure.

5 Q. In fact, that's what you are, isn't it? I
6 mean, the teeth are tools, they're teeth and biting
7 tools?

8 A. Sure it is, in a way. And in effect, once
9 you draw that analogy it -- some of the very early cases
10 were simply handled by tool mark examiners. And bite
11 mark examiners have done tool mark examinations of the
12 skin.

13 I guess what I'm telling you is, there was
14 a scratch of some unknown cause that overlays one of the
15 bruising patterns of the bite mark. And that's as far
16 as my examination went.

17 Q. Would you agree that it's possible that if
18 this murderer had wanted to torture Kim Ancona he could
19 have taken a knife and pressed it down and produced a
20 mark on her left breast?

21 A. Yeah. But that's not what this mark looked
22 like. This is a scratch mark that really looks very
23 much like a sharp, fine-pointed object, not like a large
24 knife blade, but I mean something like a pin. It could
25 be anything from jewelry to some part of the clothing to

1 an instrument. And it could have been torture. And
2 that's beyond the area -- you know, I choose not to
3 speculate, because I have no idea what caused the
4 scratch.

5 Q. My question, Doctor, is that a knife used
6 in that fashion that I described could actually create a
7 mark on the breast. I think I understand it's your
8 opinion that there is no such mark on the breast; is
9 that right?

10 A. The -- a knife could cause a -- could cause
11 a mark anywhere on the body. And I won't rule out that
12 any instrument has created that mark until I have an
13 opportunity to examine it.

14 Q. And you didn't have that opportunity here,
15 did you?

16 A. I didn't have or take that opportunity.

17 Q. And also in evidence, Doctor, is a piece of
18 wood, a shim that is splintered. Have you had a chance
19 to see that?

20 A. No, I haven't.

21 Q. And would you agree with me again that that
22 could also create an injury, and that you'd like the
23 opportunity to examine that?

24 A. I would think that it could create an
25 injury anywhere on the body. I see nothing in that bite

1 mark that should suggest any microfragments of wood
2 that's left in that tissue.

3 Q. You didn't see any microfragments of wood?

4 A. I've examined that scratch mark in some
5 detail, and I see no extraneous material associated with
6 it, no small slivers, nothing like that. My impression
7 is that it was a small, sharp object, could have been
8 glass, could have been metal. Could be any number of
9 things. But it's superfluous to the bite mark. It's
10 after the bite mark. That's as far as I've pursued that
11 avenue.

12 Q. And similarly I assume you would also say
13 that as we look at the injury that's depicted on Exhibit
14 144 at the 12:00 o'clock position, I know you've already
15 testified that's a number 9 tooth of Ray Krone's.

16 A. Yes.

17 Q. And I assume that you also would testify
18 that that couldn't have been made by a knife or a
19 splintered stick?

20 A. That's correct. That tooth was made --
21 that mark was made by a tooth.

22 Q. But you haven't even examined either the
23 knife or the stick, have you?

24 A. No. I have demonstrated to myself that
25 that mark was made by a tooth, part of a complex series

1 of teeth in an arch form. And that's where it rests.

2 Q. And that injury which was the starting
3 point of your analysis, that number 9 tooth at 12:00
4 o'clock, in your opinion that's definitely a bite mark
5 and not made by a knife?

6 A. That's definitely a bite mark. And the
7 scratch mark that's seen across the other bite mark was
8 distinguishable from the bite mark.

9 Q. The scratch mark is distinguishable from
10 the bite marks?

11 A. That's correct.

12 Q. The State indicated in talking about some
13 of the many things that you've done on the cases you
14 have participated in that you testified in an Arizona
15 case, another Arizona case, State v Abney.

16 A. Yes.

17 Q. Are you the same person who testified in
18 1988 where the jury found George Abney not guilty and
19 found that you -- you had misidentified a bite mark that
20 was really done by a knife?

21 A. No, that's not correct at all. You're way
22 off on your information.

23 Q. Did it involve a left breast?

24 A. Sir, to answer you, that was a bite mark
25 that was listed as an avulsive bite mark. And there was

1 opposing testimony that experimentally produced a bite
2 mark similar to that by using a knife.

3 Q. Let me ask you some questions.

4 MR. LEVY: Excuse me, Your Honor. I would
5 ask that he be allowed to finish his answer.

6 MR. JONES: The prosecutor can fill that
7 in.

8 THE COURT: The objection is sustained.

9 Mr. Jones, he was answering your question. Because of
10 the broad nature of your question I'm going to allow him
11 to answer all of his details.

12 Go ahead, sir.

13 THE WITNESS: Okay. You have opened up
14 another case where there simply was an opposing expert
15 witness who created an experimental bite with a knife,
16 and used that as a comparison that this couldn't be a
17 bite mark because I've done the same thing with a knife.

18 The jury never addressed the issue of the
19 veracity or the truth of the scientific evidence that
20 was presented. That was a complex trial that had
21 information from many different sources, including a
22 taped confession. That trial went to a conclusion which
23 the jury decided -- for whatever reason they decided
24 that this man was not guilty of the murder.

25 That is an issue entirely separate from the

1 issue of the bite mark evidence that was presented. You
2 would be absolutely wrong to think that any case that
3 I've ever testified in that the verdict is my
4 responsibility.

5 Q. BY MR. JONES: Well, of course not there.

6 No one's -- your counsel brought it up that you
7 testified in a homicide case involving a left breast in
8 Flagstaff.

9 A. To answer your --

10 Q. In State v Abney; right?

11 A. To answer your question, he was asking the
12 jurisdictions that I've testified in. And he asked,
13 have you testified in Arizona? Yes, I have. Was I
14 qualified as an expert? Yes I was. Is there anything
15 that disqualifies me as an expert? No, there isn't.

16 Q. Do you recall him asking those questions
17 and asking if you didn't testify in that homicide case?

18 A. Yes, I do.

19 Q. And you didn't volunteer, did you, Doctor,
20 that that case had led to an acquittal and there was an
21 expert diametrically opposed to you saying that it
22 wasn't a bite mark, it was, in fact, a knife mark?

23 A. I didn't give those kinds of statements
24 about any case that I was asked for. And if you want to
25 go through every case on a one-by-one basis, we can do

1 that.

2 However, my evidence and my testimony is a
3 piece of a trial proceeding. And it would be absolutely
4 wrong for me to go to an academy meeting and say I've
5 won 97, 98, 99 percent of my cases. Because they're not
6 my cases. I've given a piece of scientific evidence and
7 then those cases are determined on their merit.

8 It happens to be that the cases that I've
9 testified in have been 99 percent in favor of a -- of
10 the side I was testifying on. That isn't -- that isn't
11 something that would be appropriate for me to talk
12 about, because there is a whole series of people that
13 have contributed to a trial and what makes the verdict
14 of that trial.

15 Q. And in that case you identified George
16 Abney as being the one who actually put those bite marks
17 on there?

18 A. The scientific evidence that I presented in
19 that case still will stand on its own. And if you would
20 like to get into trying that case here, I would be happy
21 to present that evidence, because it's very good
22 evidence.

23 Q. And I take it you would -- you vehemently
24 disagree with Homer Campbell, who was a forensic
25 odontologist who testified in fact that it was a knife

1 mark and not a bite mark?

2 A. In terms of ethical behavior, I think I can
3 simply say that Homer Campbell had a different opinion.

4 MR. JONES: I have no further questions,
5 Your Honor.

6 THE COURT: Thank you.

7 Redirect?

8

9 REDIRECT EXAMINATION

10 BY MR. LEVY:

11 Q. With regard to the questions asked on the
12 cross-examination, Dr. Rawson, on a scoring system,
13 after your interview with defense counsel did you just
14 not informally come up with some number with regard to
15 this particular bite mark?

16 A. I have informally. I think it's not
17 appropriate to use those numbers because the scoring
18 system is not intended to be used in the courtroom. If
19 you press for or if you want to know that, it scored
20 high in the scoring. And it's an excellent match.

21 Q. That didn't change your opinion one way or
22 another?

23 A. No.

24 Q. You were just sort of wondering about it,
25 were you not?

1 A. That's simply a paper exercise. And when
2 he asked if I had scored it, I had a picture in my mind
3 of where it was, and it scored out comparably.

4 Q. Are you aware then in latent print
5 examinations a latent print examiner can go as low as 6,
6 average around 10 or 12 pieces of identification to make
7 a fingerprint examination as positive? Are you aware of
8 that?

9 A. Yes.

10 Q. How many points did you come up with in
11 this case?

12 A. May I explain a little bit some of the
13 differences?

14 Q. I'm aware there's differences. But the
15 number first, please.

16 A. Well, I have a dozen points of
17 identification or more. We have numerous bites. I
18 have -- I simply don't use the same kind of terminology.
19 Because we really are dealing with a different
20 situation.

21 Q. I'm aware of that. But since it was asked
22 in cross-examination I thought I would inquire. Didn't
23 you come up with a number?

24 A. Yes, I have -- I've got definite numbers
25 that I can point to of 10 or 12 or 14 points of

1 identification. I clearly have enough points of
2 identification to satisfy me that this is an excellent
3 match.

4 Q. You did that as you went through this in
5 analyzing it, did you not?

6 A. Yes.

7 Q. And that's incorporated into your opinion?

8 A. That's correct.

9 Q. Now with regard to the study with the
10 odontologists who received no pay and not all reported
11 back to you, with regard to whether or not these other
12 odontologists, I take it not yourself, were or were not
13 able, I believe the point was, to make an
14 identification.

15 A. Well, the odontologists that participated
16 in this study that returned their cases each reflected
17 to me they did not put the effort into these cases that
18 they would into an actual court case. None of them went
19 through the 40, the 50 hours necessary to come to a
20 scientific certainty on a bite mark. Each one of them
21 looked at cases, made a snap judgment, returned those
22 cases.

23 And it served simply as a means for us to
24 illustrate to the community that we needed a common
25 language. We needed to be able to talk about cases in

1 the same way. And it served that purpose well. And
2 it's accomplished that for us. It was not a scientific
3 study in the sense that 67 percent of expert opinions
4 are correct or wrong. It doesn't get to that issue at
5 all.

6 Q. Then you were asked about how many hours
7 you spent, and you estimated about 50 hours, which would
8 not include the -- would that include the time from the
9 time you came here yesterday?

10 A. There would be more time associated with
11 the trial. I always -- when I bill a case I always go
12 back and look over those hours and see how much of that
13 may have been research or furthering some knowledge for
14 myself. I always go back and review those hours to see
15 how much was duplication of effort.

16 And he asked me how much time I had in the
17 case. I don't know how many of those hours I'll bill,
18 but I've never billed all of those hours.

19 Q. My point is that you put the hours in to
20 come up with your conclusion here as contrasted with
21 this survey you did?

22 A. That's correct.

23 Q. And then he asked you on Exhibit 144 some
24 questions, and on the video. And just to have the final
25 opportunity to redirect, taking the left breast of Kim

1 Ancona, if I may, Your Honor, and you dwelled on the
2 number 9 tooth mark?

3 A. Yes.

4 Q. Do you recall?

5 A. Yes.

6 Q. And you said that there was a double
7 impression there?

8 A. Yes.

9 Q. And that you could see the image. So now
10 there's a shape to this; is that correct?

11 A. That's correct.

12 Q. Now just since you're here and I want to
13 ask you while you still are here, would you share once
14 again with the jury what all that -- that mark and the
15 overlay of the number 9 tooth means?

16 A. Well, remember that this --

17 MR. JONES: Excuse me, Doctor.

18 Objection, Your Honor, this goes beyond the
19 scope of redirect.

20 THE COURT: Overruled.

21 You may answer.

22 A. This overlay represents one area in the
23 depth of the tooth away from the incisal edge. And it
24 shows the central incisor as a certain size. That
25 tooth, if we were to just get the very initial biting

1 edge, it's about half that thick. As it bites down into
2 the tissue it tends to get thicker and thicker. And at
3 some point in that process it stopped pressing into the
4 tissue.

5 And I've got this outline to demonstrate
6 the area, the angulation, the basic shape of the
7 tooth -- of tooth number 9 and the impression of tooth
8 number 8.

9 Q. BY MR. LEVY: And does that impression, in
10 fact, correlate?

11 A. It's an excellent impression.

12 Q. Now you were asked about other things, and
13 you've answered them. So let me conclude by asking you
14 this: You were asked a general question about the
15 George Abney case in Flagstaff. That was a homicide?

16 A. That's correct.

17 Q. It involved a Navajo woman?

18 A. Yes.

19 Q. In the city of Flagstaff?

20 A. Yes.

21 Q. And was she found dead with her left breast
22 completely bit off?

23 A. Yes. The entire areola area, the nipple,
24 was bent away.

25 Q. I was searching for that word before. The

1 areola is immediately around the nipple area; is that
2 correct?

3 A. Yes, the darkened area.

4 Q. And did you find actual definable edges
5 that matched the teeth of George Abney?

6 A. Yes, absolutely.

7 Q. However, when the defense team investigated
8 this case, did they not get an outline of the bite
9 template?

10 A. That's correct.

11 Q. And was it your impression -- what was your
12 impression as to what they did with the template with
13 regard to an instrument?

14 MR. JONES: Objection, calls for
15 speculation, Your Honor. He wasn't on that team.

16 A. It was related to me --

17 THE COURT: Hold on, sir.

18 Mr. Jones, since you opened up, I believe,
19 the area as to the witness' credibility based upon his
20 testimony in the Abney case, I will allow the witness to
21 answer all of these questions.

22 So go ahead, sir. You may answer.

23 A. Okay. This was then placed on the tissue
24 with a knife. They then cut the same shape of the bite
25 mark.

1 Q. BY MR. LEVY: Do you have knowledge as to
2 why, for example, the prosecution just didn't have a
3 butcher come in and slice a piece of tissue off to
4 indicate that it would be a smooth, clean cut?

5 A. They were demonstrating that this isn't a
6 bite mark, it's simply a knife wound, and that as much
7 as you might core the heart out of a large orange, they
8 simply cut the nipple off and removed it.

9 Q. Following the template pattern?

10 A. Following the template pattern. I could
11 create a similar bruise pattern to that as the bruise
12 pattern that's on that breast. If I went from the bite
13 mark on the breast, created a model from that and
14 impressed it deep into tissue, I could produce a similar
15 mark. However, you can't produce exactly the same mark.
16 And we were never allowed any of this material during
17 the course of the trial.

18 Following the trial I've taken the
19 photographs of those tissue specimens and subjected them
20 to side-by-side comparison. And the difference between
21 the knife wound and the tooth mark wound is obvious, and
22 is corroborated by other forensic dentists.

23 The fact is that we had a cheap trick that
24 was used in a courtroom to confuse the jury. And it
25 worked.

1 Q. Was George Abney a white man?

2 A. Yes, he was.

3 Q. Was he a teacher?

4 A. Yes, he was.

5 Q. Was the victim a Navajo woman?

6 A. Yes.

7 Q. And was she found in some ditch dead?

8 A. Yes, she was.

9 Q. Was she nude?

10 A. Yes, she was.

11 Q. I guess finally, with all of the studies

12 that you've done, whether it be computer analysis,

13 scoring systems, those two come to mind, did you apply

14 all of these -- all of this knowledge, all of this

15 research with regard to analyzing and reaching your

16 conclusion in this case?

17 A. No. I used the wisdom and experience and

18 knowledge that I've gained through the years of really

19 establishing a good part of the foundation of this

20 field.

21 Q. If you had used a computer, for example, to

22 come up with some kind of analysis, can a computer be

23 cross-examined?

24 A. No.

25 Q. And can a scoring system really be

1 cross-examined, other than relating where the numbers
2 come from?

3 A. No.

4 Q. But you have been cross-examined here
5 today; is that correct?

6 A. That's correct.

7 MR. LEVY: Thank you.

8 THE COURT: All right. Thank you, Doctor.

9 You may step down, sir.

10 THE WITNESS: Thank you.

11 THE COURT: Members of the jury, we're
12 going to take our afternoon recess at this time. Please
13 remember the Court's admonition. Let's take about 15
14 minutes.

15 (Brief recess taken.)

16 THE COURT: The record will show the
17 presence of counsel, the defendant and all of our
18 jurors.

19 Please call your next witness.

20 MR. LEVY: I would call Dr. Larry Shaw.

21 THE COURT: Dr. Shaw, please come forward.

22

23 LARRY D. SHAW,

24 called as a witness herein, having been first duly
25 sworn, was examined and testified as follows: