DEMONSTRATIVE EVIDENCE FOR THE 2000's

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I. STATE-OF-THE-ART DEMONSTRATIVE EVIDENCE

At the conclusion of most civil litigation, if the jurors were called upon to describe the jury experience in one word, the word most frequently used would be "boring". Our brethren in the criminal bar began, from the inception of our criminal justice system, to capture and hold the attention of jurors through a combination of the spoken work, body language and demonstrative evidence.

As recently as a decade ago, demonstrative evidence in civil litigation generally meant enlarging and mounting a photograph or making a positive of an x-ray. Today, civil litigators, especially in the personal injury, product liability and medical malpractice fields, are utilizing state-of-the-art techniques which include computer generated animation, modeling, and multiple video applications to such an extent that many firms have developed their own in-house art departments.

The field of medical animation is developing in quantum leaps so that once highly sophisticated medical testimony will now be reduced to a series of fascinating and educational medical cartoons or simplified medical negligence issues and lead to increased jury understanding of the nature and extent of the plaintiff's injuries. When the cartoon drawings are combined with the computer fluid animation process, the resulting product invariably leads to increased judge and juror interest and compelling evidence on the medical issues involved in the case.

In the last decade, the leading proponents of sophisticated demonstrative evidence techniques have obtained increases in successful jury awards, both in terms of size and number. Success in litigation and the concomitant expense of advanced graphic techniques have attracted other industries into the legal field to provide graphic support for litigators.

The goals of the use of modern demonstrative evidence techniques include not only removing the boredom from litigation, but also aiding in simplifying complex issues, educating jurors, explaining damages and assisting the attorney in converting receptive jurors into juror-teachers and juror-advocates.

The purpose of the speech and paper is to highlight the techniques available to attorneys; the personnel, both in-house and

independents, whom attorneys should employ to assist in preparation of demonstrative evidence; and to serve as an introduction to the type of state-of-the-art technology which may afford attorneys the opportunity to explore this new and exciting approach to evidence.

II. DEMONSTRATIVE EVIDENCE APPLICATIONS

A. RETENTION

In Anglo-American courts, most points are proven through testimonial presentations. The judge or jury sometimes receives additional information through documents or by examining something directly involved with the case, such as a defective product. Nevertheless, though the spoken word is a common and comfortable means of relating complex information, listening to words is a slow process. This creates a communication barrier.

Although the average person speaks 110 to 120 words a minute, most people can understand many times that number. Moreover, the mind retains a visual representation of data with greater accuracy and for a longer period of time than its written or spoken equivalent.

Under accepted thought, we retain 10 percent of what we read, 20 percent of what we hear, 30 percent of what we see and

hear simultaneously and 70 percent of what we see, hear and demonstrate for ourselves. Psychological studies report that our different senses play the following role in the learning and retention process: sight, 85 percent; hearing, 10 percent; touch, 2 percent; taste, 1.5 percent; and smell, 1.5 percent. Repetition increases those performances slightly, but carries the risk of boring an audience, thereby losing some retention.

Varying the media to build retention is a common and successful teaching technique. For example, in pre-school and early grade school classes, teachers discuss what they will teach, show pictures illustrating it, and have the students demonstrate it. Unfortunately, the importance of the latter two elements is somehow lost with time. Older students, such as those in high school and college, are eventually forced to master complex concepts, listening only to the droning of a professor. This so-called "mature" method of learning is in common use in courtrooms across the country.

A trial is merely a sophisticated educational process. Jurors are taught a series of sociological facts upon which they must make a decision. Rarely is a jury in a complex aviation case made up of aircraft technicians. Rather, a group of untrained lawyers must be taken through the basics quickly and then on to the complexities of the case.

B. WHEN TO USE VISUAL AIDS

- Ideas are difficult to visualize when described verbally.
- There are divergent opinions on the topic.
- Statistical or numerical data shows trends.
- Diagrams or charts will be referenced.
- To illustrate a radically new or unfamiliar product, idea or technique.
- To show relationships of details to the whole.
- The audience is unfamiliar with the procedures the expert witness will explain.
- Structural relationships examined.
- A lengthy trial requiring stimulation to maintain interest.
- Complex concepts need simplification.
- Photos needed to acquaint jurors with a scene they cannot visit.

C. WHY USE VISUAL AIDS?

- Reduce vagueness, inaccuracies and confusion.
- Clarify abstract concepts.
- Add variety, color and interest.
- Help emphasize important concepts.
- Simulate empathetic listening.
- Make a more lasting impression.

D. COSTS AND COST EFFECTIVENESS

Regardless of the type and quality of exhibits ultimately chosen, careful budgeting is always necessary. The fundamental question: What will it cost and what will it pay?

Determining demonstrative evidence budgets is a case-by-case proposition. Most cases require between $600 and $1,500 worth of graphics.

If a large team of individuals will be working on a case, assign one person to manage the demonstrative evidence exhibit budget. That individual will not only interact with staff members,

but also will bid for and hire outside professionals.

III. STRATEGIC USE OF DEMONSTRATIVE EVIDENCE

A. DEMONSTRATIVE EVIDENCE AS AN EDUCATIONAL TOOL

1. The Twin Aims of Trial Presentation

Necessary to an understanding of how demonstrative evidence can be used effectively at trial is a recognition that the ultimate goal of a trial lawyer is to persuade the trier of fact. Furthermore, within the dynamics of a trial, persuasion must be broken down into two complementary processes - education and advocacy. That is, to persuade the jury, the trial lawyer must simultaneously educate the jury concerning the facts and circumstances of the controversy at hand and advocate his client's particular position with respect to the controversy.

Both processes are absolutely essential. Advocacy without education is all charisma and empty rhetoric. The trial lawyer who places exclusive reliance on this approach tells the jury that he does not believe in the substantative merits of the case. Similarly, education without advocacy is clearly insufficient and dangerous. The trial lawyer who adopts only the role of teacher may find that his or her pupils learn just enough to be swayed by his opponent's advocacy.

Education and advocacy begin at the first contact with the jury panel and continue throughout the trial. Indeed, the trial lawyer should strive to ensure that these processes continue to direct the jury even as it deliberates in the jury room.

2. Education: Substance

To present a case on behalf of your client, you must help the jurors learn all that you know about the case. That task includes not only informing the jury of the specific facts of your case ("information"), but also, particularly in complex litigation, providing the jury with the knowledge necessary to understand those facts and put them into a meaningful perspective ("technical background").

Simply providing the jurors with the relevant information can be an important and challenging responsibility. For example, in a simple intersection collision case, the jury will need to know road conditions, pre- and post-accident vehicle locations, possible vision obstructions, vehicle speeds, etc. Remember, the jurors have not lived with the case as you have. As a result, they must receive, in a matter of hours or days, the benefit of the information you have acquired and assimilated during the two or more years the case has been pending.

The task is compounded in highly complex or technical

litigation. In a medical malpractice or product liability case, for instance, providing only information to the jury is not enough. Without first teaching the layman jurors the necessary technical background, the relevant facts of your case may be unintelligible. For example, a jury told only that a blow resulting in a fracture at the back of the plaintiff's skull was the cause of plaintiff's present vision problems would have no means of understanding, much less evaluating, that claim.

Once the anatomy and function of the visual cortex is explained with the help of clearly marked models of the skull and brain, the plaintiff's x-rays will carry real significance. A jury can now appreciate the relationships between and among vision impairment, damage to the vision center of the brain and the specific mechanism of plaintiff's injury.

Similarly, it is not enough simply to tell the jury that the gas tank in the plaintiff's Ford was punctured by a track bar stud because of the tank's improper location. Such a claim, however, becomes intelligible and persuasive when graphically illustrated by a cut-away section of an exemplar Ford, displaying the track bar stud poised like a dagger only inches from the gas tank. Even more effective may be Ford's own crash test films showing the danger in violent motion, ripping into the tank and spilling its contents.

3. Practical Considerations

Several practical considerations concerning the use of demonstrative evidence are important to note. First, prior to introducing demonstrative exhibits, you must have the supporting data admitted. Documents, photos, measurements and calculations, and other background material not only serve as the foundation for your exhibits and demonstrations at trial, but also they perfect the record and protect your exhibit.

Second, do not simply append your demonstrative exhibits haphazardly or arbitrarily to your case. Develop, organize and integrate your exhibits in accordance with a considered plan for their most effective use. Such planning can ensure the proper meshing of education and advocacy. An essential part of this planning will involve the careful preparation of each of your witnesses so that each witness and exhibit will work together.

Third, keep your exhibits fair and accurate. Avoid the temptation of over-embellish or to be melodramatic. Remember that an incredible or overreaching exhibit will reflect badly upon you and your witness. Think through and understand the limited purposes of each exhibit you present. An effective exhibit should be handled like a loaded gun, with care and respect for its potential.

Fourth, try to force opposing counsel to use or refer to your exhibit. Such recognition or adoption by the other side lends a great deal of "bipartisan" credibility and significance to the exhibit. If your exhibit is able to fill the need for clarity, it may be nearly impossible for the other side to ignore it.

Finally, it is very important to get your demonstrative exhibits admitted into evidence, i.e., into the jury room where, with luck, your juror-advocates and juror-teachers can put them to a very important supplemental use. In addition, an admitted exhibit may be effectively employed during closing argument, and such exhibits, as part of the appellate record, extend your client's interests long after trial, by teaching and advocating your position in the appellate courts.

Demonstrating the actual damages of a client by determining a monetary value is critical in small personal injury litigation. Translating damages into monetary terms by the use of "fill-in-the-blank" charts is helpful to both the attorney and the jury. These charts are formulated during the trial as the attorney develops the case.

As costs, both past and future, are determined, they are placed on the chart. Clearly, medical expenses, ambulance costs, bedside care, drugs, physical therapy and other such related costs have values which can be proven through the use of financial

records. They also can be extrapolated into the future based on medical testimony and mortality tables.

Placing a monetary value on such losses as pain and suffering or the loss of enjoyment of life is more difficult. This requires the imaginative input of counsel using economic measures drawn from daily experience. These monetary figures, by type of loss, also can be included on a damages chart, and multiplied by life expectancy for a total.

In larger cases where an economist is hired, damage charts can include his or her findings concerning the net economic loss to an individual occasioned by an injury in question. The economist lays out any loss of income that a forced career change may bring and will explain to the jury, by using other simple charts, how these losses affect a victim's potential earnings. These explanations may take into account discount rates, inflation and other economic factors. Additionally, the economist can support the testimony of the plaintiff, spouse, family and friends by using tables from the Bureau of Labor Statistics to determine a monetary value of such elements as loss of household services.

Damage charts fall into several categories, including compensation for loss in income, medical expenses, loss of enjoyment of life and other past and future medical expenses. General damage charts which quantify pain and suffering, mental

anguish, physical disability and disfigurement on a per-diem basis are also helpful.

Obviously, each case is unique. In preparing your own damages chart, costs and losses, both future and past, should be considered by category. The attorney should prepare a rough outline of these costs and losses to present to the graphics expert. Eventually, new categories may be added while others may be discarded. The graphics expert, using this information, prepares a final chart for jury review. The end result is dramatic and believable because the chart can demonstrate logically the cost of past and future medical expenses, as well as the hourly remuneration for pain over the plaintiff's life. By using "fill-in-the-blank" charts, nickels, dimes and quarters can be logically translated and effectively converted on a per-diem basis into the total damages requested.

4. TYPES OF DEMONSTRATIVE EVIDENCE

A. Blackboards

As in the case of the flip chart, a blackboard is commonly available in the courtroom. It, too, is overused and abused. The biggest disadvantage of blackboard presentations is lack of permanence. It is subject to erasure, whether accidental or intentional.

B. Prepared Charts and Diagrams

One of the most effective demonstrative exhibits is the simple, yet dramatic, chart, diagram, illustration or photograph prepared in advance of trial.

C. Slide Presentations

A slide presentation can be a convenient and effective way to show a large number of exhibits in a concise, cohesive manner.

D. Overhead Projections

Overhead transparency projections have several advantages over slide presentations. For instance, courtroom lights need not be dimmed to view an overhead transparency presentation, preserving eye contact with the judge or jury. Also, one can easily identify and mark specific areas on the transparency by remaining at the projector, thus minimizing distractions.

E. 16mm Film

A 16mm film can be a dramatic and effective courtroom presentation if used properly. In a catastrophic injury case, a day-in-the-life is traditionally one of the most effective and influential means of presenting and demonstrating a plaintiff's case. In addition, 16mm films usually project well in a darkened courtroom.

F. Video

The video presentation has most of the good qualities of a 16mm film, plus some added advantages. For instance, video presentations are generally less expensive to produce than 16mm films. This is particularly true in the production of 1/2 inch videotape. Although 1/4-inch videotape provides a sharper image,

the difference between the two may not be great enough to warrant the additional expense of 1/4-inch. Your video expert should be able to help you understand the advantages and disadvantages of each specific type when applied to your needs.

G. Scale Models

Scale models are particularly useful in cases where a two-dimensional exhibit cannot adequately illustrate the elements of the case. For example, the mechanics of a piece of machinery in a product liability case generally cannot be properly portrayed in two dimensions.

H. Creating Medical Graphics

The range of graphics experts with which the personal injury attorney should become familiar, in order to create state-of-the-art medical graphics, include: 1) artist, 2) medical graphics technician, 3) medical illustrator, 4) photographer/photo lab, 5) video/film/audio post-production house.

a) The Artist As A Graphics Expert

1) Credentials: Portfolio, training; variable; experience.

2) Capabilities: Re-creations of

general scenes; re-creation of accidents, general diagrams.

3) How to locate: Network among our friends and relatives; call high schools, junior colleges, universities for recent graduates. Look under Graphics Services or Artists-commercial in your Yellow Pages Directory.

b) Medical Graphics Technician As A Graphics Expert

1) Credentials: Portfolio, B.A. Degree, on-the-job experience.

2) Capabilities: Everything the Artist can provide; simple medical diagrams, accurate charts and graphs.

3) How to locate: Call a major Medical Center or Medical School Medical Illustration or Bio-communications departments. Consult legal journals/directories for

advertisements.

c) Medical Illustrator As A Graphics Expert

1) Credentials: Portfolio, M.A. Degree of Biomedical Communication, Member of the Association of Medical Illustrators, experience.

2) Capabilities: Everything the Artist can provide; everything the Medical Graphics Technician can provide; Plus:

- Accurate anatomical illustration
- Accident storyboards
- Animated videotapes
- Accurate surgical illustrations
- Anatomical models

3) How to Locate: Call a major Medical Center/Medical School Biocommunications department. Call the Association or Medical Illustrators (804) 794-2908. Call MediVisuals, Inc. the only national

network of professionals - National headquarters: (202) 887-0547.

4) Training of the Medical Illustrator

4-year undergraduate Art/Science education.

2 to 2-1/2 years graduate study in Biomedical Communications.

Including coursework in:

- Human anatomy (cadaver dissection)
- Human physiology
- Embryology/Histology
- Pathology
- Anatomical Illustration
- Animation/Film-making
- Video production

5) Credentials of a Qualified Medical Illustrator

Degree in Biomedical Communications or equivalent.

There are only six accredited programs in the United States, all confer a graduate degree.

Active member of international professional association.

Member - Association of Medical Illustrators

I. Types of Medical Illustrations

Several types of medical illustrations exist; educational, specific injury, medical models, cartoon graphics and charts.

a) Educational. General anatomical illustrations are used as educational tools for judge and jury, showing the normal anatomy of the area in question. This not only provides a basis for understanding, but also is useful for comparing to an illustration of the specific injury. Educational illustrations lay the groundwork for the more specific and complex details of a case. An additional benefit is that these illustrations can be used again in similar cases.

b) Specific Injury. Used alone or in conjunction with an educational illustration, an illustration of the injury at issue is almost always appropriate. If possible, these drawings should be direct tracings from an X-ray, myelogram or CT-scan. In some instances, more than one view is required for clarity.

c) Medical Models. In cases where your point is very specific and cannot be illustrated in two dimensions, consider a three-dimensional model. These custom-made models are generally more expensive, but sometimes are the most effective means of proving a case.

Plaster models of disfigurements, which are relatively easy and inexpensive to produce, are extremely helpful and useful for a jury. In addition to providing the jury with something to take into the jury room during deliberations, plaster models allow the injured parties to retain their dignity, bypassing the need to bare their disfigurement in court.

General anatomical models are available commercially through medical supply houses, medical schools and libraries. These models, like educational illustrations, can be used again in other similar cases.

IV. TEN FACTS OF COURTROOM EDUCATION

As mentioned at the outset of this text, the heart of an effective demonstrative evidence exhibit program is educating members of the jury. With that in mind, tailor your demonstrative exhibit programs to dovetail with the following.

1. Recruit a juror-advocate. Cultivate a strong juror to teach your case in the jury room.

2. Develop an education program with teaching aids to help enlist juror-advocate support.

3. Make your experts into teachers.

4. Tie your case together with effective exhibits.

5. Create importance. Let the jury know that your case, your witness and your evidence deserves special attention.

6. Simplify.

7. Create record protection.

8. Make your exhibits fair and accurate.

9. Do not overdramatize.

10. Plan carefully which witness should sponsor each piece of demonstrative evidence giving consideration to aiding the witnesses credibility and fitting this one piece of evidence most effectively into the overall presentation plan.

V. BLACKBOARDS

A. PREDICATE:

1) The blackboard drawing depicts a certain area, object or notation.

2) The witness is familiar with that area, object or notation and explains the basis for his or her familiarity.

3) In the witnesses' opinion the blackboard drawing is an accurate

depiction of that area, object or notation.

VI. COMPUTER GRAPHICS/ANIMATION

A. PREDICATE: The foundation elements are as follows:

1) Qualify the Computer Graphics/Animation Expert by establishing credentials and experience.

2) Qualify the Computer Hardware by showing:

a) the Hardware is commercially available;

b) the Hardware is generally accepted as valid by the engineering community;

c) the Hardware's use is generally accepted by the engineering community.

3) Qualify the Computer Software by showing:

a) the Software is commercially available;

b) the Software is general accepted as valid by the engineering community;

c) the Software's use is generally accepted by the engineering community.

4) Qualify the Input Data by establishing:

a) the Source of the data

b) How data accuracy was checked.

c) How data physically input

d) What assumptions were made

e) How data was checked

5) Qualify the Accuracy of the Computed Calculation. Sample methods are:

a) Hand calculation check.

b) Benchmark tests compared with the standard problem.

c) Agency certificates. . . i.e., NASA, etc.

6) Qualify the Accuracy of the Presentation Media.

This can be accomplished by comparing the computer terminal output with the video/slide/etc.

VII. DEMONSTRATIONS OR EXPERIMENTS (IN AND OUT OF THE COURTROOM)

A. PREDICATE:

1) Establish the training, experience, and other qualifications of the witness in the field of the subject of the experiment.

2) Establish that all necessary facts regarding the conditions or occurrence in question are in fact already in evidence or will later be introduced with permission of the court.

3) Establish that the principle involved has received general scientific acceptance in the field to which it belongs, both as a general principle and as specifically applied to the subject of inquiry.

. The judge may judicially notice a widely accepted principle upon a proper timely request by counsel.

4) The proposed experiment or demonstration must be

calculated to aid the trier of fact in understanding, simplifying or clarifying evidence or issues.

5) There must be a showing that such evidence is supplemental to and not cumulative of the testimony of other witnesses.

6) The proposed experiment or demonstration must meet the basic evidentiary tests of relevancy and materiality.

7) Most importantly, counsel must establish that the conditions under which the experiment or demonstration is made, are substantially similar to those existing at the time in issue (e.g., the time of cause of action) and have witness explain any dissimilarities and make adjustments and corrections for any dissimilarities.

8) If a testing device or other equipment is used, show the following:

a. that the type of device used is accepted as dependable for such use by an appropriate body of scientific thought and by studies, experiments and field use;

b. establish the method of operation of the device; establish the particular device used as being an accepted type in good working order;

c. that the operator of the device was competent to use the device by training and experience; and,

d. that the particular test was correctly done.

9) Where a physical substance is involved, connect the substance tested with the occurrence in question, e.g., explain chain of custody.

VIII. DESTRUCTIVE TESTING

A. PREDICATE:

1) Adequate opportunity for the defendants to photograph or otherwise record the chattel's condition prior to the destructive testing.

2) Notice to the opposing party of the time, place and

manner of the testing with reasonable opportunity for the opposing party and experts to observe the testing procedures.

3) The opposing party's right to conduct or participate in similar tests with the chattel.

4) Provision for discovery of the proponent's results.

5) Proper allocation of costs..

IX. DIAGRAMS AND CHARTS

A. PREDICATE:

1) The diagram or chart depicts a certain area, object, or notation.

2) The witness is familiar with that area, object or notation and explains the basis for his or her familiarity.

3) In the witnesses' opinion, the diagram or chart is an accurate depiction of that area, object or notation.

X. INJURIES

A. PREDICATE

1) Witness identifies the injured portion of the body.

2) Establish that the same injured part of the body was not injured prior to the time of the occurrence of the injury and has not been injured since the time of the occurrence of the injury.

3) Ask that witness exhibit the injury to the jury.

XI. MAPS, PLANS, AND PLATS

A. PREDICATE: The foundational elements are as follows:

1) Witness is familiar with the area depicted and explains the basis for his familiarity.

2) Witness recognizes the area depicted and testifies that the map, plan, or plat is a "fair", "accurate", "true", or "good" depiction of what is purports to be at the relevant time.

XII. MEDICAL ILLUSTRATIONS

A. PREDICATE:

1) The illustration depicts a certain body part(s), etc.

2) The witness is familiar with that body part(s) and explains the basis for his or her familiarity.

3) In the witnesses' opinion, the illustration is an accurate depiction of that body part(s), etc.

XIII. MEDICAL MODELS

A. PREDICATE:

1) Model will aid the witness in explaining his testimony to the judge and jury.

2) Witness is familiar with the object depicted and explains the basis of his familiarity.

3) Witness testifies that, in his opinion, the model is a "true", "accurate", "good" or "fair" model of the object depicted. (It is best if the model is an exact replica except with respect to size)

4) If the model was prepared according to scale, the

witness testifies as to what scale has been utilized.

5) How the original measurements for the model were taken, whether the original measurements were compared against the model and how they were compared.

XIV. MODELS

A. PREDICATE: The foundational elements are as follows:

1) Witness needs the visual aid to explain his or her testimony.

2) Model will assist the judge and jury to understand complex issues.

3) Model depicts a certain scene or object with which witness is familiar and explains the basis of his familiarity.

4) Witness testifies that, in his opinion, the model is a "true", "accurate", "good" and "fair" model of the scene or object. (It is best if the model is an exact replica except with respect to size)

5) Model may be required to be prepared according to

scale.

Whether a model must be to scale depends on the purpose for which it is being used. In a geographical model where distances, grading, curves, or embankments are essential factors, scale accuracy would probably be required. Otherwise, as long as a model gives some benefit to the trier of fact without distorting important conditions, it need not be to scale.

Where a model is scaled and accuracy is important to some issue in the case, a civil engineer or surveyor, after being qualified, should offer testimony that the model not only would help the witness testify, but also would aid the trier of fact in understanding the testimony. In addition, the witness should verify and explain:

1) How the original

measurements for the model were taken and what was done with the original measurements;

2) Whether the original measurements were compared against the model and how such measurements were compared;

3) Whether the measurements compared accurately;

4) What scale has been utilized;

5) Whether the witness has an opinion as to whether the model truly and accurately represents the object or condition which it purports to represent;

6) What that opinion is.

A. PREDICATE:

1) The operator was qualified to take a motion picture film.

2) The operator used certain equipment in good working order to film the activity.

3) The operator used proper procedures to film the activity.

4) The operator accounts for the custody of the film and the developed movie.

5) The developed movie was a good reproduction of the activity.

XVI. . OVERHEAD PRESENTATION

A. PREDICATE:

1) The presentation depicts a certain area, object or notation.

2) The witness is familiar with that area, object or notation and explains the basis of his or her familiarity.

3) In the witnesses' opinion, the presentation is an accurate

depiction of that area, object or notation.

XVII. PHOTOGRAPHS

A. PREDICATE:

The foundational elements are as follows:

1) Witness is familiar with the object, scene, etc. that is depicted in the photograph and explains the basis for his familiarity.

2) Witness recognizes the object, scene, etc. that is depicted and testifies that the photograph is a "fair", "accurate", "true", or "good" depiction of what it purports to be at the relevant time.

The predicate is laid by "yes" answers to these questions where conditions have not been materially changed between the time of the event in question and the time of the photograph.

If the photograph is taken long after the events in question, a further precedent may be necessary

in showing either:

a) That there has been no substantial change over time, or

b) Explaining and identifying the changes.

XVIII. PHYSICAL EVIDENCE: ARTICLES AND OBJECTS

A. PREDICATE:

The foundation for ready identifiability is as follows:

1) The object has unique characteristic.

2) The witness observed the characteristic on a previous occasion and identifies the exhibit as the object.

3) As best as he or she can tell, the exhibit is in the same condition as it was when he or she initially received the object.

B. CHAIN OF CUSTODY: The foundation for chain of custody must be laid during the testimony of each link in the chain:

1) The witness initially received the object at a certain time and place.

2) The witness safeguarded the object; the witness testifies to circumstances making it unlikely that substitution or tampering occurred.

3) The witness ultimately disposed of the object (retention, destruction, or transfer to another person).

4) As best he or she can tell, the exhibit is the object he or she previously handled sand is in the same condition as it was when he or she initially received it.

XIX. POSTER PAD DRAWINGS

A. PREDICATE:

1) The drawing depicts a certain area, object, notation, scene, etc..

2) The witness is familiar with that area, object, notation, scene, etc. and explains the basis for his or her familiarity.

3) In the witnesses' opinion, the drawing is an accurate depiction of that area, object, notation, scene, etc..

XX. SCIENTIFIC EVIDENCE

A. PREDICATE: The foundational elements are as follows:

1) Witness qualified to establish the theory's validity and the instrument's reliability.

2) The underlying theory is generally accepted as valid and the instrument is generally accepted as reliable.

3) Instrument was in good working condition was used by witness qualified to conduct and interpret the test results.

4) Witness used the proper procedures.

5) Witness states the test results.

XXI. SOUND SPECTOGRAMS/VOICEPRINTS

A. PREDICATE: The elements of a foundation for sound spectrography evidence include:

1) The tape recordings used to produce the spectrograms are authentic. See predicate for tape recordings, p. 22, infra.

2) The witness has the qualifications to explain sound

spectrography's underlying premises and to conduct the test.

3) The underlying premises of sound spectrography are interspeaker variability and invariant speech.

4) Those premises are generally accepted as valid in the relevant scientific circles.

5) The instrument is the sound spectrograph and it is generally accepted as valid in the relevant scientific circles.

6) At a particular time and place, the witness conducted a voiceprint examination using t he tape recordings mentioned in element #1.

7) The witness excerpted the cue words from both tapes and used a spectrograph to analyze the tapes of the cue words.

8) The spectrograph was in good working condition at the time.

9) The witness used the proper procedures.

10) The analysis produced two spectrograms which witness identifies.

11) There are several points of similarity between the two spectrograms and in the witness's opinion, the same voice produced the two spectrograms.

XXII. SUMMARIES

A. PREDICATE:

The foundational elements are as follows:

1) The proof(s) involve the contents of "voluminous writings, recordings, or photographs" which "cannot collectively be examined in court."

2) The originals, or duplicates, are made available to opposing counsel for examination at a reasonable time and place.

3) The person who prepared the chart or summary should be available in court to testify or explain it.

4) There should be a reasonable guarantee of the accuracy of any summaries or charts.

XXIII. TAPE RECORDINGS

A. PREDICATE.

The foundational elements are as follows:

1) The operator of the equipment was qualified.

2) The operator recorded at a certain time and place using proper procedures and equipment in good working order.

3) The tape is a good reproduction of t he conversation.

4) The speakers must be identified.

5) The statements were made without inducement.

6) Establish chain of custody. (operator accounts for the tape's custody between the time of taping and the time of trial) and that no changes, additions, or deletions have been made.

XXIV. TELEVISION TAPES

A. PREDICATE:

1) Witness is familiar with the scene, etc. that is portrayed on the television tape.

2) Witness explains the basis for his familiarity.

3) Witness recognizes the scene, etc. that is portrayed on the television tape.

4) Witness testifies that the tape is a "fair", "accurate", "true", or "good" portrayal of the persons, objects, devices, places, processes, etc. shown.

XXV. THERMOGRAM

A. PREDICATE: The foundational elements are as follows:

1) The operator was a qualified thermography technician.

2) The operator filmed a certain part of the person's body at a certain time and place.

3) The thermogram is of the person claimed.

4) The equipment used in preparing the thermogram was in sound working order and met all state-of-the-art industry standards.

5) Witness with knowledge (doctor or technician) testifies that the thermogram fairly and accurately reflects the condition of

the patient's body which it purports to show.

XXVI. VIDEOTAPES

A. PREDICATE:

The foundational elements are as follows:

1) Witness is familiar with the scene, etc. that is portrayed on the videotape and explains the basis for his familiarity.

2) Witness recognizes the scene, etc. that is portrayed on the videotape and testifies that the videotape is a "fair", "accurate", "true", or "good" portrayal of the persons, objects, devices, places, processes, etc. shown.

The above is all that is technically required to admit videotape. However, other predicates may be necessary (waivable by agreement) and one would be well served to be prepared to offer the following additional information should it be required by a court:

1) Proof that the equipment operator was competent.

2) The type and mechanics of the videotape equipment used and the nature of accessory, backup or other devices used in connection with the making of the tape.

3) The type, specifications and sensitivity of the videotape used.

4) In cases where the videotape is being used in a manner similar to a movie camera, such as when making a movie of a process or a machine in operation or the scene of an accident, there should be some proof regarding the type of lens used, any distortions or exaggerations produced by the type lens used, particularly if a wide-angle or telephoto lens is employed, and a full explanation of the techniques used.

5) The type and amount of artificial lighting, if any, used for the making of the tape.

6) Differences, if any, between the scene, device or process shown in the videotape and the scene, device or process as it was at the time of the events in question must be explained. Obviously, similarity is required, and any differences should be as minor as you can make t hem.

7) A chain of custody will be a required element of proof in the absence of an agreement. Of course, in regard to depositions, the stenographic record would tend to prove the verity of the videotape.

8) If moving devices, processes or tests are shown, then the

speed of the videotape camera and playback equipment should be shown, to demonstrate that t here is no material speeding up or slowing down of the process, without full explanation of the speed change. Slow motion or stop motion is okay, but needs to be explanation and be relevant to the point to be made.

9) Any changes, editing or deletions, if not done in pre-trial or by agreement, should be explained or the proof should show the absence of changes, editing or deletions.

XXVII. VIDEOTAPE DEPOSITIONS

A. PREDICATE:

1) Witness is familiar with the scene, etc. that is portrayed on the videotape and explains the basis for his familiarity.

2) Witness recognizes the scene, etc. that is portrayed on the videotape and testifies that the videotape is a "fair", "accurate", "true", or "good" portrayal of the persons, objects, devices, places, processes, etc. shown.

XXVIII. VIEWS

A. PREDICATE: The foundational elements are as follows:

1) Witness who is familiar with the place or object the subject of the view and explains his familiarity.

2) Witness recognizes the place or object the subject of the view and testifies that the scene or object the subject of the view is a place or object in issue and is what it purports to be.

3) The place or object the subject of the view must currently be in the same or substantially similar condition as i t was at the time in issue.

4) The view must be relevant to an issue in the case.

XXIX. VOICEPRINTS

A. PREDICATE: The elements of a foundation for sound spectrography evidence include:

1) The tape recordings used to produce the spectrograms are authentic. See predicate for tape recordings, p. 22, infra.

2) The witness has the qualifications to explain sound spectrography's underlying premises and t o conduct the test.

3) The underlying premises of sound spectrography are interspeaker variability and invariant speech.

4) Those premises are generally accepted as valid in the relevant scientific circles.

5) The instrument is the sound spectrograph and it is generally accepted as valid in t he relevant scientific circles.

6) At a particular time and place, the witness conducted a voiceprint examination using the tape recordings mentioned in element #1.

7) The witness excerpted the cue words from both tapes and used a spectrograph to analyze the tapes of the cue words.

8) The spectrograph was in good working condition at the time.

9) The witness used the proper procedures.

10) The analysis produced two spectrograms which witness identifies.

11) There are several points of similarity between the two spectrograms and in the witness's opinion, the same voice produced t he two spectrograms.

XXX. X-RAYS

A. PREDICATE: Tex. R. Civ. Evid. 901(a) and 901(b)(1)

The foundational elements are as follows:

1) The operator was a qualified x-ray technician.

2) The operator filmed a certain part of the person's body at a certain time and place.

3) The x-ray is of the person claimed.

4) Witness with knowledge (doctor or technician) testifies that the x-ray fairly and accurately reflects the condition of the patient's body which it purports to show. (Witness must be able to positively testify that the x-ray is of the particular body member which it purports to show).