

NATIONAL BUREAU OF STANDARDS REPORT

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POTENTIAL USES OF COURT RELATED VIDEO RECORDING

NI 71-133-IA
Department of Justice



U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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POTENTIAL USES OF COURT RELATED VIDEO RECORDING

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	i
I. INTRODUCTION	1
II. POTENTIAL APPLICATIONS OF VIDEO RECORDING IN THE COURTS	7
III. THE LEGAL ENVIRONMENT	41
IV. VIDEO RECORDING EQUIPMENT SYSTEMS	61
V. SUMMARY AND NEW DIRECTIONS	92
APPENDIX A	
Summary of Statutes and Court Rules Affecting the Use of Video Recording in the Courts	108
APPENDIX B	
Guidance Panel: Court-Centered Uses of Video Recording	185
APPENDIX C	
Summary Report on Court Centered Video Tape Panel	187
APPENDIX D	
Electronic Industries Association of Japan Standard Specifications for one-half inch VTRs	198
APPENDIX E	
Selected Bibliography	199

LIST OF TABLES

Table III-1	Summary of Major Characteristics of State Laws or Court Rules Related to Uses of Video Recording in the Courts	45
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LIST OF FIGURES

	Page
FIGURE IV-1	63
FIGURE IV-2	66
FIGURE IV-3 Characteristics of Typical One-half Inch Format	68
FIGURE IV-4 Characteristics of Typical One Inch Format Video Tape Recorders	69
FIGURE IV-5 Character ^{is} istics of Typical Video Cameras . .	74
FIGURE IV-6 Characteristics of Typical Video Monitors .	76
FIGURE IV-7 Characteristics of Typical Pos ^{is} table Video Recording Systems	78
FIGURE IV-8 Cost of Typical Good Quality Video Recording Tape	80
FIGURE IV-9 Characteristics of Typical Microphones	82
FIGURE IV-10 Characteristics of Typical Video Accessories	83
FIGURE IV-11 Configuration of Video System for Testimonial Evidence	86
FIGURE IV-12 Configuration of Video System for Making Trial Record	89

POTENTIAL USES OF COURT RELATED VIDEO RECORDING

EXECUTIVE SUMMARY

Court procedures have evolved slowly over the years, many of them dating from English Common Law of several centuries ago. Procedures have been altered only after extended consideration, for traditional methods of decisions based on precedent tend to inhibit radical departures and innovations. Society itself has been slow to change and has therefore not required its institutions to do more than maintain pace.

In recent years, the numbers of crimes have increased, and advances in technology have raised the likelihood of a criminal being caught and, potentially, proven guilty. At the same time, interpretations of the law and of the Constitution have acted to lengthen the time for processing a criminal case; to increase the likelihood of appeal (which further adds to the duration of a case); and to increase the peripheral workload within the criminal justice system (e.g., more transcripts, more records). Recognized authorities, as well as the general public, now believe that the resultant crowded court system is rapidly approaching crisis.

To alleviate congestion in the courts, new technology is being considered; for example, video tape recording may be useful for several possible roles. Isolated experiments have shown the potential of video recording in limited

applications. Recognizing the need to assess the potential and impact of this technology on the courts and court problems, the Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice of the Department of Justice sponsored a comprehensive review of video recording in the courts, to be conducted by the Technical Analysis Division, National Bureau of Standards.

The study had two major goals, the first of which was the documentation of the current state of video technology and its relationship to the criminal justice system. Secondly, the documentation would serve as a basis for guidelines and recommendations for future work, spotlighting questions still to be answered (both technological and legal). The study was largely intended to serve a survey function and to summarize in one document current knowledge about three major topics:

- availability of video recording equipment systems and their suitability for court purposes;
- legal environment and attitudes affecting video recording in court-centered applications; and
- recent or ongoing implementation of video recording in courts on either an operational or experimental basis.

At the time this study was initiated, video recording in the courts was not much more than a topic of conversation. Only the Illinois court system was known to have experimented in this field, and it was proceeding deliberately in a well defined application. During the past year, however, additional

experimentation, or even adoption, of video recording has been attempted in other jurisdictions. Some concepts which were barely envisaged a year ago have by now been tried and, in some cases, accepted by both the legal community and the general public.

Several jurisdictions have adopted video recording as a means of obtaining evidence in some types of cases, particularly traffic cases involving negligent driving. Courts in Michigan, Pennsylvania, and Illinois, in particular, have permitted and even encouraged the use of video-recorded depositions during trials. Extensive experiments have been undertaken to evaluate the feasibility of providing a video record of trial proceedings as the official court record: Alaska has adopted video recording as a fully acceptable means of court recording, and Michigan is at least one additional state which is expanding its program of video trial records. In Ohio, an entire trial has been presented via video tape; the success attained is expected to lead to more video trials, particularly in civil matters.

Despite the spreading use of video recording in the courts in recent months, there are still substantive legal barriers to widespread adoption in many jurisdictions. Even in the simplest applications, such as the presentation of evidence or depositions, statutes or court rules restricting electronic equipment in some courtrooms may prohibit depositions or any other use of video. For video recorded trial proceedings

or presentation of trial via video recording, the very advantages of the new technique (i.e., removal of the requirement for hard-copy transcript) require major changes to long established mechanisms of trial procedure and appellate review. Modifications of statutes and court rules are usually slow, and adoption of video recording in operating courtrooms may thus be delayed by legal constraints for some time.

This study has been completed in the sense that its objectives have been met as of an arbitrary point in time, for there are continuing equipment developments, changes in law, and an expanding willingness to experiment. Many cognizant individuals now seem to feel that experimentation should be nearing its end, and that it is time for decisions regarding video technology. It is hoped that the overview provided by this project will aid in follow-on activities, especially with regard to primary and secondary impacts of video recording in the criminal justice system. However, the survey conducted during this study points up the need for a problem-centered perspective. There are many important court problems, and each must be evaluated to determine whether video recording (or for that matter any other technical innovation) is the best possible solution.

The following specific conclusions have been drawn on the basis of this study:

1. Video recording may be used in several ways to provide limited, immediate help in reducing congestion in the courts and in improving the "quality of justice."

However, most applications to the courts to date have been experimental and fragmented. Systematic field application under controlled conditions is necessary to evaluate technological impact and relative costs.

2. Particular applications of video recording have proven their value and are now acceptable methods of presenting evidence in some courts. Video depositions save much waiting time for witnesses and serve the convenience of all parties, and the quality of presentation has been improved by reducing the nervousness of appearing in court. Increasing police use of video to record events which may be criminal and interrogations of suspects or witnesses may aid in solving crimes and in obtaining convictions, as well as protecting individual rights.

3. Although criminal trials are not now recorded for educational purposes, there is demonstrable need for such educational tools which should be satisfied as soon as possible. Video recording would not interfere with the judicial process, and taped trials would offer an unequalled opportunity to improve legal education. Broader experience with trial activity while in law school might also have the side effect of interesting more law students in trial law as a career.

4. Any applications of video recording which would markedly alter present procedures and functions should be approached systematically and with caution. On the surface, video recording manifests the potential of reducing backlogs and improving trial and appellate procedures, but there are legal issues to be resolved systematically. Video recording should be adopted when it offers the best solution to a given problem, with care taken to minimize unwanted side effects.

5. Video recording equipment has been designed mainly for institutional or educational uses, and therefore may not have the ideal features for court purposes. After further experience in court activities, performance requirements should be developed for a court-oriented video system, and manufacturers should be encouraged to modify products specifically for court use.

6. Statutes and court rules relating to video recording in many state courts are out-of-date and cumbersome. The lead of the Federal courts should be followed by amending rules and allowing greater flexibility in introducing new technology. Legislatures and courts, like other institutions which are adapting to new technology, should stress the development of performance criteria for designated functions, rather than specifying the precise methods for accomplishing those functions.

Video recording has been partially accepted in limited applications. There are indications of high potential for the future, and great interest in further investigations. However, more work is required to insure efficiency and cost effectiveness.

I. INTRODUCTION

Court procedures have evolved slowly over the years, many of them dating from English Common Law of several centuries ago. Procedures have been altered only after extended consideration, for traditional methods of decisions based on precedent tend to inhibit radical departures and innovations. Nonetheless, traditional and time-tested court methods have served their purpose throughout the course of legal history, for society itself has been slow to change and has therefore not required its institutions to do more than maintain pace.

The rate of society's change has accelerated drastically since the turn of this century, including effects on crime and criminal justice. The numbers of crimes have increased, but advances in technology have raised the likelihood of a criminal being caught and (potentially) proven guilty. At the same time, especially in recent years, interpretations of the law and of the Constitution have acted to lengthen the time for processing a criminal case; to increase the likelihood of appeal (which further adds to the duration of a case); and to increase the peripheral workload within the criminal justice system (e.g., more transcripts, more records). Recognized authorities, as well as the general public, now believe that the resultant crowded court system is rapidly approaching crisis. Procedures which functioned adequately in earlier times are now barely functioning, and in

some cases, their utility is being called into question.

Technological developments have been considered as a means for improvement, particularly for reducing congestion in court systems. For example, computer technology has already been applied in some courts for data retrieval, case scheduling, and most recently, for producing court record transcripts.* Following the trend pioneered by the state of Alaska, many states now use audio recording to supplement or supplant stenographic reporters in the taking of records of proceedings.

The resort to new technology is often an attempt to cope immediately with a particular major problem in a single court jurisdiction. Innovations are frequently adopted precipitately and without full appreciation of likely impact, especially as to side effects. More generally, questions are being raised today whether peripheral costs of introducing new technologies may in the end outweigh the sought benefits even when the primary goals have been satisfied. It is clear that, whenever possible, both primary and secondary effects should be hypothesized and considered in advance, and that new techniques should be introduced

* Nancy Kingsbury and Jenny Eldreth, A Study of Court Reporting Systems, Vol. II, Experimental Phase, Washington, D. C., National Bureau of Standards, NBS Report 10 642, March 1972. See Appendix E for titles of additional volumes in that report series.

with a view to satisfying the major problem of concern without undue (or with minimum) complications and drawbacks.

Video tape recording is one new technology which is being considered for several possible roles to alleviate congestion in the courts. Isolated experiments have shown the potential of video recording in limited applications. However, a broad examination has not yet been undertaken, nor has any assessment been made of the peripheral effects on the total criminal justice system.

In recognition of the need to assess the potential and impact of video technology on the courts and court problems, the Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice of the Department of Justice^c sponsored a comprehensive review of video recording in the courts, to be conducted by the Technical Analysis Division, National Bureau of Standards. TAD had conducted earlier research on several aspects of the criminal justice system, both from the point of view of developing an understanding of the operation of the system and of the sources of the impending crisis,^{*} as well as

* John W. Locke , et. al., Compilation and Use of Criminal Court Data in Relation to Pre-Trial Release of Defendants: Pilot Study, Washington, D. C., National Bureau of Standards, Technical Note 535, August 1970. An in-house study is also being conducted to explore a number of aspects of systems analysis/justice process interactions.

studies of the feasibility of specific technological innovations in the court process.* LEAA asked TAD to:

1. Identify and describe representative video tape recording systems which are currently available and adaptable to courtroom use;

2. Postulate opportunities for employment of court-centered video recording techniques (and, in particular, explore the use of video recording as a method of providing the court record);

3. Investigate legal or other barriers to court-centered use of video recording; and

4. Develop guidelines and design demonstration projects in which to observe operating video systems and to evaluate their impact on the criminal justice system, to resolve operational difficulties, and to explore the extent of technological promise which may be achievable.

* E. Nilsson, et. al., Studying Criminal Court Processes: Some Tools and Techniques, Washington, D. C., National Bureau of Standards, Report 10 258, Revised, April 1972. Also Kingsbury and Eldreth, Court Reporting Systems and other volumes in that series.

There were two major goals, the first of which was the documentation of the current state of video technology and its relationship to the criminal justice system. A survey was undertaken to determine the availability and suitability of equipment, the nature of experiments in video recording underway in local jurisdictions, attitudinal and legal barriers to video applications, and any proposed uses. Secondly, the documentation would serve as a basis for guidelines and recommendations for future work, spotlighting questions still to be answered (both technological and legal). It would also develop mechanisms to evaluate achievement of the primary goal of helping to reduce court crisis without interfering with the administration of justice or individual rights.

This study has been completed in the sense that its objectives have been met as of an arbitrary point in time, for there are continuing equipment developments, changes in law, and an expanding willingness to experiment. Many cognizant individuals now seem to feel that experimentation should be nearing its end, and that it is time for decisions regarding video technology. It is hoped that the overview provided by this project will aid in follow-on activities, especially with regard to primary and secondary impacts of video recording on the criminal justice system.

This report contains four major sections (following this Introduction):

II. Potential Applications of Video Recording in the Courts - describes those applications of video technology offering the most promise for the court environment, along with descriptions of experiments conducted to date and special issues (both legal and technical) which bear on the adoption of such applications.

III. The Legal Environment - discusses state laws and court rules relevant^{to} using video recording in the courts, and briefly examines the pertinent attitudinal climate in the legal community.

IV. Video Recording Equipment Systems - describes the operating characteristics and limitations of available, suitable video recording systems and components, along with estimates of cost for various system configurations.

V. Summary and New Directions - reviews the current position of video recording in the courts and recommends field applications and additional related research.

Detailed court rules and statutes bearing on the issue of video recording in the courts, references, and other supplementary material will be found in the appendices.

II. POTENTIAL APPLICATIONS OF VIDEO RECORDING IN THE COURTS

As discussed in detail below, the survey of present applications of video recording in the courts (and those under consideration) suggests four major areas (plus several peripheral applications) where video recording might importantly aid court systems. They are presented in an order which roughly reflects the extent to which they have already been accepted, to wit:

- (a) to record and present testimony;
- (b) to record and present investigative evidence;
- (c) to serve as the official record of trial; and
- (d) to present a pre-taped trial to the jury.

For each application three primary topics are covered: a general description of the role of video recording, a review of known field experience, and a discussion of problem areas which seem likely to arise and which will need to be resolved. Sample video equipment systems for each application will be suggested in Chapter IV.

VIDEO RECORDING TO RECORD AND PRESENT TESTIMONY

One of the factors contributing to trial delay is the difficulty in assembling all of the key participants at the same time. For example, many cases must be postponed because a witness fails to appear on time. Furthermore, each delay increases the likelihood that other participants will fail to appear at a subsequent

scheduled date: people become exasperated with an expensive waste of time in court without any action. Scheduling is especially difficult when an expert witness is to testify, e.g., on some medical, technical or scientific matter. Those who serve as expert witnesses are generally in great demand as practitioners, hence court appearances compete with other professional obligations, frequently causing trial delay. In the past, the only alternative to the live appearance of a witness in the courtroom has been the taking of a written deposition for reading into the record during the trial. Depositions are generally taken only if it can be shown that the witness can not be present at the trial; should the witness be available, the deposition is not used. (Depositions may also be taken before trial as an aid to discover what the nature of a witness's testimony will be.) A deposition which is read into the trial record is usually much less effective than the testimony of a witness on the stand.

Trial delays also tend to affect the quality of testimony. The memory of an event dims over time; moreover, it may dim selectively, so that certain features of the event continue to stand out, while others (which may be crucial to a realistic determination of what actually happened) may fade away completely. By the time a witness appears in court, his memory may be sufficiently weak that the testimony is no longer worthwhile, or the witness may

become distressed because his memory is not stronger, and so fall easy prey to an attack on his credibility.

Video-recorded testimony (or depositions) for subsequent presentation at trial would alleviate each of these problems. If the equipment is available, testimony can be recorded at the witness's convenience, either at a court location or in a home or office. The witness could offer his testimony within a short time of an event in question, circumventing the effects of memory lapses.

Equipment might be provided initially by the court, by a local attorneys' association, or by a private firm. Depositions recorded on video tape could be stored in a central location until the time of trial, or be kept by the attorney. (Methods are available to prevent or detect alterations made to the tape.) Fees could be levied in a number of ways. For example, a flat fee could be assessed, regardless of length of deposition, with the tape supplied by the attorney. As an alternative, tape could be supplied with the equipment, and the fee determined by the length of the deposition. Deposition charges could include both recording and presentation of the record in court, or presentation could be a separate function, with additional charges. Eventually, as video recorded depositions are utilized more frequently, it is possible that the attorneys themselves could supply the equipment and any necessary accessories. Experience may be necessary before costs

can be determined, but \$50 to \$150 appears to be a reasonable range for a deposition of one or two hours' duration. Since an hour's testimony would produce about forty pages of written transcript, the cost of an hour's deposition by video tape would not be much more than the cost of an equivalent amount of typed transcript.*

Video depositions are available immediately, with no need to prepare a transcript. If the recorded deposition later becomes part of the trial record (either in transcript or video form), or if the case never comes to trial, the tape can be erased and reused.

Video recordings offer several improvements over written depositions. Demeanor, tone of voice, uncertainty in response, and other non-verbal aspects of the testimony are preserved, and visual references (e.g., pointing, drawing a diagram, etc.) can be clearly shown. The advantage is further underscored in the presentation of the recorded deposition at trial. The current procedure of reading the written deposition into the record is counter-effective in some instances, since monotony of a single, disinterested voice can be tiresome and may distract from the meaning of the testimony. This is particularly likely to be the case in the testimony of an expert witness, whose evidence might tend to be tedious in the first place.

* Deposition transcript usually costs about \$1.00 - \$1.20 per page of original, plus additional cost for copies.

A potential disadvantage is that a witness who is aware of the availability of video recorded depositions may be less willing to appear in court, particularly if testimony has already been recorded. In many cases now, depositions are recorded in case the witness cannot appear; traditionally, the witness's appearance has been highly preferable, and only serious events justify his absence and the substitution of a deposition. If video depositions should prove to be substantially better substitutes for live appearance than written depositions are currently held to be, the requirement for live appearance might conceivably be loosened.

Video recording of depositions, while not at all in widespread use, has been tried in several jurisdictions with almost uniformly high success. As far as can be determined, video depositions to date have been introduced almost exclusively into civil cases; in some jurisdictions they are permitted and have been used in criminal cases, but the practice has been quite limited.

The first report of a video recorded deposition, intended to be used in court, appeared in the legal literature in April 1969.* In a civil suit for damages in an accident case involving a bus striking a pedestrian, a court

* John A. Nordberg, "First Evidence Deposition of Party Taken ... Pursuant to Court Order," Chicago Bar Record, April 1969.

order was issued to permit the video recording of the testimony of the victim in the case; he was a man of advanced years and the only witness in his own behalf. The case was tried in the Circuit Court of Cook County, Illinois, where video applications in the courts were already under consideration.

As an outgrowth of earlier experiences with video taped depositions in Cook County, a pilot program has been initiated recently in Bloomington, Illinois to establish a facility for video recording of testimony as a routine procedure in civil cases. Equipment for this program was purchased by the state, with a taping studio in the McLean County Court House in Bloomington and equipment operators to be supplied by the court system. Intended initially for use by physicians, plans include eventual expansion to provide the service for other witnesses who might find it difficult to be present in court. It is anticipated that the merit of the concept will be sufficiently convincing to warrant local purchase of new equipment for continuation of the program on a permanent basis, thus making the initial set of equipment available for introductory programs elsewhere in the state.

Video depositions have been used in at least two other jurisdictions, having become fairly common in the Wayne County (Detroit) area in Michigan. At least one commercial firm has been established to provide video recording services

for the Wayne County legal community, including studio facilities near the courthouse and three fully-equipped trucks for mobile on-location video service. Despite lower studio charges, the mobile units are highly in demand and, apparently, rarely idle.

As one of its experiments with the use of modern technology in the courts, the Federal Judicial Center provided video equipment to record depositions for the Federal Judicial District of Western Pennsylvania. Depositions have been used in court, especially the recorded testimony of physicians who were unable to appear. The judge in those cases reports that "a video tape presentation is far superior to the customary deposition which is read to a jury. The difference between the two is indeed startling".* A unique case, heard by Judge Weis, demonstrates the impact of video depositions. In a trial in which the depositions of two physicians were read, the jury could not reach a verdict. During a second trial, several months later, video taped depositions were used. The judge reports that "The effect of seeing the witnesses, making judgments of their credibility and accuracy depending

* Judge Joseph Weis, Jr., "Video Tape", Remarks to the Pennsylvania Bar Association, June 26, 1971, p. 1

on tone of voice, hesitancy in answering, facial expressions, and general appearance cannot be overestimated. While the juries in both trials were most conscientious, it was obvious that the attention of the jurors during the video tape presentation was far higher than that of those who had listened to questions being read ... In fact, I thought it necessary to caution the jury in the second trial that the video tape evidence should be given exactly the same weight as a live witness, no more no less".*

Judge Weis also reports minor problems, such as the inability to handle objections satisfactorily. The adopted procedure consisted of noting on the counter, which is part of the recording head, the point at which an objection was made; if sustained, the corresponding portion of the tape would not be shown to the jury. However, the degree of accuracy of the counters now attainable makes it difficult to stop and re-start the tape precisely where desired. Sound quality also proved to be a minor but noticeable problem.

As a direct follow-up to these experiences in the Federal court in Pittsburgh, the Allegheny County Bar Association has recently purchased video equipment for its members

* Weis, Remarks, p. 1

to obtain video depositions. The equipment is operated by law school students and is available at all hours, both weekdays and weekends. The base cost is \$50.00 per deposition, regardless of the time involved, plus \$5.00 per hour for the operator. Tapes are provided, subject only to the provision that they be returned for reuse when the case is terminated (including all appeals).

Although video depositions may have been used in other jurisdictions, news of these experiences if any, has not been circulated.* All known reactions have been highly enthusiastic, especially after any initial skepticism has worn off. Acceptance has been in civil, rather than criminal trials, reminiscent of experience with other electronic recording methods. Civil trials appear to be more conducive to experimentation, and depositions are more widely used for evidentiary purposes in civil trials than in criminal trials.

As discussed earlier, some problems require resolution before the video deposition technique is completely satisfactory (e.g., improved accuracy for excising objectionable material from testimony and compatibility of recordings across equipments). Other problem areas which need to be

* For example, there is an oblique reference to video depositions in Philadelphia in a court reporters' magazine but with no detailed information available.

considered include procedural matters which can be resolved by appropriate guidelines; equipment improvements and changes in court rules or statutes to allow video depositions may take more time.

As will be noted in Chapter III, in many states there are prohibitions against some video applications in the courts. Most of the emphasis is on courtroom recording; this aspect does not affect depositions, which are usually taped elsewhere. However, some court rules specify the form of a deposition or the method of recording it, and these would have to be altered if they explicitly or implicitly proscribe video presentations.

Among the procedural issues of concern is the method of certification: written depositions are transcribed and their accuracy attested by the stenographer. If necessary, the video operator could appear and identify himself on the record at the end of taped testimony to certify that the record was supervised and is complete. Although editing of a video tape is possible, integrity can be maintained by any of several methods (e.g., making a duplicate tape to be stored by the court, providing visual time-line evidence, such as a clock face, etc.), one of which must be adopted.

RECORD AND PRESENTATION OF INVESTIGATIVE EVIDENCE

Conventional police procedures in investigation and the gathering of evidence in criminal cases rely heavily

on the policeman's memory and his ability to testify about what he has witnessed. Still photographs are sometimes used as supplements, but such pictorial evidence is necessarily static and, of course, does not include accompanying audio. Furthermore, recent appeals court decisions have imposed stringent formal requirements for police behavior with a suspected criminal, but evidence of compliance is not usually directly available.

Just as recorded video depositions can bring testimonial evidence into court, many types of police evidence can be video taped and presented in court. It may also be possible to video record some police procedures, thereby helping to protect individual rights at arrest and during interrogation.

Video recording equipment can be sufficiently portable for field use and may be used in recording police investigative activity. (Closed circuit television systems have for some time been used as a deterrent to crime in banks and other institutions concerned with security; a taping feature serves to record a crime, should one take place.)

Among the field activities for which video recording could provide meaningful evidence are traffic cases (in particular, with regard to drunk^{en} driving, negligent behavior

etc.); search and seizure proceedings; surveillance of suspected criminal activity; activity at demonstrations; and many more. The dynamic quality of many of these events makes video recording particularly effective as evidence, since every detail visible to the police video operator can be preserved. In other situations, video records of physical evidence following commission of a crime might provide better evidence than still photographs.

Portable video equipment usually has a relatively short recording time (about 30 minutes), but extra tape reels are easily carried and tapes can be reused unless the information is required for court presentation. Video equipment (not necessarily portable) in police department facilities can also be used to record interrogations, line-ups, and statements, and to record the required warnings for the protection of rights.

Various police departments around the country have applied video recording in investigative matters. Video recorders are being used in at least three jurisdictions to record major traffic offenses and tests for intoxication administered on the scene.* Curiously, video recording may produce unexpected results when brought into court as evidence

* Wickliffe, Ohio; Astoria, Oregon; and Hermosa Beach, California.

In a case in New York City, a man failed a drunkometer test, agreed to be video recorded in another series of tests, then was acquitted by the judge, who thought he "looked good on tape."*

The police department in San Jose, California, has recorded a number of search and seizure raids, to demonstrate use of correct procedures and to gather evidence. These efforts are still experimental: the tapes** demonstrate that meaningful guidelines are needed to ensure that the record is complete and unbiased.

The number of police departments which have either portable or semi-portable equipment to record interrogations or witness' statements is not known. The admissibility of a video-taped confession as evidence has been established through appellate review in Florida, at least (see page 44).

Use of video recording in investigations necessitates guidelines for the avoidance of deliberate or inadvertant biasing by implicit "editing". The decision to record or not and the choice of field of view is the editorial equivalent of cutting out a portion of the record at a subsequent time.

* Associated Press, "Drunkometer evidence loses to video tape", The Washington Star, n.d.

** Tapes were shown at NBS Conference on Court Centered Uses of Video Recording, see pages 57-59.

To date, video recording in each police department known to be using it is generally limited to a single type of application (such as traffic cases). Other departments, of course, may have taken a more flexible approach. However, if wider use is made, questions of storage (e.g., how long to keep evidence tapes, how to file and retrieve them, etc.) and access (e.g., availability of tapes to defense attorneys) will have to be resolved, including consideration of court decisions and appeals. The equipping of police departments will also be influenced by the method of presenting tapes in court. Unless the courts have electronically compatible equipment,^{*} presentation of evidence will require that the police recorder and a monitor be brought to court whenever needed; the inconvenience might easily outweigh any improvement in evidence.

RECORD AND PROVIDE
OFFICIAL RECORD OF TRIAL

A shortage of qualified court reporters frequently results in transcript backlogs and long delays. Many court administrators have consequently looked to electronic methods as a means for relieving backlog conditions. A computer system for translating stenotype notes has also

* See pages 71-72 for further discussion of this issue.

been tested in the hope of freeing the reporter from that portion of the transcript task. Audio recording has been introduced in some courts, and transcript typists frequently work directly from the courtroom tapes. This precedent has led to consideration of video recording for making a record of trial proceedings.

Video taping a trial is more complex than its audio counterpart. Permanent installation (perhaps in several adjoining courtrooms) is probably necessary, with a separate monitoring area or room. Unobtrusive cameras can be mounted on the walls at selected locations in each courtroom, with a panel on the judge's bench to inform him of the status of the recording system, and an optional monitor to depict what is being taped. Assigned court personnel can monitor pictures from the several cameras, selecting the relevant view. They must also monitor the audio microphones and maintain a detailed written log of the progress of the case.

In-court equipment might also include monitors for the jury to view pre-recorded testimony, and additional cameras may be placed in the judge's chambers for on-the-record conferences there. Specific equipment requirements depend on the characteristics of individual courtrooms.

Central storage is required for tapes and logs, and duplicates should be available (at a fee) for attorneys' copies or for viewing on court-provided video tape players.

The video portion of the record is accompanied by an audio record, with microphones provided for the major speakers (judge, witnesses, attorneys). Ideally, the audio portion of the record should be recorded on multiple tracks, but current video equipment allows for only single track audio recording (or dual on one-inch format machines).^{*} A supplemental audio recorder could be used, but some difficulties with the synchronization of audio and video records during replay under those conditions would be expected.

The rate of preparation of a typed transcript from the tape would undoubtedly be slow, since none of the current equipment is designed to permit easy "no-hands" start, stop, and rewind. As an alternative, the video record may itself be designated as the official record: this procedure is now being implemented in Alaska. This might have profound implications for much of the judicial system. The form and content of appeals would both be changed, and there could be substantial time savings in the filing of the appeal since

* See Chapter IV for further discussion of equipment characteristics.

the record is available immediately and lengthy written briefs could be avoided. However, the opportunity to review a visual record of trial, including demeanor as well as words might well raise new legal questions within and about the appellate process.

To date, pilot efforts to examine the feasibility of recording trials by video tape have been concerned more with the mechanics of taping than with a full-scale overview of operating a courtroom video recording system. For the most part, tests have demonstrated that a video record can be made, and the consensus is that that record is far superior to that provided by a typed transcript. However, the experimental nature of these efforts has not permitted test and resolution of the legal issues or the operational problems of storage, access, etc.

Video equipment was first installed for recording trial proceedings in 1968 in the Skokie courtroom of the Second Municipal District of the Circuit Court of Cook County, Illinois. Shortly afterward a similar experiment was undertaken in the DuPage County Courthouse in Wheaton, Illinois. Both experiments were authorized by the Supreme Court of Illinois and were conducted by its administrative office to determine whether a video taped record was adequate compared to the written transcript.*

* William M. Madden, "Illinois Pioneers Videotaping of Trials", ABA Journal, Vol. 55, May 1969, pp. 457-460; William M. Madden, Experimental Videotaping of Courtroom Proceedings, Chicago, Administrative Office of the Illinois Courts, Nov. 1968.

The integrated system for these tests consisted of a video recorder, monitor, three low light level cameras (each with a separate monitor), a remote control panhead for one camera, and a sound system of four to six microphones with a preamplifier to combine the audio signals. One camera, mounted behind the judge on a motorized panhead, provided a "judge's eye" view of the courtroom. Another camera was mounted high up on the side wall of the courtroom, and was trained on the witness and judge. A special effects generator allowed the view from the second camera to be superimposed in a corner of the larger view from behind the judge. The third camera was placed in chambers to tape on-the-record conferences. Trial records were made for one full week each in the Skokie and DuPage courtrooms.

The judges who presided during the tests considered the video tape method of recording trials a forward-looking attempt to cope with the problems encountered when competent court reporters are not available. Interestingly, the judge in DuPage County, where competent reporters are plentiful, felt that video recording is not an adequate substitute for reporters. The other judge, confronted by a serious shortage of reporters, observed that the video record "far surpasses the court reporter's transcript or an audio recording of the proceedings". He went on to say that there are "really no serious difficulties, either technically or theoretically

with maintaining a complete record of all proceedings in the courtroom by this method."*

Predictions have been made that video recording of court proceedings might lead to "acting", or to undue concern on the part of courtroom participants. The experience of these tests suggests that, on the contrary, participants tended to act with more dignity when aware of the presence of the camera, and that those who were constantly in the courtroom generally forgot that the cameras were there.**

Following these tests, the emphasis in Cook County turned to developing video techniques for recording testimony. There is no indication of further experimentation with video taping to obtain the trial record for nearly three years. Then, in November 1971, the State Bar of Michigan with LEAA support, undertook a study of the feasibility of recording trials.

Equipment was installed in the Ingham County courthouse in Mason, Michigan. Under the concept that the "best" record would be from the jury's point of view, three cameras were mounted above and behind the jury box. Two cameras were located behind curtains; they could rotate and were equipped with zoom lenses. Each was operated by a camera technician.

* Hon. Harold W. Sullivan, "Court Record by Videotape Experiment - A Success", Chicago Bar Record, April 1969, p. 336 - 337.

** Madden, "Illinois Pioneers", p. 459.

A third camera, on the wall above the jury, provided a fixed-focus, full-room view of the proceedings. Monitors showing the view of each camera, as well as one to indicate what was being recorded, were located in a nearby room, along with video recorders and back-up equipment. Two technician^g_h in this adjoining room selected the view to be recorded and kept a written log of events in the courtroom. Seven trials (five criminal and two civil) were recorded over a two-week period, each requiring 7 - 9 one-hour reels of tape.

A pair of video recorders permitted continuous recording, and a panel of lights informed the judge of the status of the system (e.g., when the tape was reaching the end). As one tape was running, the second machine was started with enough overlap to assure a continuous record.

Variable focus cameras and camera switching were relied upon to present the complete trial picture; special effects and split-screen devices were not used in these tests. Replay of the tapes provides an excellent picture indeed.* Occasionally there was a very brief sound loss, e.g., when a speaker cut in and the technician could not readjust volume levels on the microphone control quickly enough to pick up the unexpected voice.

* The project leader for this study made two trips to Michigan to talk to participants and to view the tape replays.

Since these explorations were experimental, the official records of the trials were produced conventionally in all cases in both Illinois and Michigan. The operational feasibility of obtaining a trial record by video recording was demonstrated, but it is not yet established that a video record would be acceptable as the official record for appeal purposes.

The state of Alaska, which pioneered in adopting audio recording as the official record of trial, is planning to introduce video recording of trials in its busiest courts. The rules governing the court record have been changed so that video methods are acceptable record forms, and equipment specification and purchase is well along. Three cameras are currently planned for each courtroom, with a supplementary sound system and a video recorder with camera view selection control through a special effects generator. Records from this system will be accepted as official as soon as it is in operation.

Many questions remain unanswered due to lack of operational experience in a courtroom environment. Legal issues are yet to be resolved through appropriate review procedures, including a determination of the acceptability of change in the form of the court record, the access of the news media to trial recordings, and the introduction of new elements into the review process (such as the credibility of witnesses, etc.). Procedural guidelines are still to be established, along with mechanisms for tape and log storage and retrieval, including

attention to security aspects and record integrity. The equipment shortcomings which make excision of objectionable material difficult in video taped depositions apply equally to video trial records. Furthermore, if tapes are to be submitted for review on appeal, selective viewing techniques are necessary lest appellate courts be forced to replay an entire trial.*

The introduction of video recording of trials is likely to be subjected to many of the criticisms which were directed at audio recording when the latter was brought into the courts. However, the chief fears, of unreliability of mechanical devices (where machine failure might result in the loss of record) or concern about recording confidential, off-the-record remarks or too much background noise, have been of minimal operational concern in audio recording experience.

As of now, the cost of video recording relative to other techniques appears to be the major problem. It is difficult to assess the full cost of a court-wide video system since a full system has not yet been installed and tested in an integrated fashion. The initial investment

* A judge interviewed during the course of this study (see pages 57) indicated that, after reviewing the lawyers' arguments on appeal, at least one judge on the appeal panel reads the entire transcript to verify that the arguments truly represented the occurrences at trial. Such lengthy review of a video record might result in slowing, rather than speeding up the appeal process.

in equipment and tape is high and, as has been noted, there remains a need for in-court personnel to monitor and log events. The cost of an hour's video tape is comparable to the cost of an equivalent amount of conventional transcript. The re-usability of tapes and efficient use of equipment and personnel may keep the costs of video recording at an acceptable level, considering that it furnishes the advantage of rapid availability of the trial record.

PRESENTATION OF PRETAPED VIDEO TRIAL TO THE JURY

The conceptual and demonstrated usefulness of video recorded testimonial evidence may be logically extended: if single elements of testimony are well presented to a jury via video recordings, perhaps an entire trial might be processed this way. A fully video-recorded trial was initially suggested in 1970 in a lengthy, scholarly article by Alan E. Morrill.* The suggestion has been adjudged to have merit, especially as a preferred alternative to eliminating the jury trial, which has been put forth as a drastic solution to congestion in the courts.

* Alan E. Morrill, "Enter - The Video Tape Trial", The John Marshall Journal of Practice and Procedure, Vol. 3, 1970 pp. 237-259.

A pre-recorded trial entails recording all testimony on video tape, much as depositions are taken. Witnesses can appear at their own convenience, and that of the lawyers. Evidence can be initially taped in any order: the attorneys may subsequently arrange the taped testimony in a chosen order, and the full trial tape is then available for review by the judge. At this first review, any objections of the attorneys are noted and subjected to immediate rulings or else taken under advisement, a luxury not possible in conventional trials. If the objection is overruled, the material is left on the tape, but reference to the objection is removed from the tape. If the objection is sustained, the relevant material is removed from the tape before it is shown to the jury. Regardless of the ruling, a master tape is maintained with all material, including objections and objectionable evidence, and this master is available for appellate review.* (It may be noted that both the tape shown to the jury and the master are available as an official record of trial.)

When the tape is ready and a jury has been selected, the trial could begin with video monitors installed in the

* One authority has proposed that the review process might be completed even before the tape is shown to a jury. That is, appeals from the trial judges' rulings could be taken to the appellate court for resolution and the jury called only when the tape was legally "right". Justice Thomas E. Brennan, "Justice and Technology - 1997", Michigan State Bar Journal, Vol. 50, March 1971, p. 150.

jury room or box. There are options for presenting opening and closing arguments and the judge's instructions either live or on tape. After viewing the evidence, and receiving instructions, the jury might retire to consider a verdict, perhaps without ever seeing the attorneys and the judge in person, except during the jury selection process.

This procedure could eliminate virtually all non-functional time which now elapses in jury trials without concerning the jury directly (e.g., waiting time, time involved in arguing motions, etc.); actual trial time might be cut down to one-half or one-third that now required.* In addition, the jury would no longer be witness to objections and arguments over testimony, which are potentially prejudicial, nor would they need to be instructed to "disregard" something heard (which may be very difficult, indeed, to "forget").

Although the concept of a pre-recorded trial has been discussed for at least two years, most authorities felt that implementation of such a radical notion would not occur for many years. Judge James L. McCrystal of the

* Judge James L. McCrystal, "Video Tape Trials", The Ohio Bar, Vol. 44, No. 21, May 24, 1971, p. 640.

Court of Common Pleas, Erie County, Sandusky, Ohio, who had proposed the video trial to avoid reducing the effectiveness of the jury system, was provided with an ideal opportunity to test the concept within six months of his initial comments.* A trial case scheduled ~~for~~ in his civil court involved a personal injury suit arising from a traffic accident, but the plaintiff's medical witness could not be available on the date of trial. It was first agreed to record his testimony as a video deposition; then, after further agreement from the attorneys, Judge McCrystal requested the support of the Ohio Judicial Conference to pre-record all evidence for the trial.

The plaintiff, defendant, witnesses, lawyers and judge all appeared before the cameras over a two-week period, although they did not need to be present simultaneously and testimony could be taken in any order. It was also unnecessary for the judge to be present during all the testimony was arranged by the attorneys and presented to the judge for review. Objections were then considered, with appropriate removals of material from the jury tape record when sustained; a master tape was left intact.

* McCrystal, "Video Tape Trials".

After jurors were selected, they listened to live opening statements from the lawyers. The video recorded evidence was presented on two large-screen monitors, running for about 2 1/2 hours. Closing statements were presented live, followed by the judge's instructions on video tape. The jury retired and reached a verdict on the same day. Comments on the trial by the participants * were uniformly favorable. The lawyers cited the elimination of potentially influential, but irrelevant, material from the jury's version of the case; the opportunity for better preparation through advance scheduling of witnesses and full knowledge of the final case in time to prepare meaningful statements to the jury; improved use of the court's and the attorneys' time, the relatively relaxed conditions for witnesses and attorneys trying cases; and the reduction of the risk of judicial error by allowing for sufficient consideration of points of law.

* Judge James L. McCrystal, "Ohio's First Video Tape Trial The Judge's Critique", The Ohio Bar, Vol. 45, No. 1, January 3, 1972, pp. 1-4; Thomas J. Murray, Jr., "Comments on a Video Tape Trial from Counsel for the Plaintiff", The Ohio Bar, Vol. 45, No. 2, January 10, 1972, pp. 25-30; Raymond N. Watts, "Comments on a Video Tape Trial from Counsel for the Defense", The Ohio Bar, Vol. 45, No. 3, January 17, 1972, pp. 51-56.

Interviews with the jurors indicated that they, too, were favorably impressed.* The trial was concluded in less than half the time normally consumed, and the jurors felt that they could offer a better verdict without having heard objectionable material or the arguments pertaining thereto. Witnesses cited their ease in giving testimony in the presence of only the attorneys and the cameras.

As with any first effort, the trial was a learning experience and not without minor problems. Viewing the entire video record without a break and the placement of the monitors both contributed to strain and fatigue among the jurors' frequent breaks and better courtroom arrangements were recommended. A small equipment problem caused voltage irregularities which disrupted the picture occasionally, perhaps because voltage regulators were not used. These suggestions were also made: to vary the camera view from time to time to relieve the monotony of a single picture of one witness (equivalent to a juror's shifting his gaze from a live witness); inclusion of a picture of counsel from time to time, particularly when a new counsel takes over questioning; and the possibility of recording witnesses in settings (such as home or office) other than the courtroom.

* McCrystal, "Ohio's First Video Trial," p.3.

With the apparent success of this first pre-recorded trial, Judge McCrystal is reported to be planning another.* The new case involves an accident at a railroad switch, and it is hoped that some views of the accident scene can be included in the trial tape. Plans have also been prepared to initiate a pretaped civil trial as standard procedure for six months or longer in a courtroom in Michigan.

Video experimentation in the criminal area is yet to be tested. At least one major legal question pertains to criminal matters: whether video presentation of witnesses is adequate protection of a defendant's right to "confront" his accusers. Although any taped testimony would include cross examination by both attorneys, court tradition has generally considered "confrontation" to mean a face to face meeting, if only across the courtroom. Similarly, it may be questioned whether the right to trial by jury requires that the defendant be able to see and be seen by members of his jury. These and related issues can be pondered in advance, but only the appellate process can provide the ultimate resolution.

* Max Gunther, "Is Television the Answer for Our Crowded Courts?" TV Guide, Vol. 20, No. 13, March 25, 1972, p. 10.

PERIPHERAL ROLES AND RELATED TECHNOLOGIES

Education

Recordings of trials would make available realistic examples of courtroom activity as an invaluable aid in legal education. Many law schools now stage mock trials, but law students have extremely limited experience with, or participation in, actual trial activity. At best, a student may occasionally observe in court; at worst, he attains his degree without ever setting foot in a courtroom.

Tapes of trials or trial excerpts could be used to teach trial procedure and to exemplify legal rulings when teaching the content of law. As distinguished from courtroom observation, tapes can be interrupted for commentary, questions or discussion. With sufficient equipment in the law school, mock trials could also be taped and student performance critiqued.

Trial tapes could serve to instruct newly-appointed judges on courtroom procedures. Judicial clinics have already staged mock trials which were video-taped, and student judges have viewed and critiqued their own performance.

* "Judges See Themselves in Video Taped Mock Trials", Judicature, Vol. 55, No. 8, April 1972, p. 347.

Actual trials have been filmed for educational purposes* hence there is a precedent which may apply to video taping for the same purpose. Legal access to the tapes will probably have to be determined by judicial ruling, but it may be noted that proposed revisions to the ABA Canons encourage such access (see page 48).

Related Technologies

In addition to video recording in the courts, several types of court activity are amenable to the introduction of related technologies; for completeness, they are briefly discussed here.

Closed circuit television (CCTV) is very similar to video recording systems (see page 65), the primary distinction being that the image is not retained for future reference. There are situations however, where the recording feature is not needed. Closed circuit television might be used, for example, where retention of the record is not necessary, but where court purposes are served by remote viewing. Thus, testimony might be presented (in the temporal sense "live",

* At least one criminal trial has been filmed, and broadcast over the National Educational Television network. The films of that trial, involving a Denver Black Panther leader accused of assaulting a police officer and resisting arrest, were used as source material in the earlier TAD study of computer translation in court reporting.

but by camera) by CCTV when a witness cannot be physically present in the courtroom but is available for testifying.* With the current state of the art, the witness would probably be in the same building, for system connections over long distances are difficult and expensive. As an example, a witness might expect to be called in several cases in one day, and could be available to testify from a central location for any of the cases. This would be much more efficient than shuttling among courtrooms.

There have recently been an increasing number of trials at which disruptions have occurred. CCTV offers several features for aiding authority to control the disruption and, at the same time, minimizing the forces required to achieve control. In at least two recent cases, violent behavior occasioned restraint of the defendant to prevent disruption of the proceedings. Although restraint was considered to be necessary, the resulting spectacle of shackles and gags reflected unfavorably on the system of justice, and may even have served the non-judicial purposes of the defendant. As an alternative to physical restraint, violent or demonstrative defendants might be segregated in a separate, private room, connected to the courtroom via

* It is an interesting indication of the expected public approval of video in the courts that the remote testimony of a witness via CCTV formed the central event in an episode of a television series about a lawyer ("Owen Marshall, Counselor at Law", broadcast during the 1971-72 television season).

CCTV and audio. A defendant would thus be allowed to continue to participate in his trial, but would be unable to interrupt the proceedings further.

Much as in banks, CCTV could be utilized as a security monitoring system, serving to alert the appropriate authority to any disruption in the courtroom. Officials could^d be dispatched as soon as a problem occurred, rather than remaining on-call in the courtroom to serve in the event of a contingency. There would also be no overt indication that interruptions are expected, of itself a possible triggering mechanism for potential disruptions.

Another related technological application is the Picturephone, a telephone system which provides both audio and video connections, and which enables the parties to hear and see each other. This system is currently available on a limited scale in a few cities, but should be widely available in the future.

Although the engineering is still experimental, it is possible to display the Picturephone video on a large monitor screen,* whereas current screens are only a few inches across: this would permit testimony to be telephoned into a courtroom to be viewed by the jury. In a more conventional application, lawyers and judges with Picturephone

* It is also possible to adapt a home TV receiver to carry Picturephone signals, and telephone calls have been displayed on theatre screens as large as 12 feet square.

installations could resolve issues normally heard in court or in the judge's chambers via Picturephone conference calls from their offices. Direct interaction from remote locations could save substantial time and cost. As an additional feature, it is already possible to transmit document copies via Dataphone lines and parallel connections would permit nearly any type of business normally conducted in chambers to be resolved during and as a part of regular telephone calls.

III. THE LEGAL ENVIRONMENT

Possible barriers to the introduction of video recording in the courts may derive from institutional constraints and attitudes of members of the legal community. There are laws and court rules which may limit the recording or reporting methods for various court functions, and reluctance to accept a new technology is often present in a usually conservative system. The hypothesized applications of video recording in the courts which are discussed in detail in Chapter II were therefore examined in the light of existing laws and attitudes.

The laws and court rules which have been examined apply, primarily, to uses of video recording related to existing court procedures. These include rules governing preparation of the record of court proceedings and of depositions, and rules limiting some types of recording in the interest of preserving court dignity. On the other hand, presenting a trial to the jury via video tape has been attempted only experimentally; consequently, existing laws and rules may not be germane except to the extent that some elements may be related to admissibility of recorded evidence or the record of trial.

It is, of course, quite difficult to assess the attitudes of the legal community, so several approaches were adopted to examine this subjective factor. Interviews were conducted with several members of the judicial community in

the Washington, D. C. area to detect any categorical objections among people not familiar with the potential applications of video recording in the courts. In addition, a group of people representing a wide constituency within the legal community, but for the most part already familiar with video concepts, were convened to discuss the full range of potential uses and to evaluate possible problems from disparate viewpoints. Several trips were made to gain direct familiarity with selected experimental programs, and an effort was directed at ascertaining reactions of the legal community to innovations. Literature relating to these topics was also collected with emphasis on both legal and general news sources. Some general patterns have emerged from these approaches.

STATUTES AND COURT RULES PERTAINING TO VIDEO RECORDING IN THE COURTS

Through general practice or in response to particular problems, every state (and the Federal Government) has generated statutes or court rules to govern most court operations. Current regulations relating to the introduction of video recording were researched through a survey of state laws and court rules covering three major areas. Rules for court conduct are primarily concerned with the maintenance of decorum and suitable dignity during court sessions. Thus, early experience with radio and television used for publicity led to

rules prohibiting broadcasting from the courtroom in many states. Photography is usually included in this prohibition, and, in some places, sketching or recording for any purpose. Statutes and rules providing for a record of court proceedings or the taking of depositions have generally originated from the need to specify the quality and form of an "acceptable" record of events. As will be noted below, the rules may be applied to restrict or prohibit video recording although the concept of video recording was not envisioned when the rules were structured.

One potential use of video recording, namely the presentation of recorded evidence or testimony at trial, may lie in a legal area left, in the past, to the court's discretion. Admissibility of evidence is generally decided by the judge, subject, of course, to appellate review. Both sound recordings and motion pictures which relate to otherwise competent evidence are usually admitted into evidence.* The similarity of video recording in this context might therefore be expected to lead to admittance. This use of video has already led to contention, testing and the establishment of "rules" through appellate precedent. In at least one case,** a video-recorded

* 58 ALR 2d 1024; CJS Evidence, Section 711.

** Paramore v. State, 229 So. 2d 855 (Fla. 1969).

confession was ruled acceptable on appeal. It may be noted that rather strict rules of "proper foundation" have in the past been applied to the testing of admissibility, including proof, for example, that recordings are what they purport to be and have not been tampered with. It may be expected that similar testing and strictures will apply to comparable uses of video recording.

Details of the surveyed court rules and statutes are presented in Appendix A. Every effort has been made to be thorough, but the variety in format and the dynamic character of the legislative process makes it nearly impossible to assure either completeness or currency.*

A summary of the major features of state laws and rules is presented for reference in Table III-1. Although there are many locally unique factors, a number of general characteristics are evident.

All states specify that a record of court proceedings is to be taken and preserved, and the pertinent rules or statutes tend to reflect the environment at the time of passage. However, some have since been amended. Many states specify that records must be taken "stenographically" or by "mechanical

* The survey was conducted using resources in the Washington, D. C. area, but which may not reflect recent changes in state laws. The limited time and manpower available made it impossible to include strictly local rules and statutes.

Table III-1

Summary of major characteristics of State laws or Court rules related to uses of video recording in the Courts

<u>Court Conduct</u>	<u>Court Proceedings</u>	<u>Depositions</u>
<u>Radio and television broadcasting prohibited</u>	<u>Stenographic or shorthand reg'd. (includes mechanical devices)</u>	<u>Stenographic or shorthand reg'd. (includes mechanical devices)</u>
Alaska	Alabama	Alabama
Arizona	Arkansas	Arizona
California	California	Arkansas
Delaware	Delaware	California
District of Columbia	Florida	District of Columbia*
Florida	Georgia	Florida
Georgia	Hawaii	Georgia*
Illinois	Idaho	Hawaii
Louisiana	Iowa	Idaho
Maine	Kansas	Iowa
Missouri	Louisiana*	Kansas
Nevada	Massachusetts	Kentucky
New Jersey	Missouri	Louisiana
New Mexico	Montana	Maine
North Carolina	New Hampshire	Maryland
Ohio	New York	Massachusetts
Pennsylvania	North Dakota	Missouri
Puerto Rico	Ohio	Montana
Vermont	Oklahoma	Nebraska
Washington	Pennsylvania	Nevada
West Virginia	Rhode Island	New Hampshire*
Wyoming	South Dakota	New Jersey
	Texas	New Mexico
	Utah	North Carolina
<u>No rules or statutes found</u>	Virgin Islands	North Dakota
Alabama	Washington	Ohio
Arkansas	West Virginia	Oregon
Connecticut	Wyoming	Puerto Rico
Hawaii		Rhode Island
Idaho	*or any other recognized manner	South Carolina
Indiana		South Dakota
Iowa		Tennessee
Kansas	<u>Electronic devices allowed as replacement</u>	Utah
Kentucky	Alaska	Vermont
Maryland	Arizona	Virginia
Michigan	Colorado	Virgin Islands
Minnesota	Connecticut	Washington
Mississippi	District	West Virginia
Montana	Indiana**	Wisconsin
Nebraska	Michigan	Wyoming
New Hampshire	Minnesota	
North Dakota	Nebraska	**"or other form of verbatim recording"
Oklahoma	Nevada	<u>Electronic devices allowed</u>
Oregon	New Jersey	Alaska
Rhode Island	North Carolina	Colorado
South Carolina	Tennessee	Delaware
South Dakota	Vermont	Georgia
Tennessee	Virginia	Illinois
Texas		Indiana
Utah	**wording ambiguous but seems to include electronic recording	Michigan
Virginia		Missouri
Virgin Islands	<u>Electronic devices allowed as supplement</u>	
Wisconsin	Illinois	<u>No manner clearly specified</u>
<u>Radio and television discretionary</u>	Kentucky	Connecticut
Colorado	Mississippi	Minnesota
New York	Oregon	Mississippi
<u>Electronic recording prohibited</u>	South Carolina	New York
Massachusetts		Pennsylvania
	<u>No manner clearly specified</u>	Texas
	Maine	
	New Mexico	
	Wisconsin	
	<u>Nothing specified</u>	
	Maryland	
	Puerto Rico	

means" (i.e., stenotype). Recently, a number of states have enacted amendments to permit the use of "electronic recording" (generally interpreted to mean audio recording but frequently not specified as such) either as an "aid" to court reporting by stenographic or mechanical means, or as the main source from which the transcript is taken. Alaska, reacting to a serious shortage of court stenographers, now requires audio recording, designating the taped record itself to be the official record; transcription is an option for convenience only.

In developing rules of courtroom conduct, most states have adopted or borrowed from the language of either Rule 53 ("Regulation of Conduct in the Courtroom") of the Federal Rules of Civil Procedure, or from Canon 35 ("Improper Publicizing of Court Proceedings") of the American Bar Association Canons of Judicial Ethics. Both sources are clearly concerned with maintaining the dignity of court proceedings (hence the emphasis on "decorum" and "dignity"), lean toward the prohibition of "broadcasting" from the court.* They appear to have been promulgated originally to curb the excessive disruption

* While Rule 53 prohibits only radio broadcasting, most of the states which have borrowed from that rule have extended it to television broadcasting. Some have also gone beyond both Rule 53 and Canon 35, prohibiting such things as recording, or in some cases, the recording devices themselves.

and publicity surrounding a few particularly newsworthy trials which occurred when radio was flourishing and television had just been introduced. The language of these rules strongly suggests that the "entertainment" aspects of broadcasting and possible disruption of the court are the subjects of restriction, and not the recording itself.

The ABA is considering the revision of Canon 35 to qualify the prohibition against television and audio recording in order to permit electronic devices for presenting evidence, perpetuating the court record or for educational purposes. Revision probably will not be formally presented to the ABA membership until 1973, but its consideration may lead to similar revisions at the state level.*

* A tentative draft provides that the court should "prohibit broadcasting, television, recording, or taking photographs in the courtroom and its environs during sessions of court or recesses between sessions, except that the judge may authorize:

1. The use of electronic or photographic means for the presentation of evidence, for the perpetuation of a record for appellate review, or for other purposes of judicial administration.

2. The broadcasting, television, recording, or photographing of investitive, ceremonial, or naturalization proceedings.

3. The photographic or electronic reproduction by a recognized educational institution of appropriate court proceedings for use exclusively in their curriculum." (Judge Joseph F. Weis, Jr., Remarks to the Penna. Bar. Assn., June 26, 1971, p. 5).

For the taking of depositions, emphasis has centered on the rules of civil procedure. (In most states, the rules on depositions in criminal procedures are adopted directly from civil rules.) Deposition rules are fairly uniform across many states, with many of them adopting or borrowing from Rule 30(c) ("Depositions upon Oral Examination: Record of Examination") of the Federal Rules of Civil Procedure. Rule 30(c) provides that an officer of the court shall administer the deposition, and that the testimony shall be recorded stenographically and transcribed. A recent amendment to a preceding section of Rule 30 (30(b) "Notice of Examination: Non-stenographic Recording") provides that non-stenographic recording means may be allowed by court order, provided that all parties to the deposition are so notified in advance. This latter rule is too recent to have been adopted by many states, but it sets an important precedent.

As mentioned earlier, virtually all existing rules and statutes were enacted before productive or judicially efficient applications of video recording in the courts were contemplated. It may therefore be instructive to observe that, as the utility of other forms of electronic recording in the courts was demonstrated, laws were amended to take advantage of new technology. Similar changes will likely be applied selectively to video recording. Such changes take time, however, and are often carefully deliberated, but a trend in this direction has already started.

Where the rules or laws pertain to the accomplishment of current court procedures for which the introduction of video recording does not change the function itself (for example, in recording and presenting depositions), amendments can be made straightforwardly without directly affecting other parts of the judicial system. In fact, several states allow electronic devices for recording depositions, and depositions have been presented by video tape in at least three jurisdictions.

Some applications of video recording, however, may radically alter the judicial system's way of "doing business." Video recording of trials to provide the official record (without requiring a written transcript) or the presentation to the jury of a video taped trial will effect drastic changes in procedure throughout the system up to the highest courts, undoubtedly requiring much effort and consideration before accomplishment. In some states, however, perhaps prodded by the near-crisis situation in the courts, proposals for change centered on video tape applications are being seriously considered.

Alaska has, for a number of years, pioneered in adopting electronic technology to courtroom use. When Statehood was achieved, all courts in Alaska were brought under a single, unified administration; the shortage of court stenographers led to adoption of audio recording for making the court record. Audio tapes are transported to a central location in

Anchorage or Fairbanks for storage and, when requested, for preparation of a transcript. Although transcripts are often made as a matter of convenience for appeal purposes, the audio recording is the official record and is available for review on appeal.

The Alaska court system is exploring advanced audio equipment and is supporting the development of a prototype system specifically designed for court applications. The state is also preparing to install video equipment in its busiest courtrooms for testimony and trial record purposes. The court order which permitted the introduction of audio recording has been amended to accept video recording too. In a sense Alaska is unique, in that the ability to change procedural rules is simplified by its unified court system: most states have a multitude of courts and jurisdictions, the rules for each requiring change. The unified approach has also led to all court procedural issues being defined as court rules rather than statutes, the former being easier to change.

At least two other states are considering major changes in court procedure to allow video applications. In Ohio, where the concept of presenting a trial to the jury by means of video tape was tested (see Chapter II), an amendment to the civil court rules has been proposed to provide that "All of the testimony and such other evidence as may be appropriate, may be presented at the trial on video tape,..." This rule is initially intended to apply only to civil trials, and open-

ing and closing remarks, and possibly judicial instructions, are still to be presented "live." However, the judge in the case where this technique was tried foresees its application in criminal trials as "not too far off."* Precedent may have been established and criminal rules have traditionally been patterned closely on civil rules. Unless rejected by the Ohio Legislature, the proposed rule is scheduled to become effective on July 1, 1972.

Experiments in Michigan with video recording to provide a trial record in criminal and civil trials have proven sufficiently successful that appropriate amendments to the Court Rules have been drafted.** These tentative amendments have not yet been formally considered, but they offer an interesting insight into the impact that the adoption of a video record might have on the entire judicial system.

Availability of an immediately usable video record of a criminal trial could shorten the time allowed to file an appeal: 15 days is proposed, in contrast to the current 90 days. Similarly, the time limits for filing documents and tapes to substantiate and to counter appeals would also be reduced by over 80%, helping to expedite the clearance of appealed cases. Concurrently, it is suggested that decisions may be handed down orally, within 20 days, with a written opinion to follow "as soon as reasonably possible."

* Judge James L. McCrystal, Letter to Richard T. Penn, Jr., January 28, 1972.

** Douglas L. Sweet, "Video Taping of Trials", DRAFT, March 1972.

Rules governing the form of the appeal record would be altered to require a duplicate video tape instead of a written transcript. The form of the appeal itself would be changed to require a concise "statement of questions involved," followed by a "statement of facts" referencing the relevant portions of the tape in place of the conventional (usually lengthy) written brief. It has also been suggested that written arguments be replaced by oral presentations.

The status and duties of the court reporter would be changed to provide for a "video tape stenographer" responsible for monitoring, logging, and filing the video record. These draft rules also specify minimum requirements for the equipment system, including six-channel audio recording. With the present state of the art, six-channel audio is not possible within the video system, thus requiring an auxiliary audio recorder.

The Michigan proposal is perhaps the most specific attempt to consider the implications of the adoption of video recording for court procedures. Modifications are being considered, and whether any version will be adopted is yet to be seen, but it illustrates the range of procedures which need to be considered or modified.

ATTITUDES OF THE LEGAL COMMUNITY

It was not possible within the scope of this study to survey the legal community as to attitudes toward the intro-

duction of video tape recording. However, a number of project activities furnish insights into the "acceptability" of video recording and indicate some likely sources of resistance, both logical and emotional.

The concept of "TV in the courts" is relatively new and tends to catch the public eye. In some respects, television as a broadcast medium has acted to discourage the introduction of the related medium for video recording in the courtroom. The dramatic events of television cases (such as "Perry Mason" or "Divorce Court") create images of lights, cameras and wires all over the courtroom, with histrionic lawyers and witnesses, and forced, dramatic conclusions. Such conditions are not only atypical, but nearly antithetical to conventional courtroom activity. It therefore becomes difficult to examine the use of video recording dispassionately until one realizes the potential for unobtrusive cameras. Thus, President Nixon appeared to be unfamiliar with existing technology when he commented in a recent speech that "the filming of judicial proceedings, or the introduction of live television to the courtroom, would be a mistake. The solemn business of justice cannot be subject to the command of 'lights, camera, action.' "*

* President Richard Nixon, Remarks to the National Conference on the Judiciary, Williamsburg, Virginia, March 11, 1971, p. 5.

Legal consideration of bringing the camera into the courtroom without violating either the dignity of the court or the process of justice dates back several years. As early as 1965, M. R. Doubles developed a serious argument that even the use of television by the press would no longer in and of itself violate the decorum of the court.* The acceptability of courtroom sound recordings had actively been debated for several years before that.

As experimentation with video recording in the courts began (circa 1968), the reactions published in the literature were generally favorable, particularly from jurisdictions where there were problems from transcript backlogs or trial delays (caused by missing witnesses).** Where delays were not troublesome and where courts were functioning smoothly, fancy electronic equipment was considered to be too much trouble, too expensive and "obviously" unnecessary.

During the past year there have been a growing number of explorations of specific uses of video recording in the courts, but evaluation reports have just begun to appear in the legal literature. The earliest of these include

* M. Ray Doubles "A Camera in the Courtroom," Washington and Lee Law Review, Vol. 22, No. 1, pp. 1-16.

** Harold W. Sullivan, "Court Record by Video-Tape Experiment -- A Success," Chicago Bar Record, April 1969, pp. 336-341.

critiques of the Ohio videotaped trial experiment, written by the judge and by the opposing counsel.* In spite of technical difficulties, the reactions to the Ohio test were uniformly enthusiastic.

Direct interaction with pioneering participants reinforces the general finding that, after some initial skepticism, people in the legal system are sufficiently interested in the concept, once introduced, to explore it further. Several aspects of the Michigan experiment with the trial record bear this out. The circuit judge who presided is nearing retirement and ^agave the outward impression of "country-conservatism;" he was not only willing for his court to be used, but became enthusiastically convinced of the potential for video trial records. Several months following the tapings, selected portions were demonstrated to members of the Michigan Bar at their mid-year meeting. Many of the attendees were, essentially, merely curious; others appeared to accept the innovation in stride. The only substantive comments related to the (as yet unresolved) issue of the relative cost for full-time use.

As has already been noted, depositions have been videotaped regularly for more than a year in the Detroit area, and the Allegheny County Bar Association in Pittsburgh has made

* McCrystal, "Ohio's First Video Trial"; Murray, "Comments; Watts, "Comments."

video equipment available for depositions. The service in both areas was quickly accepted after initial skepticism.

Three judges and two court administrators in the Washington, D. C. metropolitan area were interviewed (either by phone or in person) to get initial reactions of officials without prior direct experience with video recording.* Initial skepticism, mainly about cost and practicality, tended to dissipate as more information about potential applications was presented. Several of these officials, involved with pressing court administration problems, suggested willingness to try almost anything which might relieve court congestion. This small group may not be representative of the legal community as a whole, but their attitudes indicate a willingness to consider new technology, particularly where court systems are congested.

In another effort, a one-day conference was held at the National Bureau of Standards. Individuals familiar with some aspects of video recording discussed potential uses and a realistic appraisal of the likelihood of alleviating court problems. It was hoped that guidance would be obtained with regard to underlying needs and priorities for future work.

Conference attendees, listed in Appendix B, covered a wide variety of functions within the legal community. There were representatives of the appellate and trial bench, the ABA

* These interviews were for exploratory purposes only. Since no indication was given of the intention of subsequent citation, individual interviews are not discussed here.

and other attorneys' organizations, and the police, as well as other professions which interact directly with the criminal justice system (e.g., forensic scientists, court administrators, court architects, etc.).

A brief summary of the conference is presented in Appendix C. Most of the specific uses of video recording in the courts which were discussed were already under study as a part of this project. However, perceived priorities formed the essence of the discussion. Definite and immediate needs were perceived for police work, recording and presentation of testimony, and education. It was also emphasized that the serious shortage of court reporters in many jurisdictions requires drastic action to reduce the transcript component of the delays in getting trials to appeal. As a record of trial, video recording was considered to be reasonable, but widespread adoption for this purpose was by no means universally recommended. It was repeatedly emphasized that video technology, like many other proposals, should not be expected to serve as a panacea for all court problems. Since it is a technology which is highly sophisticated and which may have profound effect on the entire judicial system, radical changes should be adopted only after careful consideration and analysis of implications for the future. Although many hard-pressed court systems may be tempted to adopt any technique which offers the prospect of relief, individual problems should be analyzed to determine not just if video technology

provides a solution, but whether it can provide the best solution.

There was clear consensus that presenting a pre-taped trial for jury consideration is worthy of consideration for the future, but immediate adoption was thought to be unlikely. It is noteworthy, however, that the Ohio experiment took place shortly after this conference.

As indicated earlier, most of the conference attendees had already been exposed to the use of video for court-related purposes, and many were predisposed toward accepting such applications. They made fundamental contributions in setting priorities and in stressing the need for problem orientation; these have served as a basis for much of the direction taken in this report.

In all, there is some evidence of skepticism, but video recording seems, in general, to be "acceptable" for selected purposes; there are some objections, and some disagreements on details. For example, court reporters are nearly united in group opposition to any use of video recording for the function which they perceive to be their responsibility. Their concern pertains to depositions and the official records of trial proceedings, whether live or pre-taped for presentation to a jury.

The situation is hardly clear-cut insofar as court reporting is at issue. Video recording was initially proposed as a means for counteracting shortages of competent court

reporters. The latter are highly skilled, and their training takes several years; in fact, the extensive training and level of skill required may tend to discourage aspirants. Were electronic methods to be widely or universally adopted, and particularly if the requirement for a written record should be changed, reporters' jobs would be threatened. (This possibility may also be discouraging to potential reporters.) Although the introduction of video recording on a large scale is not likely in the near future, expert reporters perceive a threat to their security and are quite vocal in their opposition. This opposition is not negligible, for reporters are well organized (in some states into formal labor unions), and are often associated in one-to-one relationships with judges, perhaps an important negative factor, at least initially.*

* A timely example of the influence of court reporters may be found in the report of the Electrical Recording Committee of the National Shorthand Reporters Assn. at their recent national meeting. Organized efforts in seven states were reported to have been successful in defeating or severely limiting legislative attempts to permit sound recording as a reporting method in the courts. Proceedings, Seventieth Annual Convention, National Shorthand Reporters Assn., New York, August 4-7, 1971, pp. 64-76.

IV. VIDEO RECORDING.EQUIPMENT SYSTEMS

Sophisticated and complex equipment is frequently available in a wide variety of formats, with many options and characteristics; video equipment is no exception. Some video recording systems cost only a few hundred dollars, but there are also systems which cost many tens of thousands of dollars. However, only a relatively small number of systems are suitable for any of several court-centered applications.

The more costly units of video equipment are primarily those specifically designed for studio use (and broadcasting). They are characterized by high resolution (i.e., highly detailed pictures), color transmission, advanced special effects, and high quality (and therefore expensive) accessories.

Many of these characteristics present a level of picture quality and signal strength necessary for the transmission of entertainment, but not for court-centered uses; they also tend to make the systems prohibitively expensive. Since broadcasting is not desired for the court environment, very high resolution pictures are not necessary, nor is color recording. (While relatively inexpensive, semi-portable color recorders are available, the camera equipment is much more complex and more expensive than that for black and white. Color adds an additional level of detail, but little of significance to the information content of the record.)

In considering equipment for court use, the research

has therefore been limited to black and white "professional quality" equipment. This type^e of equipment has been mainly limited to industrial and educational applications, but with an introduction now for "home TV." It uses one-inch or one-half inch recording tape, whereas broadcasting equipment requires 2" tape. While both are considered here, emphasis has been placed on one-half inch format equipment: it is generally much less expensive than the one-inch equipment, with little apparent difference in picture quality.* Further, one-half inch equipment[#] is the only format currently offering interchangeability of tapes among different manufacturers' recorders (see pages 71f.), a factor which may be important for court applications.

The 1971 Electronics Buyers Guide lists approximately forty manufacturers of video recording equipment, many of whom deal exclusively with studio quality equipment. For this study, a representative sample of the largest domestic and foreign manufacturers of professional quality equipment was contacted.** A sample survey, although not systematically

* Definitive tests to measure comparative merit scientifically are warranted, but have not been part of this study.

** It is NBS policy not to cite manufacturers or models except where necessary for describing experimental procedures and the like. The information here represents a range of equipment available; potential users should "shop" among manufacturers for more specific estimates of equipment characteristics and cost.

exhaustive of all models, provided much information on equipment features, relationships of characteristics to cost, and technical considerations to serve as background relevant to video applications in the courts.

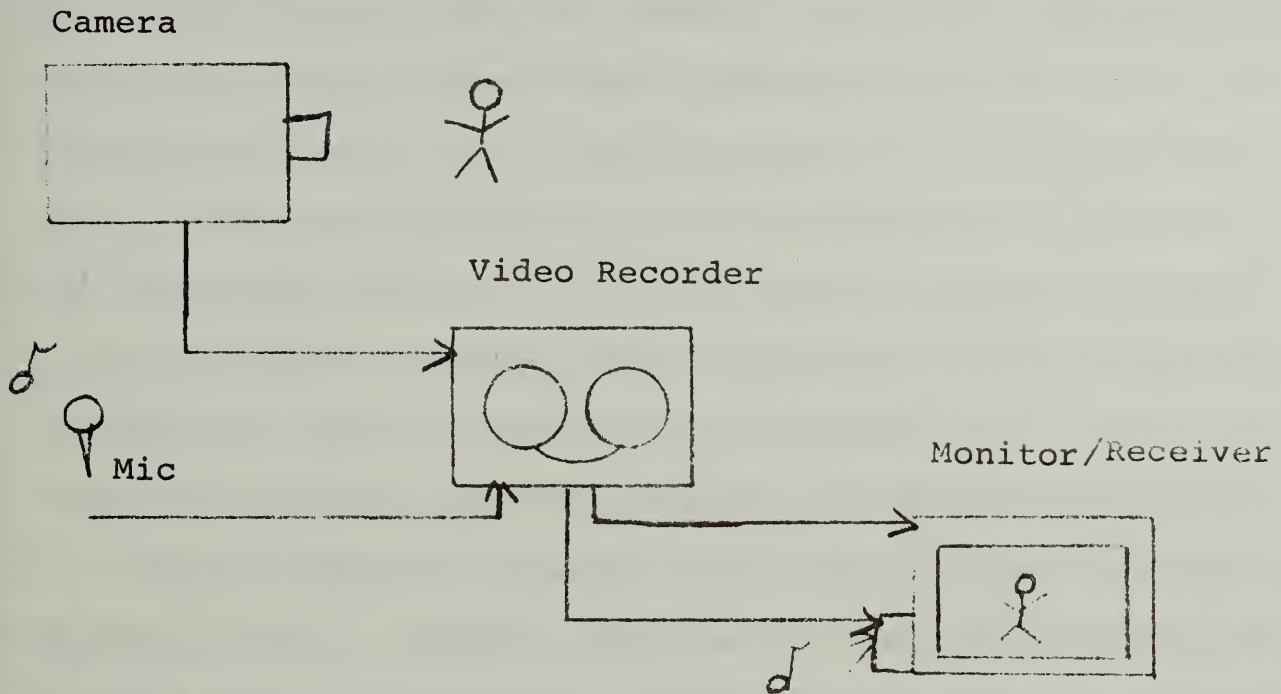
OVERVIEW

This chapter addresses two main questions: What are the major characteristics and associated costs of the types of video equipment available to the courts? And, secondly, what are the basic equipment requirements for each of the potential applications for video recording in the courts? A brief overview is provided here to acquaint the reader with the names and basic functions of system components, which may be less familiar than the home TV receiver. More detailed descriptions of the operating characteristics of various models of each type of equipment and their court-centered utility will be discussed later.

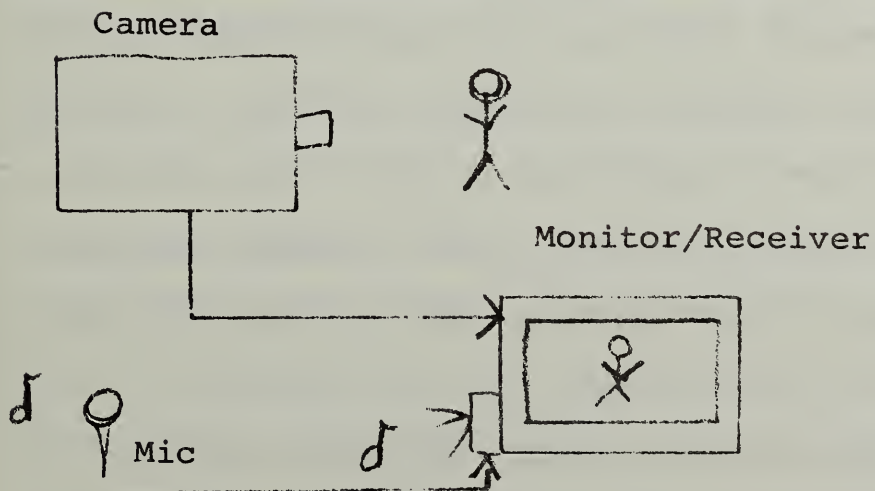
For court purposes, the system is intended to make a visual (and, usually, audio) record of some live event, and to preserve that record so that it can be seen and heard subsequently. The basic requirement for this includes three essential components (see Figure IV-1A). First, a camera transforms the image of the event into electronic signals. Like conventional cameras (for photography), the video camera contains a lens, a picture recording device (normally a vidicon tube) which converts light energy to recordable (electronic) signals, and a camera housing. A synchronization mechanism

FIGURE IV-1

A. Simple video recording system



B. Closed Circuit Television (CCTV)



is required to orient the frame of the picture consistently; this may be a part of the camera or a separate piece of equipment.

The electronic image is transferred from the camera to a video tape unit which records the signals on magnetic tape. The same recorder may also be used to play back the tape and to recreate visual signals for viewing on a television monitor.

Audio signals travel in parallel with the video, being picked up by microphones, recorded on tape, and played back through speakers. An audio/video system usually consists of a single set of equipment: microphones may be attached to the camera or separate, but the same unit records both audio and video signals (with the audio on a separate "track") and the playback monitor has integral speakers, though these may also be separate. Since video recording conceived for courts generally requires audio and video capabilities, the term "video recording" will refer to both functions unless otherwise specified.

If the image of an event is only to be monitored, but does not need to be recorded for future reference, the signals can be transmitted directly to a television monitor. A direct viewing system is referred to as a closed circuit television system (Figure IV-1B), rather than video recording system.

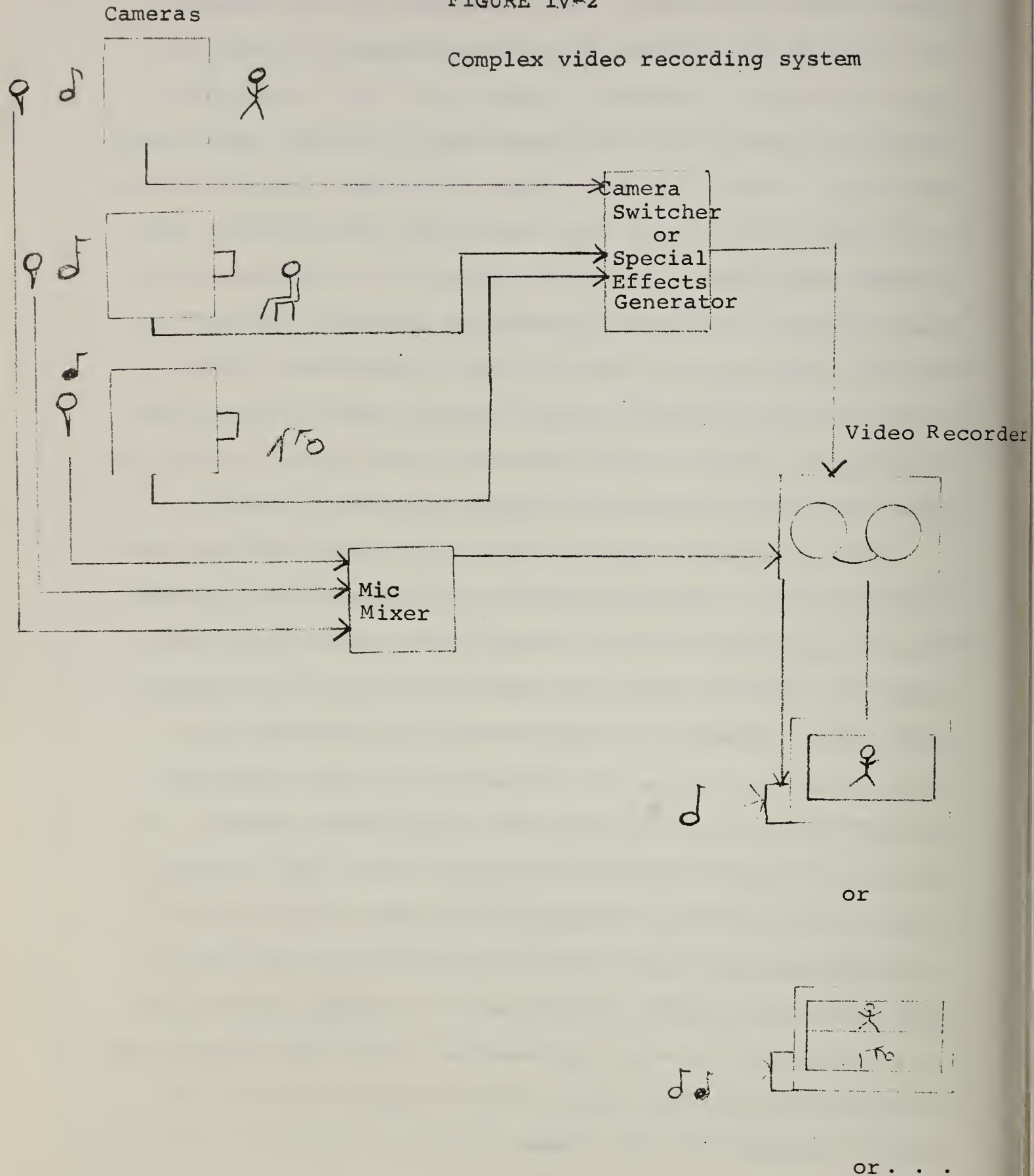
In addition to the three major components, there is an array of diverse equipment which can supplement the basic

system (see Figure IV-2). The microphone is, in a sense, such an addition; if more than one microphone is used, a microphone mixer is needed to monitor all the signals received and combine them for recording on a single audio track. Similarly, if more than one camera is in use, a camera switcher is used to select the view which is to be recorded. Complicated combinations of video images can be achieved with a special effects generator, permitting images to be faded in and out, superimposed on one another or presented side-by-side in a split-screen picture. Synchronization can be performed by a separate "sync" generator, and remote control devices are available both for cameras and video recorders.

Several general comments can be made about the equipment discussed here. Despite the relative complexity of the electronics, operation of video recording equipment in the "professional quality" range is remarkably simple. For example, many can be operated with only a couple of buttons or a lever, once the routine for threading the tape is learned. Special effects functions make the system more complex, but generally no more difficult to operate than, say, a home stereo system or color television receiver. Most manufacturers provide instructions and operational training with purchase or lease of equipment. Peripheral activities (e.g., equipment set-up, supplementary court logs, etc.,) may be more difficult, but manufacturer's support is also frequently provided in these areas.

FIGURE IV-2

Complex video recording system



Equipment maintenance, on the other hand, requires trained technicians. Most video equipment is solid state and fairly reliable. Major parts (tape recording heads, the camera's vidicon tube, the monitor's picture tube) usually last several years with proper care and usage, and minor maintenance (head cleaning, etc.) can be accomplished by working personnel with minimum training.

EQUIPMENT CHARACTERISTICS

Video Tape Recorders (VTRs).

Professional quality video recorders are manufactured to use either one-half inch or one-inch recording tape: electronically, a more detailed picture can be recorded by the one-inch system, but whether the difference in picture quality is operationally significant for court applications has not been examined directly.*

Characteristics of representative models of one-half inch and one-inch VTRs are shown in Figures IV-3 and IV-4 respectively. There are three major differences between one half-inch and one-inch models generally, other than those of physical dimensions.

First, the investment cost of one-inch machines is four to five times that of the one-half inch models. Secondly, most one-inch format VTRs offer two-track audio recording,

* Scientific comparison of picture quality was not possible during this study. While most people who have used video equipment for court-related purposes express satisfaction with picture quality on one-half inch equipment, at least one user is committed to one-inch equipment on the basis of a perceived picture quality improvement.

Figure IV-3

Characteristics of Typical One-half Inch Format

Manu- facturer	Model	Size (inches)	Weight (lbs.)	Rec. Time (min.)	EIAS Standard	Audio Dubbing	Still Frame	Slow Motion	Gain Control	Elec. Edit.	Monitor	Other	Approx. Cost (\$)
A	1	16x9x13	33	60	yes	yes	yes	no	auto	no	no	gain level, RF output meters	700
	2	16x9x16	42	60	yes	yes	yes	yes	auto/man	yes	no		1000
	3	29x12x17	62	60	yes	yes	yes	no	auto	no	yes		950
B	1	16x9x16	33	63	yes	yes	yes	no	auto	no	no		700
	2	16x9x16	36	63	yes	yes	yes	yes	auto	yes	no		1050
	3	15x14x9	29	60	yes	-	yes	no	-	-	no	playback only	500
C	1	16x9x15	33	60	yes	yes	yes	no	auto/man	no	no	playback only; built in in RF; remote control; cont. rec./plybk; au auto rewind/ shutoff	700
	2	16x9x15	33	60	yes	yes	yes	yes	auto/man	yes	no		950
	3	15x9x14	28	60	yes	-	yes	no	-	-	no		500
	4	16x16x10	60	40	no	yes	yes	no	auto	yes	no		1400
D	1	18x17x14	30	60	yes	yes	yes	yes	auto	no	no	Internal sunc.	750
	2	11x19x16	53	60	yes	yes	yes	no	auto	no	no		790
	3	11x23x16	73	60	yes	yes	yes	no	auto	yes	no		1300
	4	11x30x18	75	60	yes	yes	yes	no	auto	no	yes		1300

Figure IV-4

Characteristics of Typical One Inch Format Video Tape Recorders

Mfg.	Tape Speed (inches per sec.)	Size (inches)	Wt. (lbs.)	Rec. time (min.)	Audio Dubbing	Still Frame	Slow Motion	Gain Control	Elec. Edit.	Audio Tracks	Other	Approx Cost(\$)
A	7.5	19x11x19	86	60	yes	yes	yes		yes	2	Remote Control	4900
B	8.57	29x12x15	97	67	yes	yes	yes		no	2	Remote Control	3950
C	8.57	25x17x12	97	67	yes	yes	yes		yes	1		3950
D	8	22x22x15	132	90	yes	yes	yes	Auto.	yes	2		5450
E	9.6	27x19x13	85	60	yes	yes	yes	Auto.	yes	2	Remote Control	5600

whereas only single track recording is available on one-half inch models. Single track audio recording, wherein signals from all microphones are combined and recorded on one track of the tape, severely limits flexibility, especially as compared to existing multi-track audio systems. (Wherein signals from different mics are recorded on separate tracks and can be listened to separately.) In court applications, single track recording could lead to occasional distortion of the audio record. Two-track audio would be better, although with only one or two speakers in a court situation, a single track is probably adequate, and with four or more speakers even dual track would probably be insufficient.

The third difference is that there is a lack of uniformity in recording technology among manufacturers of the one-inch format, and manufacturers of one-inch equipment individually determine recording parameters. The most blatant indication of lack of standards is the variety of speed of tape movement (inches per second). In fact, even equipment with the same listed tape speed may not be compatible if made by different manufacturers. The operational result is that tapes recorded with one manufacturer's equipment must be played back on identical equipment to obtain a true picture. Tapes played on "foreign" machines produce excessive vertical roll and horizontal instability. If tapes are exchanged among equipment owners (for example, depositions made on a private firm's machines, but played on court-owned machines during

trial), this need for nearly identical equipment is a serious limitation on total system flexibility.

It should be noted that not all one-half inch models are compatible and, until recently, they differed among manufacturers as well. However, in August of 1969, the Electronic Industries Association of Japan promulgated a standardized specification* for recording characteristics of one-half inch VTR equipment which most Japanese manufacturers have adopted for at least some of their VTR product lines. A number of manufacturers are now producing one-half inch VTRs for which tapes can be interchanged regardless of manufacturer. These companies also produce non-standard equipment, but the availability of a variety of standardized equipment provides greater flexibility wherever several users are involved with more than one piece of equipment.**

As will be noted from Figures IV-3 and IV-4, most VTRs provide an hour's recording time (on 7-inch reels of tape in the one-half inch format and 9-inch reels on the one-inch format), and allow audio "dubbing" and stop motion. Audio dubbing permits audio to be recorded separately from the video ^{portions} ~~reels~~, but is of questionable utility and acceptability for court operations. In fact, this may be a disadvantage

* Details of the EIAJ specification are shown in Appendix D.

** Although the EIAJ standard has not been formally accepted outside Japan, the Japanese manufacturers produce the bulk of the professional quality one-half inch recorders available in this country at the present time, so standardized equipment in the one-half inch format is widely available here.

since it enables tampering with the audio record. Conceivably, the audio record might be recorded separately, perhaps on a multi-track audio recorder, and then transferred to the video tape. However, this would entail extra time to accomplish the transfer and would not likely synchronize the audio and video portions perfectly. Stop action (or still framing) allows the tape to be halted without losing the picture reference; a single "frame" remains on the screen, much as a movie film can be stopped. This feature would be useful for educational purposes, but is probably unimportant otherwise.

Major optional features include automatic gain controls for both audio and video recording (some of which also allow manual override to accommodate to greater variability in signal strength), and electronic editing capability. Automatic gain maximizes the likelihood of recording all aspects of an event with minimum operator interaction. Electronic editing, which adds substantially to cost, would be important for many court applications where editing records for presentation to the jury is required. Conversely, the ability to edit may also contravene security of the tape via unauthorized tampering. However, other precautions can be taken to minimize this risk (see page 16).

Other options include attached playback monitors, remote control devices, automatic rewind capability, and adaptors or internal mechanisms to allow the video record to be played back through a conventional television set. In addition, some

"VTRs" are designed as video players only, and do not offer a recoding function. These assure easy viewing without risk of interference with the record.

Since the available equipment was originally designed for other functions, it is highly likely that, to obtain features required for a particular court application (say, the editing function), the prospective user may have to pay for other features of little benefit (e.g., slow motion).

Cameras

The simplest video cameras have fixed focus, lack a viewfinder and require external synchronization for recording purposes; at the other extreme, highly sophisticated cameras may be multiple-lensed and have viewfinders which also serve as playback monitors. Typical cameras are described in Figure IV-5.

The synchronization function is a vital part of the recording system. The "sync" mechanism stabilizes the picture frame for recording so that the electronic impulses start at the same point for each succeeding picture frame; it may be integral to the camera or there may be an external sync generator. If part of the camera, the cost of the latter is increased by about 60 - 75%, comparable to the cost of an external sync generator (\$175).

Most cameras provide automatic light level compensation (in a sense analogous to the "electric eye" controlled shutter on conventional cameras), which provides a clear picture over a

Figure IV-5
Characteristics of Typical Video Cameras

Mfg.	Model	Light Compensation	Sync	Viewfinder	Standard Lens	Size (inches)	Wt. (lbs.)	Other	Approximate Cost (\$)
A	1	Auto	Ext.	no	16mm F1.8	5x5x14	7	C-Mount	350
	2	Auto	Ext.	no	16mm F1.8	18x6x22	32	tripod, microphone carrying case	395
	3	Auto	Ext.	yes	4:1 F2:0	18x6x22	39		695
	4	Man.	Ext.	no	16mm F1.8	4x4x10	5		250
	5	Auto	Int.	no	16mm F1.8	5x5x14	7		450
B	1	Auto/Man.	Int./Ext.	5"	25mm F1.8	7x9x13	20	Auto Monitor-ing Capacity	750
	2	Auto/Man.	Int./Ext.	no	25mm F1.8	3x6x11	8		400
	3	Auto	Ext.	no	16mm F1.6	6x4x11	5		230
C	1	Auto	Ext.	no	25mm F1.8	6x3x10	9		300
	2	Auto	Ext.	no	25mm F1.8	5x3x10	6		375
	3	Auto/Man.	Int./Ext.	no	25mm F1.9	6x3x11	8		450
	4	Auto/Man.	Int./Ext.	no	25mm F1.4	6x3x11	8	Designed for light conditions	500
	5	Auto/Man.	Int./Ext.	6"	25mm F1.8	10x7x13	20	Audio Monitoring	745
	6	Auto/Man.	Int./Ext.	6"	5:1 F1.8 Zoom	10x7x13	20		1445
D	1	Auto	Int./Ext.	5"	5:1 F1.8 Zoom	11x7x14	16		1295
	2	Auto	Int./Ext.	5"	4-Port Turret	7x6x14	33		1895
	3	Auto	Int./Ext.	3"	25mm F1.9	9x4x16	13		550
	4	Auto	Ext.	no	25mm F1.9	7x4x11	7		450
	5	Auto	Int./Ext.	no	25mm F1.9	7x4x11	7		625
	6	Auto	Ext.	no	16mm F1.8	5x4x10	6		300

range of light levels; some models also permit manual adjustment. Most cameras operate satisfactorily at or above nine foot candles (less than normal room light), and a few are designed for operation at very low light levels (comparable to twilight).

Unlike conventional cameras, not all video cameras are equipped with viewfinders; the latter may add as much as \$300 to the cost of the camera. If a monitor is available to view the picture being taped, a viewfinder is not necessary, nor would it be if the camera is not directly controlled by an operator. Some viewfinders not only show what the camera sees, but also serve as a playback monitor to review what has already been recorded.

Other than a viewfinder, few video camera accessories are really necessary. Tripods and travelling cases are available, and some cameras have a standard "C-mount" for the lens, permitting the use of any lens so equipped. ("C" is a standard mounting size for film camera lenses.) Cameras may also be equipped with built-in or attached microphones, and some include a jack to monitor audio pick-up.

Monitors

Monitors vary in screen size and may be monitors alone or also function as television receivers. The receiver characteristic is distinguished by a speaker for playback of the audio portion of the video tape and service as a conventional television set.

Figure IV-6

CHARACTERISTICS OF TYPICAL VIDEO MONITORS

Manu- facturer	Model	Screen size (diagonal)	Audio	Dimensions HxWxD	Weight lbs.	Other	Approx. Cost (\$)
A	1	9"	yes	11x10x11	11		195
A	2	11"	yes	12x12x12	18		230
A	3	18"	yes	16x2x13	50		250
A	4	22"	yes	20x26x14	76		295
B	1	5"	no	6x6x10	10		175
B	2	8"	yes	9x10x11	19		275
B	3	9"	yes	11x11x9	15	Auto. gain control	150
B	4	9"	no	11x11x9	15		130
B	5	14"	yes	17x12x11	22	Auto. gain control	200
B	6	18"	yes	22x16x15	36		250
B	7	23"	yes		80		350
C	1	11"	yes	10x14x11	16		180
C	2	19"	yes	17x23x15	42		250
C	3	5 1/2"	no	7x6x11	10		170
D		5"	no	6x6x13	11		245
D	2	9"	no	10x9x10	13		195
D	3	12"	yes	12x16x9	18		220
D	4	19"	yes	20x20x14	55		250
D	5	23"	yes	20x20x14	66	Auto. gain control	350

Typical monitors are described in Figure IV-6. The primary determinant of cost in either of the two types of monitors (monitor alone, or monitor-receiver) is screen size. Several manufacturers also produce consoles with three monitors (usually with a five⁸ or six-inch diagonal screen) in one cabinet. These consoles cost about \$500, or about \$50 less than three separate monitors of the same size. These consoles usually consist only of monitors and have no audio capability.

Portable Video Systems

Each major manufacturer of one-half inch recorders offers a fully portable version consisting of battery-operated recording unit, a camera with viewfinder and microphone, and associated carrying cases. Typical systems are described in Figure IV-7.

Recording time on the portable systems is generally half that of the full size half-inch recorders. This limitation was necessary to reduce the size of the system sufficiently to make it portable. (The whole system, camera and recorder, weighs only a little more than 20 pounds.) Most systems have a zoom lens as standard equipment, and several include (or have as optional equipment) adaptors to permit the system to operate on standard electrical current (and to recharge the batteries.)

In addition to halved recording time, portability incurs a sizable dollar cost beyond that of equivalent non-portable systems, but these penalties must be paid to meet any require-

Figure IV-7

Characteristics of Typical Portable Video Recording Systems

<u>Rec. Time</u>	<u>Weight</u>	<u>AC Adapter</u>	<u>Viewfinder</u>	<u>Lens</u>	<u>Other</u>	<u>Approx. Cost (\$)</u>	<u>EIAF Stnd?</u>
32 min.	21 lbs.	no	yes	zoom		1295	yes
20 min.	25 lbs.	yes	yes	zoom	Microphone Stop Action, Audio Dubbing	1495	yes
30 min.	21 lbs.	yes	yes	zoom	Microphone, earphone, battery charger	1350	yes
20 min.	21 lbs.	not in- cluded but available	yes	zoom	RECORD ONLY (no playback) microphone	1395	no

ment for field work. However, most portable systems are manufactured to meet the EIAJ standard specification for one-half inch recorders, so tapes recorded in the field can be played on any standardized recorder.

Peripheral Equipment

Some peripheral equipment and accessories (recording tape or microphones, for example) is necessary for all applications, and additional equipment may also be necessary, particularly if more than one camera is used.

Figure IV-8 indicates the cost, by length and recording time, of several typical brands of good quality video recording tape, including a five- or seven-inch plastic reel, and a storage box. Although quantity purchasing might reduce this cost, a substantial investment in tape will undoubtedly be required. Properly stored at $50 \pm 5\%$ humidity and 70 ± 5 degrees F temperature and rewound occasionally during long storage to reduce strain, the tape will stay in good condition for well over a year (perhaps 5 years or more) and can be reused many times.*

* Interview with Chief, Information Processing Technology Division, N.B.S., concerning storage properties of computer tape (similar to requirements for video tape). Concern has occasionally been expressed that control of magnetic influences would be necessary to ensure the integrity of the tapes. This concern is unfounded: a small magnet will not affect recording tapes unless it is brought directly in contact with the tape, and a junk-yard lifting magnet must be within 2 feet of the tape to have any effect.

Figure IV-8

Characteristics of Typical Good Quality Video Recording Tape

<u>Width</u>	<u>Length (ft.)</u>	<u>Rec. Time (Min.)</u>	<u>Approx. Cost (\$)</u>
1/2"	380	10	10
1/2"	845	20	15
1/2"	1240	30	22
1/2"	2370	60	40
1"	1250	30	39
1"	2460	60	60

Characteristics of typical microphones are shown in Figure IV-9. The primary choice is whether pickup limited to a single direction is required, or if the microphone is intended to pick up sound from a broad area. Both unidirectional and omnidirectional microphones can be obtained in a wide range of prices, with portable (clip-on) microphones which reduce background noises (wind, etc.) costing most.

If several microphones are in use, a preamplifier or microphone mixer is required to combine the signals for recording on the audio track of the video tape. Such devices, for up to four inputs, can be obtained in the \$50 - 100 range. Extension cables for microphones, available in a number of lengths, cost from 12¢ - 16¢ per foot.

The camera switching function, if required to select the view to be recorded, can be performed by a simple camera switcher or by a more complex and flexible special effects generator. Characteristics and approximate costs of these accessories are given in Figure IV-10. Camera switchers only route inputs to the recorder (or viewing monitor) from one or another camera; the primary cost determinant is the number of cameras which can be controlled. Special effects generators accomplish the switching function, as well as more sophisticated picture-handling techniques, such as superimposing pictures in a split-screen effect, fading from one picture into another, replacing one picture with another by wiping the second picture across the first, etc.

Figure IV-9

Characteristics of Typical Microphones

<u>Mfg.</u>	<u>Model</u>	<u>Directionality</u>	<u>Other</u>	<u>Approx. Cost (\$)</u>
A	1	Omnidirectional	Cable, Tie Clip, Wind Screen	\$200
A	2	Unidirectional	Flexible Arm, Wind Screen	200
A	3	Unidirectional	Wind Screen, Mic Stand	30
A	4	Unidirectional	Wind Screen, Mic Stand	50
A	5	Unidirectional	Cable, Wind Screen, Low Noise	100
A	6	Omnidirectional	Mic Stand	14
B	1	Omnidirectional		10
B	2	Omnidirectional		20
B	3	Omnidirectional		20
C	1	Omnidirectional	Mic Stand	50

Figure IV-10

Characteristics of Typical Video Accessories

Special Effects Generators

<u>Mfg.</u>	<u>Model</u>	<u>Inputs</u>	<u>Outputs</u>	<u>Super impose</u>	<u>Fade</u>	<u>Wipes</u>	<u>Switch</u>	<u>Other</u>	<u>Approx. Cost (\$)</u>
A		4	4	yes	yes	yes	yes	invert one channel in- ternal sync. gen.	595
B		3	3	yes	yes	yes	yes		500
C		3	1	yes	yes	no	yes		500
C		3	3	yes	yes	yes	yes		500
D	1	2	2	no	no	yes	yes		350
D	2	4	4	yes	yes	no	yes		290
D	2	4	4	yes	yes	yes	yes		590

Camera Switchers

<u>Mfg.</u>	<u>Model</u>	<u>No. of Inputs</u>	<u>Approx. Cost (\$)</u>
A	1	3	45
B	1	3	30
B	2	5	50
C	1	3	30
D	1	4	70
D	2	8	120
D	3	12	140

Split screen pictures may be the primary special effect for court centered use. (Although simultaneous views of two or more court participants in a video recording would be informative, the additional operator expertise necessary has not been fully tested in court use.) Special effects generators can also route signals to different monitors.

Other available accessories which do not merit detailed discussion here, include remote control pan heads for camera mounting (approximately \$150), and adaptors to permit playback on a standard television receiver (approximately \$50.)

TYPICAL SYSTEMS FOR PROPOSED COURT-CENTERED APPLICATIONS

Specific equipment requirements depend on the method of operation contemplated and on the configuration of the courtrooms or other recording sites. In order to suggest the general magnitude of the equipment investment, some typical systems are described below. It must be stressed, however, that specific equipment configurations should be considered carefully for each individual application at a local level. Manufacturer's representatives are usually willing to provide advice and instructions, and several may be contacted.

Depositions and Testimonial Evidence

Video recording of testimonial evidence under ordinary conditions involves only two or three speakers and takes place under nearly ideal recording conditions, namely in a small area, with minimum background noise or movement. Equipment requirements are minimal: in the simplest case,

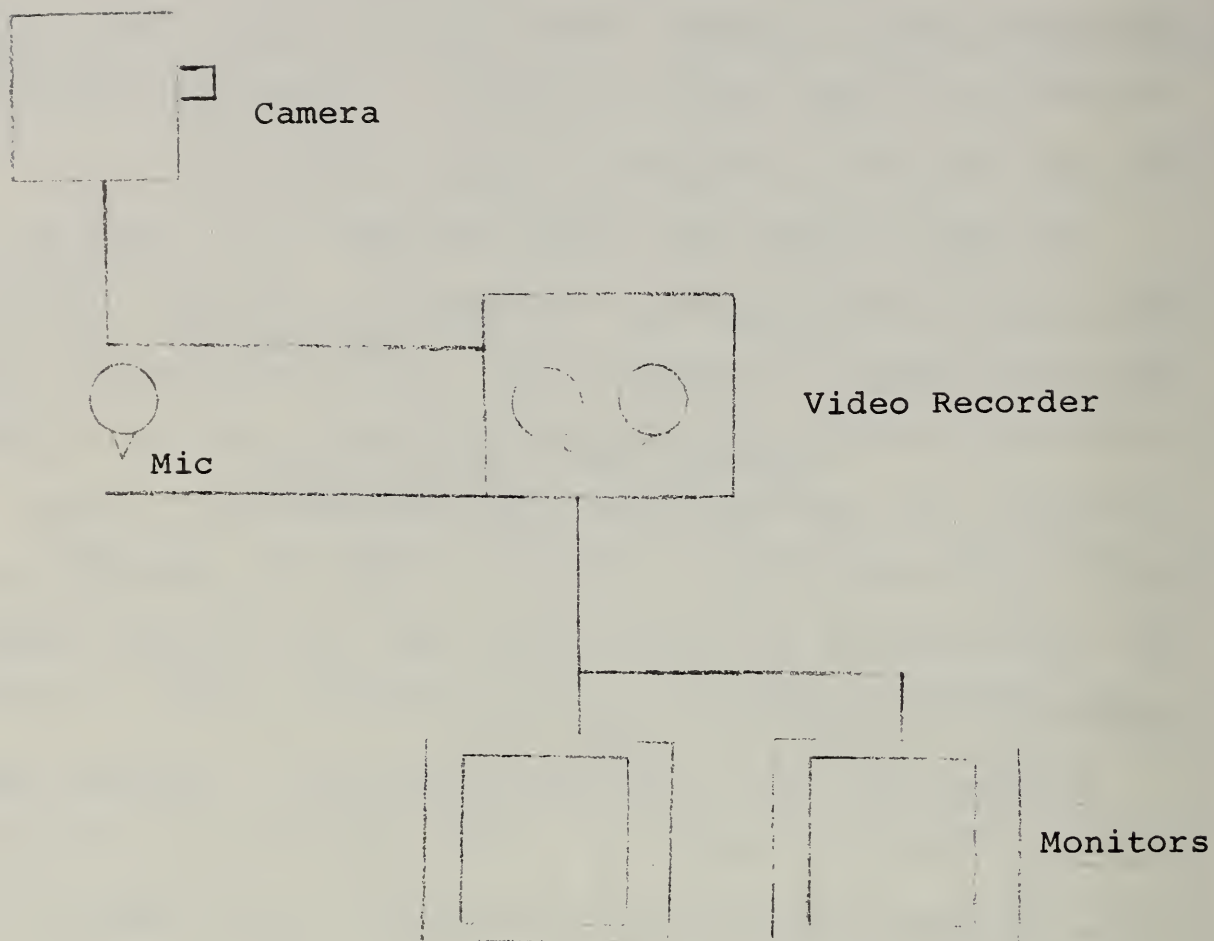
a camera (with internal synchronization or an external sync generator), microphone, and video recorder would be adequate. An electronic editing function is required to excise objectionable materials. A second camera and microphone and a suitable switcher and mixer, might be useful in deposition recording, but the operator's task would be more difficult.

In order to play back taped testimony to a judge or jury, one or more monitors would be required. The size of the monitors depends on intended use: a 6-9 inch diagonal set would be adequate for one close-by viewer, such as a judge reviewing the tape for objections, whereas jury viewing would necessitate using a larger monitor, or perhaps two. The configuration and approximate cost of a typical deposition system is indicated in Figure IV-11.

Presentation of a video recorded trial. Although more testimony would be taken for a full trial than for depositions, possibly increasing the number of camera-VTR-microphone systems required, the basic system configurations would be the same (see Figure IV-11). If testimony is to be taken in the field (at the scene of the event in question, for example), a fully portable system could be used, or provision could be made to equip a mobile unit with standard size video recording equipment. While the portable system might be initially more convenient, its shorter recording time would require frequent tape changes. Setting up the standard sized

Figure IV-11

Configuration of Video System
For Testimonial Evidence



Estimated Cost

1 camera with internal sync ^c	\$ 450
1 VTR with editing	1000
2 monitor/receivers	500
1 mic	50
	<hr/>
	\$2000

system takes about 10-20 minutes^{*}, (the portable system can be operational almost immediately), but a full hour of testimony can be recorded on each tape reel. It should be noted that portable systems do not include electronic editing capability, but those which are manufactured to the EIAJ standard permit subsequent editing on any standard size VTR built to EIAJ specifications.

Collection and Presentation of Investigative Evidence.

Field use to collect evidence through surveillance of search and seizure would, for the most part, require a fully portable video system. Such systems are self-contained, operating on batteries and including all the basic components required for an audio/video record. They are limited to relatively short recording times (30 minutes), perhaps requiring additional reels of tape to complete the evidence. Special surveillance requirements (long term, low light level, or from a distance) may best be accomplished with more specialized equipment. For example, some VTRs are capable of time-lapse recording, in addition to conventional real-time recording, in which periodic segments of events can be recorded and then also be incorporated ^{to} in the primary record.

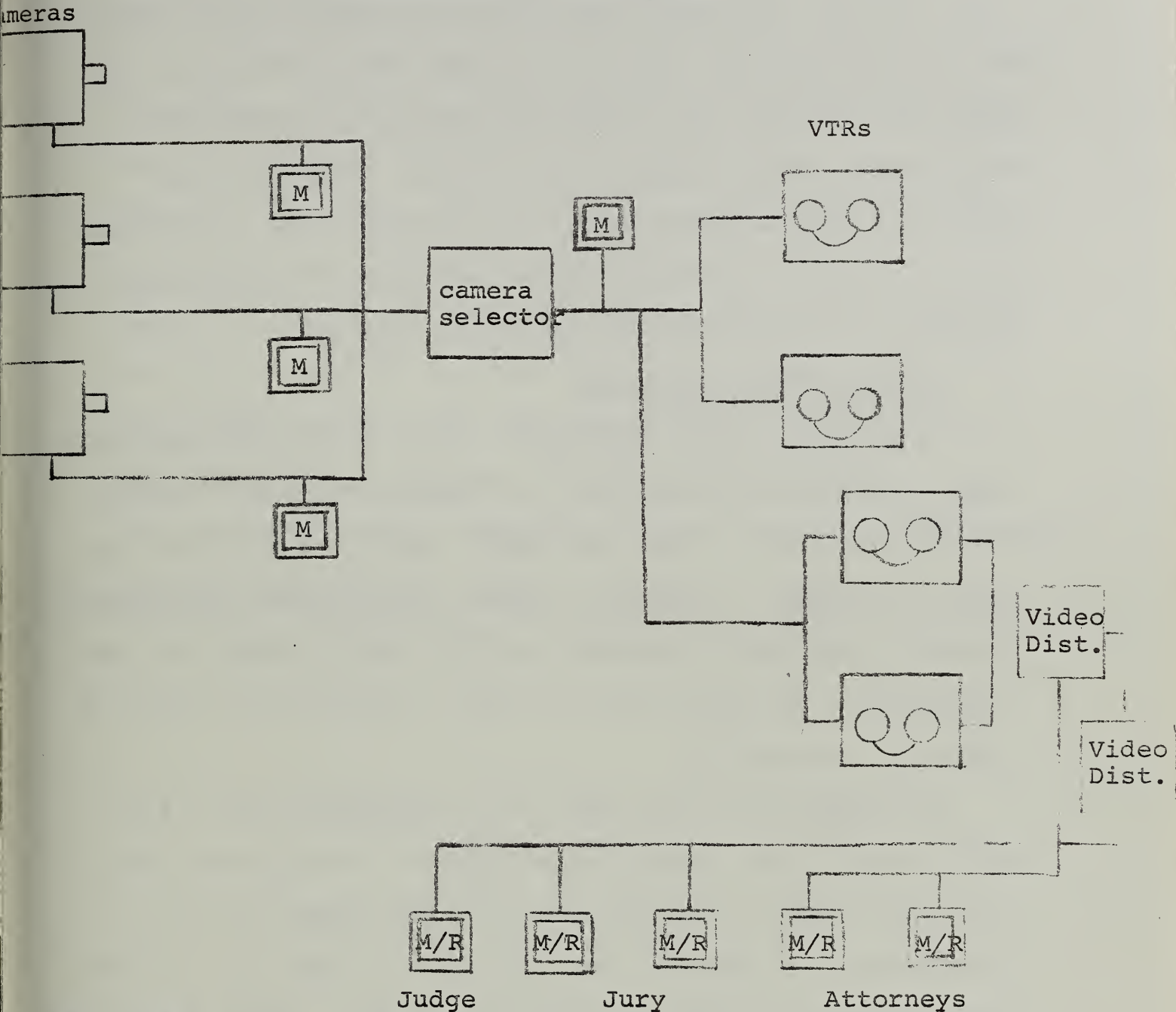
* The mobile unit operating in Detroit utilizes standard sized one-inch format equipment, and requires no more than 20 minutes to set up in a home or office.

periodic surveillance over as much as 12 hours can be "condensed" onto an hour's reel. The frequency of expected use of such specialized equipment is the determining factor regarding feasibility of purchase.

Video recording to provide the record of court proceedings. Recording and preserving the official record of trial proceedings is the most complex application of video technology, and entails the heaviest investment in equipment. Configuration of a typical video trial record system is shown in Figure IV-12, with three cameras (one with fixed focus and two with remote controlled zoom lenses): four monitors (one to indicate the view of each camera and one showing what is being recorded); and two video recorders with electronic editing capability. (Two recorders provide continuity of record without interrupting proceedings to change reels.) A full system might also have additional monitors to show pre-recorded testimony to jury members, the judge and attorneys. Video testimony can be presented on these monitors can be presented with an additional video recorder plus a switching mechanism to transmit the picture and sound to the several monitors; it can simultaneously be transferred directly to the primary system for inclusion in the official record. A fourth recorder can generate a working tape which is a duplicate of the primary record, but which can be rewound if a portion of the record is to be "read back." The process of the "read back" function would then also be incorporated in the primary record.

Figure IV- 12

Configuration of Video System
For Making Trial Record



Est. cost

3 cameras with internal sync	@	\$450...	\$1350
4 monitors (M)	@	200...	800
3 monitor/receivers (M/R)	@	180...	540
2 monitor/receivers (M/R)	@	350...	700
1 camera selector	@	45...	45
4 VTRs with editing	@	1000...	4000
2 audio video distributors			
audio system (mics and mixers)			700
			<hr/>
			\$8135

Playback Applications

Playback only systems (a playback VTR plus a medium size monitor) can serve limited court-related purposes, such as educational aids (several monitors might be required for presentation to a full class) and access to tapes when constituting the official trial record. Playback-only VTRs cost approximately \$500; monitor/receivers add perhaps \$200-300 each. The number of player-monitor combinations is entirely a function of estimated level of use.

Additional System Costs

In addition to the equipment, there are system costs for tape, storage, and personnel for running the video system. Valid estimates of these peripheral costs are difficult to make at present. Although a number of pertinent experimental projects have been conducted, no full-scale system has been implemented, and experience is still lacking with regard to efficient scheduling.

As guidelines to costing, it is estimated that a full day's video trial record would require a little more than one cubic foot of storage space, or just under 2/3 of a shelf-foot. At \$40 per hour (the cost of one reel of tape), tape costs alone would be \$240-280 per day. (This daily cost would not be incurred indefinitely as the tape could be reused after cases are completed.) Necessary personnel include video equipment operators, clerks in charge of storage and

retrieval, and maintenance technicians, and additional costs may occur if duplicate tapes are required.

An initial estimate of full scale introduction of video technology in the courts would seem to suggest that while the time savings for many of the participants might be substantial, the cost of a full application would be considerably more than existing procedures cost. However, it must again be stressed that actual experience has been limited to single, limited applications, and the magnitude of the real time savings (and its related cost savings) has not been seriously estimated. Further field application of a full scale system is necessary before a complete cost/benefit analysis is possible.

V. SUMMARY AND NEW DIRECTIONS

This study was initiated in July of 1971 to explore the feasibility of using video technology to improve court procedures and to reduce congestion in the courts. It was largely intended to serve a survey function and to summarize in one document current knowledge about three major topics:

- availability of video recording equipment systems and their suitability for court purposes;
- legal environment and attitudes affecting video recording in court-centered applications; and
- recent or on-going implementation of video recording in courts on an operational or experimental basis.

At the time this study was initiated, video recording in the courts was not much more than a topic of conversation. Only the Illinois court system was known to have experimented in this field and it was proceeding deliberately in a well-defined application.

During this past year, in parallel with but not caused by this study, experimentation or adoption of video recording has been attempted piecemeal in a number of jurisdictions.

Some concepts were envisaged a year ago to be in the distant future, but have already been tried and even accepted, not only by the legal community but by the general public as well.

As often occurs with new technology, the spate of activity and publicity about video in court processes may lead to counter-productivity and, possibly, negative effects, some

of which may be avoidable with systematic technological assessment. In spite of the serious (indeed critical) problems facing our court systems and popular appeal of "TV in the courts," it should not be assumed that all video recording applications are equally beneficial, or that a device which "works" in one jurisdiction will be equally useful in others.

The survey conducted during this study points up the need for a problem-centered perspective. There are many important court problems, and each must be evaluated to determine whether video recording (or, for that matter, any other technical invention) is the BEST possible solution.

CONCLUSIONS

The following conclusions can be drawn:

1. Video recording may be used in several ways to provide limited, immediate help in reducing congestion in the courts and in improving the "quality of justice." However, most applications to the courts to date have been experimental and fragmented. Systematic field application under controlled conditions is necessary to evaluate technological impact and relative costs.
2. Particular applications of video recording have proven their value and are now acceptable methods of presenting evidence in some courts. Video depositions save much waiting time for witnesses and serve the convenience of all parties, and the quality of presentation has been improved by reducing the nervousness of appearing in court. Increasing police use

to record events which may be criminal and interrogations of suspects or witnesses may aid in solving crimes and in obtaining convictions, as well as protecting individual rights.

3. Although criminal trials are not now recorded for educational purposes, there is demonstrable need for such educational tools which should be satisfied as soon as possible. Video recording would not interfere with the judicial process, and taped trials would offer an unequalled opportunity to improve legal education. Broader experience with trial activity while in law school might also have the side effect of interesting more law students in trial law as a career.

4. Any applications of video recording which would markedly alter present procedures and functions should be approached systematically and with caution. On the surface, video recording manifests the potential of reducing backlogs and improving trial and appellate procedures, but there are legal issues to be resolved systematically. Video recording should be adopted when it offers the best solution to a given problem, with care taken to minimize unwanted side effects.

5. Video recording equipment has been designed mainly for institutional or educational uses, and therefore may not have the ideal features for court purposes. After further experience in court activities, performance requirements should be developed for a court-oriented video system, and

manufacturers should be encouraged to modify products specifically for court use.

6. Statutes and court rules relating to video recording in many state courts are out-of-date and cumbersome. The lead of the Federal courts should be followed by amending rules and allowing greater flexibility in introducing new technology. Legislatures and courts, like other institutions which are adapting to new technology, should stress the development of performance criteria for designated functions, rather than specifying the precise methods for accomplishing those functions.

Video recording has been partially accepted in limited applications. There are indications of high potential for the future, and great interest in further investigations. However, more work is required to insure efficiency and cost effectiveness.

FUTURE RESEARCH EFFORTS

As a guide for future work, a number of proposals have been developed and are presented ^{here} ~~are~~. These are in the form of "research packages," and most of the described programs should be operational tasks conducted under systematically controlled conditions. Practical applications of video technology should be implemented and evaluated, with awareness and assessment of the technological impact; with methodical and clearly defined resolution of legal issues; and the prevention or minimization of adverse effects on the judicial

process.

Each of the informal study proposals described on the following pages contains a brief background statement, a description of the tasks to be performed, and a preliminary estimate of program cost. Each is designed as a viable study, presented here to suggest an appropriate direction for future work.

1. CLEARINGHOUSE FOR INFORMATION ON VIDEO RECORDING IN THE COURTS.

The introduction of video recording equipment represents a major investment in money, time, and effort. To date, experiments with video techniques have usually been local in scope and funding, and have not received much outside attention. The experience gained in one jurisdiction may not be directly transferable elsewhere, but information should be made available nationwide in a standard format.

A national clearinghouse could make information available to all jurisdictions interested in video recording for their courts. Based on experience gained in other locales, they could then adopt practices which appear to be most suitable for their own purposes. Funding would be required initially to establish the information files and to staff a consulting service for court planners, but part of the cost would eventually be covered by charges for services rendered.

The following steps are proposed:

1. Conduct a survey of police departments and court systems in major metropolitan areas to determine current utili-

zation of video recording in court-centered applications and plans for the near future. (This study has laid the groundwork, but new programs may have been introduced without attracting wide attention.)

2. Conduct site visits and in-depth interviews with participants in those programs which appear to have the greatest generality, or which have unique or special characteristics.

3. Establish a central data file on ongoing programs, to be periodically up-dated and to be made available to interested officials.

2. FIELD APPLICATION OF INTEGRATED VIDEO SYSTEM

Among the proposed uses of video recording in the courts, three major applications may meaningfully reduce the time invested in trials and other court procedures: taped presentation of evidence and testimony; video recording to provide the official trial record; and, ultimately, taped presentation of trial evidence in toto to a jury. These might save court and public time by reducing delay in obtaining court records; by minimizing inconvenience to witnesses, attorneys and judges in scheduling court appearances; and by eliminating or shortening jury waiting during trial episodes from which they must be excluded. To date, experiments in implementing video tape recording in the courts have generally dealt with single, fairly narrow, applications within local court systems. However, it is clear that many applications overlap.

The high investment cost for a full video system in the courts strongly recommends an integrated field test to work out specific operational/procedural requirements; to clarify the pending legal issues; and to establish an optimal environment for the clear resolution of legal conflicts which accompany innovations in the judicial system.

Technological innovation in the criminal courts must ensure that there will be minimum^{al} disruption of the administration of justice while providing maximum^{al} opportunity to reduce system delays and improve court procedures. Within these restrictions, the proposed study is designed to: (1) establish an integrated, operational video tape recording system in one or more specified criminal court jurisdictions; (2) operate that system over an extended period of time; (3) conduct thorough research to clarify relevant legal issues and to protect the rights of all parties to criminal proceedings; and (4) identify case parameters which will most likely lead to appropriate and deliberate appellate review, especially concerning the aspects of video tape recording which bear on constitutionally-protected individual rights.

The following tasks are proposed:

1. Selection of appropriate jurisdictions for field applications. Utilizing background obtained during the current video project, as well as additional sources and recommendations, jurisdictions which would be amenable to immediate implementation of a video system for court-centered

use should be reviewed to determine (a) potential for substantial impact for video applications to reduce court congestion and related problems, and (b) the likelihood of support from the local judicial/legal community for such administrative and legal innovation. One or more jurisdictions will then be selected for the study.

2. Examine^{ation of} specific legal and procedural issues surrounding proposed video applications.

3. Define^{ition of} video equipment system requirements.

4. Install^{ation of} operational video tape recording system.

5. Monitor^{ing of} and direct^{ion} extensive field application of video system.

3. PERFORMANCE STANDARDS AND PROTOTYPE DEVELOPMENT FOR COURT-CENTERED VIDEO EQUIPMENT

When a new use is conceived for an existing technology, the available equipment has generally been designed for entirely different purposes or environments. Court use of video equipment systems imposes capability requirements which are not met by existing equipment, but most of which are undoubtedly within the state of the art.

After systematic and extensive field experience with an integrated video system (see 2 above), specific performance requirements should be developed for court-centered video equipment. These requirements should be used to solicit proposals for the development and testing of prototype video equipment tailored for court applications.

A number of modifications already appear to be necessary for court adaptation, including the following:

- capability for multi-track audio recording with the video record;
- a playback head to permit the operator to monitor what has been, rather than what is about to be, recorded;
- improved method of indexing the tape so that specific segments can be located rapidly and accurately;
- record duration of more than 60 minutes per reel of tape;
- "built-in" assurance of the security of the tape against tampering (unauthorized editing, etc.);
- improved playback compatibility among machines made by different manufacturers;
- foot controls to activate forward and rewind functions;
- reduction of taped information to smaller storage records.

A prototype development and testing program would include the following steps:

1. Develop specific performance requirements for court video tape equipment.
2. Solicit statements of qualification from interested video recording equipment manufacturers.
3. Prepare and distribute appropriate requests for proposal solicitations for the development and testing of prototype equipment.
4. Evaluate proposals and award prototype development con-

tract.

5. Develop evaluation criteria for field test of prototype equipment.
6. Perform engineering evaluation and field test evaluation on prototype equipment.

4. EXPERIMENTAL ASSESSMENT OF COURT PROCEDURES UTILIZING TRIAL TAPES AS STIMULI

Video recording to provide the trial record (or to preserve events for educational purposes) would generate a large library of "real-life" trials. These tapes would permit the conduct of systematic and scientific research for experimental resolution of issues which, in the past, have dictated resort to judgment alone. Experimental evidence could be obtained regarding widely held controversial notions, never tested directly, about how courts function. This could also help to evaluate methods for improving court operations and assess the likely effects of implementation. Such experimentation is unavoidably artificial in some respects, but the results may shed light on court processes hidden until now by virtue of the nature and inherent protectiveness of the system.

The availability of a sizable number of tapes of criminal trials would facilitate a variety of research programs, some of which are suggested below. This list is not exhaustive, nor is any particular approach the only one which could be taken. But these proposals are suggestive of the range of systematic ^aexamination of controversial issues which a tape library makes possible.

a. The predictability and consistency of jury decisions.

Video tapes of individual trials, selected to reflect a range of "clear-cut" to "highly debatable" evidence of guilt, can be shown repeatedly to different juries to determine the factors which contribute to predictability of verdicts, consistency of juries (for varying levels of uncertainty of evidence), and the manner in which juries reach a verdict (e.g., does the process vary with jury characteristics, and if so, how?). Interviews with members of the mock juries and systematic observation of their deliberations, neither of which can effectively be utilized with real juries, can supply extensive primary and supplementary information about the operation of the jury system.

b. Determine "optimum" jury size. Several jurisdictions are experimenting with smaller juries than the traditional 12-member panel. Selection of an alternative size has been arbitrary, usually set at six, but no systematic research has been conducted to deduce optimality. Some significant and relevant psychological research has been done on the pressures and influences affecting agreement or disagreement within groups of various sizes; this can be tested in a jury context to determine what smallest size behaves "differently" from a group of 12 for given types of cases. Video tapes of trials could be shown to juries of varying size, observing outcomes and deliberative procedures, to discover if there is a point at which the roles and relative influence of individual members differ from

those of a jury of 12. This research assumes, for the present, that the 12-member jury is a good standard in terms of justice, but perhaps not size; that issue itself may be susceptible to investigation with the availability of trial tapes.

c. Determine what effect, if any, derives from exposure to irrelevant or improper information during trial. It is commonly believed that juries cannot totally "disregard" something already witnessed when instructed to do so by the judge, but the operative effect of such memories has never been tested and documented. Video taped trials can be presented to experimental juries with and without questionable material to determine the subsequent effect on the verdict. Using video tape for presenting evidence or a full trial to the jury makes it possible to eliminate all objectionable material in advance. A test of the value of this procedure should be conducted scientifically, especially to discern any noticeable changes in verdicts.

d. Determine the effect of pre-trial publicity on jury verdicts. In important or newsworthy cases, juries are often sequestered to prevent "contamination" from publicity about the case. Similarly, news about a case is frequently limited by officials until it comes to trial. There is controversy about both limitations. First, jurors are seriously inconvenienced, or the jury may be biased by virtue of excluding those who cannot be sequestered. This might affect attitudes about the defendant, perhaps blaming him for the in

convenience suffered. Restricted publishing of pre-trial news raises the question of the constitutional rights of a free press, as well as the public's right to know. Video taped trials would permit systematic examination of the effects of publicity, perhaps leading to reduced restrictions or substantiation of their imposition. For example, information about the defendant's arrest and incarceration may have no more effect on a jury than does his appearance in court for trial. On the other hand, journalistic ^oaccounts of events may be at variance with the case which can actually be proved, but may affect the jury to the detriment of the defendant. None of these hypotheses has ever been directly tested.

Each of the research efforts suggested above is a package in itself. Depending on the number of variables to be studied, the experiments could take as little as a few weeks if a relatively straightforward question is studied (e.g., does a six-member jury operate and react differently from a 12-member jury?) or require a year or more to investigate a range of complex, interconnected variables (e.g., the effect of different types of pre-trial publicity for various types of crime.) Very few experimental investigations have been conducted in this field, hence the number of possible inquiries and parameters to be considered is extremely large.

Appendix A

Summary of Statutes and Court Rules Affecting the Use of Video Recording in the Courts

In an effort to determine existing barriers to the introduction of video technology in the courts, a survey was conducted of State and Federal statutes and court rules which mention television or electronic media, or which pertain to areas of potential video application. The research was carried out in law libraries in the Washington, D. C. metropolitan area during the late summer and early fall, 1971; subsequent reviews were made to try to keep the findings up-to-date.

The laws and rules are summarized in the following pages; for each state, the laws are presented under three general headings.

1. Court Conduct includes summaries of those rules which define appropriate behavior and decorum in the court with respect to the publicizing of court activity. Based to a great extent on the American Bar Association's Canon 35 which state that broadcasting from the court should not be permitted, many states explicitly ban television from courtrooms. In some cases, the emphasis on broadcasting does not extend to other court-centered video applications; in other cases the rules are ambiguous, or may apply to any video usage.

2. Court Proceedings summarizes those statutes or rules which define the requirements for the recording of court proceedings. Current practice requires that written transcripts be obtainable, and in many cases the precise method of recording is specified. Some states, but not all, have adopted electronic devices or accept them as a permissible method for recording; Alaska alone requires electronic devices (audio or video), with the taped record itself serving as the official record.

3. Depositions, or testimony taken prior to trial for discovery or for presentation at trial, are governed by rules or statutes which, to a great extent, are based on the deposition rules of the Federal Rules of Civil Procedure. A 1970 amendment to the Federal Rules permits the use of recording methods other than stenography, but that amendment has not yet been widely adopted by the states.

Every attempt has been made to conduct a comprehensive and accurate survey, but it cannot be considered as exhaustive. It was not possible to examine local rules (e.g., at the county level) without a prohibitive investment in time and travel. Similarly, in dealing only with the resources available in the Washington, D. C. area, complete assurance of currency is not possible: laws and rules are subject to change, but notice does not always arrive quickly. (It may also be observed that changes in the laws and rules of

interest here have been encouraged by recent Federal precedents.) This survey has therefore been designed to provide an overview of the legal situation surrounding the introduction of video technology. Further research at a local level would be desirable before any action is taken in a given jurisdiction.

Appendix A

Summary of Statutes and Court Rules Affecting the Use of Video Recording in the Courts

As a part of the effort to determine the existing barriers to the introduction of video technology in the courts, a survey was conducted of statutes and court rules at the state and Federal levels which mention television or electronic media, or which are concerned with areas of potential video applicatio. The survey was conducted in law libraries in the Washington, D.C. metropolitan area in the late summer and early fall, 1971, and subsequent reviews were made to try to keep the findings up-to-date.

The laws and rules are summarized in the following pages; within each state, the laws are presented under three general headings.

1. Court Conduct includes portions of those rules which define appropriate behavior and decorlm in the court with respect to the publicizing of court activity. Based to a great extent on the precedent of the American Bar Association's Canon 35 prohibition of broadcasting from the court, many states explicitly ban television from the courts. In some cases, the emphasis on the broadcasting aspect is sufficiently explicit that court-centered video applications would not be covered, while in other cases, the rules are ambiguous or specifically ban any video usage.

2. Court Proceedings summarizes those statutes or rules which define the requirements for the recording of court proceedings. Current practice requires that written transcripts be obtainable, and in many cases the precise metho by which the notes are to be taken is specified. Some states have adopted electronic devices as one permissable method for recording, but many do not permit them. Alaska stands alone in requiring electronic devices (audio or video) exclusively and by defining the taped record itself as the official record.

3. Depositions, or testimony taken prior to trial for discovery or for presentation at trial, are governed by rules or statutes which to a great extent are based on the deposition rules of the Federal Rules of Civil Procedure. A 1970 amendment to the Federal Rules permits the use of recording methods other than stenography but that amendment is still too recent to have been widely adopted in the states.

It must be noted that while every attempt has been made to conduct a comprehensive and accurate survey, it cannot be considered as exhaustive. It was not possible to examine strictly local rules (e.g. county rules) without a prohibitive investment in time and travel. Similarly, in dealing only with local Washington, D. C. resources, it is not possible to be entirely assured of currency; laws and rules of this sort are subject to change (and recent Federal precedents encourage that change) but notice of such changes does not reach the national level quickly, thus, the survey provides an overview of the legal situation surrounding the introduction of video technology, but further research at a local level would probably be necessary before action is taken in a particular jurisdiction.

FEDERAL

COURT CONDUCT

U.S. Code

Title 18 - Crimes and Criminal Procedure (1966)

Rule 53 - Regulation of conduct in the courtroom

The court shall not permit the taking of photographs during judicial proceedings or the radio broadcasting of judicial proceedings.

COURT PROCEEDINGS

U.S. Code

Title 28 - Judiciary and Judicial Procedure (1970)

Chapter 49 - District Courts

Section 753 - Reporters

(b) Court reporters shall record verbatim. The means of recording may be shorthand or "mechanical means which may be augmented by electronic sound recording."

Electronic sound recordings are considered admissible evidence for establishing the record of proceedings on arraignment, plea, and sentence in a criminal case.

If proceedings on arraignment, plea, or sentence in criminal cases are recorded by electronic sound recordings, the court reporter must certify them.

DEPOSITIONS

Federal Rules of Civil Procedure

Rule 30 - Depositions upon Oral Examination

(c) Record of Examination; Oath; Objections

An officer of the court shall administer the taking of testimony at a deposition. Unless the parties agree otherwise, the testimony shall be taken stenographically and transcribed. Any objections shall be noted by the officer upon the deposition.

Rule 30 - Depositions upon Oral Examination (1970 amendment)

(b) Notice of Examination; Non-stenographic Recording

The court may order that the testimony taken at a deposition be recorded by other than stenographic means, in which

case the court must designate the alternative means of recording by court order. Provisions may be included to assure that the recorded testimony is accurate and trustworthy.

FEDERAL: Local District Rules

COURT CONDUCT

U.S. District Court for the Northern District of California
Local Rules of Practice

Rule 5 - Photographing or broadcasting of judicial proceedings.

The taking of photographs in any form and the broadcasting or recording for broadcast by radio, television or other means are prohibited in the courtroom in connection with any federal judicial proceeding, regardless of whether or not court is in session. (This rule does not apply to the use of "Xerox and other copying machines.") Photographs or recordings may be permitted by the court if made under the direction of counsel and provided they meet any conditions imposed by the court.

Rules of the U.S. District Court for the Central District of California

Rule 29 - Conduct in Courtroom and Environs

All forms of photography, tape recordings, broadcasting, or televising are prohibited in all courtrooms during the course of any judicial proceedings, regardless of whether or not court is in session. This rule does not prohibit recordings by a court reporter, provided that such recordings are not used in connection with any radio or television broadcast. In addition, the court may permit photographs of exhibits to be taken under the direction of counsel.

Rules of the U.S. Court of Appeals for the Ninth Circuit
(San Francisco)

Rule 10

The use of radio and television equipment is prohibited in all areas where photography is prohibited.

U.S. District Court for the Eastern District of Illinois
Appendix V
Rule 28

The taking of photographs in the courtroom and radio or television broadcasting from the courtroom are prohibited.

U.S. District Court for the Northern District of Illinois
Rule 34

Same as Rule 28 for U.S. District Court for the Eastern District of Illinois.

U.S. District Court for the Southern District of Illinois
Rule 8

Same as Rule 28 for U.S. District Court for the Eastern District of Illinois.

U.S. Court of Appeals for the Seventh Circuit (Chicago)
Rule 18

Same as Rule 28 for U.S. District Court for the Eastern District of Illinois.

U.S. District Court for the Eastern District of Louisiana
Rule 17

The taking of photographs and radio or television broadcasting of judicial sessions are prohibited.

U.S. District Court for Maine
Rule 23 - Photographs, Radio and Television Broadcasting

The taking of photographs and the use of radio, television, or other broadcasting facilities anywhere in the Federal Court Building at Portland are strictly prohibited.

U.S. District Court for the District of Massachusetts
Rule 29 - Photography, Recording, Broadcasting

No person shall take any photograph, make any recording, or make any broadcast by radio, television or other means, during any court proceeding. This rule does not prohibit court reporters from making voice recordings in the course of performing their official duties.

U.S. District Court for the District of Minnesota
Rules of Procedure
Rule 7 - Fair Trial - Free Press Directive

Same as Rule 29 of the U.S. District Court for the District of Massachusetts.

U.S. District Court for the Western District of Missouri
Rule 25 - Photographing, Broadcasting and Televising in Courtroom and Environs

Audio or video tape recording and radio or television broadcasting are prohibited in any courtroom, except during specially designated ceremonial proceedings.

U.S. District Court for the Middle District of North Carolina
Rule 11 - Trial Publicity

The taking of photographs in and broadcasting or televising from the courtroom are not permitted.

U.S. District Court for the Eastern District of North Carolina
Rule 11 - Photographs and Reproducing Court Proceedings

The transmission or sound recording of court proceedings for broadcasting by radio or television is prohibited.

U.S. District Court for the Western District of North Carolina

Rule 5 - No Photographing, Televising, or Broadcasting of Court Proceedings

Same as Rule 11 of the U.S. District Court for the Eastern District of North Carolina.

U.S. District Court for the Northern District of Ohio

The taking of photographs and the use of radio or television broadcasting equipment in the courtroom are prohibited.

AMERICAN BAR ASSOCIATION CANONS
OF JUDICIAL ETHICS

COURT CONDUCT

Canon 35, effective January 1, 1970
Improper Publicizing of Court Proceedings

The court should not permit the taking of photographs during judicial sessions or the broadcasting or televising of court proceedings.

This restriction shall not apply to the broadcasting or televising of portions of naturalization proceedings if such proceedings are designed to be ceremonial in nature.

ALABAMA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Code of Alabama

Title 13, Section 262. Duties of court reporter.

The official court reporter shall attend the court sessions in the circuit for which he is appointed and take full "stenographic notes" of the oral testimony and proceedings.

DEPOSITIONS

Title 7, Section 474(11)

Same as Rule 30(c), Federal Rules of Civil Procedure.

COURT CONDUCT

Criminal Rule 48

The court shall not permit the taking of photographs in the courtroom during judicial proceedings, or radio or television broadcasting of judicial proceedings from the courtroom.

COURT PROCEEDINGS

Rules Governing the Administration of All Courts
Rule 47 - Electronic Recording Equipment - Official Court Record - Responsibility for Record

(a) "Electronic recording equipment" is to be used for recording all proceedings required by rule to be recorded. These electronic recordings constitute the official court record. Each superior court judge has the responsibility of insuring that the electronic recording equipment in his court will produce a readable record of all proceedings.

(b) Before any proceedings are commenced, the presiding judge is responsible for insuring that the electronic recording equipment is functioning properly. The judge shall require the clerk or deputy clerk to supervise the operation of the equipment and constantly monitor all input. If any doubt arises as to the clarity of the recording, the judge is responsible for insuring that the pertinent portion of the proceeding is repeated.

(c) The courtroom clerk or deputy clerk is responsible for the maintenance of detailed, accurate, and legible written records of all proceedings recorded on magnetic tape. These written records are to be maintained in a manner consistent with the instructions established by the Administrative Director of Courts.

(d) The Administrative Director of Courts has the responsibility of establishing proper techniques for monitoring and transcription. In addition, it is his responsibility to insure that magnetic tapes and written logs are preserved for at least five years.

(e) The Administrative Director of Courts may authorize the use of "videotape equipment" to record any proceeding where the use of such equipment is feasible. The videotape record would then constitute the official court record.

DEPOSITIONS

Rule 30(c) (Modified)
Federal Rules of Civil Procedure

The testimony at a deposition shall be taken stenographically or by electronic recording equipment, and transcribed, unless the parties agree otherwise.

ARIZONA

COURT CONDUCT

Rules of the Supreme Court of Arizona
Rule 45, Adoption of Canons of Judicial Ethics of the American Bar Association

The Canons of Judicial Ethics of the American Bar Association shall be approved and adopted as the Canons of Judicial Ethics for the State of Arizona.

COURT PROCEEDINGS

Arizona Revised Statutes
Title 12, Chapter 2
Section 12-223, Attendance at and report proceedings

(A) The court reporter shall make "stenographic notes" of all oral proceedings before the court. However, he is not required to record arguments of counsel to a jury or to the court, unless requested to do so by the court or counsel.

Title 38, Chapter 3
Section 38-424, Use of tape recorders or other recording devices

The court may use "tape recorders or other recording devices" in lieu of reporters or stenographers unless either party requests the presence of a court reporter or stenographer.

DEPOSITIONS

Rules of Civil Procedure
Rule 30(d)

Same as Rule 30(c), Federal Rules of Civil Procedure.

ARKANSAS

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Arkansas Statutes

22-352 Duties - Contents of stenographic report

The stenographer shall make a "stenographic record" of all oral proceedings occurring in the court for which he is appointed, including the testimony of witnesses, when he is so requested by either party.

DEPOSITIONS

Civil Procedure 28-352(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

CALIFORNIA

COURT CONDUCT

California Rules of Court

Title Three - Miscellaneous Rules

Division IV - General Rules Applicable to All Courts

Rule 980 - Photographing, recording and broadcasting in courtroom

Photography, recording for broadcasting and broadcasting shall not be permitted within the courtroom while court is in session or during any recess, except for those proceedings which are designated as ceremonial and carried out as such under the supervision of the court. The court may prescribe additional limitations for circumstances not prohibited by this rule.

COURT PROCEEDINGS

California Code of Civil Procedure

Title 4, Chapter 3 - Phonographic Reporters*

Section 269 - Superior Courts; duties

At the request of either party or the court, the official reporter of a superior court must "record in shorthand" all testimony given at the proceeding for which he is present.

DEPOSITIONS

Title 3, Part 4, Section 2019

Same as Rule 30(c), Federal Rules of Civil Procedure.

*(No explanation given with regard to the meaning of title.)

COLORADO

COURT CONDUCT

Rules of Criminal Procedure

Rule 53 - Regulation of Conduct in the Courtroom

With respect to the "publication" of judicial proceedings, Canon 35 of the American Bar Association Canons of Judicial Ethics, as adopted by the Supreme Court of Colorado, shall apply.

Rules of Civil Procedure

Appendix C Canons of Judicial Ethics

Canon 35

The taking of photographs in the courtroom, or the broadcasting by radio or television of court proceedings is permitted if permission has been obtained from the trial judge. If the trial judge believes that such photography or broadcasting will detract from the dignity of courtroom procedures, or interfere with the achievement of a fair trial, it shall not be permitted. Under no circumstances is any witness or juror to be photographed, or have his testimony broadcast, over his expressed objection.

COURT PROCEEDINGS

Colorado Revised Statutes

Chapter 37 Courts of Record

Article 4 District Courts

Section 37-12-32 Duties of reporter

The reporter, under the direction of the court, shall "record in shorthand" all testimony, rulings of the court, oral instructions given, and other proceedings held during trial of any cause, and in such causes as the court may designate.

Rules of County Court Civil Procedure

Rule 380 Reporter; Stenographic Report or Transcript as evidence.

(b) Verbatim Record of Proceedings. A verbatim record of the proceeding and evidence at trials in the county court shall be maintained by either "electronic devices" or "stenographic means," if such a record is requested by any party or the court.

Rules of Civil Procedure

Chapter 11 Court Administration

Rule 80 Reporter; Stenographic Report or Transcript as evidence

The court may direct that evidence be taken "stenographically" unless the parties stipulate otherwise.

DEPOSITIONS

Rules of Criminal Procedure

Rule 15(e) Depositions

Depositions shall be "taken and transcribed" by the court reporter or an appointed stenographer.

Rules of Civil Procedure

Rule 30 Depositions upon Oral Examination

Same as Rule 30, Federal Rules of Civil Procedure.

CONNECTICUT

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Connecticut General Statutes Annotated
Title 51 Court
Chapter 874 Court Reporters
Section 51-74 Use of shorthand writing machine or recording device

The official court reporter or stenographer shall maintain a record of proceedings in any court where such a record is required. The means of recording may be "by shorthand, by shorthand writing machine, or by such mechanical or sound recording device" as deemed appropriate by the Chief Justice of the Supreme Court. ~~of Error.~~

DEPOSITIONS

Connecticut General Statutes Annotated
Section 52-148 Depositions in Civil Actions

Testimony may be taken at a deposition (means not specified).

Section 54-86 Depositions in Criminal Actions

A judge may order that the testimony of certain witnesses be taken at a deposition (means not specified).

DELAWARE

COURT CONDUCT

Common Pleas Rules
Criminal Rule 53

The court shall not permit the taking of photographs in the courtroom or radio or television broadcasting from the courtroom, during judicial proceedings.

COURT PROCEEDINGS

Delaware Code Annotated
Title 10 Courts and Judicial Procedure
Chapter 5 Superior Court
Section 525 Court Reporters

The court reporter is to attend all sessions of the Superior Court and to report all evidence, opinions and other matters as deemed appropriate by the Superior Court. Court reporters are to be skilled and competent stenographers.

DEPOSITIONS

Common Pleas Rules - Civil
Rule 30 Definitions upon oral examination

Same as Rule 30(b), Federal Rules of Civil Procedure.

Common Pleas Rules - Criminal
Rule 15(d) Depositions - How taken

Depositions in criminal actions shall be taken in the same manner as depositions in civil actions.

DISTRICT OF COLUMBIA

COURT CONDUCT

Superior Court of the District of Columbia
Criminal Rules
Rule 53(b)

The taking of photographs, or radio or television broadcasting, or the use of any mechanical recording device without the approval of the court, shall be prohibited in any of the courtrooms, outer rooms, cell blocks, corridors, or lobbies of the courthouse. The taking of photographs in any office or other room of the courthouse is permitted only with the knowledge and consent of the person in charge of such office and room and those persons being photographed.

COURT PROCEEDINGS

District of Columbia Code 1967 Supplement IV 1971
Title 11 Organization and Jurisdiction of the Courts
Section 11-1727 Court Reporters

The Superior Court of the District of Columbia may provide rules for the sound recording of proceedings in lieu of "mechanical (audio or manual) transcription."

DEPOSITIONS

District of Columbia Code
Title 14
Section 14-104 Depositions

Same as Rule 30(c), Federal Rules of Civil Procedure.

FLORIDA

COURT CONDUCT

Rules of Criminal Procedure
Rule 1.110

Photography or radio or television broadcasting shall not be permitted in the courtroom during judicial proceedings.

Rule A Code of Ethics
Section 35

Same as Canon 35 of the American Bar Association Canons of Judicial Ethics.

COURT PROCEEDINGS

Florida Statutes Annotated
Title 5 Judicial Department
Chapter 43 Courts, Generally
Section 43.06 Report of testimony and proceedings

In criminal cases, the court reporter shall report the testimony and proceedings at the discretion of the judge or upon request of either attorney. In civil cases, the court reporter shall report the testimony and proceedings upon written demand filed by the attorney for either party. Such reporter shall be an "expert stenographer and typist."

DEPOSITIONS

Rules of Civil Procedure
Rule 1.310 Depositions Upon Oral Examination
(c) Record of Examination

Testimony at a deposition shall be recorded "verbatim stenographically or by mechanical means" and transcribed unless the parties agree otherwise.

GEORGIA

COURT CONDUCT

Georgia Code Annotated
Title 2N Courts
Chapter 24-6 Court of Appeals
Section 24-3640
Rule 40 Canons of Judicial Ethics

The American Bar Association Canons of Judicial Ethics are adopted as the Canons of Judicial Ethics for the State of Georgia.

COURT PROCEEDINGS

Georgia Code Annotated
Section 24-3101

A reporter or stenographic reporter shall be appointed by the judges of the Superior Courts to "exactly record or take stenographic notes of testimony."

Section 24-3102

Same as above for judges of superior and city courts in all circuits.

DEPOSITIONS

Section 38-2105(c), Evidence

Same as Rule 30(c), Federal Rules of Civil Procedure.

Section 81A-130 Depositions upon oral examination
(c) Record of Examination

Testimony shall be taken "stenographically or by recording machine" and transcribed.

HAWAII

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Hawaii Revised Statutes

Title 32 Courts and Court Officers

Chapter 606 Clerks, Reporters, Interpreters, etc.

Section 609-9 Reporters and Interpreters, District Court
Clerks

The judges of the Circuit Court may appoint "competent shorthand reporters."

Section 606-12 Duties of Reporters

Each reporter shall attend all sessions of the court and record all the testimony of witnesses "in shorthand."

DEPOSITIONS

Title 33

Section 624-16

At a deposition, the testimony of a witness shall be taken "in writing."

IDAHO

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Idaho Code

Title 31-2609 County Stenographers - Duties

"Mechanical recording devices" may be used for the recording of testimony at preliminary hearings if the committing magistrate so orders. If such a device is used, one of the county stenographers will transcribe the testimony upon completion of the hearing.

Title 1-1101

A stenographic reporter must be "highly skilled in the art of stenography" and be capable of reporting verbatim all oral proceedings in court. Stenographic reporters are appointed by district court judges.

DEPOSITIONS

Rules of Civil Procedure

Rule 30(c) Record of Examination - Oath - Objections

Same as Rule 30(c), Federal Rules of Civil Procedure.

ILLINOIS

COURT CONDUCT

Illinois Revised Statutes 1967
Chapter 51
Paragraph 57

A witness cannot be compelled to testify before any tribunal, whether a court, commission, administrative agency, or other tribunal, if any portion of his testimony is to be broadcast or televised, or if motion pictures are to be taken during his testimony.

Illinois Supreme Court Rules - General Rules
Rule 61 Standards of Judicial Conduct

Same as Canon 35 of the American Bar Association Canons of Judicial Ethics.

COURT PROCEEDINGS

Illinois Annotated Statutes
Chapter 37 - Courts
Section 655 Means of Reporting - Transcripts

The court reporter shall make a full report of the evidence and such other proceedings in judicial sessions to which he is assigned by the chief judge. The court reporter shall use "stenographic hand or machine notes," or some combination of the two in compiling his report. In addition, the court reporter may use "an electronic instrument" as a supplementary device.

DEPOSITIONS

Illinois Annotated Statutes - 110A, 206(e)
Method of Taking Depositions or Oral Examinations

The testimony at a desposition shall be taken "steno-graphically or by sound recording device," unless the involved parties agree otherwise. Transcription shall be performed at the request of any party.

INDIANA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Indiana Statutes Annotated

Volume 2, Part 1

Rule 1-4E Recording Machines - Transcripts

All courts in the state may use "mechanical devices" for recording oral proceedings in judicial sessions. These devices will be selected by the court, and operated by the official court reporter. A transcript of testimony made from such recordings is as acceptable as one done from shorthand. If a mechanical recording device is used, the court has the option of eliminating the shorthand method of reporting, if it so desires.

Indiana Rules of Court 1971

Indiana Rules of Trial Procedure

Trial Rule 74 Recording Machines; Court Reports; Stenographic Report or Transcript as Evidence

(A) - Recording Machines - Transcripts

The judge may provide for the recording of any and all oral evidence and testimony by "mechanical devices."

DEPOSITIONS

Indiana Rules of Trial Procedure

Trial Rule 30 Depositions upon oral examination

(4) If either party desires to have the testimony recorded in a manner other than that specified in Rule 74, the notice of examination shall specify the means of recording, as well as the means of preserving and filing the deposition.

IOWA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Iowa Code Annotated

Chapter 605 General Provisions Relating to Judges and Courts
Section 605.6 Shorthand Reporter

Each judge of the district court shall appoint a "shorthand reporter" who shall be responsible for reporting in full the oral evidence and proceedings occurring in court, upon the request of either party.

DEPOSITIONS

Rules of Civil Procedure

Rule 148 Conduct of Oral Examination

Testimony at a deposition must be "taken stenographically" and transcribed.

KANSAS

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Kansas Statutes Annotated
Article 9 Official Reporters for District Court
Section 20-901 Appointments

"Shorthand reporters" shall be appointed by district court judges. Reporters must attend all sessions required by the judge and take a record of all cases indicated by the judge.

DEPOSITIONS

Kansas Statutes Annotated
Section 60-230 Depositions Upon Oral Examination

Testimony shall be recorded "stenographically" and transcribed upon request of any party.

KENTUCKY

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Kentucky Revised Statutes
Section 28.430 Report of Proceedings; transcript

The court reporter shall take "full stenographic notes" of all oral proceedings.

Section 28.435 Use of Recording Device for Recording Testimony - Purchase, Definition

(1) Any circuit court judge may require that a "device for recording testimony" be used in any judicial proceeding. Such a device will supplement the services of a stenographic reporter unless the court, with the approval of the parties, specifies that only a recording device be used.

(3) Recording devices are defined to be any devices by which the voices of speakers are recorded so that they may be later reproduced in audible form.

Rules of Criminal Procedure
Section 5.16 Transcript of Testimony

Testimony may be taken from witnesses by stenographer or by recording device, at the discretion of the attorney for the Commonwealth.

DEPOSITIONS

Kentucky Revised Statutes
Section 28.500

Reporters may take depositions "in shorthand."

Rules of Civil Procedure
Rule 30.03

Same as Rule 30(c), Federal Rules of Civil Procedure.

LOUISIANA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Louisiana Statutes Annotated
Rule 13-961

Court reporters are to report in "shorthand, stenotype, or any other recognized manner," any evidence in criminal cases.

Louisiana Statutes Annotated
Code of Criminal Procedure
Article 777 Recordation of Proceedings

Trial proceedings shall be recorded in accordance with other provisions of law.

DEPOSITIONS

Louisiana Statutes Annotated
Code of Civil Procedure
Article 1453 Record of Examination

Same as Rule 30(c), Federal Rules of Civil Procedure.

MAINE

COURT CONDUCT

Rules of Criminal Procedure

Rule 53

Regulation of Conduct in the Courtroom

The court shall not permit the taking of photographs in the courtroom, or radio or television broadcasting of judicial proceedings from the courtroom.

COURT PROCEEDINGS

Maine Revised Statutes Annotated

Title 4 Judiciary

Chapter 15 Reporters of Decision and Testimony

Subchapter I Reporters in the Supreme and Superior Courts

Section 651 Appointment and Duties

Court reporters shall take "full notes" of all oral testimony.

DEPOSITIONS

Rules of Civil Procedure

Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

MARYLAND

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

No manner specified.

DEPOSITIONS

Maryland Rules of Procedure
Rule 409

Same as Rule 30(c), Federal Rules of Civil Procedure.

MASSACHUSETTS

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Rules of the Superior Court of the Commonwealth of Massachusetts

Rule 47A Recording Devices

No person shall use "any mechanical, electronic or other device, equipment, appliance or apparatus for recording, registering or otherwise reproducing sounds or voices," in any courtroom, judicial chambers, or other place provided for proceedings of any kind, unless prior authorization is granted by the justice having immediate supervision over such courtroom or other place. In order for authorization to be considered, a written motion must be filed describing the device and the time, place, and purpose of its use. If such authorization is granted, the user must agree that no such recording may be used to discredit or otherwise affect the authenticity or accuracy of the record of such case or proceeding.

Rules of the District Courts of the Commonwealth of Massachusetts

Rule 46 Sound Recording Devices

Essentially the same as Rule 47A (above).

Annotated Laws of Massachusetts

Chapter 221

Section 86 Stenographers for Grand Jury

Stenographers shall "take stenographic notes" of testimony given before a grand jury, as directed by the presiding judge.

Chapter 221

Section 82 Stenographers for Superior Courts

"Official stenographers" shall be appointed for superior courts. (Manner of recording is not specified.)

DEPOSITIONS

Supreme Judicial Court Rules

Rule 3.15(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

Chapter 233

Section 32 Mode of Taking Deposition

"The deposition shall be written by the justice or notary or deponent or by a disinterested person."

MICHIGAN

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Michigan Statutes Annotated
Title 27A Judicial Systems and Procedure
Chapter 86
Section 27A-8611 Manner of Recording Proceedings

All proceedings, in the district court, except as otherwise provided by law, shall be recorded by the district court recorder by the use of recording devices approved by the supreme court, or by the stenographers.

Chapter 11
Section 27A-1101 Circuit Court Stenographers; Number

The number of "stenographers" in each circuit court in the state shall be equal to the number of judges in that court.

Section 27A-1111 Circuit Court Stenographers; Duties

Stenographers' duties are defined by the rules of the supreme court, and by the rules of the court to which he is appointed. The stenographer is supervised by a judge of the court to which he is appointed.

DEPOSITIONS

Michigan Court Rules Annotated
Rule 306.3 Record of Examination

(2) The deposition may be taken by "mechanical, photographic, or electronic means" if the parties stipulate or the court permits. The court order or stipulation shall provide details of the recording, preservation and use of depositions taken in this manner.

MINNESOTA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Minnesota Statutes Annotated
Section 486.02 Stenographic Record

The reporter is to make a "complete stenographic record" of all proceedings, taking all questions in "exact language," all answers "precisely as given" and all objections "verbatim."

DEPOSITIONS

Rules of Civil Procedure - District Courts
Rule 30.03

Same as Rule 30(c), Federal Rules of Civil Procedure.

Chapter 597
Section 597.07

Depositions "shall be written" by the officer of the court present, or by some disinterested person in his presence and under his direction.

MISSISSIPPI

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Mississippi Code Annotated
Rules 1642-1645

It is the reporter's duty to take full and complete stenographic notes of all oral proceedings each day of court, and as the judge directs. The reporter may use "recording machines" as an aid if he so desires.

DEPOSITIONS

Mississippi Code
Title 10 Chapter 8
Paragraph 1706 Depositions, How Taken

The officer shall be responsible for insuring that testimony taken at a deposition is "fairly written down."

MISSOURI

COURT CONDUCT

Supreme Court Rules

Rule 1.35 Canons of Judicial Ethics

Same as Canon 35 of the American Bar Association Canons of Judicial Ethics.

COURT PROCEEDINGS

Annotated Missouri Statutes

Title 32

Chapter 485 Court Reporter, Stenographer

Section 485.050 Duties

The reporter shall attend sessions of court at the judge's direction, and take "full stenographic notes" of all oral proceedings in every case.

DEPOSITIONS

Rules of Civil Procedure

Rule 57.21 Witness to be Examined on Oath

The deposition is to be recorded by either a reporter or a "recording device," and shall be transformed to writing or typewriting.

Rules of Criminal Procedure

Rule 25.11

Rule 57.21 above applies to criminal actions as well.

MONTANA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Revised Codes of Montana
Rule 93-1902 Duties of Reporters

It is the reporter's duty to attend all sittings of the court at the judge's direction and to take "full stenographic notes" of all proceedings unless the judge dispenses with the recording.

DEPOSITIONS

Montana Rules of Civil Procedure
Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

NEBRASKA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Revised Statutes of Nebraska
Section 24-340 Reporter; Duties

The reporter shall attend all terms of the court, and make a "stenographic report" of all oral proceedings.

Courts, Municipal
Civil Procedure
Chapter 26-1, 106.01 Transcribed Testimony; Use, When

Tape recordings shall be used for the preservation of testimony in all civil and criminal cases in a municipal court of a "metropolitan, primary or first class city."

DEPOSITIONS

Courts, District; Civil Procedure
Chapter 25-1267.23

Same as Rule 30(c), Federal Rules of Civil Procedure.

NEVADA

COURT CONDUCT

Nevada Supreme Court Rule 240 - Improper Publicizing of Court Proceedings

Broadcasting, televising, or taking of motion pictures shall not be allowed in court during any and all court proceedings if requested by the court, or any involved party, or the witness testifying.

Nevada Revised Statutes
Rule 178.604

The court shall not permit "the taking of photographs in the courtroom during the progress of judicial proceedings or radio or television broadcasting of judicial proceedings from the courtroom."

COURT PROCEEDINGS

Nevada Revised Statutes
Rule 3.320 Official Reporter

The judges of any district court may appoint one "phonographic" reporter to serve in that court. The reporter is to record all proceedings "in shorthand" and furnish a transcript of his notes upon request.

Rule 3.380 Sound Recording Equipment

With approval of the board of county commissioners, the judge may install "sound recording equipment" to replace the reporter, and may appoint a special operator, or the reporter, to operate it. The operator is also responsible for transcribing the output.

DEPOSITIONS

Nevada Code of Civil Procedure
Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

NEW HAMPSHIRE

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

New Hampshire Revised Statutes
Title 53, Chapter 519
Section 519.26 Stenographers

Official state court stenographers shall be appointed by the Superior Court. The duties of such stenographers shall be to take full notes of all proceedings and to furnish a transcript of any part of his notes requested by the judge.

DEPOSITIONS

Superior Court Rules
Title 51, Chapter 491
Rule 34 Depositions

Depositions shall be taken in "shorthand or other form of verbatim reporting approved by the court" and transcribed by a stenographer.

NEW JERSEY

COURT CONDUCT

Supreme Court Rule 1:25 Canons of Ethics

The conduct of the judges and the members of the bar shall be governed by the Canons of Judicial Ethics of the American Bar Association, as adopted and amended by this court.

Canon 35 Improper Publicizing of Court Proceedings

Same as Canon 35 of the American Bar Association Canons of Judicial Ethics with the additional provision that the making of sketches of the courtroom or of any sessions in the courtroom shall be prohibited.

Criminal Practice Rules in the Superior and County Courts
of New Jersey

Rule 3.11.6 Conduct of Trial

Photography, sketching, and radio and television broadcasting are prohibited during any criminal proceeding.

Rules Governing Practice in the Local Criminal Courts of
New Jersey

Rule 8.7.1 Conduct of Trial

Same as Rule 3.11.6 above.

COURT PROCEEDINGS

New Jersey Statutes Annotated
Criminal Practice Rules in Superior and County Court
313-6(b) Record; Transcript

All testimony taken before the grand jury shall be recorded stenographically or by sound recording. A transcript shall be made only upon the request of the prosecutor or by order of the Assignment Judge.

Rules of Practice - Local Criminal Courts
Section 8:7-5 Stenographers; Recording Devices; Transcripts

A sound recording device may be provided by the court for the purpose of making an official record of the entire proceedings. Also, any certified shorthand reporter shall be permitted to make an official record of the proceedings. The reporter must furnish transcripts on request, whether the means of recording was shorthand or recording device.

DEPOSITIONS

Civil Practice Rules for Superior Court of New Jersey
Rule 4.20.3

Depositions are to be taken "stenographically" and transcribed on a typewriter.

NEW MEXICO

COURT CONDUCT

New Mexico Statutes

Section 21-1-1 (90) Rules of Civil Procedure

Rule 90 Conduct of Court Proceedings

The taking of photographs during the progress of judicial proceedings, or broadcasting by radio or television from the courtroom shall not be permitted. Ceremonial proceedings in court may be photographed or broadcast with the permission of the court.

Section 21-2-1 (27) Procedural Rules of Supreme Court

Rule 27

Same as Rule 90 above.

COURT PROCEEDINGS

New Mexico Statutes

Chapter 16 Courts

Article 3 District Court

Section 16-3-7 Personnel - Official Court Reporter

A court reporter is selected by a district judge to "record the proceedings" of the court as required.

DEPOSITIONS

New Mexico Statutes

Chapter 21

Section 21-1-1 (30)

Rule 30

Same as Rule 30(c), Federal Rules of Civil Procedure.

NEW YORK

COURT CONDUCT

Rules of the Administrative Board of the Judicial Conference
of the State of New York
Section 20.5

The taking of photographs in a courtroom and radio or television broadcasting from a courtroom are prohibited unless permission is first obtained from either the Chief Judge of the Court of Appeals or the Presiding Justice of the appellate division in which the courtroom is located.

COURT PROCEEDINGS

McKinney's Consolidated Laws of New York
Volume 29
Section 295 Complete Stenographic Notes to be Taken

Stenographers must take "full stenographic notes" of the testimony and other proceedings in each judicial session.

DEPOSITIONS

New York Civil Practice Law and Rules
R3113(b) Oath of Witness; Transcription of Testimony, etc.

The officer administering the deposition shall personally, or by someone acting under his authority, "record the testimony."

NORTH CAROLINA

COURT CONDUCT

Superior and District Courts

Rule 15 Photographs and Reproductions of Court Proceedings

The "transmission or recording" of court proceedings
"for broadcast" by radio or television is prohibited.

COURT PROCEEDINGS

The General Statutes of North Carolina

Chapter 7A Judicial Department

Article 11 Special Regulations

Section 7A-95 Reporting of Trials

Certified court reporters shall be used, if available, in the superior court. If court reporters are not available, the Administrative Office of the Courts shall provide "electronic or other mechanical devices" upon the request of the "senior regular resident superior court judge." The Administrative Office of the Courts is responsible for periodic checks to insure that the equipment in the courtrooms is the "most efficient."

7A Reporting of Civil Trials

Same as 7A-95.

DEPOSITIONS

Rules of Civil Procedure

Chapter 1A

Section 1A-1

Article 5 Depositions and Discovery

Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

NORTH DAKOTA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

North Dakota Century Code Annotated
Title 27 Judicial Branch of Government
Chapter 27.06 District Court Reporters and Baliffs
Section 27.06.03

Court reporters shall take all oral testimony "in shorthand."

DEPOSITIONS

North Dakota Rules of Civil Procedure
Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

Title 31 Judicial Report
Chapter 31-06 Deposition in Criminal Actions
Section 31-06-08 Depositions Taken in Writing or Shorthand,
By Whom.

The magistrate before whom the deposition is taken is responsible for recording the testimony. He may personally record the testimony "in writing," or appoint some person, under his direction, to do it. Also, he may appoint a stenographer to record the testimony "in shorthand."

OHIO

COURT CONDUCT

Supreme Court of Ohio
Rule XX Improper Publicizing of Court Proceedings

The taking of photographs during a court session and the broadcasting or televising of a court session are prohibited. Violations of this rule will be considered a contempt of court and are punishable as such.

COURT PROCEEDINGS

Ohio Revised Code Annotated
Title 23
Section 2301-18 to Section 2301-25

The court reporter shall take "accurate shorthand notes" of all oral proceedings.

DEPOSITIONS

Rules of Civil Procedure
Rule 30 Depositions upon oral examination

Depositions shall be taken by stenographic means, unless one of the parties requests otherwise. It is the responsibility of the court to insure that recorded testimony will be "accurate and trustworthy."

OKLAHOMA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Oklahoma Statutes Annotated
Title 20 - Courts
Chapter 4 - District Courts
Section 106.4 - Duties of reporter - Method - Transcripts

The recorder shall record all proceedings by means of "stenographic hand, steno-mask or machine notes," or some combination thereof.

DEPOSITIONS

Title 12 - Civil Procedure
Chapter 10 - Affidavits and Depositions
Section 441

Depositions may be written or taken in shorthand.

Title 22 - Criminal Procedure
Chapter 10
Section 769

Depositions shall be written in either longhand or shorthand.

OREGON

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Oregon Revised Statutes
Chapter 8 Court Officers and District Attorneys
8.310 Circuit Court Reporter

The reporter shall attend court at the judge's direction and make a record of all proceedings requested. Notes are to be taken by shorthand or by means of a "mechanical typing device using paper tape", and may be supplemented by audio records taken on any "mechanical, electrical or electronic device," by which the voices of speakers are recorded so that they may be reproduced.

DEPOSITIONS

Chapter 45 Taking of testimony of witness
Section 45.171 Manner of taking deposition

A deposition shall be "written" by the officer taking it.

PENNSYLVANIA

COURT CONDUCT

Pennsylvania Statutes Annotated
Title 12
Rules of Civil Procedure
Rule 223(b)

The court shall prohibit the taking of photographs and motion pictures in the courtroom and the "transmission of communications by telegraph, telephone, or radio" from the courtroom.

Title 19
Rules of Criminal Procedure
Rule 328

Photography and radio or television broadcasting from the courtroom or its environs during the progress of any judicial proceedings are prohibited.. This rule does not apply to ceremonial proceedings which may be conducted by the court.

COURT PROCEEDINGS

Pennsylvania Statutes Annotated
Title 17. Section 1801

The court reporter is to take "full stenographic notes of all proceedings, as directed by the judge.

DEPOSITIONS

Title 12
Rules of Civil Procedure
Section 4017

The person administering the deposition shall "record the testimony" of the witness. He may appoint someone acting under his direction and in his presence to record the testimony.

PUERTO RICO

COURT CONDUCT

Title 4
Appendix IV Canons of Judicial Ethics
Canon X

The taking of photographs, or radio or television
broadcasting from the courtroom shall not be permitted.

COURT PROCEEDINGS

No rules applicable
to court reporting

DEPOSITIONS

Title 23
Appendix II
Rule 27.3

Same as Rule 30(c), Federal Rules of Civil Procedure.

RHODE ISLAND

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

General Laws of Rhode Island
Title 8:5-5

The reporter shall "report stenographically" all proceedings in court. Upon request, the reporter must furnish a transcript of his notes.

DEPOSITIONS

Rhode Island Rules of Civil Procedure
Rule 30(c) Record of Examination

Same as Rule 30(c), Federal Rules of Civil Procedure.

SOUTH CAROLINA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Code of Laws of South Carolina
Title 15 Courts
Chapter 29
Section 15-1902 Duties of Stenographer

Stenographers shall take "full stenographic notes" of all proceedings.

Section 15-1952 Responsibility of Official reporter

The official court reporter has full responsibility for "compiling, indexing, filing and safely keeping," the permanent records. The proceedings may be recorded onto "discs or belts of a type which will preserve the record permanently" or the proceedings may be recorded by "direct electronic recordings supplemented by either shorthand or stenotype."

DEPOSITIONS

Rules of Circuit Courts
Rules for Depositions Rule 87
(3) Record for examination

Same as Rule 30(c), Federal Rules of Civil Procedures.

Title 26 Evidence

Chapter 9 Examination of witnesses by deposition

Section 26-708 Testimony to be reduced to writing

The testimony of the witness is to be recorded by the officer taking the deposition, or by the witness himself, or by stenographer, provided that the testimony is transformed to writing or typewriting.

SOUTH DAKOTA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

South Dakota Compiled Laws
Title 16 Court and Judiciary
Chapter 16-7 Circuit Court Bailiffs, Reporters and Interpreters
Section 16-7-3 Appointment of Shorthand Reporters

Each judge of the circuit court shall appoint one or more "shorthand reporters who shall be well skilled in the art of stenography".

Section 16-7-6 Duties of reporter

Official duties are assigned by the circuit court judges.

DEPOSITIONS

South Dakota Compiled Laws 1967
Title 15 Civil Procedure
Chapter 15-6 Rules of Procedure in Circuit Courts
Section 15-6-30(c) Record of oral examination for deposition.

Same as Rule 30(c), Federal Rules of Civil Procedure.

TENNESSEE

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Tennessee Code Annotated

Title 40 Criminal Procedure

Section 40-2034 Approved reporting methods to be prescribed.

Verbatim records must be taken in order that an accurate written transcript can be prepared. The means of recording shall be prescribed or approved by the executive secretary.

Section 40-2042 Recording equipment authorized

If a qualified court reporter is not available in any court, the executive secretary is authorized to purchase any recording equipment needed.

Section 40-2043 Contracts authorized providing verbatim transcripts without utilizing court reporters.

The executive secretary has the authority to enter into contracts to provide transcripts without utilizing court reporters if "accurate verbatim transcripts could be more economically, expeditiously and efficiently provided" by the means agreed to in the contract.

Tennessee Code Annotated
Title 20 Civil Procedure
Chapter 13 Trial
Section 20-1304 Appointment of stenographer

At a court proceeding, either party may request the presence of a competent stenographer to record all oral testimony as well as the rulings of the judge.

DEPOSITIONS

Title 24 Evidence and Witnesses
Section 24-1213

Same as Rule 30(c), Federal Rules of Civil Procedure

TEXAS

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Annotated Revised Statutes of the State of Texas
Title 42
Chapter 13
Article 2324 Duty of Reporter

The court reporter shall take "full shorthand notes" of all oral proceedings, including final argument if so requested. Upon request, the reporter shall furnish a transcript of his notes.

DEPOSITIONS

Texas Rules of Civil Procedure
Section 9 - Evidence and Depositions
Rule 206 Examination

The testimony of the witness shall be "reduced to writing or typewriting".

UTAH

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Utah Code Annotated
Title 78 Judicial Code and Rules of Civil Procedure
Chapter 56 Court Reporters and Stenographers
Section 78-56-2 Duties

The reporter is to attend all court sessions and take
"full stenographic notes".

DEPOSITIONS

Utah Rules of Civil Procedure
Rule 30(c) Record of Examination

Same as Rule 30(c), Federal Rules of Civil Procedure.

VERMONT

COURT CONDUCT

Vermont Statutes Annotated
Title 12
Appendix I
Part III
Rule 5

The "broadcasting, televising or photographing of court proceedings" is prohibited. At other times such activities may be carried out with the express permission of the court.

COURT PROCEEDINGS

Title 4 Judiciary
Chapter 17 Stenographic Reporters
Section 731 Appointment of reporters for county court and court of chancery.

"Stenographic reporters" shall be appointed by county court judges and chancellors of courts of chancery to "make a verbatim report of the proceedings."

Section 743

"Electronic sound recording equipment for the recording of any civil or criminal proceedings" may be ordered by superior judges, district judges, or probate judges.

DEPOSITIONS

Title 12
Section 1245

Same as Rule 30(C), Federal Rules of Civil Procedure.

VIRGINIA

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Code of Virginia

Title 17 Courts of Record

Section 17-30.1 Recording evidence and incidents of trial
in certain cases and cost thereof; costs of transcripts

In all civil cases involving an amount greater than
\$300, or in all felony cases, the presiding judge may
provide for verbatim recording of the proceedings by
a court reporter or by mechanical or electronic devices."

Section 17-30.1:1 Court Reporter

In all felony cases, the presiding judge may appoint
a court reporter to report proceedings or to "operate
mechanical or electronic devices for recording pro-
ceedings."

DEPOSITIONS

Code of Virginia

Title 8 Civil Remedies and Procedure

Chapter 16 Evidence

Article 7 Deposition and Oral Evidence in Chancery Causes

Section 8-304 Deposition of Witness

In any pending case, the deposition of a witness
"may be taken".

Virginia Supreme Court Rules
Rule 4.5(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

VIRGIN ISLANDS

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Title 5

Appendix IV

Rule 6 Stenographic record of proceedings.

The reporter-secretary shall "record" the testimony.

DEPOSITIONS

Title 5

Appendix IV

Rule 40 Depositions

In accord with Rules 26-32, Federal Rules of Civil Procedure.

WASHINGTON

COURT CONDUCT

Washington Reports 2d.
Volume 34A Court Rules
Judicial Ethics Rule 35

The broadcasting of court proceedings should not be permitted.

COURT PROCEEDINGS

Revised Code of Washington Annotated
Title 2 Courts of Record
Chapter 2.32 Court Clerks, Reporters and Bailiffs
Section 2.32.200 Duties of official reporter

Official reporters shall take "accurate shorthand notes" of oral proceedings.

DEPOSITIONS

Washington Reports 2d.
Volume 34A Court Rules
Rules of Pleading, Practice, and Procedure
Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

POLICE PROCEDURE

Revised Code of Washington Annotated
Section 9.73.090

Police may make "video and/or sound recordings" of arrested persons before their first appearance in court provided that:

(a) The arrested person is informed that the recording is being made and the statement so informing him is included in the recording.

(b) The recording shall contain the times of commencement and termination of the event being recorded.

(c) The arrested person shall be informed of his constitutional rights, and any statements so informing him shall be included at the beginning of the recording.

(d) The recordings shall be used only for valid police and court activities.

Section 9.73.100 Recordings available to defense counsel

If a criminal charge has been filed against the subject, any "video and/or sound recordings" of that subject shall be made available to his defense attorney, upon his request.

WEST VIRGINIA

COURT CONDUCT

Code of Judicial Ethics
35 Improper publicizing of court proceedings

Same as Canon 35 of the Canons of Judicial Ethics of
the American Bar Association

COURT PROCEEDINGS

West Virginia Code Annotated
Chapter 51
Article 7 Official Reporters
51-7-2 Duty to take shorthand notes.

Court reporters shall take "full shorthand notes"
of all oral proceedings.

51-7-4 Transcript of notes

Upon request, the reporter shall furnish a typewritten
copy of his shorthand notes.

Rules of Civil Procedure
Rule 80(A)

A certified transcript, derived from "stenographically
or mechanically reported" notes shall become part of the
record of the action to which it pertains.

DEPOSITIONS

West Virginia Code Annotated
Section 57-4-1.

Depositions may be taken "in shorthand, or stenographic characters or notes," and transcribed by the stenographer.

Rules of Civil Procedure
Rule 30(c)

Same as Rule 30(c), Federal Rules of Civil Procedure.

WISCONSIN

COURT CONDUCT

No rules noted.

COURT PROCEEDINGS

Wisconsin Statutes Annotated
Title 24 Chapter 252
Section 252.18

Every circuit court judge may appoint a "competent phonographic reporter" whose duties are defined by the appointing judge.

Section 252.20 Transcripts

Transcripts shall be made in "longhand or typewriting".

DEPOSITIONS

Wisconsin Statutes Annotated
Title 30
Section 887.10 Deposition; how taken and returned

Testimony shall be recorded "in writing, or in shorthand."

WYOMING

COURT CONDUCT

Wyoming Rules of Criminal Procedure
Rule 50

The court shall not permit photography during the progress of judicial proceedings, or radio or television broadcasting of judicial proceedings.

COURT PROCEEDINGS

Wyoming Statutes Annotated
Title 5 Courts
Chapter 3 District Courts
Article 4 Reporter
Section 5-79 Duties generally

The reporter shall take "full stenographic notes" of all oral proceedings.

DEPOSITIONS

Wyoming Rules of Civil Procedure
Rule 30(c) Depositions upon Oral Examination

Same as Rule 30(c), Federal Rules of Civil Procedure.

Appendix B

Guidance Panel: Court-Centered Uses of Video Recording

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Appendix C

SUMMARY REPORT ON COURT CENTERED VIDEO TAPE PANEL

A panel of experts comprising a cross-section of the criminal justice community was convened on October 14, 1971. The members included representatives from state appellate courts, courts of general jurisdiction, the Federal bench, law schools, police, and bar associations. State and Federal prosecutors, public and private defenders, state and local court administrators, criminologists, security experts, court reporters, and publishers in the criminal justice field were also represented.

The purpose of the meeting was twofold: To explore in depth and from a variety of viewpoints the potential of audio-video tape recordings (A/VTR) applied in a court-oriented environment, and to examine both the advantages and the problems which might result from such applications.

This digest organizes and summarizes the conference with a view to reporting the sense of the discussion, provides background information on the topics discussed, and suggests possible directions for further efforts. Although many topics were covered, the discussion tended to focus on (a) the use of A/VTR to collect or present evidence; (b) the use of A/VTR of trials for educational purposes, and (c) the merits of A/VTR as a means of making a record of trial.

Collection and Presentation of Evidence

The use of A/VTR to collect expert testimony for presentation during trial dominated the discussion of the use of this technology for evidence purposes. Current court procedures require the personal appearance of expert witnesses during trial. These experts must frequently be brought from great distances to testify and oftentimes their testimony is lost because the expert cannot find the time to appear. This risk of interference with the judicial process due to the unavailability of expert witnesses at a given time and place was offered to demonstrate the advantages of permitting the use of A/VTR to present evidence. Time and money could be saved by reducing long distance travel and avoiding unnecessary delay.

Other applications discussed included the recording of police interviews with witnesses, public events such as demonstrations, police interrogations of suspects (including instructing suspects of their "rights"), and confessions. A/VTR offers the advantage of having a more complete record of these events than is usually available under present procedures. The video feature has the advantage of providing a record of actions. An audio recording would serve little purpose at a police lineup or public demonstration; however, video provides a capability for full review should later charges of an unfair lineup or police brutality arise.

Constraints

The importance of guaranteeing the individual's constitutionally protected rights was stressed. For example, concern was expressed that a video record of testimony taken at preliminary hearings or police interviews with witnesses might, at subsequent points in the judicial procedures, be given an unjustified degree of importance which could diminish the right of confrontation.

The integrity or continuity of the reporting was also emphasized. Any break in the continuity of recording resulting from changing reels or turning, stopping or "zooming" the camera might be considered a form of editing. On replay, it would be difficult to know whether the omission (or commission) was made purposely or inadvertantly. Such discontinuous reporting could make the evidence inadmissible. Care would have to be exercised by the camera operator to insure that scenes recorded were not biased by camera angle or field of view of the lens.

Education

A/VTR was considered of unquestionable value as an educational tool. Members who had worked with this medium, either in law school or in the continuing education of the bench and bar, felt that its value in allowing for self-critique could not be over-emphasized. There was a consensus that A/VTR or motion picture films of actual trials are long overdue for use in the nation's law schools. While attendance

at trial is valuable, the use of a recording would permit legal educators to give a running critique without disturbing the court. A/VTR would have the further advantage of pausing for discussion and replay for elucidation or emphasis of important points. Acknowledging this, there was a general agreement that the rules and attitudes against photography in court must be changed before any progress can be made.

Record of Trial

The discussion regarding the use of A/VTR to make records of trials was, perhaps, the most detailed and the most controversial. The comments seemed favorable to this application; however, it was agreed that there should be study of the problems which A/VTR is intended to correct. There was a recurring suggestion that it would be helpful to compare available methods of court reporting.

Many of the comments concerned the limited availability of court reporters, and some participants felt that there would never be enough competent reporters to fulfill present or projected needs. Dramatic instances of extremely long delays in production of transcripts were offered to establish the inadequacies or the unavailability of court reporters. It was also suggested that delays are caused by a combination of many factors, not just the scarcity of reporters.

Many apparent advantages were cited for both the court reporter and A/VTR. The reporter can interrupt proceedings if something is missed, seldom experience³ mechanical failures¹ with ^{his} ~~their~~ stenotype machines, and ^{is} ~~are~~ considered to be less likely to misplace emphasis than might ~~occur with~~ video camera. These considerations were put forth as advantages of using reporters. A/VTR, on the other hand, records impartially what takes place before the camera, and can show the spirit in which something was said in addition to the substance. The facts that reporters get sick and have labor disputes were cited as the problems analogous to possible A/VTR mechanical failure.

The ability of the reporter to distinguish voices from background noise and to ignore the latter is an advantage over the machine. However, the availability of such sophisticated equipment as multi-track recorders and directional microphones should minimize interference from background noise. The difference between the time necessary to review an A/VTR on appeal and the time needed to review a typewritten transcript was suggested as a plus for court reporters. In return, it was stated that there is seldom a need to review the entire proceedings on appeal, and that review of an A/VTR might be limited to the relevant portions of a trial.

It was generally agreed that the presence of a court reporter is not particularly disturbing to persons testifying; however, considerable discussion did concern the effect on participants of the presence of cameras. Some panel members thought that the participants in a trial might "act" before a camera, whereas, others felt that it is difficult to intentionally change one's behavior, especially for a non-actor concentrating on this testimony, for example. No true consensus was reached on this point, and a study of the effects of being pictorially recorded was recommended. There was agreement that the effect of the camera would be different if limited to court use for record-taking purposes, rather than used for broadcasting.

Related Technologies

Closed circuit television (CCTV) and Picturephones were also mentioned as potentially useful techniques for court-related purposes. It was suggested that, in the case of testimonial evidence, closed circuit television might be more practical than A/VTR. Rather than pre-recording experts and other witnesses, thus running the risk of wasted expenditure of time, money, and equipment if the testimony is not used, the person testifying could be called upon to appear before a local CCTV facility near his home or business whenever his testimony is needed during the trial. If closed circuit television equipment were made available in local courthouses, the witness could be observed

while testifying and, unlike pre-recorded testimony, could be questioned at any time.

The disruptive behavior of defendants in certain cases has necessitated their removal from the courtroom during trial or their being restrained in order to remain. Closed circuit television might be used under special circumstances to keep the defendant and the trial "together," even if physically separated, thereby resolving the problem of maintaining order while preserving the defendant's right to observe his trial (and be observed).

The use of Picturephones to argue pre-trial motions was proposed as an alternative to court appearance or even CCTV, since the prosecution and defense counsels could remain in their offices and arrange for a "conference call" with the judge in chambers. Closed circuit television might not be practical since it would require more equipment. A/VTR would have little value in this situation because of the conference atmosphere required.

Legal Issues

The legal problems associated with the use of A/VTR raised by the panel members included the possibility of reassessment of credibility on appellate review, the possibility of erroneous excision of material from A/VTR of testimony, and the existence of state laws and court rules prohibiting the use of electronic devices or cameras in the courtroom. The problem of prohibiting the release

of A/VTR of actual trials to the news media, in the event that those recordings replace the typewritten transcript as the official record, was also discussed. It was suggested that prohibition of A/VTR broadcast could be accomplished by either court rule or legislation.

Operational Problems

The operational problems known to exist with the application of A/VTR in the court context relate to monitoring, loss of record while changing reels, no recording during play-back, editing, and the possibility of audio loss from turning away from the microphone. Presently available A/VTR monitoring equipment only permits in-court monitors to hear and see what the microphones and cameras pick up and not what actually has been recorded on the tape, thus reducing the likelihood of discovery of a malfunction either in the tape or the machine itself.

In order to provide a complete record, the operator of the A/VTR equipment must interrupt proceedings to change reels. (If court is not interrupted, something important might be lost.) This could be avoided by using either longer-playing tapes or a backup machine to allow for staggered recording.

Should it be necessary for a portion of the A/VTR to be replayed to review a piece of testimony, a second machine is needed to record the proceedings during the playback, for one machine cannot record and play back at the

same time. Editing, either by position or focus of the camera or by the deletion of certain parts of the record, was also discussed. No solutions were offered, but guidelines must be established. To preserve the integrity of the record, it was suggested that at least one camera be focused at all times on a clock with a sweep second hand. Recording the clock on a split screen or insert (which is possible with the use of a special effects generator) would permit deletion of courtroom events when ordered by the court, while allowing easy confirmation that no one has otherwise tampered with the recording.

Loss of sound record from failure of fixed microphone pickup can be minimized (as with audio recorders) by use of omni-directional or lavalier microphones.

Technical Problems

The technical problems discussed included the unavailability of precise tape measurement counters for indexing purposes, lighting and acoustics in courtrooms, and mechanical failures. The need for accurate footage counters stems from machine variations and, to a minor degree, the elasticity of the tape itself. No solutions were offered for this problem. In the experience of some, lighting presents a definite problem on the video portion of the recording. However, others suggested that there is equipment available which will function well with only a minimum of light.

The acoustical problem, particularly with background noise,

was considered a major drawback by some; again, others were convinced that multi-track sound recordings and maintenance of reasonable decorum in the courtroom would alleviate many of the audio recording problems.

None of the equipment presently being used has been specifically designed for application within the judicial environment. The degree of reliability, durability, and compatibility necessary for court-associated uses, were considered achievable with greater cooperation between manufacturers and cognizant personnel in the judicial system.

Further Considerations

As previously noted, this digest is essentially a summary of the deliberation of a panel, reorganized for purposes of orderly presentation. The panel was convened to share ideas and to provide guidance for ongoing efforts. On the one hand, more study of the problem areas within the judicial system might be needed before introducing new technology. There was an equal belief that efforts should be directed toward first-hand review of electronic recordings now being applied in a court-oriented environment, followed by suitable controlled experimentation in other locations.

There was general agreement that there is insufficient information for a technological assessment of court-related uses of electronic methods at this time. However, each of the proposals was deemed deserving of further study. With

this encouragement came the admonition that "the machine" is not necessarily better than the man.

Appendix D

Electronic Industries Association of Japan Standard specifications for one-half inch VTR's

<u>Item</u>		<u>Specification</u>
Recorded signals		The Japanese TV standard system is applied
Recording system	Video	Full field 2 head helical scanning frequency modulation
	Audio	Single track, fixed head
Tape width (mm)		12.7 mm (.5 inches)
Tape running speed (mm/sec.)		190.5 mm (7.5 inches)
Maximum recording time (min.)		60 or more (7" reel)
Video frequency band (MHz/-20 dB)		2.5
Video S/N (dB)		40 or more
Cylinder diameter (mm)		115.82 mm (4.56 inches)
Video pitch (μm)		173
Video track angle (when tape is stopped)		3° 11'
Control track width (mm)		0.8
Audio track width (mm)		1.0

Source: Electronics Industries Association of Japan,
New York.

Appendix E

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