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An Empirical Evaluation of Five Methods of Instructing the Jury

Prepared by Reid Hastie

Address correspondence to: Reid Hastie
Psychology Department
Northwestern University
Evanston, Illinois 60201

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TABLE OF CONTENTS
(Final Report, Grant No. 78-NI-AX-0146)

Final Report to the

National Institute for Law Enforcement and Criminal Justice

Introduction

The right to trial by jury is an integral feature of the American democratic system. Although the jury has long been the focus of controversy, a focus of critical as well as supportive commentary, there is little doubt that most American citizens would react with outrage were this right to be denied as an avenue for dispute resolution. Probably the major focus of critical comment has been on the jury's competence to perform its functions in finding the facts in a disputed matter and in applying the law as given to the jury by the trial judge (Sperlich, 1982). Appendix A of this report includes a thorough review of legal and psychological analyses of juror competency. A conclusion reached in the review is that four factors have been repeatedly cited in efforts to explain juror incompetence, when it occurs: (a) unwillingness to apply the law; (b) the influence of extralegal factors such as prejudice or failure to discount inadmissible evidence; (c) inability to comprehend and remember the evidence; and (d) misunderstanding of the law.

This report summarizes a program of research that focuses

on the fourth source of difficulties for the jury's competent performance of its duty, misunderstanding of the law. There are three major sources of evidence for the suggestion that the jury has difficulty understanding the law: comments by jurors during and after their service (e.g., Goldberg, 1981; Meyer & Rosenberg, 1971), comments from the bar and the judiciary, and the results of scientific empirical research (e.g., Cook, 1951; Forston, 1970; Hunter, 1935; O'Mara, 1972; Strawn & Buchanan, 1976; Arens, Granfield, & Sussman, 1965; Hastie, Penrod, & Pennington, 1983; Charrow & Charrow, 1979; Elwork, Sales & Alfini, 1977).

As an aside we should note that several empirical investigations, journalistic commentaries, and comments from attorneys and trial judges have defended the jury decision process. It is indisputable that most jurors are motivated to perform the functions indicated in their sworn oath. Empirical research has repeatedly demonstrated that jurors are sensitive to small changes in the evidence or instructions presented at trial (e.g., Sealy & Cornish, 1973; Kerr, Atkin, Stasser, Meek, Holt, & Davis, 1976; Sue, Smith & Caldwell, 1973; Saks & Hastie, 1978, Chapters 6 and 7). Nonetheless, it is also clear that the juror's task is demanding intellectually and that misunderstandings and confusions present obstacles for its proper execution.

Three approaches have been considered to eliminate some of these misunderstandings and to increase the jury's competence. First, a number of authorities have suggested

that the historical precedent of using "blue-ribbon" juries sampled from a pool of jurors who were viewed as above average in competence, should be followed. Such a system has been used in the past in New York and in Georgia but it is relatively unpopular and it is forbidden by the Federal Jury Selection and Service Act for use in Federal courts. However, the Supreme Court has found such systems to be Constitutionally permissible (see Fay v. New York, 1947 and Turner v. Fouche, 1970). Second, a number of experts, including several social scientists, have advocated rewriting jury instructions in ordinary English to facilitate comprehension and proper application. Charrow & Charrow (1979), Elwork, Alfini, & Sales (1982), and Sales, Elwork, & Alfini (1979) have illustrated procedures for use in developing comprehensible pattern instructions. Third, a variety of procedural innovations have been suggested to aid jurors in performing their task (e.g., Strawn & Munsterman, 1982; Withrow & Suggs, 1980): presentation of an oral precharge before attorneys' arguments and evidence are presented to the jury, provision of a written copy of the judge's final instructions to the jury during deliberation, provision of an interrogatory or special questions that go with the jury into the deliberation room, allowing jurors to take notes throughout the trial for use during deliberation, and so forth.

The present research focuses on this third set of proposals to improve jury performance by varying the procedure

by which they are instructed.

Review of Alternate Procedures for Instructing the Jury

Written Instructions

There has been relatively little discussion of the benefits or liabilities of allowing a jury to take a written copy of the judge's final instructions into deliberation. What little has been written on this subject (e.g., Withrow & Suggs, 1980; Maloney, 1967) has been in favor of sending portions or the entirety of the final charge to the jury into deliberation. The obvious drawback to this proposal is the expense and time that would be required to implement it. A convenient and economical alternative to the provision of written instructions, is sending a tape recording of the final charge into deliberation. A number of judges in jurisdictions from all parts of the country have experimented with this method and are generally enthusiastic. Although our own research did not include experimental evaluations of the tape recording alternative, two demonstration juries were run as part of the larger empirical study, in which tape recordings of the judge's charge were provided for use in deliberation. Our observation was that the tape recordings were a positive benefit to the jurors during deliberation. Furthermore, it seemed useful to provide the jurors with a written index accompanying the tape which noted at which points on the tape the judge presented instructions on various issues (e.g.,

credibility evaluation, reasonable inference, standard of proof, elements of the crimes charged, and so forth).

Oral Precharge before the Evidence is Presented at Trial

The method of presenting the jury with an instruction before the evidence is heard to introduce legal concepts, procedures to be followed during the trial, and even issues that will be under dispute during the trial has received a fairly extensive discussion in the literature. A number of authorities strongly advocate the use of an extensive precharge (e.g., Withrow & Suggs, 1980; Goldberg, 1981; Prettyman, 1960; Smith, 1968) while others have taken a somewhat more moderate stance (McBride, 1969). Goldberg (1981) surveyed the judges in the major trial court in Oregon and found that almost all judges used some preliminary instructions. Typically, these instructions included admonitions about jury duty (e.g., a proscription of exposure to news media reports), and a comment on the presumption of innocence of the accused. More extensive instructions, for example, on the evaluation of credibility, or substantive instructions on the elements of the crime or cause of action were much rarer. This summary seems in accord with reports obtained by the researchers from judges serving in trial courts in Massachusetts, New York, and Illinois.

There are two empirical studies on the effects of providing a preinstruction on juror performance. Elwork, Sales, & Alfini (1977, Experiment 2) presented instructions

before-only, after-only, or both before and after a videotaped trial to citizens eligible for jury service participating in a mock-jury task. They found no reliable effects of this variation on their mock-jurors' memory for information from the trial. However, they did observe systematic effects on mock-jurors' opinions concerning central issues under dispute in the trial. Kassin & Wrightsman (1979) showed a one-hour videotaped criminal trial to college students serving in a mock-juror role. They varied whether instructions were presented before (only) or after (only), or never in their videotaped stimulus trial. For their case materials there was a clear effect of instruction timing on conviction rates, such that subjects who received a preinstruction were much less likely to convict than post instruction subjects or subjects who were never instructed on the law. Interestingly, the effect seemed to be due to preinstructed jurors' lower level of confidence that the defendant had committed the acts alleged, and not to an increase in mock-jurors' subjective standard of proof. Kassin & Wrightsman also observed decreased memory for information from the trial for subjects who were instructed after the evidence was presented. However, this result is of little interest because it is probably due to the fact that only these subjects experienced an interpolated task (the instructions) between the to-be-remembered material (the evidence) and the memory test.

Advocates of the use of instructions at the start of the trial have cited a number of advantages that may accrue to

this method.

1. Proponents argue that jurors' memory for information presented as evidence or information in the judge's instructions will be better remembered by jurors. This assertion is supported by both common sense as well as a number of research findings that demonstrate that attention and memory processes are more acute when a perceiver "knows what he or she is looking for." One trial judge has likened the effects of a preinstruction to the instructions given an assistant who is sent to a hardware store to search for a desired tool, with a preinstruction corresponding to the case where the assistant is told what tool to look for before entering the store and the postinstruction is analogous to the case where the assistant is not told what tool is desired until after leaving the store.

2. Proponents have argued that the preinstruction will help individual jurors identify prejudices that they may have bearing on the matters at trial and that this will allow them to resist the exercise of extralegal prejudices or motivations.

3. Proponents argue that the preinstruction will allow jurors to organize information presented as evidence or instructions in appropriate fashion to connect evidence to the legal issues on which it bears. This suggestion is that the preinstruction provides something like a table of contents of critical issues or

decisions and that a juror so instructed will be able to index evidence so that it is connected to the relevant issues.

4. Some proponents have argued that a preinstruction on procedural matters (such as the evaluation of credibility or the nature of reasonable inferences) will be better able to apply these procedures while perceiving the trial events, as well as during deliberation.

5. Some proponents have pointed out that juror decisions appear to be made early in the trial, that jurors typically "know" what verdict they will find after the first few witnesses have appeared, and thus the earlier instructions appear in the trial, the more likely this decision will be informed. We should note, that this characterization of the juror's decision process is by no means broadly accepted, and in our own view it is erroneous.

6. Proponents also note that this method of preinstructing jurors is already used to some extent by most trial judges and so it is likely that a positive argument for the method would be readily adopted by many trial judges.

On the other hand, it is possible to identify a number of potential liabilities that may be created by applying the preinstruction procedure.

1. It is plausible that whatever tendencies jurors

do exhibit to settle on a verdict early in the trial will be exaggerated or magnified by the provision of instructions before the evidence. For example, in many cases it is plausible that jurors remain open-minded to concentrate on an evenhanded fact-finding review of the evidence partly because they are not informed concerning the legal categories that will govern their final decision. A number of studies in the judgment and decision-making literature (e.g., Snyder & Swann, 1978; Wason & Johnson-Laird, 1972) have indicated that individuals have a persistent tendency to reason in a confirmatory manner once they have settled on a hypothesis. We might imagine that jurors in a criminal trial who have been provided with verdict categories and then hear the prosecution case are likely to develop an initial preference for the prosecution side (e.g., Kassin & Wrightsman, 1979; Walker, Thibaut, & Andreoli, 1972). Under this construction, the preinstruction would tend to bias jurors by providing a specific initial hypothesis which would be supported by the tendency of individuals to reason in a confirmatory manner.

2. A second possible liability is that jurors who have been instructed on the law may miss subtleties of the evidence because they are focused on the legal issues. Thus, their exercise of common sense and everyday acuity may be impeded by their effort to interpret trial events with reference to the legal

categories.

3. Another decrease in the jury's competence to perform its function may occur when all jurors are given a uniform preinstruction that focuses all jurors on the same issues in testimony and evidence. Perhaps one of the strengths of the jury process is that individuals bring to the jury box a variety of motivations, attitudes, and sensitivities and that the mix of various perceptions and memories that exists at the start of deliberation is a major resource for the jury's proper performance of its task. This view of the juror's task is given some credence if we imagine that the various viewpoints and sensitivities to trial events yield a rich and varied set of perceptions that are introduced into deliberation by different jurors and which force the jury to take a broader more subtle view of each trial event than any single individual perception would have allowed.

Jurors' Handwritten Notes

One procedural suggestion that is occasionally tried is to allow jurors to take their own notes during the course of the trial and then to take those notebooks into deliberation as an aid to their decision making. Note-taking is permitted at the trial judge's discretion in most jurisdictions of which we are aware, however, it is seldom allowed (Comment, 1974). Several arguments have been advanced in favor of allowing note-taking. These arguments all depend on the assumption

that jurors are able to take accurate and usable notes while observing trial events and that these notes will be effective reminders of material from testimony, the judge's instructions, or at a minimum will allow the jurors to keep the order of witnesses straight and preserve certain other organizational details of the trial events.

On the other hand, a number of arguments against the use of note-taking have been advanced:

1. Several authorities have argued that jurors will be distracted by the task of note-taking and miss certain critical portions of trial events. In particular, arguments have been made that jurors will be poorer at assessing witness credibility if they are concentrating on note-taking while witnesses testify. It is certainly plausible that people who are unaccustomed to taking notes may find the note-taking task dominates their attention and distracts them from other perceptual accomplishments.

2. A second argument against taking notes is that the presence of notes during deliberation will magnify disagreement among jurors. The assumption is that a juror who is reminded, not only by his or her memory but also by his or her handwritten notes will be more resistant to changing his or her viewpoint during deliberation. The argument is that a juror who depends on handwritten notes will be "frozen" into his or her initial construction of the testimony and judge's

instructions and find it more difficult to remain open-minded in the face of reasonable discussion during deliberation.

3. A final argument against the use of notes is that literate jurors, particularly jurors who are accomplished note-takers, will tend to dominate discussion. The assumption is that a juror who can support his or her arguments with reference to clear written notes will have an undue influence on the jury's fact-finding and decision activities.

Special Questions

There is a long tradition, particularly on the civil side, of providing the jury with a series of questions to address during the course of deliberation. These special questions have been developed over the years and are even required by statute in many jurisdictions for certain types of cases. Some proponents of the use of special questions have argued that their usage should be broadened even further and that they should become conventional in criminal cases as well as in more complicated civil litigation (see notes at page 511 in Withrow & Suggs, 1980). Some proponents have gone beyond the use of special questions on the law and even advocated instructions on the manner in which jurors should deliberate as well as order their consideration of fact and legal issues. For example, Strawn, Buchanan, Pryor, & Taylor (1977) have cited Maier (1963) and suggested that "process instructions"

should be provided to jurors to encourage them to deliberate in an orderly and effective manner.

The arguments in favor of the use of special questions are all fairly obvious, and generally accepted by the judiciary, at least with respect to civil cases. First, it is argued that special questions will simplify the jury's task and focus the jury on relevant, critical issues so that deliberation will be more economical and the jurors can martial and focus their resources on the legally significant questions. Second, it has been argued that special questions organize deliberation into sub-decisions and this allows the jury to act as a group more effectively by focusing on one manageable question at a time.

Of course, there are a number of arguments against the use of special questions, at least the very broad application of special questions. Most of these objections stem from a belief that the jury's duties should be reserved for the jury alone and that outside influences, the trial judge and the attorneys, should not be allowed to control the jury's performance of its fact-finding and verdict decision-reaching functions. Recent research has been conducted by economists on the effects of agendas on the decisions reached by groups (e.g., Levine & Plott, 1979; Plott & Levine, 1978). There is no doubt that the agenda of decisions set for a group has a dramatic effect on the group's final decision. However, it remains to be established that one agenda is more invidious than another. Perhaps more extensive use of special questions

procedures would promote a reasoned consideration of agenda effects and lead to even fairer trial procedures.

Summary

To summarize our argument thus far, we have indicated that although the jury trial is a durable feature of the American democratic system, it has its critics and that many of the criticisms of the jury trial focus on the competence of the jury. We noted four forms of critical comment on jury competence, and concluded by focusing our attention on the problem the jury has in understanding the law as given to it by the trial judge. We noted that there is considerable criticism of the jury's performance of this function from jurors, the judiciary, the bar, and social scientists. However, we also noted that the jury appears to be quite sensitive to its instructions as demonstrated by a number of empirical studies of the effects of variations in instructions on jury performance.

We then considered several methods for the improvement of juror comprehension and application of the judge's instructions on the law and concluded by listing four procedures that can be used in addition to the standard oral post-charge instruction that could improve juror performance: (a) the use of written instructions to accompany the jury into deliberation, (b) the use of an oral precharge at the start of the trial to introduce jurors to their task and to the focal legal and evidentiary issues under consideration, (c) the use

of special questions or interrogatories to accompany the jury into deliberation, and (d) the use of written notes taken by the jurors during the trial as an aid during deliberation. At this point we will turn to the plans for an empirical study to evaluate these alternate procedures as solutions to the apparent problem of juror misunderstanding of the law.

Methods

The primary goal of this report is to summarize the results of an experiment designed to study the effects of varying the manner in which the jury was instructed on the law. Fifty-three six-person mock-juries were created by sampling citizens serving in the Massachusetts Superior Court jury pool in Middlesex County during the months of January through August of 1979. Each of these mock-juries was shown a film of a reenactment of an actual armed-robbery trial (tried in Massachusetts in 1977) and then asked to deliberate to a verdict as if they were an actual jury on the case. A videotape record was made of the events that occurred during each deliberation and at the end of deliberation each mock-juror completed a questionnaire giving his or her views on the case, the deliberation process, and other jurors. Before we go on to describe this method in more detail we should say a few words about the mock-jury experimental method.

Mock-jury Experimental Method

The mock-jury method is what is known in research jargon as an empirical simulation method. The basic concept is that the researcher selects subjects, designs a research task, and measures characteristics of behavior so that an analogy can be

established between the experimental procedures and subjects and the events and participants in a natural situation to which conclusions may be generalized. For example, an engineer may construct a small model of a bridge to use in "miniature" experiments to test a new design principle. Similarly, the mock-jury is designed to imitate many aspects of a real jury, permitting experimental results to be generalized, with caution, to actual jury behavior. Some courts have begun to recognize the usefulness of experimental simulations as having implications for legal procedures and legal policies. For example, some opinions by Supreme Court members have cited social science findings, with approval, as a basis for reaching decisions concerning jury size (Williams v. Florida, 1970; Colgrove v. Battin, 1973; Ballew v. Georgia, 1978), jury decision rule (Johnson v. Louisiana, 1972; Apodaca et al. v. Oregon, 1972; Burch et al. v. Louisiana, 1979), and other courts have considered social science results when evaluating other jury procedures, for example the death qualification process used in trials involving capital crimes (e.g., Hovey v. Superior Court of Alameda County, 1980).

The mock-jury method seems to be particularly appropriate for the study of the effects of variations in the method by which the trial judge instructs the jury on jury performance. First, concerns of internal validity and construct validity can be dealt with very directly by carefully designing the experimental method and by taking care to match the experimental procedures (e.g., method of instruction) in exact

detail to the methods that would actually be used in real courtrooms. Second, there are a host of issues that are raised by considering the generalizability of results from the simulation or mock-jury study to actual courtroom settings. One approach to evaluating generalizability involves a three-term analysis: (a) identification of the phenomenon of interest in the mock-jury study (typically the phenomenon is an obtained difference or no difference in behavior observed when two experimental treatments are compared); (b) asserting that the phenomenon will also obtain in the real setting; (c) critically evaluating this assertion by attempting to generate reasons for non-generalization. When an argument for generalization from mock-jury to real jury survives this critical evaluation, a strong case for generalizability has been established. In most evaluations the critical phase of the analysis focuses on differences between aspects of the simulation and aspects of the actual task. For example, one might try to evaluate the generalizability of a result that jurors favoring an unpopular viewpoint are less likely to express themselves in deliberation if the jury is instructed to use a majority rule to reach a verdict rather than a unanimity rule in reaching a verdict. One might raise critical comments on the generalizability of this result of the following sorts: (a) Are the subjects in the mock-jury analogous in social background, demographic characteristics, etc., to jurors in actual jury pools? (b) Was the trial stimulus material used in the mock-jury study comparable to a

trial that might actually occur in a courtroom with reference to characteristics such as the number of witnesses, attorney tactics, judge's instructions, and so forth? (c) Were the circumstances under which the trial was viewed comparable to those under which a real trial would occur, for example, was the stimulus trial shown on a videotape that restricted the mock-juror's field of view? (d) Did mock-jurors, knowing they were under observation by the researchers, act in a manner that differed from their behavior in actual jury rooms where deliberation is in secret? (e) Do mock-jurors, knowing that their decision will not affect the fate of an actual defendant, act in a manner that differs from the behavior of actual juries faced with the grave consequences of their decision?

If we consider the possibility of generalizing conclusions about jury's reactions to changes in the manner in which judge's instructions are presented from the mock-jury situation to actual jury situations the prospects are quite positive. It is difficult to think of reasons why if a mock-jury has difficulty with one aspect of the instructions or with one aspect of the procedure by which the instructions are presented in a mock-jury situation that this result would not generalize to the real jury. For example, if it turns out that mock-juries have extreme difficulty comprehending the judge's instructions concerning self-defense rights in a murder trial, it is hard not to believe that the same would be true in an actual jury. Similarly, if it were found that

written instructions improve the jury's performance (for example, by reducing errors during discussion) in a mock-jury situation, it is hard to doubt that the same effect would be true for a real jury. Therefore, while we do not deny the importance of alternate research methods to study the jury's use of trial judge's instructions, the mock-jury method does seem to be an eminently suitable method to study the effects of variations in instructions on performance.

Experimental Procedures

Overview of the Procedure. The experiment was conducted in the Middlesex County courthouse using volunteer jurors sampled from the Superior Court jury pool. (this search could not have been conducted without the generous support and assistance of the Massachusetts State Superior Court, the Office of the Jury Commissioner for Middlesex County, and the staff of the Middlesex County jury officers. In particular, we are indebted to the jury pool officers of Middlesex County, Joe Romanow and his staff in the Middlesex County Jury Commissioner's Office, and Hon. Robert J. Hallisey and Hon. Joseph Mitchell from the Massachusetts State Superior Court.) During the months in which the study was conducted (January, 1979, through August, 1979) researchers asked members of the jury pool to volunteer to participate in the research. The jury pool in Middlesex County during 1979 operated on a one-day one-trial basis so that each morning, on typical jury service days, a new pool of 100 to 150 jurors was available to

the researchers. Participation in the research was on a volunteer basis although there were few differences between the sample of volunteers with reference to their demographic or background characteristics and jurors who remained in the jury pool. The sample of typically 20 to 25 volunteers was taken to a courtroom and shown a filmed reenactment of an armed-robbery trial. At the end of the film 6 jurors out of the 20 were selected to deliberate as a mock-jury and the remainder were excused from the research. The 6 jurors were provided with lunch and asked to begin deliberation and a videotape camera, out of their line of sight, recorded their deliberations. The experimental variable, manner in which the instructions were given, was varied at random so that each group of 6 mock-jurors had an equal chance of receiving any one of five experimental treatments. The five treatments were: (a) the normal post-evidence oral instructions from the trial judge; (b) the normal procedure with the addition of a written copy of the judge's oral instructions sent to the deliberation room with the jury; (c) the normal procedure with the addition of a set of special questions that accompanied the jury into deliberation; (d) the normal procedure with one change, an oral precharge that preceded the evidence in the trial; (e) the normal procedure with the change that jurors were provided with notebooks and instructed that they had the option of taking written notes during the presentation of evidence or judge's instructions that were to accompany them into deliberation.

At the end of the deliberation jurors were asked to complete a short questionnaire which asked them to answer questions concerning their perceptions of the stimulus trial, the deliberation process, the other jurors with whom they had deliberated, and provide information about their personal backgrounds. The jury deliberations were terminated whenever a mock-jury reached a unanimous (6-person) verdict or when their day of service as jurors was ended (at approximately 5:00 in the afternoon). Effectively, this meant that there was an upper limit on deliberation time of approximately two hours. A majority of the experimental juries rendered verdicts within that time period but approximately one-third of the deliberations were terminated before a verdict could be reached or before the mock-juries declared themselves irrevocably deadlocked.

Stimulus Trial. A videotaped reenactment of an armed-robbery trial (Commonwealth v. Buchanan, 1977) were produced from extensive notes made in the original trial. The judge from the original trial (Hon. David Nelson) and two practicing attorneys (Joseph Travaline and Rikky Kleimann) portrayed the trial judge and the attorneys in the videotape. The parts of supermarket employees, the defendant, and the defendant's friend were played by amateur actors and the investigating officer role was filled by a Cambridge policeman. The film was previewed by a group of attorneys and judges and received high ratings for realism and representativeness (representative of a typical serious felony

trial). The film including the judge's instructions at the end of the trial played approximately ninety minutes. The addition of precharge instructions (for one of the five experimental treatments) extended the duration by another twenty minutes. A transcript of the stimulus film including pre- and post-instructions is included as an appendix to this report.

Experimental Subjects. Volunteers to participate in the research were obtained from the Superior Court jury pool in Middlesex County, Massachusetts. A summary of the demographic characteristics of the volunteers is provided in Table Methods-1. There were no significant differences to demographic characteristics such as sex, area of residence, and occupation category for the jurors who volunteered to participate as compared to the jurors in the larger jury pool. We should note that Middlesex County jurors are residents of moderately wealthy suburbs on the north side of Boston. These jurors are also somewhat better educated than the typical juror in Massachusetts, or probably in other jurisdictions. They are also drawn from somewhat higher status occupational categories.

Experimental Treatments. The following notes summarize the conditions that were applied to produce each of the five experimental treatments.

1. The normal post-evidence instruction (control) treatment. The judge's instructions following the evidence and the attorneys' closing arguments in the

trial are presented as part of the appendix transcription of the videotaped trial. These were the typical instructions that would be given following an armed-robbery trial. They were presented by the trial judge and lasted approximately twenty minutes.

2. Written instructions. The written instructions that were sent to the deliberation room were a slightly edited version of the judge's oral instructions and they are included in Exhibit Methods-2. These instructions accompanied the jurors into deliberation so that jurors could freely refer to any parts of the judge's instructions about which they had questions.

3. Special questions. The set of special questions that were sent into deliberation with the mock-jury is included as display Methods-3. It is unfortunate that the stimulus trial and the accompanying armed-robbery charge did not produce a very complex sequence of questions to provide to the jury as an interrogatory. Thus, it is plausible that the failure to find effects of the special questions treatment (to be reviewed in the results section of this report) may not generalize to more complex matters in which the sequence of issues considered in deliberation is defined and controlled by the written special questions. Only three, rather simple, questions were put to the juries in this treatment: (a) Did a robbery occur? (b) Was it an armed robbery or an unarmed robbery? (c) Was the defendant the

person who committed the crime?

4. Precharge. The oral precharge that was presented to one-fifth of the experimental subjects is included in the transcript of the trial provided as appendix to this report. The precharge lasted approximately fifteen minutes and provided a quick summary of the substantive issues concerning the charge (elements of the crimes) as well as procedural instructions concerning standard of proof, presumption of innocence, evaluation of credibility, and so forth.

5. Jurors' handwritten notes. In this condition the trial judge finished his instructions by noting that each juror would be provided with a blank notebook and writing implements and could consider it his or her option to take written notes at any point during the trial. And, that these notes would accompany the jurors into deliberation as an aid to their performance in reaching a decision. Then the researchers distributed notebooks to all mock-jurors just before they were shown the videotaped trial. Jurors who deliberated in this treatment were allowed to take these notebooks to the deliberation room with them and to refer to them throughout deliberation. Display Methods-4 includes some examples of handwritten notes that jurors took into deliberation with them.

Post Deliberation Questionnaire

At the end of deliberation all mock-jurors were asked to complete a questionnaire, individually. A copy of that questionnaire is included as an appendix to this report. As can be seen, the questionnaire includes questions about the trial and the deliberation process, satisfaction with the verdict, the juror's background and previous experience as a juror, some memory questions to test the juror's recall of information from the judge's instructions and from the testimony, and questions about the juror's perceptions of the other jurors during deliberation.

Results

The analysis of the data from the mock-jury experiment is summarized in a series of tables on the following pages. There are six basic tables of results: (a) A table summarizing the outcomes of deliberation and the major features of deliberation behavior for the jury considered as a group; (b) a table summarizing the types of remarks made during discussion; (c) a table summarizing the references to testimonial or evidentiary material presented at trial; (d) a table summarizing references to the legal issues raised in the trial judge's instructions; (e) a table summarizing jurors' ratings of the deliberation process collected after the deliberation was concluded; (f) a table summarizing jurors' memory for information from the trial, including both judge's instructions and testimonial information.

Conventional analysis of variance statistics were used to assess the reliability or significance of the experimental results summarized in this section of the paper. In general, the power of these significance tests appears to have been rather low and few results reach conventional levels of significance ($p < .05$ or $p < .01$) when corrections for multiple significance testing are included in the analysis. This is probably due to the restrictions on sample size created by limits on the number of months during which data

could be collected. These constraints were introduced by limitations on the budget for the project and we strongly recommend that future funding of realistic mock-jury research be at a higher rate than for the present project. We will report F statistics and t statistics throughout this report with associated probability levels, without including corrections for multiple significance testing. This procedure is defensible as a method for identifying major differences created by experimental treatments in the conditions under study. Furthermore, the results are relevant for legal policy and it is important not to "under-report" systematic trends in the data. Of course, the replicability of the major results obtained is somewhat lower than the, uncorrected, significance levels might indicate.

Major Characteristics of Jury Performance

Table Results-1 summarizes the major characteristics of the behavior of the jury as a group in reaching a decision. The upper panel in the table tabulates the verdicts reached by juries under the different instruction treatment conditions and there are no statistically reliable effects of treatment condition on verdict reached. We should note that the large number of "hung" juries is misleading because juries that reached the end of one working day without reaching a verdict were labeled "hung" for purposes of summary in this table. In fact very few juries declared themselves deadlocked, received the judge's instruction to deadlocked juries ("Tuey charge"),

and then finally declared themselves deadlocked again. The frequencies of juries ending in this "true" deadlocked state is summarized at the bottom of the table and there are no more than two of these juries in any treatment condition.

The numbers in parentheses in the upper panel of the table indicate the average deliberation times required by juries reaching verdicts or ending deliberation declared hung. Again, there is no significant effect of instruction treatment on time to render a verdict or to be classified as hung. A two-way analysis was performed on the deliberation time data and a significant effect of verdict was obtained from this analysis, with not-guilty verdicts the shortest (61 minutes on the average), armed-robbery verdicts intermediate (71 minutes), and "hung" verdicts the longest (83 minutes) ($F[2,30] = 3.83$, $p < .03$).

The next line of entries in the table, average total number of coded entries, is another measure of deliberation time or volume. As with the more direct measure, deliberation time in minutes, there was no effect of instruction treatment on volume of deliberation.

The variance in juror participation measure is an index of equality of participation during deliberation. The smaller the variance number, the more equal individual deliberation participation was during deliberation (i.e., the less "variance" across jurors). By this measure, the control instruction treatment produced the most "equal" participation rates across the six jurors. That is, variance in percent of

the total participation time was lowest across the six jurors. However, the difference across instruction treatments in the variance measure was not significant. Thus, we can not conclude that there was differential participation as a function of the manner in which instructions were delivered. This result is relevant to one issue raised in our review of the pros and cons for each of the instruction methods, namely, the hypothesis that the use of handwritten notes will introduce a greater disparity among individual participation rates and increase the influence of better educated jurors on more poorly educated jurors. It should be noted that the variance measure is greatest in the handwritten notes treatment, indicating that the disparity is greatest in this condition. Of course, the nonsignificance of the statistical test prohibits us from claiming that this result is general, or even repeatable under similar circumstances.

The next line in the table is a summary of the speaking rates for jurors deliberating under the five instruction treatment conditions. This measure was significantly affected by instruction treatment ($F[4,48] = 2.46$, $p < .05$). The highest discussion rates occurred for precharge and special question instruction conditions and the lowest for the control condition and the handwritten notes condition. T-tests showed that the handwritten notes and control conditions were significantly lower in discussion rates than the precharge and special questions conditions. The lower speaking rate in the handwritten notes condition can be understood from a direct

examination of the quality of deliberation in this treatment. Jurors spent a considerable amount of time consulting their notes rather than talking to other jurors when handwritten notes were available.

Another measure, reported in table Results-2, reflects the finding of high rates of participation in the special questions condition. This is the measure of "group outbursts" during discussion and it is an index of the frequency with which more than three jurors attempted to engage in discussion simultaneously. The only group outburst codes observed in the entire experiment occurred in the special questions instruction condition.

The last set of entries in the Results-1 table includes measures of the latency of jurors' expressions of their votes for the alternate verdicts. The first measure is the average minute at which a first vote was taken (for juries that took at least one vote) and the second set of entries is a measure of the minute by which all jurors had expressed a verdict preference (again, for juries in which all jurors finally did publicly express a verdict preference). These measures provide an important index of voting and verdict expression behavior, but they are not affected by the instruction treatment variation.

Coding the Contents of Deliberation

One of the distinctive characteristics of the research we have conducted is the extent to which the detailed contents of

deliberation discussion are captured in our observational coding system. As noted above, videotapes were made of each of the mock-jury deliberations and those tapes were watched by trained observers who coded the contents of each remark made by all jurors during discussion into a set of numerical codes. A summary of the numerical code system is included as an appendix to this report. To summarize, every time a juror made a comment or remark during discussion it was coded into a four-variable coding record. The first variable in the code indicated the number of the juror with numbers assigned according to location at the deliberation table (Number 1 = foreman).

The second variable noted the content of the remark with reference to the function it performed in the discussion. For example, remarks were typed according to whether they were a statement conveying information, a question requesting information, a direction to the group (a suggestion as to an organizational procedure, e.g., "Let's take a vote"), a statement that was in error, a statement of verdict preference, and so forth. This variable also was used to code the occurrence of certain procedural events such as a request by the jury for further instruction by the trial judge or the presentation of the "Tuey charge" instruction to deadlocked juries.

The third variable represented the portion of testimony or evidence referenced by the remark (we labeled these "fact codes"). Thus, for example, references to events during the

robbery, police procedure investigating the robbery, the nature of the description of the perpetrator, a witness's ability to remember information about which he or she testified, etc., were captured using this code.

The fourth variable indicated the legal issue or procedural matter referenced in the remark; in simple terms, these codes indicated references to the judge's instructions. Thus, for example, discussion of witness credibility, proper identification procedures, elements of the crimes, verdicts, procedural standards (such as the reasonable doubt standard, presumption of innocence, or reasonable inference procedures, etc.) were captured using these codes.

Every remark could be assigned a speaker and a type code but, of course, not every remark included references to both factual (testimony) material and legal (judge's instruction) material. When a remark did not include a citation of contents coded by one of the variables a zero code was used to indicate the non-reference.

Several of the deliberation recordings were coded by two trained coders and reliability estimates were calculated based on the inter-coder agreement. Intercorrelations were respectably high when indexed by Pearson product-moment correlation statistics (in the .70's and .80's) and they were also reasonably high when agreement was indexed using Cohen's Kappa (values in the .50's to .70's).

The tables Results-2, Results-3, and Results-4 contain summaries of the deliberation contents as coded according to

the system described above.

Deliberation Contents: Classified by Functional Type of Remark

The table Results-2 contains tabulations of remarks made during deliberation according to their function in discussion (e.g., conveying information, asking for information, directing the group to take an action, a statement in error, and so forth). The first three rows in Results-2 summarize the major categories of deliberation content. None of the F-test statistics indicated significant differences across the five instruction treatment conditions. T-tests (with p's less than .10) indicated that the handwritten notes condition included fewer organizational remarks than the precharge or written instruction conditions.

The next three lines summarize the errors jurors made during deliberation and corrections of those errors. Errors of fact (errors in referencing material presented as testimony), errors of relation (errors relating the law to the testimony), and corrections of both types of errors were not significantly affected by variations in the instruction treatment. However, the proportion of errors corrected during discussion ranging from .66 in the control condition to .29 in the handwritten notes condition did show a significant effect of treatment. In particular, these two treatments control and handwritten notes were significantly different ($t\ [48] = 2.38$, $p < .02$). This suggests that although errors were not occurring at a significantly higher rate in the handwritten

notes condition than in other experimental conditions, the rate at which those errors were corrected was somewhat lessened (the probability of correcting an error in the handwritten notes condition was less than half the probability of correcting an error in the control condition). The implication is that errors, once introduced into discussion, were less likely to be corrected in the handwritten notes condition than in the control condition.

The remaining measures of functional types of remarks and deliberation events presented in table Results-2 were not significantly affected by variations in the method whereby instructions were presented.

Discussion Content: References to Information Presented as Testimony

Table Results-3 provides a summary of jurors' references to information presented as testimony or evidence during the trial. The fact information categories tabulating references to police procedures showed differences as a function of instruction condition. For some reason, discussion of police procedure was much higher in the control condition deliberations than in any of the other four experimental treatment conditions. Both of the relevant F-statistics were significant.

Fact category codes were also used to capture general references to legal procedure and to the jurors' duties as outlined in instructions presented to all jurors at the

beginning of their day's service. The variable summarizing references to general legal procedures also showed a significant effect of instruction condition with references to procedure much higher in the precharge and handwritten notes conditions ($F\ [4,48] = 2.77$, $p < .03$).

A final significant effect of instruction conditions was obtained on the measure labeled "voting facts" which captured primarily references to procedures that should be adopted by the particular jury in taking votes. Here the handwritten notes instruction condition yielded a much lower rate of discussion of voting procedures than any of the other instruction conditions ($F\ [4,48] = 2.81$, $p < .01$). Although not significant, another variable measuring the frequency with which votes were taken (tabulated in table Results-2) indicated that the voting rate was lower in the handwritten notes condition than in any of the other experimental treatments (however, it was not a significant effect in the statistical analysis). None of the other dependent variable measures of discussion references to testimony or evidentiary material yielded significant effects of the experimental manipulation.

Discussion Contents: References to Legal Issues Cited in the Judge's Instructions

Table Results-4 provides tabulations of jurors' references to material presented in the trial judge's instructions on the law and the procedures the jury was to

follow in deliberation. The first set of variables in the table is concerned with measures of references to the judge's discussion of witness credibility. No differences among the experimental treatment conditions were statistically significant.

The next set of variables is concerned with the judge's presentation of substantive, statutory issues, primarily his definitions of the crime charges relevant to the jury's decision. The verdict discussion and verdict reference factors yielded significant effects of the instruction treatment condition manipulation ($F[4,48] = 2.65$, $p < .04$; $F[4,48] = 2.38$, $p < .05$, respectively). The pattern of individual t-tests is not perfectly consistent from the discussion variable to the reference variable, although it seems that discussion of verdict category definitions occurred with relatively greater frequency in the special question and handwritten notes conditions.

The next set of dependent variables measures the jury's discussion of procedural matters, such as the standard of proof, presumption of innocence, nature of allowed inferences, and admissibility of evidence. Discussion of the reasonable doubt standard varied across experimental treatments ($F[4,48] = 2.58$, $p < .05$) with the distinctly lowest level of discussion occurring in the control condition. The presumption of innocence was also discussed at differing rates in different instruction conditions ($F[4,48] = 3.22$, $p < .02$) with a clear effect such that discussion rates were almost

twice as high in the precharge instruction condition than in other instruction treatments.

The armed robbery plus robbery event variable, was a tabulation of discussion among jurors concerning whether or not the crime constituted an armed robbery or an unarmed robbery. This variable was significantly affected by instruction condition ($F[4,48] = 3.73$, $p < .01$) and the significant effect was clearly produced by the elevated discussion of this relationship in the special question instruction condition. Discussion in the special question condition appeared to occur at four times the volume that it occurred in any of the other instruction treatments. However, this effect should probably be ignored, as a close examination of the data revealed that it was produced by a single aberrant jury (technically speaking, an outlier) and so the mean value (38.4) is probably not typical of juries under the special question instruction. The last set of variables in table Results-4 measures the extent to which jurors made statements in which both facts (references to evidentiary material) and issues (references to material in the judge's instructions) were combined in a single remark. Three of these variables showed significant effects of the instruction condition manipulation. The first was a measure of the frequency with which factual (evidentiary) material was cited in the same remarks with material concerning the definitions of the charges or verdicts ($F[4,48] = 2.73$, $p < .03$). An examination of pairwise t-tests revealed that the major

difference underlying this effect was the very low rate of such remarks in the special question instruction condition. This result is quite plausible in that the special questions decision tree may have eliminated the need to consider verdict elements extensively in discussion and focused jurors' attention on the fact issues by themselves or the verdict definitions considered alone.

The second factor that yielded a significant effect was a measure of the frequency with which factual (evidentiary) references occurred in the same remarks as references to procedural issues (e.g., standard of proof, presumption of innocence, etc.) ($F\ [4,48] = 2.57$, $p < .05$). This result appears to have been produced by the relatively low rate of such remarks in the written instruction condition. Our impression from observing the deliberation tapes is that discussion of these types of procedural issues was always at a relatively low rate in the written instruction condition. Discussion was replaced by a few, relatively brief, references to the written instruction sheet. In fact, we consider this effect (apparently low rates of discussion of procedural issues) a positive sign as confusion concerning these issues appeared to be very low during discussion in the written instruction juries.

Finally, the number of remarks that included both a 00 fact code and a 00 issue code was affected by the instruction condition treatments ($F\ [4,48] = 3.01$, $p < .03$). The frequencies of occurrence of the 00-00 code were relatively

high in the special question and handwritten notes condition and were lowest in the control condition. This result has negative implications for the quality of deliberation in the special question and handwritten notes condition. The 00-00 code is a code that was applied chiefly to confused, irrelevant, or incomprehensible remarks produced by jurors during discussion. High rates of these types of remarks in a treatment indicate a relatively high rate of unproductive discussion.

Jurors' Postdeliberation Questionnaire Ratings

Table Results-5 presents summaries of jurors' postdeliberation ratings of the deliberation process and the stimulus trial. The first six variables in this table summarize jurors' views of major characteristics of the deliberation process; for example, How difficult was it to reach a decision? How confident is the juror that the jury reached a correct verdict? and so forth. The manipulation of instruction treatments did not affect any of these measures.

We would like to note, as an argument for the validity of the experimental method, that jurors' ratings of thoroughness and seriousness were uniformly high on the average, about 7.8 on a 9 point scale.

Jurors were asked to rate the certainty required to satisfy the beyond reasonable doubt standard of proof and these ratings indicated that the average juror believed that a .76 probability, or 76 chances out of a hundred, was the level

prescribed by the standard of proof. We would like to note that this level is very close to the values obtained by Simon & Mahan (1971) who obtained a value corresponding to about .79 on our scale.

The next variable in the table is a measure of the degree to which jurors felt that other jurors on their jury were biased or prejudiced when evaluating the evidence to decide the case. This measure was significantly affected by the instruction condition manipulation ($F[4,48] = 2.41$, $p < .05$) with jurors in the control condition being inclined to see bias or prejudice in their fellow jurors at a higher rate than jurors in any of the other experimental treatment conditions.

The next variable in the table is a measure of the extent to which jurors felt, at the end of deliberation, that they still had arguments in mind that had not been raised in discussion but that should have been raised in discussion. The effect of instruction condition treatment on this variable reached marginal levels of significance ($F[4,48] = 2.10$, $p < .10$). T-tests revealed that the written instruction condition produced fewer of these feelings that important arguments had not been expressed, than the precharge or control group instruction conditions.

The next set of variables in the table measures jurors' reactions to the stimulus trial materials and to the attorneys and judge in the stimulus trial. There were no differential effects of the instruction condition treatments on any of these measures.

Three measures were provided of jurors reactions to the trial judge's instructions. Measures of fairness of the instructions and clarity of the instructions did not show effects of the instruction condition treatments. However, the jurors' ratings of helpfulness of the instructions showed a significant effect ($F[4,48] = 2.65$, $p < .05$) with the written instruction condition rated as most positive on this factor closely followed by the control condition. We would note that the clarity of instruction ratings showed a similar pattern (although not significant) such that control and written instruction conditions were rated higher than the other experimental treatment conditions.

The final rating summarized in table Results-5 provides jurors' ratings of the special decision aids provided in the written instruction, special question, and handwritten notes treatment conditions. Although analysis of variance statistics did not find a significant effect distinguishing among the three treatment decision aids with reference to their usefulness, pairwise t-tests showed the written instruction condition rated significantly more useful than the handwritten notes. This result could have important policy implications, and it accords with our impressions based on viewing the videotape recordings of deliberation. The written instruction decision aid appeared to be used effectively and equitably to resolve differences of opinion among jurors concerning substantive and procedural issues. However, the handwritten notes appeared to create considerable confusion

and interruption of the deliberation process and occasionally errors were introduced into discussion by reference to the notes.

Jurors' Memory for Trial Materials

The results summarized in table Results-6 are based on a final cued recall test of jurors' memory for information from the judge's instructions (e.g., their ability to correctly define judge's instructions concerning the elements of the charges, beyond reasonable doubt assumptions, admissibility of evidence, etc.) and juror recall of information from testimony. The recall of information from instructions measure yielded a marginally significant effect of the instruction treatment conditions ($F[4,48] = 2.43$, $p < .07$). Here recall of information from the judge's instructions was somewhat lower in the special questions, handwritten notes, and written instruction conditions as compared with the precharge and control conditions. This result is interesting because it finds the decision aids produced poorer individual memory for instruction material than the unaided decision conditions. What the result probably indicates is that jurors relied on the decision aids to provide information about the judge's instructions and were not motivated to store the information in memory, or perhaps to rehearse it during deliberation.

Overview of the Results

To assist the reader in comprehending the major results of the mock-jury study we will provide a sketch of each of the experimental instruction treatment conditions. These summaries will include an overview of the distinctive characteristics of behavior in each treatment, with reference to the dependent variables we have summarized above, as well as a short note on our impressions of the character of deliberation based on observations of deliberation in the videotaped recordings.

1. Control Condition. Subjects in the control condition received an oral instruction from the trial judge following the presentation of evidence and the attorneys' closing arguments. Behavior in this treatment condition accords well with our impressions of jury behavior in other mock-jury studies that we have conducted as well as with our observations and interview results with jurors following real jury deliberations. We would like to note, again, that jurors rated our stimulus trial and the deliberation experience as quite realistic. Furthermore, it was clear that they accepted the experimental task and were serious and highly motivated when performing their duties as mock-jurors.

Speaking rate was relatively low and discussion was distinctive in its concentration on testimony concerning police procedure. We are not able to explain the high rate of discussion of police procedure, but our impression from watching the deliberation tapes was that

there was nothing remarkable either in the concentration on this topic in control juries or in the lower rate of discussion of the topic in the other juries. On the positive side jurors found the judge's instructions helpful and clear, at least relative to juries in the special questions and handwritten notes instruction conditions. On the negative side, jurors viewed other jurors as relatively biased or prejudiced during deliberation and there was a relatively high rate of belief that arguments that should have been expressed in deliberation had not been expressed by the time deliberation was terminated.

2. Precharge Treatment. Our impression is that the precharge had relatively little effect on jurors' behavior or on individual juror reasoning to a verdict. It may be that the effects of the precharge instruction treatment are relatively subtle and that the measures of behavior in deliberation and the crude postdeliberation questionnaire did not capture the nuances of juror reasoning in this condition. Research currently underway, using a method in which individual jurors are interviewed during and following the presentation of a stimulus trial, will provide for comparisons between precharge and control condition jurors.

The precharge treatment condition was distinctive in the high levels of discussion of legal procedure; this was general discussion about the jury system, the proper

way for juries or judges to proceed in legal matters, and so forth. Discussion of procedural issues cited in the judge's instructions, the reasonable doubt standard of proof and the presumption of innocence, were also relatively high. Finally, as in the control condition, jurors in the precharge condition felt that a relatively large number of arguments had not been expressed during deliberation but should have been expressed.

3. Written Instruction Aid Condition. Our impressions of the written instruction aid, based both on the quantitative analyses reported above and on our observations of the videotape recordings of deliberation, is very positive. In fact, we strongly recommend that trial judges, when it is practicable, use the written instruction method as a device to aid jurors in reaching a proper verdict.

Discussion of procedural issues (e.g., the reasonable doubt standard of proof and the presumption of innocence) and the relations between procedures and evidence occurred at relatively low rates in the written instruction condition. We view this as a fairly constructive effect in that, in our view, based on videotape recordings of deliberation, procedural matters were treated efficiently and accurately but did not clog up deliberation. A few quick references to the written instructions were sufficient to inform and motivate discussion of the issues, without requiring extensive,

often confusing, reviews of these topics. We were also not disturbed by the relatively low performance on the memory test for information from the judge's instructions. Jurors in the written instruction treatment simply did not spend as much time on either substantive or procedural issues during discussion, because these topics could be covered quickly and accurately with a few references to the written materials. Thus, memory may have been low in the written instruction treatment condition because the judge's instructions on the law required relatively little time from the jury.

On the positive side ratings of the extent to which unexpressed arguments should have been expressed during deliberation were very low in this treatment condition and jurors rated the judge's instructions clearer and more helpful than in other experimental treatment conditions. Finally, ratings of the deliberation aid, the written instructions, were the highest of ratings received by all of the aids studied on the jurors' final questionnaire following deliberation.

4. Special Questions Treatment. Our impressions of the efficacy of the special questions aid to deliberation are mixed. Jurors did attempt to follow the decision tree outlined on the special questions interrogatory and in many ways deliberation was more orderly and focused on the issues in the decision tree, than in the control

condition. However, on the negative side, jurors may have spent too much time discussing issues that were easily resolved simply because they were presented on the special questions instruction sheet. Thus, although the distinction between armed and unarmed robbery was relatively apparent based on testimony from credible witnesses at trial, juries in the special questions condition often devoted large amounts of time to this relatively trivial issue. To some extent the relatively poor showing of the special questions decision aid may result from our choice of a relatively simple trial. With more complex legal issues to be decided, a decision tree might have had a more positive effect on deliberation, particularly in comparison to unaided juries. Thus, we would like to emphasize our qualification that the conclusion that the special questions decision aid was not especially useful, and may have even hindered some aspects of deliberation, should only be applied to relatively simple criminal cases similar to the one that we have studied.

Discussion of the procedural issues in the judge's instructions, the reasonable doubt standard of proof and the presumption of innocence, occurred at relatively high rates in the special questions condition. Jurors' discussion of the relationships between testimony and verdict categories occurred at a relatively low rate in this treatment condition. One negative result, from the

quantitative analysis of deliberation content, was the relatively high rate of O-O codes in both the fact and issue categories. This combination of codes indicated a high rate of relatively unproductive remarks in deliberation.

Postdeliberation recall of information from the judge's instructions was relatively low. However, this result should not be taken (necessarily) as a negative comment on the special questions decision aid. As in the written instructions treatment condition, the decision aid helped jurors avoid extensive discussion of some of the issues raised in the judge's instructions and led to a predominantly greater emphasis in discussion on testimony and evidence.

Finally, jurors' postdeliberation ratings of the usefulness of this decision aid ranked it as intermediate in usefulness, slightly less useful than the written instruction aid, and considerably more useful than the handwritten notes aid.

5. Jurors' Handwritten Notes Condition. Our overall evaluation of the handwritten notes decision aid is fairly negative. Jurors' attempts to use their own, crude, handwritten notes to inform deliberation did not seem to be especially productive. Frequently considerable confusion was generated by apparent contradictions among jurors in the implications derived from barely decipherable scribblings. Furthermore, there

was considerable reference to notes when even trivially memorable matters were under discussion. Again, this conclusion needs to be strongly qualified by the limitations of our stimulus trial. Our conclusion is that jurors should not be encouraged to use handwritten notes in relatively simple proceedings, for example, felony trials lasting one to two days. However, we should not extend this conclusion to apply to more complicated cases, or civil matters, without further research.

The speaking rate during discussion was relatively slow in the handwritten notes condition. Voting and the discussion of procedures relevant to voting occurred at relatively low rates in the handwritten notes juries. Discussion of legal procedure, general references to the functions of the jury and procedures that should be used to resolve disputes, occurred at a fairly high rate in this condition. The judge's instructions were rated as relatively unclear and unhelpful by jurors in the handwritten notes condition. Finally jurors' postdeliberation ratings of the handwritten notes as a decision aid rated it as distinctly less helpful than either the written copy of the judge's instructions or the special questions decision aids. A clue as to why this may have been the case is available in a brief examination of a sample of jurors' handwritten notes. A representative sample of example notes taken by jurors in

this case is attached as table Results-6.

Conclusions

Our overall recommendations, based on our empirical study of the effects of varying decision aids provided to jurors during deliberation are as follows: (a) The most useful decision aid was the written copy of trial judge's instructions provided to jurors during deliberation. We recommend the use of this method of aiding jurors in deliberation whenever it is practicable. Of course, the use of such an aid may place a greater burden on the trial judge and the court reporting staff, if they are required to produce such a document at the end of the charge to the jury for every case. One alternative, that was not studied in the basic experimental design but was explored through two demonstration mock-juries, is to provide the jury with an audiotape recording of the judge's instructions. In the two demonstration mock-juries, this decision aid appeared to be quite useful and to serve the same functions as the written instructions aid. (b) The use of handwritten notes, taken by the jurors during the trial, should probably be discouraged.

The major qualification that we would like to place on these recommendations is that they should only be applied to relatively simple criminal matters. We believe that these two recommendations should be applied to trial procedures for many typical felony trials. We are very hesitant to extend the

advice and recommendations to apply to more complex proceedings, for example criminal trials lasting more than two days, or civil trials.

Table Methods-1

Characteristics of Mock-jurors

Sex:	
Male	47%
Female	53%
Age:	
Under 20	4%
20 - 29	24%
30 - 39	24%
40 - 49	21%
50 - 59	15%
60 +	12%
Race:	
White	98%
Black	2%
Education:	
Some high school	6%
High school diploma	19%
Some college	37%
College degree	16%
Other post high school	7%
Other post college	15%
Occupation:	
Professional/Technical	36%
Manager/Administrator	9%
Sales worker	5%
Clerical	9%
Craftsperson	3%
Operative /Transport equipment operator	4%
Laborer	2%
Service worker	4%
Housewife	13%
Retired	5%
Unemployed	1%
Student	9%
***Income:**	
Under $10,000	9%
$10,000 - 19,999	28%
$20,000 - 29,999	30%
$30,000 - 39,999	14%
$40,000 - 49,999	10%
$50,000 +	9%
Marital Status:	
Single	28%
Married	56%
Divorced/Separated	12%
Widowed	4%
Political Preference:	
Democrat	36%
Republican	14%
Independent	48%
Other	2%
Cases Served on as a Juror:	
None	97%
One to three	1%
More than four	2%

*Income: 33% missing data

Table: Results-1
Major Characteristics of Jury Performance

INSTRUCTION TREATMENT

FREQUENCY OF VERDICTS (DELIBERATION TIME)	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	TOTALS
VERDICT: NOT GUILTY	4 (47)	5 (57)	5 (63)	6 (65)	4 (69)	24 (61)
VERDICT: ARMED ROBBERY	2 (88)	2 (62)	3 (62)	--	2 (79)	9 (71)
VERDICT: HUNG*	5 (96)	3 (81)	3 (72)	5 (76)	4 (87)	20 (83)
TOTALS	11 (76)	10 (65)	11 (65)	11 (70)	10 (78)	

$F(2,30)=3.83, p<.03$

Average total number of coded entries	821	829	778	890	860	
Variance in juror participation measured in % of speaking entries	43.3	51.4	45.5	49.6	56.9	
Speaking rate number of entries per minute	11.3	13.0	12.1	12.9	10.8	$F(4,48)=2.46, p<.05$

* Note: Most of these jurors deliberated until the jury working day was ended, but did not actuallydeadlock.
The following numbers of juries actually deadlocked in each instruction treatment:

0	2	1	1	1

Table: Results-1 (Page 2)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Minute at which first vote was taken (for juries that took at least one vote)	43	41	41	49	51
Number of juries that took at least one vote/over total number of juries	(10/11)	(10/10)	(9/11)	(5/11)	(4/10)
Minute by which all jurors had expressed a verdict preference	63	49	41	45	56
	(2/11)	(5/10)	(5/11)	(5/11)	(8/10)

Table: Results-2
TABULATIONS OF TYPES OF REMARK OR EVENT DURING DELIBERATION

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Statements (11)	670	652	625	712	708
Questions (12)	74	81	72	89	82
Organization (13)	48	53	50	55	39
Errors of fact (14)	2.5	5.3	5.2	3.7	2.5
Errors of relation (15)	1.5	2.8	1.5	1.8	3.0
Corrections (16)	2.5	3.6	2.7	2.8	1.7
Irrelevant (17)	6.9	13.9	7.5	10.5	9.0

TABULATIONS OF TYPES OF REMARK OR EVENT DURING DELIBERATION (Page 2)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Verdict statement (19)	16.0	16.6	13.9	15.3	13.8
Voting (18)	1.8	2.6	2.0	1.4	1.0
Tuey charge (20)	0.0	0.2	0.1	0.1	0.1
Information requests (21)	0.8	0.5	0.5	0.5	0.6
Group outburst (22)	0.0	0.0	0.0	0.2	0.0
Residual (23)	2.0	1.5	1.5	1.9	0.8

Table: Results-3
TABULATIONS OF DISCUSSION CONCERNED WITH FACT INFORMATION FROM TESTIMONY

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Facts referring to case (25)	477	476	416	453	466	
Facts not referring to case (note: 25+26 should equal total facts) (26)	163	149	162	203	172	
Robbery facts (27)	156	160	145	212	164	
Police procedure facts (28)	156	107	122	89	127	$F(4,48)=4.36, p<.004$
Police procedure (50)	66	41	37	41	33	$F(4,48)=3.60, p<.01$
Description facts (30)	83	119	79	80	82	
Ability to remember (32)	15.7	18.1	18.2	7.1	18.7	

TABULATIONS OF DISCUSSION CONCERNED WITH FACT INFORMATION FROM TESTIMONY (Page 2)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Defendant's race (33)	18.7	9.5	7.9	11.3	19.4	
Legal procedure (29)	23	43	27	29	40	$F(4,48)=2.77, p<.03$
Previous record (31)	9.5	8.6	7.2	8.0	4.7	
Legal facts (34)	54	52	42	50	48	
Voting facts (35)	11.5	13.2	13.1	12.2	7.1	$F(4,48)=2.81, p<.01$
Anecdotes (36)	32	11	23	22	20	
Realism (37)	10.5	11.5	14.8	10.4	15.2	

TABULATIONS OF DISCUSSION CONCERNED WITH FACT INFORMATION FROM TESTIMONY (Page 3)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Residual (45)	15.7	11.0	8.2	15.3	8.2
Total number of facts cited by jury including repeats, excluding fact = 0 (46)	640	625	577	655	637
Number of different facts cited, excluding repeats and excluding fact = 0 (47)	31	32	32	32	32

Table: Results-4
TABULATIONS OF DISCUSSION CONCERNED WITH LEGAL ISSUE INFORMATION FROM THE JUDGE'S INSTRUCTIONS

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Credibility (48)	89	102	87	114	103
Ability to ID (58)	27	16	24	28	31
ID reliability (59)	122	109	116	100	153
Elements (49)	10.8	11.9	15.3	19.0	18.6
Verdict discussion (38)	18.0	15.5	20.0	17.7	20.2
Verdict statements (39)	16.0	16.6	13.9	15.3	13.8
Verdict reference (40)	21	30	31	41	42

TABULATIONS OF DISCUSSION CONCERNED WITH LEGAL ISSUE INFORMATION FROM THE JUDGE'S INSTRUCTIONS (Page 2)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Reasonable doubt (51)	12.0	22.4	18.6	23.2	18.7	$F(4,48)=2.58, p<.05$
Presumption of innocence (52)	3.5	6.4	3.1	3.3	5.3	$F(4,48)=3.22, <.02$
Reasonable inference (53)	2.7	3.3	2.1	1.7	4.7	
Admissibility (54)	9.3	9.3	6.4	13.0	9.5	
Timeframe (55)	20.1	18.1	12.5	12.2	11.6	
Lack of evidence (56)	28	32	26	28	25	
Discuss inadmissible evidence (57)	0.5	0.6	0.3	0.7	0.5	

TABULATIONS OF DISCUSSION CONCERNED WITH LEGAL ISSUE INFORMATION FROM THE JUDGE'S INSTRUCTIONS (Page 3)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Armed robbery + robbery event (60)	7.7	10.1	9.3	38.4	12.9	F(4,48)=3.73,p<.01
Verdict reference (61)	18.5	15.1	15.7	15.5	18.5	
Total number of issues cited including repeats, excluding issue = 0 (62)	416	396	372	437	445	
Number of different issues cited excluding repeats, excluding issue = 0 (63)	23	24	23	26	24	
Total number of facts = 1-28 (case facts) paired with issue = 35-38 (verdict issues) (64)	3.3	3.1	3.8	1.5	6.7	F(4,48)=2.73,p<.03
Total number of facts = 1-28 (case facts) paired with issue = 1,2,5,6,7,9 (J.I.procedure issues) (65)	13.3	18.5	9.1	12.2	17.3	F(4,48)=2.57,p<.05
Total number of facts = 00 paired with issue = 00 for this jury (66)	46	54	56	65	64	F(4,48)=3.01,p<.03

TABULATIONS OF DISCUSSION CONCERNED WITH LEGAL ISSUE INFORMATION FROM THE JUDGE'S INSTRUCTIONS (Page 4)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Total number of fact-issue pairs: Entries for jury relating fact and issue for fact = 1-28 paired with any issue except 0. Includes repeats (67)	236	205	182	193	233
Number of different fact-issue pairs as above, excluding repeats.	60	55	50	55	61

Table: Results-5
JURORS' POSTDELIBERATION QUESTIONNAIRE RATINGS

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Difficulty in deciding (121)	4.7	4.8	4.8	4.6	4.9	
Confidence in jury verdict (125)	7.7	7.2	7.0	7.6	7.4	
Average estimate of certainty required to satisfy standard of reasonable doubt. Based on non-missing data (148)	76	81	70	77	76	
Thoroughness of jury (126)	7.8	8.1	7.7	7.8	7.7	
Pressure from other jurors (127)	3.0	2.5	3.2	2.3	2.6	
Seriousness of jury (128)	7.5	8.1	7.7	7.3	7.0	
Think other jurors biased (129)	1.0	0.6	0.7	0.6	0.8	$F(4,48)=2.41, p<.05$

JURORS' POSTDELIBERATION QUESTIONNAIRE RATINGS (Page 2)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Wanted to raise other arguments (131)	0.7	0.7	0.5	0.6	0.7	$F(4,48)=2.10, p<.10$
Realism of trial (130)	6.8	7.0	7.1	6.8	6.3	
Competence of D.A. (132)	5.5	5.6	5.9	5.2	5.6	
Competence of defense attorney (133)	6.1	6.0	6.4	5.7	5.7	
Fairness of judge instructions (122)	5.2	5.2	5.4	5.2	5.4	
Helpfulness of instructions (123)	7.6	7.0	7.7	6.9	7.3	$F(4,48)=2.65, p<.05$
Clarity of instructions (124)	7.7	7.2	7.7	7.2	6.8	

JURORS' POSTDELIBERATION QUESTIONNAIRE RATINGS (Page 3)

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES
Usefulness of the experimental decision aid provided during deliberation (155)	--	--	6.2	6.0	4.5

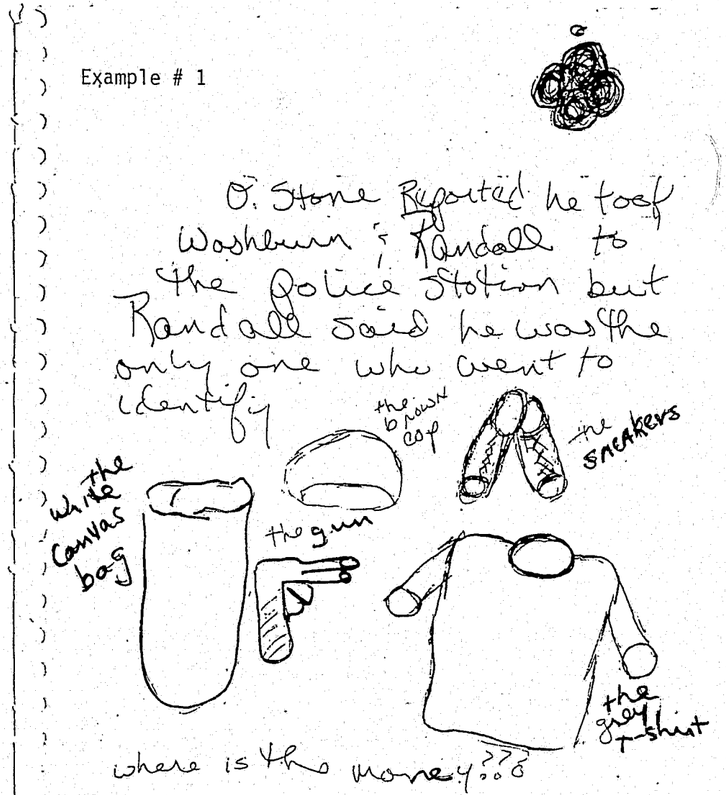
TABLE: Results-6
JURORS' POSTDELIBERATION MEMORY FOR TRIAL MATERIALS

	CONTROL	PRECHARGE	WRITTEN INSTRUCTION	SPECIAL QUESTION	HANDWRITTEN NOTES	
Average total recall of judge's instructions (sum of five items) (147)	6.1	6.2	4.9	5.0	5.0	F(4,48)=2.43,p<.07
Average total recall of facts, sum over eight items (149)	9.7	9.8	8.8	9.0	8.8	
Intrusions, recall of information that was not presented (13 possible, larger numbers indicate greater degrees of error) (150+151+152)	.85	.77	1.53	1.68	2.08	

Table: Results-6

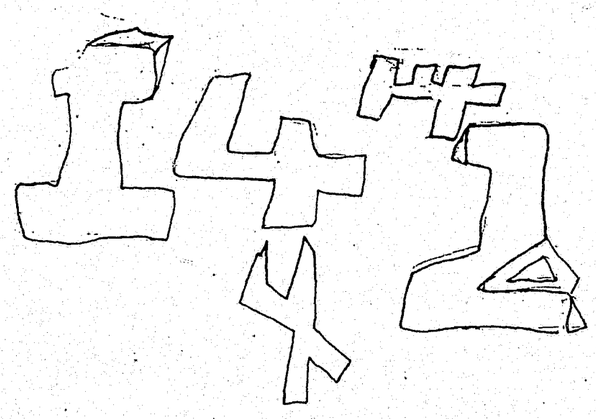
Examples of Jurors' Handwritten Notes

Example # 1



Example # 2

RED FORD
R WASHBERN - STATE WITNESS - TOP MART
COULD NOT SEE
HEARD SHUFFLE LIKE MONEY TAKEN
DIDN'T SEE FACE
ED RANDLE - WORKED TOP MART
GOT LOOK AT HIM
ID ROBBER
2ND BAR



Example # 3

1st Witness unable to remember defendants face, bone structure etc.

Example # 4

Washburn witness

Leather Cap idea (where found?) Bryant's pocket.

Randall Witness

License Plate #

Pictures

Stone (officer)

Courtesy

Money or articles not found

CONTINUED

1 OF 2

Top-[illegible] Super Market
assist [illegible] attorney

Commonwealth prove
Crime of armed robbery

Mr Washburn 1st witness 12th april

Mr Randall 3 yrs employment head cashier
Ref [illegible] write [illegible]
Officer Stone
Back to the safe
Brown cap [illegible] #1
#2 —
#3
#4

Did not see money
Cross reference:
Never saw gun
pictures
[illegible] Bag Carrys 6:00
I'd like to know what happened to the biggest thing is not seeing [illegible]
the gun — to begin with

Robbery — The taking by force & by threat of violence —

armed Robbery
a dangerous weapon is used in order to [illegible] robbery —

1 Robbery committed
2 Did Defendant Commit armed robbery

(1) all Men presumed innocent until proved otherwise
(2) Prosecuting has burden to prove defendant is guilty
(3) Defendant's guilt must be proved reasonable certainty

logical

THE COURT: Ladies and Gentlemen of the Jury, Mr. Foreman, my name is David Nelson. I am the presiding judge in this particular case and I ask you to listen to me very, very carefully as I give you some information regarding the case at hand. You have heard the indictment just simply read. I will tell you later on what the significance of that indictment is, but for the moment I would like first of all to introduce to you those who will be participating in this particular trial. The defendant is one, Mr. Ernest Bryant of Cambridge. He's the gentleman who sits here in the tan shirt in the back of the jury box. In front of him is his representative, Mr. Joseph Travaline of Cambridge, who will represent him during the course of this trial, and in front is Miss Rikki Klieman who will represent the Commonwealth as the Assistant District Attorney.

There will be several witnesses called. Among those witnesses may be one Robert Washburn of Cambridge; one Edward Randall of Cambridge; one William Stone, a police officer in the department, the Police Department in Cambridge. The place alleged in the indictment here is Topmart Grocery Store in Cambridge; the place Massachusetts and Morse Street in Cambridge, on July 5, 1978, approximately 2:30 p.m. in the day.

I would like at this moment simply to review with you what it is that you must find in this particular case. I'm going to tell you that the prosecution will present evidence and upon that evidence you will have to determine whether or not the allegations made in the indictment have been proved and proved to you to a degree that I shall later explain in detail.

In any event, the defendant is charged with armed robbery. Since he is charged with armed robbery, there are several elements that must be proved to your satisfaction and the satisfaction of the law that these elements have been pleaded, and that if you so find the defendant of armed robbery, Ladies and Gentlement of the Jury, is simply that the accusation here is that the defendant by force, violence, or by threat or by placing in fear, forcibly took personal property belonging to the alleged victim, in this case Topmart Grocery Store and one of the witnesses, taking money from that particular person by force and violence.

Any act by which a person seizes or takes from a person, or from the vicinity of a person, or from a place in which this person has immediate control and presence, that is what we call robbery...if that property, that personal property, is taken against the will of the victim, again, either by threat or in fact by violence.. Armed robbery consists, of course, of robbery which is done using a weapon, a dangerous weapon. Now, a dangerous weapon is any instrumentality, any means of... any physical means...that is capable of serious harm, of inflicting serious harm upon another. As alleged, I believe, in this particular case a gun was used. Since we know that a gun is capable of fatality and capable of inflicting serious bodily harm upon a person, that is, by definition, a dangerous weapon. You will find, and I will instruct you, that even if a gun was not used or if a gun was not visible, if you find that the person who was being robbed had reasonable fear or reasonable apprehension that a weapon was being used, then you may find the defendant guilty of robbery while armed. For example, if indeed a gun is alleged to have been used, but was a wooden block made to look like a gun, we know that that's not capable of firing anything, but if a person staring at

that particular instrument would have reason to believe that it was a gun and that it was capable of inflicting harm, then you may find, despite the fact that it is not capable of firing, you may nevertheless find that it is a dangerous weapon within the definition of the law.

Now, at the end of this trial I am going to explain to you what it is, or from whence, you may decide the facts in this particular case. I'm going to give you some definitions of what the evidence is and how one comes about determining the facts from that evidence and you are to use that evidence and those facts as you find them.

I would suggest to you at this particular time, ladies and gentlemen, a very important aspect of our jurisprudence, of our wisdom, of our law. The basis of our law is that any person accused of a crime and brought before the bar is presumed to be innocent. Presumed to be innocent means that he is innocent until such time as it is proved he is no longer innocent, but guilty. That can only be proved by the evidence, upon your belief of the facts that he is indeed, no longer innocent, but guilty. So you are instructed, whatever rights, whatever presumption that an innocent person would have should also be accorded to him until you are satisfied beyond a reasonable doubt by the evidence that he is no longer innocent, but guilty.

And finally, I'd like to tell you what's going to happen from here on out. When I finish I'm going to turn the case over to the prosecutor and she will make an open statement to you. In that opening statement she will outline each and every essential element of the crime as alleged. She will tell you what it is that she intends to prove by evidence, by

testimony, by exhibits, and then, upon hearing that, we will proceed with the introduction of the evidence. It may be that the defense will make an opening at that particular time, but no such opening is required at that particular time. What is true, is that the prosecution will then proceed with putting in the evidence and it will be based on that evidence whether or not you will be able to determine if the defendant is guilty as charged.

After the prosecution has completed its case, the defense will have an opportunity to present its own case. It is not required to present any case, it is not required prove that the defendant is not guilty. That burden is entirely upon the Commonwealth, the prosecutor, to prove his guilt, if that be the case. And so, however, if the defendant wishes to put on evidence, it will be at that time that the evidence will be produced. When that evidence is complete I will then allow each of the parties to make a closing statement to you. They will tell you that which they believe that they have proved or established to you, and then I will instruct you on the law in much more detail. I will instruct you on the law not only on those things I have mentioned to you now, but on the procedure, the way in which you are going to come about your resolve of the issues in this particular case. And so, until then I would simply ask, please, do not make up your mind, do not come to any firm conclusion either about the facts or the ultimate verdict here. Just listen very carefully until finally I say to you, "Ladies and Gentlemen of the Jury, you will now retire to determine the issue, to decide whether or not the defendant is innocent or guilty."

Miss Klieman, are you prepared to make an opening statement at this time?

I.

A. You, the jury, must decide, based upon the evidence, what the facts are in this case. Having listened very carefully to the testimony of all of the witnesses, having with you the exhibits and having in mind the charts you have seen during the trial, you must decide what you believe and what you do not believe. You are not required to believe all of what you have heard; you are not required to believe any of what you have heard. It is for you to determine, based on your experience, background and observations, what you believe and how much weight to give to each of the witnesses.

B. In addition to the testimony and exhibits, you may use reasonable inferences to help you determine the facts in this case. If you come to know that certain facts are so, because you believed the testimony of any of the witnesses, you may find that other facts must also be so even though they were not directly testified to. For example, if you know Fact 1 is so and Fact 2 is so, and Fact 3 almost necessarily follows from Facts 1 and 2, you may draw the reasonable inference that Fact 3 is also so. You must, however, be careful not to speculate or guess. For example, you might know that Fact 1 is so, and you have not heard anything about Fact 2 but you say, "I bet Fact 2 is so, thus Fact 3 is so." Well you cannot do this, because it would be speculating or guessing.

C. There are many things which must <u>not</u> be used in determining the facts:

1. You may not draw any inference from the indictment nor from the fact that the defendant was indicted, nor from the fact that he is a defendant. The indictment is simply an accusation; it is up to the accuser to prove that charge.

2. You must not regard the race or background of the defendant or of anyone else involved in this case. It is not because a person is black or white that he tells the truth or does not tell the truth. It does not matter if a witness is a police officer or a professional or from

any other background; his background cannot help you in determining whether or not he is telling the truth.

3. You will not decide anything based on how many witnesses testify on one side of the case or on the other side; it is not the numbers of witnesses but rather the quality of what each witness says which is important in deciding the case.

4. In this case pictures of the defendant, referred to as mugshots, were brought up in the testimony. The fact that these mugshots exist must not be used in any way to prejudice the defendant.

5. Statements by the attorneys or by the judge are not evidence and should not be used in order to determine the facts of this case.

In summary, all of the facts will be derived from the evidence: the testimony, your observation of the witnesses, the exhibits and charts, and the reasonable inferences one can draw from the facts.

II.

A. Robbery is the taking, by force or threat of violence or by putting one in fear, the property belonging to another, of whatever value, taking that property from the person or within the near presence of that person, against his will, and with the intent to permanently deprive him of that property. In this case there is not much suggestion that a robbery did not occur.

B. Armed robbery is an aggravated form of robbery inasmuch as a dangerous weapon is used to carry out the robbery. A dangerous weapon is any instrumentality, any physical means, capable of inflicting serious harm or death. If you find that a gun was used in this case, as a matter of law a gun is a dangerous weapon. It may be that there never was a dangerous weapon in fact used. If you find, however, that the person being robbed could reasonably be put in fear, or had a reasonable belief that a dangerous weapon was being used, that is enough to constitute a dangerous weapon.

So, for example, if someone put his hand in his pocket and pointed it as if there were a knife or a gun in the pocket, and the victim could reasonably believe that it was a knife or a gun, then that is enough to find that a dangerous weapon was used, even if it turned out to be his fingers or a phony weapon.

Thus you will find whether or not a robbery occurred, whether or not an armed robbery occurred, and if it did occur, whether or not it was the defendant who committed the robbery or armed robbery.

III.

A. The defendant in a criminal case is presumed to be innocent until proven otherwise.

B. The burden of proof is on the prosecution; the prosecution is required to prove the defendant guilty, if he is guilty. Because of the presumption of innocence and the burden of proof, the defendant has no responsibility to prove that he is innocent; he <u>is</u> innocent until such time as he is proven guilty. He does not have to take the stand, nor provide any witnesses. You may not make any inferences from the fact that he does not take the stand, or the fact that he offers no evidence.

C. The Commonwealth is required to prove beyond a reasonable doubt that the defendant is guilty. Beyond a reasonable doubt means that you must be satisfied to a moral certainty, to a reasonable certainty, that the defendant is guilty. If you are not satisfied to that degree of certainty you must find the defendant not guilty. If you are satisfied of his guilt to that degree of certainty you must find him guilty. Beyond a reasonable doubt does not mean to an absolute certainty, it does not mean to a mathematical or scientific certainty.

IV. Having all these instructions in mind, you will now deliberate, if you can, to a verdict. The verdict in this case must be a unanimous verdict. If the verdict is guilty, each one of you must agree that the defendant is guilty; if the verdict is not guilty, each of you must agree that he is not guilty.

Appendix: Special Questions

COMMONWEALTH v. BRYANT -- Questions for the Jury

Please respond to the following questions as asked, starting with question #1.

Question #1: Was property or money forcibly, or with threat of violence or by inducing fear, taken from the person or near presence of Robert Washburn, from the Top Mart supermarket, with the intent to permanently deprive him of that property, on July 5, 1978? In other words, did a robbery, as defined by the judge, occur at the Top Market supermarket on July 5, 1978?
Check "yes" or "no".

Yes _____ No _____

If the answer to Question #1 is "yes", continue.

If the answer to Question #1 is "no", stop here and inform the court officer that you have finished deliberation.

Question #2: Was a dangerous weapon used to commit that robbery, or did the victim, Robert Washburn, have a reasonable belief that a dangerous weapon was being used? In other words, did an armed robbery, as defined by the judge, occur at the Top Mart supermarket on July 5, 1978?
Check "yes" or "no".

Yes _____ No _____

Question #3: Taking into consideration only the testimony you have heard, the witnesses you have observed and your judgments as to their credibility, the exhibits and charts you have seen, and the reasonable inferences you can draw, has the prosecution convinced you beyond a reasonable doubt that the defendant, Ernest Bryant, committed the robbery or armed robbery at the Top Mart supermarket on July 5, 1978?
Check "yes" or "no".

Yes _____ No _____

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