

NOTES

THE USE OF *AD HOC* EXPERIMENTAL EVIDENCE IN LITIGATION

When counsel needs to establish some fact or proposition and satisfactory proof is non-existent or otherwise unobtainable, he may and often should develop evidence by experimentation in court or by testimony concerning the results of experiments conducted before trial. The experimenter may be an expert, as in *Hopkins v. E. I. Du Pont De Nemours & Co.*,¹ where heat and vibration at the place of the mishap were measured to demonstrate that they were the probable cause of the explosion of a dynamite cap which killed the plaintiff's decedent; or the test may be conducted by a layman, as in *State v. DeZeler*,² where a deputy sheriff was placed in the trunk of defendant's car for the purpose of showing that defendant could have transported his wife's body from the family home to the place where the body was found.

The basic requirements in this area are those which govern admissibility generally: materiality, relevancy, and probative value. Experimental evidence should relate to a material issue in the case and should advance the inquiry. In most cases such evidence will be offered to prove something about the occurrence of the actual events involved in the litigation. Thus courts have frequently used similarity as the criterion for admissibility, requiring that the conditions of the experiment be substantially similar to those of the actual occurrence.³ Such a standard insures that experimental evidence will meet the basic criteria of admissibility, since the experiment substantially duplicates the event.⁴ However, in those cases in which experimental evidence is offered other than to prove something about the occurrence of actual events, "similarity" is not a helpful test and the materiality, relevancy and probative value of the proffered evidence must be evaluated independently. Whenever experimental evidence is offered, the trial judge, in determining admissibility, must take into account possible danger that the evidence may confuse the issues⁵ or mislead the jury⁶ or may involve the lesser evils of unfair surprise and undue consumption of time.⁷

1. 199 F.2d 930, 934 (3d Cir. 1952).

2. 230 Minn. 39, 49, 41 N.W.2d 313, 320 (1950).

3. 2 WIGMORE, EVIDENCE § 442 (3d ed. 1940) (hereinafter cited as WIGMORE); McCORMICK, EVIDENCE 360 (1954) (hereinafter cited as McCORMICK).

4. Such experiments often involve the substitution of some other object for the real one. In these cases the court must see that similarity is not materially affected. Compare the use of shirting material placed on the side of a wooden box in demonstrating the presence or absence of powder burns from shots fired at various distances (evidence held admissible in *Shepherd v. State*, 51 Okla. Crim. 209, 300 Pac. 421 (1931), with the use of a can filled with tomatoes to demonstrate the pattern of brain splatter from a gunshot (evidence held improperly admitted in *State v. Allison*, 330 Mo. 773, 51 S.W.2d 51 (1932)).

5. 2 WIGMORE § 444.

6. McCORMICK 360.

7. 2 WIGMORE §§ 443, 444; McCORMICK 360.

CONSIDERATIONS AFFECTING PROBATIVE VALUE

Experiments will ordinarily be offered as circumstantial evidence of quality, cause, capacity or tendency; the rules respecting their admissibility are generally coincident with those applying to ordinary evidence offered for the same purposes.⁸ However, there is reason to insist on a higher standard of admissibility for *ad hoc* experimental evidence than for evidence of past events or observations. Because the attorney normally has no control over occurrences prior to litigation, a court will be justified in admitting evidence of past events or observations with some degree of liberality, relying more heavily on the jury to determine the weight to be assigned it. The experimental situation, however, is largely within the control of the planner. In situations where careful planning could have produced a high degree of similarity to actual conditions, for example, counsel should not be permitted to offer evidence of an experiment conducted under conditions more favorable to his client than were the actual conditions. Only in the unusual case where closer similarity was not possible, or was not feasible because it would have required much additional expense, should the same standards for admission apply as for evidence of past occurrences.⁹ To reduce the risk that the jury will be misled by inadequate planning or calculated manipulation of the variables of an experiment McCormick suggests a rule of court that no evidence of an experiment shall be admissible unless reasonable notice shall have been given to the adversary, with an opportunity to participate in planning and to be present at the test.¹⁰ Further, the court should have power to appoint an impartial person to conduct or supervise the experiment.¹¹

Where evidence is to be derived from experiments conducted in the courtroom, it is particularly important that critical standards of admissibility be observed. Experimentation in the courtroom is a form of demonstrative evidence.¹² Where the results are readily understood by the jury, as in the case of reproduction of an actual event, an experiment conducted in their presence is almost certain to carry greater weight than mere testimony concerning the results of that experiment. There is, therefore, a greater risk of prejudice from courtroom experiments which do not possess a high degree of materiality, relevancy, and probative value.¹³ In addition, courts may be more reluctant to permit courtroom experimentation because of the likelihood of unduly lengthening the trial.¹⁴

8. See generally 2 WIGMORE §§ 441-45.

9. Cf. MCCORMICK 360-61.

10. *Id.* at 362.

11. *Ibid.*

12. See MCCORMICK §§ 179, 182.

13. In *State v. Riley*, 126 Wash. 256, 218 Pac. 238 (1923), the court affirmed the rejection of a courtroom experiment and stated that a trial court should be possessed of a wider discretion in determining whether or not it will permit experiments to be made in the presence of the jury. *Id.* at 268, 218 Pac. at 242. For an instance of reversal because of a prejudicial courtroom demonstration, see *Commonwealth v. Morgan*, 358 Pa. 607, 58 A.2d 330 (1948).

14. See *Holyfield v. Toplin Coca-Cola Bottling Co.*, 170 S.W.2d 451 (Mo. App. 1943), in which testimony concerning an experiment was permitted though reproduc-

POSSIBILITY AND IMPOSSIBILITY

When experimental evidence is offered to show possibility or impossibility, the purpose is frequently to rebut contrary evidence or a contrary contention of the opposing party. When the opponent purports to show the impossibility of an occurrence generally, his challenge may be met by showing that the event can happen under some set of circumstances; there is no restriction to a showing that it can happen under the conditions present in the case.¹⁵ However, the admission of such evidence holds the possibility of prejudice, which may render it inadmissible. A showing of possibility under some extreme circumstances may mislead the jury, since the event may still be impossible under the conditions of the actual occurrence. The fact that a claim of general impossibility has been made should not be permitted to lead to joinder of issue, if general impossibility is irrelevant.

When the opponent's contention is limited to the impossibility of the event in issue under the conditions actually prevalent, an attempted refutation by experimental evidence should be received only after a showing that the circumstances of the experiment were similar to or more adverse to the experimenter than those surrounding the actual event. Thus, in *Ballman v. H. A. Lueking Teaming Co.*,¹⁶ plaintiff sought to establish defendant's ownership of the truck which injured him by testimony purporting to identify the lettering on the truck. The defendant claimed, in effect, that the faint light at the time of the accident made it impossible to read the name on the side of the truck as witnesses claimed to have done. An experiment by plaintiff to show that the words could have been read was conducted under the same lighting conditions. But instead of the truck which had gilt lettering on its green sides three and one-half feet above the surface of the street with the sides sunk an inch in the panel and a flange projecting over the panel, plaintiff used a passenger car to which was fastened a green canvas with the same lettering in white. In addition, at least one of the witnesses to the experiment observed the sign while it was motionless and before it was driven past the witnesses.¹⁷ The court held

tion of the same experiment was not allowed in the courtroom. The court did not indicate whether the grounds for the difference in treatment were fear of prejudice or undue consumption of time or a combination of both.

15. *McCORMICK* 361 & n.16. For example, if an expert witness for the defendant testifies that the gun in question could not be fired more than two hundred yards, the state may offer the testimony of someone more skilled in the use of firearms than the defendant and who has used a bullet calculated to carry further than the one used in the crime, that he was able to fire this gun further than two hundred yards.

16. 281 Mo. 342, 219 S.W. 603 (1920).

17. *Id.* at 355, 219 S.W. at 606-07. The fact that the subject of the experiment is looking for or anticipating the object which he is expected to see is not considered significant enough to establish a substantial difference in conditions. An illustrative situation in which the issue arose involved a railroad engineer as the experimenting witness who was advised to look for a child on the tracks. *Norfolk & W. Ry. v. Henderson*, 132 Va. 297, 111 S.E. 277 (1922). There was a similar fact situation in *Griggs v. Kansas City Ry.*, 228 S.W. 508 (Mo. 1920). Awareness will effect the result, but the jury can at least estimate how much longer it would have taken to see the object if this factor were absent. However, in a case like *Ballman*, which does not involve distance, where the witness testifies as to what the words were, there is no clue as to

that "the conditions . . . were not sufficiently reproduced in the experiment for the result to be admitted in evidence."¹⁸

When a party seeks to have an experiment admitted in the first instance, either to evidence the possibility of a particular result occurring under the conditions of the litigated situation¹⁹ or to evidence impossibility,²⁰ it is again necessary that the experimental conditions be either similar to or less favorable to the experimenter than those of the event in issue.²¹ Moreover, the same requirements should apply when evidence is offered to rebut the opponent's contention of possibility or capacity under the conditions of the actual event.

If the conditions of proffered experimental evidence fail to approximate those of the actual event, the evidence may still be admissible to show general properties or capacities which are relevant to the question of possibility or impossibility under the actual conditions. In *Guinan v. Famous Players-Lasky Corp.*,²² an action for injury from the ignition and explosion of motion picture film placed near the shield of a streetcar heater, the admission of a variety of experimental evidence²³ designed to show the inflammable and explosive character of such film was affirmed. Apparently it was impossible to duplicate the actual conditions of the accident because the temperature of the heater was unknown. By analogy to the *Guinan* case it would seem that evidence showing the *absence* of a property or capacity is also admissible under similar circumstances.

However, there is the danger in either instance that the jury will be misled into treating such evidence as directly applicable to the event in issue. In *Watson Orchards, Inc. v. New York, C. & St. L.R.R.*²⁴ the admission of experimental evidence of the non-combustibility of cork was held to be error, though the party offering it contended that "the purpose of the tests was not to determine whether cork would burn under the exact conditions that existed at the time of the fire, but to determine the inflammability of cork generally."²⁵ The jury might have concluded

how much the result was effected by the awareness of the witness. Even in the *Norfolk* situation the difference can be virtually eliminated by instructing the engineer to react as he normally would to any situation which may arise rather than informing him of the specific obstacle he is expected to see.

18. 281 Mo. at 355, 219 S.W. at 607. The required degree of similarity in showing possibility in the face of a contention of impossibility under the circumstances of the actual event was found to be present in *Davis v. State*, 51 Neb. 301, 354-56, 70 N.W. 984, 1002 (1897), and testimony concerning the experiment and its results was held properly admitted by the trial court.

19. When experimental evidence is not being offered in rebuttal it is more likely that a party going to this trouble and expense will attempt to establish a probability or tendency rather than a mere possibility.

20. This situation may arise, *e.g.*, in a tort action where the only feasible causes are two, one stemming from the defendant's negligence, the other arising from a different source. The plaintiff's experiment will be offered to show that it was impossible for the latter source to have caused the damage.

21. *But see* pp. 1068-69 *infra*.

22. 267 Mass. 501, 167 N.E. 235 (1929).

23. The experiments involved subjecting pieces of film to various degrees of heat, contact with electric sparks, burning, and inserting pulverized film in a cartridge and firing it from a revolver. *Ibid*.

24. 250 Ill. App. 22 (1928).

25. *Id.* at 35.

from the experiment that cork would not ignite under the conditions existing at the time of the fire.

Despite the risk of prejudice, admission of experiments demonstrating a general property or capacity may be proper where it is impracticable to duplicate the conditions of the actual event and the matter is important in the case.²⁶ The court should insist that the experiment be so conducted that the jury can understand its true function and can determine its probative value for the issues to which it is relevant. Moreover, the jury charge should contain a proper admonition. As added protection, opposing counsel may be expected to point out the limitations of the experiment on cross-examination and in summation.

PSYCHOLOGICAL PRINCIPLES: COMMON SENSE, EXPERTS AND EXPERIMENTATION

Few would deny the need for experimentation in areas where common sense does not suggest a conclusion.²⁷ Yet even where common sense seems an appropriate guide it may well lead to erroneous conclusions,²⁸ particularly where psychological propositions are concerned.²⁹ The uncontrolled view of the expert may be entitled to even less weight than the opinion of the layman "if only because the biases of the expert are more detailed and more clearly defined."³⁰ Especially in the comparatively new social sciences is actual investigation to be preferred over the opinion of the expert, whether based on his own beliefs or on the opinions of other experts.³¹

Contrary to most experiments designed for evidentiary purposes, psychological experiments may involve, not the reproduction of an actual event, but the establishment of a general principle. The "similarity of conditions" test is, therefore, not applicable and the basic criteria of

26. *Guinan v. Famous Players-Lasky Corp.*, 267 Mass. 501, 522, 167 N.E. 235, 245 (1929).

27. *E.g.*, an unversed person would not venture an opinion on fracture patterns of glass bottles relying on common knowledge to guide him, or attempt to determine from powder burns on a man's body whether the gun was fired from a distance of two or four inches. Experiments were conducted for these purposes in *Sanders v. Glenshaw Glass Co.*, 204 F.2d 436 (3d Cir. 1953); *State v. Polan*, 78 Ariz. 253, 278 P.2d 432 (1954).

28. "Common sense is frequently wrong. The truth is that we cannot depend upon it for much at all in the way of valid psychological propositions. Our everyday experience of the world comes in crude, unrepresentative chunks, with causal relations hopelessly obscured, and with prejudice, superstition, and self-interest inextricably intertwined in perception." Bitterman, *The Evaluation of Psychological Propositions*, in LEVIN, EVIDENCE AND THE BEHAVIORAL SCIENCES A-16 (mimeo. 1956).

29. One might suppose without resorting to expert knowledge or experimentation that suggestibility in children is a direct function of age: the younger the child the more suggestible he is likely to be. But a scientist has reached a different conclusion: "Suggestibility appears to reach a maximum at around the age of eight in both males and females." WETZENHOFFER, *HYPNOTISM* 282 (1953), cited in Levin & Levy, *Persuading the Jury With Facts Not in Evidence: The Fiction-Science Spectrum*, 105 U. PA. L. REV. 139, 179 (1956) (hereinafter cited as *Persuading the Jury*).

30. *Ibid.*

31. See Cahn, *1955 Annual Survey of American Law—Jurisprudence*, 31 N.Y. U.L. REV. 182 (1956). "[T]he only firm ground for the evaluation of psychological propositions is experiment—systematic and repeated observation under representative and controlled conditions." Bitterman, *supra* note 28, at A-17.

admissibility must be applied separately. Since the relevance of the proposition must be established independently, all that is required of the experimental evidence is that it have probative value sufficient to establish the proposition. It is particularly important to examine the scientific validity of psychological experiments, therefore, since their validity may be the key factor in determining their admissibility.

This is clearly illustrated in the school segregation cases.³² In three of the trials³³ the psychologist, Professor Kenneth Clark, testified as to the results of his "doll" experiment to establish the proposition that Negro pupils in general incurred psychological harm from the inferior status incident to segregation and thus were denied the equal protection of the laws.³⁴ Negro school children from a segregated school were shown pictures of white dolls and Negro dolls and asked such questions as, "Show me the doll that is the 'nice' doll," "Show me the doll that looks 'bad'."³⁵ From the children's replies and reactions to these and to other requests, Professor Clark detected indicia of instability in their personalities and reached the conclusion that segregation had relegated Negro children to an inferior status in society which ". . . definitely harmed [them] in the development of their personalities. . . ."³⁶ Professor Edmond Cahn has pointed out numerous defects in this experiment which render its results of doubtful probative value.³⁷ The sampling was not shown to be adequate numerically or to be a representative cross-section; some of Professor Clark's interpretations seem to be predetermined, in the sense that no matter which of two possible choices the children made, he deduced a harmful effect;³⁸ the test does not purport to demonstrate the effects of *school* segregation as filtered out from the totality of environmental factors in the children's lives; and children's reactions to dolls, and especially to pictures of dolls, may be a poor indication of their psychological attitudes in situations of reality, *i.e.*, with white and Negro *people*. Moreover, some of the questions must have bewildered or deceived the children.³⁹ To these

32. *Brown v. Board of Educ.*, 347 U.S. 483 (1954); *Bolling v. Sharpe*, 347 U.S. 497 (1954).

33. *Davis v. County School Bd.*, 103 F. Supp. 337 (E.D. Va. 1952); *Briggs v. Elliott*, 98 F. Supp. 529 (E.D.S.C. 1951); *Belton v. Gebhart*, 32 Del. Ch. 343, 87 A.2d 862 (Ch. 1952).

34. Cahn, *1955 Annual Survey of American Law—Jurisprudence*, 31 N.Y.U.L. Rev. 182, 188 (1956).

35. Quoted in Cahn, *1954 Annual Survey of American Law—Jurisprudence*, 30 N.Y.U.L. Rev. 150, 161-62 (1955).

36. *Id.* at 163.

37. *Id.* at 163-65.

38. "For example, if Negro children say a *brown* doll is like themselves, he infers that segregation has made them conscious of race; yet if they say a *white* doll is like themselves, he infers that segregation has forced them to evade reality." *Id.* at 163.

39. *E.g.*, the conclusion that some children were evading reality because they selected the white doll "when asked to pick the doll that was like themselves" is unjustified since they apparently were among those children who had previously selected the white doll as the "nice" doll and may thus have answered the latter question using the criterion of "niceness" rather than color.

criticisms by Professor Cahn should be added another basic one—the absence of a control group. No psychologist should venture to deduce from the results of this experiment that the harm, if any, is caused by school segregation unless he has conducted the same tests using as subjects Negro children from unsegregated schools.

EVALUATING NON-PHYSICAL ABILITIES OF WITNESSES

An area which has been little explored in the legal literature, though it holds promise of some day revolutionizing the use and evaluation of eye-witness testimony, is measurement of the relative capacity of the witness to perceive, remember, or narrate.⁴⁰ Further developments in this area seem certain to take the form of experiments,⁴¹ either testing the witness in the courtroom or before trial.

The use of experiments to measure one or more of the witness' abilities to perceive, recollect and narrate presents significant difficulties which may be illustrated by a consideration of their use in evaluating the ability to identify persons. Two experiments which were held inadmissible illustrate the problems in testing the element of perception in this ability. In *State v. Riley*⁴² the defendants were convicted of a murder committed in a recreation hall by two masked robbers. Several of those present identified the defendants at the trial as the robbers, "with varying degrees of certainty."⁴³ During cross-examination of one of these witnesses, counsel for defendants was denied permission to have the witness attempt an identification of a personal acquaintance who entered the courtroom dressed and masked as the robbers had been. Counsel's stated purpose was to "test [the witness'] . . . ability to identify him."⁴⁴ An offer to test other identifying witnesses in the same manner was also rejected.⁴⁵

40. Cross-examination is the traditional method permitted for this purpose; its ineffectiveness led Wigmore to argue for the admission of experiments. 3 WIGMORE § 993. The topic of this section is to be distinguished from such related bases for the impeachment of testimony as the lack of *opportunity* of the witness to perceive (courts usually admit evidence for this purpose, see 3 WIGMORE § 994(2)), the absolute inability of the witness to do an act or the disqualification of the witness for incompetency due to mental incapacity or immaturity. It is difficult to see how expert witnesses could replace experiments where the issue is the capacity of a *particular* witness to perceive, remember or narrate. Where veracity is the phase of credibility involved, use of an expert has been permitted. *United States v. Hiss*, 88 F. Supp. 559 (S.D.N.Y. 1950).

41. For a brief evaluation of the advisability of extending the traditional technique of using expert witnesses to the field of judging credibility, see Levin & Levy, *Persuading the Jury*, 105 U. PA. L. REV. 139, 173 (1956). The authors are there discussing issues of credibility generally, such as whether bank tellers are better qualified than other laymen to identify handwriting from memory. *Id.* at 170.

42. 126 Wash. 256, 218 Pac. 238 (1923).

43. *Id.* at 266, 218 Pac. at 242.

44. *Id.* at 267, 218 Pac. at 242.

45. *Ibid.* The Supreme Court of Washington interpreted the experiments as an attempt to prove the inability of the witnesses to identify the defendants as the robbers. By inability the court may not have meant complete inability (impossibility), but rather a low degree of ability which seems to be a more accurate description of the purpose.

In *Brooks v. State*⁴⁶ the night manager of a store identified defendant as the man who robbed him. On cross-examination defense counsel produced two photographs of Negroes and sought to have the witness state whether the pictures exhibited to him were of the same, or of two different persons. The court sustained an objection to such questions. Probably the defense intended to show the witness to be poor at discriminating Negroes.⁴⁷

These two experiments share the methodological defect of affording the subject only one opportunity to respond. In the *Brooks* test, where a yes or no answer was to be elicited, a correct answer would have no significance, since pure chance affords a fifty per cent opportunity for accuracy.⁴⁸ Even the *Riley* test would provide little indication of the witness' ability to identify men wearing masks since a single result offers a poor basis for generalization. Moreover, there is too great a chance of some extraneous factor operating to determine his answer. A valid experiment must be composed of a large number of items.

The familiar requirement of similarity must also be satisfied. The items selected for the test must not be more difficult to identify than was the person involved in the actual event. For example, the pictures chosen for a test patterned after the one in the *Brooks* case might require a more precise discrimination than did the actual situation.⁴⁹

In a test resembling the one attempted in *Riley*, the use of personal acquaintances solves the problem of fairness in the selection of items—"items" in this experiment being actual persons. However, similarity requires that the experiment also approximate the actual conditions with regard to manner of dress, length of time for observation, proximity, lighting, etc. Unless the safeguards mentioned for each type of experiment are present, a poor score by the witness may demonstrate nothing more than that under more difficult circumstances his identification, *if he were willing to make one at all*, would not be very reliable.

Of the two varieties of experiments, one employing actual persons and the other using photographs, the latter holds greater promise for future development and utilization. It permits re-use of the same materials in other similar cases in which counsel, lacking financial resources or the requisite degree of ingenuity, is unable to construct an experiment. Development of a series of standardized, scientifically constructed tests in this area⁵⁰ would facilitate their use and should render such experiments more

46. 146 Tex. Crim. 265, 174 S.W.2d 265 (1943).

47. LEVIN, EVIDENCE AND THE BEHAVIORAL SCIENCES B-406 (mimeo. 1956).

48. *Ibid.*

49. *Id.* at B-407. Of course, if counsel can produce another Negro, closely resembling the defendant, whom he can show to be a very likely suspect, he should be permitted to prove that the witness has little ability to distinguish between the two men by employing a test with items which require a fine discrimination. This is not a relaxation of the similarity requirement; it is simply a recognition that an identification in the actual situation necessitated a high degree of discriminative ability.

50. *Ibid.*; *id.* at B-401.

acceptable to the judiciary. Accuracy would be greatly increased through substantial elimination of elements of chance⁵¹ or underhandedness.⁵²

Careful experimentation will be necessary to determine the validity of these tests. There must be a high degree of correlation between the ability to identify persons and the ability to identify photographs if the tests are to be useful.⁵³ High positive correlation may well be expected, but this cannot be taken for granted.⁵⁴

There is a further need for reliable averages and extremes of ability against which a jury can match the performance of the witness on each of these tests.⁵⁵ With such criteria available, counsel would be able to advise the jury, "Out of one hundred opportunities to make identifications of Negroes [or Chinamen, or women, etc.] from clear close-up photographs this witness was successful only thirty-six times. Two hundred white examinees drawn from various occupations and having wide variations in intelligence made an average score of sixty-two correct identifications." He should also be able to continue, "Even more significant, only two people out of those two hundred made scores as low as his! Would any of you be willing to convict a man because this witness says, 'He is the Negro I saw'?"

Even after the tests are accepted in principle, judicial skepticism may be expected to cause difficulty in individual cases. In order to employ the suggested standards in a wide variety of factual situations, it must also be demonstrated that an individual's *relative* ability to identify persons remains constant despite considerable variation in the objective difficulty of identification.⁵⁶ Then, although opposing counsel may point out that the particular experiment requires a considerably finer discrimination by the

51. When photographs are used a lawyer devising his own experiment would be likely to choose his subjects from the surrounding community, increasing the likelihood that the witness will recognize some of them and be unfairly aided in identifying them.

52. Where actual persons are used there are opportunities for collusion. The threat is greater when the "personal acquaintance" test of the *Riley* case is employed. For the particular fact situation in that case a standard test would have to be constructed differently. The integrity of an organization which would handle these standard tests must be beyond question.

53. Otherwise the test will not measure what it is presumed to measure. For a simplified and helpful explanation of these principles, see MURPHY, AN INTRODUCTION TO PSYCHOLOGY 382 (1951). For a detailed discussion of correlation and validity, see GUILFORD, FUNDAMENTAL STATISTICS IN PSYCHOLOGY AND EDUCATION 154-67, 512-43 (2d ed. 1950).

54. See text at notes 28-29 *supra*.

55. Psychologists should be able to develop a reference group of representative examinees whose scores will provide averages and extremes of ability. "[R]egional and national sample populations might be developed and samples drawn from such groups might then be tested in any given situation with respect to a particular ability." LEVIN, EVIDENCE AND THE BEHAVIORAL SCIENCES B-401 (mimeo. 1956).

56. It has been shown, *e.g.*, that the ability of white examinees to recognize Negro faces depends largely on their attitude toward Negroes as a group. MURPHY, AN INTRODUCTION TO PSYCHOLOGY 267 (1951). The implication is that one's relative ability to identify people of his own race is an unreliable guide in discovering his relative ability to identify those of another race.

witness than the actual situation demanded,⁵⁷ if the standardized test chosen is the closest one available⁵⁸ and there is a reference group against which the witness' performance may be measured, relaxation of the similarity requirement will be justified; the results will show his relative ability to make identifications even though they will provide no guide to the *number* of identifications he could have made in a less exacting experiment.

CONCLUSIONS

The potential advantage of experimentation over more conventional modes of proof—greater control of relevant variables—is also the principal obstacle to its use as evidence, because of the concomitant possibilities for error and deception. Only after the utmost care in planning an experiment may an attorney be reasonably certain of judicial acceptance of its results.

1. Basically, the requirements of admissibility for experiments are the same as for evidence generally: materiality, relevancy and probative value, which outweigh any risk of prejudice to the other party. However, a stricter compliance with these principles may be required, since the variables will ordinarily be within the direct control of the planner. In courtroom experiments, the greater likelihood of prejudice from careless or dishonest design makes a stricter standard particularly necessary.

2. Ordinarily, experiments will involve the reproduction of an actual event at issue in the litigation. From the basic principles a more specific test has evolved to cover this situation. The conditions of the experiment must be substantially similar to those surrounding the actual occurrence. An exception may be made for experiments which clearly purport to demonstrate only *general* properties or capacities, when such data is important and duplication of conditions is impracticable.

3. Psychological experiments will often be concerned with proving the existence of a general principle, the relevance of which has been independently established. Here the similarity test is inapplicable, and the basic criteria of admissibility must be separately applied.

4. An area holding promise of increasing importance is the measurement of witnesses' capacities to perceive, remember and narrate as an aid in evaluating eye witness testimony. Tests for this purpose must be composed of a sufficient number of items to eliminate factors of chance. To assure validity, they must either consist of items which involve no greater difficulty for the examinee than did the actual situation, or employ standards indicating averages and extremes of ability, thus permitting measurement of relative ability.

C. M. F.

57. See text at note 49 *supra*.

58. Once standardized tests are developed counsel has no valid excuse for not using the most appropriate one.