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EXPERT TESTIMONY IN AUTOMOBILE ACCIDENT CASES

Approximately seventy-five percent of the civil cases tried today involve automobiles. A primary consideration in deciding these cases is the speed at which the vehicles were traveling at the time of the accident. Of the ways in which evidence of speed can be presented to a jury, one method now widely accepted is to allow an expert to give his opinion of speed based upon the physical evidence found at the scene.¹ South Carolina first allowed this kind of testimony in 1963 in *Doremus v. Atlantic Coast Line Railroad*.² Although this case seemed to open the door for the continued and widespread use of opinion evidence in accident cases, it raised a number of questions and left the open doorway covered with a curtain of uncertainty. The purpose of this note is to examine this case and decisions from other jurisdictions in light of the questions raised by *Doremus* to determine what the South Carolina position might be.

I. GENERAL LAW

A. *Expert Testimony*

A fundamental rule of evidence is that a witness must testify as to fact and not opinion; any inferences or conclusions which may be drawn from the facts are for the jury.³ An exception to this rule is allowed when the subject matter in question is of a unique nature and beyond the comprehension of the average layman.⁴ Under these circumstances an expert is allowed to draw inferences from the facts and offer conclusions to the jury in the form of an opinion.⁵ Two elements are required in order that such testimony may be admitted:

First, the subject of the inference must be so distinctively related to some science, profession, business or occupation as to be beyond the ken of the average layman and second, the witness must have such skill, knowledge or experience in that field or calling as to make it appear that his opinion

1. Annot., 23 A.L.R.2d 112 (1952).

2. 242 S.C. 123, 130 S.E.2d 370 (1963).

3. See, e.g., *McCown v. Muldrow*, 91 S.C. 523, 74 S.E. 386 (1912).

4. 31 AM. JUR. 2d *Expert and Opinion Evidence* § 16 (1967).

5. *Id.*

or inference will probably aid the trier in his search for truth.⁶

These two criteria are particularly meaningful when applied to the subject of this paper.

B. Expert Opinions Based on Skid Marks

The physical evidence of speed found at the scene of an accident has always been deemed a proper subject for consideration by the jury.⁷ The controversy in this area is concerned with whether the jury should be guided in its evaluation of these elements. One of these indicia, skid marks, is particularly susceptible to scientific interpretation.⁸ In spite of this, many jurisdictions, until fairly recently, were reluctant to allow any comment on the physical evidence introduced, leaving the interpretation of this evidence *entirely* to the jury.⁹ Two lines of reasoning favoring this practice appear in the cases. Some courts felt that any comment or opinion on the relationship between the length of the marks and the speed of the vehicle would be a usurpation of the jury's function of deciding ultimate issues.¹⁰ The second reason, which is essentially a part of the first, is that this relationship is not beyond the comprehension of the average juror;¹¹ *i.e.*, the average man is familiar with the speed required to create skid marks of a given length.

The overwhelming majority of jurisdictions now recognize the fallacy of this reasoning, and allow experts in the field to explain the relationship between the length of the skid marks and the speed of the vehicle in question.¹² The proposition was well stated by the Supreme Court of Oklahoma:

While a layman knows that a speeding car will produce skid marks upon a pavement when brakes are applied, and while it is a scientific fact that the speed of a motor vehicle

6. C. McCORMICK, HANDBOOK OF THE LAW OF EVIDENCE § 13 (1954).

7. 9c D. BLASHFIELD, CYCLOPEDIA OF AUTOMOBILE LAW AND PRACTICE § 6233 (perm. ed. W. Bandy 1954).

8. *Ruther v. Tyra*, 207 Okla. 112, 247 P.2d 964 (1952).

9. *See* Annot., 70 A.L.R. 540 (1931).

10. *E.g.*, *Thornburg v. Maley*, 242 Ia. 70, 45 N.W.2d 576 (1951).

11. *E.g.*, *Richardson v. Lovvorn*, 199 Va. 688, 101 S.E.2d 511 (1958).

12. *E.g.*, *Stanley v. Hayes*, 276 Ala. 532, 165 So. 2d 84 (1964); *Anglin v. Nichols*, 80 Ariz. 346, 297 P.2d 932 (1956); *Jobe v. Harold Livestock Comm'n Co.*, 113 Cal. App. 2d 269, 247 P.2d 951 (1952); *Andrews v. Moery*, 205 Okla. 635, 240 P.2d 447 (1951); *Knight v. Borgan*, 52 Wash. 2d 219, 324 P.2d 797 (1958).

can be closely approximated from the skid marks and other physical facts at the scene of the collision, the method of computing such speed from the physical facts is not a matter of common knowledge. Such computation can be made only by an expert who has given special study to the subject.¹³

Of course a witness is never allowed to give an opinion as to who is responsible for an accident¹⁴ as this is *the* ultimate issue in an accident case. The majority decisions do not change this rule; they merely say that the speed of the vehicles involved should not be considered as an ultimate issue before the court.¹⁵

It seems that any reluctance to accept this practice based upon the feeling that it tends to encroach upon established rules would be overshadowed by its practical advantages. Frequently, there are no eyewitnesses to an automobile accident. When this is the case the only evidence of speed available to the jury is physical, usually in the form of skid marks, scrapes or cuts in the pavement and, of course, the damaged vehicles. Even through the scientific application of the speed-skid mark relationship the *exact* speed of the vehicle can never be determined.¹⁶ Unknown factors such as brake pressure, gear drag, changes in weight, etc., all have some bearing on the length of the marks produced.¹⁷ Generally expert opinions of speed are stated in terms of the minimum speed at which the vehicle could have been traveling. Expressed in these terms the determination can be surprisingly accurate. Considering the variety of the physical facts which might be put before the jury, and the number of unknown factors which are involved in determining speed, the value of having someone trained in these matters to aid the jury in its determination can be readily seen. Even when there are eyewitnesses, the expert can still be valuable by giving the jury a reliable standard with which the witnesses' statements can be compared. Their estimates are often expressed in general terms and may have been formed after only a limited observation of the vehicle. More importantly, the witness may not be a competent judge of speed.

13. *Ruther v. Tyra*, 207 Okla. 112, 247 P.2d 964, 967 (1952).

14. 31 AM. JUR. 2d *Expert and Opinion Evidence* § 148 (1967).

15. *Bonner v. Polacari*, 350 F.2d 493 (10th Cir. 1965).

16. Cook, *Speed Calculations and the Expert Witness*, 42 NEB. L. REV. 100 (1962). This article deals at length with the scientific and mathematical formulas used in computing speed from skid marks.

17. *Id.*

It is interesting to note at this point that at least two states, Alabama and Wisconsin, have recognized the value of expert testimony based on skid marks since 1920.¹⁸

II. THE SOUTH CAROLINA POSITION

A. Background

Prior to 1963, the South Carolina Supreme Court had refused to allow expert testimony of speed. The position is contained in two cases, *Thompson v. South Carolina State Highway Department*¹⁹ and *Willard v. McCoy*.²⁰ It is apparent from the opinions that the methods used to compute speed in these two cases were not the best examples of the technique. In *Thompson* a highway patrolman "was permitted to testify as to the speed the car . . . was being driven . . ., applying some formula to the distance it traveled and the number of times it turned over. . . ."²¹ In *Willard* a patrolman gave the following testimony: "I have a steel tape and I measured he was going eighty miles or better."²² Although in each of these cases the court was clearly justified in refusing to admit the proffered testimony because of the circumstances involved, the general tenor of the two opinions went further, and indicated a clear and decisive refusal to accept all opinions of highway patrolmen (and presumably any other experts), and not just those which might be illogically founded or unscientific.

[A] highway patrolman who did not see the car in motion is no more competent to judge the speed of such car than the average man sitting on the jury. . . . We have heretofore remarked, in at least one opinion, that the testimony of highway patrolmen should be limited, when they are not eyewitnesses, to markings on the highway, etc., and it is for the jury to reach a conclusion concerning the issue which is sought to be proven or rebutted thereby.²³

18. See *Jackson v. Vaughn*, 204 Ala. 543, 86 So. 469 (1920); *Luethe v. Schmidt-Gaertner Co.*, 170 Wis. 590, 176 N.W. 63 (1920).

19. 224 S.C. 338, 79 S.E.2d 160 (1953).

20. 234 S.C. 317, 108 S.E.2d 113 (1959).

21. *Thompson v. South Carolina State Highway Dep't.*, 224 S.C. 338, 342, 79 S.E.2d 160, 162 (1953).

22. *Willard v. McCoy*, 234 S.C. 317, 319, 108 S.E.2d 113, 114 (1959).

23. *Thompson v. South Carolina State Highway Dep't.*, 224 S.C. 338, 342, 79 S.E.2d 160, 162-63 (1953).

B. Doremus v. Atlantic Coast Line Railroad

The question came before our court again in the 1963 case of *Doremus v. Atlantic Coast Line Railroad*.²⁴ The circumstances here were vastly different from the previous cases and should be considered in some detail. The plaintiff, an infant, was injured when the car in which he was riding collided with the defendant's train at a crossing. Testimony was given by Sergeant (now Captain) Billy E. Fallaw of the highway patrol concerning the relationship between the skid marks and the speed of the car. Captain Fallaw had, at the time of the trial, been a member of the patrol for twenty-four years; and, during the last eighteen of those years he had been connected with the patrol's Driver Education Program. During this time Captain Fallaw had conducted a comprehensive series of tests dealing with the relationship between skid marks and speed, utilizing a variety of vehicles under various road and weather conditions. He had examined the scene of the collision and his testimony revealed that he had conducted tests using the same make of car as the plaintiff's, similarly equipped and on similar road surfaces. Captain Fallaw testified that these tests revealed that in order to leave skid marks of ninety-five feet, the length of the marks in question, the car would be traveling at forty miles per hour when the brakes were set. Other evidence revealed that the plaintiff's car had been stopped or nearly stopped when hit by the train.

In holding that Captain Fallaw's testimony was proper the supreme court did two things. First, they distinguished the *Thompson* and *Willard* cases because there the opinions were "based, not on skid marks or previous tests, but on completely different factors."²⁵ This was largely true although skid marks formed some basis for the opinions in both cases; presumably that is what was measured with the steel tape in *Willard* and in *Thompson* the patrolman had testified as to the length of the marks. At any rate, the methods and techniques used in these cases were hardly as precise or scientific as those in *Doremus*, nor were the experts so well qualified.

What the court seemed to be doing then was overruling the general view of these cases and implying that when an expert

24. 242 S.C. 123, 130 S.E.2d 370 (1963). See also J. DREHER, A GUIDE TO EVIDENCE LAW IN SOUTH CAROLINA 11 (1967).

25. *Doremus v. Atlantic Coast Line R.R.*, 242 S.C. 123, 150-51, 130 S.E.2d 370, 383 (1963).

is properly qualified and his opinions are properly founded on a solid base of physical evidence and scientific analysis, he may give his opinion of speed. This view of the case is supported by the court's notation later in the opinion that "[t]he admission of testimony of a traffic expert establishing the relationship between tire and skid marks and speed . . . has met with almost universal approval."²⁶

The second aspect of this opinion which must be noted is that Captain Fallaw's testimony was treated as evidence of an out-of-court experiment. The court quoted from *McDowell v. Floyd*²⁷ which sets forth the requirements for the admission of such experiments, and concluded that Captain Fallaw's tests were conducted under conditions substantially similar to those in question and, therefore, satisfied the requirements for admissibility. Certainly Captain Fallaw's testimony was evidence of an experiment and should have been considered as such, but this fact raises several questions about future litigation which will be noted below.

O. The Uncertainties

The first question which naturally results from an examination of *Doremus* concerns the qualifications which a member of the highway patrol must have in order to offer opinions. Captain Fallaw was probably the most highly qualified man in the state in the area of traffic safety. He had been intimately involved with the Driver Education Program for eighteen years, making tests and studies, and lecturing on the subject. He had a state-wide reputation as an expert in the field. It follows that if this case sets a precedent for qualification it is quite high. The question raised, therefore, is what lesser qualifications if any would the court accept? The case of *Watson v. Aiken*,²⁸ decided several months after *Doremus*, indicates a willingness to accept something less and also infers a new judicial awareness of the publications issued by the highway department concerning speed and stopping distances.²⁹ The trial judge in this case had overruled a motion for a non-suit based on his belief that skid

26. *Id.* at 151, 130 S.E.2d at 384.

27. 240 S.C. 158, 125 S.E.2d 4 (1962).

28. 243 S.C. 368, 133 S.E.2d 833 (1963).

29. In *Smith v. Hardy*, 228 S.C. 112, 88 S.E.2d 865 (1955), the court refused to admit a chart showing braking distances contained in the South Carolina Driver's Handbook.

marks of seventy feet, four inches indicated an unreasonable speed. In reversing the supreme court said:

There was no testimony that an automobile such as defendant's can be braked to a stop from a speed of 40 miles per hour in a lesser distance than 70 feet, 4 inches, nor is this established by the ordinary experience of mankind. Therefore, there is no support in the record for an inference resting on the length of the skid marks that defendant was driving at a speed in excess of that testified to by the only witness on the point. To illustrate the fallacy of inferring excessive speed from skid marks, without some evidence as to the braking distance required to stop a vehicle from the speed otherwise indicated by the evidence, see charts in Am. Jur. (2d) Desk Book, particularly Document No. 173, pg. 453, which is the chart published by the South Carolina Highway Department.³⁰

This statement implies that evidence of skid marks should be accompanied by some form of expert interpretation and that had someone offered this interpretation, even though he was not so highly qualified as Captain Fallaw, his testimony would have been relevant.

Looking to other jurisdictions as a source of guidance reveals a wide range of qualifications based either on experience in accident investigation, or formal training, or both. The majority of the cases are careful to point out that the qualifications of an expert are to be determined by the trial judge and will not be overturned unless shown to be clearly erroneous.³¹ Professor Wigmore would leave the decision entirely to the trial judge and eliminate review entirely.³²

The following examples are representative of the caliber of experts who have testified:

(1) A highway patrolman with ten years experience who had studied physical evidence at the Northwestern Traffic Institute, attended highway patrol courses, and personally conducted tests of speed and skid marks.³³

(2) A highway patrolman with fifteen years experience in

30. *Watson v. Aiken*, 243 S.C. 368, 372, 133 S.E.2d 833, 835 (1963).

31. *E.g.*, *Gray v. Woods*, 84 Ariz. 87, 324 P.2d 220 (1958).

32. 2 J. WIGMORE, EVIDENCE § 561 (3d ed. 1940).

33. *Cherry v. State Auto. Ins. Ass'n*, 181 Kan. 205, 310 P.2d 907 (1957).

accident investigation who had attended refresher courses on the subject.³⁴

(3) A patrolman with five and one-half years experience who had investigated many accidents.³⁵

(4) A patrolman with twenty-two years experience who had studied physical evidence at Northwestern, made personal tests of speed using skid marks, and who was a qualified instructor on the subject.³⁶

(5) A patrolman with two years experience who had completed accident training at the patrol academy, been assigned to a senior officer for added training, and investigated many accidents.³⁷

This brief sampling indicates that most courts feel that a man of some experience will be more qualified than the average juror and that his estimates will be of value in reaching a conclusion—the degree of his qualification being a matter of weight rather than admissibility. Since the South Carolina cases have been concerned only with highway patrolmen as experts, this discussion has been confined to that category. It should be pointed out, however, that in other states the experts have included police officers,³⁸ engineers,³⁹ safety experts,⁴⁰ and others.

A second problem raised in the *Doremus* case which is closely related to the area of qualification, revolves about the fact that Captain Fallaw personally conducted the tests upon which his testimony was based. Does this mean therefore, that admissibility hinges on personal involvement with such tests? Obviously not every patrolman with accident investigation experience has conducted his own tests; his knowledge comes from formal training, study, and general investigative experience. The cases outside South Carolina do not suggest that this is a necessary qualification. Would our court then accept opinions from a patrolman who uses as a basis for his calculations his own general experience, formal training, plus recognized published data,

34. *Groninger & King v. T.I.M.E. Freight Inc.*, 384 P.2d 39 (Okla. 1963).

35. *Johnson v. Battles*, 255 Ala. 624, 52 So. 2d 702 (1951).

36. *Nisi v. Checker Cab Co.*, 171 Neb. 49, 105 N.W.2d 523 (1960).

37. *Gray v. Woods*, 84 Ariz. 87, 324 P.2d 220 (1958).

38. *E.g.*, *Benyon v. Cuthbert*, 390 S.W.2d 352 (Tex. Civ. App. 1965).

39. *E.g.*, *Storbakken v. Soderberg*, 246 Minn. 434, 75 N.W.2d 496 (1956).

40. *E.g.*, *St. Louis Southwestern Ry. v. Jackson*, 242 Ark. 858, 416 S.W.2d 273 (1967).

including perhaps those compiled by Captain Fallaw? In this way his personal qualifications would be aimed at attesting to such things as the similarity of the road conditions, the possible unknown factors or peculiarities of the particular case, if any, and the reliability of the data he uses. Some support for this proposition is contained in that portion of the *Watson* opinion quoted above which refers to the chart published by the South Carolina Highway Department.⁴¹ In *Taylor v. Johnson*,⁴² a recent Utah case, the court allowed officers to give their opinion of speed based on skid marks using precalculated charts as a part of their testimony. It was stipulated that the charts were accurate and reliable and that the officers were experienced in accident investigation. A contrary decision was reached in Mississippi in *Gray v. Turner*⁴³ where the court declared that a chart used by a city police officer was hearsay. In this case though, the officer's testimony was based solely on the chart. He had not qualified as an expert, was not familiar with the mathematical or physical factors involved in determining the speed-skid mark relationship, and it was not shown that the conditions of the accident corresponded to those used in making the chart. Even though the chart was thrown out, the case does point up the need for expert qualifications when a chart is used. The case of *Cherry v. State Automobile Insurance Association*⁴⁴ is also interesting in that an expert was allowed to give an opinion of speed based upon the length of skid marks shown in a picture.

On the basis of the cases cited throughout this paper which have admitted opinion evidence it seems safe to assert that South Carolina would allow properly qualified highway patrolmen to offer opinion testimony which is partly based on acceptable highway department data concerning the speed-skid mark relationship.⁴⁵ Additional support for the presumption is afforded by that body of evidence law which allows testimony based on scientific works, books, and formulas.⁴⁶

41. *Watson v. Aiken*, 243 S.C. 368, 372, 133 S.E.2d 833, 835 (1963).

42. *Taylor v. Johnson*, 18 Utah 2d 16, 414 P.2d 575 (1966).

43. 245 Miss. 65, 145 So. 2d 470 (1962).

44. 181 Kan. 205, 310 P.2d 907 (1957).

45. 2 J. WIGMORE, EVIDENCE § 665 (3d ed. 1940).

46. Annot., 93 A.L.R.2d 287 (1964).

III. OPINIONS OF SPEED BASED ON THE CONDITION OF THE VEHICLES

Opinions of speed based upon the damage done to the vehicles have not been so widely accepted as those based on the speed-skid mark relationship. The cases dealing with this method indicate that frequently, although the condition of the vehicle after impact may have been the primary source of interpretation, other factors such as the position of the cars, the amount of debris scattered about, road damage, and the like were also included in the calculation.⁴⁷

In those cases which have rejected this evidence⁴⁸ it is frequently difficult to determine whether the method was being rejected per se, or whether there was simply a lack of evidence in the particular case upon which to base an opinion. However, the most frequent objections are that the opinion is not shown to be based on any scientific or technical principle⁴⁹ and that a multitude of variables or unknown factors can affect the accuracy of the calculation.⁵⁰ A good example of the latter was suggested in *Stephanofsky v. Hill*⁵¹ in which the court pointed out that the impact of the collision could have jammed the accelerator, thereby rendering the conditions after impact a poor basis for determining speed before the collision.

Still, some jurisdictions have allowed opinion testimony based on vehicle condition, reasoning that experts are better qualified to make determinations on this basis than jurors and that any uncertainties about the method should bear on the weight of the testimony rather than its admissibility.

IV. CONCLUSION

South Carolina has joined with the majority of jurisdictions and allowed expert opinions of speed based upon skid marks. Exactly what degree of expertise will be required or under what circumstances the evidence will be allowed is still largely a matter

47. *E.g.*, *Baggett v. Allen*, 273 Ala. 164, 137 So. 2d 37 (1962); *Stephanofsky v. Hill*, 136 Conn. 379, 71 A.2d 560 (1950); *Standard Motor Co. v. Blood*, 380 S.W.2d 651 (Tex. Civ. App. 1964); *Grasty v. Tanner*, 206 Va. 723, 146 S.E.2d 252 (1966).

48. *E.g.*, *Flores v. Barlow*, 354 S.W.2d 173 (Tex. Civ. App. 1963).

49. *Grasty v. Tanner*, 206 Va. 723, 146 S.E.2d 252 (1966).

50. 136 Conn. 379, 71 A.2d 560 (1950).

51. *White v. Zutell*, 263 F.2d 613 (2d Cir. 1959); *Davis v. Ward*, 219 Cal. App. 2d 144, 32 Cal. Rptr. 796 (1963); *Massey v. Stephens*, 113 Ga. App. 10, 147 S.E.2d 53 (1966); *Johnson v. Huskey*, 186 Kan. 282, 350 P.2d 14 (1960).

of conjecture; but, all indications are that highway patrolmen will be allowed to give opinion testimony in future accident cases even though the conditions are not as ideal as they were in *Doremus*. If such a policy is followed by our court it could have a significant impact on the future litigation of accident cases.

C. E. McDONALD, JR.