CONCLUSION

In conclusion, it should be emphasized that either husband or wife has an action for loss of consortium whether caused by a negligent or an intentional act. In both instantaneous death situations and cases under workmen's compensation, the statutes are deemed to provide an exclusive remedy and to bar an action for loss of consortium. Usually the damages allowed will never be as great as the direct damages, but there is an ever increasing awareness of this right and the verdicts in this area are becoming larger. Other jurisdictions are still in a state of change in this area, but in the absence of any radical change the right to recover for loss of consortium is imbedded in the Iowa Law.

GEORGE A. GOEBEL (August 1960)

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neither spouse has a cause of action for loss of opportunity for childbearing due to physical injuries to husband caused by negligence of a third party, and, if the complaint were construed to mean that the husband had become sexually impotent because of the injuries, that the wife had no cause of action.

[60] In Acuff v. Schmit, 248 Iowa 272, 78 N.W.2d 480 (1956), both plaintiff and defendant assumed that Iowa had adopted the sentimental version; the Court noted and neither agreed nor disagreed with this assumption.

DEMONSTRATIVE EVIDENCE IN IOWA

Demonstrative or real evidence[1] is a generic term embracing that body of proof which is addressed directly to the senses. It comprehends such exhibits as objects and models, photographs, recordings, and persons. As a general rule, demonstrative evidence will comprise but a small part of the proof adduced in a given trial, but it is often found that the timely submission of a material object will win the day on a hotly controverted fact. Testimonial utterances may offset each other and leave the jury more confused than enlightened, but it is difficult to overcome the convincing effect of a demonstrated fact.

The purpose of this article is to point out the legitimate objects of the recognized classes of demonstrative evidence and what is necessary by way of foundation for their submission in court. Some specific kinds of demonstrative evidence have been excluded since the principles governing their use are substantially similar to those controlling a type herein discussed.

EXHIBITS OF PERSONS AND OBJECTS

Generally, any article which is the subject of or connected with the controversy before the court is admissible in evidence. The exhibition of an object is thought to be more effective in aiding jurors' understanding than any description by witnesses. Thus, one may produce for inspection articles which are found at the scene of a crime or which tend to show that a crime was committed,[2] samples of goods to show their general nature,[3] and objects which show the extent of property damage.[4]

The right to introduce objects into evidence is conditioned upon a proper foundation having been laid. Accordingly, it is incumbent upon the offering party to show that there has been no material change in the condition of the exhibit.[5] Also, it is necessary that the object be properly identified as the one pertinent to the controversy.[6] In criminal prosecutions one must show how the thing submitted has been kept, to insure that it has neither been tampered with nor, where possible, undergone some organic change.[7]

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[1] Strictly speaking, there is a difference between demonstrative and real evidence. Although the proper use of either is conditioned upon sufficient identification and relevancy to some issue in the case, real evidence is taken for the independent probative value it has of itself, while demonstrative evidence merely is a visual aid, explanatory of a witness' oral testimony. The right to produce demonstrative evidence is much more within the discretion of the trial court because of the probabilities that it may be misleading or confusing and that it may tend to give undue emphasis to some particular issue at the expense of others. See Baker v. Zimmerman, 179 Iowa 272, 161 N.W. 479 (1917); Smith v. Ohio Oil Co., 10 Ill. App. 2d 67, 134 N.E.2d 526 (1956); McCORMICK, EVIDENCE § 180 (1954); 3 WIGMORE, EVIDENCE § 790 (3d ed. 1940).

[2] State v. Christie, 243 Iowa 1199, 53 N.W. 2d 887 (1952) (bloodstained clothing); State v. Jones, 233 Iowa 843, 10 N.W.2d 526 (1943); State v. Williams, 195 Iowa 785, 192 N.W. 901 (1923) (liquor bottle, and rubbers which fit defendant, found at scene of crime).

[3] Evans v. Roberts, 172 Iowa 653, 154 N.W. 923 (1915) (medical instruments); Mann v. Sioux City & P.R.R., 46 Iowa 637 (1877).

[4] Githens v. Great American Ins. Co., 201 Iowa 266, 207 N.W. 243 (1926); Neel v. Smith, 147 N.W. 183 (Iowa, 1914).

[5] State v. Jones, 233 Iowa 843, 10 N.W.2d 526 (1943); Neel v. Smith, 147 N.W. 183 (Iowa, 1914); Mann v. Sioux City & P.R.R., 46 Iowa 637 (1877) (error to admit timbers to show they were unsound since there was no evidence to show they were in the same condition of soundness or decay when collected as they were at the time of the accident).

[6] State v. Christie, 243 Iowa 1199, 53 N.W.2d 887 (1952) (bullet identified by surgeon who removed it); State v. Walker, 192 Iowa 823, 185 N.W. 619 (1921).

[7] State v. Hossack, 116 Iowa 194, 89 N.W. 1077 (1902).

Objects are not rendered any the less admissible in evidence because the opposing party admits the truth of what is sought to be proved by the exhibition.[8] It is within the discretion of the court to determine whether, under such circumstances, the cumulation of proof is manifestly needless.[9]

In any action for personal injuries, the plaintiff may display the injuries to the jury and allow inspection by them.[10] The purpose of such an exhibition is twofold, to show the extent of the resulting pain and suffering and to show the extent of the disability which is alleged to have resulted.[11] That a showing of somewhat gruesome injuries may tend to arouse the sympathies of the jurors is not a ground for refusal of admission if there are compensating advantages.[12] However, a display which amounts to an indecent exposure should be excluded.[13]

Aside from injuries, a person may be made the subject of an exhibit to show resemblance in determining paternity, if the child is over two years of age.[14] During the course of such view, counsel may call attention to points of resemblance.[15] Also, a person may be offered to show his appearance, as evidence of age.[16] Whether a child may be offered to show its similar racial characteristics to that of another as proof of the paternity of the child has not been decided by the Iowa Court.[17]

PHOTOGRAPHS

Inasmuch as photographs are recognized to be a means of testimony with just as much probative value as verbal utterances, their use has long been sanctioned by the Iowa Court. Photographs may lie, *i.e.*, not be a true representation, but also a witness may perjure himself. The supposition of an occurrence of either is not a ground for exclusion.

Just as a foundation must be laid for oral testimony, certain preliminary requirements must be met prior to receipt of the pictorial testimony of a

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[8] State v. Gaskill, 200 Iowa 644, 204 N.W. 213 (1925); State v. Griffin, 218 Iowa 1301, 254 N.W. 841 (1935); State v. Kappen, 191 Iowa 19, 180 N.W. 307 (1921), *overruling* State v. Strum, 184 Iowa 1165, 169 N.W. 373 (1918), and State v. Vance, 119 Iowa 685, 94 N.W. 204 (1903); State v. Stansberry, 182 Iowa 908, 166 N.W. 359 (1918); State v. Lewis, 139 Iowa 405, 116 N.W. 606 (1908).

[9] State v. Stansberry, 182 Iowa 908, 166 N.W. 359 (1918).

[10] Olson v. Tyner, 219 Iowa 251, 257 N.W. 538 (1935); Mizner v. Lohr, 213 Iowa 1182, 238 N.W. 584 (1932); Faivre v. Manderchied, 117 Iowa 724, 90 N.W. 76 (1902); Barker v. Town of Perry, 67 Iowa 146, 25 N.W. 100 (1885). In Hall v. Town of Manson, 99 Iowa 698, 68 N.W. 922 (1896), a majority of the Court held that since plaintiff had the right to exhibit injuries to the jury, he may be required to do this, upon motion of the other party. See also Schroeder v. Chicago, R.I. & P.R.R., 47 Iowa 375 (1877), where the Court required plaintiff to subject himself to a private examination.

[11] Faivre v. Manderchied, 117 Iowa 724, 90 N.W. 76 (1902).

[12] Olson v. Tyner, 219 Iowa 251, 257 N.W. 538 (1935) (shriveled and partially amputated arm); Faivre v. Manderchied, 117 Iowa 724, 90 N.W. 76 (1902) (partially amputated arms and legs).

[13] State v. Stevens, 133 Iowa 684, 110 N.W. 1037 (1907) (proposed exhibition of private parts to show incapacity to commit rape held rightly refused); Garvik v. Burlington, C.R. & N. Ry., 124 Iowa 691, 100 N.W. 498 (1904) (same). The result reached in these two cases is criticized by Dean Wigmore as being "false judicial morality," in 4 WIGMORE, EVIDENCE § 1159 n. 2 (3d ed. 1940).

[14] State v. Smith, 54 Iowa 104, 105, 6 N.W. 153, 154 (1880) ("A child which is only three months old has that peculiar immaturity of features which characterizes an infant during that time it is called a babe. A child two years old or more has, to a large extent, put off that peculiar immaturity."). The following cases have held that a child under two years of age could not be exhibited: State v. Hunt, 144 Iowa 257, 122 N.W. 902 (1909) (three months old child may not be exhibited to jury for purpose of determining alleged resemblance, but may be present in court and in the mother's arms, to corroborate her testimony as to the *corpus delicti* in seduction proceeding); State v. Harvey, 112 Iowa 416, 84 N.W. 535 (1900) (nine months); State v. Danforth, 48 Iowa 43 (1878) (three months).

[15] State v. Smith, 54 Iowa 104, 6 N.W. 153 (1880).

[16] First Nat. Bank v. Casey, 158 Iowa 349, 138 N.W. 897 (1912).

[17] State v. Nathoo, 152 Iowa 665, 133 N.W. 129 (1911) (question presented but not decided).

photograph. Thus, it must be shown to have been made under conditions similar to those material to the inquiry to which it relates.[18] Not every change in condition will render a photograph inadmissible, however. A change in the arrangement of furniture,[19] seasonal changes in foliage,[20] or a variance in weather conditions[21] will not prevent admissibility so long as the changes can be explained and understood by the jury.

Another condition to admissibility is that the photograph be sufficiently identified as correctly representing that which it seeks to portray.[22] It is not necessary that the verification be made by the photographer. Anyone familiar with the scene is qualified to testify to accuracy.[23] It is always within the discretion of the trial court to determine whether the minimum amount of identification requisite to acceptance in evidence has been met.[24]

The purposes for which a photograph may be introduced in evidence are many and varied. In negligence litigation, a photograph may always be introduced to show the scene of an accident when it it is important to describe the *locus in quo* to the jury.[25] Refusal of an offer under such circumstances is an abuse of the trial court's discretion and constitutes reversible error.[26] Other instances where photographs are admissible in civil cases are: to permit the jury to properly assess the value of property in condemnation proceedings,[27] to test the recollections of witnesses,[28] to show the contents of a written instrument,[29] to allow the jury a view of the deceased, in wrongful

[18] Coonley v. Lowden, 234 Iowa 731, 12 N.W. 2d 870 (1944); Riggs v. Pan-American Wall Paper & Paint Co., 225 Iowa 1051, 283 N.W. 250 (1939); Faatz v. Sullivan, 199 Iowa 875, 200 N.W. 321 (1925); Dice v. Johnson, 198 Iowa 1093, 199 N.W. 346 (1924); Gose v. True, 197 Iowa 1094, 1097, 198 N.W. 528, 530 (1924) ("A photographer or other person may say that the picture represents things and conditions as he saw them; but unless the facts disclosed therein were existent and the conditions were the same as at the time pertinent to the inquiry, its admissibility may be questioned."); Wicks v. German Loan and Inv. Co., 150 Iowa 112, 129 N.W. 744 (1911); Barker v. Town of Perry, 67 Iowa 146, 25 N.W. 100 (1885).

[19] State v. Ebelsheiser, 242 Iowa 49, 43 N.W.2d 706 (1951); State v. Rogers, 129 Iowa 229, 105 N.W. 455 (1905).

[20] Coonley v. Lowden, 234 Iowa 731, 12 N.W.2d 870 (1944); Dice v. Johnson, 198 Iowa 1093, 199 N.W. 346 (1924).

[21] Faatz v. Sullivan, 199 Iowa 875, 200 N.W. 321 (1925) (snow); Considine v. Dubuque, 126 Iowa 283, 102 N.W. 102 (1905) (ice and snow).

Two decisions have dealt with the effect of a difference in lighting conditions. In Riggs v. Pan-American Wall Paper & Paint Co., 225 Iowa 1051, 283 N.W. 250 (1939), a difference between the lighting conditions at the time of an accident and those at the time the picture was taken was thought not to affect admissibility; while in Gose v. True, 197 Iowa 1094, 198 N.W. 528 (1924), the Court held the trial court was within its discretion to refuse admission under similar circumstances.

[22] State v. Campbell, 213 Iowa 677, 239 N.W. 715 (1931).

The fact that the photograph is an enlargement has no bearing on whether it is admissible as a true representation. *In re* Estate of Roberts, 231 Iowa 1088, 1097, 3 N.W.2d 161, 165 (1942) ("it would be legal quibbling to say that the magnifying process and the printing thereof on paper would tend otherwise than to disclose a correct reproduction."); Buttman v. Christy, 197 Iowa 661, 198 N.W. 314 (1924).

[23] State v. Campbell, 213 Iowa 677, 239 N.W. 715 (1931).

[24] Ingebretsen v. Minneapolis & St. L. Ry., 176 Iowa 74, 155 N.W. 327 (1916).

[25] Hamdorf v. Corrie, 101 N.W.2d 836 (Iowa, 1960); Plumb v. Minneapolis & St. L. Ry., 249 Iowa 1187, 91 N.W.2d 380 (1958); Anderson v. Elliott, 244 Iowa 670, 57 N.W.2d 792 (1953); Coonley v. Lowden, 234 Iowa 731, 12 N.W.2d 870 (1944); Faatz v. Sullivan, 199 Iowa 875, 200 N.W. 321 (1925); Considine v. Dubuque, 126 Iowa 283, 102 N.W. 102 (1905); Wimber v. Iowa Cen. Ry., 114 Iowa 551, 87 N.W. 505 (1901); Bach v. Iowa Cen. Ry., 112 Iowa 241, 83 N.W. 959 (1900); Barker v. Town of Perry, 67 Iowa 146, 25 N.W. 100 (1885); Locke v. Sioux City & P.R.R., 46 Iowa 109, 113 (1877) (picture of accident competent for the reason that "the jury, if it was possible for them to do so, would have been permitted to have viewed and inspected the same for the purpose of more readily understanding and properly applying the other evidence.").

The fact that the photograph has marks or legends upon its face has no bearing on admissibility so long as they are illustrative of the witness' testimony and not his conclusions. Hamdorf v. Corrie, 101 N.W.2d 836 (Iowa, 1960). And see Anderson v. Elliott, 244 Iowa 670, 57 N.W.2d 792 (1953), for a similar result with respect to measurements shown on a map.

[26] Bach v. Iowa Cen. Ry., 112 Iowa 241, 83 N.W. 959 (1900).

[27] Korf v. Fleming, 239 Iowa 501, 32 N.W.2d 85 (1948); Maxwell v. Iowa State Highway Comm., 223 Iowa 159, 271 N.W. 883 (1936); Hubbell v. City of Des Moines, 166 Iowa 581, 147 N.W. 908 (1914).

[28] State v. Rogers, 129 Iowa 229, 105 N.W. 455 (1905).

[29] *In re* Estate of Roberts, 231 Iowa 1088, 3 N.W.2d 161 (1942); Buttman v. Christy, 197 Iowa 661, 198 N.W. 314 (1924).

death actions,[30] to show alleged damage to real property,[31] and to allow jurors to see injured members even though the injury itself was exhibited.[32] In the latter instance, the introduction of a photograph might appear to serve no useful purpose, but it must be remembered that the condition of the injury might be substantially altered by the time of litigation, and without the picture the jury would be in a poor position to assess the immediate consequences of the accident. In making its inspection the jury is at liberty to use a magnifying glass.[33] The incidental fact that the picture may tend to arouse the passion of the jury in favor of one party to the prejudice of the other is not generally a ground for exclusion.[34]

In criminal proceedings, a photograph is admissible to prove the manner in which a crime was committed, or the motive of the crime,[35] and for the purposes of identification of the deceased and of showing the environment of the crime when committed.[36]

The Iowa Court follows what apparently is the majority view in permitting introduction of posed photographs based on recollection of witnesses as to the position of objects and persons.[37] This is particularly true when the photo is used to illustrate the oral testimony of a witness rather than as independent or original evidence.[38] Where, however, the exact position of a person or an object is at issue, the trial court in the exercise of its discretion should rule out the exhibit.[39] The outcome of a recent case[40] depended to a great extent on whether the plaintiff was contributorily negligent in not signaling for a turn. The Court held it was not an abuse of discretion to permit the showing of a posed photograph which portrayed the plaintiff's vehicle with someone sitting in the driver's seat signaling with his arm for a left-hand turn. Admissibility was thought proper since the jury was cautioned to consider the photograph only as indicating the nature of the vehicle. Query, would the jurors be the less able to see the projected arm and draw inferences therefrom as a result of the court's admonition?

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[30] Nolte v. Chicago, R.I. & P. Ry., 165 Iowa 721, 147 N.W. 192 (1914).

[31] German Theological School v. City of Dubuque, 64 Iowa 736, 17 N.W. 153 (1883). However, in Hansen v. Franklin County, 247 Iowa 1287, 78 N.W.2d 805 (1956), it was held that the trial court did not abuse its discretion in refusing to let the jury view a picture of the premises, because it would give them a one-sided view of the situation. The trial court thought there was an element of unfairness in showing actual photographs of the situation after damage as against mere word description of appearances before.

[32] Faivre v. Manderchied, 117 Iowa 724, 90 N.W. 76 (1902); Reddin v. Gates, 52 Iowa 210, 2 N.W. 1079 (1879).

[33] Barker v. Town of Perry, 67 Iowa 146, 25 N.W. 100 (1885).

[34] Perry v. Eblen, 250 Iowa 1338, 98 N.W.2d 832 (1959); State v. Triplett, 248 Iowa 339, 79 N.W.2d 391 (1957); State v. Beckwith, 243 Iowa 841, 53 N.W.2d 867 (1952).

[35] State v. Beckwith, note 34, *supra*; State v. Thompson, 239 Iowa 907, 33 N.W.2d 13 (1948) (photographs of dogs and pens, in prosecution for cruelty to animals); State v. Williams, 195 Iowa 785, 192 N.W. 901 (1923).

[36] State v. Triplett, 248 Iowa 339, 79 N.W.2d 391 (1957) (deceased); State v. Ebelsheiser, 242 Iowa 49, 43 N.W.2d 706 (1951) (scene of murder); State v. Heinz, 223 Iowa 1241, 275 N.W. 10 (1938) (deceased); State v. Kneeskern, 203 Iowa 929, 210 N.W. 465 (1927) (deceased); State v. Williams, 195 Iowa 785, 192 N.W. 901 (1923) (deceased); State v. Rogers, 129 Iowa 229, 105 N.W. 455 (1905) (scene of crime); State v. Hasty, 121 Iowa 507, 96 N.W. 1115 (1903) (photograph of defendant's alleged paramour, in prosecution for adultery).

[37] Stiefel v. Wandro, 246 Iowa 807, 68 N.W.2d 53 (1955); State v. Ebelsheiser, 242 Iowa 49, 43 N.W.2d 706 (1951) (murder scene taken three days after homicide); Young v. Blue Line Storage Co., 242 Iowa 125, 44 N.W.2d 391 (1951); Coonley v. Lowden, 234 Iowa 731, 12 N.W.2d 870 (1944); Dice v. Johnson, 198 Iowa 1093, 199 N.W. 346 (1924).

[38] Stiefel v. Wandro, 246 Iowa 807, 68 N.W.2d 53 (1955); Cubbage v. Youngerman, 155 Iowa 39, 134 N.W. 1074 (1912).

[39] State v. Hossack, 116 Iowa 194, 89 N.W. 1077 (1902).

[40] Young v. Blue Line Storage Co., 242 Iowa 125, 44 N.W.2d 391 (1951).

Although the Iowa Court has not passed upon any problems relating to motion pictures, in general these must meet the same requirements as a "still".[41] Accordingly, they must be properly authenticated and relevant to the issues. As is the case with still photographs, most jurisdictions hold that identification need not be made by the photographer, but they do require that identification be made by someone present when the motion picture was taken so that testimony will indicate how the camera was positioned and that the pictures correctly portray physical conditions and surroundings *then* existing. If the photographer testifies as to authenticity, he should state that the films were correctly developed, that there has been no cutting, erasing or tampering, and that the camera was in good working order.[42]

Motion pictures are used for most of the purposes for which still photographs are employed, and, in addition, to show malingering or the physical condition of a party.[43]

X-RAYS[44]

Generally, X-ray photographs are admissible on the same basis as photographs.[45] Their usual purpose is to represent things to which the witness testifies from his independent observation.[46] However, an X-ray photograph may be admissible as independent evidence, as, for example, when it is necessary to show the presence of a foreign substance in the body.[47]

Unlike photographs, it is not necessary, when laying the foundation, that testimony indicate the X-ray correctly portrays the condition of the body affected.[48] This rule stems from the practical impossibility of describing a condition existing underneath the skin. Also, proof that the picture is scientifically accurate ordinarily is dispensed with owing to the fact that general correctness of X-ray representations have been fully proved by investigation.[49] What is required by way of identification is explanation of position of the body and what specific portions are represented,[50] proof that the X-rays were taken for the use of the attending physician by an expert in the science,[51] and proof that the person X-rayed is the person whose

[41] For identification requirements in other jurisdictions see Annot., 62 A.L.R.2d 686 § 3 (1958), and 9 A.L.R.2d 899 § 10 (1950).

[42] For an excellent example of proper foundation, see McGoorty v. Benhart, 30 Ill. App. 458, 27 N.E.2d 289 (1940).

[43] For a discussion of the uses of motion pictures in both civil and criminal cases, see Annot., 62 A.L.R.2d 686 (1959).

[44] A somewhat related area, with which the Iowa Court has not had occasion to be concerned, involves the use of electroencephalograms, electrocardiograms, and other medical tests furnished by electronic devices. For the most part, such records have been admitted on the same basis as X-rays or photographs, i.e., upon proper proof of their correctness and accuracy. As a further requirement, one generally must show the competency of the technician performing the test. Some jurisdictions admit these items as hospital records and require that they meet the same standards as other documentary records, which are taken as exceptions to the hearsay rule. For a discussion of the admissibility of such medical tests, see Annot., 66 A.L.R.2d 536 (1959).

[45] Wosoba v. Kenyon, 215 Iowa 226, 243 N.W. 569 (1932).

[46] Elzig v. Bales, 135 Iowa 208, 112 N.W. 540 (1907); State v. Matheson, 130 Iowa 440, 103 N.W. 137 (1906).

[47] State v. Matheson, *supra*, note 46 (bullet).

[48] Kramer v. Henely, 227 Iowa 504, 288 N.W. 610 (1940); Ingebretsen v. Minneapolis & St. L. Ry., 176 Iowa 74, 84, 155 N.W. 327, 330 (1916) ("In one sense of the word, no such identification is possible. A skiagraph is a picture of a state or condition of things which is not visible to the naked eye, and its correctness is, at best, a conclusion.").

[49] Kramer v. Henely, *supra*, note 48; Ingebretsen v. Minneapolis & St. L. Ry., *supra*, note 48; State v. Matheson, 130 Iowa 440, 103 N.W. 137 (1906).

[50] Kramer v. Henely, 227 Iowa 504, 288 N.W. 610 (1940); Baur v. Reavell, 219 Iowa 1212, 1227, 260 N.W. 39, 47 (1935) ("such testimony may be given by either the person who took the X-ray photographs, or another who knows the facts."); Wosoba v. Kenyon, 215 Iowa 226, 243 N.W. 569 (1932).

[51] Wosoba v. Kenyon, *supra*, note 50.

condition is at issue. It is not necessary that testimony connect the condition at the time of the X-rays with the condition immediately following injury.[52]

X-rays are the best evidence of what appears thereon. Consequently, a witness cannot testify as to what an X-ray shows.[53] This rule should be qualified to the extent that what the jury cannot see and understand may properly be the subject of expert testimony.[54] Thus, a physician or an X-ray technician may explain how things are indicated on an X-ray photograph, *i.e.*, that bone would appear more heavily shaded than muscle.[55]

MODELS, MAPS, PLATS, AND DIAGRAMS

Since a thing itself, if relevant, may be introduced in evidence, courts have no trouble in justifying the use of an accurate facsimile when, as a matter of convenience or necessity, the objects cannot be produced in court. Models, maps, plats and diagrams are each in the nature of reproductions or representations, so the principles relating to their use are very similar.[56]

Where the model or drawing is introduced as independent evidence, it must be shown to be a faithful reproduction in all essential details.[57] Identification is satisfied only by the testimony of the maker from his personal knowledge.[58] On the other hand, where the facsimile is used merely to aid the witness in giving oral testimony, the requirement for identification is less stringent. The document or model must still have been made by the witness, but it need not be shown to be correct.[59] It is admissible as part of the witness' testimony, not necessarily as being right, but as his version of it. Reproductions used to enable the witness to testify more intelligently cannot be taken to the jury room.[60]

Maps, plats and diagrams are most frequently used to depict the scene of an accident[61] or to illustrate the testimony of a surveyor in regard to

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[52] Kramer v. Henely, 227 Iowa 504, 288 N.W. 610 (1940).

[53] Lang v. Marshalltown Light, Power & Ry. Co., 185 Iowa 940, 170 N.W. 463 (1919); Elzig v. Bales, 135 Iowa 208, 211, 112 N.W. 540, 541 (1907) ("as demonstrative evidence, they serve to explain or illustrate, and apply the testimony, and are aids to the jury in comprehending the questions in dispute. No argument is required to show that when taken for either purpose they are the best evidence of what appears on them. The rule exacting the best evidence applies to the testimony of experts, as well as to that of other witnesses, and we are of the opinion that the court erred in permitting the doctor to testify to what appeared on the skiagraph.").

[54] Appleby v. Cass, 211 Iowa 1145, 234 N.W. 477 (1931); Daniels v. Iowa City, 191 Iowa 811, 183 N.W. 415 (1921).

[55] Daniels v. Iowa City, *supra*, note 54.

[56] Although no specific Iowa cases have dealt with the subject of blackboards, their use has been sanctioned on the trial court level. Generally, blackboard drawings must meet the same requirements for admissibility as charts or other diagrams. Blackboards may be used during opening statements to outline facts, make sketches and itemize damages; during the course of the trial, in connection with the presentation of evidence; and during the summation, to illustrate statutes or principles of law. Where possible, counsel should use charts in preference to blackboards, since the latter cannot be taken to the jury room and it is difficult to preserve the drawings in the record for purposes of appeal. For general reference, see Annot., 44 A.L.R.2d 1205 (1955); and 9 A.L.R.2d 1044 (1950); Gillen, *The Use of Blackboards During Trial*, in PROCEEDINGS, A.B.A. SECTION OF INSURANCE, NEGLIGENCE AND COMPENSATION LAW (1958).

[57] Roushar v. Dixon, 231 Iowa 993, 2 N.W.2d 660 (1942); Lush v. Town of Parkersburg, 127 Iowa 701, 104 N.W. 336 (1905); McMahon v. City of Dubuque, 107 Iowa 62, 77 N.W. 517 (1898).

[58] Anderson v. Elliott, 244 Iowa 670, 57 N.W.2d 792 (1953); Roushar v. Dixon, *supra*, note 57.

[59] Hamdorf v. Corrie, 101 N.W.2d 836 (Iowa, 1960); Bean v. Bickley, 187 Iowa 689, 174 N.W. 675 (1919); Watson v. Boone Electric Co., 163 Iowa 316, 144 N.W. 350 (1913); Cubbage v. Youngerman, 155 Iowa 39, 134 N.W. 1074 (1912); Austin v. Whitcher, 135 Iowa 733, 110 N.W. 910 (1907).

[60] Baker v. Zimmerman, 179 Iowa 272, 161 N.W. 479 (1917).

[61] Hamdorf v. Corrie, 101 N.W.2d 836 (Iowa 1960); Anderson v. Elliott, 244 Iowa 670, 57 N.W.2d 792 (1953); Roushar v. Dixon, 231 Iowa 993, 2 N.W.2d 660 (1942); Baker v. Zimmerman, *supra*, note 60; Watson v. Boone Electric Co., 163 Iowa 316, 144 N.W. 350 (1913); Cubbage v. Youngerman, 155 Iowa 39, 134 N.W. 1074 (1912).

measurements he has made.[62] Models are usually used to illustrate the construction or the operation of mechanical devices.[63]

RECORDINGS

Problems arising from the use of sound recordings have been treated in but one Iowa case. There it was determined that recordings, if properly authenticated, are not inadmissible in evidence because introduced in that form, sound recordings of confessions are admissible in criminal proceedings, and the recording and machine on which it may be replayed may be taken to the jury room.[64] In order to introduce a sound recording other jurisdictions have generally required a showing that the recording device was in proper working order, that the operator of the machine was skilled in its use, that the authenticity and correctness of the recordings is established, that there has been no editing, the manner of preservation of the recordings, identification of the speaker, and that the recorded utterance was voluntarily made.[65]

EXPERIMENTS AND DEMONSTRATIONS

At an early date, courts were very conservative in receiving evidence in the nature of demonstrations and experiments. This reluctance was placed upon that ground that, by admitting evidence of an experiment, a party was being permitted to manufacture his own evidence.[66] Now, however, it is recognized that experiments and demonstrations often permit the jury to substitute experience for speculation and consequently to make a more reliable determination of the issues before it.[67]

A party desiring to introduce in evidence the results of a previously performed experiment, or to perform an experiment in the presence of the jury, must make a preliminary showing that the conditions were or will be substantially similar to those existing at the time of the occurrence to which the demonstration relates.[68] The test for this requirement is whether the demonstration will aid rather than confuse and mislead the jury.[69] The trial court has broad discretion in passing on whether similarity of conditions were or will be achieved,[70] and it may also exclude experiments when it deems

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[62] Keller v. Harrison, 151 Iowa 320, 131 N.W. 53 (1911); Austin v. Whitcher, 135 Iowa 733, 110 N.W. 910 (1907); Goldsborough v. Pidduck, 87 Iowa 599, 54 N.W. 431 (1893); Messer v. Reginnitter, 32 Iowa 312 (1871). In Lee v. Farmer's Mut. Hail Ins. Ass'n, 214 Iowa 932, 241 N.W. 403 (1932), a diagram was used to indicate the location of tracts of grain, in an action to recover upon a hail policy.

[63] Smith v. Beck, 153 N.W. 76 (Iowa, 1915) (water pump); Moore v. Des Moines City Ry., 123 N.W. 324 (Iowa, 1909) (automobile); McMahon v. City of Dubuque, 107 Iowa 62, 77 N.W. 517 (1898) (application of spark arrester to locomotive). In Lush v. Town of Parkersburg, 127 Iowa 701, 104 N.W 336 (1905), a suit for personal injuries, it was held not error to admit model of the scene of the accident.

[64] State v. Triplett, 248 Iowa 339, 79 N.W.2d 391 (1956).

[65] On the general admissibility of sound recordings, see Annot., 58 A.L.R.2d 1024 (1958).

[66] Burg v. Chicago, R.I. & P. Ry., 90 Iowa 106, 57 N.W. 680 (1894).

[67] Tackman v. Brotherhood of American Yeoman, 132 Iowa 64, 106 N.W. 350 (1906).

[68] Pond v. Anderson, 241 Iowa 1038, 44 N.W.2d 372 (1950) (witness was testifying that she had heard a telephone conversation between plaintiff and another, over an extension of the other's phone; defendants attorney was not permitted to have her listen to plaintiff's voice over the phone on the judge's desk in the courtroom; held not error, since it did not appear that plaintiff's voice could be as readily heard in the courtroom); State v. Kneeskern, 203 Iowa 929, 210 N.W. 465 (1927); Chicago Tel. Supply Co. v. Marne & Elkhorn Tel. Co., 134 Iowa 252, 111 N.W. 935 (1907); Burg v. Chicago, R.I.&P. Ry., 90 Iowa 106, 57 N.W. 680 (1894) (permissible to make tests with trains to ascertain the distance at which children could be seen, where tests were made at same place on track and the opportunity for seeing was equally as good as at the time in question).

[69] Burg v. Chicago, R.I. & P. Ry., *supra*, note 68.

[70] Boerner Fry Co. v. Mucci, 158 Iowa 315, 138 N.W. 866 (1913); Chicago Tel. Supply Co. v. Marne & Elkhorn Tel. Co., 134 Iowa 252, 111 N.W. 935 (1907).

the exhibition will be theatrical in nature[71] or will cause an unwarranted delay in the trial.[72]

Results of experiments may be introduced to show "[f]irst, in proof of an alleged fact, that a result similar to the fact in question was obtained from an experiment performed under conditions substantially similar to those admitted or proved to exist; second, in disproof thereof, that a result was obtained different from the alleged fact by an experiment performed under similar conditions; and, third, that a similar result was obtained from an experiment performed under totally different conditions."[73]

More specifically, experiments have been held admissible which show the operation of mechanical devices,[74] which result in test measurements, [75] or which show the merchantibility of goods.[76] By way of demonstration, a witness may illustrate evidence to the jury by posture and description and by motion of his hands.[77] The Court, however, has not permitted the simulation of an automobile accident due to the fact that there are so many variables involved that a true reenactment would be almost impossible.[78]

If all conditions to admissibility are met, it matters not that the experiment was performed prior to trial and the results introduced thereafter, or that the experiment was performed before the court in the presence of the jury.[79] In instances where experiments are made prior to litigation, it is not necessary that the opposing party have notice of the proposed experiment so that he may be present.[80] Which party makes the test, his motives for making it, and the circumstances surrounding its performance, are all matters to be taken into consideration by the jury in giving weight to the testimony.[81]

CONCLUSION

The pervading consideration in the Iowa Supreme Court's pronouncements respecting an alleged error in receipt or exclusion of demonstrative evidence seems to be the broad discretion it reposes in the trial court's judgment. It takes a flagrant abuse of this discretion to warrant a reversal. In regard to photographs, the Court has candidly stated that it has never

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[71] Bruggeman v. Illinois Cen. R.R., 154 Iowa 596, 134 N.W. 1079 (1912) (witness had testified to a brief interval of time, and was asked to observe the dial of a watch to confirm his estimate and then state whether his estimate was correct).

[72] Homan v. Franklin County, 98 Iowa 692, 68 N.W. 559 (1896) (where expert performed experiments with plaintiff's eyes to show that dilated condition was traced to abnormal heart condition, the court refused to allow defendant to make the same experiment with another person to show the same result with a normal person, on the ground the court did not have time to find a normal person).

[73] Tackman v. Brotherhood of American Yeoman, 132 Iowa 64, 69, 106 N.W. 350, 351 (1906). There are numerous examples of the first two classes. A good example of the third is found in Farmers & Merchants Bank v. Young, 36 Iowa 44 (1872), where a witness accounted for the apparent difference in the color of ink in signatures by testifying that a blotter may have been used on one and not the other, and it was held error not to allow him to illustrate the effect of the blotter. Such evidence is particularly valuable where the cause of a specified event is purely a matter of speculation and inference.

[74] Smith v. Beck, 153 N.W. 76 (Iowa, 1915) (water pump); Stockwell v. C.C. & D.R.R., 43 Iowa 470 (1876) (practicability of train running for some distance with steam shut off).

[75] Burg v. Chicago, R.I. & P. Ry., 90 Iowa 106, 57 N.W. 680 (1894).

[76] Boerner Fry Co. v. Mucci, 158 Iowa 315, 138 N.W. 866 (1913) (ice cream); Chicago Tel. Supply Co. v. Marne & Elkhorn Tel. Co., 134 Iowa 252, 111 N.W. 935 (1907) (telephones).

[77] Horan v. Chicago, St. P., M. & O. Ry., 89 Iowa 328, 56 N.W. 507 (1893).

[78] Brooks v. Gilbert, 250 Iowa 1164, 98 N.W.2d 309 (1959); Moore v. Chicago, St. P. & K.C. Ry., 93 Iowa 484, 61 N.W. 992 (1895).

[79] Stockwell v. C.C. & D.R.R., 43 Iowa 470 (1876).

[80] Burg v. Chicago, R.I. & P. Ry., 90 Iowa 106, 57 N.W. 680 (1894).

[81] *Ibid.*

reversed a case solely on the basis of an error in their admission.[82] The conclusion to be drawn is best summed up in the Court's own words, that "[s]omething must be left to the discretion of the trial judge, who has the entire situation before him, and who is best qualified to give due consideration to the entire situation existing when the offer is made and the objections interposed. What is really involved . . . is whether judicial discretion has been abused."[83]

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[82] Coonley v. Lowden, 234 Iowa 731, 12 N.W.2d 870 (1944).
[83] Salinger, J., in State v. Stansberry, 182 Iowa 908, 917, 166 N.W. 359, 362 (1918).