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The State of the Art Defense in Products Liability: Unreasonably Dangerous to the Injured Consumer

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I. INTRODUCTION

The judiciary has been the predominant force in establishing the legal duties of the manufacturer to the public in the products liability arena. The threat of a lawsuit, with the attendant adverse publicity and potential damages award, has continually prompted manufacturers to improve the safety of their products.[1] Thus, lawsuits have not only proven an effective deterrence to the manufacturing of unsafe products but have also provided adequate compensation for consumers and employees. Moreover, products liability litigation has developed independent legal duties which are frequently more stringent than those imposed by either government regulation or the industry itself.[2]

Recently, manufacturers and insurers have charged that these court decisions, which have imposed such stringent pro-consumer duties on the manufacturer, have caused a products liability "crisis."[3] The manufacturers additionally assert that as a result of the strict stance advanced by the judiciary, they must contend with increasing insurance rates, higher product prices, and the real possibility of being forced out of business. In response to these contentions, various governmental agencies and research institutions have investigated the allegations of the manufacturers and insurers. Generally, these studies have concluded that there is no products liability "crisis" and that high in-

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1. *See* Keeton, *Products Liability—Some Observations About Allocation of Risks*, 64 MICH. L. REV. 1329 (1966); Prosser, *The Assault on the Citadel (Strict Liability to the Consumer)*, 69 YALE L.J. 1099, 1119-23 (1960).

2. *See generally* Weinstein, Twerski, Piehler & Donaher, *Product Liability: An Interaction of Law and Technology*, 12 DUQ. L. REV. 425, 462-63 (1974). There have been numerous instances in which litigation has resulted in the manufacturer's adopting safer and more stringent standards. For example, in McCormack v. HanksCraft Co., 278 Minn. 322, 154 N.W.2d 488 (1967), the manufacturer of a steam vaporizer was held liable when the vaporizer tipped over and spilled scalding water on the plaintiff. Subsequently, the manufacturer redesigned the vaporizer with a screw-top cap and automatic shut-off.

In addition, label information and warnings have been required by the courts beyond the requirements of governmental regulatory agencies. *See* Reyes v. Wyeth Laboratories, 498 F.2d 1264 (5th Cir.), *cert. denied*, 419 U.S. 1096 (1974); Hubbard-Hall Chem. Co. v. Silverman, 340 F.2d 402 (1st Cir. 1965).

3. *See Swine Flu Immunization Program: Supplemental Hearings Before the Subcomm. on Health and the Environment of the House Comm. on Interstate and Foreign Commerce*, 94th Cong., 2d Sess. 84-85 (1976) (statement of Leslie Cheek).

surance rates are not attributable to the court-imposed duties on the manufacturer.[4]

Despite the existence of overwhelming evidence establishing that a "crisis" does not exist,[5] the unified demand of the manufacturers and insurers for products liability reform has not been ignored; many state legislatures have tailored relief for the manufacturer in the form of products liability statutes which dramatically limit the duties of the manufacturer and restrict the recovery permitted an injured consumer. The "state of the art defense" is an example of the legislative response to the so-called products liability "crisis."

This comment will examine the significance of the state of the art[6] in products liability cases. The distinction between the negligence and strict liability standards is examined to determine the propriety of the statutory state of the art defense and its ramifications to the injured consumer. Finally, a recommendation will be presented as to the utility of the state of the art in an evidentiary capacity and the manner in which such evidence should be employed.

II. THE LEGISLATIVE RESPONSE

A major complaint of manufacturers has been that the courts, in judging whether a product is defective, have viewed the products in light of present technology, knowledge, or safety standards. In this regard, manufacturers have traditionally argued that they should be absolved from product liability upon proof of compliance with industry custom or government standards. State legislation now provides a state of the art defense, exonerating a manufacturer if his product conformed to either industry norms or government standards in existence at the time the product was sold.[7] Hence, under this legislation, lia-

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4. *See* Product Liability Tort Reform: Crisis of Uncertainty (1979) (an unpublished study by students and faculty of the Department of Engineering and Public Policy and the Graduate School of Urban and Public Affairs of Carnegie Mellon University); Interagency Task Force on Product Liability, Draft Final Report I-20 (1977) (an unpublished report conducted under the direction of the United States Department of Commerce) [hereinafter cited as Interagency Task Force]. The Interagency Task Force concluded that products liability doctrines were not the cause of high insurance rates. *Id.* at I-18, 19. The Task Force observed that "a number of manufacturers . . . do not have planned product liability loss prevention programs in the basic area of design research and quality control" and that other manufacturers "do not provide adequate instruction about the dangers that may spring from their products." *Id.* at I-20, 21.

5. Interagency Task Force, *supra* note 4, at I-20, 21.

6. For purposes of this comment, the state of the art is defined by industry custom and government regulation, since the legislation in this area generally views the state of the art from this perspective. The technological state of the art is not addressed by this comment.

7. For a detailed discussion of the state of the art defense in products liability, *see*

bility will not be imposed where the product conforms with similar products of competing manufacturers or with prevailing government standards.

There are two variations of this statutory defense. One creates a rebuttable presumption that the product was not defective, while the other provides the manufacturer with an absolute defense. A majority of the state legislation has adopted the former view that compliance with the state of the art creates a rebuttable presumption that the product was not defective.[8] Generally, the plaintiff has two methods available to rebut the presumption: first, the plaintiff can demonstrate that the risks permitted by a particular regulation are unreasonable to the consumer; and second, the plaintiff can rebut the presumption by showing that the processes by which the regulatory standards were established, when compared with other government standards, were inadequate to protect the interests of consumers.[9] The definition and scope of this presumption varies among the jurisdictions. For example, the rebuttable presumption created by the Utah Product Liability Act[10] is limited to conformity with government safety standards existing at the time of manufacture.[11] In contrast, the Colorado statute,[12] in addition to providing a defense for products complying with govern-

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Phillips, *The Standard for Determining Defectiveness in Product Liability*, 46 U. CIN. L. REV. 101 (1977).

8. *See* COLO. REV. STAT. § 13-21-403(1) (Supp. 1978); UTAH CODE ANN. § 78-15-6(3) (1977). *See also* H.B. 188, N.J. Legis., 1980 Sess. § 7(2) (1980); H.B. 993, N.C. Legis., 1979 Sess. § 99B-7(d) (1979); H.B. 373, Tex. Legis., 1979 Sess. § 1 (1979).

9. *See* Henderson, *Manufacturers' Liability for Defective Product Design: A Proposed Statutory Reform*, 56 N.C. L. REV. 626, 639-40 (1977). The author states:

> [P]rocesses in which consumers have no substantial voice and which, either in terms of their establishment or when viewed in historical perspective, clearly are intended only to establish minimal safety standards, would be more likely to be susceptible to arguments of inadequacy. On the other hand, a plaintiff would, and should, have a more difficult time escaping the effects of a defendant-manufacturer's compliance with a specific standard adopted after due consideration by an agency, such as the Consumer Product Safety Commission, which is recognized generally to weigh and to promote the interests of consumers.

Id. at 639-40.

10. UTAH CODE ANN. §§ 78-15-1 through -7 (1977).

11. *Id.* § 78-15-6(3). The Utah Product Liability Act provides in relevant part:

> There is a rebuttable presumption that a product is free from defect or defective condition where the alleged defect in the plans or designs for the product or the methods and techniques of manufacturing, inspecting and testing the product were in conformity with government standards established for that industry which were in existence at the time the plans or designs for the product or the methods and techniques of manufacturing, inspecting and testing the product were adopted.

Id.

12. COLO. REV. STAT. §§ 13-80-127.5, 13-21-401 through -405 (Supp. 1978).

ment standards,[13] extends the defense to products conforming with the state of the art.[14]

The second approach, which has been enacted in Arizona[15] and Indiana,[16] provides the manufacturer with an absolute state of the art defense. In these jurisdictions, the manufacturer's compliance with industry custom or government standards automatically bars the plaintiff's case.[17] Products which conform to the state of the art in existence at the time of manufacture are considered nondefective. Under this approach, an examination of the nature and characteristics of the product is never conducted.

The increasing amount of legislative activity in the strict products liability area, along with the strong lobbying efforts of manufacturers and insurers, has resulted in a recent legislative proposal in Pennsylvania—specifically, House Bill 1083.[18] The proposed Pennsylvania legislation creates an inference that a product is not defective if it conformed with recognized standards, designs, methods of testing or manufacturing in existence at the time of the manufacture of the product.[19] Although the Pennsylvania proposal establishes an inference and not a rebuttable presumption, the practical effect is the same; namely, the manufacturer is afforded a state of the art defense.[20] Accordingly, the trial judge will instruct the jury that upon proof of compliance with the state of the art, an inference is created that the product is not defective and the manufacturer is not negligent. In order to overcome such an inference in a design defect case, the plaintiff must show that the state of the art of the entire industry was unreasonably dangerous. Moreover, because this legislation would permit manufac-

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13. *See* COLO. REV. STAT. § 13-21-403 (Supp. 1978).

14. The Colorado statute provides in pertinent part as follows:

> In any product liability action, it shall be rebuttably presumed that the product which caused the injury, death, or property damage was not defective and that the manufacturer or seller thereof was not negligent if the product:
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> (a) Prior to sale by the manufacturer, conformed to the state of the art, as distinguished from industry standards, applicable to such product in existence at the time of sale; or
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> (b) Complied with, at the time of sale by the manufacturer, any applicable code, standard, or regulation adopted or promulgated by the United States or by this state, or by any agency of the United States or of this state.

Id.

15. ARIZ. REV. STAT. §§ 12-681 through -686 (Supp. 1979).

16. IND. STAT. ANN. tit. 34, §§ 4-20A-1 through -8 (Burns Supp. 1979).

17. ARIZ. REV. STAT. § 12-683(1) (Supp. 1979); IND. STAT. ANN. tit. 34, §§ 4-20A-4(u) (Burns Supp. 1979).

18. H.B. 1083, Pa. Legis., 1979 Sess. (1979).

19. *Id.* § 8359.

20. *See* note 47 *infra*.

turers to dictate the proper safety measures to be incorporated into products,[21] the manufacturers' legal obligations to consumers would be determined solely by manufacturers rather than by the judiciary. Consequently, by allowing the manufacturer to show that due care was exercised in the manufacturing process, the proposed legislation is a move away from the traditional strict liability concept,[22] because application of the proposed legislation would shift the focus of a products liability suit from the nature of the product to the conduct of the manufacturer.

The Pennsylvania proposal further evidences the recent trend of legislative involvement in the strict products liability area, which indicates that state legislative bodies are no longer content with the general expansion of the manufacturers' liability by the courts. The question that must be answered, however, is whether the state of the art defense is the proper means of circumscribing the manufacturers' liability without depriving the injured consumer of rightful recourse against the negligent manufacturer.

III. ANALYSIS OF THE DEFENSE

The determination of the state of the art necessarily involves an examination of the conduct of other manufacturers at the time the defendant manufactured his product.[23] In a negligence case, this evidence is particularly valuable since the negligence standard limits the liability of the manufacturer to what was reasonably foreseeable.[24] Specifically, the conduct of the manufacturer is measured against what was reasonably foreseeable at the time of manufacture.[25] In other words, the focus in a negligence action is on the due care exercised by the manufacturer. Although the courts have admitted state of the art evidence in negligence cases,[26] it has not been recognized as affording an absolute

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21. *See* Johnson, *Products Liability "Reform": A Hazard to Consumers*, 56 N.C. L. REV. 677, 681 (1978) [hereinafter cited as Johnson].

22. *See* notes 55-57 and accompanying text *infra*.

23. Karasik, *"State of the Art or Science": Is It Defense to Products Liability?*, 60 ILL. B.J. 348 (1972).

24. *See* General Motors Corp. v. Hopkins, 548 S.W.2d 344, 351-52 (Tex. 1977) (carburetor design dangerous for foreseeable use of normal driving).

25. *Id.* at 349.

26. *See* Schneider v. Chrysler Motors Corp., 401 F.2d 549 (8th Cir. 1968) (evidence admitted of similar vent windows of different automobiles); Olson v. Arctic Enterprises, Inc., 349 F. Supp. 761 (D.N.D. 1972) (evidence admitted of unavailable safer snowmobile design or guard); Low v. Park Price Co., 95 Idaho 91, 503 P.2d 291 (1972) (evidence introduced of customs of other service garages in storage of automobiles); Murphy v. Messerschmidt, 41 Ill. App. 3d 659, 355 N.E.2d 78 (1976), *aff'd*, 68 Ill. 2d 79, 368 N.E.2d 1299 (1977) (evidence of present custom of contractors inadmissible).

defense to the manufacturer.[27]

The propriety of allowing the manufacturer a state of the art defense in a strict products liability case is immediately questionable, for in strict products liability, it must be remembered that it is the product that is on trial and not the conduct of the manufacturer.[28] Evidence of due care on the part of the manufacturer is irrelevant.[29] This principle is best illustrated by section 402A of the Second Restatement of Torts, which holds the manufacturer liable even though he "has exercised all possible care in the preparation and sale of his product."[30] By examining the conduct and custom of the industry, the defense permits manufacturers to establish the standard by which their products are judged, and this prompts an additional concern: namely, that the conduct and customs of the entire industry may be negligent with respect to a particular product.[31] Certainly, the plaintiff will encounter great difficulty overcoming the defense by arguing that the course of conduct followed by an entire industry, which has never been judicially or administratively condemned, should be declared an unreasonable

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27. Bardorek v. General Motors Corp., 11 Cal. App. 3d 902, 935, 90 Cal. Rptr. 305, 327 (1970); Southern New Eng. Tel. Co. v. D'Addaria Constr. Co., 33 Conn. Sup. Ct. 596, 363 A.2d 766 (1976); Broadview Leasing Co. v. Cape Central Airways, Inc., 539 S.W.2d 553 (Mo. Ct. App. 1976). *See also* The T. J. Hooper, 60 F.2d 737 (2d Cir.), *cert. denied*, 287 U.S. 662 (1932), where Justice Learned Hand stated that though customs may be evidence of the reasonable standard of care, "[c]ourts must in the end say what is required; there are precautions so imperative that even their universal disregard will not excuse their omission." *Id.* at 740.

28. *See* Kuisis v. Baldwin-Lima-Hamilton Corp., 457 Pa. 321, 319 A.2d 914 (1974); MacDougall v. Ford Motor Co., 214 Pa. Super. Ct. 384, 257 A.2d 676 (1969). In *MacDougall*, the court distinguished negligence and strict liability by noting that:

> The evidentiary requirements of negligence law demand proof that injury is proximately caused by a specific defect in design or construction, because liability hinges upon whether the accident could have been avoided by the exercise of reasonable care. In contrast, the *concern of both § 402A* and warranty law *is with the fitness of the product, not the conduct of the producer as measured by due care.*

Id. at 391, 257 A.2d at 680 (emphasis added).

29. *See* Berkebile v. Brantly Helicopter Corp., 462 Pa. 83, 337 A.2d 893 (1975) (trial court charges to jury regarding reasonableness of defendant's conduct held erroneous); Brady v. Melody Homes Mfr., 121 Ariz. 253, 589 P.2d 896 (1978) (evidence of feasibility of mobile home design inadmissible); Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979) (evidence of industry custom in installing safety devices inadmissible).

30. RESTATEMENT (SECOND) OF TORTS § 402A (1965).

31. *See* Jones v. Hutchinson Mfg., Inc., 502 S.W.2d 66, 70 (Ky. 1973). Indeed, it has been suggested that the entire industry be held liable where a negligent manufacturer adhered to an industry-wide custom in producing a product. *See* Comment, *Industry-Wide Joint Liability*, 57 MARQ. L. REV. 675 (1974). *See also* Hall v. E. I. Dupont de Nemours & Co., 345 F. Supp. 353 (E.D.N.Y. 1972).

standard by which to judge the defendant's product.[32] The statutory defense could, therefore, perpetuate inadequate and antiquated industry standards since future manufacturers will readily adopt the established industry standards, recognizing that the state of the art defense offers them a shield from strict liability.

The defense also severely limits the role of one of the critical factors currently viewed by the courts in determining liability in a design defect case—the feasibility of alternative designs or manufacturing processes.[33] Traditionally, strict liability is established upon the plaintiff's showing that feasible and safer alternatives existed at the time of manufacture.[34] The statutory defense, however, diminishes the value of this evidence in the products liability case. Because the plaintiff's case is preliminarily decided upon the defendant's proof of compliance with the state of the art in the states adopting an absolute state of the art defense, the jury no longer has the opportunity to weigh the costs of additional safeguards or alternate designs against the benefits they provide. Correspondingly, in the states adopting the rebuttable presumption approach, the existence of feasible alternatives is no longer conclusive proof of the defendant's liability but, instead, is mere evidence balanced against the statutory presumption that the product is

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32. For a discussion of the difficulties encountered by plaintiffs in proving the inadequacy of industry custom, *see* Johnson, *supra* note 21, at 683.

33. *See, e.g.*, Ward v. Hobart Mfg. Co., 450 F.2d 1176 (5th Cir. 1971) (defendant's meat grinder attained most feasible safety level available); Horn v. General Motors Corp., 17 Cal. 3d 359, 551 P.2d 398, 131 Cal. Rptr. 78 (1976). In *Horn*, plaintiff was injured when the impact of an auto collision drove her into sharp prongs designed to hold the horn cap on her car's steering wheel. The manufacturer was held liable, despite compliance with industry custom, since an inexpensive and safer alternative design was available. *Id.* at 362, 551 P.2d at 401, 131 Cal. Rptr. at 80.

It is important to note that if legislation provided a technological state of the art defense, this argument would be inapposite. The technological state of the art is defined by what could have scientifically been done at the time of manufacture as opposed to the statutory definition of state of the art, which views what was in fact being done at the time of manufacture. Accordingly, the technological state of the art is determined by measuring the feasibility of alternatives, and evidence of possible alternate designs or manufacturing processes is admissible. *See* 43 J. AIR L. & COM. 587, 592 (1977).

34. *See* Balido v. Improved Mach. Corp., 29 Cal. App. 3d 633, 105 Cal. Rptr. 890 (1972), *hearing denied* (1973) (defendant's press defective since feasible safety gates and hand controls available); Muncy v. General Motors Corp., 357 S.W.2d 430 (Tex. Civ. App. 1962) (defendant's ignition switch not defective since warning light or buzzer not feasible alternative). An excellent example of the significance of the concept of feasible alternatives to the plaintiff's case is Garcia v. Halsett, 3 Cal. App. 3d 319, 82 Cal. Rptr. 420 (1970), where an arm of the plaintiff was mangled when he reached into an open washing machine and it began to spin. The court observed that the manufacturer could have installed microswitches to shut off the machine when the door was open for the minimum cost of two dollars. *Id.* at 321, 82 Cal. Rptr. at 442.

not defective. These results are particularly objectionable considering that many products liability cases have been decided in favor of injured consumers based on the existence of feasible alternatives.[35] For example, in *LaGorga v. Kroger Co.*,[36] a child was seriously injured when his jacket exploded into flames. The United States District Court for the Western District of Pennsylvania stated that the injury could have been prevented if the manufacturer had applied to the jacket a flame-retardant chemical, which was available for "only a few cents."[37] In *Dreisonstok v. Volkswagenwerk, A.G.*,[38] the Court of Appeals for the Fourth Circuit observed that the manufacturer has a duty to adopt an alternative design if it involves "no substantial increase in price"; however, the court noted that a safety feature which "would appreciably add to cost, add little to safety, and take a product out of the price range of the market" would not serve as the basis for imposing liability.[39] Hence, it is readily discernible that the feasibility of alternative designs is critical to decisions involving product defect. Under the statutory defense, the manufacturer may be excused from liability despite the existence of alternate low cost safety designs or features which were available at the time of manufacturing.

Furthermore, the statutory defense permitted for compliance with government regulations is equally objectionable. Traditionally, compliance with government regulations has been but one of several factors viewed by the courts in determining liability.[40] At best, government regulations operate as a "floor" below which consumer products must not fall.[41] If consumers are injured by products which meet these minimum governmental standards, they nevertheless are entitled to demonstrate the product's defectiveness by proving the existence of feasible alternatives.[42] The state of the art defense, however, has the effect of

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35. *See* notes 33-34 *supra*.

36. 275 F. Supp. 373 (W.D. Pa. 1967).

37. *Id.* at 379.

38. 489 F.2d 1066 (4th Cir. 1974).

39. *Id.* at 1073. *See also* Ward v. Hobart Mfg. Co., 450 F.2d 1176, 1187 (5th Cir. 1974) (safety devices on defendant's grinder most feasible alternative available).

40. Larsen v. General Motors Corp., 391 F.2d 495 (8th Cir. 1968); LaGorga v. Kroger Co., 275 F. Supp. 373 (W.D. Pa. 1967); Nevis v. Pacific Gas & Elec. Co., 43 Cal. 2d 626, 275 P.2d 761 (1954); Volkswagen of America, Inc. v. Young, 272 Md. 201, 321 A.2d 737 (1974); Berkebile v. Brantly Helicopter Corp., 219 Pa. Super. Ct. 479, 281 A.2d 797 (1971); Kemp v. Wisconsin Elec. Power Co., 44 Wis. 2d 571, 172 N.W.2d 161 (1970).

41. *See* 122 Cong. Rec. 16,346 (1976) (remarks of Sen. Taft). *See also* U.S. DEPT. OF COMMERCE, INTERAGENCY TASK FORCE ON PRODUCT LIABILITY, 5 FINAL REPORT OF THE LEGAL STUDY I 113 (1971).

42. Brodsky & Cohen, *"Uncle Sam," the Product Safety Man: Consumer Product Safety Standards in the Marketplace and in the Courts*, 2 HOFSTRA L. REV. 619, 648-49 (1974). *See* RESTATEMENT (SECOND) OF TORTS § 288C (1965).

precluding this evidence once product conformity is proven by the manufacturer.

Application of this defense would also adversely affect the safety of products. Governmental regulations are not reliable standards in that they are not predicated solely upon considerations of safety; rather, political considerations and the lobbying efforts of manufacturers are often reflected in the regulations.[43] Moreover, safety regulations cannot anticipate every instance in which a product may be dangerous in normal use. And government regulations which may have been adequate when originally enacted are often obsolete and fall well below the level of safety needed for products manufactured at a later date. By preventing the courts from determining the standards by which a product is judged, the defense frustrates product improvement since the manufacturer is satisfied merely to comply with the minimum government regulations. Therefore, the manufacturers' compliance with the state of the art, whether reflected in industry custom or government regulations, may not be the appropriate gauge for determining liability in the context of a strict liability case.[44]

When viewing the policy considerations underlying strict products liability and the case law that has developed in the area, the inconsistency of the state of the art defense becomes even more apparent. For instance, factors such as risk allocation and safety incentives demand that the manufacturer be precluded from asserting a state of the art defense. The courts have historically viewed the imposition of strict liability as a vehicle for economic risk distribution by recognizing that the manufacturer is in a superior position to purchase insurance and spread the cost.[45] Accordingly, strict liability requires that the responsibility for injuries fall upon the party that placed a dangerous product in the stream of commerce and not on the innocent consumer.[46] But with the availability of the state of the art defense, the

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43. *See* Interagency Task Force, *supra* note 4, at VII-30. For example, the Consumer Product Safety Act provides that safety standards are to be developed by outside parties. 15 U.S.C. § 2051-2081 (1976 & Supp. I 1977). Generally, manufacturers' organizations are the only outside parties interested in undertaking the expense involved with establishing the standards. The lack of objectivity in the development of these standards is clear.

44. Scarzafava, *An Analysis of Products Liability Defenses in the Aftermath of Hopkins*, 9 ST. MARY'S L.J. 261, 270-71 (1977). *Contra*, Raleigh, *The "State of the Art" in Product Liability: A New Look at an Old "Defense,"* 4 OHIO N.L. REV. 249 (1977).

45. Cunningham v. MacNeal Memorial Hosp., 47 Ill. 2d 443, 266 N.E.2d 897 (1970); Vandermark v. Ford Motor Co., 61 Cal. 2d 256, 391 P.2d 168, 37 Cal. Rptr. 896 (1964).

46. In General Motors Corp. v. Hopkins, 548 S.W.2d 344 (Tex. 1977), for example, the manufacturer was held liable when a defectively designed carburetor locked and caused the driver to lose control of his truck. The court stated that "liability is not rested upon what he knew or should have known when he manufactured or sold the product; it rests on his placing into the stream of commerce a product which is demonstrated at trial to

manufacturer's liability is not defined by his placing a product on the market; instead, his liability is contingent upon compliance with industry custom and government regulations.

Regarding the objective of enhanced safety, the defense is counterproductive and encourages stagnation in product safety and development.[47] By allowing manufacturers to establish the standards by which their products are judged, the state of the art defense effectively limits the extent of industrial research, testing and advancement. Desiring to avoid the cost of further safety research and development, the manufacturer will be content to maintain the status quo of the state of the art.[48] Thus, profit maximization and not product safety is advanced by the defense.[49] Conversely, the potential threat of liability caused by the elimination of the defense would promote product research and development while insuring the consumer a safer product.

Finally, the statutory defense is entirely inconsistent with the case law that has developed in this area, since courts have not only repeatedly rejected the state of the art as a defense in strict liability actions, but have also totally denied the introduction of any evidence of the state of the art in such actions.[50] For instance, in *Bailey v. Boatland of Houston, Inc.*,[51] the plaintiff was thrown from a boat and subsequently hit by the propeller. The lower court permitted the defendant to introduce evidence of the unavailability of safety devices, which would have automatically stopped the motor, as a defense to the suit.[52] On appeal,

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have been dangerous." *Id.* at 351. *Accord*, Green v. American Tobacco Co., 154 So.2d 169 (Fla. 1963).

47. *See Product Liability Bill: Hearings on H.B. 1083 Before the House Insurance Comm.*, Pa. Legis., 1979 Sess. (testimony of William C. Archibald, Jr.); *Product Liability Legislation: Hearings on H.B. 1083 Before the House Insurance Comm.*, Pa. Legis., 1979 Sess. (statement of Harry Boyer).

48. *See* 41 TENN. L. REV. 357, 363 (1974).

49. *See generally* Nadar & Page, *Automobile Design and the Judicial Process*, 55 CALIF. L. REV. 645 (1967).

50. Holloway v. J. B. Systems, Ltd., 609 F.2d 1069 (3d Cir. 1979); Walker v. Trico Mfg. Co., 487 F.2d 595 (7th Cir. 1973), *cert. denied*, 415 U.S. 978 (1974); Jeng v. Witters, 452 F. Supp. 1349 (M.D. Pa. 1978), *aff'd mem.*, 591 F.2d 1334 (3d Cir. 1979); Caterpillar Tractor Co. v. Beck, 593 P.2d 871 (Al. 1979); Brady v. Melody Homes Mfr., 121 Ariz. 253, 589 P.2d 896 (1978); Titus v. Bethlehem Steel Corp., 91 Cal. App. 3d 372, 154 Cal. Rptr. 122 (1979); Foglio v. Western Auto Supply, 56 Cal. App. 3d 470, 128 Cal. Rptr. 545 (1976); Community Blood Bank, Inc. v. Russell, 196 So.2d 115 (Fla. 1967); Anderson v. Hyster Co., 74 Ill. 2d 364, 385 N.E.2d 690 (1979); Stanfield v. Medalist Indus., Inc., 34 Ill. App. 3d 635, 340 N.E.2d 276 (1975); Gelsumino v. E. W. Bliss Co., 10 Ill. App. 3d 604, 295 N.E.2d 110 (1973); Cryts v. Ford Motor Co., 571 S.W.2d 683 (Mo. Ct. App. 1978); Olson v. A. W. Chesterton Co., 256 N.W.2d 530 (N.D. 1977); Bialek v. Pittsburgh Brewing Co., 430 Pa. 176, 242 A.2d 231 (1968); Bailey v. Boatland of Houston, Inc., 585 S.W.2d 805 (Tex. Civ. App. 1979); Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979).

51. 585 S.W.2d 805 (Tex. Civ. App. 1979).

52. *Id.* at 807.

the Texas Court of Appeals found that evidence of the state of the art is relevant only to examine the issue of care exercised by the manufacturer[53] and concluded that evidence of the defendant's compliance with the state of the art is not admissible in any respect in a strict liability action.[54] Most recently, in *Holloway v. J. B. Stevens, Ltd.*,[55] the United States Court of Appeals for the Third Circuit, applying Pennsylvania law, found that state of the art evidence is not relevant to a strict liability action[56] since "negligence concepts such as 'trade custom' or 'reasonable care' have no place in suits brought under section 402A."[57]

These decisions evidence a general reluctance to inject any negligence elements into the strict liability theory. To avoid any potential confusion on the part of the jury as to whether a section 402A plaintiff must also prove the absence of due care as part of his prima facie case, these courts totally precluded the jury from considering evidence of the state of the art in determining the manufacturers' liability. Moreover, because state of the art evidence is not conclusive in negligence cases[58] where the conduct and due care of the manufacturer is at issue, such evidence possesses even less probative value in strict products liability and certainly does not merit legislative recognition as a defense.[59]

IV. The Evidentiary Value of the State of the Art in Strict Liability

Although the societal interest in protecting the consumer indicates that the manufacturer's compliance with industry custom and government regulations should not operate as a defense, the manufacturer's interest in not becoming an insurer of his product must also be protected. State of the art evidence could conceivably aid in the jury determination of the defendant's liability. Thus, the fact that the state of the art should not be a defense does not necessarily prohibit the use of such evidence in other aspects of the products liability case. Indeed, it has been argued that such evidence is relevant to prove that a prod-

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53. *Id.* at 809.
54. *Id.* at 811.
55. 609 F.2d 1069 (3d Cir. 1979).
56. *Id.* at 1073.
57. *Id.*
58. *See* note 27 and accompanying text *supra*.
59. Courts often reject the state of the art defense and then proceed to hold the defendant liable on the basis of noncompliance with the state of the art. *See* Anderson v. Hyster Co., 74 Ill. 2d 364, 385 N.E.2d 690 (Ill. 1979); Cryts v. Ford Motor Co., 571 S.W.2d 683 (Mo. Ct. App. 1978).

uct is unavoidably unsafe within the comment k[60] exception to strict liability, and to establish that a product is not defective.

A. Evidence That the Product Is "Unavoidably Unsafe" Under Comment k

Courts have incorporated state of the art evidence into a strict liability case where the action is premised upon comment k to section 402A of the Restatement. Comment k provides in pertinent part that:

> There are some products which in the present state of human knowledge, are quite incapable of being made safe for their intended and ordinary use. . . . Such a product, properly prepared, and accompanied by proper directions and warning, is not defective nor is it *unreasonably* dangerous. . . . The seller of such products . . . is not to be held to strict liability for unfortunate consequences . . . merely because he has undertaken to supply the public with an apparently useful and desirable product, attendant with a known but apparently reasonable risk.[61]

The purpose of comment k is to provide an exception from strict liability for "unavoidably unsafe" products. Introduction of state of the art evidence is essential to show that the product is "unavoidably unsafe" within the comment k exception.[62] First, the manufacturer must be allowed to introduce evidence demonstrating the absence of safer manufacturing processes in the industry; in this respect, state of the art evidence is often the best evidence available. Second, state of the art evidence is relevant proof of the utility of the product since it proves the unavailability of substitutes. This exception has primarily operated to exempt the drug industry from strict liability.[63] In *Basko v. Sterling Drug, Inc.*,[64] the plaintiff had undergone extended treatment with drugs for a skin disease. The plaintiff eventually went blind, and expert testimony identified the condition as a reaction to the drugs. The Court of Appeals for the Second Circuit held that comment k was applicable and exempted the defendant from strict liability.[65]

Although the courts recognize that drugs involve a high degree of risk, strict liability has been deemed inappropriate in most cases involving drugs because of the important benefits enjoyed by the public in the effective treatment of disease and pain. Moreover, without some protective assurances, the manufacturers of these essential, but in-

60. RESTATEMENT (SECOND) OF TORTS § 402A, comment k at 353-54 (1965).

61. *Id.*

62. *See* notes 63-65 and accompanying text *infra*.

63. Comment, *The State of the Art Defense in Strict Products Liability*, 57 MARQ. L. REV. 649, 655-59 (1974) [hereinafter cited as *The State of the Art Defense*].

64. 416 F.2d 417 (2d Cir. 1969).

65. *Id.* at 419.

herently risky products, would hesitate to market them. This drug exception has been extended to other facets of the medical industry. For example, in *Hines v. St. Joseph Hospital*,[66] the plaintiff received a transfusion from blood supplied by the defendant. The plaintiff subsequently contracted hepatitus, which is a medically recognized risk associated with blood transfusions.[67] After examining state of the art evidence, establishing that no test or other process was available to detect and prevent hepatitus, the New Mexico Court of Appeals concluded that the defendant could not be found strictly liable.[68] According to the court, the risk associated with blood transfusions is outweighed by the great public benefit derived from the product.[69]

Although primarily utilized in cases involving products relating to the medical industry, one court has suggested that the comment k exception can be extended to other products. Under this approach, once a product is recognized as "unavoidably unsafe" the exemption from strict liability would operate, regardless of the type of product. In *Borel v. Fibreboard Paper Products Corp.*,[70] the plaintiff developed asbestosis as a result of being exposed to asbestos insulation manufactured by the defendant. The Court of Appeals for the Fifth Circuit held that since the evidence showed that the product was "unavoidably unsafe," strict liability would not be appropriate, provided that the warning requirements of comment k had been met.[71]

In sum, the public benefit derived from the manufacture of these "unavoidably unsafe" products has been consistently emphasized by the courts as the justification for permitting them into the marketplace. Likewise, this argument permits the manufacturer to introduce state of the art evidence in a comment k case, for absent an indulgent evidentiary rule, production of the questionable items would probably cease.

B. Evidence That the Product Is Not "Defective"

Because an element of the plaintiff's prima facie case in strict products liability is proof of product defect,[72] proponents favoring the admissibility of state of the art evidence argue that the evidence is rele-

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66. 86 N.M. 763, 527 P.2d 1075, *cert. denied*, 87 N.M. 111, 529 P.2d 1232 (1974).
67. *Id.* at 765, 527 P.2d at 1076.
68. *Id.*
69. *Id.*
70. 493 F.2d 1076 (5th Cir. 1973), *cert. denied*, 419 U.S. 869 (1974).
71. *Id.* at 1088, 1099.
72. Rheingold, *Proof of Defect in Product Liability Cases*, 38 TENN. L. REV. 325 (1971).

vant to prove that the product is not defective.[73] The court's definition of the term "defective" is, therefore, critical to this proposition.

Section 402A of the Restatement of Torts provides that in order to find a product defective, "[t]he article must be dangerous beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common in the community as to its characteristics."[74] To establish liability under section 402A, the plaintiff must show that the product was dangerous beyond the expectations of the ordinary consumer.[75] Proponents of the admissibility of state of the art evidence assert that since the question of product defect depends upon whether or not the danger involved in its use would be apparent to a reasonable consumer, state of the art evidence can be used to show that the product is similar to other products of that type, and therefore, "an ordinary consumer with the ordinary knowledge common to the community as to its characteristics"[76] would have realized the potential danger.[77]

This approach is illustrated in *Bruce v. Martin-Marietta Corp.*,[78] where the plaintiff asserted that the seats and seat fastenings in the defendant's aircraft were not designed to withstand a crash.[79] The plaintiff relied on evidence proving the availability of safer aircraft seats eighteen years after the manufacture of the aircraft as establishing defect.[80] The Court of Appeals for the Tenth Circuit reasoned that state of the art evidence was admissible to determine the expectations of the ordinary consumer.[81] In this context, the court concluded that the plaintiffs could not prove that "the ordinary consumer would expect a plane made in 1952 to have the safety features of one made in 1970."[82] Similarly, in *Jeng v. Witters*,[83] the plaintiff claimed that his injury resulted from a defectively designed door latch on the defendant's car. The United States District Court for the Middle District of Pennsylvania admitted state of the art evidence showing the door latch was

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73. *See The State of the Art Defense, supra* note 63, at 653-55. *See also* 43 J. AIR L. & COM. 587 (1977).

74. RESTATEMENT (SECOND) OF TORTS § 402A, comment i at 352-53 (1965).

75. Dunham v. Vaughan & Bushnell Mfg. Co., 42 Ill. 2d 339, 247 N.E.2d 401 (1969); Jackson v. City of Biloxi, 272 So.2d 654 (Miss. 1973); Cornell Drilling Co. v. Ford Motor Co., 241 Pa. Super. Ct. 1129, 359 A.2d 822 (1976).

76. RESTATEMENT (SECOND) OF TORTS § 402A, comment i at 352 (1965).

77. *See The State of the Art Defense, supra* note 63, at 654.

78. 544 F.2d 442 (10th Cir. 1976).

79. *Id.* at 445-46.

80. *Id.*

81. *Id.* at 447.

82. *Id.*

83. 452 F. Supp. 1349 (M.D. Pa. 1978), *aff'd mem.*, 591 F.2d 1334 (3d Cir. 1979).

in conformity with industry practice.[84] The court concluded that since the door latch resembled similar products on the market, it was not defective because it did not present a danger which was unexpected or which would not have been anticipated by the ordinary consumer.[85]

By defining "defective" in terms of the expectations of the ordinary consumer and admitting state of the art evidence as proof, this approach incorrectly concludes that the expectation of an ordinary consumer concerning the safety of a product can be established according to trade custom and practices within the industry.[86] The purpose of strict tort liability is not satisfied by defining the expectations of consumers according to the actions of manufacturers whose products may be defective,[87] for it is the manufacturer, not the consumer, who has access to and understanding of the relevant research and technical data relating to the product. The approach thus presumes that the ordinary consumer possesses the same technical expertise as the manufacturer. Although the manufacturer is held to the knowledge of an expert and is required to be aware of the state of the art,[88] it cannot be persuasively argued that the consumer should also be held to the knowledge of an expert. The expectations of the ordinary consumer should instead be based upon consumer experience with the product itself and not upon the expert technological knowledge of the manufacturers within the industry.

Several commentators have expressed their dissatisfaction with the section 402A definition of the term "defective."[89] Dean Wade has proposed an alternative definition of the term, comprised of seven factors which are balanced under a risk-benefit analysis to determine the liability of the manufacturer.[90] These factors are: (1) the usefulness and

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84. *Id.* at 1362.

85. *Id.* at 1362, 1363. *See also* Jackson v. City of Biloxi, 272 So.2d 654 (Miss. 1973), where a plaintiff was injured when kerosene from a lamp manufactured by the defendant splashed on his legs. In rejecting plaintiff's claim of strict liability, the court relied on evidence that the design was old and accepted, and stated that "'defective condition' means that the article has something wrong with it, that it did not function as expected." *Id.* at 656 (quoting State Stove Mfg. Co. v. Hodges, 189 So.2d 113 (Miss. 1966)).

86. Commentators have increasingly criticized the definition of defective in terms of the expectations of consumers. *See* Fischer, *Products Liability—The Meaning of Defect*, 39 MO. L. REV. 339, 349 (1974); Keeton, *Manufacturer's Liability: The Meaning of "Defect" in the Manufacture and Design of Products*, 20 SYRACUSE L. REV. 559, 572 (1969).

87. Bailey v. Boatland of Houston, Inc., 585 S.W.2d at 808.

88. Moren v. Samuel M. Langston Co., 96 Ill. App. 2d 133, 237 N.E.2d 759 (1968) (defendant held to knowledge of expert concerning availability of safety devices).

89. *See* note 88 *supra*.

90. Wade, *On The Nature of Strict Tort Liability for Products*, 44 MISS. L.J. 825 (1973). The author notes that the seven factors assist in determining "whether the magnitude of the risk created by the dangerous condition of the product was outweighed by the social utility attained by putting it out in this fashion." *Id.* at 835.

desirability of the product;[91] (2) the availability of other and safer products to meet the same need;[92] (3) the likelihood of injury and its probable seriousness;[93] (4) the obviousness of the danger;[94] (5) common knowledge and normal public expectation of the danger;[95] (6) the avoidability of injury by care in use of the product;[96] and (7) the ability to eliminate the danger without seriously impairing the usefulness of the product or making it unduly expensive.[97] The courts have increasingly recognized and applied the Wade definition for the term "defective."[98] In *Dorsey v. Yoder*,[99] for example, the court analyzed the section 402A definition along with the Wade definition and concluded that the Wade approach offered a more precise definition for the term "defective."[100]

Under the Wade approach, state of art evidence is considered. Since the "availability of other and safer products" is examined,[101] evidence concerning the products of other manufacturers is admissible in this respect. In addition, it would seem that the manufacturer can introduce evidence of the technological state of the art to establish that he did not possess the "ability to eliminate the danger" presented by the product.[102]

In any event, whether "defective" is defined in terms of the expectations of consumers[103] or according to the Wade factors,[104] state of the

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91. *See* Hoppe v. Midwest Conveyor Co., 485 F.2d 1196 (8th Cir. 1973) (frequency of use of product admissible).

92. Sutkowski v. Universal Marion Corp., 51 Ill. App. 3d 313, 281 N.E.2d 749 (1972) (availability of alternate safety features admissible).

93. *See* Robbins v. Alberto-Culver Co., 210 Kan. 147, 499 P.2d 1080 (1972) (evidence of reasonable foreseeability of harm for jury).

94. *See* Zambrana v. Standard Oil Co., 26 Cal. App. 3d 209, 102 Cal. Rptr. 699 (1972) (obviousness of danger precluded plaintiff's recovery).

95. *See* Davis v. Wyeth Laboratories, Inc., 399 F.2d 121 (9th Cir. 1968), *cert. denied*, 390 U.S. 945 (1968) (warning must be supplied to public for inherently dangerous product).

96. Schemel v. General Motors Corp., 384 F.2d 802 (7th Cir. 1967) (misuse of product by plaintiff barred recovery).

97. Finnegan v. Havir Mfg. Co., 60 N.J. 413, 290 A.2d 286 (1972) (recovery where alternate safety device was practical and would not impair the product).

98. Welch v. Outboard Marine Corp., 481 F.2d 252 (5th Cir. 1973); Helene Curtis Indus., Inc. v. Pruitt, 385 F.2d 841 (5th Cir. 1967), *cert. denied*, 391 U.S. 913 (1968); Johnson v. Clark Equip. Co., 274 Or. 403, 547 P.2d 132 (1976); Phillips v. Kimwood Mach. Co., 269 Or. 485, 525 P.2d 1033 (1974); Roach v. Kononen, 269 Or. 457, 525 P.2d 125 (1974); Byrns v. Riddell, Inc., 113 Ariz. 264, 550 P.2d 1065 (1976).

99. 331 F. Supp. 753 (E.D. Pa. 1971), *aff'd mem.*, 474 F.2d 1339 (3d Cir. 1973).

100. *Id.* at 760. *See also* Bowman v. General Motors Corp., 427 F. Supp. 234 (E.D. Pa. 1977).

101. *See* note 92 and accompanying text *supra*.

102. *See* note 97 and accompanying text *supra*.

103. *See* notes 77-88 and accompanying text *supra*.

104. *See* notes 90-102 and accompanying text *supra*.

art evidence may be admissible for purposes of judging product defect.[105] However, that the admission of such evidence of due care in a strict products liability case could cause confusion to the jury cannot be ignored.[106] Perhaps this concern can be resolved by introducing the evidence under the multiple admissibility doctrine,[107] with the attendant cautionary jury instruction. In *Bialek v. Pittsburgh Brewing Co.*,[108] for example, the jury was instructed that the state of the art evidence was relevant for the limited purpose of determining defect. Further, the jury was instructed that the plaintiff did not have to prove the absence of due care or negligence by the manufacturer in a strict liability case.[109] The Pennsylvania Supreme Court held that the instruction was sufficient to eliminate any potential jury confusion and justified the admission of the evidence.[110] This is an acceptable approach for the admission of state of the art evidence, because it minimizes the impact that evidence of due care has in a strict liability case and yet assists the jury in resolving the difficult question of defectiveness.

VI. CONCLUSION

The purpose of strict products liability is to afford consumers a less burdensome alternative to a negligence theory of recovery. Eliminating the fault concepts of negligence and minimizing the relevance of industry custom and government standards are the means to attain this end. For this reason, the focus of a strict liability action is placed upon an examination of the product, and not the conduct of the manufacturer. The liability of the manufacturer is not, and should not be, conclusively decided on the basis of his compliance with the conduct of other manufacturers; instead, it is his marketing of a dangerous product into the stream of commerce that subjects the manufacturer to strict liability.[111]

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105. *See* Phillips v. Kimwood Mach. Co., 269 Or. 485, 525 P.2d 1033 (1974) (knowledge of defendant at time of manufacture determines defectiveness). *See also* Baker v. Chrysler Corp., 55 Cal. App. 3d 710, 127 Cal. Rptr. 745 (1976); Hamilton v. Hardy, 549 P.2d 1099 (Colo. Ct. App. 1976).

106. *See* notes 50-54 and accompanying text *supra*.

107. Under the multiple admissibility doctrine, evidence that is admissible for one purpose is not rendered inadmissible because it is inadmissible for another purpose. I J. WIGMORE, EVIDENCE § 13 (3d ed. 1940); FED. R. EVID. 105.

108. 430 Pa. 176, 242 A.2d 231 (1968).

109. *Id.* at 185, 242 A.2d at 234.

110. *Id. See also* Jeng v. Witters, 452 F. Supp. 1349, 1363 (M.D. Pa. 1978), *aff'd mem.*, 591 F.2d 1334 (3d Cir. 1979).

111. *See* note 46 and accompanying text *supra*.

The statutory state of the art defense, however, signals a return to a negligence standard by focusing on the reasonableness of the manufacturer's conduct, as defined by his compliance with industry custom or government standards. This defense subrogates the liability without fault and the allocation of risk theories of strict liability to negligence theories which are detrimental to the injured consumer. Although it is a recognized fact that one price of doing business is assuring the protection of the public from the dangers of the product, regardless of the reasonableness of the manufacturer's conduct,[112] the statutory defense affords the manfuacturer who complies with the statutory state of the art a discount to this business cost. Deciding that state of the art is inappropriate as a defense in strict products liability, does not, however, prohibit the utility of such evidence for other purposes in products liability litigation. Indeed, since a majority of products liability cases are commenced under both negligence and strict liability theories of recovery, it would be impossible to argue that state of the art evidence should be entirely excluded from such cases.[113] As noted earlier, the manufacturer should be permitted to prove the state of the art as evidence of the "unavoidably unsafe" nature of a comment k product or the defectiveness of a particular product. A jury instruction pointing out the limited purpose of the evidence prevents any confusion surrounding the elements of proof necessary for a finding of strict liability. Under this approach, the spirit of strict liability would be maintained since the injured consumer's right to recover is not conclusively precluded by the manufacturer's proof of compliance with the state of the art. At the same time, the manufacturer is not rendered an insurer of his product since liability is reasonably circumscribed by allowing the jury to consider compliance with government regulations and industry customs as evidence in favor of the defendant. In contrast, where state of the art is presented as a statutory defense the balance is upset, for an unwarranted barrier to recovery is imposed upon the injured consumer while the manufacturer of a dangerous product is afforded a shield from liability.

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112. *Id.*

113. By bringing suit under both theories, the plaintiff opens the door for the introduction of evidence relating to negligence concepts, including the manufacturer's compliance with the state of the art. *See, e.g.*, Goodrich v. Ford Motor Co., 269 Or. 399, 525 P.2d 130 (1974).