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Products Liability: Manufacturer's Liability for Products Not Unreasonably Dangerous When Originally Marketed - A Commentary on Bell Helicopter Company v. Bradshaw.

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PRODUCTS LIABILITY: MANUFACTURER'S LIABILITY FOR PRODUCTS NOT UNREASONABLY DANGEROUS WHEN ORIGINALLY MARKETED—A COMMENTARY ON BELL HELICOPTER COMPANY v. BRADSHAW

KEITH B. O'CONNELL

In 1973 Joe Ingle[1] purchased a used Bell Model 47 helicopter from Houston Helicopters, a Bell authorized service station.[2] Approximately two years later, on July 20, 1975, Ingle furnished the helicopter and a pilot[3] to Phil Bradshaw, Sr., and Maurice Hunsaker for the purpose of conducting an aerial survey of a nearby ranch. During the flight one of the helicopter's tail rotor blades broke off, causing the helicopter to crash.[4] Bradshaw, Hunsaker, and the pilot were seriously injured. Bradshaw and Hunsaker brought suit for personal injuries against Bell Helicopter Company, the manufacturer of the helicopter, alleging strict liability and negligence. In addition to Bell, plaintiffs named as defendants Joe Ingle, individually and doing business as Coastal Helicopters, and Joe Smith, the pilot, alleging negligence.[5]

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1. Joe Ingle, doing business as Coastal Helicopters, was engaged in the business of providing helicopter flight service. Brief for Appellee, Joe Ingle and Joe Smith at 15, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

2. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 526 (Tex. Civ. App.—Corpus Christi 1979, writ filed). Houston Helicopters also had purchased the helicopter used, in 1969, after the helicopter had changed hands several times. *See* Brief for Appellant, Bell Helicopter Company at 4, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

3. The pilot, Joe Smith, was Ingle's employee. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 526 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

4. *Id.* at 526. When the blade broke off it caused the additional loss of the tail rotor hub and gear box, the combination of which rendered the helicopter uncontrollable. *Id.* at 526. The blade broke off as the result of a fatigue fracture, which began as a crack along the trailing edge of the blade. *Id.* at 527. This in turn was caused by a nick or dent in the blade which created higher stresses than the blade's design configuration could withstand. *Id.* at 527.

Prior to the accident the helicopter (including the blade which broke) had been used extensively by Ingle and Smith to herd cattle, during which time the blades would strike trees, brush, and fence posts. Brief for Appellant, Bell Helicopter Company at 31, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed); Statement of Facts at 1228. By deposition, Ingle testified that he had purchased the helicopter primarily for herding cattle in South Texas brush country. *Id.* at 68.

5. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 524 (Tex. Civ. App.—Corpus

The evidence at trial revealed that when Bell Helicopter Company originally sold the helicopter in 1961, it was equipped with a 102 tail rotor blade system, which then represented the most advanced technology available in the field.[6] By the late 1960's, however, the 102 system had developed a history of inflight failures.[7] These failures prompted Bell to begin redesigning the tail rotor system to incorporate the latest state of the art.[8] The result was a safer, superior 117 tail rotor blade system,[9] which became commercially available in 1970.[10]

Christi 1979, writ filed). All defendants, including Bell, sought contribution and indemnity from each other. *Id.* at 524.

6. *Id.* at 526. When used commercially the blade had a designed service life of 600 hours. *Id.* at 526. Replacement after the 600 hours useful life was mandated by the Federal Aviation Administration (FAA), as were frequent inspections. *Id.* at 526. The FAA required that an inspection be made before the first flight of each day and after each refueling. *Id.* at 526. The purpose of the inspections was to discover fatigue cracks thereby preventing inflight fatigue fracture failure. *Id.* at 526-27. The 102 type blade was considered safe when kept within the Bell suggested and FAA mandated inspection and replacement schedules. *Id.* at 527. Conversely, the blades were not considered safe if the required inspections were not made, or if the blade was not replaced after 600 hours of operation. *Id.* at 527.

7. *Id.* at 526. The vast majority of these failures were attributable to owners' and operators' non-compliance with the inspection and replacement requirements. *Id.* at 526. At trial plaintiffs, Bradshaw and Hunsaker, introduced Plaintiff's Exhibit 50 which listed fifteen crashes resulting from fatigue fractures of 102 tail rotor blades from 1968 through 1975. Brief for Appellees, Phil Bradshaw, Sr. and Maurice Hunsaker at 10, 28, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

8. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 527 (Tex. Civ. App.—Corpus Christi 1979, writ filed). State of the art means the extent to which a product could have been safely designed viewed in light of what was economically and technologically feasible at the time of manufacture. *See* Bailey v. Boatland of Houston, Inc., 23 Tex. Sup. Ct. J. 566, 569 (August 2, 1980). State of the art evidence is not merely descriptive of what others in the industry have done, but rather, what could have been done. *Compare* Cunningham v. McNeal Memorial Hosp., 266 N.E.2d 897, 902 (Ill. 1970) (using term "state of the art" to mean that which is practically and scientifically possible at the time of manufacture) *with* Foglio v. Western Auto Supply, 128 Cal. Rptr. 545, 549 (Ct. App. 1976) ("state of the art" means merely what others in the industry have done, that is, custom or practice in the trade or industry).

9. *See* Bell Helicopter v. Bradshaw, 594 S.W.2d 519, 527 (Tex. Civ. App.—Corpus Christi 1979, writ filed). The 117 tail rotor blade system had a designed service life of 2500 hours, as opposed to the 102 system's designed service life of 600 hours. *See id.* at 527. The 117 system was also more damage tolerant than the 102 system, and required less frequent inspections than the 102 system. *See id.* at 527.

10. *See id.* at 527. At trial Bell argued that "the 117 was not developed because the 102 was considered unreliable; rather, it was an improved blade, in line with the continuing development of Bell products." Brief for Apellant, Bell Helicopter Company at 38, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed); Statement of Facts at 887. Bell also maintained that the 102 was just as safe as the 117 if the proper maintenance and inspections were performed. Brief for Appellant, Bell Helicopter Company at 38, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ.

The case was submitted to a jury, which found strict liability against Bell,[11] and negligence against Bell, Ingle, and Smith.[12] Specifically, the jury found that the mere presence of the 102 tail rotor system on the helicopter on the date of the accident, instead of the 117 system, rendered the helicopter unreasonably dangerous;[13] that Bell failed to use reasonable means available to it to attempt to cause replacement of the 102 tail rotor system with the 117 system on the helicopter prior to the date of the accident;[14] and that Bell failed to give adequate and proper warnings or instructions to Ingle and Smith regarding the continued use of the 102 series system.[15] Based upon the jury's findings, the trial court ren-

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App.—Corpus Christi 1979, writ filed); Statement of Facts at 1233, 1531, 2173-74, 2315; Plaintiff's Exhibit 50. "The main difference between the two blades was only that the 117 system required less maintenance and blade inspection. Nevertheless, the 117 also had to be properly maintained and inspected in order to avoid a blade failure." Brief for Appellant, Bell Helicopter Company at 38, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed); Statement of Facts at 2126.

When the 117 system became commercially available in 1970, Bell immediately began to install it on all new production Model 47 helicopters. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 527 (Tex. Civ. App.—Corpus Christi 1979, writ filed). No history of in flight failure of 117 blades developed. *Id.* at 527. For this reason, coupled with the fact that 102 blades were not being inspected and maintained by some owners and operators as required, Bell supported an FAA Airworthiness Directive Note mandating replacement of all 102 blades with 117 blades. *Id.* at 527. When the Helicopter Association of America, an organization composed of owners and operators, opposed the Airworthiness Directive Note, it was rescinded. *Id.* at 527.

11. *Id.* at 524.

12. *Id.* at 524-25. The defendants' negligence was apportioned as follows: 44% to Bell, 44% to Ingle, and 12% to Smith. *Id.* at 535.

13. *See id.* at 528 (answers to special issues 1-6). The jury found further that such condition was a producing cause of the accident. *See id.* at 528 (answers to special issues 1-6).

14. *See id.* at 531 (answers to special issues 7-15). The jury found that such failure rendered the helicopter unreasonably dangerous, that such condition was the producing cause of the accident, that such failure was negligent, and that such negligence was a proximate cause of the accident. *See id.* at 531 (answers to special issues 7-15).

15. *See id.* at 531 (answers to special issues 17-24). Prior to the date of the accident, however, Ingle, along with other owners and operators of Bell Model 47 helicopters, received information from Bell concerning the availability of the 117 tail rotor system. *Id.* at 527. Despite this information Ingle chose not to replace the 102 system on his helicopter with the 117 system. *Id.* at 527. Testimony contained in the statement of facts reveals that Ingle decided to maintain his helicopter with a 102 system because "the nature of his helicopter use did not warrant the replacement of a cheaper blade, which seldom made retirement life, with a more expensive blade which was likely to also fail under the stress to which it would be put in the cattle-herding business." Brief for Appellant, Bell Helicopter Company at 55, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed); Statement of Facts at 1228.

In addition to the findings set out in the text, the jury found Ingle and Smith negligent in several particulars concerning maintenance and operation of the helicopter's tail rotor

dered judgment against Bell,[16] and Bell appealed.[17] Held—*Affirmed.* Strict liability in tort will be imposed on a manufactuer of any product which is not unreasonably dangerous at the time it is originally marketed, but which becomes so by reason of the subsequent invention and marketing of a safer product.[18]

It was well established by the end of the nineteenth century that a manufacturer or seller of a defective product was not liable for injury to anyone with whom he was not in privity.[19] This general rule reflected the

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blades. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 524-25 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (answers to special issues 44-77). In special issues 44 through 49 the jury found that Ingle was negligent in putting the tail rotor blade (which broke) on the helicopter when he did not know the number of hours the blade had been used before that time (answers to special issues 44-46); and in disregarding the maintenance manual instructions of Bell relating to the limits of service on the tail rotor blade (answers to special issues 47-49). Further, such negligence was found to have proximately caused the accident (answers to special issues 46, 49). In special issues 50 through 77c the jury found Ingle and Smith were negligent in failing to perform a 100-hour inspection within 100 operational hours since the last such inspection (answers to special issues 46-59); in maintaining the blade with dents, nicks, ripples, scratches, and depressions (answers to special issues 50-52, 60-68); in failing to properly inspect the tail rotor blade (answers to special issues 43-55, 69-71); in carrying passengers for hire when the helicopter had not received a 100-hour or annual inspection within the preceding 100 hours (answers to special issues 60-62, 72-74); in operating the tail rotor blade when it had an excess of 600 hours on it (answers to special issues 63-65, 77a-77c); and further that such negligence proximately caused the accident (answers to special issues 52, 55, 59, 62, 65, 68, 71, 74, 77, 77c). Finally, the jury found Smith negligent in operating the helicopter when he did not know how many flight hours were on the tail rotor blade (answers to special issues 75-77). One-third of the special issues in the case concerned affirmative findings of negligence on the part of Ingle and Smith.

16. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 524-25 (Tex. Civ. App.—Corpus Christi 1979, writ filed). The trial court awarded a total of $3,720,214.36 to plaintiffs Bradshaw and Hunsaker and cross-plaintiffs Ingle and Smith. *Id.* at 524-25. Judgment was also rendered in favor of plaintiffs against Ingle and Smith, but the court granted indemnity in favor of Ingle and Smith against Bell. *See id.* at 524-25. Bell's plea for indemnity against Ingle and Smith was denied. *Id.* at 525.

17. *See id.* at 525.

18. *Id.* at 530-32. The 102 blade which broke on July 20, 1975 had been in use for more than 600 hours. Ninety minutes prior to failure the crack which caused the fatigue fracture was eight-tenths of an inch long. It was within the area of required inspection and should have been detected by Ingle's pilot. *Id.* at 527.

19. *See* Liggett & Myers Tobacco Co. v. Cannon, 178 S.W. 1009, 1010-11 (Tenn. 1915) (manufacturer not liable for injury from bug embedded in tobacco plug without knowledge); Burkett v. Studebaker Bros. Mfg. Co., 150 S.W. 421, 422 (Tenn. 1912) (manufacturer of defective carriage not liable when sale was made through other dealer in whose negotiations the manufacturer did not participate); Dunn v. Texas Coca-Cola Bottling Co., 84 S.W.2d 545, 549 (Tex. Civ. App.—Eastland 1935, writ dism'd) (mere resale of defective bottle does not give subpurchaser right to sue original seller); Liggett & Myers Tobacco Co. v. Wallace, 69 S.W.2d 857, 859 (Tex. Civ. App.—Texarkana 1934, writ dism'd) (without privity manufacturer not liable for sale of tobacco plug containing metal particles); Avery Co. v. Barker,

prevailing social attitude, which favored the fostering of industry.[20] Industry was still in a very early stage of development, and it was believed that too heavy a burden would be placed on manufacturers and sellers if they were held accountable to the seemingly myriad persons who used or were affected by their products.[21]

All of this changed in 1916 with the landmark decision of *MacPherson v. Buick Motor Co.*[22] *MacPherson* abrogated the requirement of privity in actions predicated on negligence.[23] Even before *MacPherson,* however, a movement was under way to extend the manufacturer's liability even further, and to find some ground for strict liability.[24] The success of this movement, at least in the area of food and drink, became manifest in Texas in 1942 in *Jacob E. Decker & Sons v. Capps.*[25] In *Capps* the Texas Supreme Court adopted an implied warranty theory as a means of fixing liability on manufacturers and packagers of food products for human con-

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243 S.W. 695, 696 (Tex. Civ. App.—Galveston 1922, no writ) (manufacturer not liable for damages from defective machine sold by its vendee to ultimate consumer); Hasbrouck v. Armour & Co., 121 N.W. 157, 160 (Wis. 1909) (manufacturer of soap not liable for injury resulting from needle embedded therein without knowledge). *See generally* W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 96, at 641 (4th ed. 1971).

20. *See* Winterbottom v. Wright, 11 L.J.R. 402, 403 (Ex. 1842) (manufacturer should not be held liable to every passenger or bystander who may be injured by the upsetting of a carriage); W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 2, at 5 (1979) (Winterbottom and similar plaintiffs were an inevitable consequence of progress).

21. W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 96, at 642 (4th ed. 1971). *See* W. KIMBLE & R. LESSER, PRODUCTS LIABILITY § 2, at 5 (1979).

22. 111 N.E. 1050, 175 N.Y.S. 382 (1916).

23. *Id.* at 1053; 175 N.Y.S. at 387.

24. *See, e.g.,* Huset v. J. I. Case Threshing Mach. Co., 120 F. 865, 870 (8th Cir. 1903) (recognized manufacturer's duty to exercise reasonable care in manufacturing an inherently dangerous product); Blood Balm Co. v. Cooper, 10 S.E. 118, 119 (Ga. 1889) (proprietor of patent medicine held liable for prescribing too large a dose whether sold directly or indirectly); Jackson Coca-Cola Bottling Co. v. Chapman, 64 So. 791, 791 (Miss. 1914) (consumer discovered mouse in bottle, *held,* manufacturer breached duty to prevent injurious foreign substance in product). *See generally* W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 2, at 6 (1979).

25. 139 Tex. 609, 164 S.W.2d 828 (1942). Jacob E. Decker & Sons manufactured and sold certain sausage, advertised as being suitable for human consumption in the summertime. *Id.* at 610, 164 S.W.2d at 828. The sausage was sold to C.K. Capps and consumed by members of his family. *Id.* at 610, 164 S.W.2d at 828. One of Capps' children died as a result of eating the sausage and the other family members became seriously ill. *Id.* at 610, 164 S.W.2d at 828. The jury found that at the time of manufacture the sausage was unfit for human consumption, but that the manufacturer was free from negligence in the inspection of the sausage. *Id.* at 611, 164 S.W.2d at 828-29. The Supreme Court of Texas found the nonnegligent manufacturer, who processed and sold contaminated food to a retailer for human consumption, liable to the consumer for the resultant injuries. *Id.* at 612, 164 S.W.2d at 829.

sumption.[26] Characterizing its own approach to the use of this strict liability concept as "gradualistic and marked with caution,"[27] however, the supreme court refused to extend it to manufacturers of products other than food for the next twenty-five years.[28]

Meanwhile, in Texas and in other jurisdictions, the injection of the implied warranty theory into a tort environment engendered a variety of conceptual difficulties.[29] Ultimately these difficulties resulted in the adop-

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26. *Id.* at 612, 164 S.W.2d at 829.

27. Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969) (plaintiff cafe owner injured by exploding bottle).

28. Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 4 (1976-77). In 1952 the Texas Supreme Court refused to apply the rule of strict liability to either retailers or wholesalers of food products canned or packaged by others. *See* Bowman Biscuit Co. v. Hines, 151 Tex. 370, 372, 251 S.W.2d 153, 161 (1952) (seller held liable under warranty theory). In 1956 the court refused to grant writ in *Brown v. Howard*, 285 S.W.2d 752 (Tex. Civ. App.—San Antonio 1956, writ ref'd n.r.e.), thereby refusing to apply the rule to a manufacturer of a spray causing harm when used on the plaintiff's cattle. *See* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969). In 1967 the court abruptly changed direction in *McKisson v. Sales Affiliates, Inc.*, 416 S.W.2d 787, 790 (Tex. 1967), effectively disapproving prior contrary expressions in *Bowman Biscuit Co. v. Hines*, 151 Tex. 370, 372, 251 S.W.2d 153, 161 (1952), and *Brown v. Howard*, 285 S.W.2d 752, 754 (Tex. Civ. App.—San Antonio 1956, writ ref'd n.r.e.). *See* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969) (strict liability recognized as only practical vehicle for protecting public against harm from defective products).

29. W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 96, at 656 (4th ed. 1971). Liability based on breach of warranty was subject to disclaimer by the seller consequently foreclosing recovery. *See, e.g.*, Rockwood & Co. v. Parrott & Co., 19 P.2d 423, 427 (Or. 1933) (manufacturer free to insert in contract that he does not make any warranties); Dowagiac Mfg. Co. v. Mahon, 101 N.W. 903, 904 (N.D. 1904) (manufacturer may warrant only against certain defects or consequences, such as breakage); Lee v. Pauly Motor Truck Co., 190 N.W. 819, 821 (Wis. 1922) (manufacturer may limit liability to particular remedies, such as replacement, repair, or return of price). *See generally* Prosser, *The Assault Upon The Citadel (Strict Liability To The Consumer)*, 69 YALE L.J. 1099, 1131 (1960); Prosser, *The Implied Warranty of Merchantable Quality*, 27 MINN. L. REV. 117, 157-67 (1943); Wilson, *Products Liability, Part II: The Protection of the Producing Enterprise*, 43 CAL. L. REV. 809, 835-40 (1955). Moreover, recovery under the warranty was dependent upon prompt notification of the breach to the manufacturer, see American Mfg. Co. v. United States Shipping Bd. Emergency Fleet Corp., 7 F.2d 565, 566 (2d Cir. 1925), and required reliance by the plaintiff on some representation made by the manufacturer. *See* Walden v. Wheeler, 154 S.W. 1088, 1089-90 (Ky. 1913) (dealer of feed not liable for death of cattle caused by glass in feed when there had been no reliance on dealer's judgment); Randall v. Goodrich-Gamble Co., 54 N.W.2d 769, 771 (Minn. 1952) (buyer of liniment with an express warranty on label denied recovery because he paid no attention to it at time of purchase). Most significantly, recovery under warranty required privity. *See* Hanback v. Dutch Baker Boy, Inc., 107 F.2d 203, 204 (D.C. Cir. 1939) (infant made ill by food poisoning, resulting from eating unwholesome chocolate eclairs purchased by his mother, could not maintain action because he was not a "buyer"); Smith v. Salem Coca-Cola Bottling Co., 25 A.2d 125, 127 (N.H. 1942) (consumer who purchased from independent contractor not a "buyer" as against manufacturer). *See generally* Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 4

tion of the theory of strict liability in tort in 1962 by the Supreme Court of California in *Greenman v. Yuba Power Products, Inc.*[30]

Under this judicially created theory of liability a consumer was allowed to recover against a manufacturer or seller for an injury caused by any defective product, without having to prove negligence and without having to contend with the elements of warranty and all of its contractual trappings.[31] Various reasons have been advanced to justify application of the doctrine of strict liability in tort.[32] Among the reasons most frequently urged are that a manufacturer is better able to afford the costs of injuries than the consumer;[33] that imposing such loss on a manufacturer allows him to pass it on to his other customers and, therefore, the loss is effectively distributed throughout society;[34] that the manufacturer occupies

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(1976-77).

30. 377 P.2d 897, 27 Cal. Rptr. 697 (1962). In *Greenman* plaintiff was injured while using a power tool which his wife had purchased from a retailer. *Id.* at 898, 27 Cal. Rptr. at 698. The California Supreme Court held the requirement that the buyer give notice of breach of warranty did not require notice of warranty arising independently of contract of sale between parties. Plaintiff, therefore, could sue manufacturer for breach of express warranty in manufacturer's brochure that the tool was rugged, even if plaintiff had not given timely statutory notice to manufacturer. *Id.* at 900, 27 Cal. Rptr. at 700.

31. *See, e.g.*, Putman v. Erie City Mfg. Co., 338 F.2d 911, 912 (5th Cir. 1964) (manufacturer of defective fork stem and assembler of wheelchair held strictly liable to chair user who rented it from the purchaser); Garthwait v. Burgio, 216 A.2d 189, 192 (Conn. 1965) (lack of privity and warranty did not preclude recovery for property damage caused by fire resulting from explosion of acetylene gas); Suvada v. White Motor Co., 210 N.E.2d 182, 188 (Ill. 1965) (strict liability imposed on manufacturer of defective brake system installed on tractor without alteration by assembler). *See generally* Helene Curtis Indus. v. Pruitt, 385 F.2d 841, 862-64 (5th Cir. 1967); W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 96, at 657-58 (4th ed. 1971).

32. *See, e.g.*, Challoner v. Day & Zimmerman, Inc., 512 F.2d 77, 84 (5th Cir.), *vacated*, 423 U.S. 3 (1975); Greenman v. Yuba Power Prod., Inc., 377 P.2d 897, 901, 27 Cal. Rptr. 697, 701 (1962); Jacob E. Decker & Sons v. Capps, 139 Tex. 609, 612, 164 S.W.2d 828, 829 (Tex. 1942). *See generally* Prosser, *The Assault Upon The Citadel (Strict Liability To The Consumer)*, 69 YALE L.J. 1099, 1123 (1960).

33. *See* Challoner v. Day & Zimmerman, Inc., 512 F.2d 77, 84 (5th Cir.), *vacated*, 423 U.S. 3 (1975); Foster v. Day & Zimmerman, Inc., 502 F.2d 867, 871 (8th Cir. 1974) (quoting *Hawkeye-Security Ins. Co. v. Ford Motor Co.*, 174 N.W.2d 672, 683 (Iowa 1970)); Hill, *How Strict is Strict? Have the Walls of the Citadel Really Crumbled?*, 32 TEX. B.J. 759, 760 (1969). This rationale, that a manufacturer is better able to afford the cost of injuries than the consumer, has been referred to as the "Robinhood syndrome," that is, "he who can afford to pay should pay willingly." Freedman, *The Texas Politics Of Today's Products Liability*, 5 ST. MARY'S L.J. 16, 16 (1973).

34. *See, e.g.*, Greenman v. Yuba Power Prod., Inc., 377 P.2d 897, 901, 27 Cal. Rptr. 697 (1962) (purpose of strict liability is to insure costs of injuries are borne by manufacturers who put the products on the market rather than by individuals powerless to protect themselves); Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (Cal. 1944) (Traynor, J., concurring) (manufacturer can best afford to pay for injuries from defective products); Mid-Continent Aircraft v. Curry County Spraying Serv. Inc., 572 S.W.2d 308, 312 (Tex. 1978)

the best position to discover and correct unreasonably dangerous defects in products;[35] that the manufacturer's incentive to produce a safe product is increased by the threat of strict tort liability;[36] that imposing such responsibility on the manufacturer will result in the reduction of the incidence of harm caused by unsafe products;[37] and that the consumer is entitled to rely on the product being what it purports to be, and not a dangerous instrumentality.[38]

In 1967 the Supreme Court of Texas, in *McKisson v. Sales Affiliates, Inc.*[39] and *Shamrock Fuel & Oil Sales Co. v. Tunks*,[40] adopted the doc-

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(referring to strict liability as "implied warranty in law as a matter of public policy"). *See generally* RESTATEMENT (SECOND) OF TORTS § 402A, Comment c (1965); Keeton, *Products Liability—Liability Without Fault And The Requirement Of A Defect*, 41 TEXAS L. REV. 855, 856 (1963).

35. *See* Lartique v. R.J. Reynolds Tobacco Co., 317 F.2d 19, 36 (5th Cir. 1963); Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (1944) (Traynor, J., concurring); Jacob E. Decker & Sons v. Capps, 139 Tex. 609, 612, 164 S.W.2d 828, 829 (1942). *See generally* Holford, *The Limits of Strict Liability for Product Design and Manufacture*, 52 TEXAS L. REV. 81, 82-83 (1973); Prosser, *The Assault Upon The Citadel (Strict Liability To The Consumer)*, 69 YALE L.J. 1099, 1123 (1960).

36. Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 440-41 (1944) (Traynor, J., concurring) (manufacturer can anticipate some hazards and guard against recurrence of others, as public cannot); Brody v. Overlook Hosp., 296 A.2d 668, 672 (Super. Ct. Law Div. 1972) (beneficial effect of strict liability—hospitals forced to deal only with blood banks having good safety records), *rev'd*, 317 A.2d 392 (N.J. Super. Ct. App. Div. 1974). *See* W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 97, at 650 (4th ed. 1971) (strict liability would provide highest care and safety); *Symposium—The State Of The Art Defense In Strict Products Liability*, 57 MARQ. L. REV. 649, 659 (1974) (strict liability a deterrent against sale of other defective products and inducement to improve safety of product). *But see* Plant, *Strict Liability For Injuries Caused By Defects In Products—An Opposing View*, 24 TENN. L. REV. 938, 945 (1957) (questions whether callous manufacturer, unmoved by negligence liability and damage to reputation, will really be stimulated to any extra precautions by relatively slight increase in liability).

37. *See* Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (Cal. 1944) (Traynor, J., concurring); Jacob E. Decker & Sons v. Capps, 139 Tex. 609, 619, 164 S.W.2d 828, 832-33 (1942); Keeton, *Products Liability—Some Observations About Allocation of Risks*, 64 MICH. L. REV. 1329, 1333 (1966); Prosser, *The Assault Upon The Citadel (Strict Liability To The Consumer)*, 69 YALE L.J. 1099 , 1119 (1960).

38. Jacob E. Decker & Sons v. Capps, 139 Tex. 609, 619, 164 S.W.2d 828, 832-33 (1942). *See* Prosser, *The Assault Upon The Citadel (Strict Liability To The Consumer)*, 69 YALE L.J. 1099, 1123 (1960) (supplier represents goods are safe for use, induces that belief, and expects goods to be purchased in reliance thereon); *cf.* Coca-Cola Bottling Co. v. Smith, 97 S.W.2d 761, 767 (Tex. Civ. App.—Fort Worth 1936, no writ) (implied warranty ran with product and inured to benefit of purchaser).

39. 416 S.W.2d 787 (Tex. 1967). In *McKisson* a distributor of a permanent wave preparation was held strictly liable when consumer lost her hair as a result of use. *Id.* at 793. The Texas Supreme Court allowed recovery despite the fact that the permanent wave was used negligently by the plaintiff on bleached hair in disregard of the label stating the product was for normal hair. *Id.* at 790.

trine of strict liability in tort as expressed in Restatement (Second) of Torts § 402A.[41] As applied in Texas, section 402A requires that before strict liability can be imposed, the product must be sold in a defective condition, unreasonably dangerous to the user or consumer.[42] This rule applies even though the seller has exercised reasonable care in the preparation and sale of his product.[43]

Generally, three types of defects are recognized.[44] A manufacturing de-

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40. 416 S.W.2d 779 (Tex. 1967). In *Shamrock* the manufacturer of adulterated kerosene was held strictly liable for the injuries sustained by plaintiff. *Id.* at 782. The jury finding that the minor plaintiff was negligent in directing his brother to pour the kerosene on a stick and toy truck did not bar plaintiff's recovery. *Id.* at 782.

41. RESTATEMENT (SECOND) OF TORTS § 402A (1965). Section 402A states:

> (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
>
> (a) the seller is engaged in the business of selling such a product, and
>
> (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> (2) The rule stated in Subsection (1) applies although
>
> (a) the seller has exercised all possible care in the preparation and sale of his product, and
>
> (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Id.

42. Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 578 (Tex. Civ. App.—El Paso 1977), *rev'd on other grounds*, 571 S.W.2d 867 (Tex. 1978). *See* Technical Chem. Co. v. Jacobs, 480 S.W.2d 602, 604 (Tex. 1972); Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969). Essentially the terms consumer and user are indistinguishable. Helicoid Gage Div. of Am. Chain & Cable Co. v. Howell, 511 S.W.2d 573, 578 (Tex. Civ. App.—Houston [14th Dist.] 1974, writ ref'd n.r.e.). The Restatement (Second) of Torts defines consumers as those who either consume a product or prepare it for consumption. *See* RESTATEMENT (SECOND) OF TORTS § 402A, Comment 1, at 354 (1965). This definition includes family members of the purchaser, employees of the purchaser, and guests and donees of the purchaser. *See id.* § 402A, Comment 1, at 342 (1965). The term user or consumer has been judicially defined to include the broadest possible spectrum of injured parties. *See, e.g.*, Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 576 (Tex. Civ. App.—Texarkana 1978, no writ) (mechanic working on or repairing product was a user); Ethicon, Inc. v. Parten, 520 S.W.2d 527, 533 (Tex. Civ. App.—Houston [14th Dist.] 1975, no writ) (customer in beauty salon who had permanent wave was consumer); Helicoid Gage Div. of Am. Chain & Cable Co. v. Howell, 511 S.W.2d 573, 578 (Tex. Civ. App.—Houston [14th Dist.] 1974, writ ref'd n.r.e.) (employee of final purchaser was a user or consumer). *See generally* W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 5.02, at 129-30 (1979).

43. Wagner v. Coronet Hotel, 458 P.2d 390, 393 (Ariz. App. 1969); Cunningham v. MacNeal Memorial Hosp., 266 N.E.2d 897, 902 (Ill. 1970); Rourke v. Garza, 530 S.W.2d 794, 798 (Tex. 1975); McKisson v. Sales Affiliates, Inc., 416 S.W.2d 787, 789 (Tex. 1967).

44. The defects are generally characterized as manufacturing defects, design defects, and marketing defects. *See* Keeton, *Product Liability And The Meaning Of Defect*, 5 ST. MARY'S L.J. 30, 33-34 (1973); Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 7 (1976-1977).

fect occurs when a product is not manufactured in exact conformity with the manufacturer's plans and specifications.[45] A design defect, on the other hand, arises when the product comports with the design standards and specifications of the manufacturer, but the design itself is improvident or unsafe.[46] The third type of defect is a marketing defect, which results when a product is foreseeably dangerous, but is marketed without proper warnings or instructions.[47]

Whether a defect renders a product unreasonably dangerous under section 402A is analyzed in terms of the reasonable expectations of the ordinary consumer.[48] This analysis serves to prevent the imposition of liability on a manufacturer in situations where the user is injured even though the product is performing as contemplated by both the manufacturer and the user.[49] Ultimately, whether a product is unreasonably dangerous re-

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45. *See, e.g.*, Darryl v. Ford Motor Co., 440 S.W.2d 630, 632 (Tex. 1969) (defective because push rod bent on application of pressure); Shoppers World v. Villarreal, 518 S.W.2d 913, 915 (Tex. Civ. App.—Corpus Christi 1975, writ ref'd n.r.e.) (defective opening in a plastic bottle of liquid soap causing soap to spill on floor); Cosper v. General Motors Corp., 472 S.W.2d 552, 553 (Tex. Civ. App.—Eastland 1971, writ ref'd n.r.e.) (hole in the exhaust system permitting carbon monoxide to escape into the interior of an automobile). The defect may involve a flaw or deficiency in the materials used, or an impurity in the substance produced. *See* Liggett & Myers Tobacco Co. v. Wallace, 69 S.W.2d 857, 859 (Tex. Civ. App.—Texarkana 1934, writ dism'd) (metal particles contained in tobacco plug).

46. *See, e.g.*, Turner v. General Motors Corp., 584 S.W.2d 844, 846 (Tex. 1979) (defective design caused car roof to cave in); Gonzales v. Caterpillar Tractor Co., 571 S.W.2d 867, 871 (Tex. 1978) (design defect in step of 941 Traxcavator caused worker to slip and fall); Henderson v. Ford Motor Co., 519 S.W.2d 87, 92 (Tex. 1974) (defective design of air filter housing caused throttle to stick).

47. *See, e.g.*, Borel v. Fibreboard Paper Prod. Corp., 493 F.2d 1076, 1088 (5th Cir. 1973) (failure to warn of the danger of inhalation of asbestos dust), *cert. denied*, 419 U.S. 869 (1974); Crocker v. Winthrop Laboratories, Div. of Sterling Drugs, Inc., 514 S.W.2d 429, 431 (Tex. 1974) (failure to warn use of a particular drug could cause physical dependence); Technical Chem. Co. v. Jacobs, 480 S.W.2d 602, 603 (Tex. 1972) (failure to warn of the danger of connecting a can of freon to the high pressure side of a compressor).

48. RESTATEMENT (SECOND) OF TORTS § 402A, Comment i (1965). Section 402A provides: "[t]he article sold must be dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." *Id.* at 352. *See* Greeno v. Clark Equip. Co., 237 F. Supp. 427, 429 (N.D. Ind. 1965); Canifax v. Hercules Powder Co., 46 Cal. Rptr. 552, 558 (Ct. App. 1965); C.A. Hoover & Son v. O.M. Franklin Serum Co., 444 S.W.2d 596, 597 (Tex. 1969). *See generally* W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 54, at 72 (1979); Keeton, *Product Liability And The Meaning Of Defect*, 5 ST. MARY'S L.J. 30, 37 (1973).

49. *See.* E.R. Squibb & Sons, Inc. v. Stickney, 274 So. 2d 898, 905 (Fla. Dist. Ct. App. 1973) (defendant's bone transplant product held not defective as failure rate of similar products was equally as high); Jackson v. City of Biloxi, 272 So. 2d 654, 657 (Miss. 1973) (no liability as kerosene warning lamp functioned as expected), *cert. denied*, 416 U.S. 961 (1974); *cf.* Olson v. Arctic Enterprises, Inc., 349 F. Supp. 761, 763 (D. N.D. 1972) (negligence case: manufacturer held not liable for injury from snowmobile which represented advanced

sults in a balancing test of weighing the risk of harm against the product's utility.[50] To aid in this evaluation various factors are considered, including the usefulness and desirability of the product; the availability of other safer products to satisfy the same need; the likelihood and gravity of injury; the obviousness of the danger; the avoidability of injury by care in the use of the product, including the effect of instructions and warnings; the ability to eliminate the danger without unduly impairing the usefulness of the product or making it unreasonably expensive; and the reasonable expectations of the ordinary consumer.[51]

The mere occurrence of injury by an unreasonably dangerous product does not beget liability under section 402A.[52] Strict liability in tort is applicable only when the defective condition, rendering the product unreasonably dangerous, exists at the time the manufacturer surrenders possession and control.[53] It is unnecessary, however, that the ultimate defect as

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state of the art). *See generally* Keeton, *Products Liability—Liability Without Fault And The Requirement Of A Defect*, 41 TEXAS L. REV. 855, 858 (1963); *Symposium—The State Of The Art Defense In Strict Products Liability*, 57 MARQ. L. REV. 649, 654 (1974). Liability should not be imposed on a manfacturer or other seller for any and every injury a user or one in the vicinity sustains. *Id.* at 858. By necessity, courts that impose strict liability in tort, eliminating negligence as a requirement for recovery, must adopt a "delimiting principle" as a substitute for negligence. *Id.* at 858. The method employed is to require that there must have been a defective condition in the product unreasonably dangerous at the time the product left the control of the manufacturer. *Id.* at 858.

50. *See* Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 578 (Tex. Civ. App.—El Paso 1977), *rev'd on other grounds*, 571 S.W.2d 867 (Tex. 1978). In *Caterpillar Tractor Co.* Justice Ward suggested it was through a form of "osmosis" that the reasonable consumer-expectation test was transformed into the risk-benefit analysis. *Id.* at 578. In actuality the logic seems to be that a reasonable consumer with ordinary knowledge would not expect to purchase a product on the market when the risk of danger inherent in its use outweighed its utility. *See* Keeton, *Product Liability And The Meaning Of Defect*, 5 ST. MARY'S L.J. 30, 36 (1973).

51. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 567 n.2 (August 2, 1980) (listing seven evidentiary factors involved in balancing risk and utility); Turner v. General Motors Corp., 584 S.W.2d 844, 849 (Tex. 1979) (factors should be overtly advanced at trial, but jury should not be specifically instructed concerning them); Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 578 (Tex. Civ. App.—El Paso 1977) (listing seven factors involved in the balancing test), *rev'd on other grounds*, 571 S.W.2d 867 (Tex. 1978); Wade, *On The Nature Of Strict Tort Liability For Products*, 44 MISS. L.J. 825, 838-40 (1973). *See generally* Dorsey v. Yoder Co., 331 F. Supp. 753, 760 (E.D. Pa. 1971), *aff'd*, 474 F.2d 1339 (3d Cir. 1973); Dunham v. Vaughan & Bushnell Mfg. Co., 229 N.E.2d 684 (Ill. App. Ct. 1967), *aff'd*, 247 N.E.2d 401 (Ill. 1969).

52. Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1977); *see, e.g.*, Technical Chem. Co. v. Jacobs, 480 S.W.2d 602, 604 (Tex. 1972); Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969); Jack Roach-Bissonnet, Inc. v. Puskar, 417 S.W.2d 262, 278 (Tex. 1967).

53. *See, e.g.*, Technical Chem. Co. v. Jacobs, 480 S.W.2d 602, 604 (Tex. 1972) (marketing of freon without adequate warning found by jury to render product unreasonably dan-

it appears and develops immediately prior to injury be present in that form at the time the manufacturer surrenders possession and control.[54] If the manufacturer places into the stream of trade a product in which change will occur, or in which change can be anticipated to occur, so as to create a dangerous condition, the existence of a defect at the requisite time is established.[55] If a manufacturer surrenders possession and control of a product so fragile that anticipated use is likely to create a dangerous condition, he has distributed a defective product.[56]

Strict liability, however, is not absolute liability.[57] A manufacturer is not required to design the safest possible product, nor to guarantee that

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gerous when it left hands of seller); Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969) (jury finding that bottle was unfit held insufficient to support judgment based on strict liability as it did not establish bottle was unfit at time it left defendant's care, custody, or control); Sharp v. Chrysler Corp., 432 S.W.2d 131, 136 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.) (fact that braking unit was encased protected inference that defect existed at time product left manufacturer's control). *See generally* Keeton, *Products Liability—Liability Without Fault And The Requirement Of A Defect*, 41 TEXAS L. REV. 855, 858 (1963). A possible exception to the rule that a manufacturer will be held liable only when the product is defective at the time it leaves his possession and control is when a manufacturer is held vicariously liable. *See* Cupples Coiled Pipe, Inc. v. Esco Supply Co., 591 S.W.2d 615, 618-19 (Tex. Civ. App.—El Paso 1979, writ filed) (manufacturer held liable for a product which was defective when it left hands of agent).

54. *E.g.*, Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 651 (Tex. 1977) (rubber pads deteriorated subsequent to sale causing safety device to malfunction); Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 575 (Tex. Civ. App.—Texarkana 1978, no writ) (after sale of bus the air cylinders became corroded causing a dangerous condition); Sharp v. Chrysler Corp., 432 S.W.2d 131, 133 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.) (change occurred in brake system on automobile subsequent to sale).

55. *See, e.g.*, Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650-51 (Tex. 1977) (safety device on dryer operated without mishap for eighteen years); Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 576 (Tex. Civ. App.—Texarkana 1978, no writ) (failure to warn is substitute for product being in defective condition); Sharp v. Chrysler Corp., 432 S.W.2d 131, 134 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.) (brakes operated perfectly until immediately before accident).

56. Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1977); Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 576 (Tex. Civ. App.—Texarkana 1978, no writ); Sharp v. Chrysler Corp., 432 S.W.2d 131, 136 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.); *cf.* General Motors Corp. v. Hopkins, 548 S.W.2d 344, 349 (Tex. 1977) (unforeseeable misuse a defense to strict liability as it bears on issue of existence of defect at time product left manufacturer's control).

57. *See, e.g.*, General Motors Corp. v. Hopkins, 548 S.W.2d 344, 351 (Tex. 1977) (supplier not liable so long as product safe for its foreseeable uses); Henderson v. Ford Motor Co., 519 S.W.2d 87, 90 (Tex. 1974) (assumption of risk held proper defense to strict liability); Shamrock Fuel & Oil Sales Co. v. Tunks, 416 S.W.2d 779, 785 (Tex. 1967) (manufacturer not an insurer). *See generally* W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 20, at 31 (1979); Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 64-92 (1976-1977).

no harm will befall the user.[58] Furthermore, the mere availability of design alternatives which would have prevented the accident is insufficient to establish liability.[59] On the other hand, the fact that a manufacturer of a product has been in conformity with an industry-wide standard or practice does not preclude a finding that the product is defectively designed or unreasonably dangerous.[60]

Since its adoption by Texas courts only thirteen years ago the strict liability in tort theory embodied in section 402A has been dramatically extended.[61] For example, Texas courts have liberally interpreted the term "seller" to include entities not usually so characterized, such as bailors and lessors of products.[62] Similarly, the doctrine has been expanded to include sellers of used products.[63] Moreover, the doctrine has been extended to non-users and non-consumers.[64] Indeed, Texas courts have extended the reach of the manufacturer's strict non-privity liability to the outer limits of section 402A[65]—and even beyond, if a recent Texas Court

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58. Henderson v. Ford Motor Co., 519 S.W.2d 87, 93 (Tex. 1974); Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 579 (Tex. Civ. App.—El Paso 1977), *rev'd on other grounds*, 571 S.W.2d 867 (Tex. 1978); W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 96, at 645 (4th ed. 1971).

59. Weakley v. Fischbach & Moore, Inc., 515 F.2d 1260, 1267 (5th Cir. 1975) (showing that alternative safety devices would have prevented electrical explosion or minimized its consequences insufficient to establish liability); *see* Henderson v. Ford Motor Co., 519 S.W.2d 87, 93 (Tex. 1974) (existence of superior and more expensive 462 model air filter housing does not make older design unreasonably dangerous as a matter of law).

60. *See* Foglio v. Western Auto Supply, 128 Cal. Rptr. 545, 549 (Ct. App. 1976) (evidence of custom and practice at time of lawnmower's manufacture); Turner v. General Motors Corp., 514 S.W.2d 497, 506-07 (Tex. Civ. App.—Houston [14th Dist.] 1974, writ ref'd n.r.e.) (evidence everyone in industry used same support in roof of vehicle). *But cf.* Rourke v. Garza, 530 S.W.2d 794, 799 (Tex. 1975) (evidence scaffold boards customarily furnished with cleats). *See generally* Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 45-46 (1976-1977).

61. *See* Rourke v. Garza, 530 S.W.2d 794, 800 (Tex. 1975); Darryl v. Ford Motor Co., 440 S.W.2d 630, 633 (Tex. 1969); Hovenden v. Tenbush, 529 S.W.2d 302, 310 (Tex. Civ. App.—San Antonio 1975, no writ); McLain v. Hodge, 474 S.W.2d 772, 775 (Tex. Civ. App.—Waco 1971, writ ref'd n.r.e.).

62. Rourke v. Garza, 530 S.W.2d 794, 800 (Tex. 1975) (lessor of scaffolding equipment). *See generally* Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 93-125 (1976-1977).

63. Hovenden v. Tenbush, 529 S.W.2d 307, 310 (Tex. Civ. App.—San Antonio 1975, no writ) (defective used bricks); McLain v. Hodge, 474 S.W.2d 772, 774 (Tex. Civ. App.—Waco 1971, writ ref'd n.r.e.) (used rifle). The Restatement (Second) of Torts Section 402A expresses no opinion whether liability should extend to sellers of used products. *See* RESTATEMENT (SECOND) OF TORTS § 402A (1965); Sales & Perdue, *The Law of Strict Tort Liability in Texas*, 14 HOUS. L. REV. 1, 102-05 (1976-1977).

64. *See* Darryl v. Ford Motor Co., 440 S.W.2d 630, 633 (Tex. 1969) (extended to bystanders).

65. General Motors Corp. v. Simmons, 558 S.W.2d 855, 860 (Tex. 1977) (Justice Pope

of Civil Appeals' decision is any indication.[66]

In *Bell Helicopter Company v. Bradshaw*[67] the Corpus Christi Court of Civil Appeals sustained the sufficiency of the "mere presence" issues to support judgment against Bell on the theory of strict liability in tort.[68] The court recognized that recovery on a strict liability in tort theory was governed by section 402A of the Restatement (Second) of Torts.[69] Having determined the identity of the product being litigated as the 102 series tail rotor system,[70] the court concluded that the combination of the existence and commercial availability of the superior alternative 117 tail rotor system and Bell's knowledge that the 102 system was being mishandled by owners and operators constituted sufficient evidence for the jury to have found that, after 1970, the mere presence of the 102 system rendered helicopters like Ingle's unreasonably dangerous.[71] It was reasoned that even though Bell was not legally obligated to design the safest possible product, or one as safe as others make, or a safer product than the one it had designed, once Bell produced a design which was known to be safer it owed a duty to persons using its helicopters to refrain from allowing 102 systems to be used.[72]

To establish that this unreasonably dangerous condition existed at the time the helicopter left Bell's control, the court explained that, although Bell lost control of the helicopter in 1961 when it was originally placed in the stream of trade, Bell regained a significant degree of control, for prod-

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speaking for the supreme court stated, "[t]his court has pressed the limits of strict nonprivity liability to the outer-limits of Section 402A").

66. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-32 (Tex. Civ. App.-Corpus Christi 1979, writ filed).

67. 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

68. *See id.* at 528. In answer to special issues 1 through 6 the jury found that the mere presence of the 102 tail rotor system, instead of the 117 tail rotor system, on the helicopter on July 20, 1975 (the date of the accident), rendered the helicopter unreasonably dangerous to Bradshaw, Hunsaker, Ingle, and Smith; and that such condition was the producing cause of the accident. *See id.* at 528.

69. *See id.* at 528.

70. *See id.* at 529. The court rejected Bell's narrow characterization of the product being litigated as merely the blade which broke. *See id.* at 529. The court also rejected plaintiffs' broad characterization of the product which included the blade, the helicopter, and all product information accompanying the sale of the helicopter. *See id.* at 529.

71. *See id.* at 530.

72. *See id.* at 530. *Compare* Weakley v. Fischbach & Moore, Inc., 515 F.2d 1260, 1267 (5th Cir. 1975) (a manufacturer is not required to design the safest possible product, nor one as safe as others make, nor a safer product than the one he has produced, so long as the design he adopted is reasonably safe) *with* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (once manufacturer actually produces design which is known to be safer than prior design, he owes duty to owners of prior design to refrain from allowing the prior design to be used).

ucts liability purposes, when the helicopter was purchased in 1969 by Houston Helicopters, an authorized Bell service station.[73] By virtue of what the court termed a "unique relationship"[74] Bell retained control until 1973 when the helicopter was sold by Houston Helicopters to Ingle.[75] This unique relationship consisted in the fact that, although Bell had no legal authority to require owners to replace their 102 systems with 117 systems,[76] as a practical matter, and as evidenced by Bell's post-accident remedial efforts,[77] it could accomplish the same result through its authorized repair facilities.[78]

Even though the jury merely found that the unreasonably dangerous condition existed on the date of the accident, and not at the time the helicopter was sold in 1973,[79] the court ruled that such a finding was sufficient to establish the defective condition at the time of sale.[80] The same conditions present on the date of the accident, reasoned the court, "existed with equal vitality" in 1973 on the date the helicopter was purchased by Ingle.[81]

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73. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-31 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

74. *See id.* at 530-31.

75. *See id.* at 530-31.

76. *See id.* at 531. Only the FAA had the legal power, through the rule making authority granted to it by Congress, to require owners to replace the 102 system with the 117 system. *See id.* at 527. The FAA chose not to do so when the Helicopter Association of America opposed the FAA's proposed Airworthiness Directive Note. *Id.* at 527.

77. *Id.* at 527-28. After the accident in question Bell issued a mandatory replacement service bulletin to its authorized service stations, which were contractually obligated to comply with Bell service bulletins and instructions. *Id.* at 527-28. The service bulletin required a changeover from the 102 series system on all Model 47-G2-A1 helicopters and explained the increased safety of the 117 system. *Id.* at 527. Finally, as exclusive supplier of new 102 tail rotor blades, Bell withdrew from the market all of the 102 tail rotor blades fitting a 47-G2-A1. *See id.* at 527-28; Brief for Appellees, Phil Bradshaw, Sr. and Maurice Hunsaker at 36-37, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed). It is doubtful that Bell's refusal to supply new 102 rotor blades prior to July 20, 1975, would have prevented the accident, since Ingle purchased the blade which broke second-hand. Brief for Appellant, Bell Helicopter Company at 156, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

78. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

79. *Id.* at 528, 531. The jury found in response to special issues one through six that the presence of the 102 system on July 20, 1975, rendered the helicopter unreasonably dangerous. *Id.* at 528, 531.

80. *See id.* at 528, 531. *But cf.* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1977) (mere showing of a defect in a product at the time of an accident is not alone sufficient to render manufacturer strictly liable).

81. Bell Helicopter Co. v. Bradshaw, 594 SW.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed). In final regard to the sufficiency of the "mere presence" issues to support judgment against Bell on a strict liability theory, the court of civil appeals held

The court of civil appeals also upheld the jury findings that Bell Helicopter failed in its duty to attempt to cause replacement of the 102 system, and that Bell failed to properly warn about its continued use.[82] The court emphasized that it was neither adopting the rule announced in *Noel v. United Aircraft Corporation*,[83] that a manufacturer has a continuing duty to improve his product,[84] nor the rule announced in *Braniff Airways, Inc. v. Curtis-Wright Corporation*,[85] that a manufacturer is under a duty to remedy dangerous latent defects in the design of a product.[86] The court held, however, that Bell assumed such a duty to improve upon the safety of its helicopter.[87] Since Bell assumed this duty it was obligated by law to "complete the remedy by using reasonable means available to it to cause the replacement of 102 systems with 117 systems."[88] The court concluded that the jury could have reasonably found from the evidence[89] that

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there was sufficient evidence that the mere presence of the 102 system was the producing cause of the accident:

> [I]f Bell had fulfilled the duty breached, the helicopter would have been fitted with a 117 system prior to the accident, and that such blade probably would not have sustained a fatigue fracture, or that if it did, such fracture would have been detected by Smith or Ingle before the ill-fated flight.

Id. at 533. The evidence consisted of the fact that the 117 was more durable, had no history of failure, and was "designed to cure the very problem regarding the 102 system which was the efficient cause of the accident." *Id.* at 533. While the focus of this article is on other aspects of *Bell Helicopter*, it should be noted that the record suffers from an acute lack of evidence offered by plaintiffs that the 117 would not have failed under similar circumstances. It was established that the 117 had a longer useful life than the 102, and that it was more damage tolerant than the 102, during normal commercial use. One cannot help but wonder how the 117 would fair on a helicopter used to herd cattle, during which time the blade would strike brush, fences, and trees. There is a stress point, after all, at which all blades will fail. Brief for Appellant, Bell Helicopter Company at 150, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

82. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 532 (Tex. Civ. App.—Corpus Christi 1979, writ filed). These findings were relied upon by the trial court to render judgment against Bell on a strict liability in tort theory and on a negligence theory. *See id.* at 528-32.

83. 342 F.2d 232, 236 (3d Cir. 1964).

84. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

85. 411 F.2d 451, 453 (2d Cir. 1969).

86. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 532 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

87. *See id.* at 532.

88. *See id.* at 532.

89. *See id.* at 532. The court ruled that inasmuch as there was no objection by Bell to the admission into evidence of the post-accident remedial action taken by Bell, such evidence properly could be considered by the jury in determining whether, prior to the accident, Bell used all reasonable means available to it to cause replacement of the 102. *See id.* at 532.

Bell failed to do as much as it reasonably could have done to assure the replacement of the 102 systems, thereby breaching its duty.[90]

In *Bell Helicopter Co. v. Bradshaw,* because Bell knew that its 102 series system was being abused, and because Bell developed a safer, superior alternative series system which could be installed in the 102 system's place, the fact that such a replacement was not made, that is, the fact that the 102 system was still present on helicopters such as Ingle's, rendered all such helicopters unreasonably dangerous.[91] This represents a

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90. *See id.* at 532. Regarding other points of error presented in the case, the court of civil appeals held as follows:

Misuse: Even though the jury found that Ingle and Smith misused the product, the misuse "defense" was not available to Bell because such abuse by Ingle and Smith was foreseeable. *Id.* at 534.

Assumption of the risk: This defense was not available to Bell because, although the evidence on the issue of actual knowledge and appreciation vel non by Ingle and Smith was conflicting, the jury chose to believe Ingle and Smith. *Id.* at 534-35.

Indemnity: The trial court's award of full indemnity to Ingle and Smith against Bell for the damages awarded to the plaintiffs was upheld. The court mentioned that it considered the result "shocking particularly in light of the fact that it may be said that Smith and Ingle were far more culpable regarding plaintiffs' injuries than was Bell." *Id.* at 535.

91. *See id.* at 528-30. Even though the court mentions both Bell's knowledge of mishandling of the 102 system and Bell's development of a safer 117 system together as constituting the unreasonably dangerous condition, repeated emphasis was on Bell's development of the 117 system. *See id.* at 528-30. The court made such of the fact that the 117 was an *actual* alternative design, which was demonstrably superior to the old design. *See id.* at 530. The court emphasized that the 117 series system was designed specifically to solve the problems which plagued the 102 series system. *See id.* at 530. Furthermore, the court was careful to point out that the 117 system was designed and marketed before the accident occurred. *Id.* at 530. *Compare id.* at 530 (the existence of an alternative safer design rendered product unreasonably dangerous) *with* Weakley v. Fischbach & Moore, Inc., 515 F.2d 1260, 1267 (5th Cir. 1975) (mere showing that safer design alternative actually existed is insufficient to establish liability) *and* Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 579 (Tex. Civ. App.—El Paso 1977) (design alternatives which would have prevented accident are insufficient, standing alone, to establish liability of manufacturer), *rev'd on other grounds,* 571 S.W.2d 867 (Tex. 1978) *and* Henderson v. Ford Motor Co., 519 S.W.2d 87, 93 (Tex. 1974) (liability cannot be predicated upon bare fact that product's design could have been better). The distinguishing factor between *Bell* and *Weakley, Caterpillar,* and *Henderson* is that in *Bell* the manufacturer had knowledge of the owners' and operators' mishandling of the product, that is, the accident which occurred was foreseeable to Bell. *Cf.* Weakley v. Fischbach & Moore, Inc., 515 F.2d 1260, 1267-69 (5th Cir. 1975) (no discussion of knowledge or foreseeability in determining whether design of electric switch was unreasonably dangerous); Henderson v. Ford Motor Co., 519 S.W.2d 87, 92-94 (Tex. 1974) (no discussion of knowledge or foreseeability in determining whether design of carburetor housing was unreasonably dangerous); Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 578-79 (Tex. Civ. App.—El Paso 1977) (no discussion of knowledge of foreseeability in determining whether design of step on track vehicle was unreasonably dangerous), *rev'd on other grounds,* 571 S.W.2d 867 (Tex. 1978). Foreseeability of harm is a consideration in a negligent design case, wherein the focus is on the conduct of the supplier of the product and

new concept of design defect in the field of Texas products liability law.[92]

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whether he exercised reasonable care. *See* South Austin Drive-In Theatre v. Thomison, 421 S.W.2d 933, 950 (Tex. Civ. App.—Austin 1967, writ ref'd n.r.e.). In a defective design case based on strict tort liability, however, foreseeability of harm is not a proper consideration. Hartzell Propeller, Inc. v. Alexander, 485 S.W.2d 943, 946 (Tex. Civ. App.—Waco 1972, writ ref'd n.r.e.). *See* Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 577 (Tex. Civ. App.—Texarkana 1978, no writ). *See generally* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1977); Rourke v. Garza, 530 S.W.2d 794, 798 (Tex. 1975). This is because the focus in a defective design case grounded on strict liability is on the product itself and whether it is defective, not on the care taken by the manufacturer. *See, e.g.,* Turner v. General Motors Corp., 584 S.W.2d 844, 853 (Tex. 1979); Gonzales v. Caterpillar Tractor Co., 571 S.W.2d 867, 871 (Tex. 1978); Lubbock Mfg. Co. v. Sames, 575 S.W.2d 588, 592 (Tex. Civ. App.—Beaumont 1978), *aff'd*, 598 S.W. 2d 234 (Tex. 1980). Since the mere existence of a safer design alternative is insufficient to establish liability on a manufacturer, *Weakley v. Fischbach & Moore, Inc.*, 515 F.2d 1260, 1267 (5th Cir. 1975), and since foreseeability is not a proper consideration in a defective design case based on strict liability, *Hartzell Propeller Co. v. Alexander*, 485 S.W.2d 943, 946 (Tex. Civ. App.—Waco 1972, writ ref'd n.r.e.); see Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 577 (Tex. Civ. App.—Texarkana 1978, no writ), it is difficult to understand how the Corpus Christi Court of Civil Appeals arrived at the conclusion that those two factors rendered the helicopter unreasonably dangerous. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-30 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (fact that Bell knew its 102 system was being mishandled, together with fact Bell developed a safer design alternative rendered helicopter unreasonably dangerous) *with* Turner v. General Motors Corp., 584 S.W.2d 844, 849 (Tex. 1979) (to determine whether a design is unreasonably dangerous factors such as risk of harm, utility, alternative safe designs, and public expectation of the danger should be overtly advanced at trial).

92. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-30 (Tex. Civ. App.—Corpus Christi 1979, writ filed) *with* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650-51 (Tex. 1978) *and* Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 578 (Tex. Civ. App.—Texarkana 1978, no writ). *Miller* involved a centrifugal extractor type clothes dryer which was designed to extract water from clothes by means of centrifugal force generated by the clothes basket rotating at more than sixty miles per hour. *See* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1978). The machine was equipped with a safety device which prevented the lid of the machine from being opened while the basket was still spinning. *Id.* at 650. A young boy opened the lid of the machine while the basket was still rotating, and his arm was severed immediately. *Id.* at 650. The safety device failed to function due to deterioration of a rubber pad. *Id.* at 651. It was determined the design was defective in that rubber was used for the pads despite its known tendency to deteriorate when in contact with oil. *Id.* at 651. The deteriorated pad which caused the malfunction was located close to a tube where the machine was oiled. *Id.* at 651. Had the pads been made in 1957 with neophrene or chloroprene, products known to be impervious to oil deterioration, the accident would not have occurred. *Id.* at 650-51. The court held the design was unreasonably dangerous. *Id.* at 650-51.

In *Bell Helicopter Co. v. Bradshaw* the absence of a defect in 1961 and the fact that the defective condition was tied almost exclusively to a new design that did not become feasible until after 1961 distinguishes *Bell* from *Miller* and other similar decisions in which the original design of a product was defective because it allowed subsequent dangerous changes to occur in the product. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 529-30 (Tex. Civ. App.—Corpus Christi, 1979, writ filed) *with* Miller v. Bock Laundry Mach. Co.,

In no instance has the "mere presence" of a product or part thereof constituted a defect or unreasonably dangerous condition.[93] This is particularly true with respect to a product such as the 102 series tail rotor system, which was safe as originally designed and marketed.[94] It was only after 1970, by virtue of a change in the state of the art, that the 102 system became defective.[95]

This new concept has some interesting ramifications.[96] If a manufacturer of a relatively safe product subsequently designs a product that is even safer, he runs a risk of rendering the relatively safe product unreasonably dangerous and defective, thereby subjecting himself to potential liability.[97] The sale of a used car could be considered the sale of an unrea-

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568 S.W.2d 648, 650-51 (Tex. 1978) *and* Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 578 (Tex. Civ. App.—Texarkana 1978, no writ). In *Hamilton* plaintiff was an experienced mechanic who undertook the repair of a spring-loaded air cylinder. *See* Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 575 (Tex. Civ. App.—Texarkana 1978, no writ). While doing so, the spring-loaded piston and shaft released and were propelled into his right eye. *Id.* at 575. Although the product was not defective at the time it was originally marketed, at that time the manufacturer could anticipate that, through use, the product would become corroded and change, so that the spring would become depressed rendering the air cylinder unreasonably dangerous. *Id.* at 576. The court held that an issue was raised concerning the necessity of an adequate warning reversing the trial court's directed verdict for defendant. *Id.* at 578.

In *Bell* there was no change in the 102 system, much less one that could be anticipated at the time the 102 system was originally marketed. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed). The Corpus Christi Court of Civil Appeals in *Bell* held that it was the mere presence of the 102 which rendered the helicopter unreasonably dangerous on the date of the accident, and that the defective condition existed "with equal vitality" and in the same form when it was sold in 1973. *See id.* at 530-31. Indeed, the 102 system was in the same form in 1973 as it was when originally sold by Bell in 1961, with the exception that in 1973 a safer alternative design was available. *See id.* at 527.

93. *Cf.* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650-51 (Tex. 1978) (product designed defectively so that malfunction of safety device would occur); Hamilton v. Motor Coach Indus., Inc., 569 S.W.2d 571, 578 (Tex. Civ. App.—Texarkana 1978, no writ) (product designed defectively in that under certain conditions spring would stick, creating dangerous condition).

94. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-30 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

95. *See id.* at 528-30. *Compare id.* at 528-30 (liability imposed on manufacturer of product not unreasonably dangerous at time it was marketed, but which became so by reason of subsequent invention of safer product) *with* Bailey v. Boatland of Houston, Inc., 585 S.W.2d 805, 810-11 (Tex. Civ. App.—Houston [1st Dist.] 1979) (liability imposed on manufacturer of product not unreasonably dangerous at time it was marketed, but which became so by reason of subsequent marketing of safety feature), *rev'd*, 23 Tex. Sup. Ct. J. 566, 569 (August 2, 1980).

96. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

97. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas

sonably dangerous product simply because the collapsible steering column, for example, became a feasible design alternative subsequent to the time the car was originally marketed.[98] Unanswered by the court of civil appeals is how much abuse is necessary, or how major a safety improvement must be made, before a prior relatively safe model becomes defective.[99] Also unanswered is why holding Bell liable under the facts of this case will not inhibit the development and improvement of product safety.[100]

It is undisputed that the 102 system was not an unreasonably dangerous product when originally sold by Bell in 1961.[101] The evidence established that the 102 was safe when kept within the required inspection and replacement schedules.[102] Furthermore, the FAA determined that an order mandating replacement of 102 systems with 117 systems was unnecessary, and that it was safe to rely on owners and operators to perform the required maintenance of the 102 systems.[103] Finally, the jury found that Ingle and Smith subjected passengers to an unreasonable risk of injury by not making the proper inspections, thereby violating the FAA's Airwor-

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(July 24, 1980). The 102 system was developed in the 1950's to replace the previous model blade which was made of wood. Brief for Appellant, Bell Helicopter Company at 132, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed). When the 102 system was sold as a component of the helicopter in 1961, it represented the most advanced state of the art. Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 526 (Tex. Civ. App.—Corpus Christi 1979, writ filed). A relatively safe product, it was rendered unreasonably dangerous by the design and production of the safer 117. *See id.* at 530.

98. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). Similarly, a car manufactured this year and sold as new with conventional seat belts may be rendered unreasonably dangerous when a safety balloon which inflates upon impact is offered as a design option in 1981. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

99. *See generally* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-30 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

100. *See generally id.* at 530. In answer to Bell's argument that holding Bell liable will inhibit and penalize the improvement of product safety, the Corpus Christi Court of Civil Appeals merely voiced its disagreement. *See id.* at 530. The court did not offer a reason why it disagreed with Bell's argument. *See id.* at 530. Clearly a manufacturer of a product will not subsequently try to design a safer product if by doing so he may subject himself to liability. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). *See also* W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 56, at 344 (4th ed. 1971) ("The result of all of this is that the good Samaritan who tries to help may find himself mulcted in damages, while the priest and the Levite who pass by on the other side go on their cheerful way rejoicing.").

101. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 526-27 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

102. *See id.* at 527.

103. *See id.* at 527.

thiness Directives and Bell's instructions.[104] The jury also found, however, that the presence of the 102 system rendered the helicopter unreasonably dangerous in 1975.[105] This finding, upon which the court of civil appeals based its judgment,[106] does not connect the unreasonably dangerous condition to the sale of the used product in 1973.[107] It is questionable, therefore, whether the jury finding that the helicopter in question was unreasonably dangerous *on the date of the accident* can support a judgment that a used Bell helicopter utilizing a 102 series system, that had been properly maintained, was unreasonably dangerous *at the time of sale.*[108]

Even if the unreasonably dangerous condition existed in 1973 when the helicopter was sold, this only explains why Houston Helicopters is liable under section 402A for selling a defective used product.[109] This does not

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104. *See* footnote 15, *supra* (jury's answers to special issues 44-47).

105. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

106. *See id.* at 531.

107. *See* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 550 (Tex. 1969). In *Pittsburg* plaintiff brought a strict tort liability action against a bottler for injuries sustained when a coke bottle exploded. *See id.* at 547. Special issue No. One inquired of the jury whether by a preponderance of the evidence the Coca-Cola bottle was not reasonably fit for the purposes for which it was intended to be used. *See id.* at 550. Defendant objected to the special issue because it was not confined to the time the bottle left possession and control of the defendant. *Id.* at 550. Defendant maintained that the jury's answer "It was not reasonably fit" would not indicate whether the jury found the product defective at the time it left the defendant's control. *Id.* at 550. The Supreme Court of Texas sustained the defendant's contention holding that the issue would not support judgment in a strict liability action because the plaintiff did not secure a jury finding that the bottle was defective at the crucial time. *Id.* at 550; *cf.* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1978) (a defect in the product at time of accident is not alone sufficient to render the manufacturer liable).

108. *See* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 550 (Tex. 1969) (jury issue must secure finding that product was defective at time it left supplier's possession and control in order to support judgment for plaintiff); *cf.* Miller v. Bock Laundry Mach. Co., 568 S.W.2d 648, 650 (Tex. 1978) (defect in product at time of accident is not by itself sufficient to render supplier strictly liable).

109. *Cf.* Rourke v. Garza, 530 S.W.2d 794, 799 (Tex. 1976) (supplier held liable for defective used scaffolding equipment); Hovenden v. Tenbush, 529 S.W.2d 302, 306 (Tex. Civ. App.—San Antonio 1975, no writ) (seller held liable for defective used bricks); McLain v. Hodge, 474 S.W.2d 772, 774 (Tex. Civ. App.—Waco 1971, writ ref'd n.r.e.) (seller held liable for defective used rifle). *But see* Bruce v. Martin-Marietta Corp., 544 F.2d 442, 447 (10th Cir. 1976) (used products are not unreasonably dangerous because the injury causing defect is within the reasonable expectation of consumers, who would not expect used products to have safety features of new products); Rix v. Reeves, 532 P.2d 185, 187 (Ariz. App. 1975) (it would be too heavy of an economic burden on sellers of used, worn, and obviously damaged products to inspect and repair parts before sale). *See generally* Sales & Perdue, *The Law of Strict Tort Liability In Texas,* 14 HOUS. L. REV. 1, 102-05 (1976-1977) (including Texas in the minority of jurisdictions imposing liability on sellers of used products). Houston Helicopters, however, was not named as defendant in *Bell. See* Bell Helicopter Co.

explain why Bell is responsible for a sale by Houston Helicopters. *Bell* does not involve a situation where an alter ego relationship was established,[110] nor one in which the defect was present in the new product.[111] Moreover, this is not a case involving an agency relationship between the manufacturer and seller, and no issue was submitted to the jury on that theory.[112] The record reveals very little about the relationship between Bell and Houston Helicopters,[113] other than the bare fact that Houston Helicopters was authorized to service Bell products for third parties.[114]

Emphasized by the court of civil appeals was the "unique relationship" between Bell and Houston Helicopters, by which Bell regained control of the helicopter when it was purchased by Houston Helicopters in 1969.[115]

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v. Bradshaw, 594 S.W.2d 519, 524 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

110. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-31 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (manufacturer held strictly liable for sale of used product consummated by one of its authorized service repair facilities) *with* Cupples Coiled Pipe, Inc. v. Esco Supply Co., 591 S.W.2d 615, 618-19 (Tex. Civ. App.—El Paso 1979, writ filed) (parent corporation strictly liable for sale consummated by subsidiary, when subsidiary determined to be mere "shell" corporation subject to complete control of parent).

111. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-31 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (when the product was new it was not defective, but represented the most advanced technology available in the field) *with* Gibbs v. General Motors Corp., 450 S.W.2d 827, 829 (Tex. 1970) (purchaser of used truck brought suit against manufacturer for alleged defective ball joint present on truck when it was sold as new).

112. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-31 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (manufacturer held liable for sale of used product consummated by company authorized to service Bell helicopters for third parties) *with* Cupples Coiled Pipe, Inc. v. Esco Supply Co., 591 S.W.2d 615, 618-19 (Tex. Civ. App.—El Paso 1979, writ filed) (jury found agency relationship existed between parent and subsidiary; parent liable for sale by its agent-subsidiary).

113. *See* Petitioner's Application for Writ of Error at 14, 17, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed), in which Bell suggests the reason why the record reveals very little about the relationship between Bell and Houston Helicopters is at least in part because the theory of "control" articulated by the court of civil appeals was neither presented at trial nor argued before the court of civil appeals. *See id* at 14, 17. In their briefs to the court of civil appeals, Bradshaw, Hunsaker, Ingle, and Smith argued the product was unreasonably dangerous at the time it was originally marketed by Bell. *See* Brief for Appellees, Phil Bradshaw, Sr. and Maurice Hunsaker at 33-34, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

114. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528 (Tex. Civ. App.—Corpus Christi 1979, writ filed). Houston Helicopters was not an authorized Bell dealer and had no greater or lesser right to sell a used Bell helicopter than any other person owning one. *See* Petitioner's Application for Writ of Error at 14, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

115. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530-31 (Tex. Civ. App.—Corpus Christi 1979, writ filed). Houston Helicopters purchased the helicopter from Gulf Coast Helicopters. Statement of Facts at 949. It previously had been bought and sold three times by persons not connected with Bell. *Id.* at 949.

Legally, the relationship so characterized connotes nothing.[116] As a practical matter, however, it seems to mean that Bell could require its service stations owning Bell helicopters—under threat of economic loss through cancellation of their service contracts—to replace the 102 system with the 117 system.[117] It is in this sense that Bell had control over the product.[118] This represents yet another concept new to the law of products liability in Texas, that is, vicarious liability through economic control.[119] It is easy to see how such vicarious liability could find application in a great number of instances, and to a wide variety of business relationships.[120] The relationship between automobile manufacturers and their dealers suggests

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116. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (manufacturer deemed to have control of defective product in hands of one of its authorized service facilities because of "unique relationship") *with* Cupples Coiled Pipe, Inc. v. Esco Supply Co., 571 S.W.2d 615, 618-19 (Tex. Civ. App.—El Paso 1979, writ filed) (parent corporation deemed to have control of defective product in hands of subsidiary when subsidiary was mere alter ego of parent and acting as agent for parent).

117. *See* Bell Helicopter v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

118. *Compare id.* at 531 (manufacturer deemed in control of product at time of sale even though another supplier had actual physical possession and control, because manufacturer could cause such other supplier to act by threatening economic sanctions) *with* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 549 (Tex. 1969) (manufacturer in control of defective product when product on manufacturer's premises or in hands of employees) *and* Jack Roach-Bissonnet, Inc. v. Puskar, 417 S.W.2d 262, 270 (Tex. 1967) (manufacturer in control of product when product on his premises prior to shipment or original sale) *and* Sharp v. Chrysler Corp., 432 S.W.2d 131, 136 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.) (manufacturer in control of product at time of manufacture or assembly). An attempt by Bell to require Houston Helicopters to purchase and install its new 117 series system as a condition to maintaining its service station authorization might well have exposed Bell to some serious anti-trust problems. *Cf.* Osborn v. Sinclair Ref. Co., 324 F.2d 566, 569 (4th Cir. 1963) (oil company cannot require gasoline dealers to buy quantities of certain product as a condition for leasing service station).

119. *See* Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 549 (Tex. 1969); Jack Roach-Bissonnet, Inc. v. Puskar, 417 S.W.2d 262, 270 (Tex. 1967); Sharp v. Chrysler Corp., 432 S.W.2d 131, 135-37 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.). *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (manufacturer in control of product at time of sale even though supplier had actual physical possession, because manufacturer could control supplier) *with* Morris v. Ortiz, 415 P.2d 114, 116 (Ariz. App. 1966) (school has duty of reasonable care to exercise control over its pupils to prevent negligent conduct) *and* Gudziewski v. Stemplesky, 160 N.E. 334, 335 (Mass. 1928) (parent has duty of reasonable care to exercise control over child to prevent negligent conduct) *and* La Sota v. Philadelphia Transp. Co., 219 A.2d 296, 299-300 (Pa. 1966) (carrier has duty of reasonable care to exercise control over passengers to prevent negligent conduct). *See generally* RESTATEMENT (SECOND) OF TORTS § 320 (1965).

120. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

itself most readily.[121]

The two concepts together lead to even more interesting, albeit unfortunate, ramifications.[122] If a product that was reasonably safe when originally marketed can become defective when there is a change in the state of the art,[123] manufacturers and dealers both will continually have to redesign all second-hand products before they can be resold on the used products market.[124] Consequently, a used car, a used airplane, or any other used product may be worth little in trade.[125] Many consumers may have products worth relatively nothing, due to an absolute instantaneous obsolescence.[126]

Of significance is the effect such a holding will have on the continued

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121. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

122. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

123. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 530 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (existence and availability of superior alternative 117 system, which became commercially available in 1970, together with Bell's knowledge of abuse of 102 system, was sufficient evidence for jury to have found that, after 1970, 102 system rendered helicopters like Ingle's unreasonably dangerous); *cf.* Bailey v. Boatland of Houston, Inc., 585 S.W.2d 805, 810 (Tex. Civ. App.—Houston [1st Dist.] 1979) (if state of the art has advanced between time of the design of product and time of accident, design should be viewed in light of what was technologically and economically feasible at time of accident), *rev'd*, 23 Tex. Sup. Ct. J. 566 (August 2, 1980).

124. *See* Rourke v. Garza, 530 S.W.2d 794, 799 (Tex. 1976) (seller liable under section 402A for supplying defective used scaffolding equipment); Hovenden v. Tenbush, 529 S.W.2d 302, 306 (Tex. Civ. App.—San Antonio 1975, no writ); (seller liable under section 402A for supplying defective used bricks); McLain v. Hodge, 474 S.W.2d 772, 774 (Tex. Civ. App.—Waco 1971, writ ref'd n.r.e.) (seller liable under section 402A for supplying a used rifle).

Once again the Corpus Christi Court of Civil Appeals has left in its wake some unanswered questions. *See generally* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed). It remains to be seen, for instance, how far a manufacturer is required to go in the modification of his product in order to avoid liability under section 402A. *See generally id.* at 526-32. This duty could extend to a complete redesign of a product, or even a recall. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). Such a duty to complete a redesign of a product, or to recall a product, is distinguishable from the post-marketing duty of reasonable care placed on manufacturers and sellers relating to conditions existing in new products at the time of original sale. *See, e.g.*, Braniff Airways, Inc. v. Curtis-Wright Corp., 411 F.2d 451, 453 (2d Cir. 1969); Noel v. United Aircraft Corp., 342 F.2d 232, 236 (3d Cir. 1964); Comstock v. General Motors Corp., 99 N.W.2d 627, 633 (Mich. 1959).

125. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

126. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). Even though such repercussions as outlined in the text are possible should *Bell* be upheld, it is difficult to speculate to what degree the marketability of used products and the consumer's ability to trade in products will be affected. *Id.*

viability of section 402A.[127] It may no longer be possible to justify the doctrine of strict liability in tort on the basis that a manufacturer is better able to afford the losses than the consumer, or that he can effectively socialize such losses.[128] It is the consumer who will feel the economic impact of the losses, and it is with him that the distributive chain ends.[129]

Only with a similar lack of vitality can it be urged that application of the doctrine will reduce the incidence of harm.[130] Unable to recoup their investments on the market, consumers will resort to private sales for their used goods.[131] Since section 402A by definition applies only to those en-

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127. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

128. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-32 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (extending strict liability to manufacturer of product not unreasonably dangerous when originally marketed, but which became so by virtue of change in state of art) *with* Challoner v. Day & Zimmerman, Inc., 512 F.2d 77, 84 (5th Cir.) (announcing the justification for the doctrine of strict liability in tort that the manufacturer can best afford the losses, while keeping the doctrine within conventional bounds), *vacated*, 423 U.S. 3 (1975). Because *Bell*, if upheld, will have an effect on the used products market and on the ability of consumers to trade in their used products, it is the consumer who will suffer losses, and he has no means of distributing them. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). Even if losses such as occurred in *Bell* could be effectively socialized by the manufacturer, passing on the costs through an increase in price of products to consumers, the propriety of such a practice is questionable. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 571 (August 2, 1980). The innocent consumer should not have to pay for the percentage of loss caused by cross-plaintiffs like Ingle and Smith, in addition to the percentage of loss caused by the manufacturer. *See id.* at 571.

129. *See* Greenman v. Yuba Power Prod., Inc., 377 P.2d 897, 901, 27 Cal. Rptr. 697, 701 (1962) (purpose of strict liability is to insure costs of injuries are borne by manufacturers rather than individuals powerless to distribute the losses themselves); Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (Cal. 1944) (Traynor, J., concurring) (manufacturers should pay costs of injuries rather than consumers who cannot afford them).

130. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-32 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (extending strict liability in tort to manufacturer of product not unreasonably dangerous when originally marketed but which became so by virtue of change in state of art) *with* Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (Cal. 1944) (Traynor, J., concurring) (announcing reduction of incidence of harm as justification for strict liability in tort, while keeping doctrine within traditional bounds).

131. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-32 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (extending strict liability to manufacturer of product not unreasonably dangerous when originally marketed, but which became so by virtue of change in state of art) *with* Escola v. Coca-Cola Bottling Co., 150 P.2d 436, 441 (Cal. 1944) (Traynor, J., concurring) (announcing reduction of incidence of harm as a justification for strict liability in tort, while keeping the doctrine within traditional bounds). Because *Bell* if upheld will to some extent affect the ability of consumers to trade in their used products, consumers may resort to private sales for their used goods. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980). Quere: What effect will the Deceptive Trade Practices Act have on the used product market if consumers resort to

gaged in the business of selling products,[132] and not to the occasional seller,[133] there is an outstanding possibility that section 402A will be circumvented.[134] As applied by the court of civil appeals, section 402A, in effect, removes the defective products from the hands of those who it was designed to regulate, and injects the defective products into the unrestricted channels of private trade.[135]

The Corpus Christi Court of Civil Appeals found Bell was the equivalent of a seller of the helicopter in 1973.[136] In evaluating whether the 102 series tail rotor system was defectively designed or unreasonably dangerous, the court viewed the system in light of the state of the art as it existed in 1973, instead of at the time when the helicopter was manufactured and originally marketed in 1961.[137] This practice is questionable,[138] particularly in light of a recent Texas Supreme Court decision.[139]

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such market for the sale of their defective products, now that the Act applies to the casual sale? *See* Pennington v. Singleton, 23 Tex. Sup. Ct. J. 587, 592-93 (Sept. 20, 1980) (DTPA applies to casual sales by non-merchants). *See also* Comment, *An Analysis of the 1979 Texas Deceptive Trade Practices Act and Possible Ramifications of Recent Amendments: Is the Act Still Consumer Oriented?*, 11 ST. MARY'S L.J. 885 (1980).

132. *See* RESTATEMENT (SECOND) OF TORTS § 402A, comment f, at 350 (1965).

133. *See id.* at 350.

134. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

135. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

136. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 531 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

137. *See id.* at 527, 530-31. Even though the 102 system represented the advanced state of the art in 1961 when it was manufactured and sold, see *id.* at 526, the case is replete with comparisons of the 102 system with the 117 system, see *id.* at 527, 530-31, which did not become technologically feasible until later. *See id.* at 527.

138. *See, e.g.*, Mondshour v. General Motors Corp., 298 F. Supp. 111, 114 (D. Md. 1969) (whether bus was defectively designed should be evaluated in light of circumstances existing at time bus designed, and not at some later period); E.R. Squibb & Sons v. Stickney, 274 So. 2d 898, 901 (Fla. App. 1973) (whether bone transplant product which involved a fifteen percent failure rate was defectively designed should be evaluated in light of state of art as it existed at time of its manufacture); Wilson v. Piper Aircraft Corp., 577 P.2d 1322, 1326-27 (Or. 1978) (whether design is defective should be evaluated in light of design alternatives existing at time product is originally sold). *See generally* W. KIMBLE & R. LESHER, PRODUCTS LIABILITY § 133, at 164-65 (1979).

139. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 569 (August 2, 1980). In *Boatland* plaintiffs' decedent was killed in a boating accident. Apparently he was standing in his bass boat when it hit a submerged tree or stump. *Id.* at 567. The impact hurled him out of the boat, and into its path. *Id.* at 567. The surviving widow and two adult children brought suit based on strict liability in tort against the seller of the bass boat. *Id.* at 567. Plaintiffs' theory at trial was that the absence of a kill switch which would automatically kill the engine in the event the operator was thrown from the boat rendered the bass boat defectively designed so as to be unreasonably dangerous. *Id.* at 568. Plaintiffs offered

In *Boatland of Houston, Inc. v. Bailey* the Supreme Court of Texas held that "[w]hether a product was defectively designed must be judged against the technological context existing at the time of its manufacture."[140] The court explained that whether a product is defectively designed or unreasonably dangerous involves a risk versus utility analysis, in which various evidentiary factors are to be considered.[141] Three of these factors, the availability of other and safer products to satisfy the same need, the ability to eliminate the danger without unduly impairing the usefulness of the product or making it unreasonably expensive, and the reasonable expectations of the ordinary consumer, directly relate to the state of the art at the time a product is manufactured.[142] The Corpus Christi Court of Civil Appeals, however, considered design alternatives and capabilities as they existed almost ten years after the helicopter was manufactured and sold.[143] Moreover, it is arguable that an ordinary con-

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evidence that the kill switch was a relatively simple device that would significantly increase the safety of boats, and would probably have prevented the accident. *Id.* at 568. To rebut this evidence defendants produced testimony that this safety feature was not invented or marketed until after the manufacture and sale of the boat in question. *Id.* at 568. Plaintiffs' objection to this evidence was overruled, and the case was submitted to a jury. *Id.* at 568. In answer to special issues the jury found the bass boat was not defective, Bailey misused the boat, he failed to follow proper warnings and instructions, and he assumed the risk of his death. Bailey v. Boatland of Houston, Inc., 585 S.W.2d 805, 807 (Tex. Civ. App.—Houston [1st Dist.] 1979), *rev'd*, 23 Tex. Sup. Ct. J. 566 (August 2, 1980). Based upon these answers judgment was entered for the defendant seller. *Id.* at 807. On appeal it was plaintiffs' position that the evidence offered by defendant seller, suggesting the unavailability of kill switches at the time of manufacture and sale of the boat in question, was irrelevant in a strict liability action. *Id.* at 807. The Houston Court of Civil Appeals, First District, upheld the plaintiffs' position reversing the judgment. *Id.* at 812. The court held that evidence of the state of the art at the time of manufacture and sale of a product is relevant only to the issue of care taken by the manufacturer, which is not a consideration in a strict liability action. *Id.* at 807, 812. The Texas Supreme Court reversed, holding that state of the art evidence is relevant in a strict liability action, and that whether a product is defectively designed should be determined in light of the technological context existing at the time of its manufacture. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 569 (August 2, 1980).

140. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 569 (August 2, 1980).

141. *See id.* at 567. *See generally* Turner v. General Motors Corp., 584 S.W.2d 844, 849 (Tex. 1979); Caterpillar Tractor Co. v. Gonzales, 562 S.W.2d 573, 578 (Tex. Civ. App.—El Paso 1977), *rev'd on other grounds*, 571 S.W.2d 867 (Tex. 1978); Wade, *On the Nature Of Strict Tort Liability For Products*, 44 Miss. L.J. 825, 838-40 (1973).

142. *See* Boatland of Houston, Inc. v. Bailey, 23 Tex. Sup. Ct. J. 566, 567, 569-70 (August 2, 1980). The court in *Boatland* reasoned that "[t]he limitations imposed by the state of the art at the time of manufacture may affect the feasibility of a safer design." *See id.* at 569.

143. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 527, 530-32 (Tex. Civ. App.—Corpus Christi 1979, writ filed). Since the 102 system represented the most advanced

sumer would be reasonable in expecting a 1961 model used helicopter to be equipped with the latest design features.[144] The effect of the holding in *Bell* is to abrogate the unreasonably dangerous requirement as a delimiting principle, thereby making the manufacturer's liability potentially unlimited.[145]

One final aspect of the court of civil appeals' opinion in *Bell Helicopter Co. v. Bradshaw* warrants discussion. The trial court submitted two sets of issues referring to a post-marketing obligation.[146] One set related to the question of whether Bell should be subject to liability on either a negligence theory or strict liability theory for failing to use "reasonable means available to it to attempt to cause replacement of the 102 series."[147] The other set concerned the question of whether there would be liability on either a negligence or strict liability theory for failing to properly and adequately warn about "the continued use of the 102 series tail rotor system."[148] In regard to these two sets of issues the court of civil appeals concluded as follows:

> Here Bell assumed the duty to improve upon the safety of its helicopter by replacing 102 systems with the 117 system. Once the duty was assumed, Bell had an obligation to complete the remedy by using reasonable means availa-

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technology available in the field in 1961, then by inference the 117 system was neither technologically or economically feasible at that time. *Cf. id.* at 526 (when Bell originally sold the helicopter in 1961, the 102 design represented the most advanced state of the art). It was not until the late 1960's that Bell began designing the 117 system. *See id.* at 527. Further, it was not until 1970 that the 117 became commercially available. *Id.* at 527.

144. *Cf.* Bruce v. Martin-Marietta Corp., 544 F.2d 442, 447 (10th Cir. 1976). *Bruce* involved the crash of a used airplane. Upon impact the seats in the passenger cabin broke loose from their fastenings and blocked exit. *See id.* at 444. When a fire developed, several people were killed. *See id.* at 444. Suit was brought against the manufacturer of the airplane on a strict liability in tort theory. *See id.* at 444. Plaintiffs urged that the airplane was defectively designed in that the seat fastenings were not designed to withstand the crash, and that the aircraft was not designed to minimize the danger of a post-crash fire. *See id.* at 446. The plaintiffs offered evidence that at the time of the crash, and eighteen years after the airplane was originally manufactured and sold, airline passenger seats were in use which would have withstood the crash. *See id.* at 447. The court in *Bruce* refused to impose liability on the manufacturer because when the airplane was manufactured and originally sold it was within the state of the art. The court stated:

> A consumer would not expect a Model T to have the safety features which are incorporated in automobiles today. The same expectation applies to airplanes. Plaintiffs have not shown that the ordinary consumer would expect a plane made in 1952 to have the safety features of one made in 1970.

Id. at 447.

145. *See* Keeton, *Products Liability—Liability Without Fault And the Requirement Of A Defect*, 41 TEXAS L. REV. 855, 858 (1963).

146. *See* Special issues (7-15 and 17-24).

147. *See* Special issues (7-15).

148. *See* Special issues (17-24).

ble to it to cause replacement of 102 systems with 117 systems.[149]

No authority is cited by the court,[150] and none exists[151] for the proposition that, once a manufacturer designs and markets an improved component for its new products, it then assumes a duty to complete the remedy by causing the substitution of the improved component in used products that are already on the market.[152] To begin with, a manufacturer's liability for any kind of post-marketing failure to ameliorate a danger from the use of products that it made and previously sold is based on negligence, and not on strict liability in tort.[153] This liability is based on a failure to

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149. *See* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 532 (Tex. Civ. App.—Corpus Christi 1979, writ filed).

150. *See generally id.* at 532. *But cf.* Noel v. United Aircraft Corp., 342 F.2d 232, 236-37 (3d Cir. 1964) (seller of product defective when originally sold has continuing post-marketing duty to warn adequately and to bring about alternatives of its used products).

Once again it seems that the Corpus Christi Court of Civil Appeals' holding will impede product development. Manufacturers will be hesitant to attempt to improve their product if by doing so they will be held to have "assumed" a duty which otherwise would not exist. The court's holding leaves yet other questions to be answered: What steps can a manufacturer take to improve his product without assuming a duty? How much of a duty does he assume?

151. *See* Braniff Airways, Inc. v. Curtis-Wright Corp., 411 F.2d 450, 453 (2d Cir. 1964).

152. *But cf.* United States v. Lawter, 219 F.2d 559, 562 (5th Cir. 1955) (once Coast Guard affirmatively took over rescue mission, it was under duty not to injure anyone by negligent conduct); Riley v. Lissner, 35 N.E. 1130, 1131 (Mass. 1894) (once landlord undertook to clean cesspool under kitchen leased to plaintiff, landlord liable for not putting cover of cesspool back on in proper place); Westaway v. Chicago, St. P., M. & O. Ry. Co., 57 N.W. 222, 222-23 (Minn. 1893) (once railroad company assumed duty of providing signals at private crossing, it was negligent in failing to give signals without notice); Fox v. Dallas Hotel Co., 111 Tex. 461, 474-75, 240 S.W. 517, 521 (1922) (once one undertakes to act he is under an implied legal obligation to act with reasonable care).

153. *See* Hartzell Propeller Co. v. Alexander, 485 S.W.2d 943, 946-47 (Tex. Civ. App.—Waco 1972, writ ref'd n.r.e.). *Hartzell* involved a strict liability action arising out of an airplane crash. The crash was caused by the inflight failure of a propeller blade, which did not have a large enough diameter to withstand the stresses of the engine upon which it was mounted. *Id.* at 945-46. In addressing this fact the court stated:

> Defendant admitted that prior to the accident it came to the knowledge and realization that its propeller needed to be strengthened, and that simple redesign by increasing the propeller shank size would double the margin of safety, and in reasonable probability such precaution would have prevented a crash under the circumstances here involved. Despite this knowledge and realization defendant withheld such information from the public because it did not have its new "beefed up" model ready to sell.

Id. at 946. In *Hartzell* there was a deliberate post-marketing failure to ameliorate the dangerous condition. *See id.* at 946. No liability, however, was predicated on that ground. *See id.* at 947. The manufacturer's liability was predicated on the ground that the shank size of the propeller rendered the product unreasonably dangerous *at the time of sale. See id.* at 947. *Compare* Braniff Airways, Inc. v. Curtis-Wright Corp., 411 F.2d 451, 453 (2d Cir. 1969) (negligence action: after product has been sold and dangerous design defects come to manu-

exercise reasonable care. Furthermore, the post-marketing duty of reasonable care that has been placed on manfacturers has invariably related to conditions existing at the time of the original sale.[154]

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facturer's attention, manufacturer has duty to remedy or warn of danger) *and* Sterling Drug, Inc. v. Cornish, 370 F.2d 82, 84 (8th Cir. 1966) (when dangerous side affect of drug became known to manufacturer one year after sale, manufacturer negligent in failing to warn plaintiff's doctors) *and* Rekab, Inc. v. Frank Hrubetz & Co., 274 A.2d 107, 112 (Md. 1971) (negligence action: when facts came to attention of manufacturer after sale appraising him of dangerous condition in product, manufacturer met his post-marketing duty to warn) *and* Comstock v. General Motors Corp., 99 N.W.2d 627, 634 (Mich. 1959) (negligence case: duty to give prompt warning exists when a latent defect making product dangerous becomes known to manufacturer after product has been put on market) *with* Martinez v. Dixie Carriers, Inc., 529 F.2d 457, 465 (5th Cir. 1976) (strict liability action: absence of adequate and proper warning rendered product unreasonably dangerous at time of sale) *and* Reyes v. Wyeth Laboratories, Inc., 498 F.2d 1264, 1273-75 (5th Cir.) (to avoid strict liability manufacturer of unavoidably unsafe product must accompany it with warning at time product is marketed), *cert. denied,* 419 U.S. 1096 (1974) *and* Borel v. Fibreboard Paper Prod. Corp., 493 F.2d 1076, 1087-89 (5th Cir. 1973) (if seller does not give adequate warning to user at time of sale, he will be strictly liable for sale of unreasonably dangerous product), *cert. denied,* 419 U.S. 869 (1974) *and* Davis v. Wyeth Laboratories, Inc., 399 F.2d 121, 129-30 (9th Cir. 1968) (seller's duty is to make sure the product is properly marketed). As the comparison suggests, in a strict liability action, unlike an action based on negligence, liability is never imposed on the manufacturer for any kind of post-marketing failure. The failure for which liability will be imposed in a strict liability action occurs at the time the product is marketed, for the sale of an unreasonably dangerous product. *See* Technical Chem. Co. v. Jacobs, 480 S.W.2d 602, 604 (Tex. 1972); Pittsburg Coca-Cola Bottling Works v. Ponder, 443 S.W.2d 546, 548 (Tex. 1969); Sharp v. Chrysler Corp., 432 S.W.2d 131, 136 (Tex. Civ. App.—Houston [14th Dist.] 1968, writ ref'd n.r.e.). Any failure to warn of or remedy a dangerous condition in a strict liability case is necessarily related only to the time of sale, not to any time thereafter. *See* Reyes v. Wyeth Laboratories, Inc., 498 F.2d 1264, 1274-75 (5th Cir.) ("[f]ailure to give . . . a warning when it is required will itself present a 'defect' in the product and will, without more, cause the product to be 'unreasonably dangerous as marketed.' "), *cert. denied,* 419 U.S. 1096 (1974).

154. *See, e.g.,* Braniff Airways, Inc. v. Curtis-Wright Corp., 411 F.2d 451, 453 (2d Cir. 1969) (at time of original sale the horsepower of jet engine was more than cylinder could withstand, causing cylinder to separate from engine); Rekab, Inc. v. Frank Hrubetz & Co., 274 A.2d 107, 109 (Md. 1971) (at time of original sale the spindle of hydraulic amusement ride not strong enough); Comstock v. General Motors Corp., 99 N.W.2d 627, 631 (Mich. 1959) (at time of original sale brake unit equipped with defective sealer). Furthermore, as Bell pointed out in its application for writ of error, the court misapplied *O'Keefe v. Boeing Co.,* 335 F. Supp. 1104, 1128 (S.D.N.Y. 1971), which it cited for the holding that Bell assumed a post-marketing duty when none would have otherwise existed. *See* Brief for Appellant, Bell Helicopter Company at 38, Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App.—Corpus Christi 1979, writ filed). There was both a manufacturing defect and a design defect at the time the product was originally sold, so actually there was no duty assumed at all. *See* O'Keefe v. Boeing Co., 335 F. Supp. 1104, 1128-29 (S.D.N.Y. 1971). The post-marketing duty which was said to have been assumed merely consisted in the already existing duty of care with respect to defects existing at the time of the original sale. *See id.* at 1128-29. There is language in the opinion, however, that a duty was assumed by the

A continuing duty of the kind imposed by the court of civil appeals injects into the law of products liability the idea that the manufacturer of a product reasonably safe at the time it was sold is subject to liability on a negligence theory if, at any time prior to the accident, further development of the state of the art produced a new and safer product. If this is upheld, automobiles manufactured and sold in 1961 through 1979, which were safe when sold, would possibly have to be recalled and altered at the manufacturer's expense if a safety improvement is designed and marketed in 1980.[155]

The result under *Bell Helicopter Company v. Bradshaw* is obvious: absolute liability upon the manufacturer or other seller of any product which is not "unreasonably dangerous" at the time it is marketed, but which becomes so by reason of a subsequent invention and marketing of a safer product.[156]

Whether or not this decision represents Texas law, properly interpreted, it gives good reason to pause and consider the developing field of products liability in its historical context. It is possible that the body of law which has arisen out of the ruins of the citadel is becoming at least as onerous as the structure that preceded it.[157]

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defendant. *See id.* at 1130. *Compare id.* at 1128-29 (when B-52 was originally marketed it had a defect which originated during the manufacturing process) *with* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 526-28 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (when helicopter was originally marketed in 1961 it was not unreasonably dangerous).

155. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980); *see* Ramp, *The Impact of Recall Campaigns on Products Liability*, 44 INS. COUNSEL J. 83, 86 (1977) (the trend of law is toward expanding the duty of defendants to more than merely warning plaintiffs of impeding danger).

156. Telephone interview with James B. Sales, Fulbright & Jaworski, in Houston, Texas (July 24, 1980).

157. *Compare* Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519, 528-32 (Tex. Civ. App.—Corpus Christi 1979, writ filed) (liability imposed on manufacturer for product not unreasonably dangerous when sold, but which became so by virtue of change in state of art) *with* Redmond v. Borden's Farm Prod. Co., 157 N.E. 838 (N.Y. 1927) (infant injured by glass in milk bottle denied recovery against seller for want of privity).