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Product Liability: A Commentary on the Liability of Suppliers of Component Parts and Raw Materials

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PRODUCT LIABILITY: A COMMENTARY ON THE LIABILITY OF SUPPLIERS OF COMPONENT PARTS AND RAW MATERIALS

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I. INTRODUCTION	1137
II. BASIC PRINCIPLES	1139
III. THE CASE LAW	1144
IV. A WORD ABOUT WARNINGS	1151
V. CONCLUSION	1151
I. INTRODUCTION	

The liability of suppliers of raw materials and component parts for harm caused by the product into which the materials have been incorporated poses difficult questions. When the raw material or component part is clearly defective, there is no question that the supplier is liable. Thus, where an ingredient in processed food is contaminated or where a truck tire has a flaw that causes a blowout, the supplier of the ingredient¹ or the tire² is liable. The difficult questions arise where the components are not inherently defective, but the finished product is defective because it lacks a safety feature or a warning to the ultimate user. Under what circumstances should the supplier of a raw material or component part be liable for failure to provide the safety feature, failure to provide the warning to the consumer, or failure to provide a warning to the assembler of the finished product of the necessity for the safety feature or the consumer warning?

On the surface the cases often appear confused and contradictory. Consider the following examples:

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1. The *Restatement (Second) of Torts (Second Restatement)* suggests that the supplier of raw coffee beans that are contaminated with arsenic would be liable for harm caused by the poison. *RESTATEMENT (SECOND) OF TORTS* § 402A, cmt. p (1965). As a general matter raw material suppliers are seldom held liable. See M. Stuart Madden, *Liability of Suppliers of Natural Raw Materials and the Restatement (Third) of Torts: Products Liability—A First Step Toward Sound Public Policy*, 30 U. MICH. J.L. REFORM 281, 282-86 (1997). *But see* *Arena v. Owens Corning Fiberglas Corp.*, 74 Cal. Rptr. 2d 580, 589 (Ct. App. 1998) (holding supplier of raw asbestos fibers incorporated into insulating cement liable for harm caused by the fibers to workers who used the cement).

2. *Harbor City Discount Auto Ctr., Inc. v. Firestone Tire & Rubber Co.*, 157 Cal. Rptr. 438 (Ct. App. 1979).

- The manufacturer of a quench tank to be used in a coffee bean decaffeinating system is not required to equip the quench tank with safety devices,³ but the supplier of component parts for a cattle feeder can be liable for failing to provide a cover for the trough and auger parts of the feeder.⁴
- The manufacturer of a hydraulic valve incorporated into a log splitter is not liable for failure to adopt a valve design that would have made the log splitter safer,⁵ but the manufacturer of an air valve incorporated into a case stacking machine could be liable for failure to provide installation instructions that would have made the case stacker safer.⁶
- The seller of a replacement chain for a chitterling cleaning machine was not liable for failure to warn that the chain was dangerous to use with the machine because the machine did not have a guard,⁷ but a manufacturer of a diesel truck engine can be liable for failure to warn the purchaser of the engine for use in a gasoline tank truck of the necessity of equipping the engine with a air intake shutoff valve if the truck is to be operated in an environment containing volatile fumes.⁸
- The manufacturer of a dock lift with safety rails was not liable because the rails created a shearing hazard when the lift was incorporated into a material-handling system that had rails on a catwalk that were too close to the rails on the dock lift,⁹ but the manufacturer of parts that were incorporated in a machine could be liable for failure to warn about a risk of injury if the parts were placed too close together in the machine.¹⁰
- The manufacturer of Teflon, a plastic coating designed for industrial and household use, is not required to assess and warn concerning its appropriateness for use

3. *Zaza v. Marquess & Nell, Inc.*, 675 A.2d 620 (N.J. 1996).

4. *DeSantis v. Parker Feeders, Inc.*, 547 F.2d 357 (7th Cir. 1976).

5. *Childress v. Gresen Mfg. Co.*, 888 F.2d 45 (6th Cir. 1989).

6. *Beauchamp v. Russell*, 547 F. Supp. 1191 (N.D. Ga. 1982).

7. *Crossfield v. Quality Control Equip. Co.*, 1 F.3d 701 (8th Cir. 1993).

8. *Cross v. Cummins Engine Co.*, 993 F.2d 112 (5th Cir. 1993).

9. *Cipollone v. Yale Indus. Prods., Inc.*, 202 F.3d 376 (1st Cir. 2000).

10. *Reed v. Niagara Mach. & Tool Works, Inc.*, 560 N.Y.S.2d 851 (App. Div. 1990).

in medical implants,¹¹ but the manufacturer of a multi-purpose push button electrical switch can be liable for failure to warn the purchaser of the switch for use in a Tumbblast machine that metallic dust produced by the machine can cause the button to malfunction by sticking.¹²

Courts have been reluctant to hold raw material or component suppliers liable for failure to warn or to protect against flaws in the finished product. Most cases raising this issue do not impose liability on the supplier of the component or raw material.¹³ We shall see that this reluctance is justifiable. The difficulty, then, is identifying the relatively rare cases where the supplier of a product's part should be held responsible for deficiencies in the finished product. The cases presenting this very difficult issue are so diverse that it is very unlikely that a bright-line rule could ever be developed that would easily resolve all such cases in an appropriate manner. Yet, there are principles that provide helpful guidance in resolving questions arising in this difficult area of law. The purpose of this commentary is to point out the principles that are most helpful in resolving this difficult issue.

II. BASIC PRINCIPLES

There is a debate in the United States about the purpose of the tort system. Some scholars claim that the tort system is primarily concerned with achieving efficiency through appropriate deterrence.¹⁴ Others claim that the goal is to achieve corrective justice.¹⁵ Many courts and scholars recognize some merit in both goals,

11. *Klem v. E.I. DuPont de Nemours Co.*, 19 F.3d 997 (5th Cir. 1994). For a detailed discussion of the temporomandibular joint (TMJ) implant litigation, see Brett W. Roubal, Note, *Protecting Suppliers of Safe Component Parts and Raw Materials Through the Component Part Doctrine and the Sophisticated Purchaser Doctrine: In re Temporomandibular Joint (TMJ) Implants Products Liability Litigation*, 31 CREIGHTON L. REV. 617 (1998).

12. *Speer v. Wheelabrator Corp.*, 826 F. Supp. 1264 (D. Kan. 1993).

13. 2 DAVID G. OWEN, M. STUART MADDEN & MARY J. DAVIS, *MADDEN & OWEN ON PRODUCTS LIABILITY* § 19:2, at 352-355 (3d ed. 2000) [hereinafter *MADDEN & OWEN ON PRODUCTS LIABILITY*].

14. Richard Posner first explained the tort system "in . . . terms of economic analysis," contending that efficient allocation of resources requires appropriate deterrence of accidents. Gary T. Schwartz, *Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice*, 75 TEX. L. REV. 1801, 1806 (1997); see also Richard A. Posner, *A Theory of Negligence*, 1 J. LEGAL STUD. 29, 32-33 (1972); Richard A. Posner, *Killing or Wounding To Protect a Property Interest*, 14 J.L. & ECON. 201, 209 (1971); Many other scholars have joined Posner in engaging in economic analysis of tort cases. See, e.g., STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* (1987) (offering a comprehensive analysis of accident law from the economic perspective); Guido Calabresi, *Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr.*, 43 U. CHI. L. REV. 69 (1975) (analyzing causation in terms of deterrence, spreading, and distributional goals).

15. Aristotle first advanced the "notion of corrective justice". Catharine Pierce Wells, *Tort Law as Corrective Justice: A Pragmatic Justification for Jury Adjudication*, 88 MICH. L. REV. 2348, 2350 (1990). The objective is to nullify gains and losses that arise between persons when one person wrongfully injures the other. *Id.* at 2350, 2355. Many scholars in recent years have emphasized

yet the two goals sometimes conflict. When they do, courts valuing both goals are faced with the difficult task of choosing between them in implementing tort policy. In an insightful article, Gary Schwartz pointed out that the competing rationales often coincide.¹⁶ When this occurs, the decision making process is greatly simplified. If both goals point to the same result, the choice to implement that result is natural.

It is the thesis of this commentary that courts should apply, as the normal rule, the principle that suppliers of raw materials and component parts should be exempt from liability unless the component or material is clearly defective. Courts should only hold suppliers of components and materials liable for defects in the finished product in those cases where both efficiency and fairness coincide to suggest that result.

From an efficiency prospective, there is one concept that is particularly powerful in analyzing the liability of component part and raw material suppliers, the idea that liability should be placed on the "cheapest cost avoider," the entity best able to provide the necessary safety device or warning. In an excellent student comment, Richard Cunningham applied this concept to the problem of allocating responsibility to component part makers and assemblers of finished products.¹⁷ The basic idea is that courts optimize efficiency by placing liability on the party that is able to discover and correct the defect in the finished product at the least cost.¹⁸

There are cases where the cheapest cost avoider is fairly easy to identify. For example, when one party both designed the finished product and supplied all of the components for the finished product, it is clear that the designer, rather than the assembler, is best able to discover and protect against design hazards.¹⁹ At the other

corrective justice as a rationale for tort law. *See generally* PHILOSOPHICAL FOUNDATIONS OF TORT LAW (David G. Owen ed., 1995) (providing an expansive philosophic view of tort law beginning with Aristotle's discussion of corrective justice); Symposium, *Corrective Justice and Formalism: The Care One Owes One's Neighbors*, 77 IOWA L. REV. 403 (1992) (re-examining the relationship between the theories of formalism and corrective justice and each theory's application to tort law). Corrective justice scholars advocate widely divergent definitions of corrective justice. *See generally* Jules L. Coleman, *Moral Theories of Torts: Their Scope and Limits: Part I*, 1 LAW & PHIL. 371 (1982) (developing "foundational" principles to be used to devise specific rules for resolving cases); Jules L. Coleman, *Moral Theories of Torts: Their Scope and Limits: Part II*, 2 LAW & PHIL. 5 (1983) (same); Richard A. Epstein, *A Theory of Strict Liability*, 2 J. LEGAL STUD. 151, 160-89 (1973) (contending that causation of harm is the basis for corrective justice); George P. Fletcher, *Fairness and Utility in Tort Theory*, 85 HARV. L. REV. 537, 543-56 (1972) (claiming that reciprocity of risk is the basis for corrective justice); Ernest J. Weinrib, *Toward a Moral Theory of Negligence Law*, 2 LAW & PHIL. 37, 43 (1983) (citing Kantian principles as a way to approach tort liability from a corrective justice standpoint); Wells, *supra*, at 2353 (advocating adoption of procedures that encourage juries to do justice in individual cases).

16. Schwartz, *supra* note 14, at 1806.

17. Richard D. Cunningham, Comment, *Apportionment Between Partmakers and Assemblers in Strict Liability*, 49 U. CHI. L. REV. 544 (1982).

18. *Id.* at 547.

19. *See* DeSantis v. Parker Feeders, Inc., 547 F.2d 357, 361 (7th Cir. 1976) (holding that the supplier of all component parts for a cattle feeder can be liable for failing to provide a cover for the trough and auger parts of the feeder); Miles v. Kohli & Kaliher Assocs., 917 F.2d 235, 248 (6th Cir. 1990) (determining that defendant, who manufactured all the components of a bridge kit and supplied

extreme, it is clear that the manufacturer of a non-defective bolt used in an automobile is far less able to discover and protect against the design hazards of the automobile than is the designer and assembler of the automobile. Efficiency compels that the component part maker be liable in the former case and be exempt from liability in the latter case.

Happily, the above results also coincide with the conclusion suggested by corrective justice considerations. Corrective justice focuses on the moral responsibility of the injurer to undo the harm that she has caused to the victim. In the former example, the degree of participation of the component part manufacturer, particularly in designing the finished product, provides a strong moral basis for imposing liability on the designer. In the latter example, the tenuous and remote connection between the bolt manufacturer and the design defect suggests a complete lack of moral responsibility for design flaws in the finished product.²⁰ Because fairness and efficiency concerns coincide in these examples, the dual policies provide a strong signal for how the cases should be decided.

Unfortunately, it is not always so easy to identify the cheapest cost avoider, as in the two preceding examples. Making a product safe requires two things: (1) someone must use care to discover the danger, and (2) someone must use care to protect against the danger either by making the product safer, as by installing safety features, or by informing the consumer so that the consumer can protect herself. In the two preceding examples, identifying the cheapest cost avoider is simplified because in each example the same entity can perform both tasks at the least cost.

Where one party can detect the harm at the lowest cost and another party can protect against the harm at the lowest cost, the most efficient solution is to impose a tort duty on the former party to detect the harm (and warn the latter party) and on the latter party to protect against the harm.²¹ Mr. Cunningham refers to this as the "joint-care case."²² *Beauchamp v. Russell*²³ provides an illustration of the joint-care case. In *Beauchamp*, defendant manufactured an air valve that was used in a wide variety of pneumatically operated machines and, in this case, was installed in a box stacking machine.²⁴ Plaintiff attempted to unjam the machine after it became obstructed, and was injured when the pneumatically operated plates closed on him.²⁵ This occurred, even though the machine had been de-energized, because of air pressure remaining in the pneumatic lines.²⁶ Plaintiff alleged that the defendant

the blueprints for the bridge, was liable for failure to properly instruct concerning the proper construction of the bridge).

20. M. Stuart Madden, *Component Parts and Raw Materials Sellers: From the Titanic to the New Restatement*, 26 N.KY. L. REV. 535, 566 (1999). Speaking of the duty to warn, Professor Madden states: "In terms of corrective justice, the sellers of raw materials, many of which are transformed into a seemingly limitless array of applications by downstream participants in the commercial chain, have not, in any meaningful way, caused a plaintiff's harm." *Id.* at 566.

21. Cunningham, *supra* note 17, at 552-557.

22. *Id.* at 553.

23. 547 F. Supp. 1191 (N.D. Ga. 1982).

24. *Id.* at 1193.

25. *Id.* at 1194-95

26. *Id.* at 1194, n.2 and accompanying text.

should have warned the designer and assembler of the box stacker of the valve's dangerous propensity to activate de-energized machinery, and that it should have given instructions about installing the valve so that the stacker plates would have returned to the neutral position rather than the closed position.²⁷ Plaintiff introduced evidence that warnings and installation instructions could be developed that were applicable to all potential users of the valve.²⁸ In denying the defendant's motion for summary judgment, the court held that defendant's duty to provide the designer and assembler of the stacking machine with such instructions and warnings should be a question of fact, a matter for the jury.²⁹ The basis of the court's holding was the superior position of the defendant to acquire information about the dangers posed by its valve.³⁰ The court said that "[t]he responsibility for information collection and dissemination should rest on the party who has the greatest access to the information and who can make it available at the lowest cost."³¹

Under the *Beauchamp* approach, the air valve maker would be obligated to discover and transmit safety information to the box stacker manufacturer, but the latter manufacturer would be obligated to implement appropriate safety measures in the finished product.

In contrast to *Beauchamp*, courts have consistently exonerated the manufacturer of Teflon from a duty to assess and warn concerning its appropriateness for use in medical implants.³² This is eminently sensible because Teflon was developed for industrial rather than medical purposes, and the manufacturer sold very small quantities of Teflon to medical device manufacturers.³³ The cost of researching the safety of its product for medical uses would most likely have greatly outweighed the income produced by sales for such purposes. Imposing the duty on the Teflon manufacturer would have provided it with a strong incentive to refuse to sell Teflon for any medical purpose, an undesirable result because it would foreclose all medical uses, even those that prove to be desirable. A far better result is to place the duty to research the efficacy of Teflon for medical uses on manufacturers of medical products that use Teflon. If the research costs are justifiable because of the potential benefits of using Teflon, these companies will conduct the research and pass the costs on to the medical product users. Therefore, this approach does not foreclose the desirable medical uses of products such as Teflon that were not specifically designed for medical purposes.

27. *Id.* at 1195.

28. *Id.* at 1198

29. *Beauchamp*, 547 F. Supp. at 1197.

30. *Id.*

31. *Id.* at 1197.

32. The cases are discussed in Roubal, *supra* note 11. See also Edward M. Mansfield, *Reflections on Current Limits on Component and Raw Material Supplier Liability and the Proposed Third Restatement*, 84 KY. L.J. 221, 236-238 (1995-1996) (discussing Dupont's success at winning summary judgments in its TMJ cases and the effect of that success on subsequent medical implant cases).

33. *Klem v. E.I. DuPont de Nemours & Co.*, 19 F.3d 997, 1002 (5th Cir. 1994).

Of course, the Teflon manufacturer would be the cheapest cost avoider with respect to detecting any risks associated with the *intended* uses of Teflon. That is, it is appropriate for courts to require the manufacturer to test the product's efficacy for industrial uses and to provide appropriate warnings and instructions to downstream manufacturers that incorporate Teflon into their industrial and consumer products.

In the illustrations discussed above, the notion that liability for failure to detect a risk should be placed on the party best able to detect the risk and liability for failure to protect against the risk should be placed on the party best able to prevent it, is intuitive and easy to apply. Unfortunately, placing liability on the cheapest cost avoider is not always a practical solution to deciding these cases. In some cases it may not be so obvious that one party's detection or prevention costs are lower than another's. Yet, in order to induce efficient behavior, the liability system would require each manufacturer or supplier to act on an assessment, not only of its own anticipated costs, but also the anticipated costs of other manufacturers.³⁴ Furthermore, there is one joint-care case where optimal deterrence cannot be achieved by imposing liability on the parties with the lowest detection and prevention costs. This is the case "where the costs of joint prevention are greater, and the minimum sum of detection and warning costs are less, than the expected liability costs."³⁵ According to Mr. Cunningham, this case can only be resolved appropriately by a complex formula that would be impractical to implement in practice.³⁶

34. Cunningham, *supra* note 17, at 555-556; Mansfield, *supra* note 32, at 245-246.

35. Cunningham, *supra* note 17, at 554-555. Mr. Cunningham explains why this is so: If *A* is the cheaper detector and warner at \$23, *B* the cheaper controller at \$25, and the expected liability is \$35, *A* and *B* each will fulfill their duties to avoid liability, but the total costs of joint care will exceed by \$13 the expected liability. Moreover, control costs need not be less than expected liability for misallocation to occur. For example, if *A* and *B* faced the same costs as above, but expected liability was \$24, *A* would spend \$23 to detect and warn while *B* would pay \$24 for the accident rather than the \$25 necessary to prevent it. The result: a total social loss of \$47.

Id. at 555.

36. *Id.* Mr. Cunningham describes the solution as follows:

To avoid these misallocations, a comparative cost system could be employed. This approach would seek to determine each party's costs of detection, warning, and control; to calculate the minimum joint cost of prevention; and to impose liability on each party in an amount equal to the full liability judgment, multiplied by the ratio of each party's minimum cost to the minimum joint prevention costs. Whenever total liability exceeded joint prevention costs, *A*'s share of liability would exceed the sum of its detection and warning costs, and *B*'s share of liability would exceed its control costs. Each party therefore would have an incentive to perform its role in preventing the defect. On the other hand, whenever total liability was less than the costs of joint prevention, *A*'s share of liability would be less than the sum of its detection and warning costs, *B*'s share would be less than its control costs, and neither party would try to prevent the accident.

Id.

Because it is not practical to identify the cheapest cost avoider in every case, it is obvious that the approach of imposing liability on the entity with the least detection or prevention costs cannot be employed to resolve all cases. In addition, even if that approach could always be implemented, it is not clear that courts would always want to implement it. This is because economic analysis is probably not the predominate explanation for the tort system.³⁷ If cases arise where other policies override the efficiency goal, it is appropriate for courts to implement those other policies.

Probably the best approach is to view economic analysis as a tool that courts should use when it is helpful and reject it when it is not. In this context, courts should impose liability on the cheapest cost avoider when it is both practical to identify that entity and when the efficiency goal coincides with the corrective justice goal.

III. THE CASE LAW

Consistent with the idea of integrating the goals of efficiency and justice when it is practical to do so, there are four common fact patterns that arise where courts do impose liability on the component part supplier.³⁸ In these cases, the component supplier is both morally responsible for the harm and the entity that had either the least detection costs or the least prevention costs. The first situation, as previously discussed, is the case where the component part maker is also the designer of the finished product.³⁹ The second situation is where the defendant designs a component that has only one use. Here, it is appropriate to require the manufacturer to produce a product that is appropriate for that use.⁴⁰ Thus, in *Fleck v. KDI Sylvan Pools, Inc.*,⁴¹ the court imposed liability on the manufacturer of a replacement liner for an above-ground swimming pool because the liner lacked depth markers.⁴² Plaintiff was injured because he dove into the pool without knowing its depth. The third situation is where the component has multiple uses, but it is dangerous for most or all of them.⁴³ *Beauchamp v. Russell*,⁴⁴ the air valve case, discussed previously,⁴⁵ provides an example. The fourth situation arises where a manufacturer produces a component according to the designer's specifications of the finished product, and the manufacturer has actual knowledge that the design is excessively dangerous. Here, courts impose liability on the manufacturer for failing to adopt

37. Schwartz, *supra* note 14, at 1806-07.

38. See, e.g., Mansfield, *supra* note 32, at 226-40 (discussing the different types of component part cases and their relevant legal analyses).

39. See *supra* note 19 and accompanying text.

40. Mansfield, *supra* note 32, at 229.

41. 981 F.2d 107 (3rd Cir. 1992).

42. *Id.* at 123; see also Mansfield, *supra* note 32, at 228-29 (discussing *Fleck*).

43. Mansfield, *supra* note 32, at 229-30.

44. 547 F. Supp. 1191 (N.D. Ga. 1982).

45. See *supra* notes 23-31 and accompanying text.

reasonable precautions.⁴⁶ In this situation there is an increased likelihood that the manufacturer is the cheapest cost avoider because its detection costs are zero—it already knew that the proposed design was dangerous.

In addition to the four fact patterns discussed above, additional situations arise where imposing liability on the component part maker is appropriate. The most insightful approach to identifying such cases was adopted by *Verge v. Ford Motor Co.*⁴⁷ In that case Ford manufactured a truck chassis which was subsequently modified by Leach and made into a garbage truck.⁴⁸ Plaintiff was injured when the truck backed into him.⁴⁹ He sued both Ford and Leach, claiming that the truck was defective because it did not have a back-up alarm.⁵⁰ The *Verge* court ruled that:

Where . . . the finished product is the result of substantial work by more than one party, we must determine responsibility for the absence of a safety device by looking primarily to at least three factors:

1. Trade Custom—at what stage is that device generally installed. . . .
2. Relative expertise—which party is best acquainted with the design problems and safety techniques in question. . . .
3. Practicality—at which stage is installation of device most feasible. . . .⁵¹

The court exonerated Ford from liability on the basis that it was not feasible for Ford to install the back-up alarm since the truck was a multi-use product, and a backup alarm was not required for all uses.⁵² Furthermore, Leach had more expertise than Ford in producing garbage trucks.⁵³ The case was not submissible to the jury because the evidence pertaining to the three factors was insufficient to justify a jury finding against Ford.⁵⁴

Other courts applying *Verge* have allowed the case against the component part manufacturer to get to the jury. In *Mott v. Callahan AMS Machine Co.*,⁵⁵ plaintiff was injured by the sharp edge of a steel coil being fed into a punch press that she was operating.⁵⁶ Callahan manufactured the punch press and purchased the stock

46. See, e.g., *Orion Ins. Co., v. United Techs. Corp.*, 502 F. Supp. 173, 176 (E.D. Pa. 1980) (stating that a component manufacturer should not be liable unless the plans are so “obviously dangerous that they should not reasonably be followed”); Mansfield, *supra* note 32, at 235.

47. 581 F.2d 384 (3rd Cir. 1978).

48. *Id.* at 387.

49. *Id.* at 385.

50. *Id.* at 386.

51. *Id.* at 386-387 (citations omitted).

52. *Id.* at 388-89.

53. 581 F.2d at 388-89.

54. *Id.* at 389.

55. 416 A.2d 57 (N.J. Super. Ct. App. Div. 1980).

56. *Id.* at 58.

reel and roll feed from the Cooper Weymouth Companies.⁵⁷ Callahan then attached the roll feed to the press prior to shipping it and the stock reel to plaintiff's employer.⁵⁸ Plaintiff sued both Callahan and the Cooper Weymouth Companies claiming the product was defective because it lacked a guard between the stock reel and the roll feed that would have protected the plaintiff from the sharp edge of the sheet metal being fed into the press.⁵⁹ Cooper Weymouth claimed that it had no duty to provide a guard because its products are sometimes used to feed harmless items such as cloth which does not require a guard.⁶⁰ The court held that it was for the jury to decide whether, on the basis of the three factors, Cooper Weymouth should be held responsible for failing to provide a guard.⁶¹

Courts have applied the *Verge* factors to failure to warn cases as well as design defect cases.⁶² In *Cross v. Cummins Engine Co.*,⁶³ the court applied the *Verge* factors to the question of whether a manufacturer of a diesel truck engine can be liable for failure to warn the purchaser of the engine of the necessity of equipping the engine with a air intake shutoff valve if the truck is to be operated in an environment containing volatile fumes.⁶⁴ In that case, the engine was installed for use in a gasoline-tank truck.⁶⁵ The design of the pump which transferred the gasoline from the truck to the underground storage tank necessitated that the truck engine be running while the tank was being unloaded, leaving the diesel engine susceptible to combustion from gasoline vapors being sucked in through the engine's air intake valves.⁶⁶ Plaintiff was injured by a fire that the shutoff valve would allegedly have prevented.⁶⁷ The court decided, based on the *Verge* factors, that factual issues existed as to whether the engine manufacturer was responsible for warning of the defect.⁶⁸

The genius of the *Verge* approach is that the factors of trade custom, expertise, and practicality relate to both efficiency and fairness. If the component part manufacturer has greater expertise than the assembler and if it is more practical for the component part manufacturer to detect or to correct the danger, it is likely that this manufacturer is the cheapest cost avoider. Furthermore, the existence of a custom for the component part manufacturer to be responsible reinforces the

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.* at 59.

61. *Mott*, 416 A.2d at 60-61.

62. *See, e.g., Orion Ins. Co., v. United Techs. Corp.*, 502 F. Supp. 173, 178 (E.D. Pa. 1980) (concluding that liability for design defects should rest with the assembler of the finished product).

63. 993 F.2d 112 (5th Cir. 1993).

64. *Id.* at 115-16.

65. *Id.* at 113.

66. *Id.* at 113-14.

67. *Id.*

68. *Id.* at 116.

conclusion because custom reflects marketplace decisions based on experience.⁶⁹ Furthermore, the *Verge* factors are also relevant in fixing moral responsibility. It is natural to fix blame on the basis of custom as well as on the basis that one party is best able to prevent the accident.

Courts have adopted other approaches to analyzing component part manufacturer liability, but none of them are as satisfactory as *Verge*. Many cases, following the language of § 402A of the *Second Restatement*, analyze component part cases in terms of whether the component part was defective when it left the hands of the maker or whether the danger in the finished product resulted from “further processing or substantial change” of the component part occurring by virtue of its integration into the finished product.⁷⁰ This approach is more helpful as a way of stating a conclusion than as a way of reaching a conclusion. It is true that sometimes this approach aids the analysis because a component part is sometimes clearly defective. Take, for example, the flawed tire that causes a blowout. Such a tire is defective, and the tire manufacturer is liable for the harm caused by the blowout.⁷¹ But often the question of defect is not at all clear. Is a tire defective because it has the wrong traction characteristics for a particular model of SUV? Is a tire defective because it does not have a warning concerning the dangers of mounting the tire on a multi-piece rim made by a different manufacturer?⁷² These questions are much more readily answered by applying the three *Verge* factors than by resolving the question of whether the tire has undergone a substantial change by virtue of being mounted on the wheel of a vehicle.⁷³ This especially true since § 402A of the *Second Restatement* gives no indication of when a change is substantial.

69. Cunningham, *supra* note 17, at 562-563. Mr. Cunningham approves of *Verge*:

Viewed in light of the cheapest cost avoider test, trade custom might have provided evidence of relative costs by showing how the market has allocated the duty to install safety devices. The partmaker did not have the lowest detection costs, for only the assembler could practically determine which units would become garbage trucks. Expertise accounts for both detection and control costs, for the assembler chose the units for conversion and had exclusive control over the conversion process.

Id. at 562-563 (footnote omitted).

70. The *Restatement (Second) of Torts* § 402A provides in pertinent part that “[o]ne who sells any product in a defective condition . . . is subject to liability . . . if . . . it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.” RESTATEMENT (SECOND) OF TORTS § 402A (1965); see also 2 MADDEN & OWEN ON PRODUCTS LIABILITY, *supra* note 13, § 19:2, at 356-357 (supporting the statement in the text and citing numerous cases employing this approach).

71. See *supra* note 2 and accompanying text.

72. See *Molino v. B.F. Goodrich Co.*, 617 A.2d 1235, 1240 (N.J. Super. Ct. App. Div. 1992) (imposing a duty to warn).

73. The unhelpfulness of the approach is illustrated by *Union Supply Co. v. Pust*, 583 P.2d 276 (Colo. 1978), which analyzes the question of whether the supplier of conveyor parts is liable for failure to guard a nip point on the conveyor by asking whether the conveyor parts had undergone a substantial change as a result of being incorporated in the finished product.

Section 5 of the *Restatement (Third) of Torts: Products Liability (Products Liability Restatement)*⁷⁴ represents a great improvement over the *Second Restatement*. It provides that a component part maker is liable either if the component is defective in itself or if the seller of the component “substantially participates” in the integration of the component into the design of the product, the integration causes the product to be defective, and the defect causes harm.⁷⁵ Unlike the concept of “substantial change,” the concept of “substantial participation” is relevant to both the question of moral responsibility and the question of the costs of accident avoidance. Participation in designing a product is a basis for imposing moral responsibility. Participation is also relevant to the question of the costs of accident prevention in that one who participates in designing a product has more control over its dangerousness. Thus, he will, at least sometimes, be able to improve the safety of the product at a lower cost than a person who has no control over its design. In such cases he may well be the cheapest cost avoider. Conversely, when a component part or raw material supplier does not substantially participate in the design of the finished product, it will normally be far more burdensome for that supplier to improve the safety of the finished product than it would be for the assembler or designer of the product to do so. The comments to § 5 indicate that the *Products Liability Restatement* drafters were heavily influenced by this economic consideration.⁷⁶

74. RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 5 (1998).

75. Section 5 of the *Restatement (Third) of Torts: Products Liability* provides:

One engaged in the business of selling or otherwise distributing product components who sells or distributes a component is subject to liability for harm to persons or property caused by a product into which the component is integrated if:

(a) the component is defective in itself, as defined in this Chapter, and the defect causes the harm; or

(b)(1) the seller or distributor of the component substantially participates in the integration of the component into the design of the product; and

(2) the integration of the component causes the product to be defective, as defined in this Chapter; and

(3) the defect in the product causes the harm.

Id.

76. Comment *a* to § 5 states:

As a general rule, component sellers should not be liable when the component itself is not defective as defined in this Chapter. If the component is not itself defective, it would be unjust and inefficient to impose liability solely on the ground that the manufacturer of the integrated product utilizes the component in a manner that renders the integrated product defective. Imposing liability would require the component seller to scrutinize another's product which the component seller has no role in developing. This would require the component seller to develop sufficient sophistication to review the decisions of the business entity that is already charged with responsibility for the integrated product.

Id. § 5 cmt. a.

In discussing the liability of raw material suppliers, comment *c* states:

The manufacturer of the integrated product has a significant comparative advantage regarding selection of materials to be used. Accordingly, raw-

However, the “substantial participation” requirement is probably not as useful as the three *Verge* factors in identifying which party should be responsible for protecting against product risks. *Buonanno v. Colmar Belting Co.*⁷⁷ illustrates the limitations of the substantial participation requirement. In *Buonanno*, a worker was injured when his arm was caught in an unguarded “nip point” of a conveyor system at the place where the belt met the wing pulley.⁷⁸ The conveyor system was constructed by a welding contractor.⁷⁹ Colmar was informed of the desired length, width, speed and motor type for the conveyor; it then determined what parts were needed to build the system, obtained the parts from manufacturers of its choice, and supplied the parts to the contractor.⁸⁰ Colmar did not provide or recommend a shield for the nip point, and the contractor failed to fabricate a shield for the nip point even though the danger was generally known and a shield was required by Occupational Safety and Health Administration (OSHA) regulations.⁸¹ Plaintiff sued Colmar and the manufacturer of the wing pulley, claiming that the conveyor was defective because it lacked a shield at the nip point and because it lacked a warning.⁸² Applying § 5 of the *Products Liability Restatement*, the appellate court affirmed summary judgment in favor of the wing pulley manufacturer on the basis that it did not participate in the design process; the court reversed the grant of summary judgment in favor of Colmar on the basis that the jury could find that Colmar was liable because it did substantially participate in design of the finished product.⁸³

The decision in favor of the wing pulley manufacturer is clearly justifiable. That manufacturer’s lack of participation in the design of the conveyor suggests that it would have been much more costly for it to have provided either the shield or the warning than for the contractor to have done so. The court’s decision to submit the case against Colmar to the jury is more difficult to justify. Colmar claims that it was not feasible for it to provide the shield for the wing pulley because such shields must be custom made by the contractor at the job site.⁸⁴ If this allegation is true, then the contractor, not Colmar, is the party that can provide the shield at the lowest cost. Holding Colmar liable for failure to provide the shield, simply because it participated in the design, would be difficult to justify. The *Verge* court would have taken feasibility, expertise, and custom into account in determining whether

materials sellers are not subject to liability for harm caused by defective design of the end-product. The same considerations apply to failure-to-warn claims against sellers of raw materials. To impose a duty to warn would require the seller to develop expertise regarding a multitude of different end-products and to investigate the actual use of raw materials by manufacturers over whom the supplier has no control.

Id. § 5 cmt. c.

77. 733 A.2d 712 (R.I. 1999).

78. *Id.* at 713 & n.1.

79. *Id.* at 714

80. *Id.*

81. *Id.*

82. *Id.*

83. *Buonanno*, 733 A.2d at 715-20.

84. *Id.* at 714.

plaintiff is entitled to a jury trial against Colmar on this issue. It is not clear from the *Buonanno* opinion that the plaintiff had sufficient evidence to survive a motion for summary judgment on this issue by Colmar in a jurisdiction applying the *Verge* test.

The point is that while the “substantial participation” requirement is relevant, it is not necessarily controlling. If Colmar was powerless to shield the nip point it should not be held liable for failure to do so even though it did participate in the design of the conveyor system. The converse is also true. Cases like *Beauchamp* (the air valve warning defect case) and *Mott* (the roll feed design defect case) illustrate that manufacturers of generally dangerous components should be required to provide appropriate guards, warnings, and instructions even when they do not participate in the design of the finished product.⁸⁵

The holdings in cases like *Beauchamp* and *Mott* are not necessarily inconsistent with the *Products Liability Restatement*. While neither manufacturer could be held liable under § 5(b), because neither manufacturer substantially participated in the integration of its component, it is possible that both could be liable under § 2, in the former case because of a warning defect and in the latter case because of a design defect. The role of § 2 in determining the liability of component part manufacturers is demonstrated, for example, by comparing Illustrations 3 and 4 in § 5. Illustration 3, based on the swimming pool liner case previously discussed,⁸⁶ finds the liner manufacturer liable if a liner without depth markings is “defectively designed for all swimming pool installations.”⁸⁷ Illustration 4 finds that the supplier of bulk foam, with multiple uses, is not liable for failure to warn about the risks of using the foam to manufacture disposable dishware.⁸⁸ In the illustration both the foam manufacturer and the dishware manufacturer are aware of the potential danger.⁸⁹

Courts applying the *Products Liability Restatement* will probably seldom hold a component part or a raw material supplier liable on the basis that it substantially participated in the integration of the component into the design. Such participation rarely occurs. The heavy work of resolving component part manufacturer liability is done by applying § 2 to determine whether the component has a design or a warning defect. Section 2 provides little guidance for resolving the defect issue in this context, but the comments and illustrations to § 5 do provide some helpful guidance. Unfortunately, this guidance is incomplete because it does not include the three *Verge* factors. Courts adopting the *Products Liability Restatement* will be greatly aided in resolving the defect question in component part and raw material cases by considering those factors. The factors are particularly useful for allocating design and warning responsibility among finished product assemblers and component part and raw material suppliers.

85. *See supra* notes 23-31 and 55-61 and accompanying text.

86. *See supra* notes 41-43 and accompanying text.

87. RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 5 cmt. b, illus. 3 (1998).

88. *Id.* § 5 cmt. b, illus. 4.

89. *Id.*

IV. A WORD ABOUT WARNINGS

Courts frequently determine the warning obligations of component part makers by applying the “bulk supplier/sophisticated purchaser” rule.⁹⁰ This rule exonerates the supplier from having to warn the end user if it gives an adequate warning to the fabricator of the finished product. In determining whether the supplier is exempt from having to warn the end user, courts consider such factors as:

- (1) [T]he dangerous condition of the product;
- (2) the purpose for which the product is used;
- (3) the form of any warnings given;
- (4) the reliability of the third party as a conduit of necessary information about the product;
- (5) the magnitude of the risk involved; and
- (6) the burdens imposed on the supplier by requiring that he directly warn all users.⁹¹

The sixth factor in this rule reflects the idea that the cheapest cost avoider should have the obligation to warn end users. That is, if the burden of warning is high, the component supplier is probably not the party that can most feasibly convey the warning to the end user.

However, the doctrine is not entirely adequate to cope with the complexities of the issue under consideration. The doctrine rests on the premise that the supplier must always warn the assembler of the final product of risks that the supplier knows about or could discover. Yet, as the Teflon cases illustrate,⁹² foreseeability by itself is not sufficient to impose a duty to warn.⁹³ Thus, the *Verge* factors provide a more satisfactory basis for determining the warning obligations of component part suppliers than does the bulk supplier/sophisticated purchaser rule.

V. CONCLUSION

Courts are appropriately reluctant to impose either design or warning obligations on suppliers of component parts and raw materials. Yet, there are cases where such obligations are justified because the tort policies of efficiency and fairness coalesce to suggest that the obligation should be imposed. With respect to

90. Madden, *supra* note 20, at 565-66.

91. Goodbar v. Whitehead Bros., 591 F. Supp. 552, 557 (W.D. Va. 1984). The factors listed by the court are derived from comment *n* to § 388 of the *Second Restatement*. The doctrine is also embodied in the *Products Liability Restatement*. See RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 2 cmt. i (1998).

92. See *supra* notes 32-33 and accompanying text.

93. Crossfield v. Quality Control Equip. Co., 1 F.3d 701, 706-07 (8th Cir. 1993) (finding that replacement chain supplier is not required to warn about a foreseeable risk.); Childress v. Gresen Mfg. Co., 888 F.2d 45, 49 (6th Cir. 1989) (determining that hydraulic valve manufacturer not required to warn about a foreseeable risk); Mansfield, *supra* note 32, at 225-26; see also Madden, *supra* note 20, at 565 (stating that imposing a duty to warn on component part makers is often unjustifiable unless the product's appropriate use is well-defined).

four categories of cases, liability can be imposed routinely, but there are cases not falling within those categories where liability is also justified. The *Verge* test represents the most coherent approach to identifying those cases. By looking at custom, expertise, and practicality courts can identify instances where component suppliers should be liable because they are best able either to discover or to protect against the finished product's harm.