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STRICT PRODUCTS LIABILITY:  
THE PROBLEM OF  
IMPROPERLY DESIGNED PRODUCTS* 

By BRUCE LEMER**

The Ontario Law Reform Commission has advocated a significant change in products liability law. In its Report on Products Liability, published in 1979, the Commission recommends that manufacturers be held strictly liable for injuries arising from the use of defective products, regardless of the existence of any privity of contract between the manufacturer and plaintiff.¹ The Commission would restrict recovery under strict liability to those damages arising from a "defective product", defined in their Draft Bill as one that "falls short of the standard that may reasonably be expected of it in all the circumstances."² This definition has simplicity in its favour. It is argued here, however, that the Commission has failed to take into account the special problems which arise when a court must decide whether or not a product is improperly designed.³

¹ There are a number of compelling arguments in favour of strict liability. Briefly, since strict liability is already used as the standard in breach of warranty cases it is inequitable to apply a different, and, for the plaintiff, a more onerous standard in cases where there happens to be no privity of contract. It is believed that strict liability will encourage manufacturers to produce safer goods. Furthermore, the manufacturer is in a better position to absorb the losses arising out of injuries by either insuring (the manufacturer is more likely to insure than the consumer and is a cheaper insurer as well) or by passing the cost of injuries on to all its customers thereby spreading the loss throughout society. Finally, it is said to be morally appropriate that the manufacturer, who profits from the sale of his goods, be responsible for injuries caused by faulty products.


³ Another problem with the definition of defective product employed by the Commission is that it may set up a "generally prevailing standards defence". This defence, established by a manufacturer proving that he has complied with generally prevailing or statutory standards at the time the products left his hands, is one the Report itself recommends against: "In our view, it would be unwise to adopt a rule making compliance conclusive, or even prima facie, proof of the absence of a defect." (Id. at 95).

Such a defence would "allow an entire industry—or subset thereof—to legitimize its own corner cutting as the standard of due care, validating through its own practice what independent assessment would label negligence." (Bovbjerg, The Medical Malpractice Standard of Care: HMOs and Customary Practice, [1975] Duke L.J. 1275 at
I. DESIGN DEFECTS AND THE POLYCENTRIC PROBLEM

When defining the term "defective product" it is essential to realize that there are two types of defects: the manufacturing or production defect and the design defect. The former defect is caused by careless manufacture or by poor quality control. When such a defect is the subject of a court case, the court is provided with a ready-made standard by which it may determine whether or not a product is defectively manufactured: all the court need do is compare it with perfect models of the same product. Thus, the defectively manufactured product fails to meet the manufacturer's own expectations, as revealed by his product's design.

The design defect arises when the design itself is inadequate. Unlike the manufacturing defect cases, when this type of defect is the subject of a court case, the court is not provided with a self-defining standard of defect: the court cannot simply compare the object which caused an injury with a thousand other like objects produced by the defendant. Instead, in order to determine whether such a defect exists, the court must "develop or adopt from some legitimate extra-judicial source, an objective standard of adequacy."4

Because the adequacy of design must be determined using an objective standard, a court must determine the reasonableness of the design, even under a regime of strict liability. This entails a balancing of the seriousness and likelihood of injury occurring with the utility of the product and the feasibility of producing a safer one.

Design defect cases provide tremendous problems for the courts, whether they are brought under the negligence regime or under a system of strict liability. They pose what have been called "polycentric problems".5 The majority of cases brought before the courts are not polycentric and involve the application of evidence in argument to a series of discrete issues, each issue being isolated and dealt with individually. The issues are distinct and their outcomes most often do not bear upon each other. For example, a contract case might have three issues to be resolved: Was the contract properly signed? Was there consideration for the contract? And, was the contract frustrated? Each issue is distinct. If a question of forgery was resolved, the court would move on to determine the existence of consideration and, in turn, if consideration was found to have passed, the court would turn its attention to the question of

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frustration. It is easy to see that such a case, although it may involve difficult concepts and complex issues, is readily amenable to solution by trial.

In contrast the essence of a polycentric problem is that the issues are not discrete; they cannot be isolated from one another. This is best illustrated with an example provided by Fuller:

[A] wealthy lady by the name of Tomken died in New York leaving a valuable, but somewhat miscellaneous, collection of paintings to the Metropolitan Museum and the National Gallery “in equal shares,” her will indicating no particular apportionment. When the will was probated, the judge remarked something to the effect that the parties seemed to be confronted with a real problem. The attorney for one of the museums spoke up and said, “We are good friends. We will work it out somehow or other.” What makes this problem of effecting an equal division of the paintings a polycentric task? It lies in the fact that the disposition of any single painting has implications for the proper disposition of every other painting. If it gets the Renoir, the Gallery may be less eager for the Cezanne, but all the more eager for the Bellows, etc. If the proper apportionment were set for argument, there would be no clear issue which either side could direct its proofs and contentions. Any judge assigned to hear such an argument would be tempted to assume the role of mediator, or to adopt the classical solution: Let the older brother (here the Metropolitan) divide the estate into what he regards as equal shares, let the younger brother (the National Gallery) take his pick.6

Henderson further elaborates on the difficulties facing counsel when they tackle polycentric problems:

A lawyer seeking to base his argument upon established principle and required to address himself in discourse to each of a dozen strands, or issues, would find his task frustratingly impossible. As he moved from the first point of his argument to the second and then to the third, he would find his arguments regarding the earlier points shifting beneath him. Unlike most of the traditional types of cases in which litigants are able, in effect, to freeze the rest of the web as they concentrate upon each separate strand, the web here retains its natural flexibility, adjusting itself in seemingly infinite variations as each new point, or strand, in the argument is reached.7

Design defect cases are polycentric essentially because the court must go through the process of redesigning the product in order to determine the reasonableness of its design. In this process, courts give value to injuries suffered and then ascertain whether additional safety measures should have been adopted, taking into account factors such as the cost of safety improvements and the functional utility of the product.8 The question, in its broadest perspective, boils down to: “What portion of society’s limited resources are to be allocated to [this product’s] safety, thereby leaving less to be devoted to other social objectives?”9 There could not, it would seem, be any problem more polycentric than this one.

Courts do, of course, often deal with polycentric issues. However, Henderson points out that:

6 Fuller, supra note 5.
7 Henderson, supra note 5, at 1536.
8 Id. at 1540.
9 Id.
Having recognized that courts can, if the situation demands, provide some kinds of responses to polycentric problems, one should also recognize the very real threat to the integrity of the adjudicative process inhering in any broad-scale judicial commitment to doing so. The source and nature of this threat are not difficult to understand. The very essence of the rule of law lies in the formally guaranteed opportunity afforded to parties to participate meaningfully in the social processes of decision. Whenever persons affected by such decisions are denied their right to participate—as when, for example, public elections are rigged—the threat to the integrity of those social processes of decision is substantial. And so, if courts were ever to begin routinely to provide responses to highly polycentric problems, the judicial process would be effectively subverted. Because of the absence of sufficiently specific rules upon which to argue or decide such cases, litigants would be denied the traditionally guaranteed opportunity to participate meaningfully in the decision-making process. Of course, they would still take part in the proceedings, but only in the limited sense of making speeches—not as litigants offering proofs and arguments for a decision according to law. Their posture before the court would become very much like that of a supplicant before a manager, appealing to the latter's discretion. And the courts, confronted systematically with polycentric problems in connection with which the litigants' proofs and arguments are essentially useless, would inevitably be forced to resort to bases for decision bearing little, if any, relation to the presentation of the legal issues. Were such a denial of the litigants' rights to meaningful participation to become commonplace, the adjudicative process would become nothing more than an elaborate masquerade.  

Ungoed-Thomas, J., reiterates Henderson's basic point in his judgment in the case of Texaco Ltd. v. Mulberry Filling Station Ltd. This case deals with the reasonableness of a restrictive covenant. In attempting to define "reasonableness", the judge was confronted by a polycentric problem:

But what is meant by "reasonableness with reference to the interests of the public"? It is part of the doctrine of restraint of trade which is based on and directed to securing the liberty of the subject and not the utmost economic advantage. It is part of the doctrine of the common law and not of economics. So it must, of course, refer to interests as recognisable and recognised by law. But if it refers to interests of the public at large, it might not only involve balancing a mass of conflicting economic, social and other interests which a court of law might be ill-adapted to achieve; but, more important, interests of the public at large would lack sufficiently specific formulation to be capable of judicial as contrasted with unregulated personal decision and application—a decision varying, as Lord Eldon put it, like the length of the chancellor's foot.

II. A PARTIAL SOLUTION

What can be done to solve this polycentric problem? One solution might be to remove design defect litigation from the traditional courts which employ the adversary system, and to create an administrative body specifically designed to deal with products liability cases. This would be a radical departure from the present system, however, and is unlikely to occur in the near future. Instead, the cost-benefit analysis, which must be employed in deciding such cases, should be made an explicit part of any definition of "defect" contained in a strict liability
statute. This solution has been advocated by a number of commentators. Dean Wade, one of the most prominent, offers a list of seven factors which should be considered when determining whether or not a design is defective:

(1) The usefulness and desirability of the product—its utility to the user and to the public as a whole.
(2) The safety aspects of the product—likelihood that it will cause injury, and the probable seriousness of the injury.
(3) The availability of a substitute product which would meet the same need and not be as unsafe.
(4) The manufacturer’s ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility.
(5) The user’s ability to avoid danger by the exercise of care in the use of the product.
(6) The user’s anticipated awareness of the dangers inherent in the product and their avoidability, because of general public knowledge of the obvious conditions of the product, or of the existence of suitable warnings or instructions.
(7) The feasibility, on the part of the manufacturer, of spreading the loss by setting the price of the product or carrying liability insurance.

A similar approach was adopted by the California Court of Appeal in the case of Barker v. Lull Engineering. The Court recognized that products liability cases are not of a homogenous character and that the term "defect" cannot be defined in the same manner in all cases:

[The defectiveness concept defies a simple, uniform definition applicable to all sectors of the diverse product liability domain. Although in many instances—as when one machine in a million contains a cracked or broken part—the meaning of the term "defect" will require little or no elaboration; in other instances, as when a product is claimed to be defective because of an unsafe design or an inadequate warning, the contours of the defect concept may not be self-evident. In such a case a trial judge may find it necessary to explain more fully to the jury the legal meaning of "defect" or "defective".]

The Court, moreover, believes that a system which requires a plaintiff to prove the existence of a defect without providing him with the meaning of defect in the context of the case at hand may prove more misleading than helpful.

The Court also recognized that a risk-benefit analysis is fundamental to the design defect case:


17 Supra note 16, at 453 (P. 2d), 235 (Cal. Rptr.).
Numerous Californian decisions... have made clear, through varying linguistic formulations, that a product may be found defective in design, even if it satisfies ordinary consumer expectations, if through hindsight the jury determines that the product's design embodies "excessive preventable danger," or, in other words, if the jury finds that the risk of danger inherent in the challenged design outweighs the benefits of such design.\textsuperscript{18}

The Court then suggested a list of factors, similar to Wade's seven factors, which a jury might consider in evaluating the adequacy of a product's design.\textsuperscript{19}

While this application of cost-benefit analysis to product design cases may seem like a return to the negligence standard, it really is not, for under strict liability, the manufacturer's knowledge of the defectiveness of his product is imputed to him by law. The plaintiff is spared the difficult task of proving the manufacturer's scienter as a matter of fact.\textsuperscript{20}

The application of cost-benefit analysis to design defect litigation is certainly not without problems. First, while it would make the decision-making process explicit, the ultimate decision made by a court would still involve the use of generous amounts of judicial guesswork and intuition.\textsuperscript{21} The same

\textsuperscript{18} Id. at 454 (P. 2d), 236 (Cal. Rptr.).

\textsuperscript{19} In obiter, the Court suggested the following relevant factors in determining design adequacy:

A review of past cases indicates that in evaluating the adequacy of a product's design pursuant to this latter standard, a jury may consider, among other relevant factors, the gravity of the danger posed by the challenged design, the likelihood that such danger would occur, the mechanical feasibility of a safer alternative design, and the adverse consequences to the product and to the consumer that would result from an alternative design.

\textsuperscript{20} Wade, supra note 14 at 834-35.

\textsuperscript{21} This problem is especially acute when scientific or engineering issues arise. Judges and juries do not have the technological expertise to understand complex scientific issues and cannot make a decision logically when the scientific community itself cannot offer a conclusive opinion. Scientific decision making is often a subjective process. Scientists may differ on the appropriateness of experimental methods or on the inferences to be drawn from already accepted data. There are questions that, for practical or moral reasons, cannot be answered through scientific investigation.

A perfect example of a trans-scientific issue is the extrapolation of carcinogenic effects at high-dose levels to low-dose levels. In these cases, scientists can phrase the question in scientific terms and can even agree upon an experiment that could resolve it. For instance, to demonstrate with ninety-five percent confidence that the carcinogenic response rate is less than one in a million, an experimenter need only feed three million animals at the human exposure rate and compare the response with three million control animals that have been raised under identical conditions but with no exposure to the chemical. As a practical matter, however, scientists cannot conduct this "mega mouse" experiment. . . . Scientists therefore test significantly fewer animals at much higher dosage rates. Thus, the only data available to regulators are from experiments in which laboratory animals have been fed high doses of a chemical. The agency can never be certain whether a chemical that causes cancer at high doses will cause cancer at the lower doses to which humans are typically exposed. (McGarity, Substantive and Procedural Discretion in Ad-
problem, however, would exist under the provisions of the Draft Bill. And it would be compounded by the fact that the true basis for decision-making—the cost-benefit analysis—would be hidden beneath the vague “reasonable expectation” standard used in the Draft Bill.

Secondly, the California Court of Appeal has pointed out that the existence of different standards for design and manufacturing defects would make it possible for a party to gain an advantage by having the defect classified under one category instead of the other, and that the distinction between the two types of defects is not always easily made:

It is difficult to prove that a product ultimately caused injury because [a widget] was poorly welded—a defect in manufacture—rather than because it was made of inexpensive metal difficult to weld, chosen by a designer concerned with economy—a defect in design.... We wish to avoid providing such a battleground for clever counsel.22

Thirdly, it is not entirely certain that the distinction between design and manufacturing defects is desirable or justified. It has been contended that Wade's factors must equally be applied in cases involving manufacturing defects:

Since all products are flawed at some technological level, the decision must still be made as to when a flaw emerges as a defect. In order to make the decision, some judgmental standard must be utilized. It is clear... that this standard must be based on the concept of unreasonable danger.23

Indeed, all manufacturing defects may be characterized as design defects. Theoretically, one can conceive of a product and the process by which it was manufactured as being one and the same thing. There are, of course, the two types of defects: those arising in the manufacturing process and those inherent in the design of the product. The former can be eliminated by such things as the exercise of great care by assembly line workers, the use of well-planned production lines, and generally, a large investment in quality control. The latter can be eliminated by careful thought, extensive planning and testing, and generally, a large investment in engineering. If we propose to look at the costs and benefits of investments in engineering by applying Wade's criteria to the design defect, is there any reason why a similar cost-benefit analysis should not be applied to investments in quality control? Likely not. On the
one hand, we are dealing with the design of the product; on the other hand, the design of a quality control system. It is difficult to distinguish logically the two cases.

Despite the difficulties involved in separating design defects from production defects, the distinction is, nonetheless practical and appropriate. First, the problems outlined by the California Court of Appeal and the difficulties involved in determining whether or not the product flaw deviates from an acceptable range of "normality" will likely seldom arise.

Secondly, although both types of defects might logically be analyzed in the same way, there are strong policy arguments in favour of making a distinction and using the cost-benefit analysis only when considering product design. First, given the difficulties which arise when courts deal with the polycentric problems associated with cost-benefit analysis, it is worthwhile to minimize their involvement in this area. Since we have a ready-made standard of defectiveness in manufacturing defect cases—the product which caused the plaintiff's injury need only be compared with the manufacturer's own design—the use of Wade's factors is unnecessary. Secondly, because of their financial resources and technical expertise, manufacturers would have a distinct advantage in the broad inquiry that a complex cost-benefit analysis would entail. This imbalance should not be extended to cases involving manufacturing defects. Thirdly, the scope and significance of a design-defect case is greater than that of a production-flaw case: if the design is found to be inadequate, the entire line of product is impugned, whereas if the product was simply incorrectly assembled, the rest of the line is unaffected. Thus, a more complex cost-benefit inquiry in design cases seems justified. Finally, one of the primary justifications for strict liability is that manufacturers can spread the cost of accidents amongst their many customers or protect themselves by insurance and that, therefore, liability should be shifted to the manufacturer automatically. However, as Hoenig points out, this reasoning breaks down to some extent in the area of design defects:

The risk spreading rationale as applied to manufacturing defects has more forceful justification than to situations where design is involved. In design claims, the open-ended nature of the legal inquiry (how much design safety is enough?) makes it likely that the manufacturer's cost calculation task is much more complicated and, therefore, stands on a different footing. It is quite possible that insurance coverage for the risk of high exposure claims based upon defective design is either too expensive or unavailable. Thus, it seems sensible to apply strict liability without cost-benefit analysis only to manufacturing defects.

Another criticism of the Wade formulation is that it simply does not go far enough in amending the existing law and that it violates the spirit of strict liability. Calabresi and Hirschoff believe that design defect cases employing the Wade formulation "degenerate into either meaningless semantic disputes

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24 Supra note 4, at 130.
or attempts at balancing the costs of the accident against the cost of avoiding it . . . like the very calculus of negligence . . . which strict liability was meant to replace.”

The two authors reject cost-benefit analysis and instead would have the court place liability upon “which of the parties . . . is in the best position to make the cost-benefit analysis between accident costs and accident avoidance cost and to act on that decision once it is made.” They contend that this boils down to a search for the “cheapest cost-avoider” (though one might imagine circumstances in which one who is not best able to calculate the probability of an accident would nonetheless be able to prevent the accident most cheaply).

Calabresi and Hirschoff seek to avoid some problems associated with the Wade formulation. First, they claim that such a test is easier to apply than a polycentric cost-benefit analysis because the court would consider simpler questions, such as, “which party is better informed as to risks and alternatives instead of . . . questions requiring the weighing of accident costs and avoidance costs, both of which must be subjectively determined by the trier of fact.” Secondly, because the comparison is to be made between categories of defendants and plaintiffs, the authors claim that their test would reduce the volume of litigation: if one type of manufacturer is found to be in the best position to make the cost-benefit analysis in one case, all manufacturers in that same category would be presumptively liable, unless special circumstances existed. Theoretically, parties to a product liability case would be able to get a clearer idea of who would be liable, and consequently, would be more likely to settle. Thirdly, the authors claim that, since the courts would not have to redesign products during litigation, their test “implies a lesser degree of governmental intervention” than does the judicial cost-benefit analysis.

Would the Calabresi-Hirschoff proposal increase the certainty of a law, reduce litigation, and encourage settlement? The decision as to which party is in the best position to make a cost-benefit analysis may be at least marginally easier to make than the polycentric cost-benefit analysis itself. Marshall believes that the Calabresi-Hirschoff test is also an extremely difficult one to apply:

Although theoretically appealing, the test is impractical and inefficient because of the difficulties involved in locating the best decision-maker. Judges and juries are not trained to draw multi-branched decision trees. To compare the decision-making abilities of a manufacturer at one point in time with those of a consumer at another raises questions too complex and uncertain of outcome for the real world negotiation and trial practice. The Calabresi and Hirschoff system would necessitate more lawyer, judge and jury hours to settle or try each case. Its extreme flexib-

26 Id. at 1060.
27 Id. at 1072.
28 Id. at 1061 n. 21.
29 Id. at 1061.
bility would make predictions of trial outcomes more speculative than under existing tests of strict liability.\textsuperscript{30}

While Marschall may exaggerate the uncertainty inherent in the Calabresi-Hirschoff test, another factor also promises to reduce the ability of this formulation to minimize litigation and calls into question its basic justification, namely, that it does not require the use of a difficult cost-benefit analysis to determine liability. The Calabresi-Hirschoff test provides that, in order for liability to attach to the party which can best perform the cost-benefit analysis, that party must also be in the best position to act upon its decision. But in order to determine which party was in the best position to act, the court must enter into the same balancing process involved in Wade's formulation: the costs and benefits of the consumer taking precautions to avoid an injury must be determined and compared with the costs and benefits of a manufacturer producing a safer product (or not producing the questionable product at all). Apparently, then, the authors' contention that their formulation avoids the need for a cost-benefit analysis is not entirely valid. At most, it can be said to reduce that need.

III. CONCLUSION

Canadian courts have seldom been faced with difficult design defect cases. Indeed, it would be more accurate to say that the courts have seldom been faced with design cases at all.\textsuperscript{31} What judgments we do have are characterized by the use of conclusory statements in place of well articulated reasoning and a balancing of factors. When dealing with a complex technological case, however, more specific rules of decision making must replace the vague reasonableness standard which the courts would inevitably use when deciding design defect cases under the regime of strict liability proposed by

\textsuperscript{30} Marschall, \textit{An Obvious Wrong Does Not Make A Right: Manufacturers' Liability For Patently Dangerous Products} (1973), 48 N.Y.U.L.Rev. 1065 at 1101.

\textsuperscript{31} It is unclear why this is so. Writing with specific reference to automobile design cases, Robert Zarnett provides three reasons:

First, since the remedy is private in nature, only the individual who has been injured may initiate the suit. Insurance companies, which would provide a more concerted pattern of litigation, have failed to attempt to procure indemnity or contribution from automobile manufacturers when injury, death or property damage results from the unsafe design of motor vehicles. There may be several reasons for this omission. The insurance industry might hesitate to attack another industry in fear of reprisals directed at its own questionable practices. If provoked, the automobile industry might conceivably compete in the liability insurance field. Finally, it also has available as leverage its position as a substantial consumer of general indemnity insurance for its large plants and equipment.

Secondly, failure to consider the possibility of a design suit may result in the loss of evidence when the damaged automobile is repaired or junked after the crash. The injured party then loses forever the evidence which is the \textit{sine qua non} of an automobile products liability suit.

Thirdly, lawyers in Canada have paid little attention to the potential damage remedy against the automobile manufacturer for unsafe design. The reason for the inaction in this area can only be a subject for speculation. (\textit{Tort Liability for Defective Automobile Design} (1975), 13 Osgoode Hall L.J. 484 at 496).
the Commission. Without specific rules which reflect the balancing process underlying the design defect case, "foreseeability, consistency, and other qualities of principled decision making will continue to be lacking and the integrity of the judicial system will . . . be threatened."}^{33}

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A few judgments have addressed the need to balance costs and benefits of product design. For instance, Mr. Justice Laskin (as he then was), in the case of Jordan House Ltd. v. Menow, [1974] S.C.R. 239 at 247, 38 D.L.R. (3d) 105 at 110 stated:

The common law assesses liability for negligence on the basis of breach of a duty of care arising from a foreseeable and unreasonable risk of harm to one person created by the act or omission of another. . . . Moreover, in considering whether the risk of injury to which a person may be exposed is one that he should not reasonably have to run, it is relevant to relate the probability and the gravity of injury to the burden that would be imposed upon the prospective defendant in taking avoidance measures.


^{33} Henderson, supra note 4, at 780.